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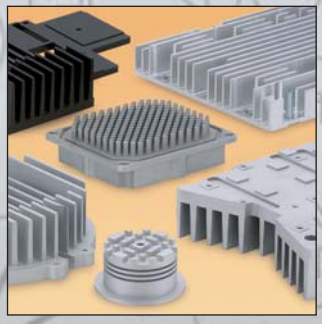
f.cool

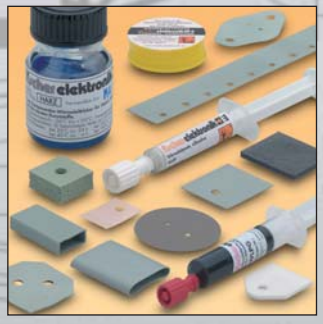
made in Germany

TÜV ISO 14001

AEO

TÜV CERT ISO 9001





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Fischer Elektronik GmbH & Co. KG
P.O. Box 1590
D-58465 Lüdenscheid

House address
Nottebohmstr. 28
D-58511 Lüdenscheid
Fon: +49 (0) 23 51 4 35-0
Fax: sales +49 (0) 23 51 4 57 54
purchasing +49 (0) 23 51 45 94 33
exports +49 (0) 23 51 43 51 85
info@fischerelektronik.de
www.fischerelektronik.de

Fischer Elektronik Österreich GmbH
Hirschstettnerstraße 19-21/K
A-1220 Wien
Fon: +43 (0) 1 8 76 62 27
Fax: +43 (0) 1 8 76 62 27-11
online@fischerelektronik.co.at
www.fischerelektronik.at

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art. no.	HEATSINKS & CASES SURFACES
AL	raw degreased aluminium
BZ	raw pickled aluminium
LP	outside black lacquered RAL 9005/transparent passivated
ME	clear anodised
MI	solderable surface
SA	black anodised
TP	chrome-free transparent passivated

art. no.	CONNECTOR CONTACT SURFACE FINISH
G	gold-coated
S	selective gold plating
Z	tinned

art. no.	RAL	COLOURS	ARTICLES
GO	6026	opal green	19″ system cases RackCase/shell cases
K	7032	gravel grey	bench cases
LG	7035	light grey	shell cases
NB	5022	night blue	19″ system cases RackCase/shell cases
S	9005	deep black	bench cases/shell cases/19″ system cases RackCase
TB	5018	turquoise blue	19″ system cases RackCase/shell cases
UL	5002	ultramarine blue	Plusline/shell cases

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Alphanumerical product list

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Alphanumerical product list

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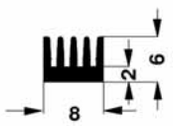
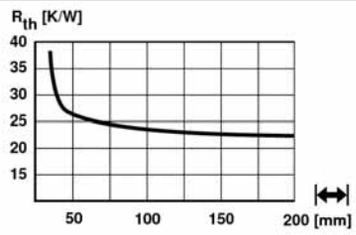
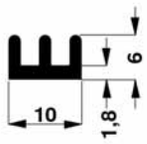
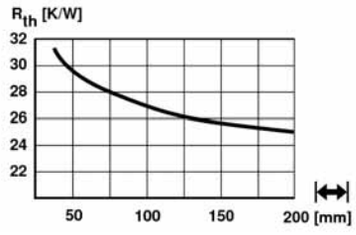
Alphanumerical product list

Alphanumerical product list

art. no.		
SK 586 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	
art. no.		
SK 496 ...		
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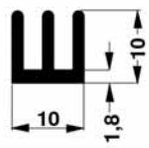
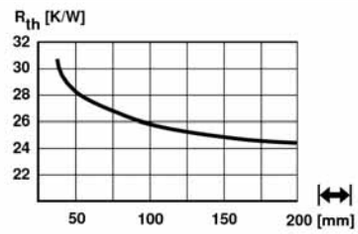
	37.5 50 75 100 1000 mm	
art. no.		
SK 565 ...		
please indicate:	**... ↔**	
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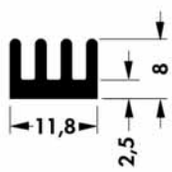
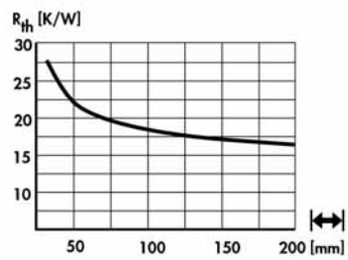
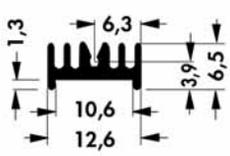
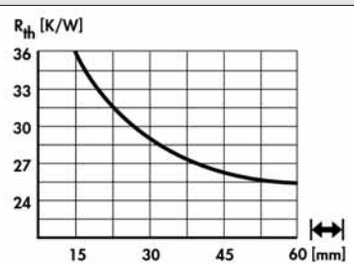
art. no.		
SK 470 ...		
	extruded heatsinks for PCB mounting → A 111	
please indicate:	**... ↔**	**... ◈ (optional)**
	25 37.5 50 75 100 1000 mm	**TO 220; SOT 32**
art. no.		
SK 522 ...		
please indicate:	**... ↔**	
	15 25 37.5 50 1000 mm	

High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

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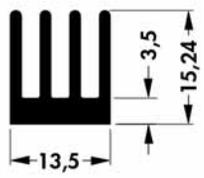
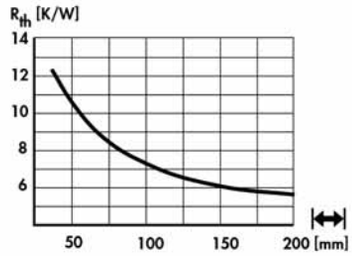
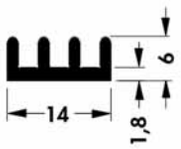
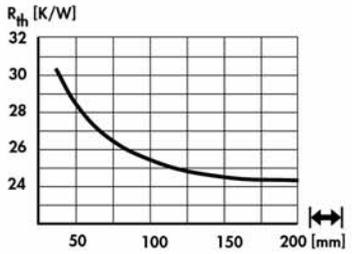
Standard extruded heatsinks

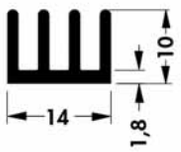
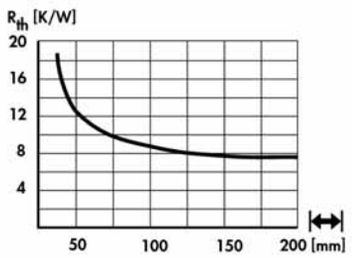
art. no.		
SK 469 ...		
	extruded heatsinks for PCB mounting → A 111	

please indicate: **... ↔** **25 37.5 75 100 1000 mm** **... ⌖ (optional)** **TO 220; SOT 32**

art. no.		
SK 478 ...		

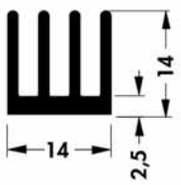
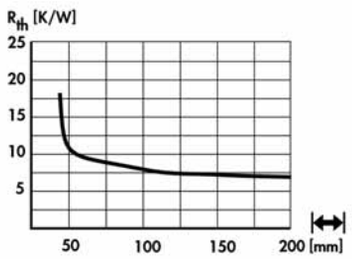
please indicate: **... ↔**

25 37.5 50 75 1000 mm

art. no.		
SK 552 ...		

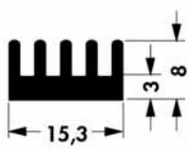
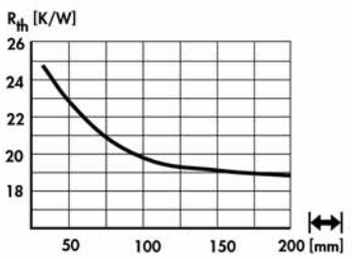
please indicate: **... ↔**

25 37.5 50 75 100 1000 mm

art. no.		
SK 558 ...		

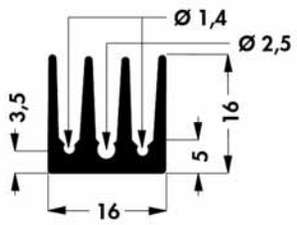
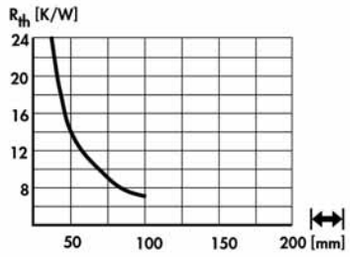
please indicate: **... ↔**

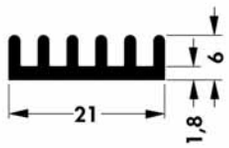
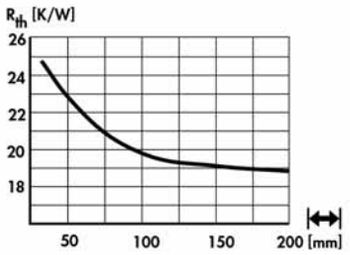
25 37.5 50 75 100 1000 mm

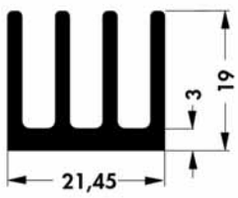
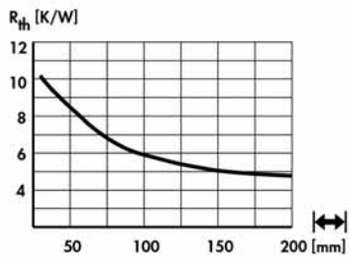
art. no.		
SK 521 ...		

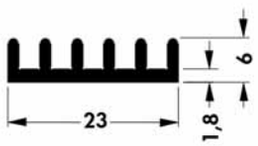
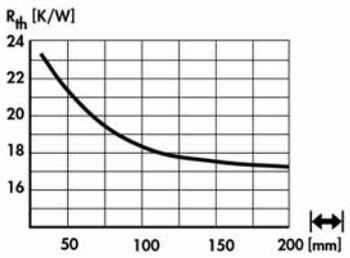
please indicate: **... ↔**

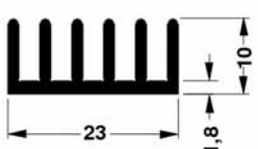
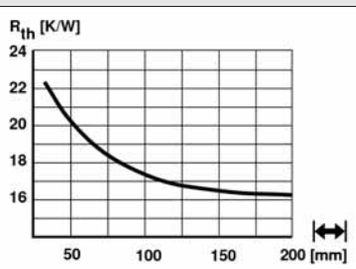
25 37.5 50 75 100 1000 mm

art. no.		
		
SK 437 ...	extruded heatsinks for PCB mounting ➔ A 110	
please indicate:	**... ⟷**	**... ⌖ (optional)**
	100 1000 mm	**TO 218; TO 220; TO 247; TO 248**

art. no.		
		
SK 476 ...		
please indicate:	**... ⟷**	
	37.5 50 75 100 1000 mm	

art. no.		
		
SK 454 ...	extruded heatsinks for PCB mounting ➔ A 96	
please indicate:	**... ⟷**	**... ⌖ (optional)**
	37.5 50 75 100 150 1000 mm	**TO 220; SOT 32**

art. no.		
		
SK 477 ...		
please indicate:	**... ⟷**	
	37.5 50 100 1000 mm	

art. no.		
		
SK 582 ...		
please indicate:	**... ⟷**	
	37.5 50 75 100 1000 mm	

High decorative surfaces ➔ **A 9**
Order example ➔ **A 21**
Drilling pattern for Solid State Relais ➔ **A 12**
Heatsink as visual & decor-parts ➔ **A 10**
Heatsinks for Solid State Relay ➔ **A 11 - 12**
Heatsink special design ➔ **A 133 - 134**
Special profiles ➔ **A 136**
Technical introduction ➔ **A 2 - 7**

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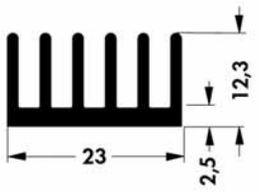
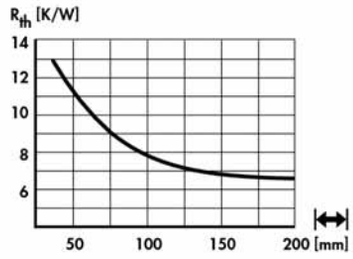
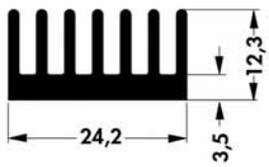
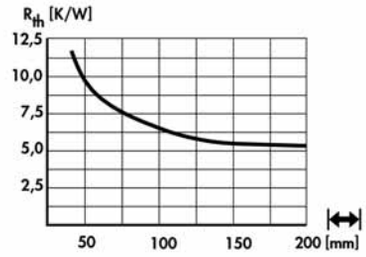
Standard extruded heatsinks

art. no.		
SK 559 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

art. no.		
SK 551 ...		
please indicate:	**... ↔**	
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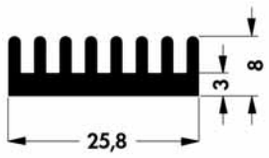
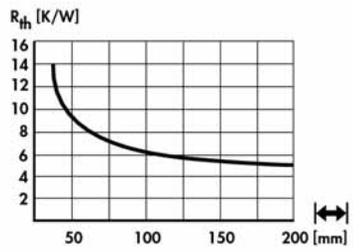
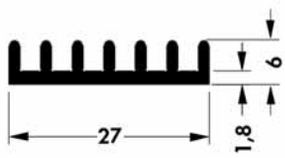
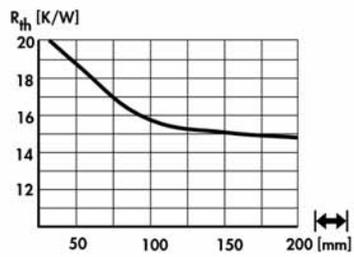
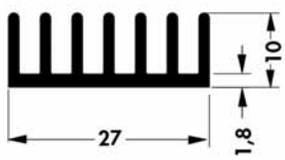
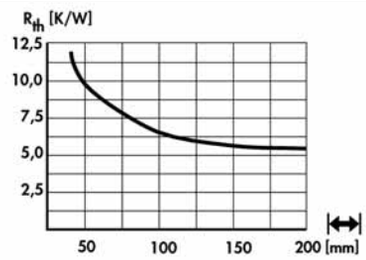
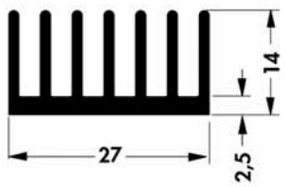
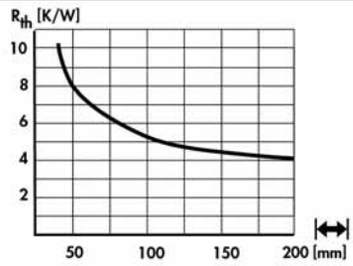
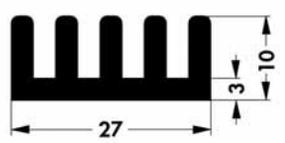
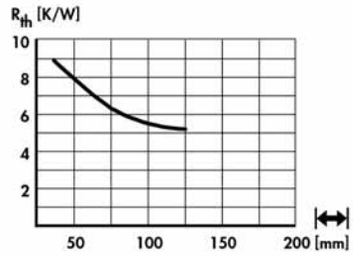
SK 486 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

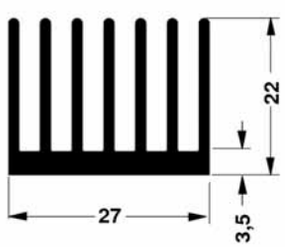
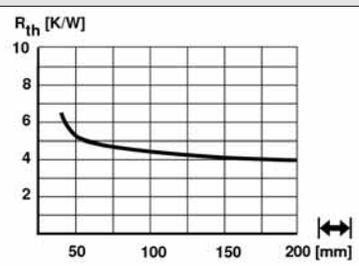
art. no.		
SK 473 ...		
please indicate:	**... ↔**	
	37.5 50 75 1000 mm	

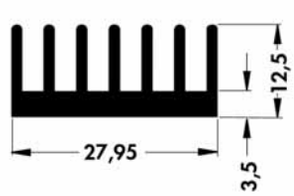
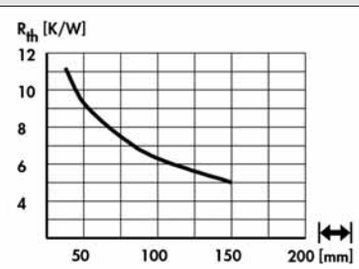
art. no.		
SK 554 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

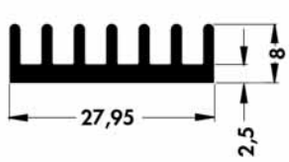
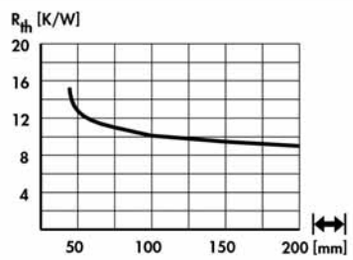
High decorative surfaces	→ A 9	Heatsinks for Solid State Relay	→ A 11 - 12
Order example	→ A 21	Heatsink special design	→ A 133 - 134
Drilling pattern for Solid State Relais	→ A 12	Special profiles	→ A 136
Heatsink as visual & decor-parts	→ A 10	Technical introduction	→ A 2 - 7

art. no.		
SK 560 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

art. no.		
SK 447 ...		
please indicate:	**... ↔**	
	37.5 1000 mm	

art. no.		
SK 566 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

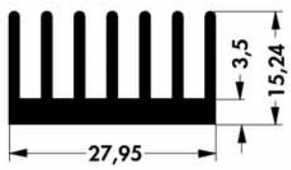
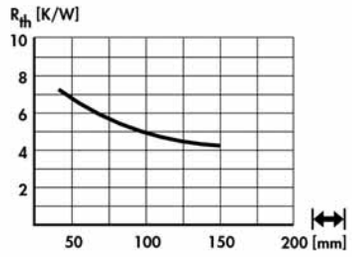
art. no.		
SK 448 ...		
	extruded heatsinks for PCB mounting → A 112	
please indicate:	**... ↔**	
	37.5 50 75 mm	

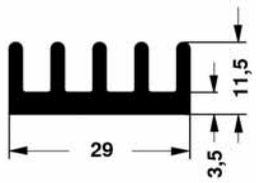
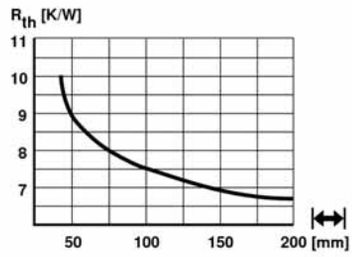
art. no.		
SK 561 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

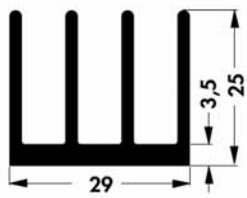
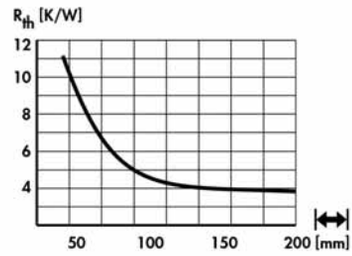
High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

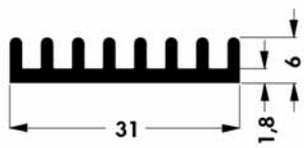
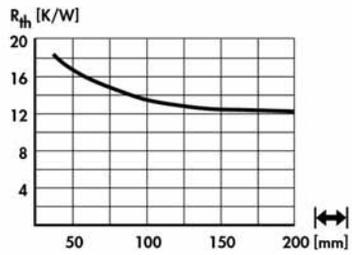
fischer elektronik

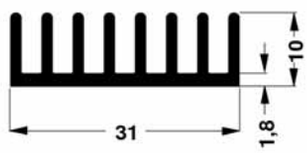
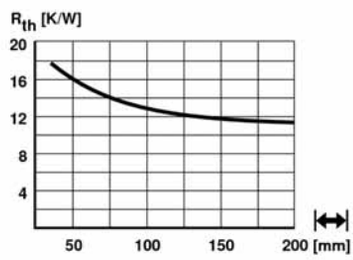
Standard extruded heatsinks

art. no.		
SK 177 ...		
please indicate:	**... ↔**	
	50 75 100 1000 mm	

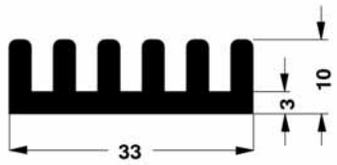
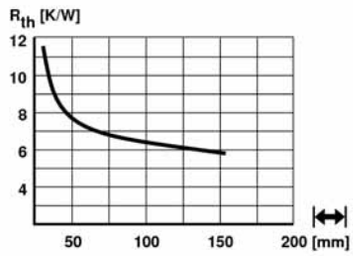
art. no.		
SK 550 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

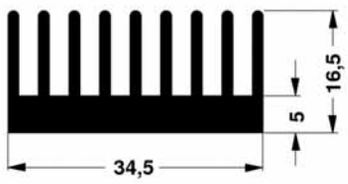
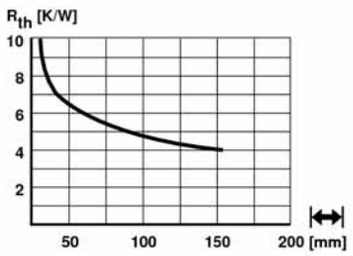
art. no.		
SK 452 ...		
	extruded heatsinks for PCB mounting → A 96	
please indicate:	**... ↔**	**... ⌖ (optional)**
	37.5 100 1000 mm	**TO 218; TO 220; TO 247; TO 248; TO 3 P**

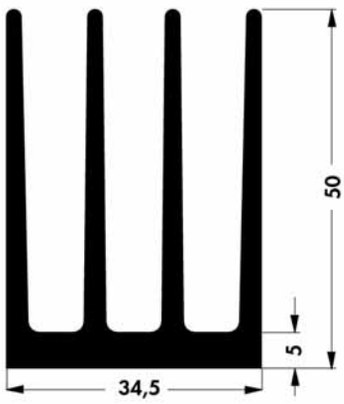
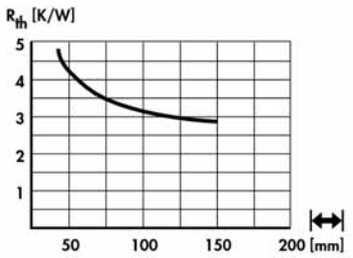
art. no.		
SK 493 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

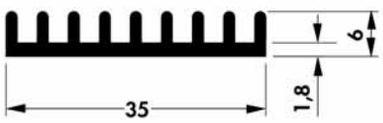
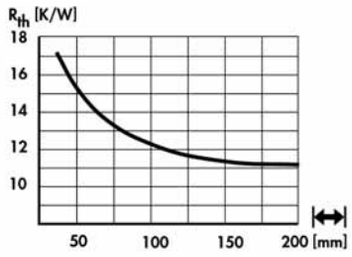
art. no.		
SK 581 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

art. no.		
SK 400 ...		
	extruded heatsinks for PCB mounting → A 112	
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

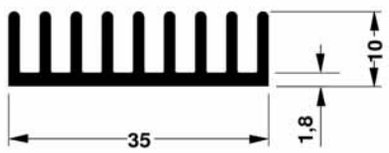
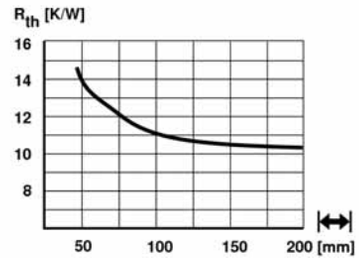
art. no.		
SK 178 ...		
please indicate:	**... ↔**	
	37.5 75 100 1000 mm	

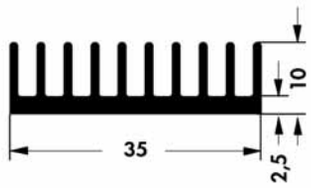
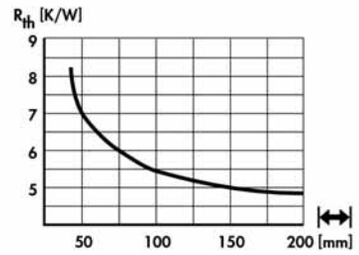
art. no.		
SK 134 ...		
please indicate:	**... ↔**	
	37.5 50 100 1000 mm	

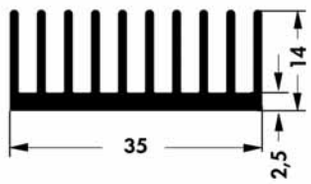
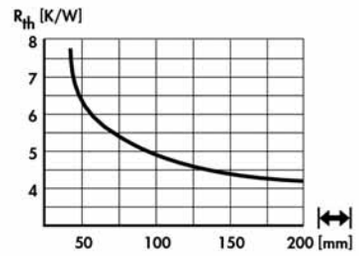
art. no.		
SK 471 ...		
please indicate:	**... ↔**	
	37.5 50 75 1000 mm	

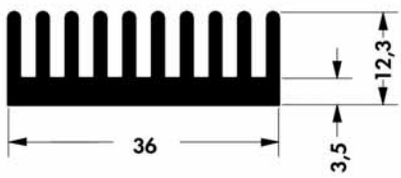
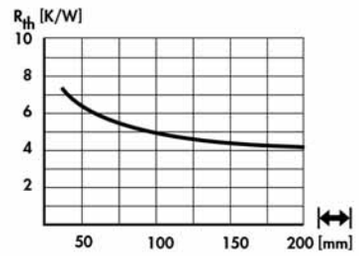
High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

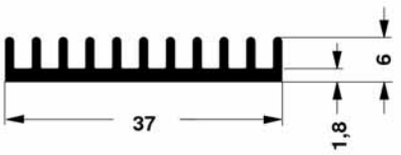
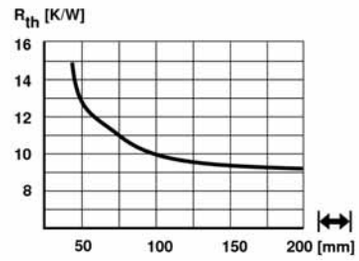
Standard extruded heatsinks

art. no.	
SK 587 ...	 
please indicate:	... ↔ 37.5 50 75 100 1000 mm

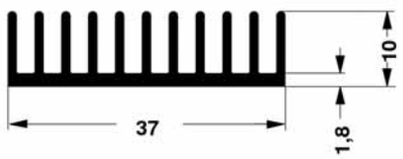
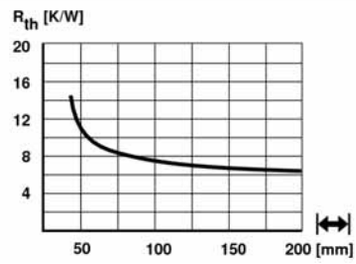
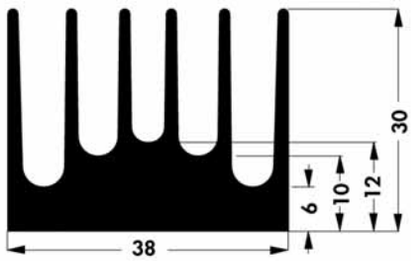
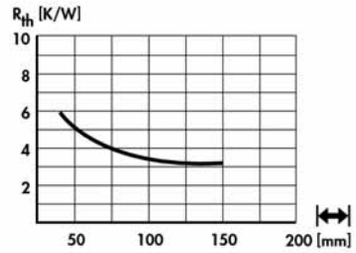
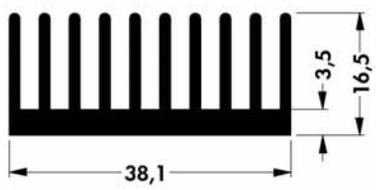
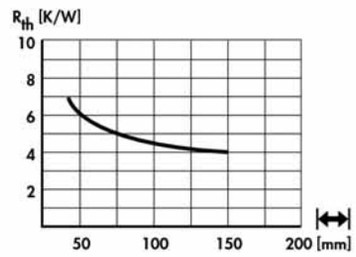
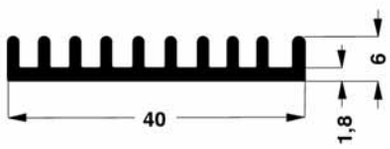
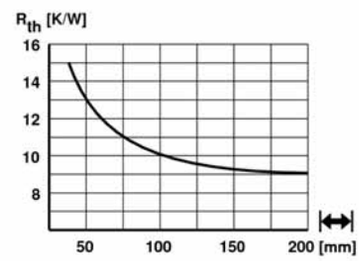
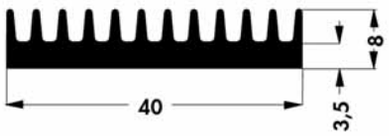
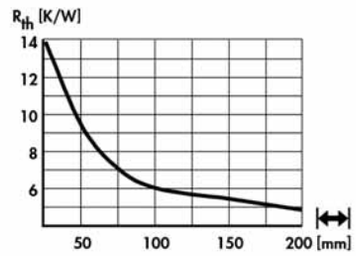
art. no.	
SK 549 ...	 
please indicate:	... ↔ 37.5 50 75 100 1000 mm

art. no.	
SK 562 ...	 
please indicate:	... ↔ 37.5 50 75 100 1000 mm

art. no.	
SK 509 ...	 
please indicate:	... ↔ 37.5 50 100 1000 mm

art. no.	
SK 563 ...	 
please indicate:	... ↔ 37.5 50 75 100 1000 mm

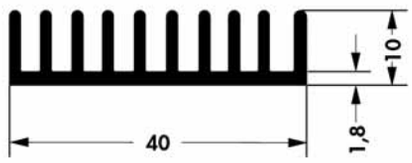
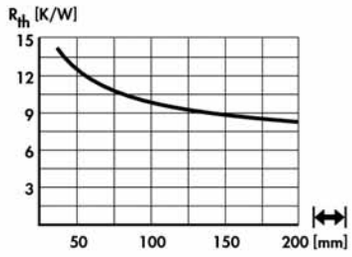
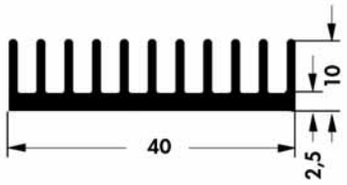
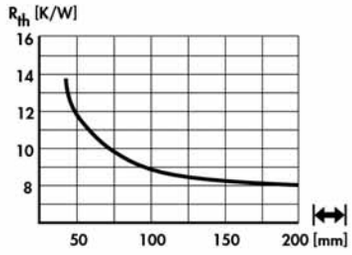
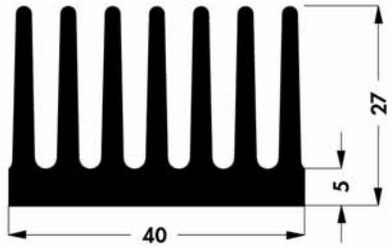
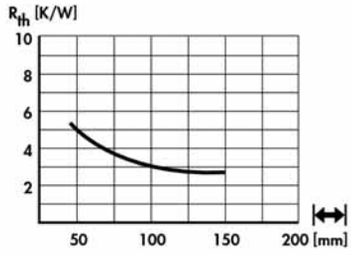
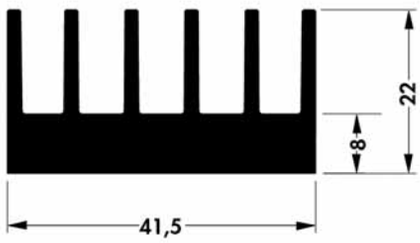
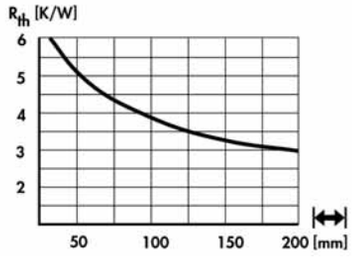
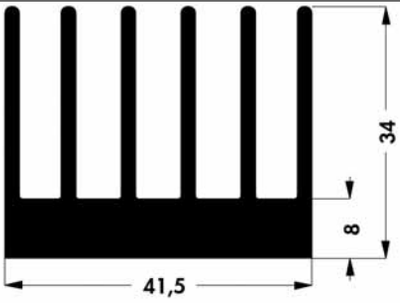
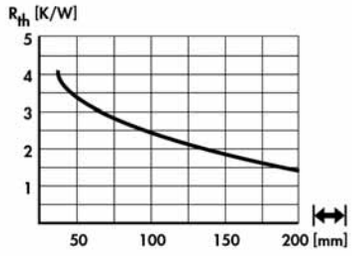
High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

art. no.		
SK 564 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	
art. no.		
SK 174 ...		
please indicate:	**... ↔**	
	75 1000 mm	
art. no.		
SK 179 ...		
please indicate:	**... ↔**	
	37.5 50 100 1000 mm	
art. no.		
SK 456 ...		
	extruded heatsinks for PCB mounting → A 112	
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	
art. no.		
SK 420 ...		
please indicate:	**... ↔**	
	37.5 75 1000 mm	

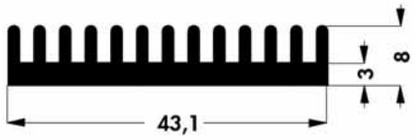
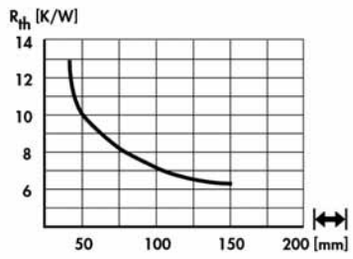
High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

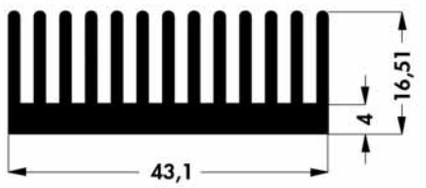
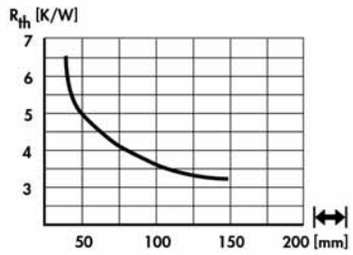
fischer elektronik

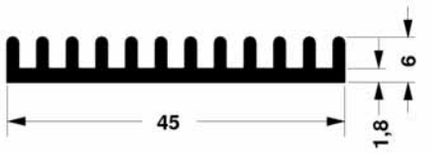
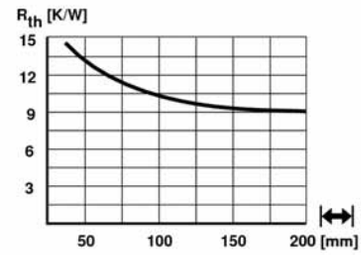
Standard extruded heatsinks

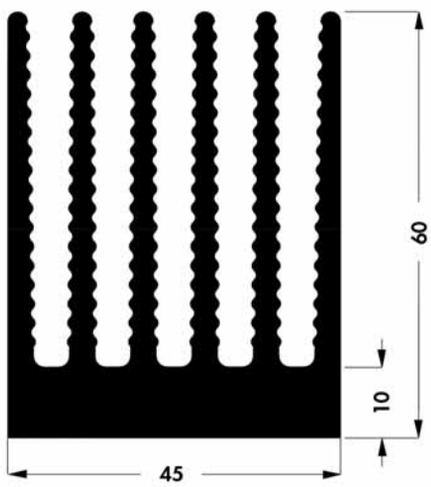
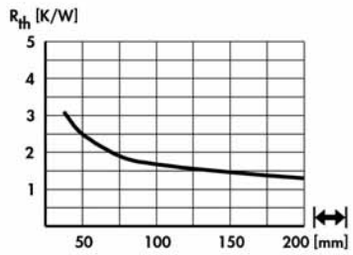
art. no.		
SK 513 ...		
please indicate:	... ↔ 37.5 50 75 100 1000 mm	
art. no.		
SK 547 ...		
please indicate:	... ↔ 37.5 50 75 100 1000 mm	
art. no.		
SK 106 ...		
please indicate:	... ↔ 50 75 1000 mm	
art. no.		
SK 472 ...		
please indicate:	... ↔ 37.5 50 75 100 1000 mm	
art. no.		
SK 189 ...		
please indicate:	... ↔ 37.5 50 75 100 1000 mm	

High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

art. no.	
SK 423 ...	 
please indicate:	**... ↔** **100 1000 mm**

art. no.	
SK 422 ...	 
please indicate:	**... ↔** **50 1000 mm**

art. no.	
SK 511 ...	 
please indicate:	**... ↔** **50 75 100 1000 mm**

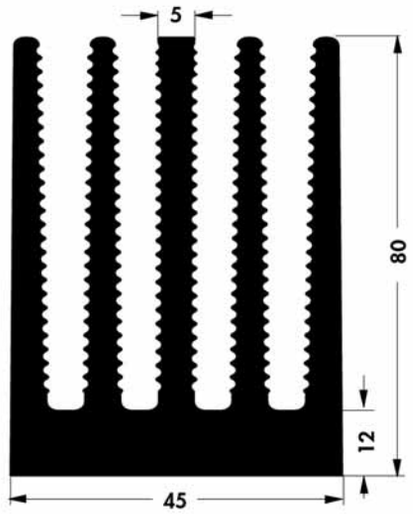
art. no.	
SK 453 ...	 
please indicate:	**... ↔** **37.5 75 mm** **... ⌖ (optional)** **SSR 1**

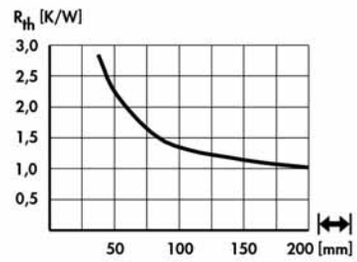
High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

Standard extruded heatsinks

art. no.

SK 455 ...

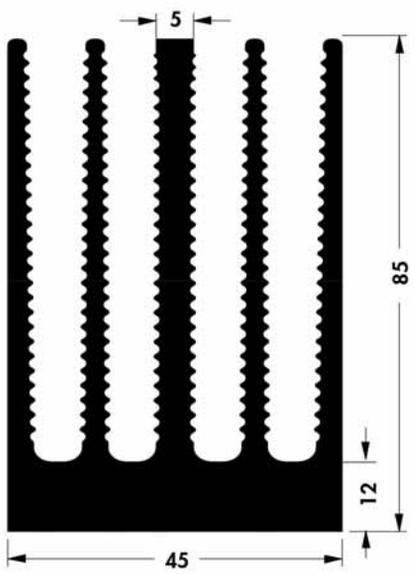


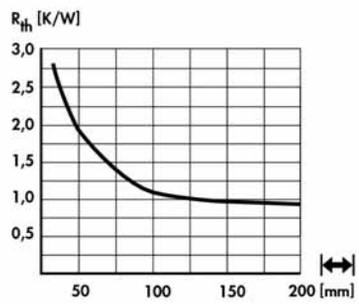


please indicate: **... ↔** **75 mm** **... ⌖ (optional)** **SSR 4**

art. no.

SK 467 ...

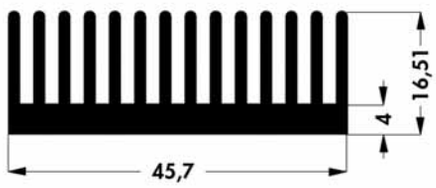


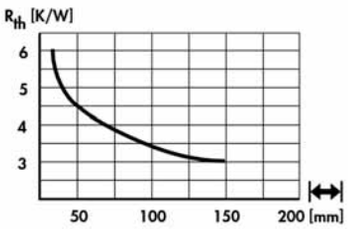


please indicate: **... ↔** **37.5 50 75 100 1000 mm** **... ⌖ (optional)** **SSR 1; SSR 4**

art. no.

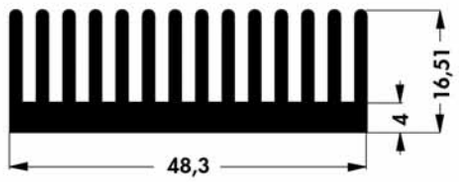
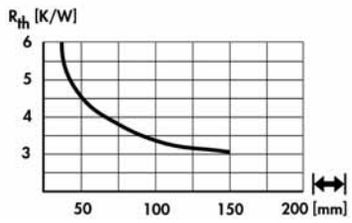
SK 424 ...

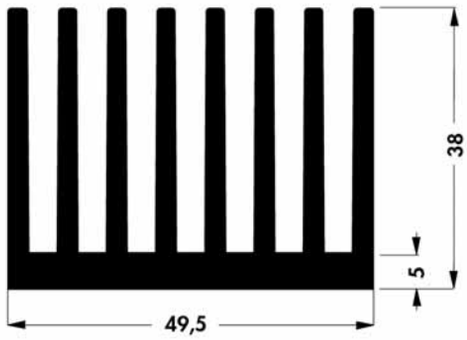
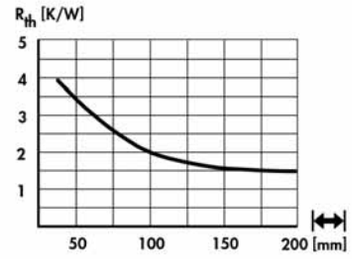


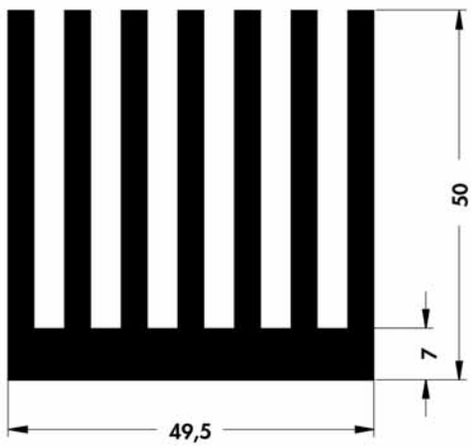
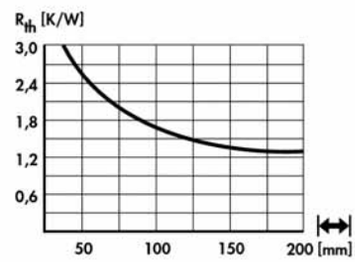


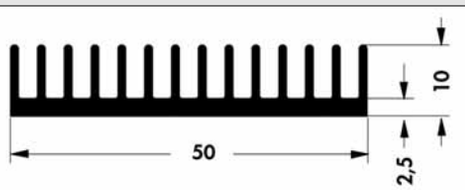
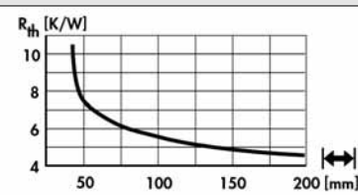
please indicate: **... ↔** **75 1000 mm**

High decorative surfaces	→ A 9	Heatsinks for Solid State Relay	→ A 11 - 12
Order example	→ A 21	Heatsink special design	→ A 133 - 134
Drilling pattern for Solid State Relais	→ A 12	Special profiles	→ A 136
Heatsink as visual & decor-parts	→ A 10	Technical introduction	→ A 2 - 7

art. no.		
SK 425 ...		
please indicate:	**... ↔**	
	75 mm	

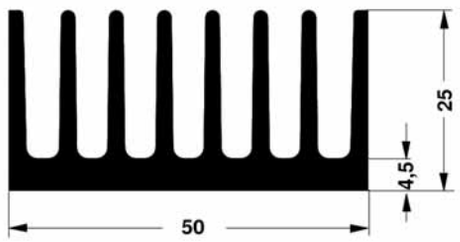
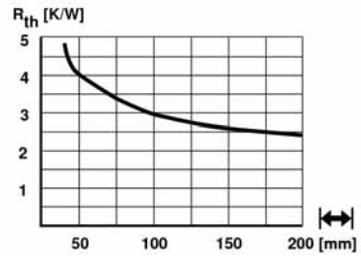
art. no.		
SK 445 ...		
please indicate:	**... ↔**	
	100 1000 mm	

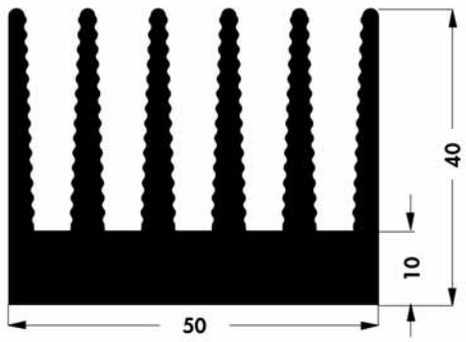
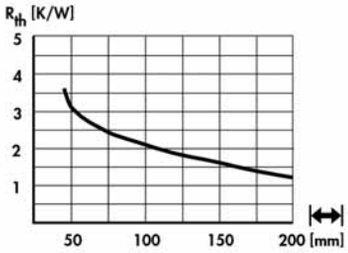
art. no.		
SK 450 ...		
please indicate:	**... ↔**	**... ◈ (optional)**
	75 1000 mm	**SSR 1**

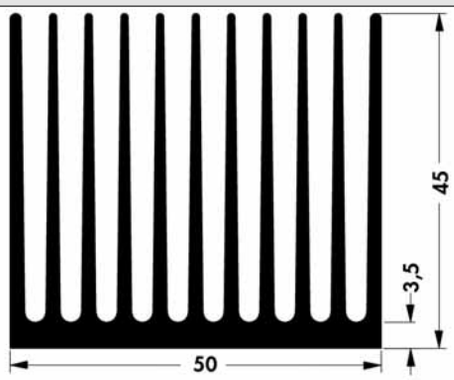
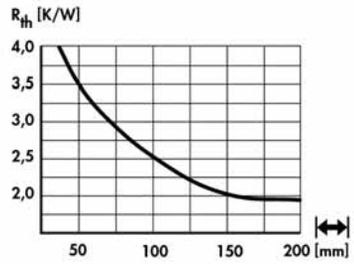
art. no.		
SK 548 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

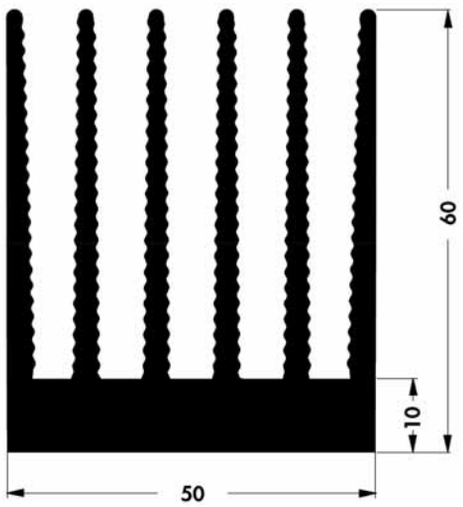
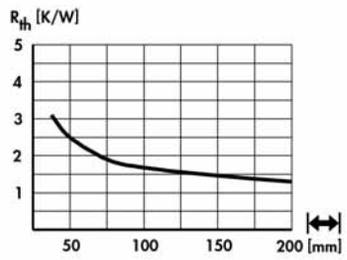
Standard extruded heatsinks

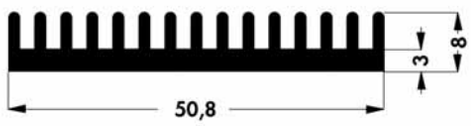
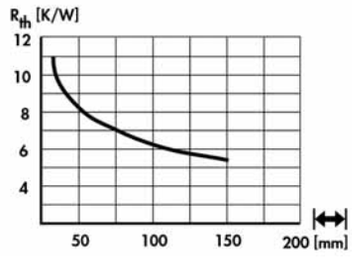
art. no.	
SK 567 ...	 
please indicate:	**... ↔ 37.5 50 75 100 1000 mm**

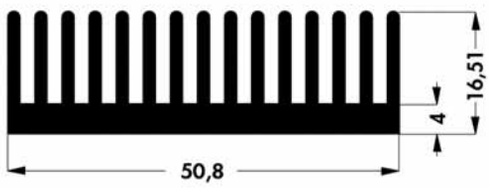
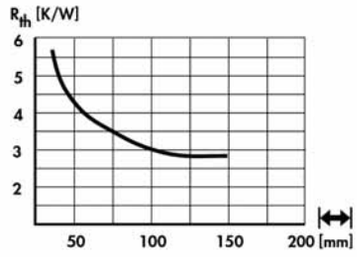
art. no.	
SK 434 ...	 
please indicate:	**... ↔ 50 75 100 1000 mm** **... ⊕ (optional) SSR 1; SSR 4**

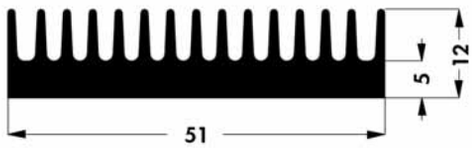
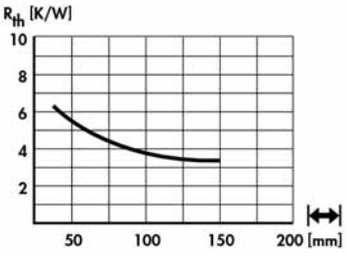
art. no.	
SK 475 ...	 
please indicate:	**... ↔ 37.5 50 100 1000 mm**

High decorative surfaces	→ A 9	Heatsinks for Solid State Relay	→ A 11 - 12
Order example	→ A 21	Heatsink special design	→ A 133 - 134
Drilling pattern for Solid State Relais	→ A 12	Special profiles	→ A 136
Heatsink as visual & decor-parts	→ A 10	Technical introduction	→ A 2 - 7

art. no.	
SK 527 ...	 
please indicate:	**... ↔** **50 75 100 1000 mm**

art. no.	
SK 427 ...	 
please indicate:	**... ↔** **50 75 1000 mm**

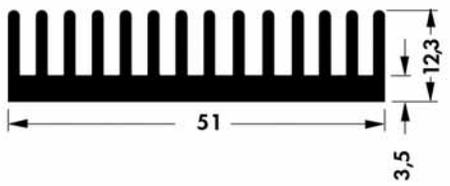
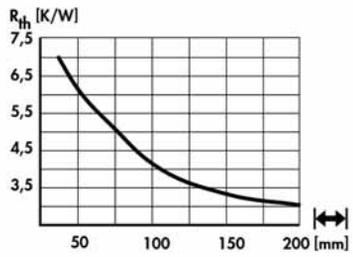
art. no.	
SK 426 ...	 
please indicate:	**... ↔** **37.5 50 75 100 1000 mm**

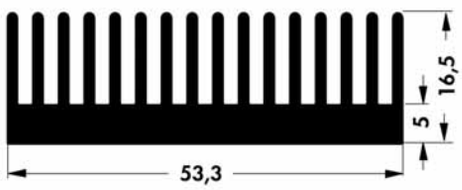
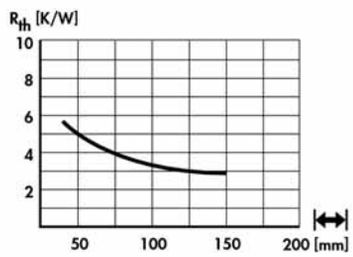
art. no.	
SK 156 ...	 
please indicate:	**... ↔** **37.5 50 75 100 1000 mm**

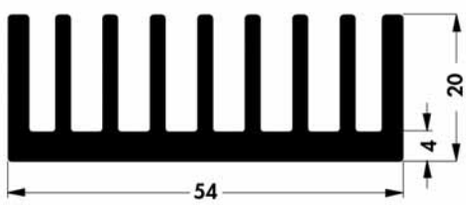
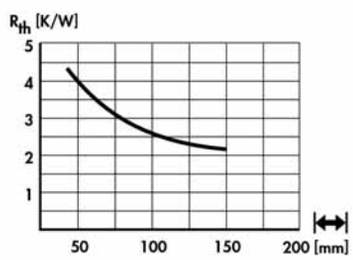
High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

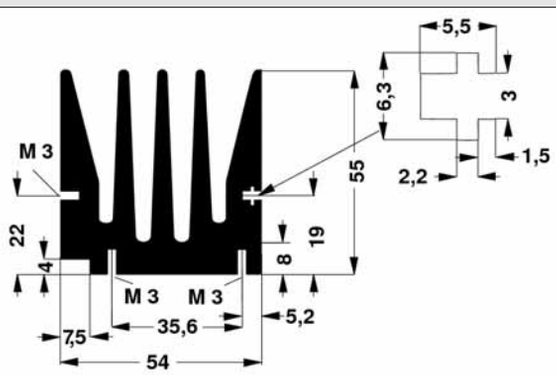
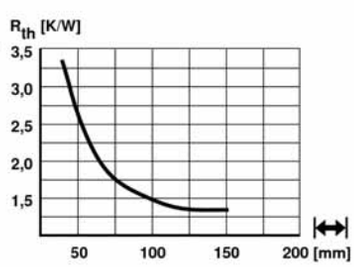
fischer elektronik

Standard extruded heatsinks

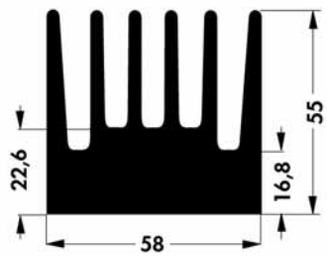
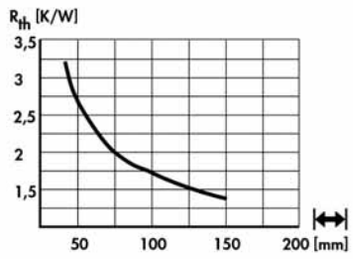
art. no.	
SK 468 ...	 
please indicate:	**... ↔** **37.5 75 1000 mm**

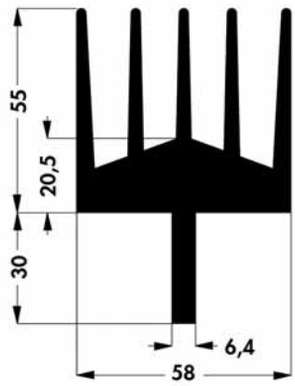
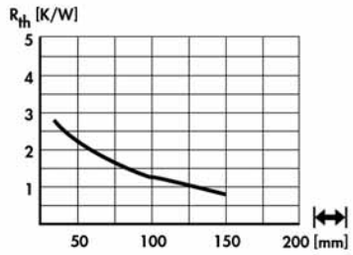
art. no.	
SK 180 ...	 
please indicate:	**... ↔** **37.5 50 75 100 1000 mm**

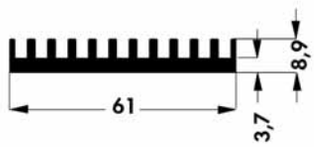
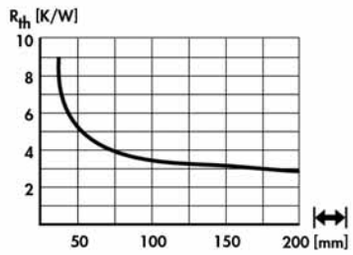
art. no.	
SK 99 ...	 
please indicate:	**... ↔** **37.5 50 75 100 150 1000 mm**

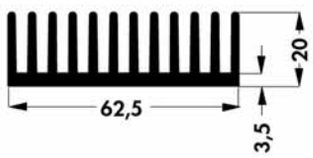
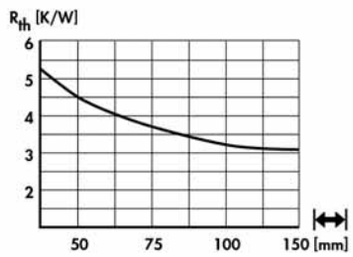
art. no.	
SK 429 ...	 
please indicate:	**... ↔** **37.5 50 75 100 1000 mm**

High decorative surfaces	→ A 9	Heatsinks for Solid State Relay	→ A 11 - 12
Order example	→ A 21	Heatsink special design	→ A 133 - 134
Drilling pattern for Solid State Relais	→ A 12	Special profiles	→ A 136
Heatsink as visual & decor-parts	→ A 10	Technical introduction	→ A 2 - 7

art. no.		
SK 436 ...		
please indicate:	**... ⟷**	**... ⊹ (optional)**
	75 1000 mm	**SSR 1**

art. no.		
SK 50 ...		
please indicate:	**... ⟷**	
	75 1000 mm	

art. no.		
SK 485 ...		
please indicate:	**... ⟷**	
	50 75 100 1000 mm	

art. no.		
SK 444 ...		
please indicate:	**... ⟷**	
	37.5 50 75 1000 mm	

High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

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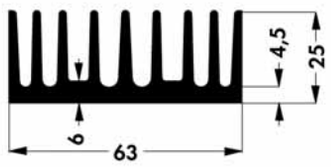
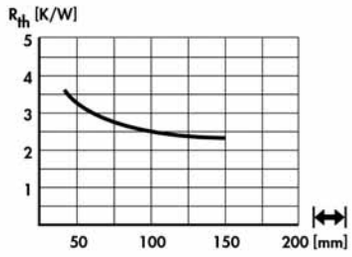
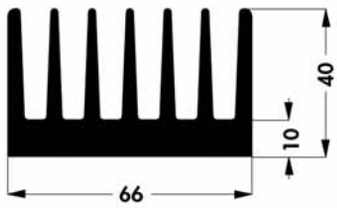
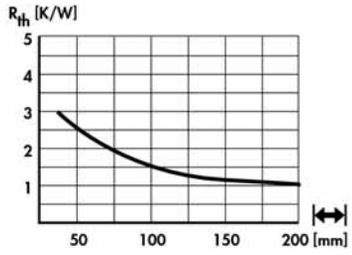
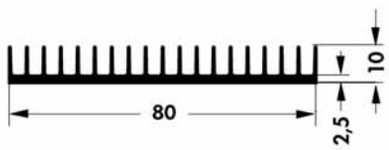
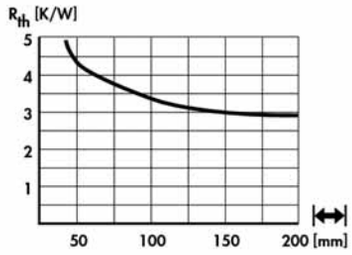
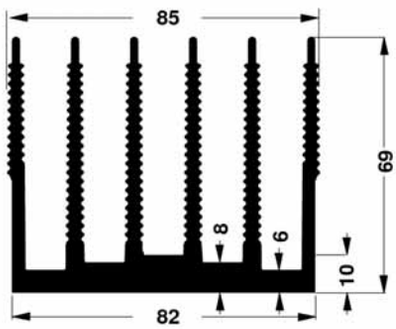
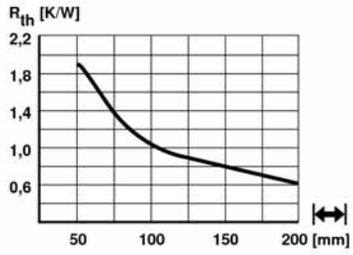
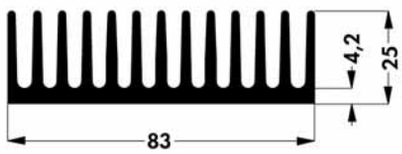
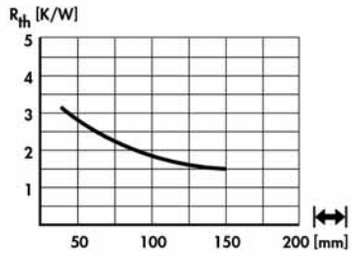
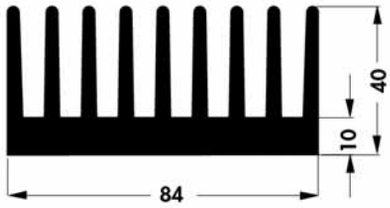
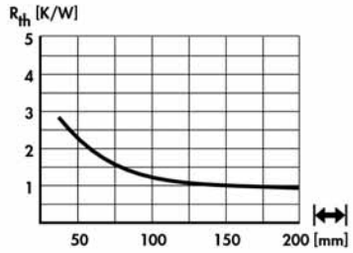
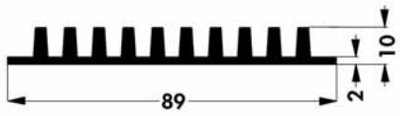
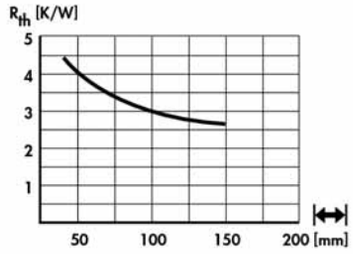
Standard extruded heatsinks

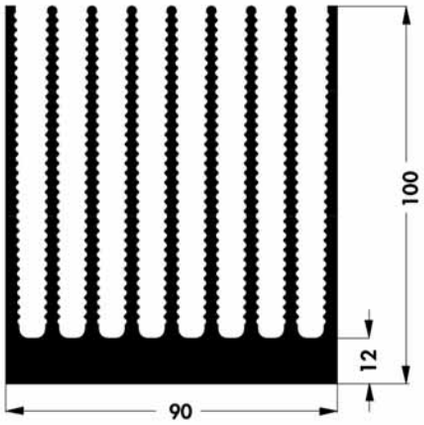
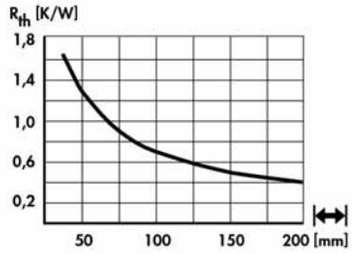
art. no.	
SK 406 ...	 
please indicate:	**... ↔** **37.5 50 75 100 1000 mm**
art. no.	
SK 100 ...	 
please indicate:	**... ↔** **37.5 50 75 100 150 1000 mm**
art. no.	
SK 545 ...	 
please indicate:	**... ↔** **50 75 100 150 1000 mm**
art. no.	
SK 135 ...	 
please indicate:	**... ↔** **50 100 1000 mm**

High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

art. no.	
SK 407 ...	 
please indicate:	**... ↔** **37.5 50 75 100 1000 mm**

art. no.	
SK 464 ...	 
please indicate:	**... ↔** **50 75 100 150 1000 mm**

art. no.	
SK 182 ...	 
please indicate:	**... ↔** **37.5 50 75 100 150 200 1000 mm**

art. no.	
SK 507 ...	 
please indicate:	**... ↔** **37.5 75 100 1000 mm** **... ⌖ (optional)** **SSR 1; SSR 2**

High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

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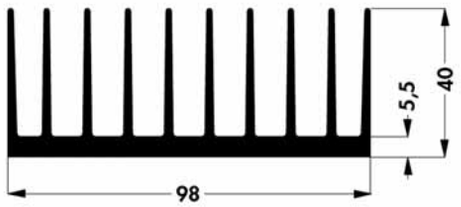
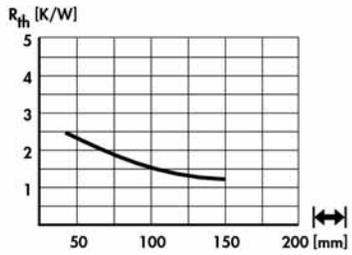
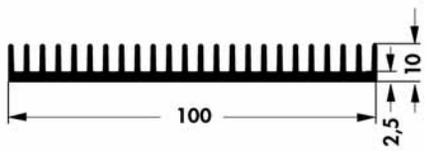
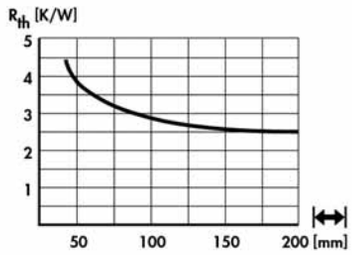
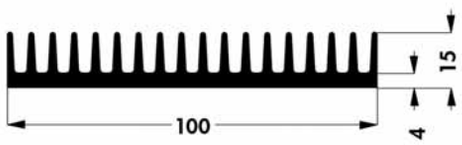
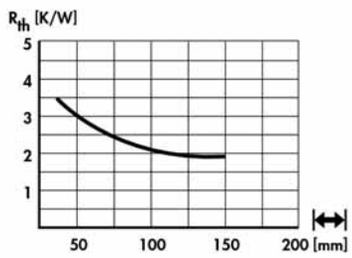
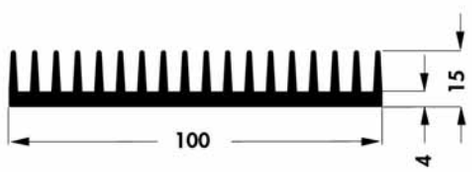
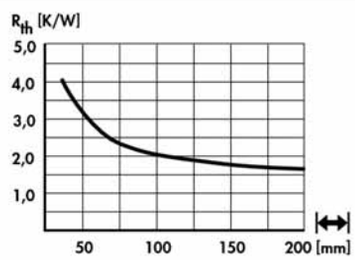
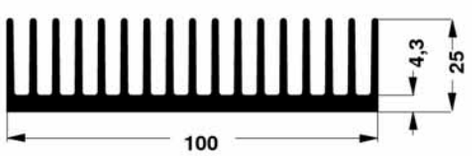
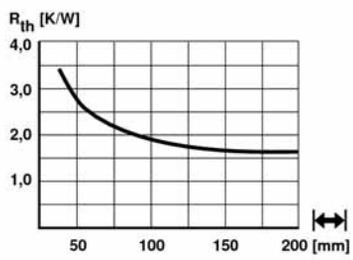
Standard extruded heatsinks

art. no.	
SK 408 ...	 
please indicate:	**... ↔** **50 75 100 150 1000 mm**

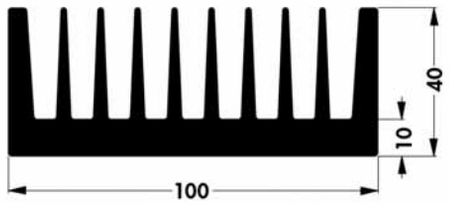
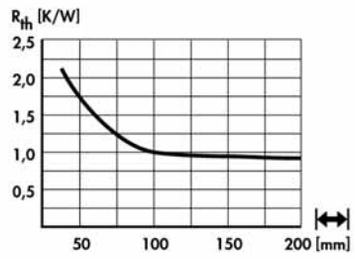
art. no.	
SK 546 ...	 
please indicate:	**... ↔** **37.5 50 75 100 150 1000 mm**

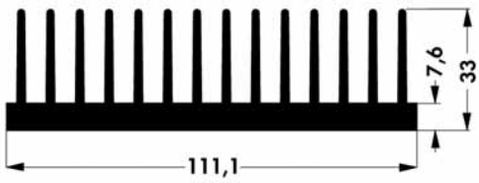
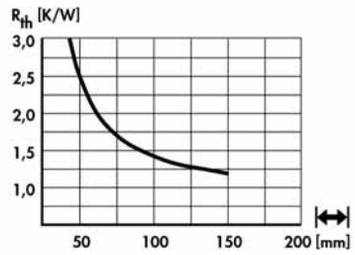
art. no.	
SK 81 ...	 
please indicate:	**... ↔** **37.5 50 75 100 1000 mm**

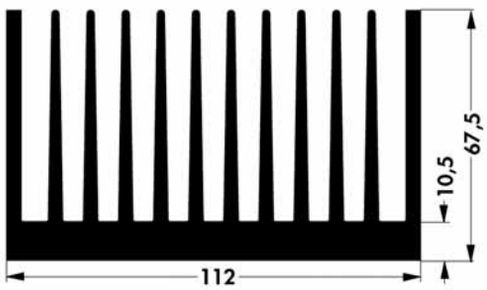
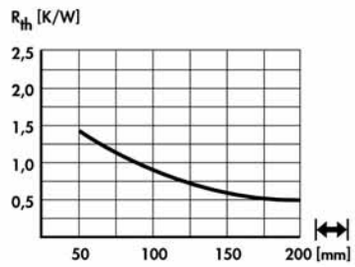
art. no.	
SK 505 ...	  weight reduced like SK 81
please indicate:	**... ↔** **37.5 50 75 100 150 1000 mm**

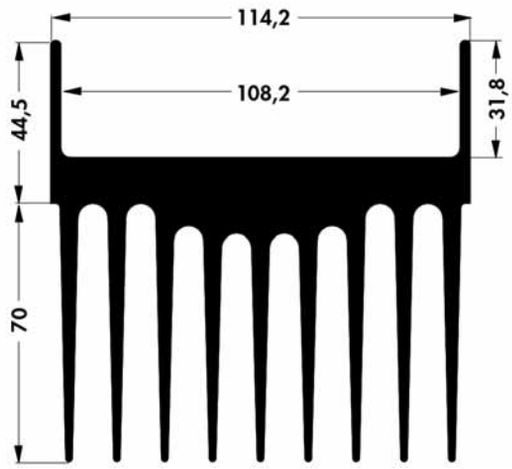
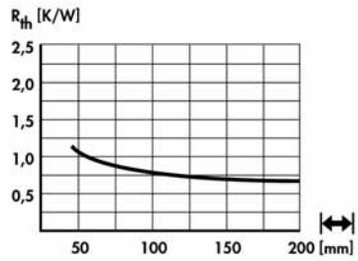
art. no.	
SK 508 ...	 
please indicate:	**... ↔** **37.5 50 75 100 1000 mm**

High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

art. no.	
SK 92 ...	 
please indicate:	**... ↔** **50 75 100 150 1000 mm**

art. no.	
SK 433 ...	 
please indicate:	**... ↔** **37.5 50 75 1000 mm**

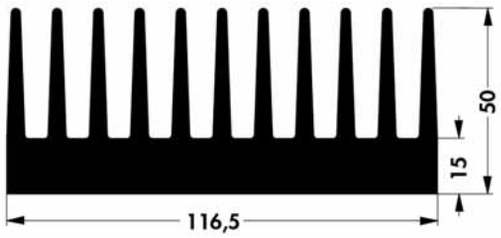
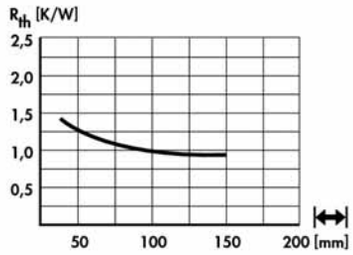
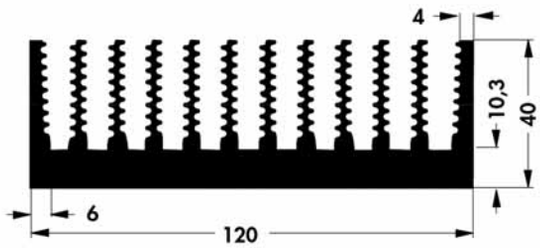
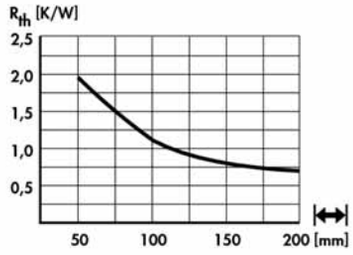
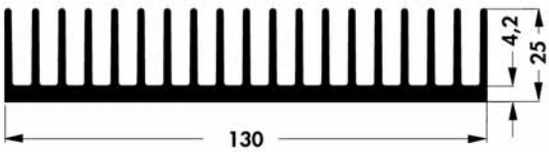
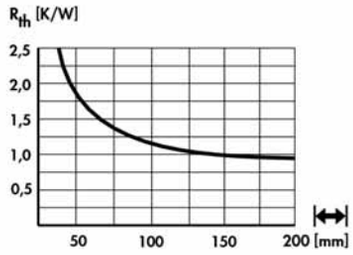
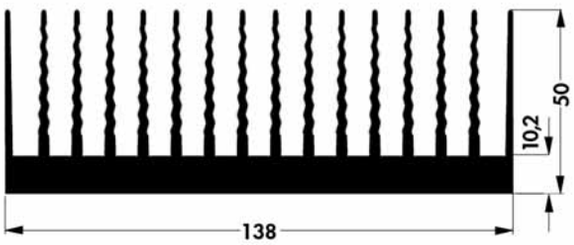
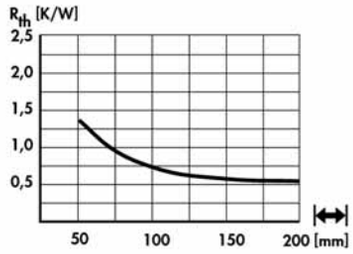
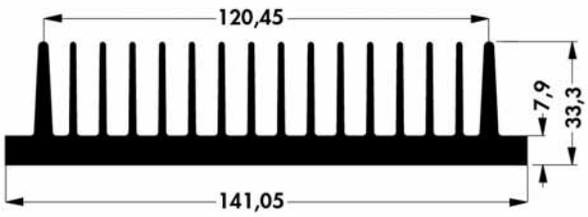
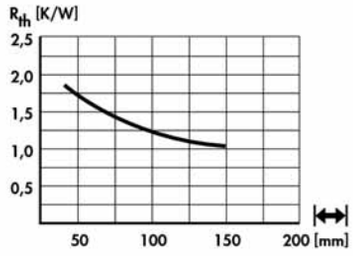
art. no.	
SK 121 ...	 
please indicate:	**... ↔** **75 100 150 1000 mm**

art. no.	
SK 33 ...	 
please indicate:	**... ↔** **50 75 100 1000 mm** **... ◈ (optional)** **SSR 1; SSR 2**

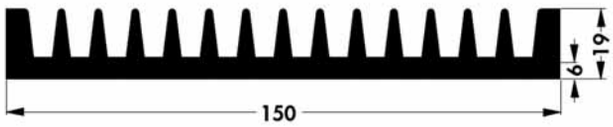
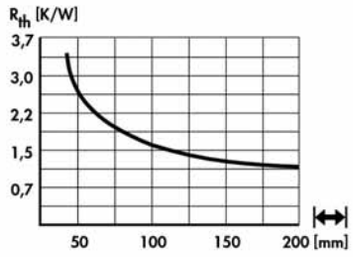
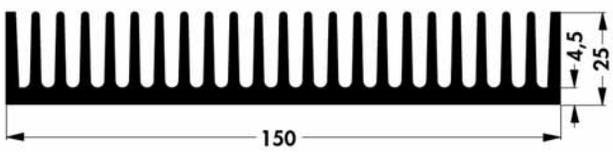
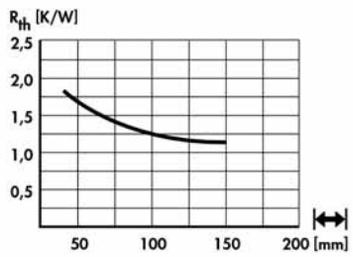
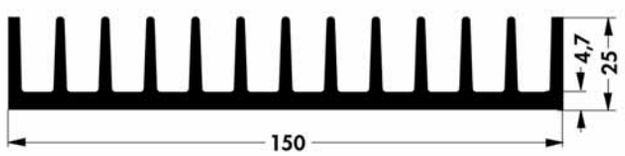
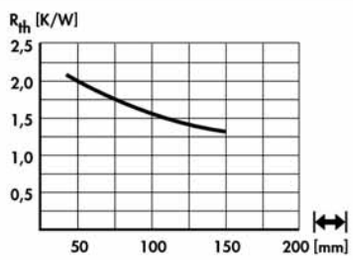
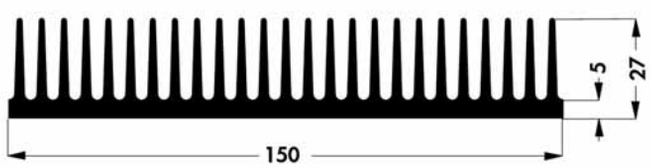
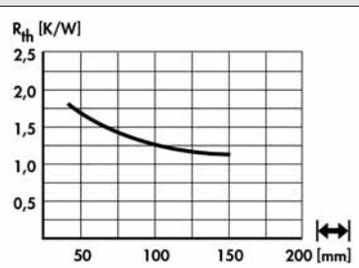
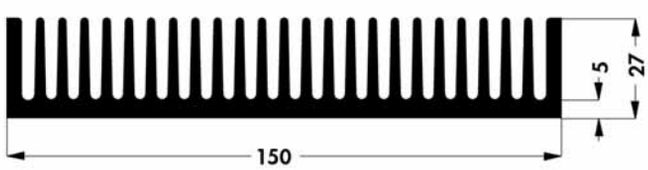
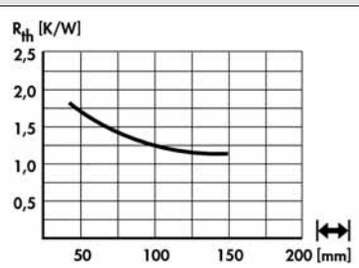
High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

fischer elektronik

Standard extruded heatsinks

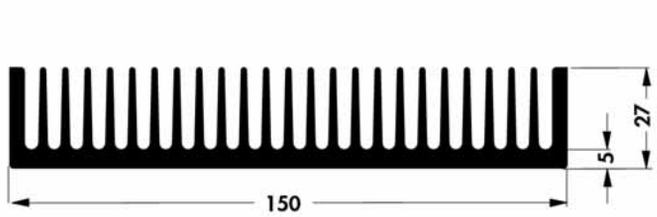
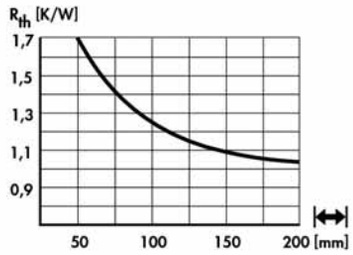
art. no.	
SK 411 ...	 
please indicate:	... ↔ **50 75 100 150 1000 mm**
art. no.	
SK 442 ...	 
please indicate:	... ↔ **50 75 100 150 1000 mm**
art. no.	
SK 463 ...	 
please indicate:	... ↔ **50 75 100 150 1000 mm**
art. no.	
SK 466 ...	 
please indicate:	... ↔ **50 75 100 150 1000 mm**
art. no.	
SK 413 ...	 
please indicate:	... ↔ **100 1000 mm**

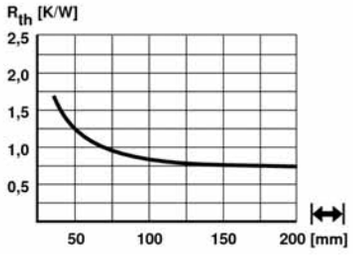
Standard extruded heatsinks

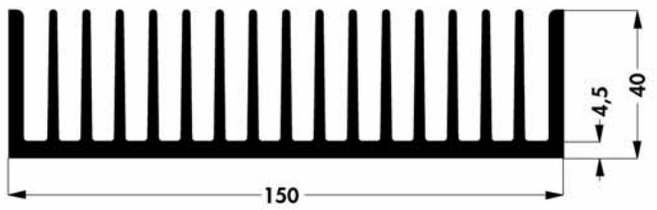
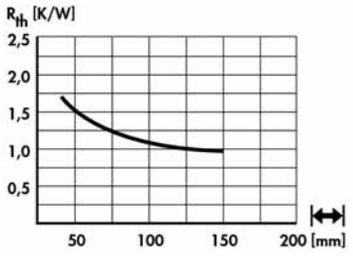
art. no.		
SK 553 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 150 1000 mm	
art. no.		
SK 132 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 150 1000 mm	
art. no.		
SK 410 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 150 1000 mm	
art. no.		
SK 133 ...		
please indicate:	**... ↔**	
	50 75 100 1000 mm	
art. no.		
SK 58 ...		
please indicate:	**... ↔**	
	50 75 100 150 1000 mm	

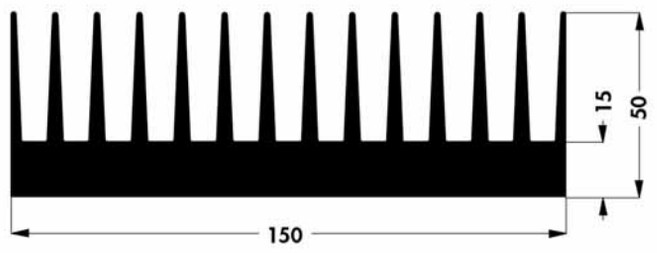
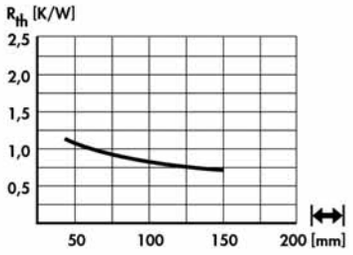
High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

Standard extruded heatsinks

art. no.	
SK 504 ...	 
	weight reduced like SK 58
please indicate:	**... ↔** **37.5 50 75 100 150 1000 mm**

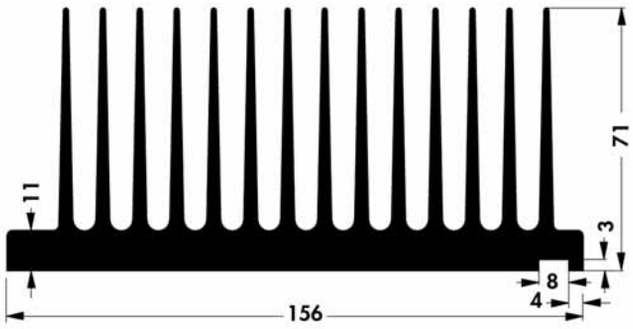
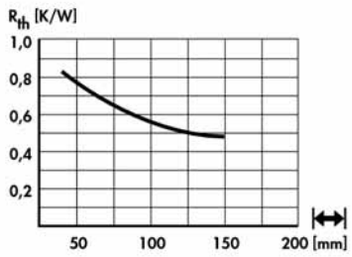
art. no.	
SK 588 ...	 
please indicate:	**... ↔** **50 75 100 150 1000 mm**

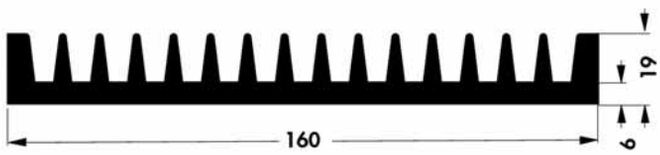
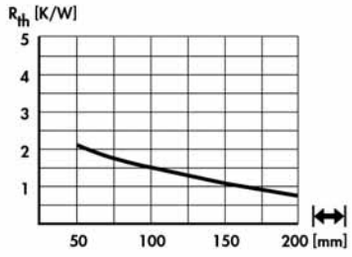
art. no.	
SK 120 ...	 
please indicate:	**... ↔** **50 75 100 150 1000 mm**

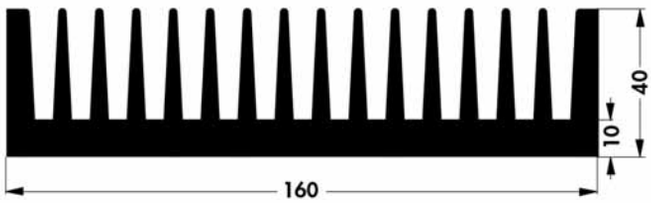
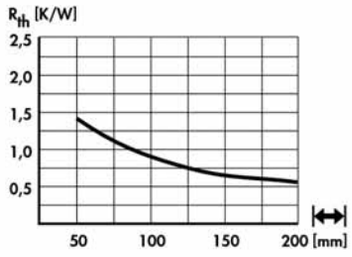
art. no.	
SK 155 ...	 
please indicate:	**... ↔** **75 100 150 1000 mm**

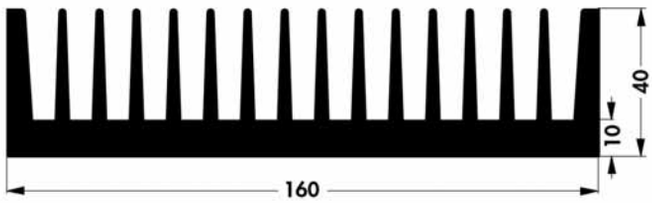
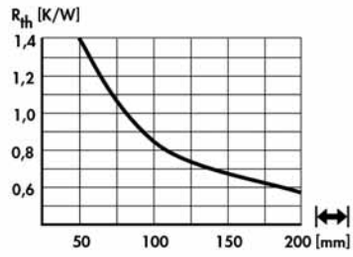
High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

Standard extruded heatsinks

art. no.	
SK 154 ...	 
please indicate:	**... ↔** **50 75 100 150 mm**

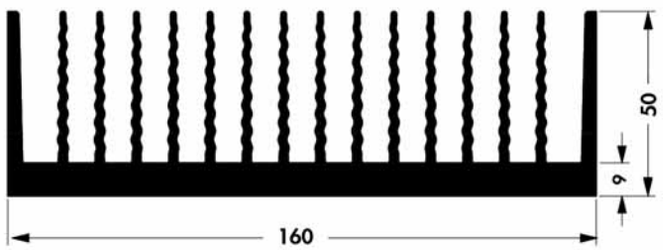
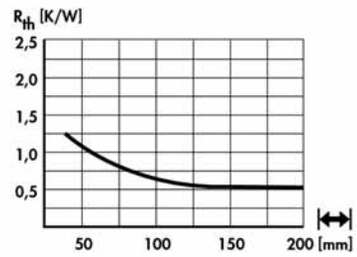
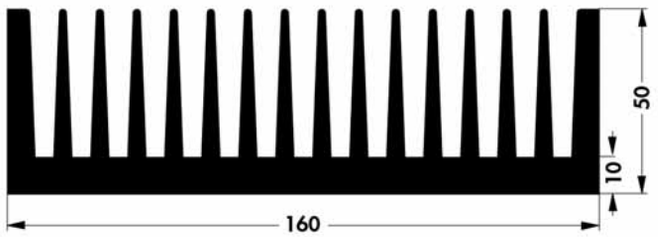
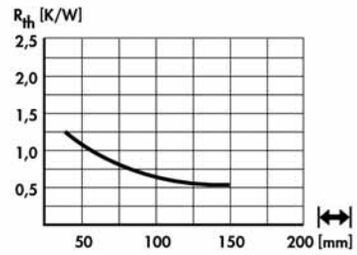
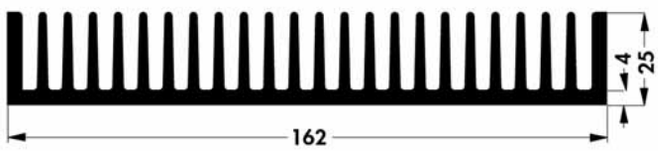
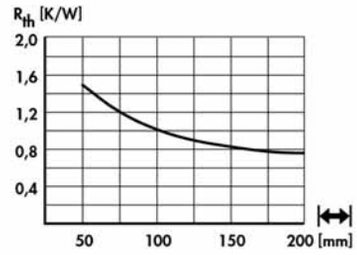
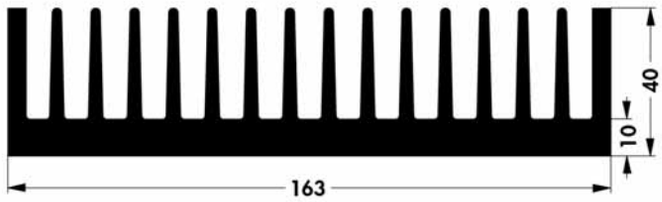
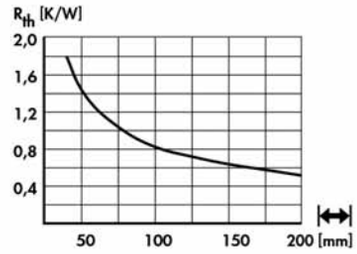
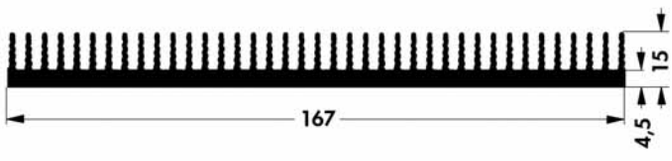
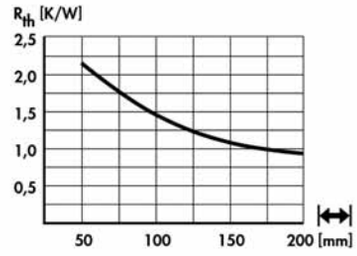
art. no.	
SK 417 ...	 
please indicate:	**... ↔** **75 100 150 1000 mm**

art. no.	
SK 85 ...	 
please indicate:	**... ↔** **37.5 50 75 100 150 1000 mm**

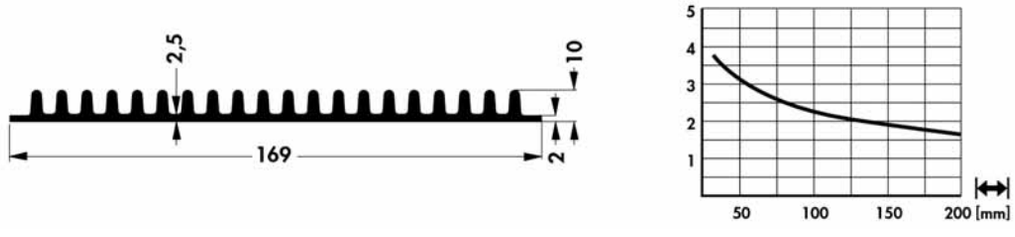
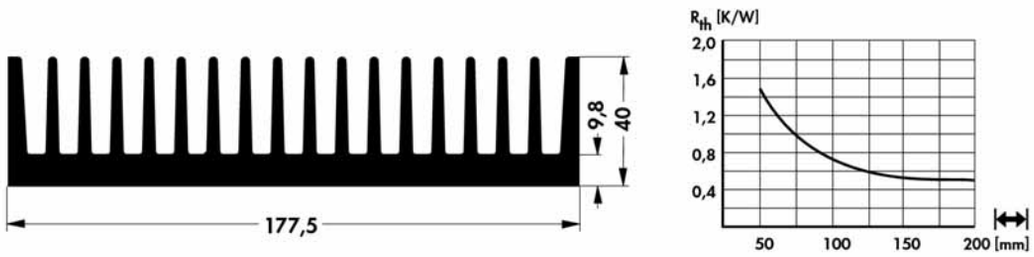
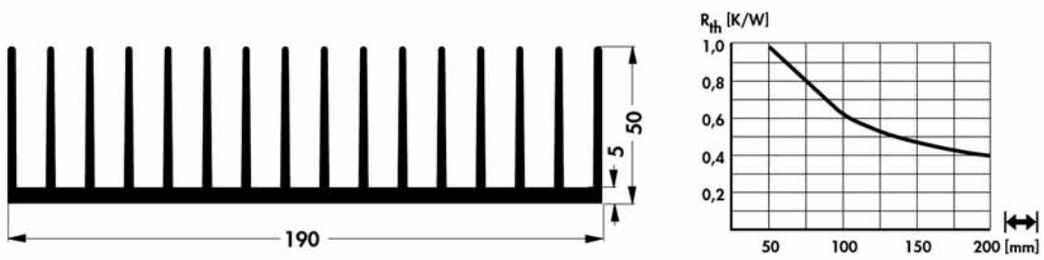
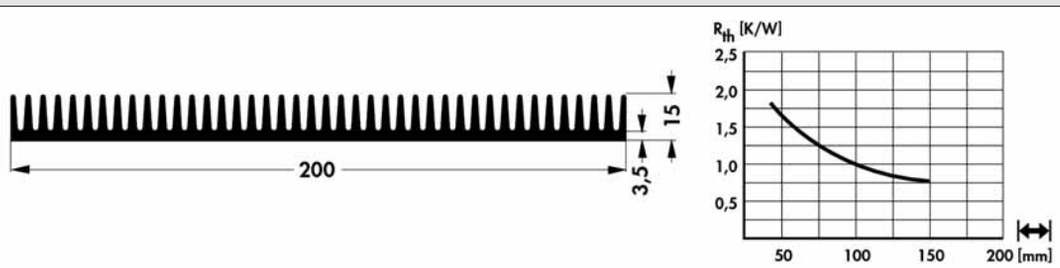
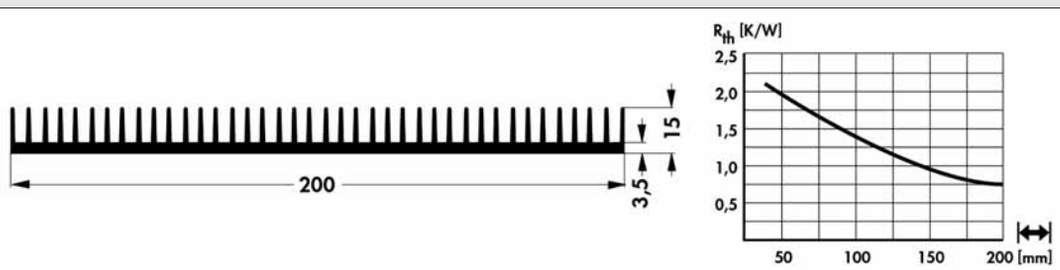
art. no.	
SK 503 ...	  weight reduced like SK 85
please indicate:	**... ↔** **75 100 1000 mm**

High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

Standard extruded heatsinks

art. no.	
SK 510 ...	 
please indicate:	... ↔ **50 75 100 150 1000 mm**
art. no.	
SK 416 ...	 
please indicate:	... ↔ **50 75 100 150 1000 mm**
art. no.	
SK 119 ...	 
please indicate:	... ↔ **50 75 100 150 1000 mm**
art. no.	
SK 412 ...	 
please indicate:	... ↔ **50 75 100 150 1000 mm**
art. no.	
SK 421 ...	 
please indicate:	... ↔ **50 75 100 150 200 1000 mm**

High decorative surfaces	→ A 9	Heatsinks for Solid State Relay	→ A 11 - 12
Order example	→ A 21	Heatsink special design	→ A 133 - 134
Drilling pattern for Solid State Relais	→ A 12	Special profiles	→ A 136
Heatsink as visual & decor-parts	→ A 10	Technical introduction	→ A 2 - 7

art. no.	
SK 405 ...	
please indicate:	**... ↔** **100 1000 mm**
art. no.	
SK 519 ...	
please indicate:	**... ↔** **50 100 1000 mm**
art. no.	
SK 90 ...	
please indicate:	**... ↔** **50 75 100 1000 mm**
art. no.	
SK 136 ...	
please indicate:	**... ↔** **75 100 150 1000 mm**
art. no.	
SK 166 ...	
please indicate:	**... ↔** **1000 mm**

High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

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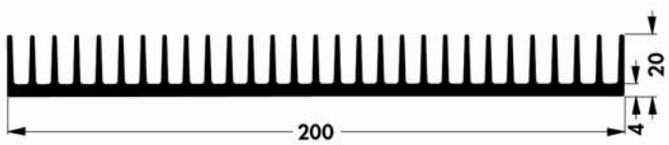
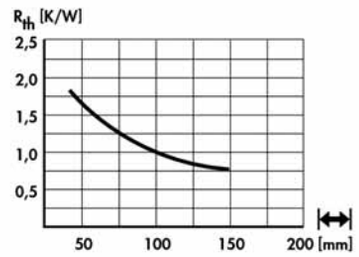
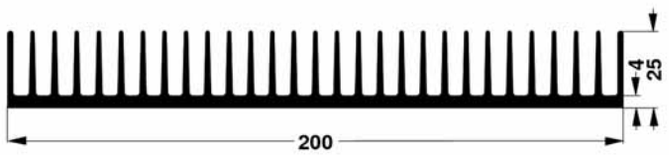
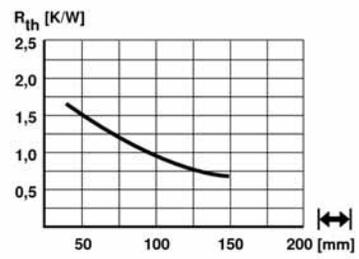
Standard extruded heatsinks

art. no.	
SK 113 ...	 

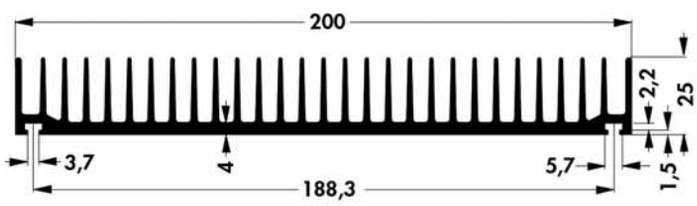
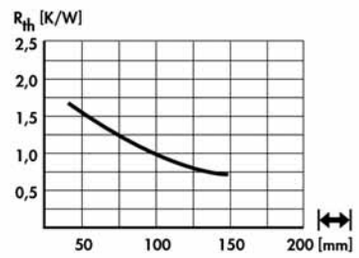
please indicate: **... ↔**

50 75 100 150 1000 mm

art. no.	
SK 42 ...	 

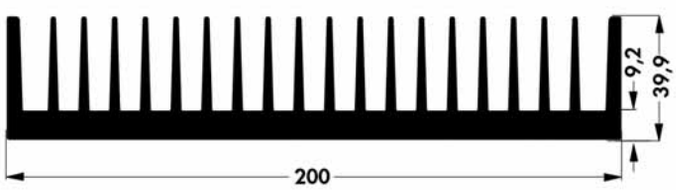
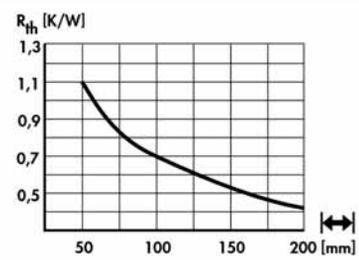
please indicate: **... ↔**

50 75 100 150 200 1000 mm

art. no.	
SK 94 ...	 

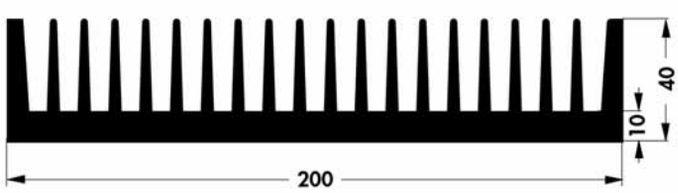
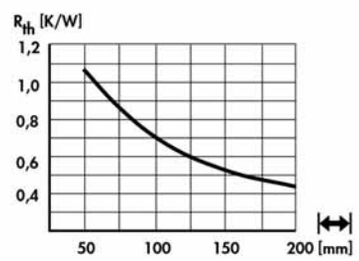
please indicate: **... ↔**

1000 mm

art. no.	
SK 502 ...	 
	weight reduced like SK 47

please indicate: **... ↔**

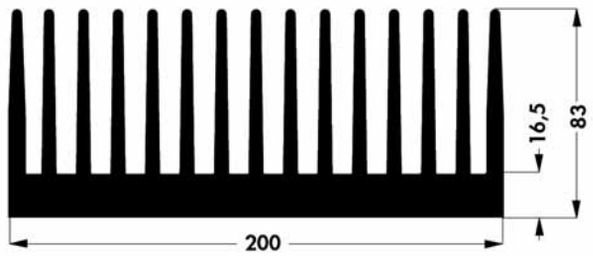
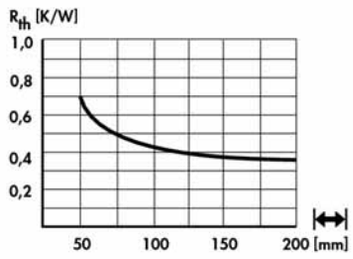
37.5 50 75 100 150 1000 mm

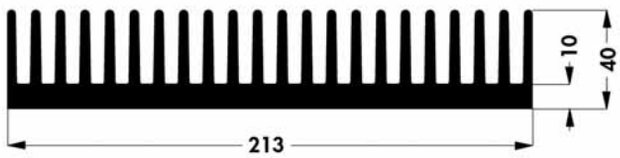
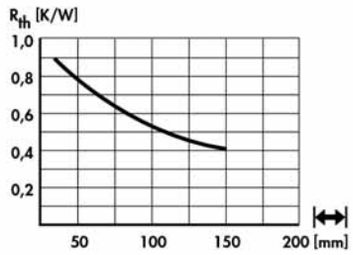
art. no.	
SK 47 ...	 

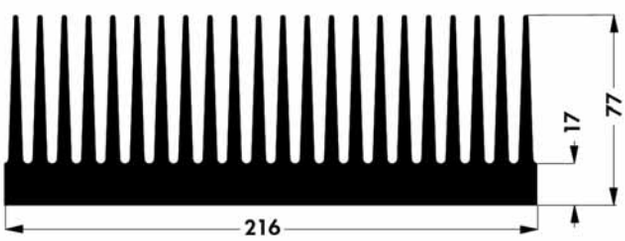
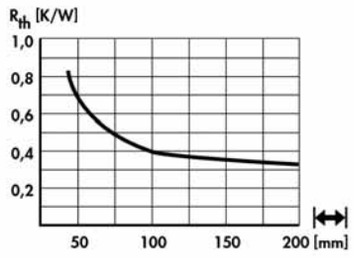
please indicate: **... ↔**

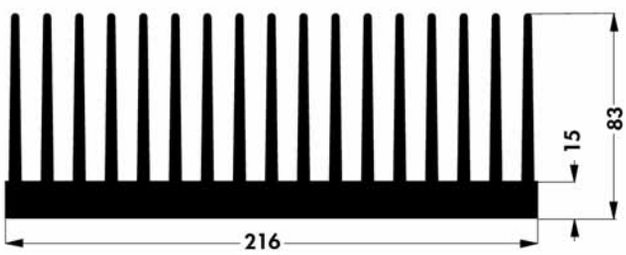
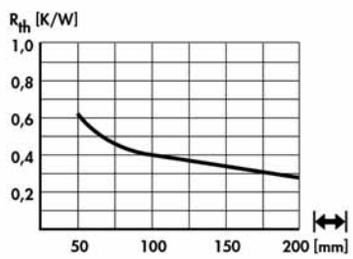
75 100 150 1000 mm

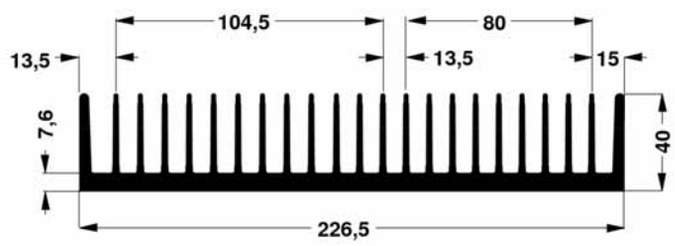
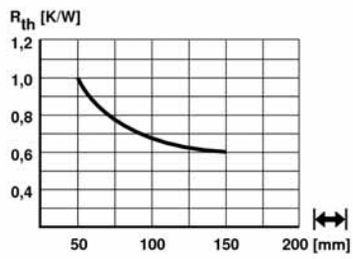
High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

art. no.	
SK 520 ...	 
please indicate:	... ⟷ 75 100 150 1000 mm

art. no.	
SK 193 ...	 
please indicate:	... ⟷ 100 150 1000 mm

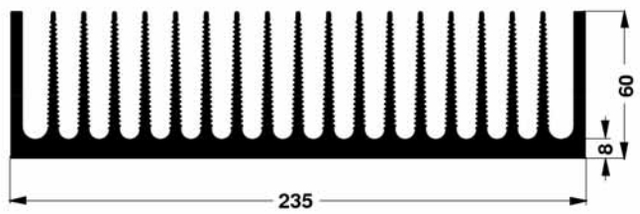
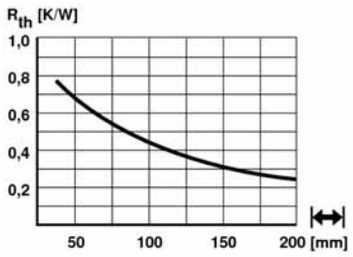
art. no.	
SK 557 ...	 
please indicate:	... ⟷ 75 100 150 1000 mm

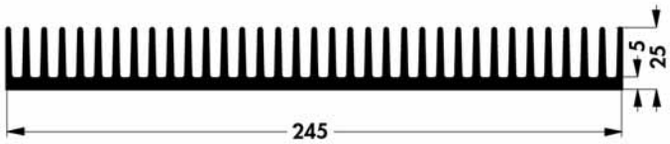
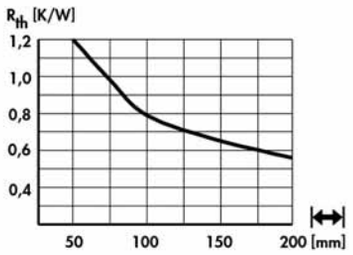
art. no.	
SK 102 ...	 
please indicate:	... ⟷ 75 100 150 1000 mm

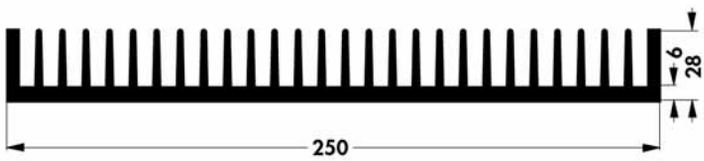
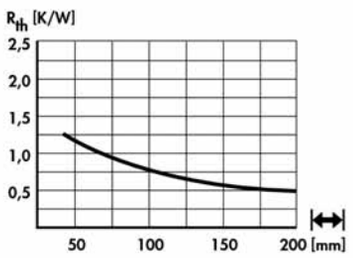
art. no.	
SK 168 ...	 
please indicate:	... ⟷ 1000 mm

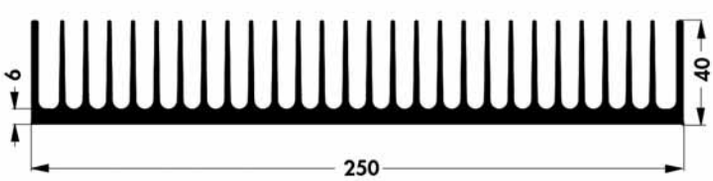
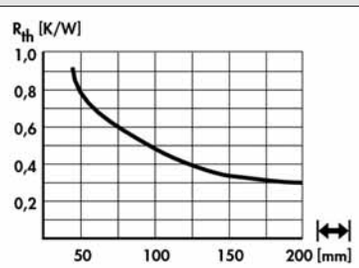
High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

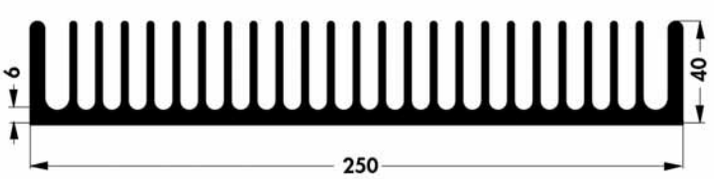
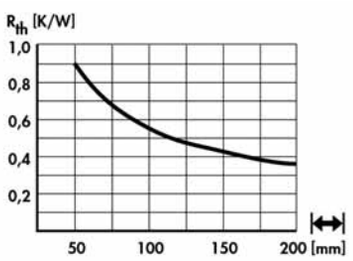
Standard extruded heatsinks

art. no.	
SK 580 ...	 
please indicate:	**... ↔** **75 100 150 200 1000 mm**

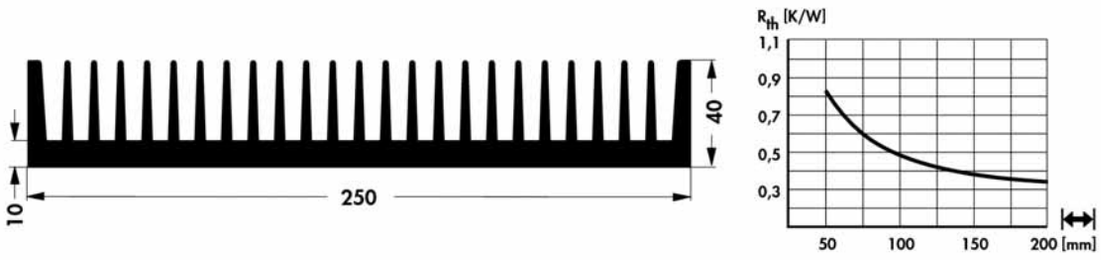
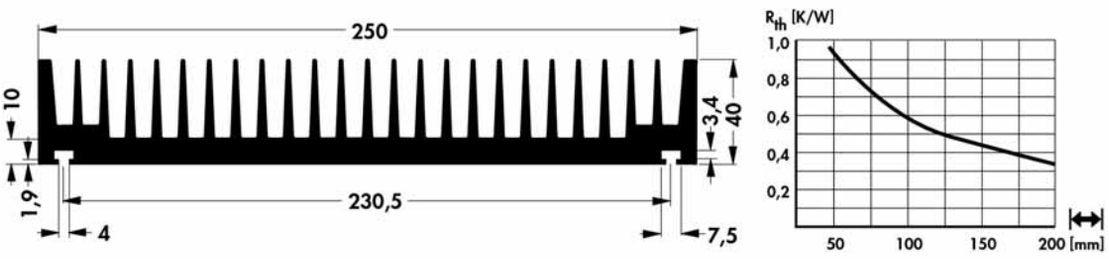
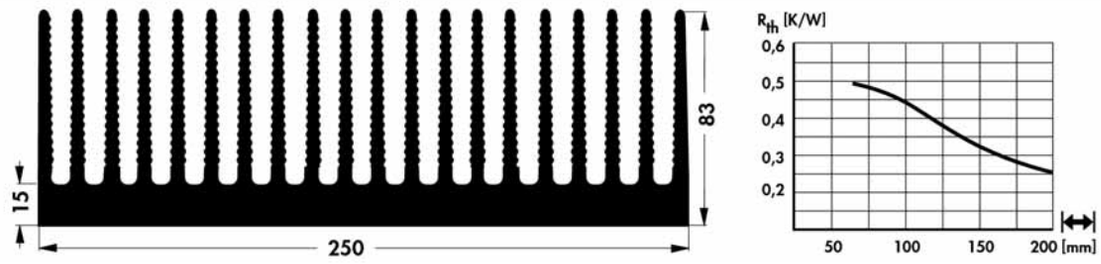
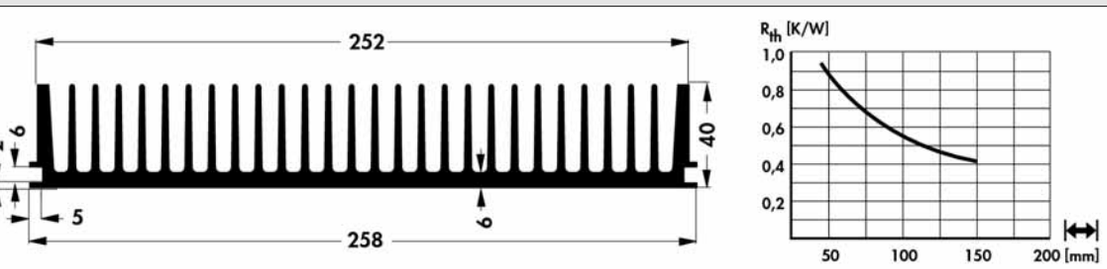
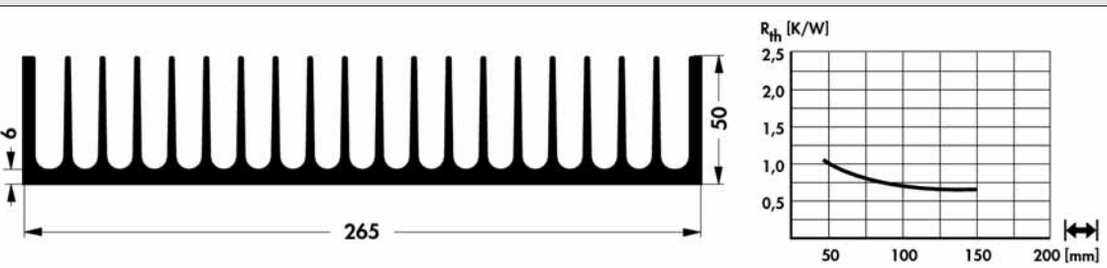
art. no.	
SK 118 ...	 
please indicate:	**... ↔** **75 100 150 1000 mm**

art. no.	
SK 49 ...	 
please indicate:	**... ↔** **50 75 150 200 1000 mm**

art. no.	
SK 555 ...	  weight reduced like SK 199
please indicate:	**... ↔** **75 100 150 1000 mm**

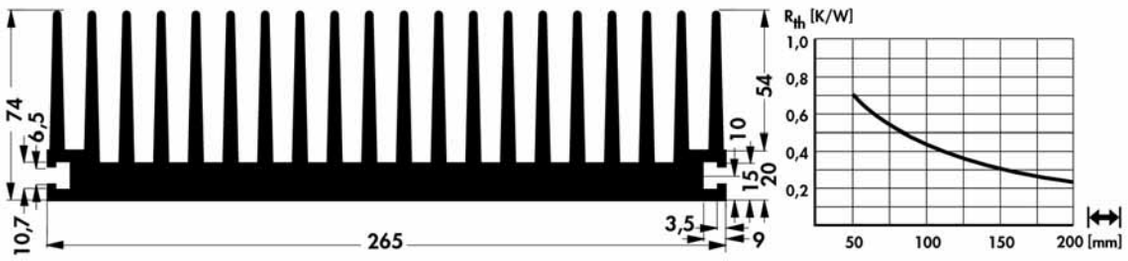
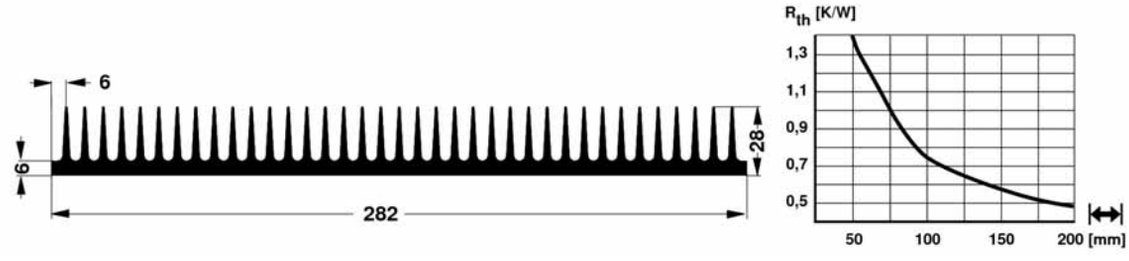
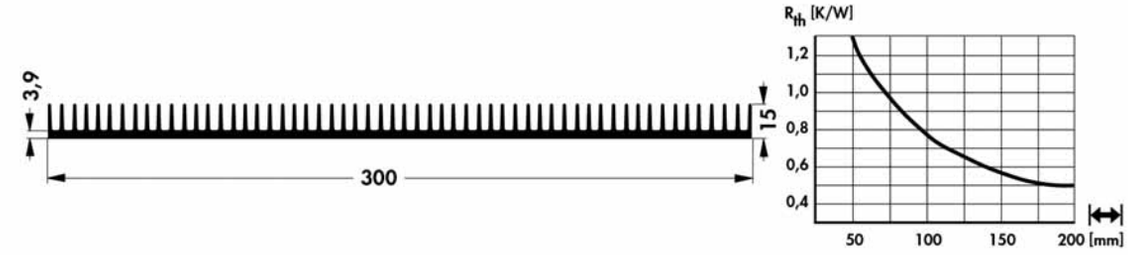
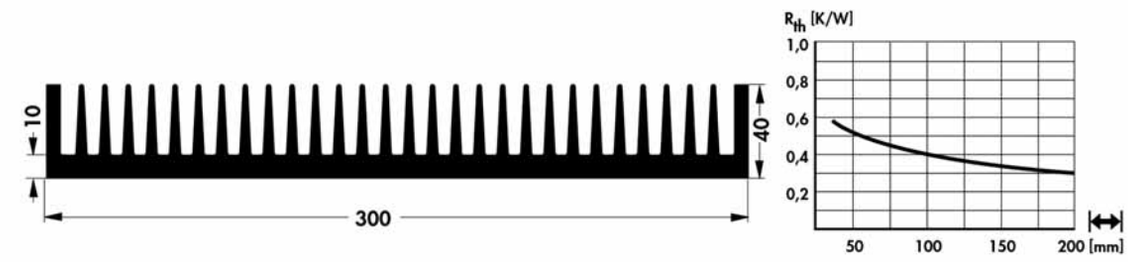
art. no.	
SK 199 ...	 
please indicate:	**... ↔** **75 100 1000 mm**

Standard extruded heatsinks

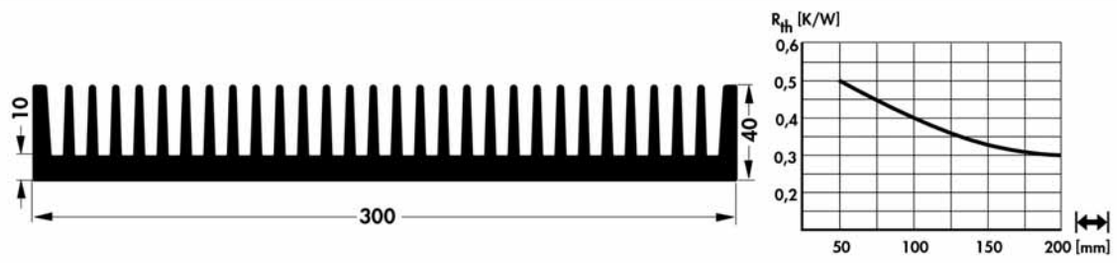
art. no.	
SK 524 ...	
please indicate:	... ↔ 75 100 150 1000 mm
art. no.	
SK 91 ...	
please indicate:	... ↔ 75 100 150 1000 mm
art. no.	
SK 438 ...	
please indicate:	... ↔ 75 100 150 1000 mm
art. no.	
SK 190 ...	
please indicate:	... ↔ 150 1000 mm
art. no.	
SK 149 ...	
please indicate:	... ↔ 200 1000 mm

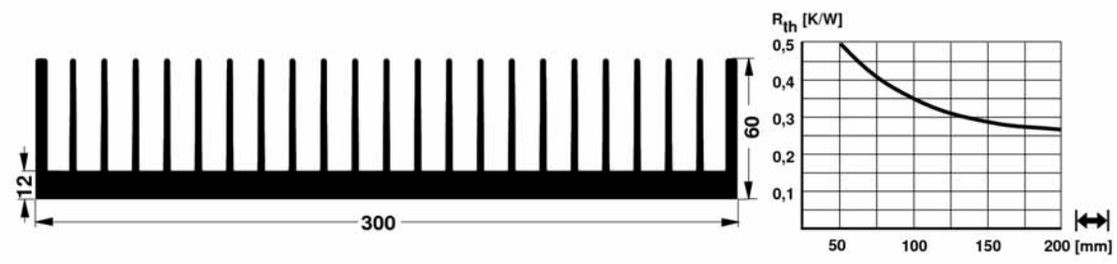
High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

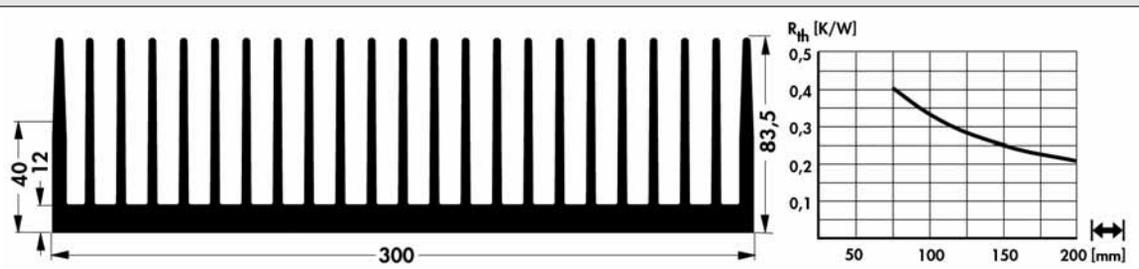
Standard extruded heatsinks

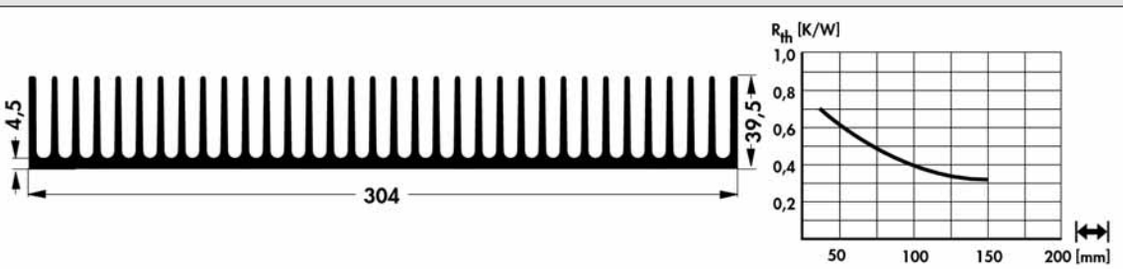
art. no.	
SK 139 ...	
please indicate:	... ↔ 100 150 200 1000 mm
art. no.	
SK 583 ...	
please indicate:	... ↔ 100 150 200 1000 mm
art. no.	
SK 198 ...	
please indicate:	... ↔ 100 150 1000 mm
art. no.	
SK 446 ...	
please indicate:	... ↔ 75 100 150 1000 mm
art. no.	
SK 56 ...	
please indicate:	... ↔ 75 100 150 200 1000 mm

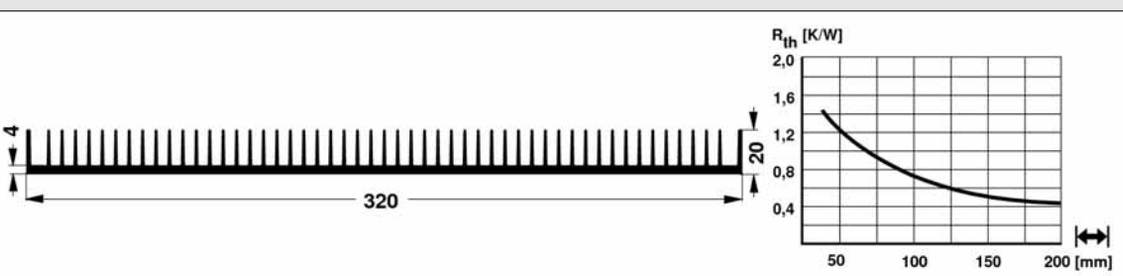
High decorative surfaces → A 9
Order example → A 21
Drilling pattern for Solid State Relais → A 12
Heatsink as visual & decor-parts → A 10
Heatsinks for Solid State Relay → A 11 - 12
Heatsink special design → A 133 - 134
Special profiles → A 136
Technical introduction → A 2 - 7

art. no.	
SK 501 ...	
	weight reduced like SK 56
please indicate:	**... ↔** **37.5 50 75 100 150 1000 200 mm**

art. no.	
SK 568 ...	
please indicate:	**... ↔** **75 100 150 200 1000 mm**

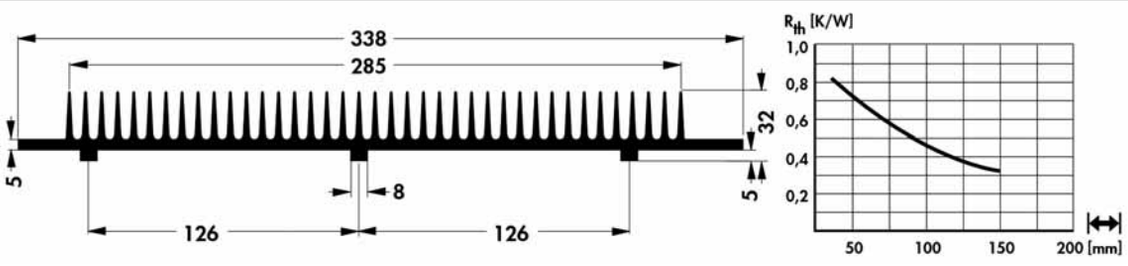
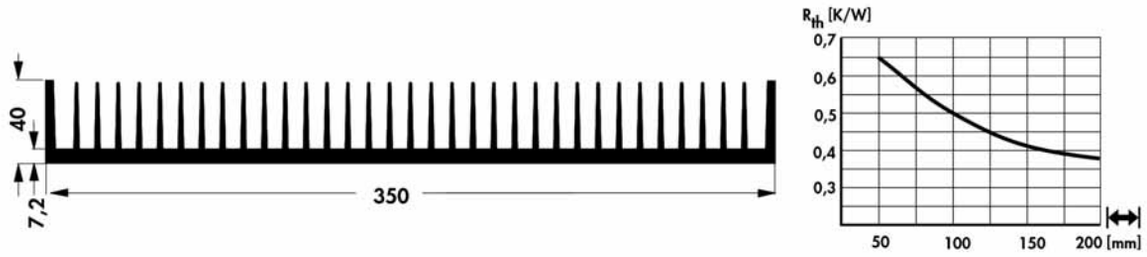
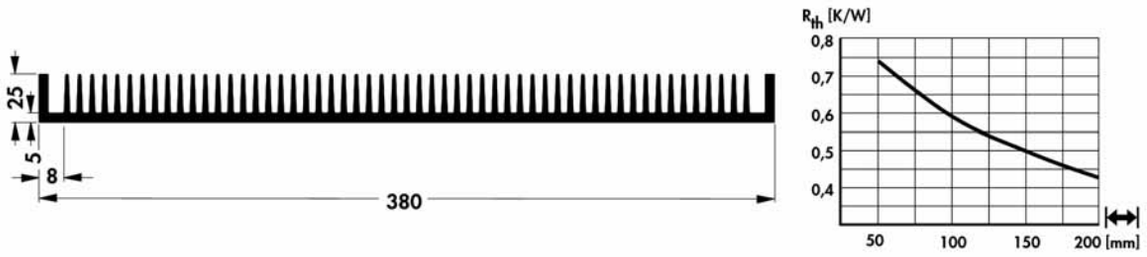
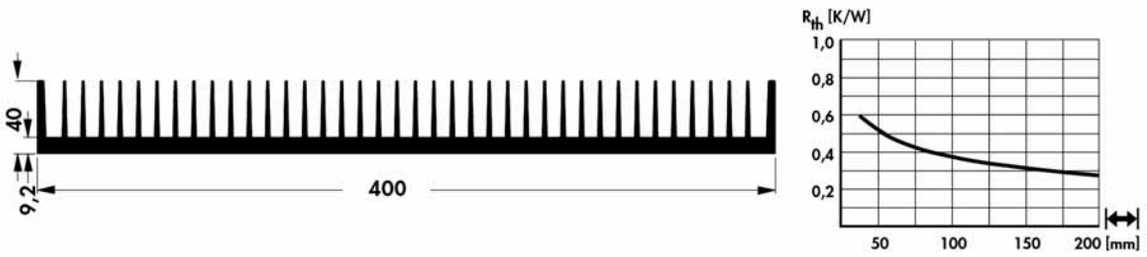
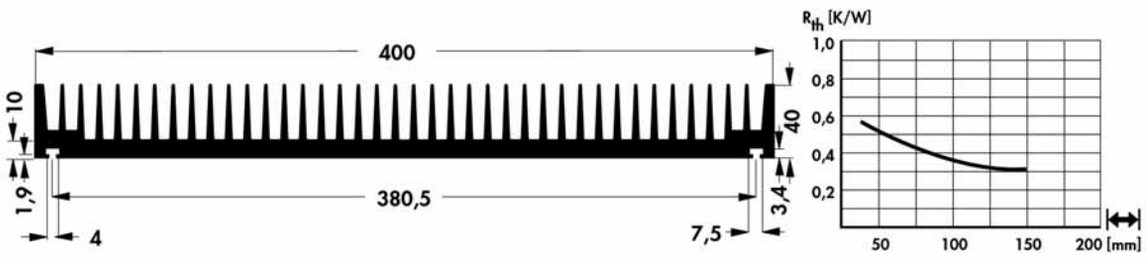
art. no.	
SK 157 ...	
please indicate:	**... ↔** **100 150 200 1000 mm**

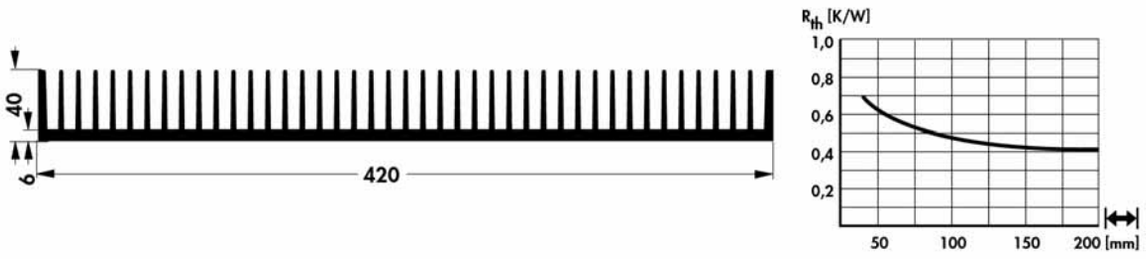
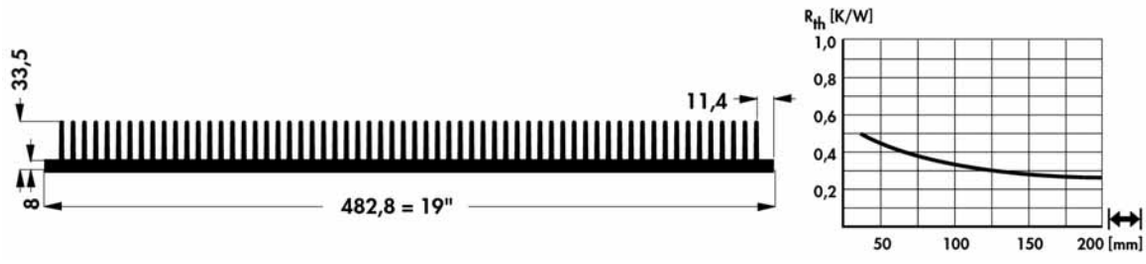
art. no.	
SK 101 ...	
please indicate:	**... ↔** **75 100 1000 mm**

art. no.	
SK 579 ...	
please indicate:	**... ↔** **75 100 150 200 1000 mm**

High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

Standard extruded heatsinks

art. no.	
SK 66 ...	
please indicate:	**... ↔** **75 100 1000 mm**
art. no.	
SK 523 ...	
please indicate:	**... ↔** **100 150 200 1000 mm**
art. no.	
SK 439 ...	
please indicate:	**... ↔** **100 150 1000 mm**
art. no.	
SK 479 ...	
please indicate:	**... ↔** **75 100 150 1000 mm**
art. no.	
SK 93 ...	
please indicate:	**... ↔** **75 100 150 1000 mm**

art. no.	
SK 130 ...	
please indicate:	**... ⟷** **200 1000 mm**
art. no.	
SK 191 ...	 suitable heatsink for rear panal in 19" cases
please indicate:	**... ⟷** **75 100 150 200 1000 mm**

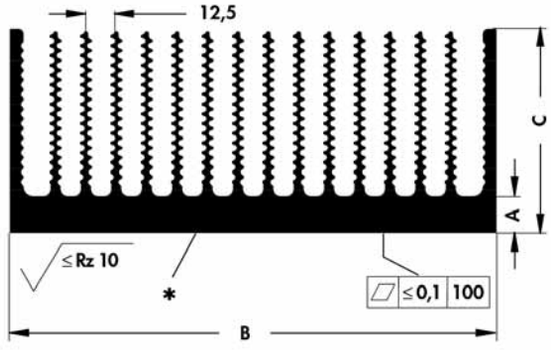
High decorative surfaces → **A 9**
Order example → **A 21**
Drilling pattern for Solid State Relais → **A 12**
Heatsink as visual & decor-parts → **A 10**
Heatsinks for Solid State Relay → **A 11 - 12**
Heatsink special design → **A 133 - 134**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

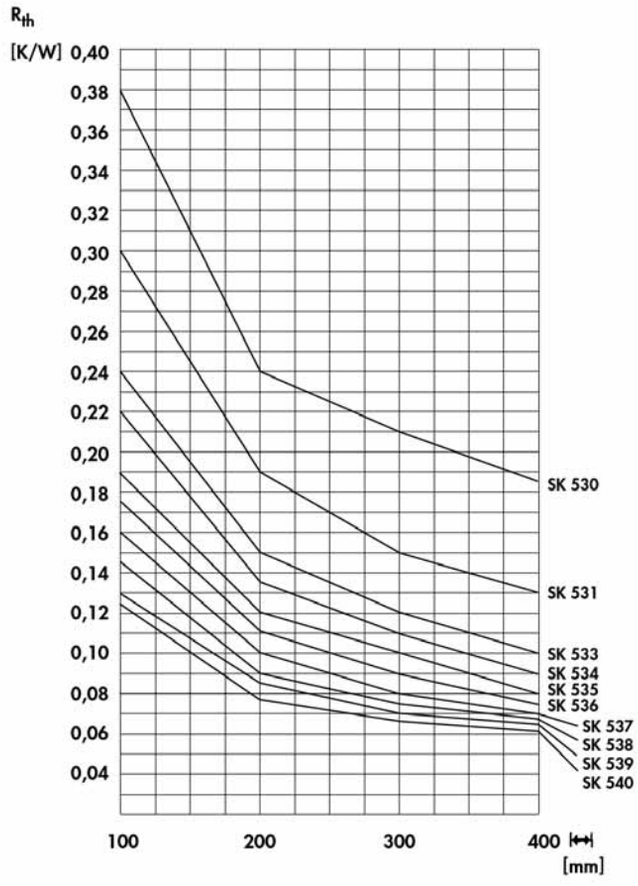
fischer elektronik

Standard extruded heatsinks

Welded high perfomance heatsinks

– optimum fin geometry and fin quantity for free convection
– well suited for forced convection
– flat milled base (not SK 530, SK 531)



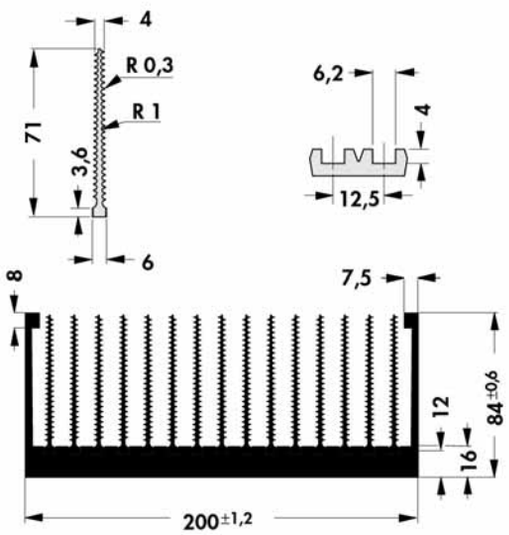
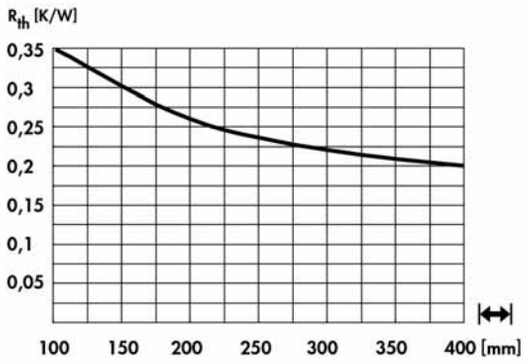


art. no.	number of fins	dim. [mm]		
		A	B	C
SK 530	14	15 $^{\pm 0.7}$	200 $^{\pm 0.7}$	84 $^{\pm 0.7}$
SK 531	22	15 $^{\pm 0.7}$	300 $^{\pm 1.0}$	84 $^{\pm 0.7}$
SK 533	30	16 $^{+0.0/ -1.5}$	400 $^{+0.6/ -1.6}$	84 $^{+0.0/ -1.5}$
SK 535	38	16 $^{+0.0/ -1.5}$	500 $^{+0.6/ -1.6}$	84 $^{+0.0/ -1.5}$
SK 536	42	16 $^{+0.0/ -1.5}$	550 $^{+0.6/ -1.6}$	84 $^{+0.0/ -1.5}$
SK 537	46	16 $^{+0.0/ -1.5}$	600 $^{+0.6/ -1.6}$	84 $^{+0.0/ -1.5}$
SK 538	50	16 $^{+0.0/ -1.5}$	650 $^{+0.6/ -1.6}$	84 $^{+0.0/ -1.5}$
SK 539	54	16 $^{+0.0/ -1.5}$	700 $^{+0.6/ -1.6}$	84 $^{+0.0/ -1.5}$
SK 540	58	16 $^{+0.0/ -1.5}$	750 $^{+0.6/ -1.6}$	84 $^{+0.0/ -1.5}$

* = welded joint (not SK 530, SK 531)
length according customer´s details
customer specific versions and machining on request

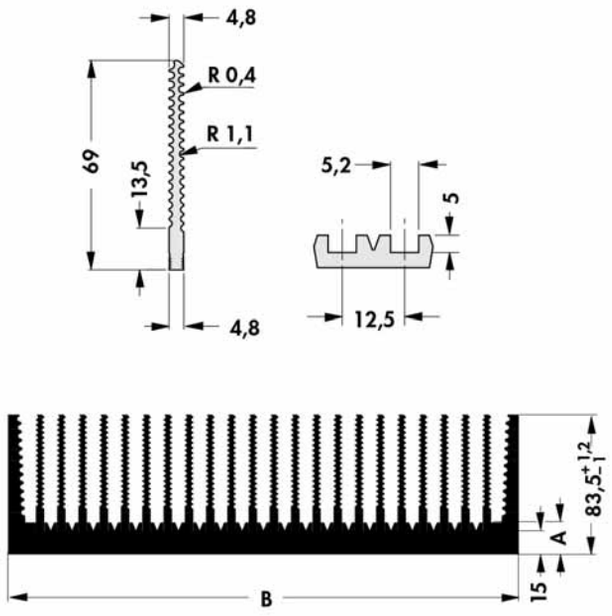
Order example → **A 21**
Die-cast heatsinks → **A 125**
Heatsink profile-overview → **A 13 - 16**
Lamella heatsinks → **A 129**
High capacity cooling aggregat. → **D 25 – 28**
Cooling aggregates with radial fan → **D 30 – 32**
Extruded heatsink-cooling aggregat. → **D 13**
Cooling aggreg. in segment mount. → **D 5 – 7**

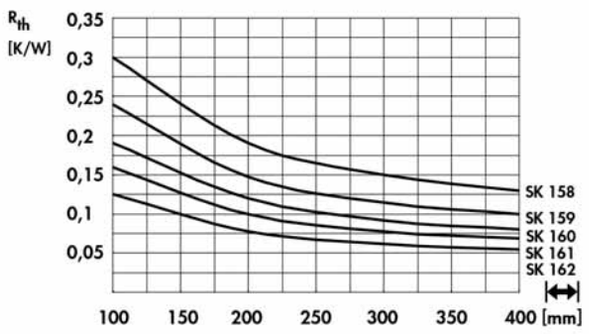
High performance heatsinks with press-in fins

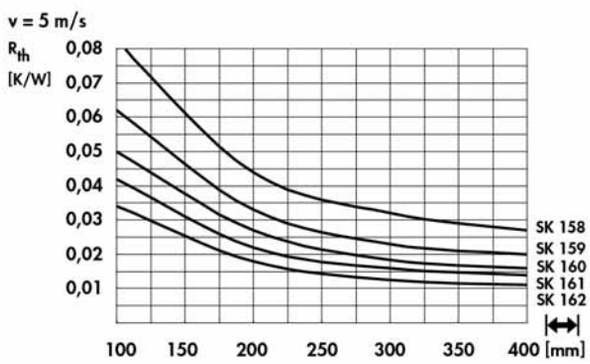
art. no.	
SK 418 ...	 

please indicate: **... ↔**

100 150 200 1000 mm







art. no.	number of fins	dim. [mm]	
		A	B
SK 158	22	20	300 ±2.0
SK 159	30	20	400 ±2.0
SK 160	38	20	500 ±2.5
SK 161	46	20	600 ±3.0
SK 162	58	20	750 ±4.0

length according customer´s details
customer specific versions and machining on request

Order example → **A 21**
Die-cast heatsinks → **A 125**
Heatsink profile-overview → **A 13 - 16**
Lamella heatsinks → **A 129**
High capacity cooling aggregat. → **D 25 – 28**
Cooling aggregates with radial fan → **D 30 – 32**
Extruded heatsink-cooling aggregat. → **D 13**
Cooling aggreg. in segment mount. → **D 5 – 7**

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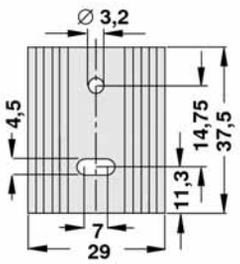
Standard extruded heatsinks

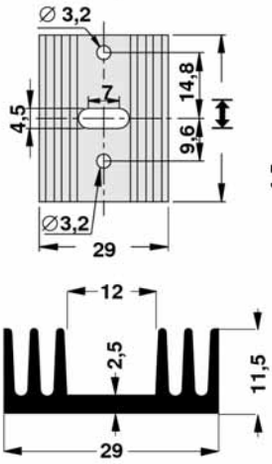
art. no.

SK 09 ...

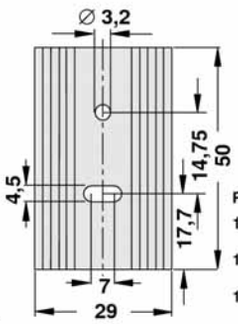
SK 09 37,5 TO 220



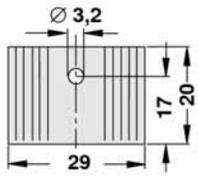
SK 09 37,5 TO 220/1
SK 09 50,0 TO 220/1

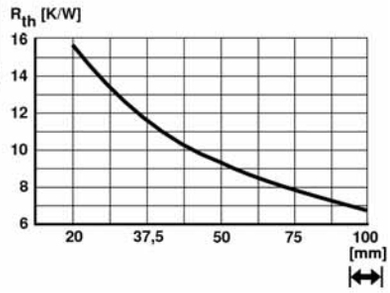


SK 09 50 TO 220



SK 09 20 TO 220



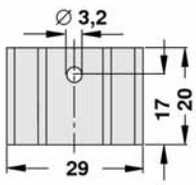


please indicate: **... ↔** **20 37.5 50 1000 mm** **... ⌖ (optional)** **TO 220; K**

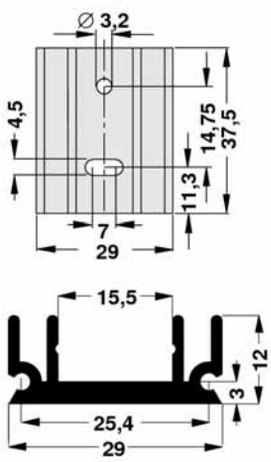
art. no.

SK 145 ...

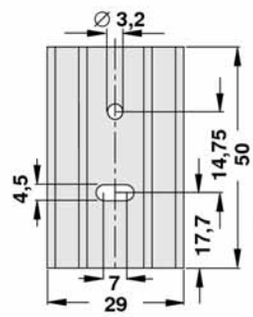
SK 145 20 TO 220



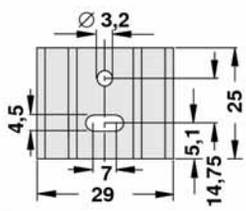
SK 145 37,5 TO 220

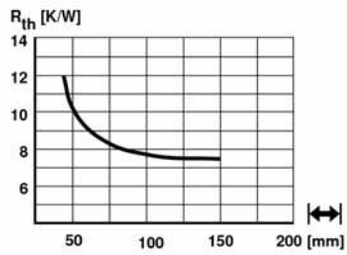


SK 145 50 TO 220



SK 145 25 TO 220

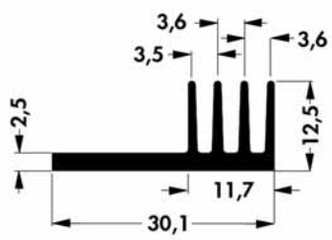


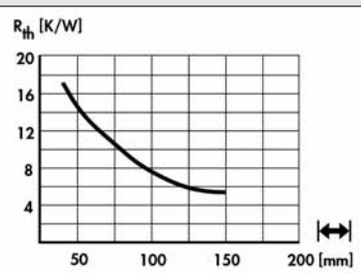


please indicate: **... ↔** **20 25 37.5 50 1000 mm** **... ⌖ (optional)** **TO 220**

art. no.

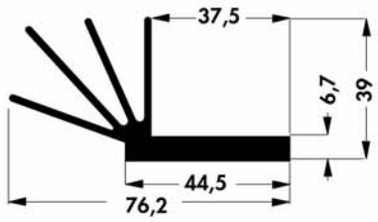
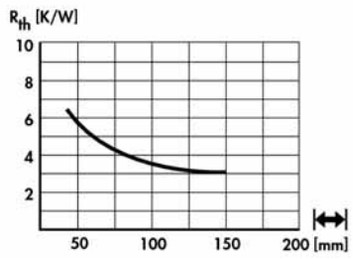
SK 443 ...

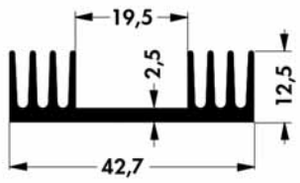
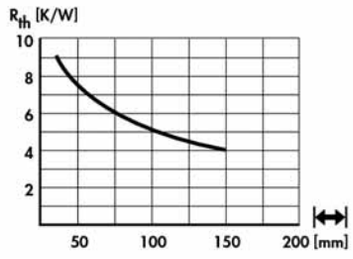


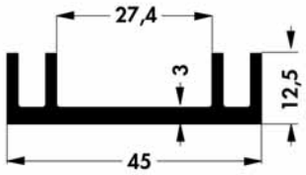
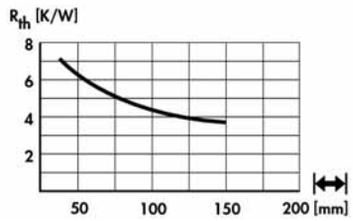


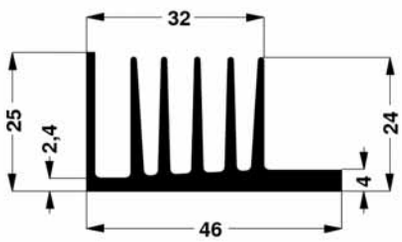
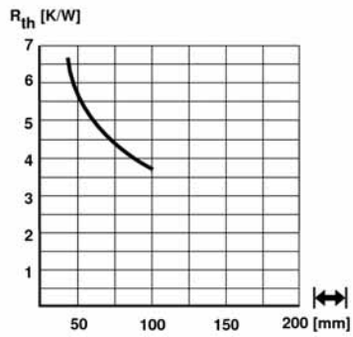
please indicate: **... ↔** **37.5 75 100 1000 mm**

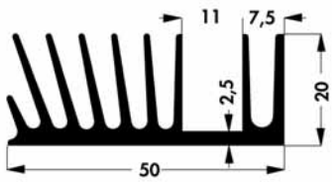
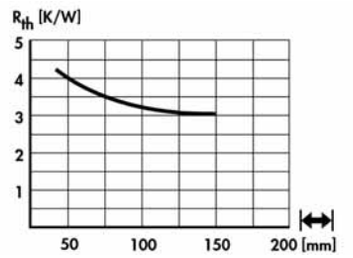
Hole pattern → A 21
Profiles for PCB components → A 92
Heatsinks for PCB → A 90
Profiles for PCB mounting → A 90 – 113
Silicone wafers → E 2 – 4
Thermal conductive material → E 2 – 15
Kapton insulator washers → E 8

art. no.		
SK 173 ...		
please indicate:	... ↔	
	1000 mm	

art. no.		
SK 59 ...		
please indicate:	... ↔	... ⊕ (optional)
	37.5 50 75 100 1000 mm	TO 220

art. no.		
SK 122 ...		
please indicate:	... ↔	... ⊕ (optional)
	37.5 50 mm	TO 3; CB

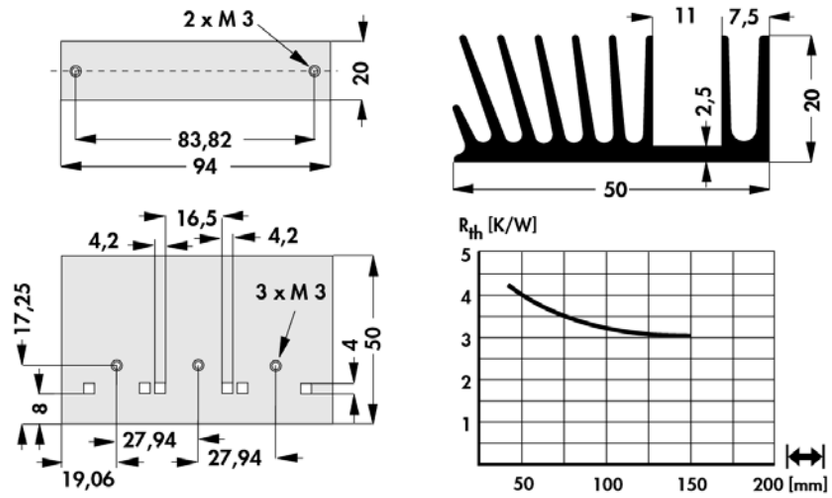
art. no.		
SK 107 ...		
please indicate:	... ↔	
	50 75 100 1000 mm	

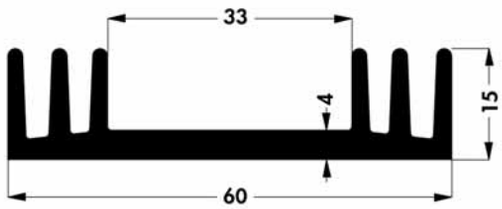
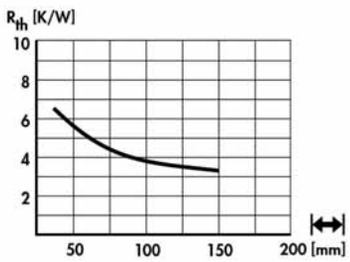
art. no.		
SK 181 ...		
please indicate:	... ↔	
	50 75 100 1000 mm	

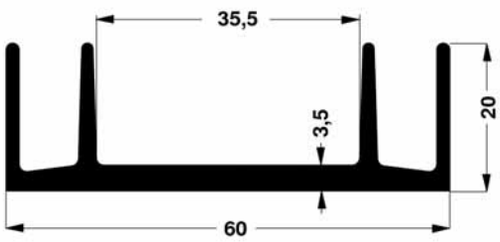
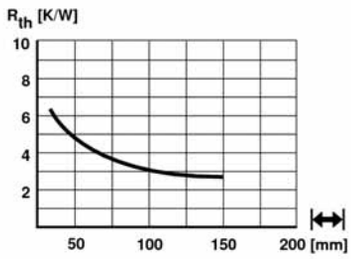
Hole pattern → A 21
Profiles for PCB components → A 92
Heatsinks for PCB → A 90
Profiles for PCB mounting → A 90 – 113
Silicone wafers → E 2 – 4
Thermal conductive material → E 2 – 15
Kapton insulator washers → E 8

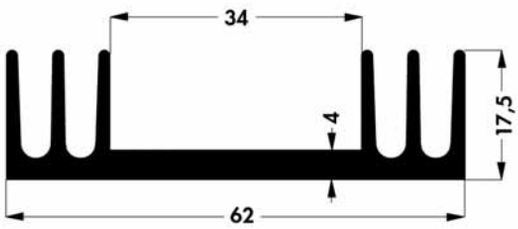
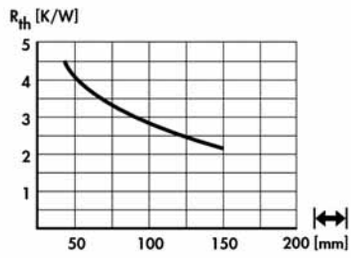
fischer elektronik

Standard extruded heatsinks

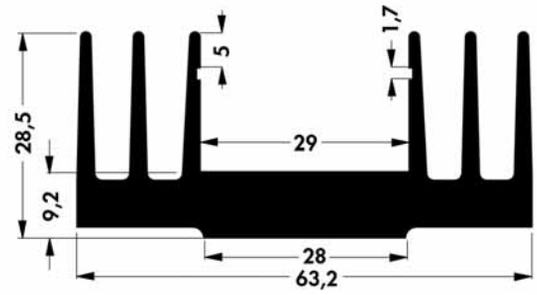
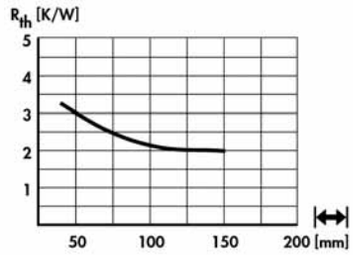
art. no.		
SK 181 94 C 3 x TO 220	 SK 181 94 C 3 x TO 220	
	retaining spring for transistor THF 409 TO 220 ➔ A 116	
please indicate:	**... ⟷** **50 75 100 1000 mm**	**... ⊕ (optional)** **TO 3; CB**

art. no.		
SK 78 ...		
please indicate:	**... ⟷** **37.5 50 75 100 1000 mm**	**... ⊕ (optional)** **TO 3; CB**

art. no.		
SK 51 ...		
please indicate:	**... ⟷** **37.5 50 75 100 1000 mm**	**... ⊕ (optional)** **TO 3; CB**

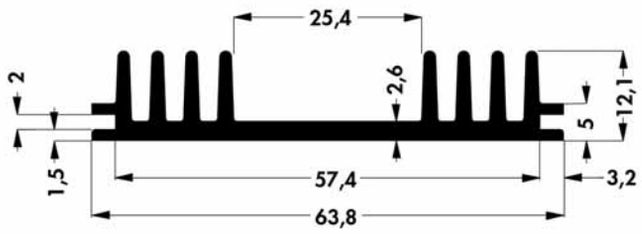
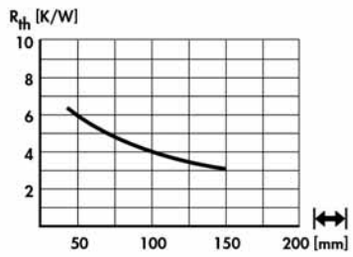
art. no.		
SK 165 ...		
please indicate:	**... ⟷** **37.5 50 75 1000 mm**	**... ⊕ (optional)** **TO 3; CB**

Hole pattern	**➔ A 21**	**Silicone wafers**	**➔ E 2 – 4**
Profiles for PCB components	**➔ A 92**	**Thermal conductive material**	**➔ E 2 – 15**
Heatsinks for PCB	**➔ A 90**	**Kapton insulator washers**	**➔ E 8**
Profiles for PCB mounting	**➔ A 90 – 113**		

art. no.	
	 
SK 25 ...	with slots for cover plates or PCBs

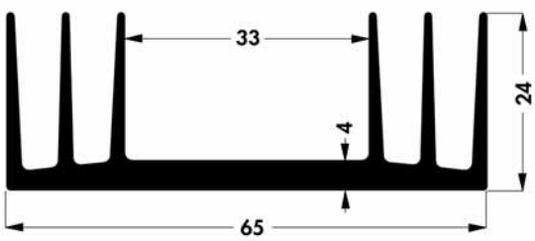
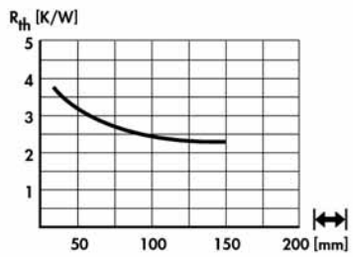
please indicate: **... ↔**

37.5 50 1000 mm

art. no.	
	 
SK 150 ...	

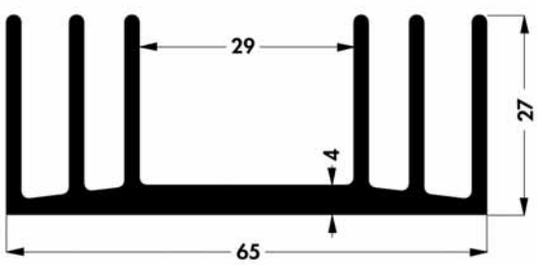
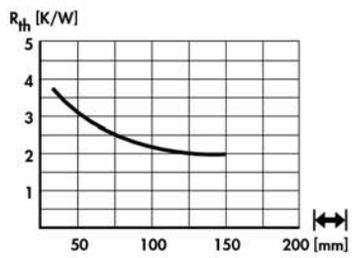
please indicate: **... ↔** **... ◈ (optional)**

1000 mm **TO 3; CB**

art. no.	
	 
SK 18 ...	

please indicate: **... ↔** **... ◈ (optional)**

37.5 50 75 1000 mm **TO 3; CB**

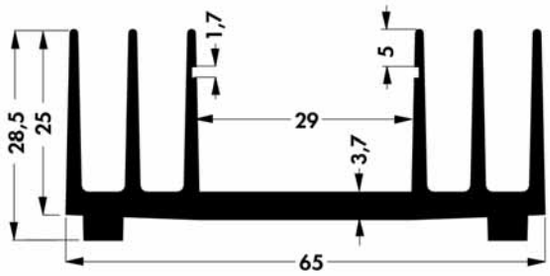
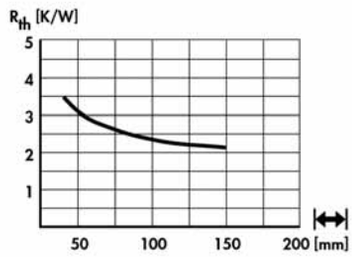
art. no.	
	 
SK 63 ...	

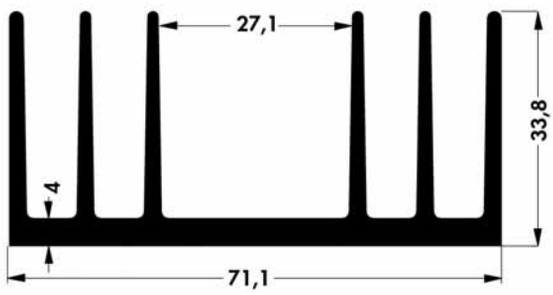
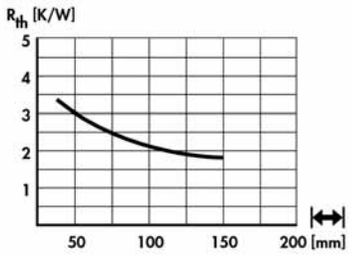
please indicate: **... ↔** **... ◈ (optional)**

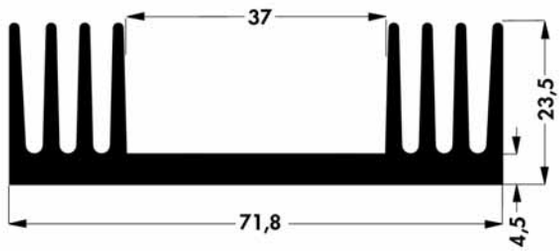
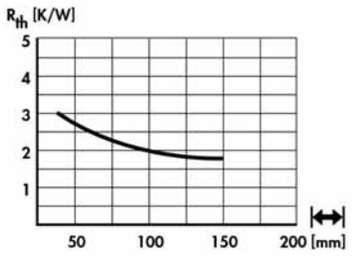
37.5 50 75 100 1000 mm **TO 3; CB**

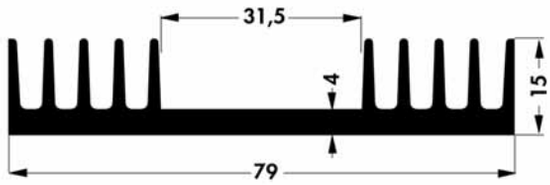
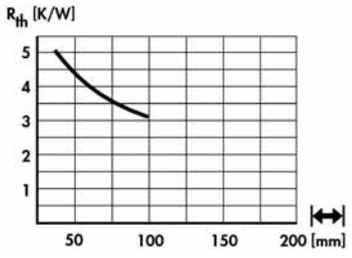
Hole pattern → **A 21**
Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Profiles for PCB mounting → **A 90 – 113**
Silicone wafers → **E 2 – 4**
Thermal conductive material → **E 2 – 15**
Kapton insulator washers → **E 8**

Standard extruded heatsinks

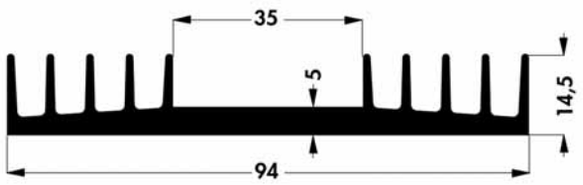
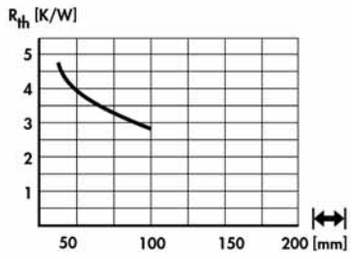
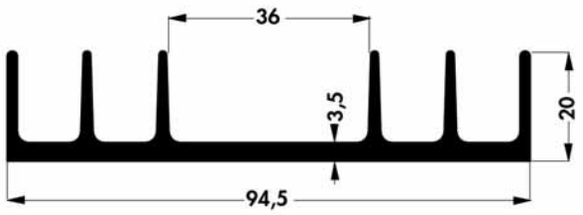
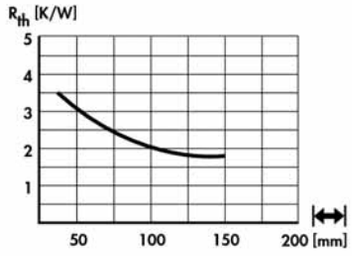
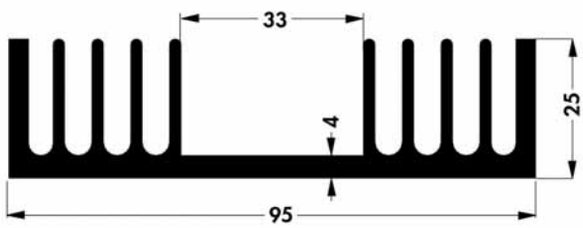
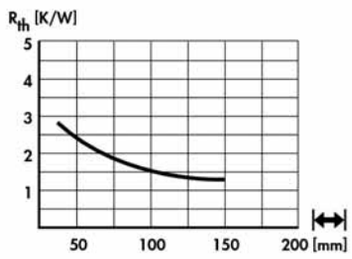
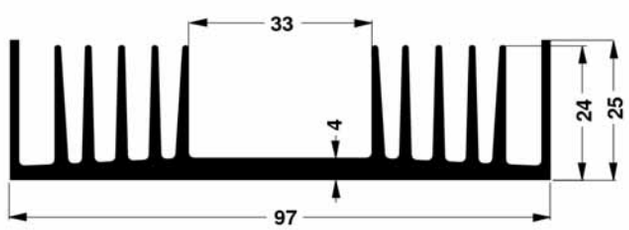
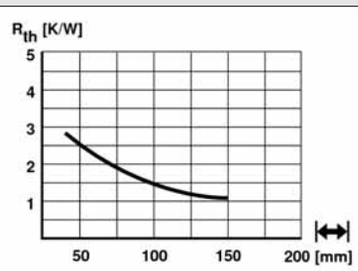
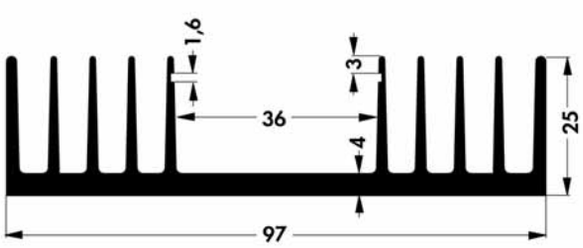
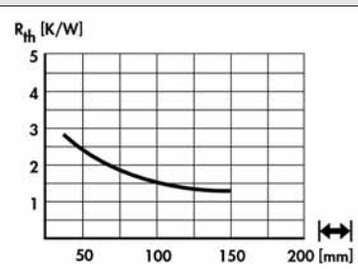
art. no.	
SK 05 ...	 
	with slots for cover plates or PCBs
please indicate:	**... ⟷** **50 75 1000 mm** **... ⌖ (optional)** **TO 3; CB**

art. no.	
SK 402 ...	 
please indicate:	**... ⟷** **100 mm** **... ⌖ (optional)** **TO 3; CB**

art. no.	
SK 97 ...	 
please indicate:	**... ⟷** **37.5 50 75 100 1000 mm** **... ⌖ (optional)** **TO 3**

art. no.	
SK 45 ...	 
please indicate:	**... ⟷** **37.5 50 75 100 1000 mm** **... ⌖ (optional)** **TO 3; CB**

Hole pattern → **A 21**
Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Profiles for PCB mounting → **A 90 – 113**
Silicone wafers → **E 2 – 4**
Thermal conductive material → **E 2 – 15**
Kapton insulator washers → **E 8**

art. no.		
SK 19 ...		
please indicate:	... ↔ 37.5 50 75 100 1000 mm	... ⊕ (optional) TO 3; CB
art. no.		
SK 28 ...		
please indicate:	... ↔ 37.5 50 75 1000 mm	... ⊕ (optional) TO 3; CB
art. no.		
SK 401 ...		
please indicate:	... ↔ 100 1000 mm	... ⊕ (optional) TO 3; CB
art. no.		
SK 72 ...		
please indicate:	... ↔ 37.5 50 75 100 1000 mm	... ⊕ (optional) TO 3; CB
art. no.		
SK 04 ...		
	with slots for cover plates or PCBs	
please indicate:	... ↔ 37.5 50 75 100 1000 mm	... ⊕ (optional) TO 3; CB; SSR 1; SSR 2

Hole pattern → A 21
Profiles for PCB components → A 92
Heatsinks for PCB → A 90
Profiles for PCB mounting → A 90 – 113
Silicone wafers → E 2 – 4
Thermal conductive material → E 2 – 15
Kapton insulator washers → E 8

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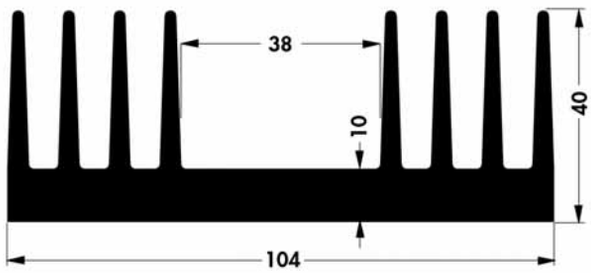
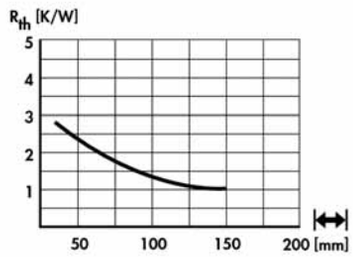
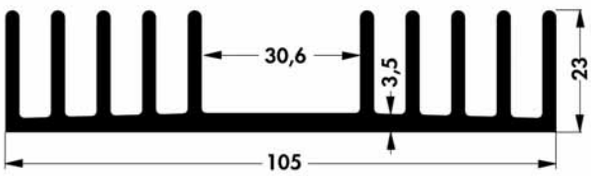
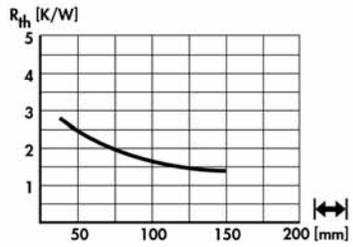
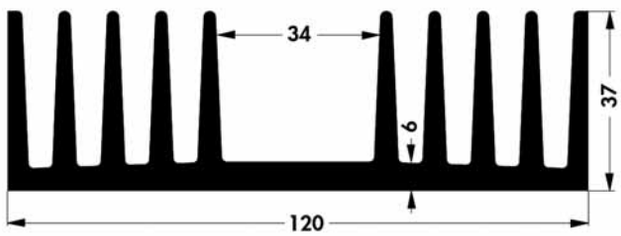
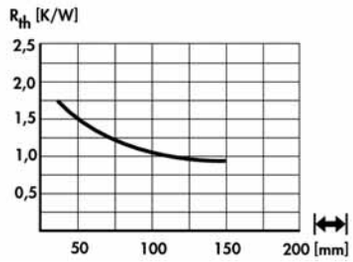
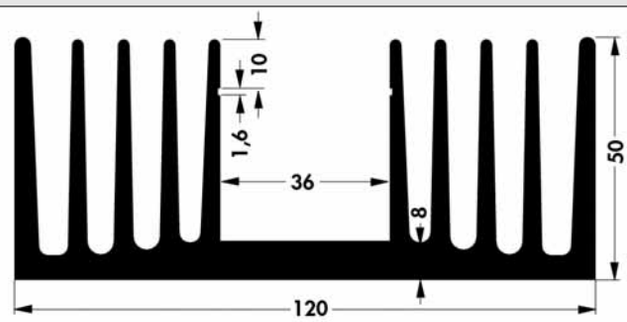
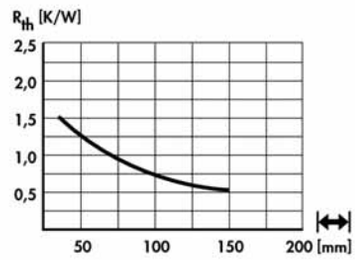
Standard extruded heatsinks

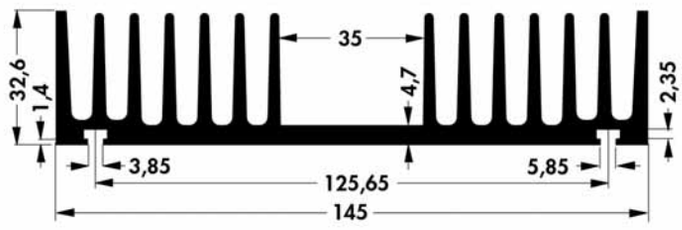
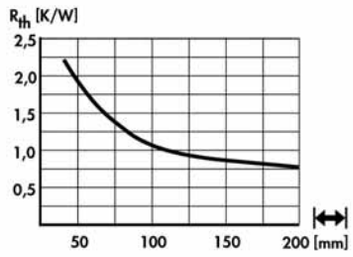
art. no.	
SK 403 ...	 
please indicate:	**... ⟷ 1000 mm**

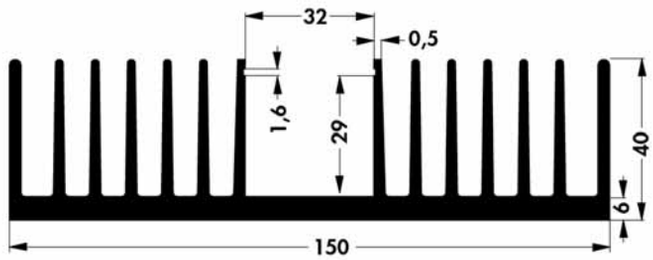
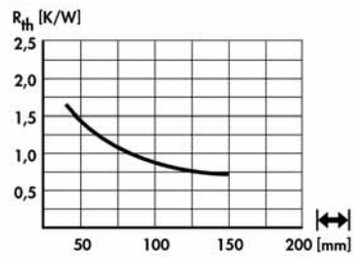
art. no.	
SK 73 ...	 
please indicate:	**... ⟷ 50 75 1000 mm** **... ⌖ (optional) TO 3; CB**

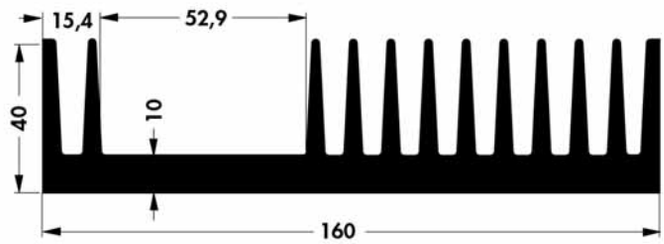
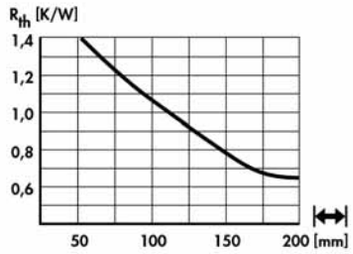
art. no.	
SK 71 ...	 
please indicate:	**... ⟷ 37.5 50 75 100 1000 mm** **... ⌖ (optional) TO 3**

art. no.	
SK 57 ...	  with slots for cover plates or PCBs
please indicate:	**... ⟷ 37.5 75 100 1000 mm**

Hole pattern → **A 21**
Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Profiles for PCB mounting → **A 90 – 113**
Silicone wafers → **E 2 – 4**
Thermal conductive material → **E 2 – 15**
Kapton insulator washers → **E 8**

art. no.	
SK 197 ...	 
please indicate:	**... ⟷** **37.5 1000 mm** **... ⊕ (optional)** **TO 3; CB**

art. no.	
SK 98 ...	 
	with slots for cover plates or PCBs
please indicate:	**... ⟷** **100 150 mm**

art. no.	
SK 404 ...	 
please indicate:	**... ⟷** **50 75 1000 mm** **... ⊕ (optional)** **TO 3; CB**

Hole pattern → **A 21**
Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Profiles for PCB mounting → **A 90 – 113**
Silicone wafers → **E 2 – 4**
Thermal conductive material → **E 2 – 15**
Kapton insulator washers → **E 8**

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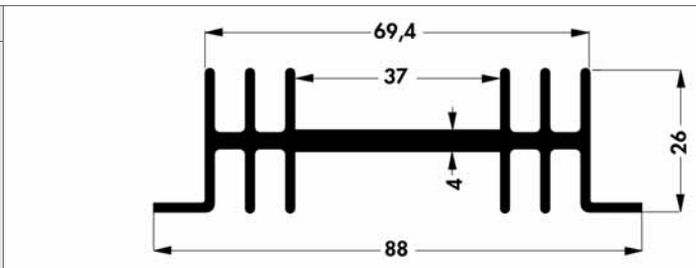
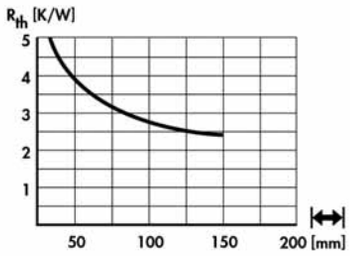
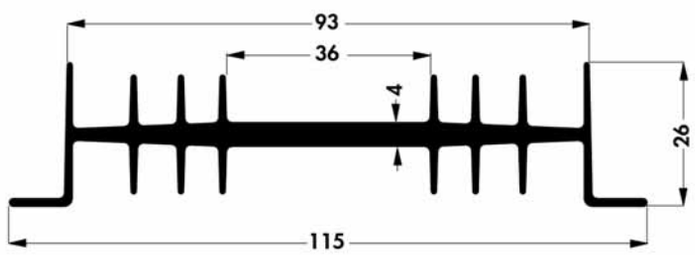
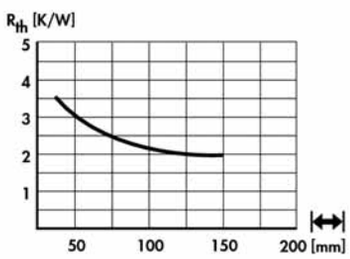
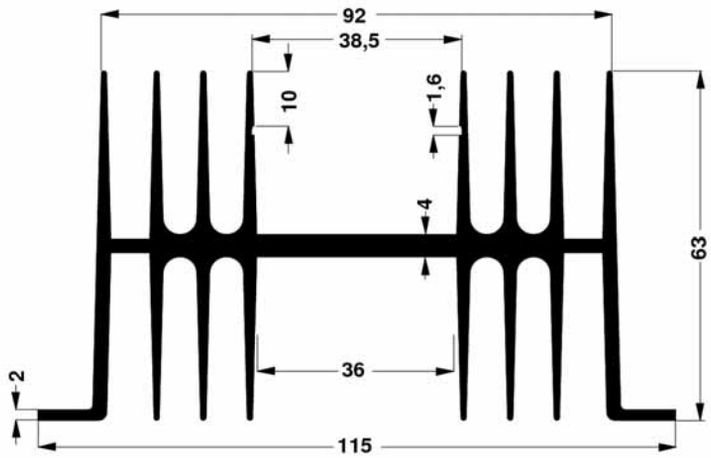
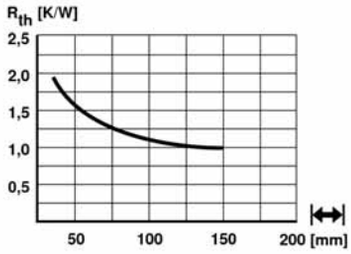
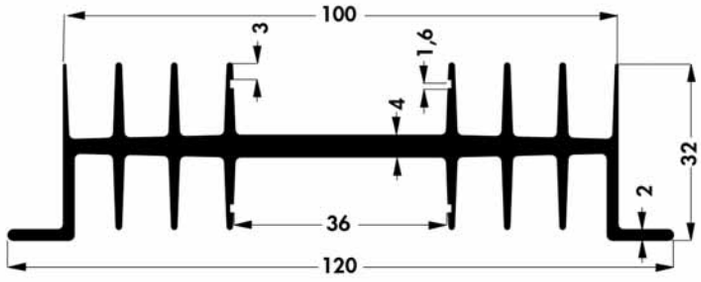
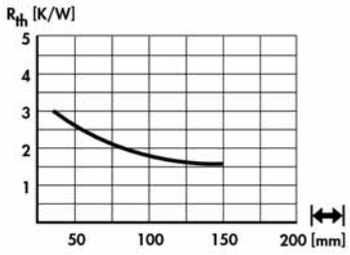
Standard extruded heatsinks

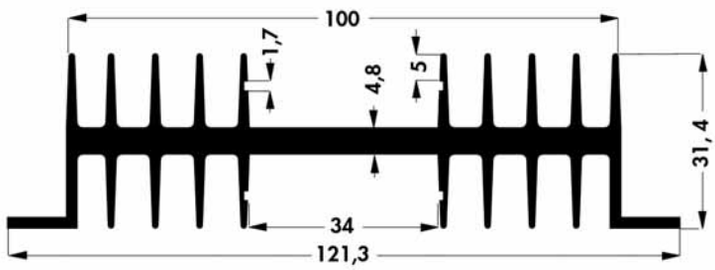
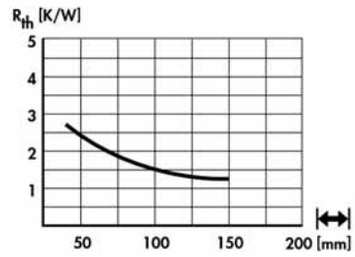
art. no.	
	 
SK 36 ...	mounting parts IS 1, IS 2, IS 3 → E 43
please indicate:	**... ↔** **50 75 1000 mm** **... ⊕ (optional)** **TO 3; CB**

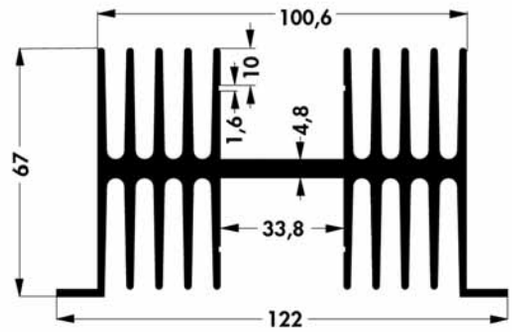
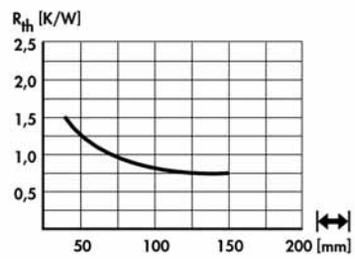
art. no.	
	 
SK 01 ...	mounting parts IS 1, IS 2, IS 3 → E 43
please indicate:	**... ↔** **37.5 50 75 100 1000 mm** **... ⊕ (optional)** **TO 3; CB**

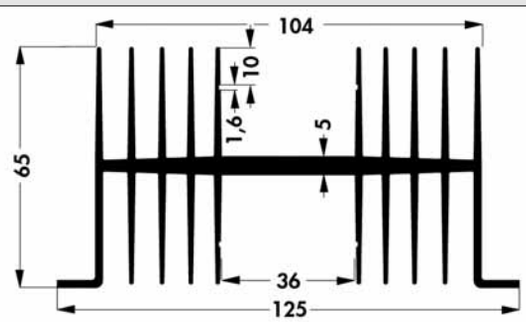
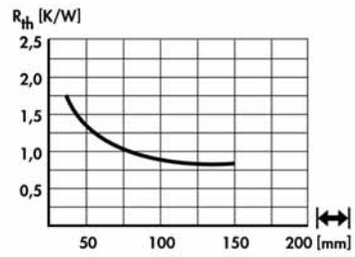
art. no.	
	 
SK 02 ...	with slots for cover plates or PCBs; mounting parts IS 1, IS 2, IS 3 → E 43
please indicate:	**... ↔** **37.5 50 75 100 1000 mm** **... ⊕ (optional)** **TO 3; CB**

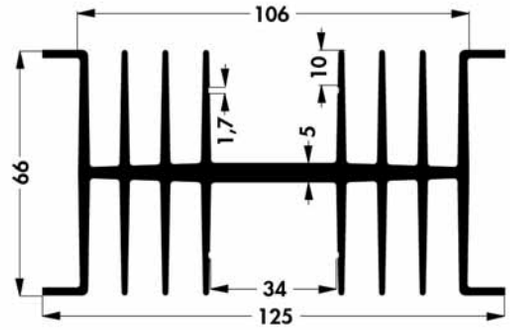
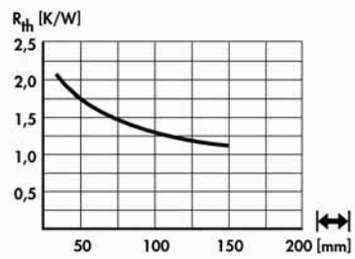
art. no.	
	 
SK 03 ...	with slots for cover plates or PCBs; mounting parts IS 1, IS 2, IS 3 → E 43
please indicate:	**... ↔** **50 75 100 1000 mm** **... ⊕ (optional)** **TO 3; CB**

Clamp fixing for DIN-rail → **E 16**
Mounting material for semiconduct. → **E 37 – 41**
Mounting parts for heatsinks → **E 43 – 44**
Distance sleeves → **E 24 – 31**
Order example → **A 21**
Assignment table → **A 18 - 20**
Hole pattern → **A 21**
Guide rails for PCBs → **E 17 – 22**

art. no.	
	 
SK 39 ...	with slots for cover plates or PCBs; mounting parts IS 1, IS 2, IS 3 → E 43
please indicate:	**... ⟷** **75 100 1000 mm** **... (optional)** **TO 3; CB**

art. no.	
	 
SK 30 ...	with slots for cover plates or PCBs; mounting parts IS 1, IS 2, IS 3 → E 43
please indicate:	**... ⟷** **75 100 1000 mm** **... (optional)** **TO 3; CB**

art. no.	
	 
SK 34 ...	with slots for cover plates or PCBs; mounting parts IS 1, IS 2, IS 3 → E 43
please indicate:	**... ⟷** **50 75 100 1000 mm** **... (optional)** **TO 3; CB**

art. no.	
	 
SK 14 ...	with slots for cover plates or PCBs; mounting parts IS 1, IS 2, IS 3 → E 43
please indicate:	**... ⟷** **50 75 100 mm** **... (optional)** **TO 3; CB**

Clamp fixing for DIN-rail → **E 16**
Mounting material for semiconduct. → **E 37 – 41**
Mounting parts for heatsinks → **E 43 – 44**
Distance sleeves → **E 24 – 31**
Order example → **A 21**
Assignment table → **A 18 - 20**
Hole pattern → **A 21**
Guide rails for PCBs → **E 17 – 22**

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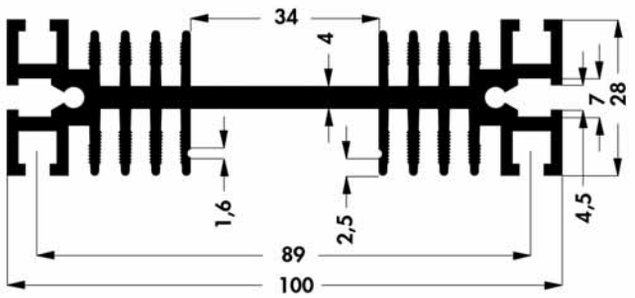
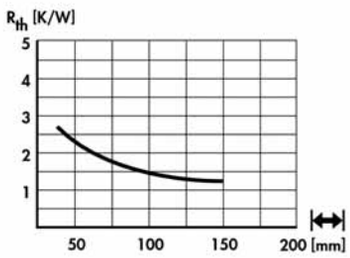
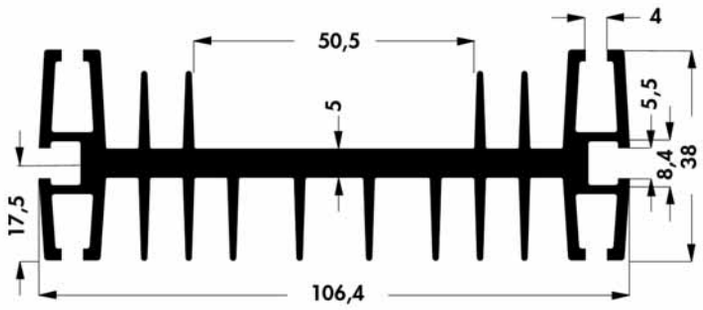
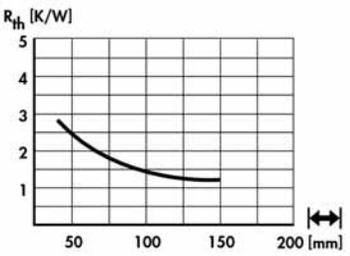
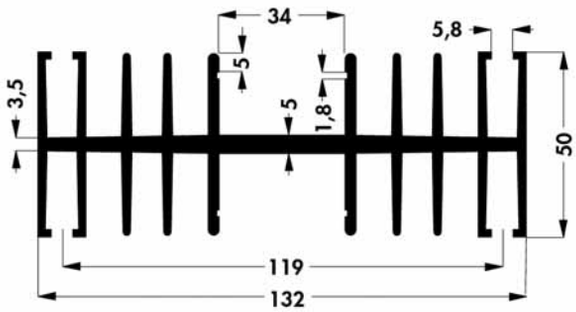
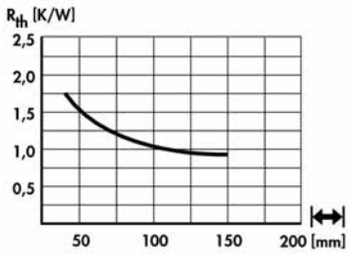
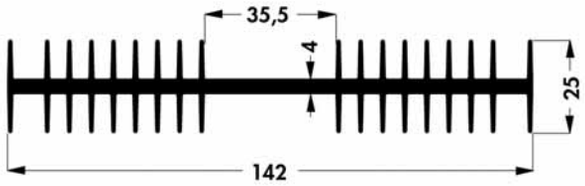
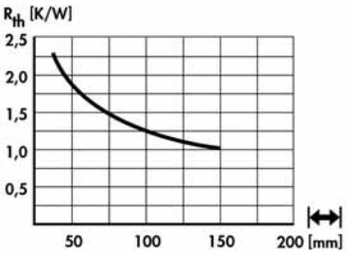
Standard extruded heatsinks

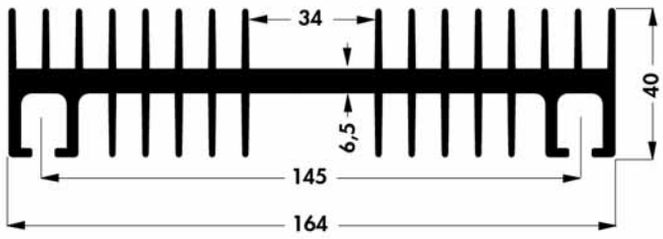
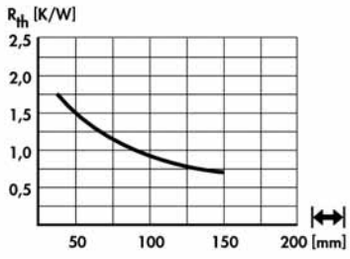
art. no.	
SK 20 ...	 
	with slots for cover plates or PCBs; mounting parts IS 5, IS 8 → E 43, 44
please indicate:	**... ↔** **37.5 75 100 1000 mm** **... ◈ (optional)** **TO 3; CB**

art. no.	
SK 184 ...	 
please indicate:	**... ↔** **100 1000 mm**

art. no.	
SK 148 ...	 
	with slots for cover plates or PCBs
please indicate:	**... ↔** **37.5 100 1000 mm** **... ◈ (optional)** **TO 3; CB**

art. no.	
SK 84 ...	 
please indicate:	**... ↔** **50 150 1000 mm** **... ◈ (optional)** **TO 3**

Standard extruded heatsinks

art. no.	 
SK 67 ...	mounting part IS 6 → E 44
please indicate:	**... ↔** **37.5 50 100 1000 mm** **... ⌖ (optional)** **TO 3**

Clamp fixing for DIN-rail → **E 16**
Mounting material for semiconduct. → **E 37 – 41**
Mounting parts for heatsinks → **E 43 – 44**
Distance sleeves → **E 24 – 31**
Order example → **A 21**
Assignment table → **A 18 - 20**
Hole pattern → **A 21**
Guide rails for PCBs → **E 17 – 22**

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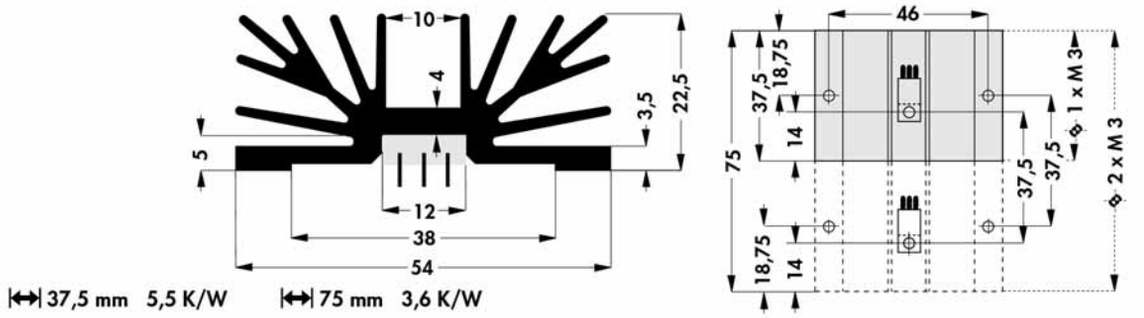
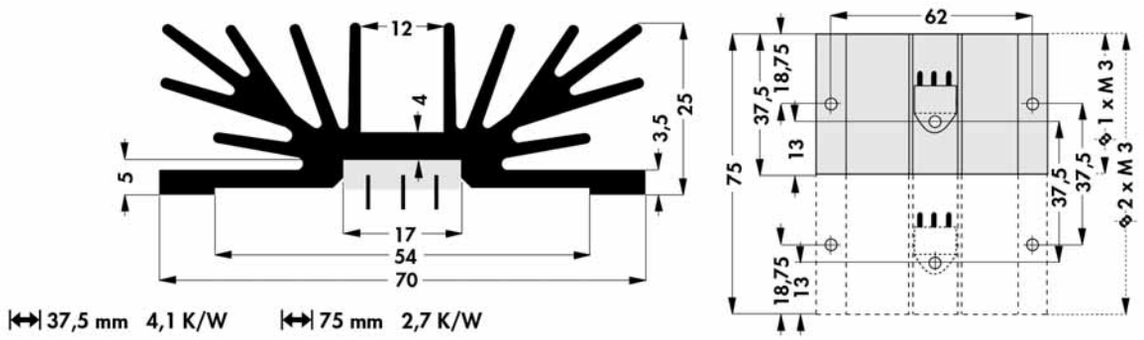
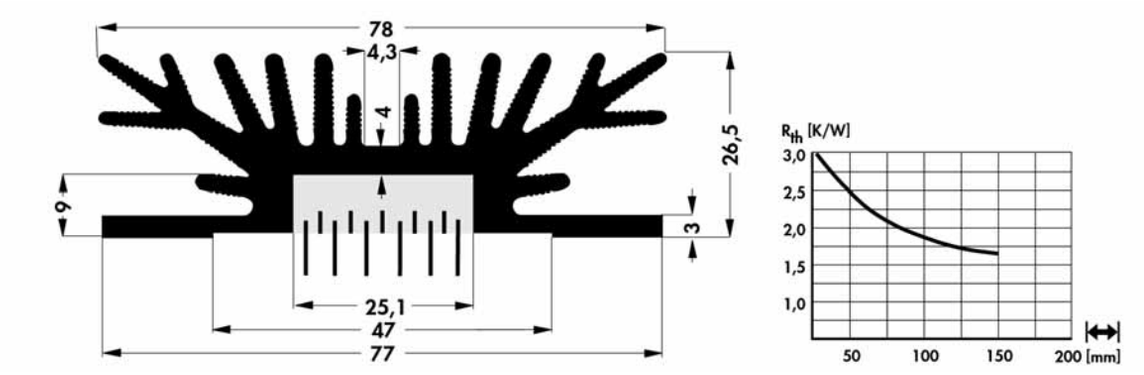
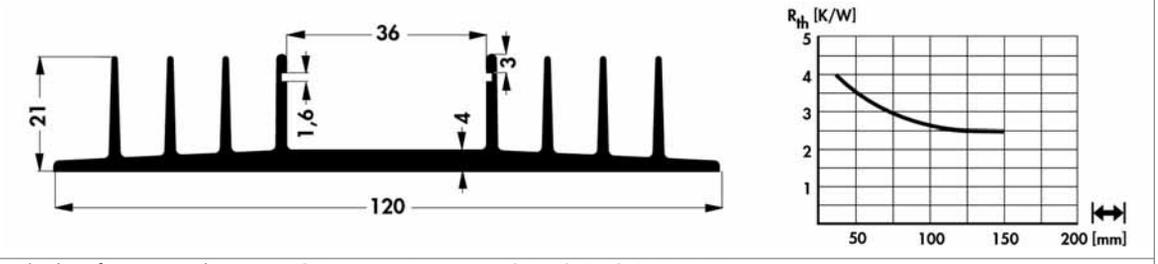
art. no.	
	
SK 65 ...	for cases SOT 32
please indicate:	**... ⟷** **37.5 75 mm** **... ⌖ (optional)** **1 x M 3; 2 x M 3**

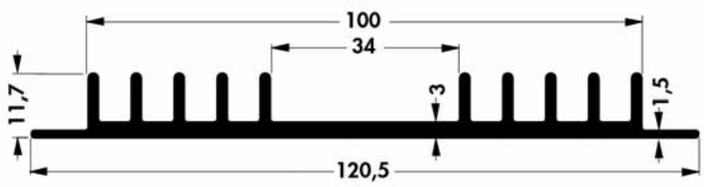
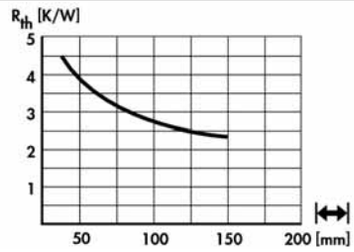
art. no.	
	
SK 64 ...	for cases TO 220, TOP 3
please indicate:	**... ⟷** **37.5 75 mm** **... ⌖ (optional)** **1 x M 3; 2 x M 3**

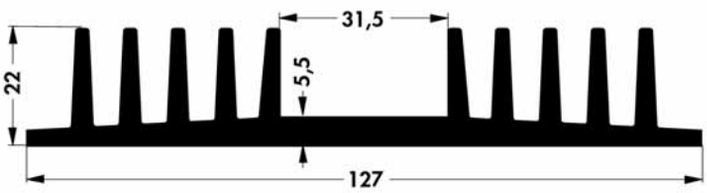
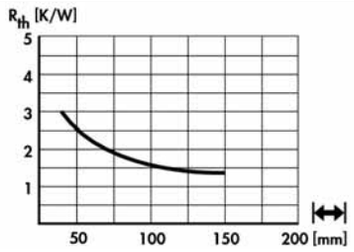
art. no.	
	
SK 419 ...	
please indicate:	**... ⟷** **1000 mm**

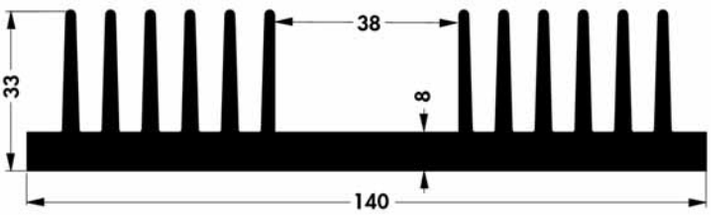
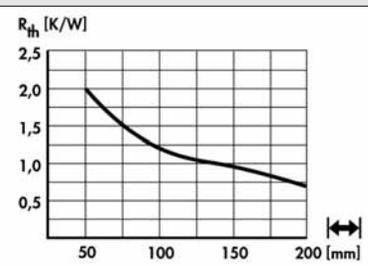
art. no.	
	
SK 21 ...	with slots for cover plates or PCBs; mounting parts IS 1, IS 2, IS 3 → E 43
please indicate:	**... ⟷** **37.5 1000 mm** **... ⌖ (optional)** **TO 3; CB**

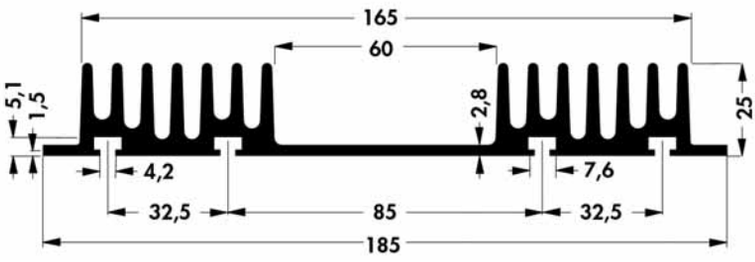
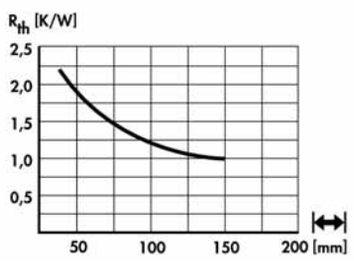
Mounting for TO 3 angle → **A 125**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Heatsinks for DC/DC converter → **A 114 – 115**
Heatsink profile-overview → **A 13 - 16**
Mica wafers → **E 11**
Insulator sleeves → **E 46**
Insulting clamping parts → **E 38**

Standard extruded heatsinks

art. no.		
SK 69 ...		
	mounting parts IS 1, IS 2, IS 3 → E 43	
please indicate:	**... ↔ 50 75 100 1000 mm**	**... ⊕ (optional) TO 3; CB**

art. no.		
SK 74 ...		
please indicate:	**... ↔ 37.5 100 1000 mm**	**... ⊕ (optional) TO 3; CB**

art. no.		
SK 124 ...		
please indicate:	**... ↔ 50 100 150 1000 mm**	**... ⊕ (optional) TO 3**

art. no.		
SK 195 ...		
please indicate:	**... ↔ 75 100 mm**	**... ⊕ (optional) TO 3; CB**

Mounting for TO 3 angle → **A 125**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Heatsinks for DC/DC converter → **A 114 – 115**
Heatsink profile-overview → **A 13 - 16**
Mica wafers → **E 11**
Insulator sleeves → **E 46**
Insulting clamping parts → **E 38**

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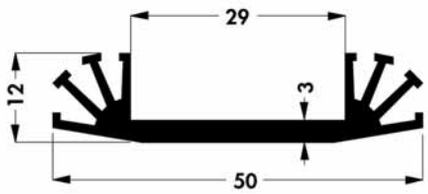
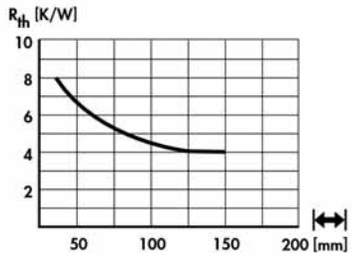
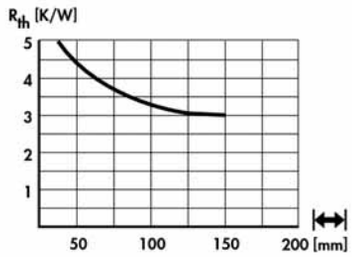
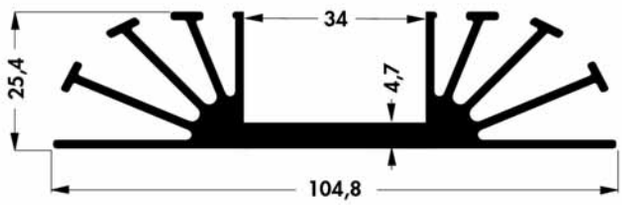
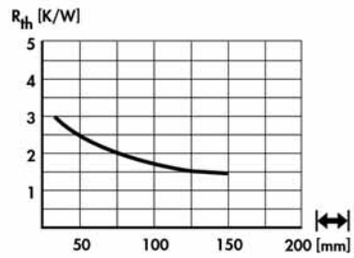
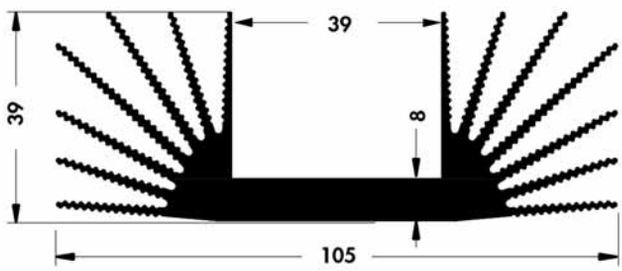
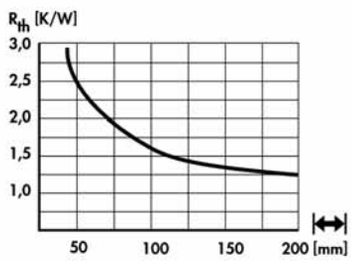
Standard extruded heatsinks

art. no.		
SK 31 ...		
please indicate:	**... ↔**	**... ⊕ (optional)**
	37.5 50 75 1000 mm	**TO 3; CB**

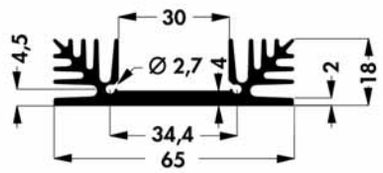
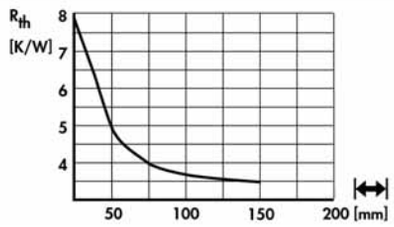
art. no.		
SK 07 ...		
please indicate:	**... ↔**	**... ⊕ (optional)**
	37.5 50 75 1000 mm	**TO 3; CB**

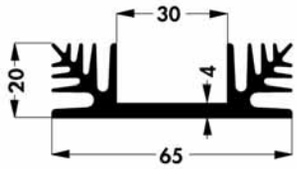
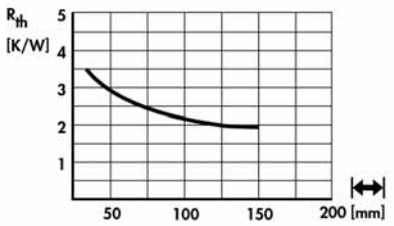
art. no.		
SK 16 ...	 mountingpart IS 3 → E 43	
please indicate:	**... ↔**	**... ⊕ (optional)**
	75 1000 mm	**TO 3; CB**

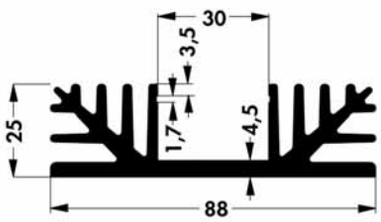
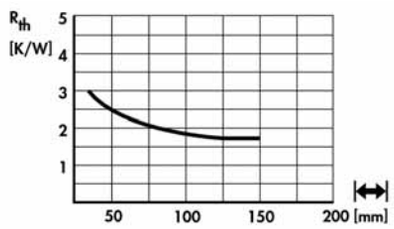
art. no.		
SK 500 ...		
please indicate:	**... ↔**	
	37.5 50 75 100 1000 mm	

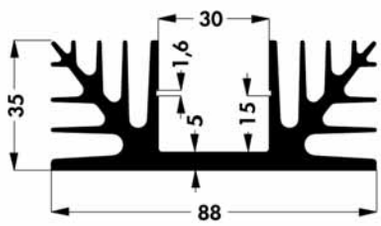
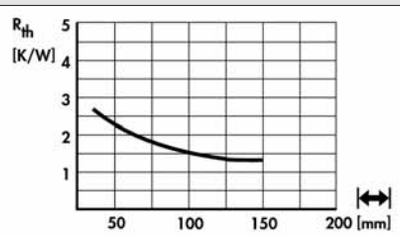
Attachable heatsinks for TO-cases	→ A 94	Hole pattern	→ A 21
Mounting for TO 3 angle	→ A 125	Special profiles	→ A 136
Retaining springs for transistors	→ A 116 – 122	Extruded heatsinks	→ A 22 – 84
Technical annotations	→ A 2 - 7	Profiles for lock-in fixing spring	→ A 85 – 89

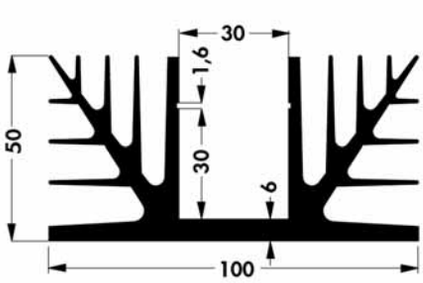
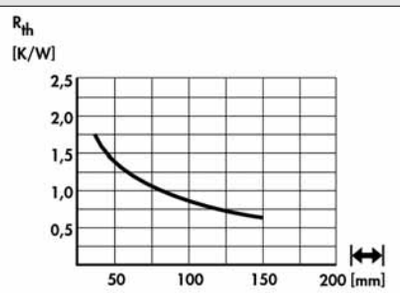
Standard extruded heatsinks

art. no.		
		
SK 185 ...	extruded heatsink for PCB mounting ➔ A 105	
please indicate:	**... ⟷**	**... ⌖ (optional)**
	37.5 50 1000 mm	**TO 3; CB**

art. no.		
		
SK 48 ...		
please indicate:	**... ⟷**	**... ⌖ (optional)**
	37.5 50 75 100 1000 mm	**TO 3; CB; SSR 1; SSR 3**

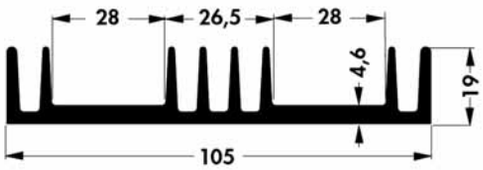
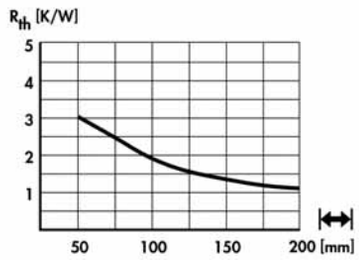
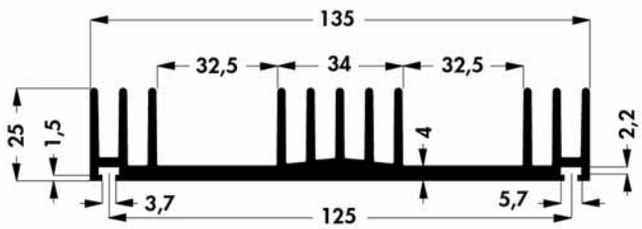
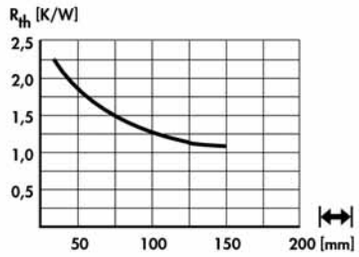
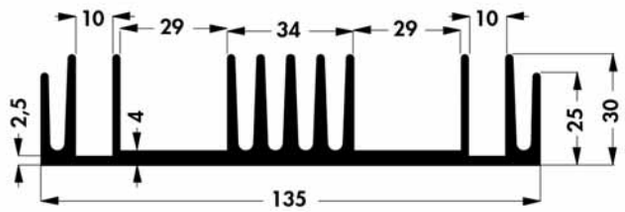
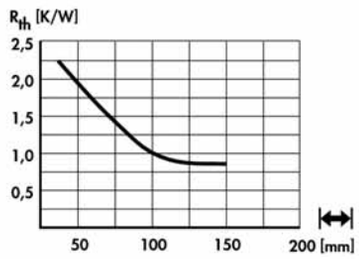
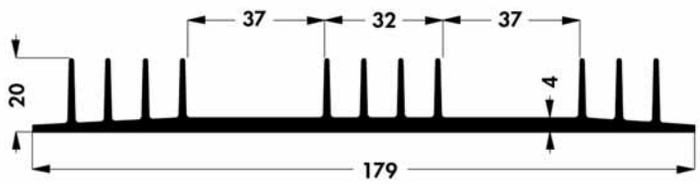
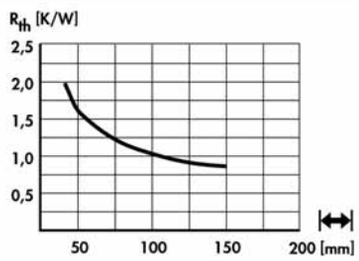
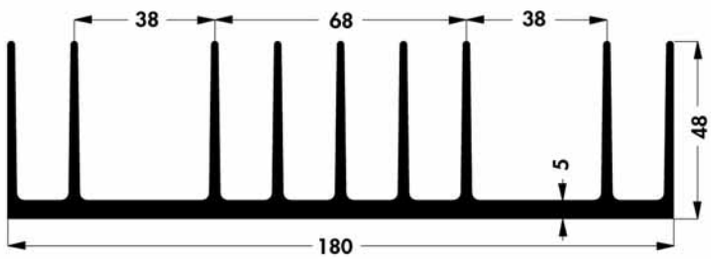
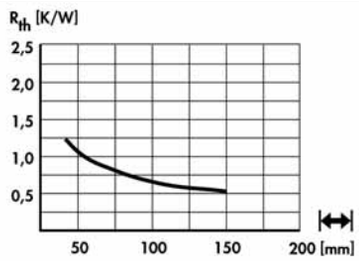
art. no.		
		
SK 79 ...	with slots for cover plates or PCBs	
please indicate:	**... ⟷**	**... ⌖ (optional)**
	37.5 50 75 100 1000 mm	**TO 3; CB**

art. no.		
		
SK 08 ...	with slots for cover plates or PCBs	
please indicate:	**... ⟷**	**... ⌖ (optional)**
	37.5 50 75 100 1000 mm	**TO 3; CB**

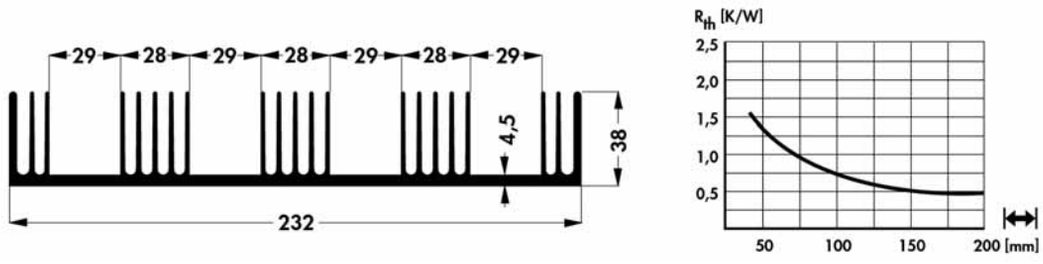
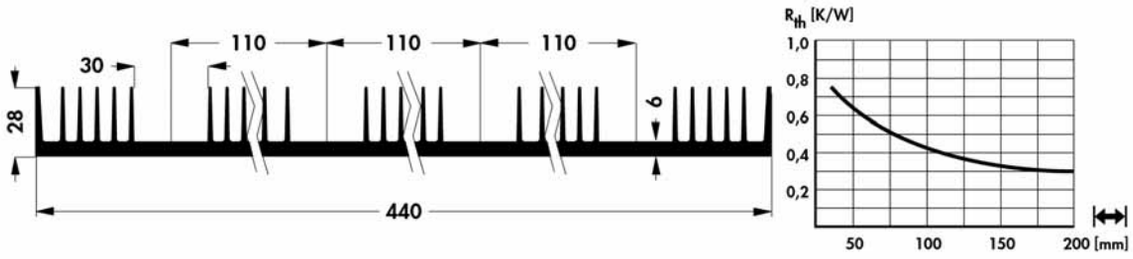
art. no.		
		
SK 88 ...	with slots for cover plates or PCBs	
please indicate:	**... ⟷**	**... ⌖ (optional)**
	37.5 50 75 100 1000 mm	**TO 3**

Hole pattern ➔ **A 21**
Standard aluminium profiles ➔ **A 135 – 136**
Extruded heatsinks ➔ **A 22 – 84**
Technical annotations ➔ **A 2 - 7**
Retaining springs for transistors ➔ **A 116 – 122**
Assignment table ➔ **A 18 - 20**
Thermal. conductive silicone foam foil ➔ **E 6**
Thermal conductive foil ➔ **E 5**

Standard extruded heatsinks

art. no.		
SK 52 ...		
please indicate:	... ↔ 37.5 50 75 100 1000 mm	... ⊕ (optional) 2 x TO 3; 2 x CB
art. no.		
SK 60 ...		
please indicate:	... ↔ 50 75 100 1000 mm	... ⊕ (optional) 2 x TO 3; 2 x CB
art. no.		
SK 147 ...		
please indicate:	... ↔ 50 150 1000 mm	... ⊕ (optional) 2 x TO 3; 2 x CB
art. no.		
SK 80 ...		
please indicate:	... ↔ 75 100 1000 mm	... ⊕ (optional) 2 x TO 3; 2 x CB
art. no.		
SK 53 ...		
please indicate:	... ↔ 50 75 100 150 1000 mm	... ⊕ (optional) 2 x TO 3; 2 x CB

Hole pattern → A 21
Standard aluminium profiles → A 135 – 136
Extruded heatsinks → A 22 – 84
Technical introduction → A 2 - 7
Retaining springs for transistors → A 116 – 122
Assignment table → A 18 - 20
Thermal. conductive silicone foam foil → E 6
Thermal conductive foil → E 5

art. no.	
SK 86 ...	
please indicate:	**... ⟷** **100 150 1000 mm**
art. no.	
SK 82 ...	
please indicate:	**... ⟷** **100 1000 mm**

Hole pattern → **A 21**
Standard aluminium profiles → **A 135 – 136**
Extruded heatsinks → **A 22 – 84**
Technical introduction → **A 2 - 7**
Retaining springs for transistors → **A 116 – 122**
Assignment table → **A 18 - 20**
Thermal. conductive silicone foam foil → **E 6**
Thermal conductive foil → **E 5**

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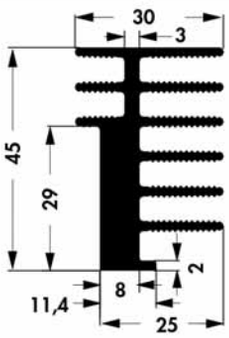
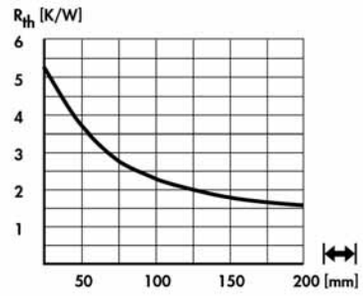
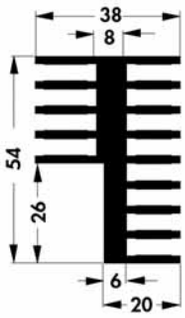
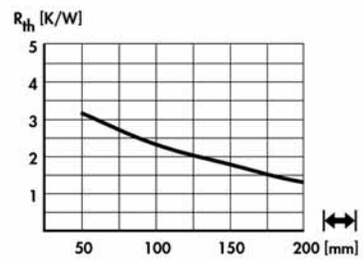
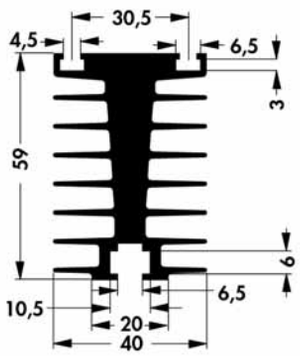
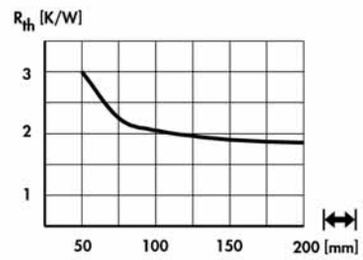
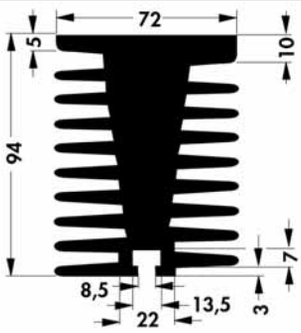
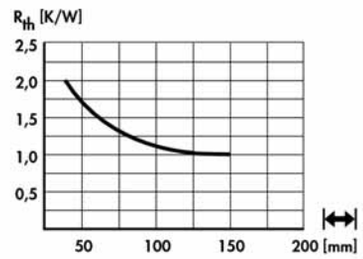
Standard extruded heatsinks

art. no.	
SK 544 ...	 
please indicate:	**... ↔** **50 75 100 1000 mm**

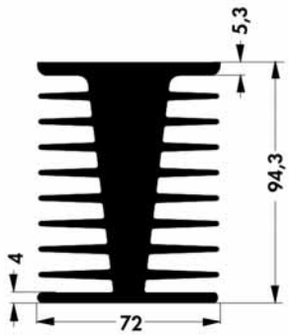
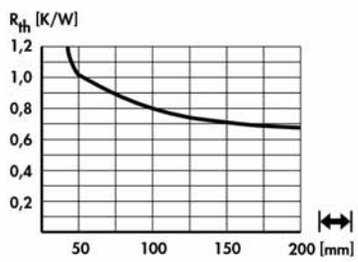
art. no.	
SK 32 ...	 
please indicate:	**... ↔** **37.5 50 75 100 1000 mm**

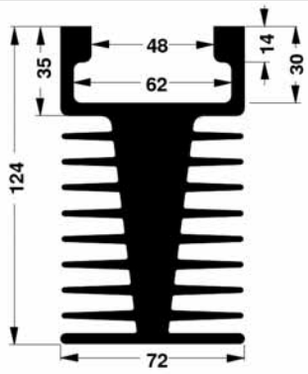
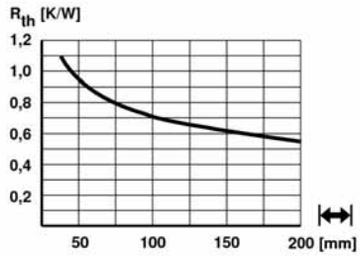
art. no.	
SK 187 ...	 
please indicate:	**... ↔** **75 1000 mm** **... ⌖ (optional)** **SSR 3**

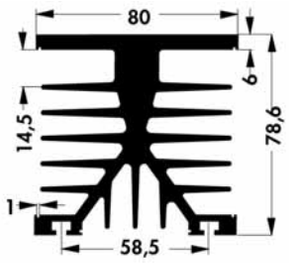
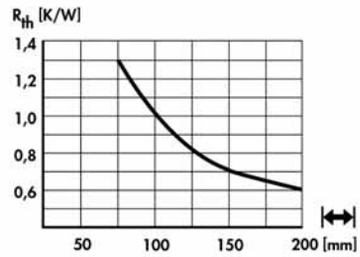
art. no.	
SK 140 ...	 
please indicate:	**... ↔** **1000 mm**

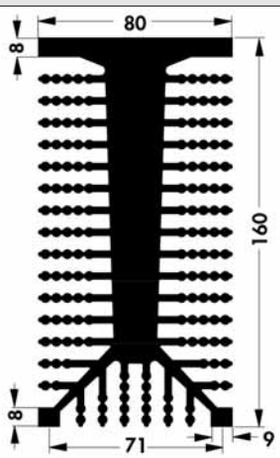
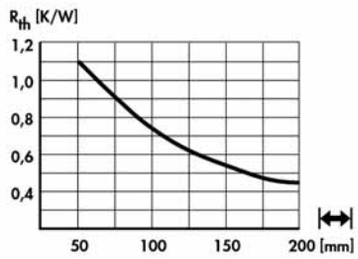
Drilling pattern for Solid State Relais → A 12
Hole pattern → A 21
Special heatsink design → A 135 - 137
Profiles for PCB components → A 92
High capacity heatsinks → A 57 – 58
Heatsinks for PCB → A 90 – 113
Mounting for TO 3 angle → A 125
Lock-in transistor fixing spring → A 119 – 122

Standard extruded heatsinks

art. no.	
SK 556 ...	 
please indicate:	**... ⟷** **75 100 150 1000 mm**

art. no.	
SK 15 ...	 
please indicate:	**... ⟷** **75 1000 mm**

art. no.	
SK 89 ...	  with slots for cover plates or PCBs
please indicate:	**... ⟷** **... ◈ (optional)** **100 150 1000 mm** **SSR 1; SSR 2; SSR 4**

art. no.	
SK 163 ...	 
please indicate:	**... ⟷** **100 150 1000 mm**

Drilling pattern for Solid State Relais → A 12
Hole pattern → A 21
Special heatsink design → A 135 - 137
Profiles for PCB components → A 92
High capacity heatsinks → A 57 – 58
Heatsinks for PCB → A 90 – 113
Mounting for TO 3 angle → A 125
Lock-in transistor fixing spring → A 119 – 122

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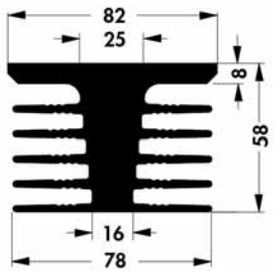
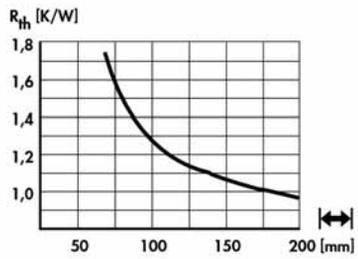
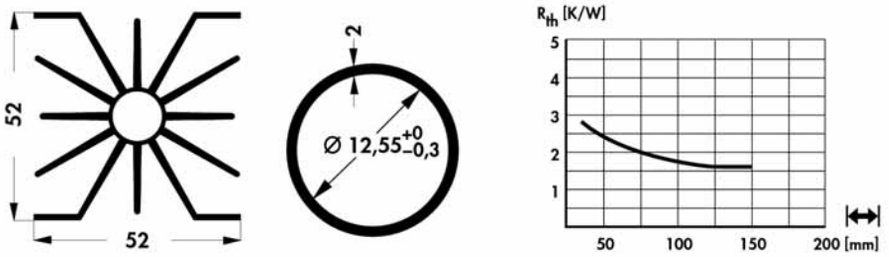
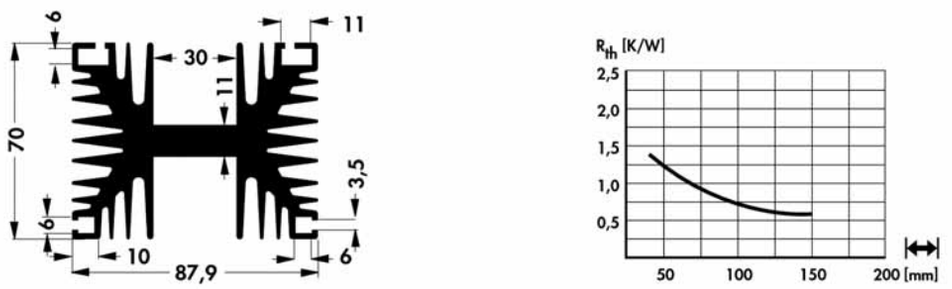
Standard extruded heatsinks

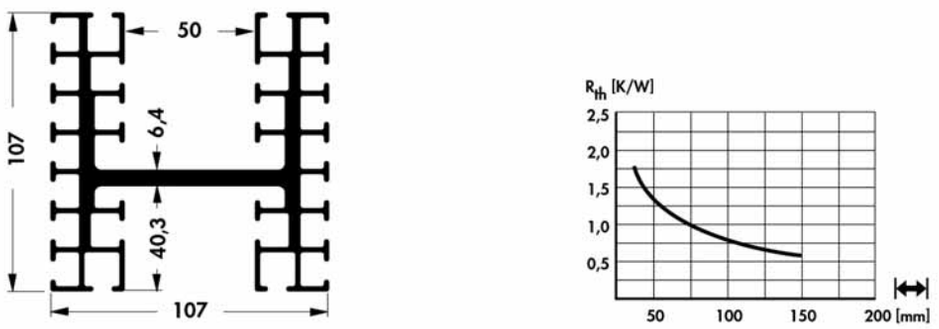
art. no.	
SK 176 ...	 

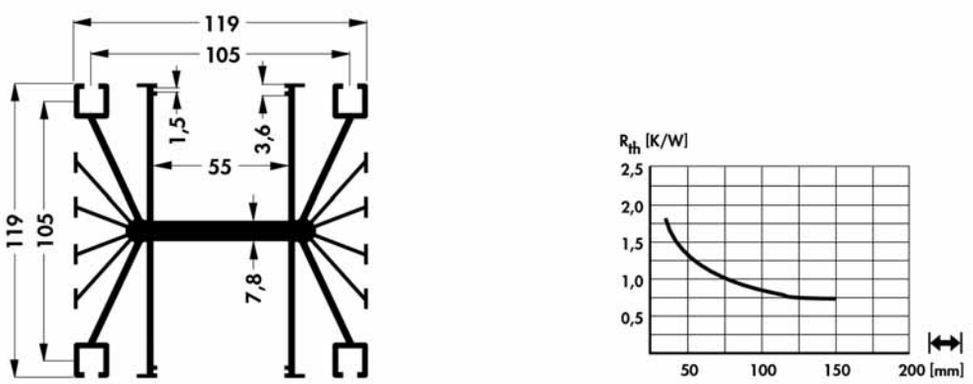
please indicate: **... ↔** **75 100 150 1000 mm** **... ⌖ (optional)** **SSR 2**

Standard extruded heatsinks

art. no.	
	
SK 11 ...	threads, through holes and fixing according; mounting parts IS 1, IS 2, IS 3 ➔ E 43
please indicate:	**... ⟷** **1000 mm**

art. no.	
	
SK 83 ...	
please indicate:	**... ⟷** **100 1000 mm**

art. no.	
	
SK 06 ...	mounting part IS 4 ➔ E 43
please indicate:	**... ⟷** **... ⌖ (optional)** **75 1000 mm** **TO 3**

art. no.	
	
SK 23 ...	with slots for cover plates or PCBs; equipped with fan and endplates = LA 4 ➔ D 13
please indicate:	**... ⟷** **75 mm**

Profiles for PCB components ➔ **A 92**
High capacity heatsinks ➔ **A 57 – 58**
Mounting for TO 3 angle ➔ **A 125**
Heatsinks for PCB ➔ **A 90 – 113**
Hole pattern ➔ **A 21**
Drilling pattern for Solid State Relais ➔ **A 12**
Special heatsink design ➔ **A 135 - 136**
Lock-in transistor fixing spring ➔ **A 119 – 120**

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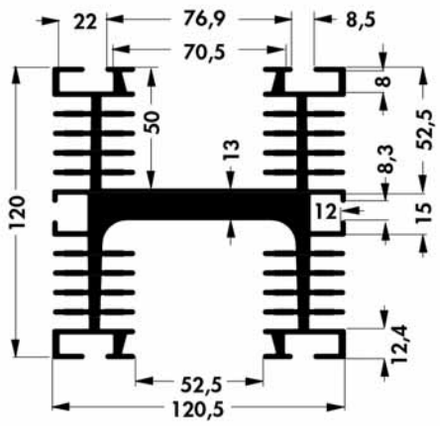
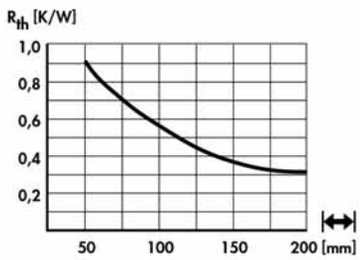
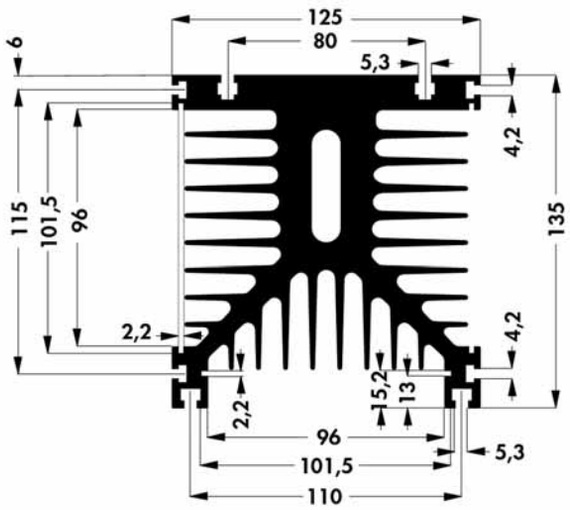
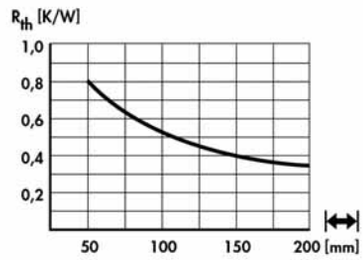
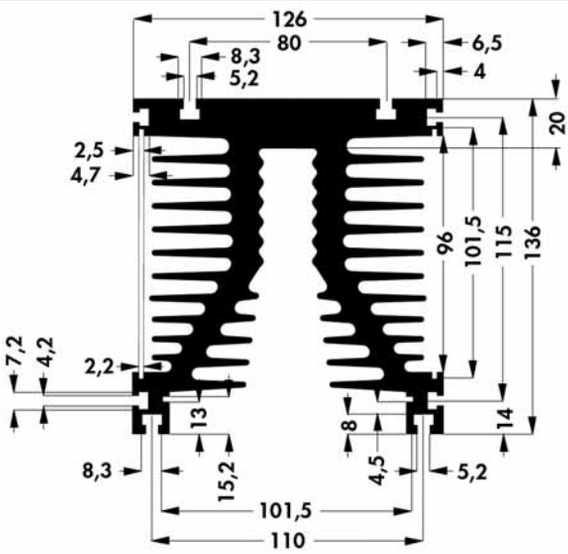
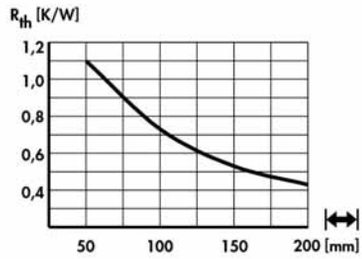
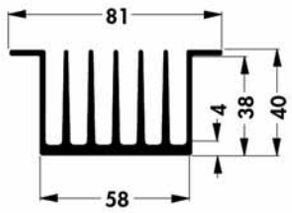
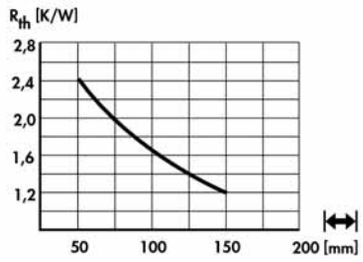
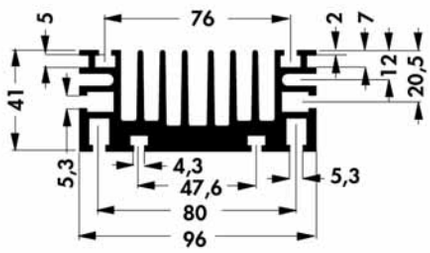
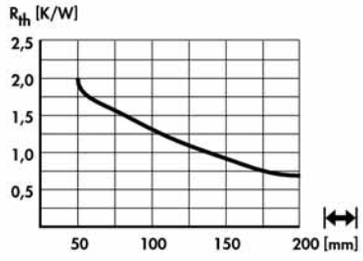
Standard extruded heatsinks

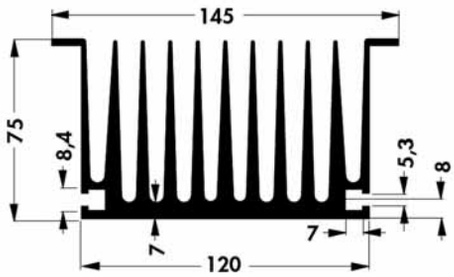
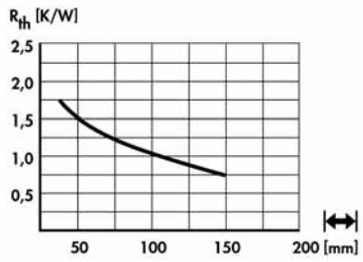
art. no.	
SK 110 ...	 
please indicate:	**... ↔** **150 200 1000 mm**
art. no.	
SK 109 ...	  with slots for cover plates or PCBs
please indicate:	**... ↔** **100 150 200 1000 mm**
art. no.	
SK 108 ...	  with slots for cover plates or PCBs
please indicate:	**... ↔** **100 1000 mm**

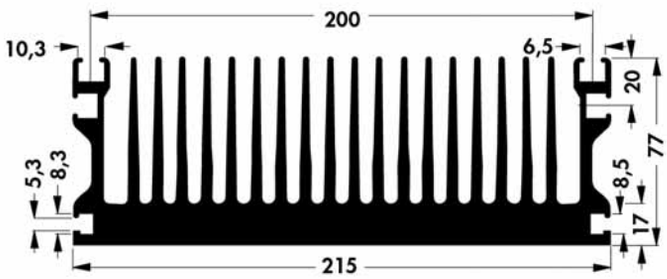
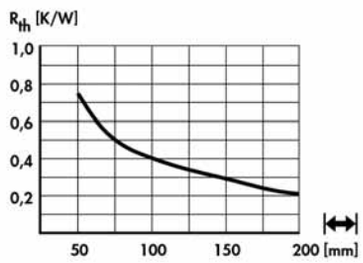
Profiles for PCB components	**→ A 92**	**Hole pattern**	**→ A 21**
High capacity heatsinks	**→ A 57 – 58**	**Drilling pattern for Solid State Relais**	**→ A 12**
Mounting for TO 3 angle	**→ A 125**	**Special heatsink design**	**→ A 135 - 136**
Heatsinks for PCB	**→ A 90 – 113**	**Lock-in transistor fixing spring**	**→ A 119 – 120**

Standard extruded heatsinks

art. no.		
SK 111 ...		
please indicate:	**... ↔** **75 100 1000 mm**	**... ⊕ (optional)** **SSR 1; SSR 3**

art. no.		
SK 172 ...		
please indicate:	**... ↔** **50 75 100 150 1000 mm**	**... ⊕ (optional)** **SSR 1; SSR 2; SSR 4**

art. no.		
SK 194 ...		
please indicate:	**... ↔** **75 1000 mm**	**... ⊕ (optional)** **SSR 2**

art. no.		
SK 435 ...		
please indicate:	**... ↔** **150 200 1000 mm**	

High capacity heatsinks → A 57 – 58
Heatsinks for DC/DC converter → A 114 – 115
High capacity heatsinks → A 57 – 58
Heatsink profile-overview → A 13 - 16
Extruded heatsinks → A 22 – 84
Technical introduction → A 2 - 7
High decorative surfaces → A 9
Die-cast heatsinks → A 125

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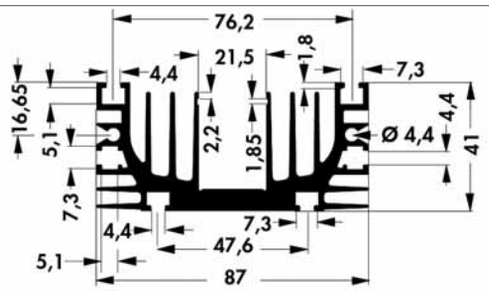
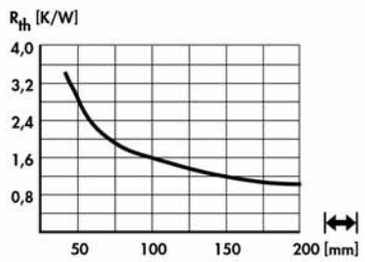
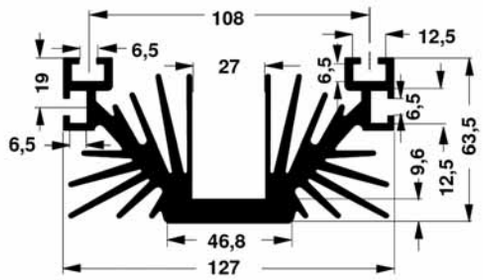
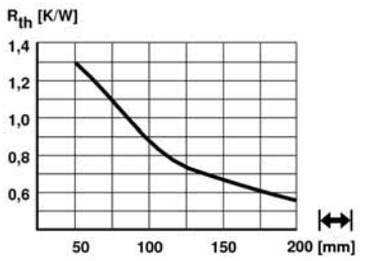
Standard extruded heatsinks

art. no.		
		
SK 432 ...	with slots for cover plates or PCBs	

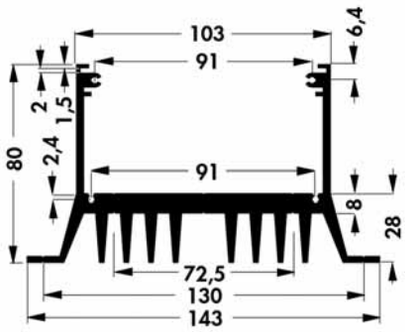
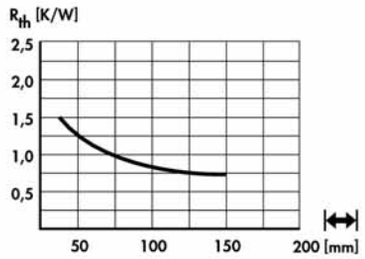
please indicate: **... ↔**

100 1000 mm

art. no.		
		
SK 40 ...		

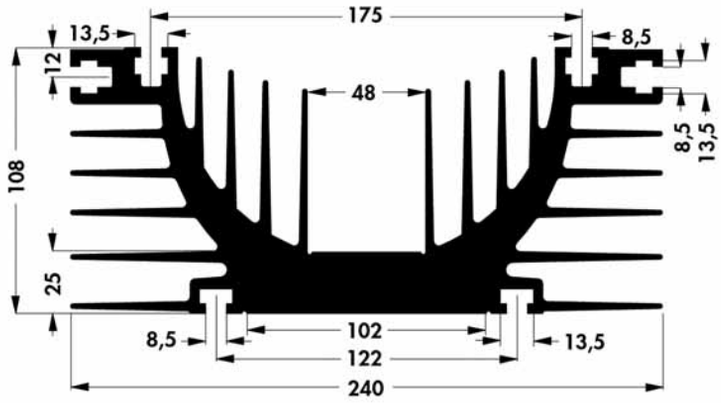
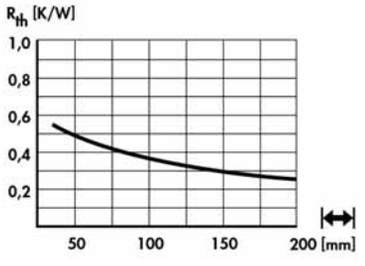
please indicate: **... ↔**

100 1000 mm

art. no.		
		
SK 61 ...	with slots for cover plates or PCBs; cooling case → M 29	

please indicate: **... ↔**

75 100 150 1000 mm

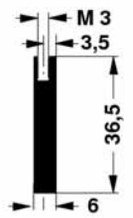
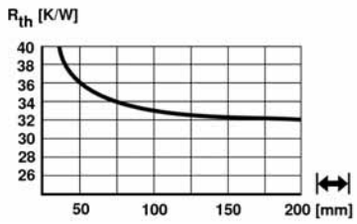
art. no.		
		
SK 144 ...		

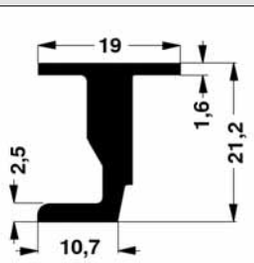
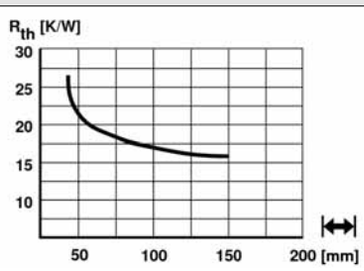
please indicate: **... ↔**

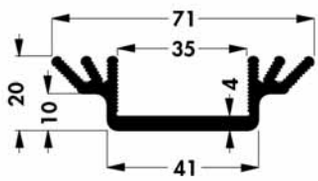
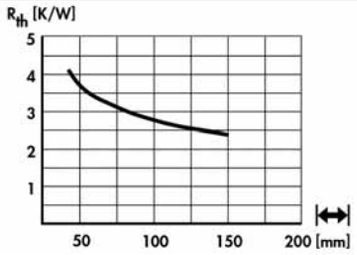
1000 mm

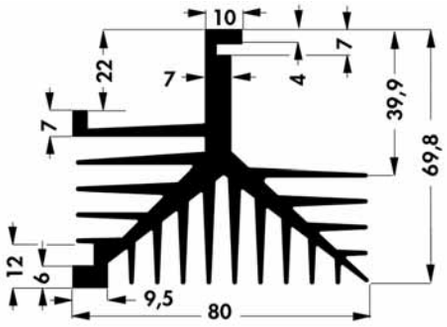
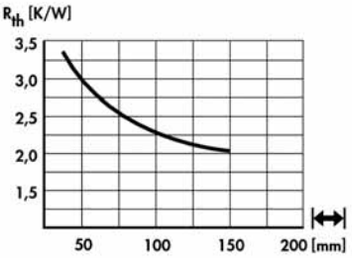
Drilling pattern for Solid State Relais → A 12
Hole pattern → A 21
Special heatsink design → A 133 - 134
Profiles for PCB components → A 92
High capacity heatsinks → A 57 – 58
Profiles for PCB mounting → A 90 – 113
Die-cast heatsinks → A 125
Heatsinks for PCB → A 90

Standard extruded heatsinks

art. no.		
SK 494 ...		
please indicate:	**... ↔**	
	25 37.5 50 75 100 1000 mm	

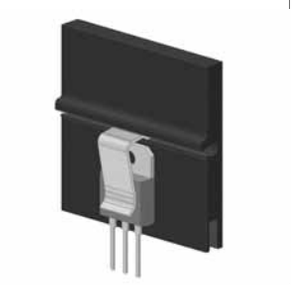
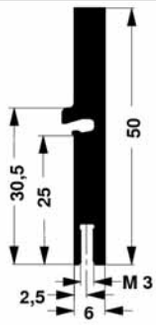
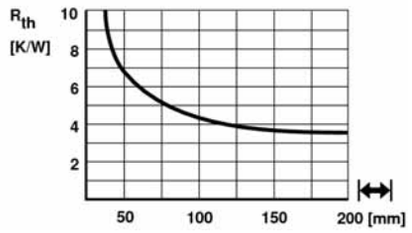
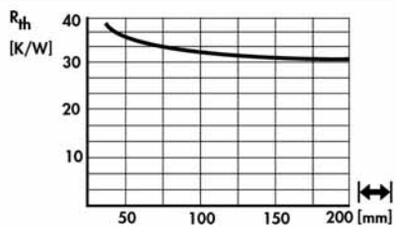
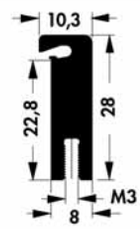
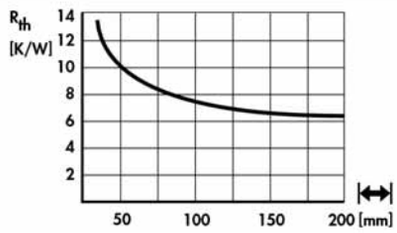
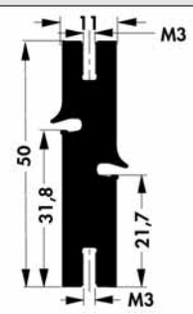
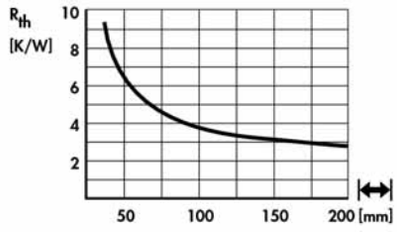
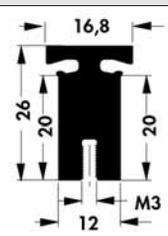
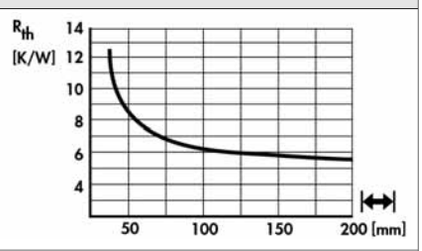
art. no.		
SK 153 ...	 	
please indicate:	**... ↔**	
	50 mm	

art. no.		
SK 55 ...		
please indicate:	**... ↔**	**... ⊕ (optional)**
	37.5 1000 mm	**TO 3; CB**

art. no.		
SK 175 ...		
please indicate:	**... ↔**	
	50 1000 mm	

Mounting for TO 3 angle → **A 125**
Attachable heatsinks for TO-cases → **A 94**
Profiles for PCB components → **A 92**
Heatsinks with threaded rail → **A 93**
Order example → **A 21**
Hole pattern → **A 21**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

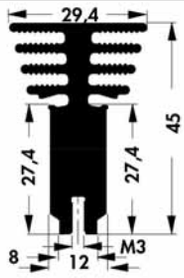
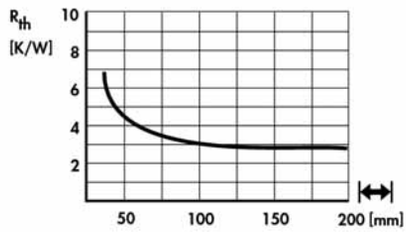
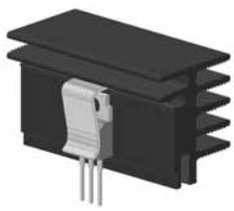
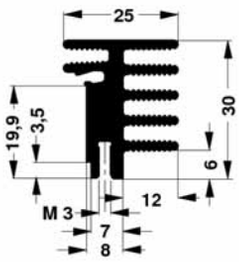
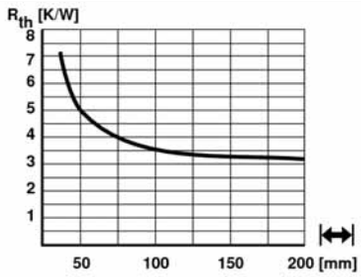
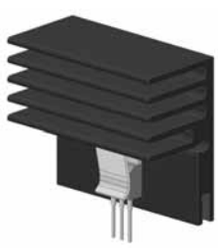
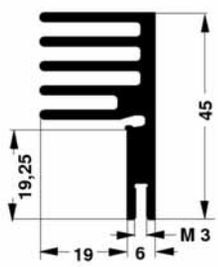
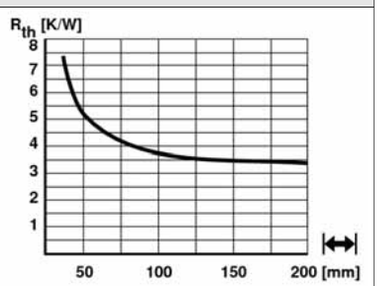
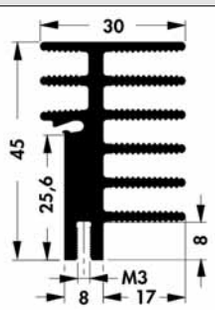
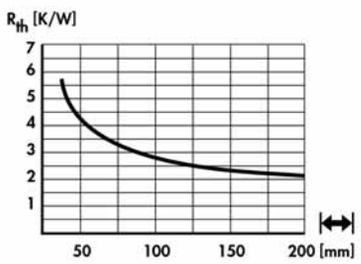
Extruded heatsinks for lock-in retaining spring

art. no.			
SK 575 ...			
please indicate:	**... ↔**	**25 37.5 50 75 84 100 1000 mm**	
art. no.			
SK 512 ...			
please indicate:	**... ↔**	**25 50 100 1000 mm**	
art. no.			
SK 480 ...			
please indicate:	**... ↔**	**25 37.5 50 75 84 100 1000 mm**	
art. no.			
SK 490 ...			
please indicate:	**... ↔**	**37.5 50 75 84 100 1000 mm**	
art. no.			
SK 492 ...			
please indicate:	**... ↔**	**25 37.5 50 75 84 100 1000 mm**	

please note: profile threads ➔ A 4

Mounting material for semiconduct. ➔ **E 37 – 41**
Insulator caps ➔ **E 44**
Mounting pads ➔ **E 39**
Lock-in transistor fixing spring ➔ **A 119**
Heatsinks for PCB ➔ **A 90**
Profiles for PCB components ➔ **A 92**
Heatsinks with threaded rail ➔ **A 93**
Mounting parts for heatsinks ➔ **E 43 – 44**

Extruded heatsinks for lock-in retaining spring

art. no.			
SK 489 ...			
please indicate:	**... ↔**		
	25 37.5 50 75 84 100 1000 mm		
art. no.			
SK 573 ...			
please indicate:	**... ↔**		
	25 37.5 50 75 84 100 1000 mm		
art. no.			
SK 576 ...			
please indicate:	**... ↔**		
	25 37.5 50 75 84 100 1000 mm		
art. no.			
SK 481 ...			
please indicate:	**... ↔**		
	25 37.5 50 75 84 100 1000 mm		

please note: profile threads → A 4

Mounting material for semiconduct. → **E 37 – 41**
Insulator caps → **E 44**
Mounting pads → **E 39**
Lock-in transistor fixing spring → **A 119**
Heatsinks for PCB → **A 90**
Profiles for PCB components → **A 92**
Heatsinks with threaded rail → **A 93**
Mounting parts for heatsinks → **E 43 – 44**

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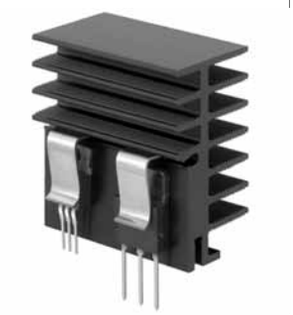
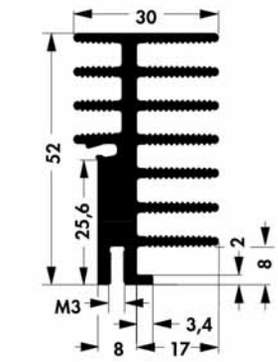
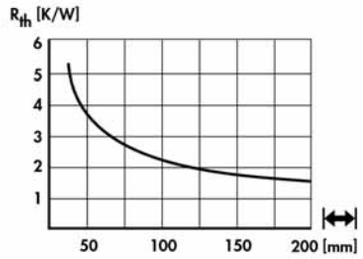
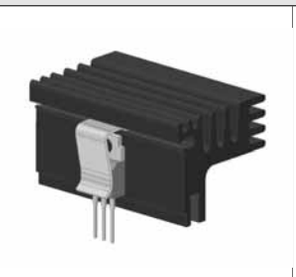
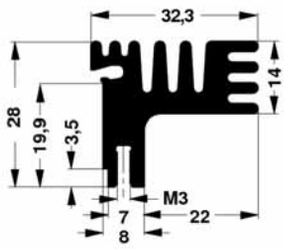
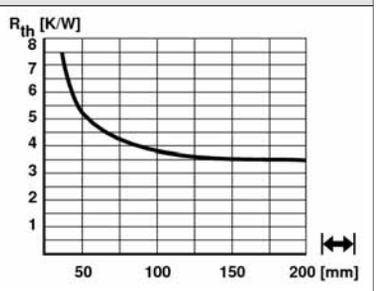
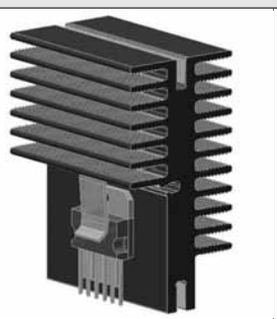
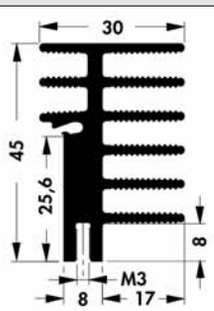
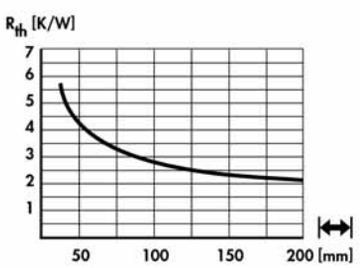
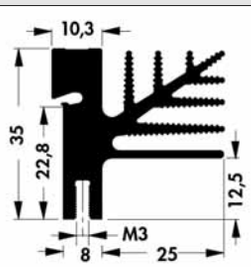
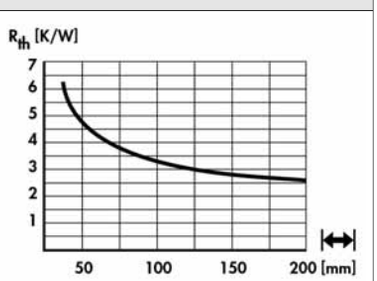
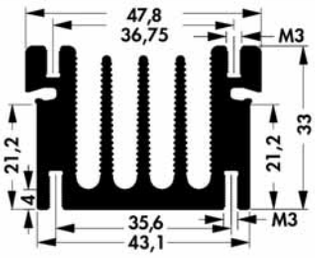
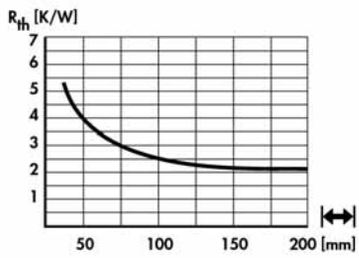
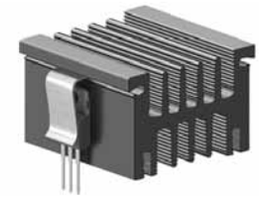
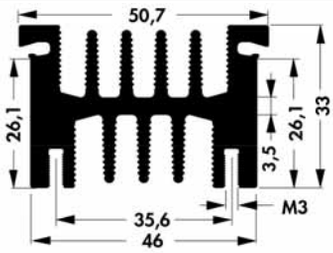
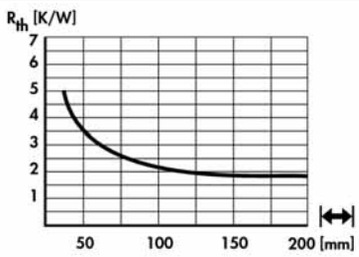
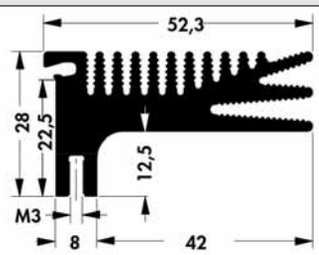
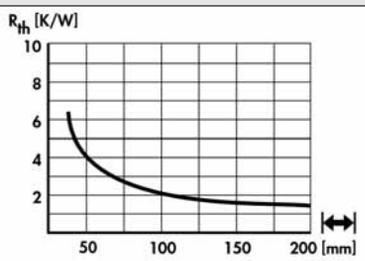
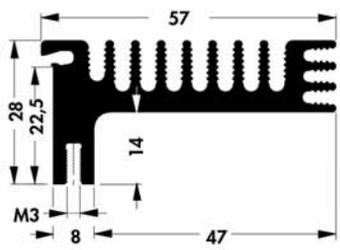
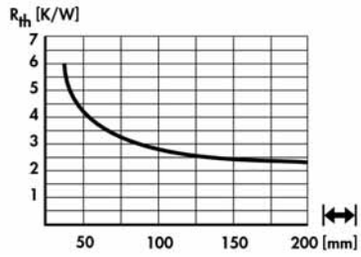
Extruded heatsinks for lock-in retaining spring

art. no.		
SK 514 ...		 
please indicate:	**... ↔**	**25 37.5 50 75 100 1000 mm**
SK 574 ...		 
please indicate:	**... ↔**	**25 37.5 50 75 84 100 1000 mm**
SK 589 ...		 
please indicate:	**... ↔**	**25 37.5 50 75 84 100 1000 mm**
SK 482 ...		 
please indicate:	**... ↔**	**25 37.5 50 75 84 100 1000 mm**

please note: profile threads → A 4

Mounting material for semiconduct. → **E 37 – 41**
Insulator caps → **E 44**
Mounting pads → **E 39**
Lock-in transistor fixing spring → **A 119**
Heatsinks for PCB → **A 90**
Profiles for PCB components → **A 92**
Heatsinks with threaded rail → **A 93**
Mounting parts for heatsinks → **E 43 – 44**

Extruded heatsinks for lock-in retaining spring

art. no.			
SK 495 ...			
please indicate:	**... ↔**		
	25 37.5 50 75 100 1000 mm		
art. no.			
SK 499 ...			
please indicate:	**... ↔**		
	25 37.5 50 75 100 1000 mm		
art. no.			
SK 487 ...			
please indicate:	**... ↔**		
	25 37.5 50 75 84 100 1000 mm		
art. no.			
SK 483 ...			
please indicate:	**... ↔**		
	25 37.5 50 75 84 100 1000 mm		

please note: profile threads → A 4

Mounting material for semiconduct. → **E 37 – 41**
Insulator caps → **E 44**
Mounting pads → **E 39**
Lock-in transistor fixing spring → **A 119**
Heatsinks for PCB → **A 90**
Profiles for PCB components → **A 92**
Heatsinks with threaded rail → **A 93**
Mounting parts for heatsinks → **E 43 – 44**

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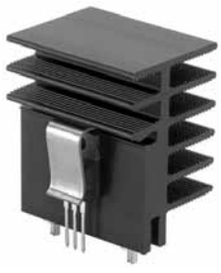
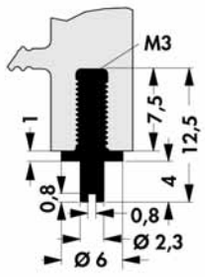
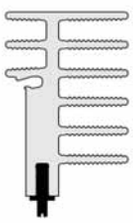
Extruded heatsinks for lock-in retaining spring

srew-in solder pin ELS 3

– screw in solder pin made of brass
– easy mounting
– secure hold
– surface covering suitable for soldering
– suitable for all heatsinks with M3 profile thread
– position in the threaded channel as required

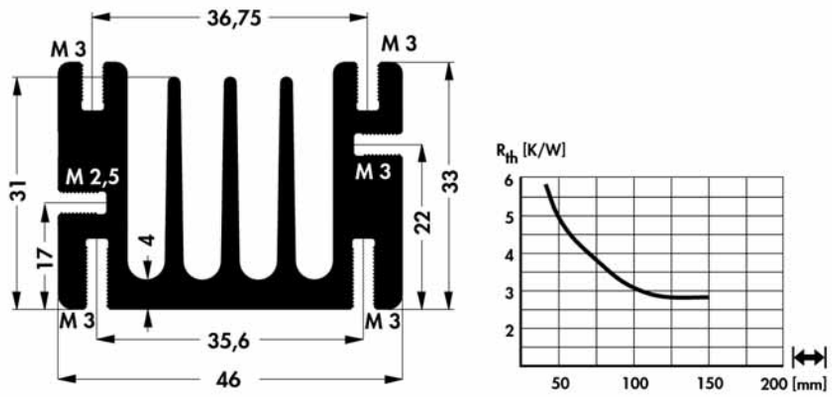
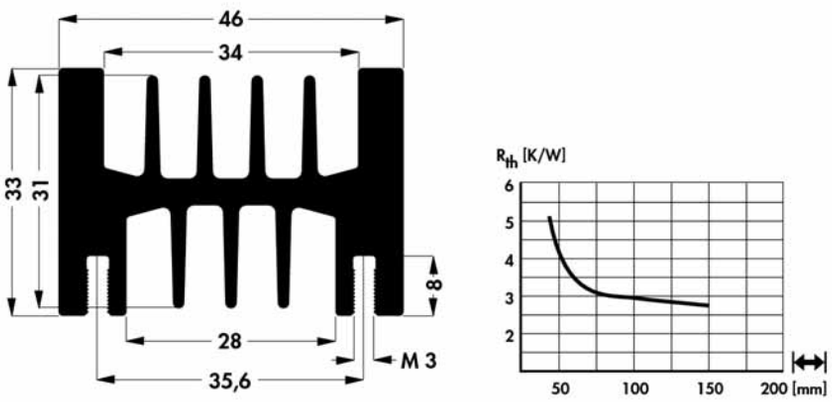
art. no.			
ELS 3			

specific designs on customer´s request

Mounting material for semiconduct. → E 37 – 41
Insulator caps → E 44
Mounting pads → E 39
Lock-in transistor fixing spring → A 119
Heatsinks for PCB → A 90
Profiles for PCB components → A 92
Heatsinks with threaded rail → A 93
Mounting parts for heatsinks → E 43 – 44

Extruded heatsinks for PCB mounting

Heatsinks for printed circuit boards

art. no.		
SK 68 ...		
art. no.		
SK 112 ...		
please indicate:	**... ↔**	**37.5 50 75 94 100 1000 mm**

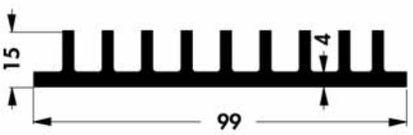
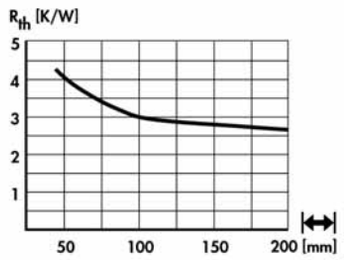
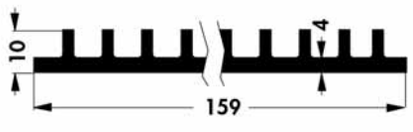
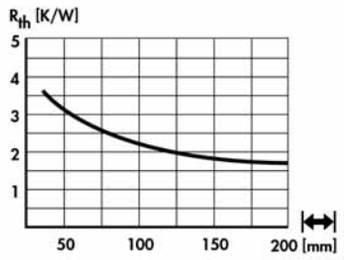
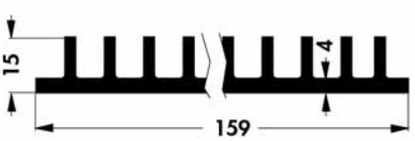
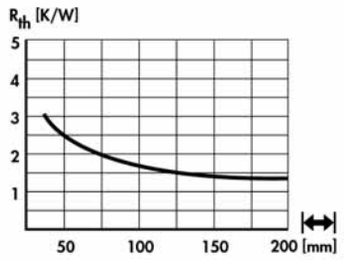
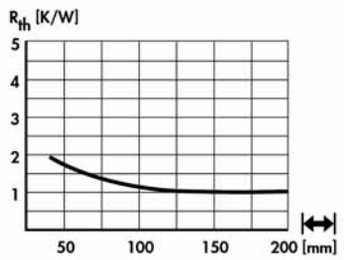
please note: profile threads → A 4
matching cylindrial screws according to DIN 84 with zinck coated surface
M 2.5 thread diameter: 2.44 ... 2.48 mm **(art. no.: SZ M 2.5 x 8)**
M 3 thread diameter: 2.90 ... 2.94 mm **(art. no.: SZ M 3 x 8)**
screw-in solder pin M 3 **(art. no.: ELS 3)**

Lock-in transistor fixing spring → **A 119**
Profiles for PCB components → **A 92**
Special heatsink design → **A 133 - 134**
Heatsinks with threaded rail → **A 93**
Kapton insulator washers → **E 8**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Thermal conductive foil → **E 5**

Extruded heatsinks for PCB mounting

Heatsinks for printed circuit boards

The heatsinks SK 414, SK 105, SK 44 and SK 415 are especially suitable for printed circuit board heatsinks for 19" plug in units.

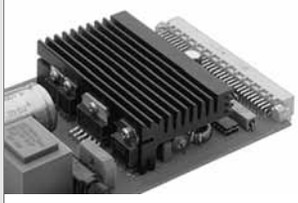
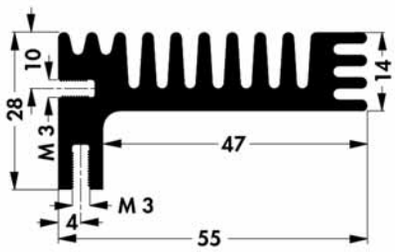
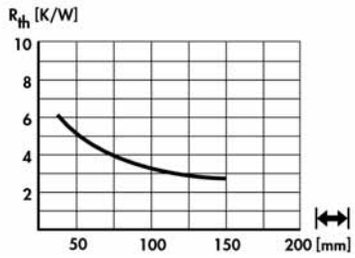
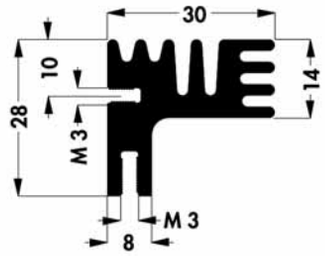
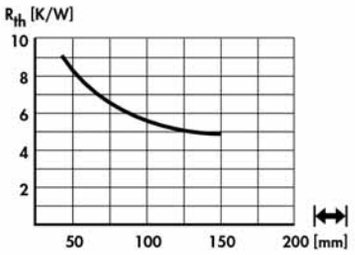
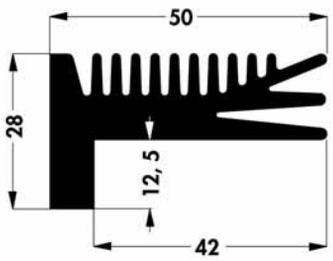
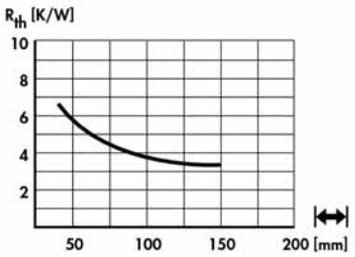
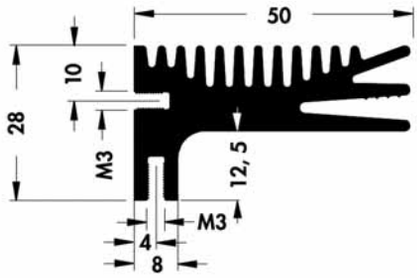
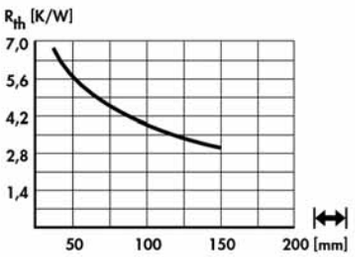
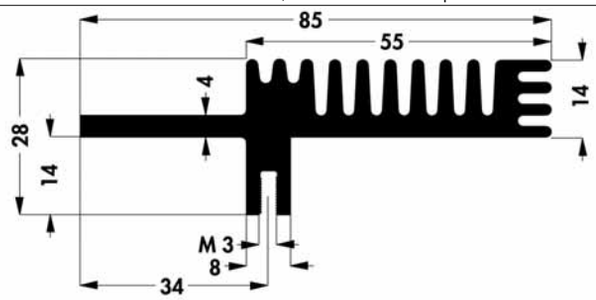
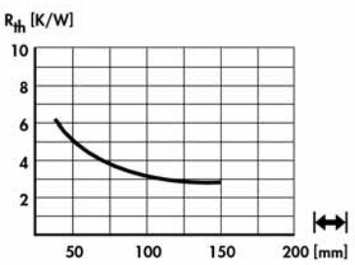
art. no.			
SK 414 ...			
please indicate:	**... ↔**	**100 233.4 1000 mm**	
art. no.			
SK 105 ...			
please indicate:	**... ↔**	**37.5 50 75 100 150 200 233.4 1000 mm**	
art. no.			
SK 44 ...			
please indicate:	**... ↔**	**50 75 100 150 200 233.4 1000 mm**	
art. no.			
SK 415 ...			
please indicate:	**... ↔**	**37.5 100 150 1000 mm**	

Lock-in transistor fixing spring → **A 119**
Heatsink profile overview → **A 13 - 16**
Heatsinks for PCB → **A 90**
Heatsinks with threaded rail → **A 93**
Hole pattern → **A 21**
Profiles for lock-in fixing spring → **A 85 – 89**
Retaining springs for transistors → **A 116 – 122**
Thermal conductive material → **E 2 – 15**

Extruded heatsinks for PCB mounting

Heatsinks for printed circuit boards

for use on eurocards

art. no.		
SK 96 ...	 	
	screws M 3: **art. no.: SZ M 3 x 8**; scew-in solder pin: **art. no.: ELS 3**	
art. no.		
SK 125 ...		
	screws M 3: **art. no.: SZ M 3 x 8**; scew-in solder pin: **art. no.: ELS 3**	
please indicate:	**... ↔**	
	50 84 94 1000 mm	
art. no.		
SK 138 ...		
art. no.		
SK 451 ...		
	screws M 3: **art. no.: SZ M 3 x 8**; scew-in solder pin: **art. no.: ELS 3**	
art. no.		
SK 128 ...		
	screws M 3: **art. no.: SZ M 3 x 8**; scew-in solder pin: **art. no.: ELS 3**	
please indicate:	**... ↔**	
	84 94 1000 mm	

Please note: profile threads → A 4

Lock-in transistor fixing spring → **A 119**
Heatsink profile overview → **A 13 - 16**
Heatsinks for PCB → **A 90**
Heatsinks with threaded rail → **A 93**
Hole pattern → **A 21**
Profiles for lock-in fixing spring → **A 85 – 89**
Retaining springs for transistors → **A 116 – 122**
Thermal conductive material → **E 2 – 15**

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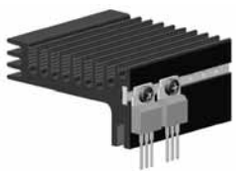
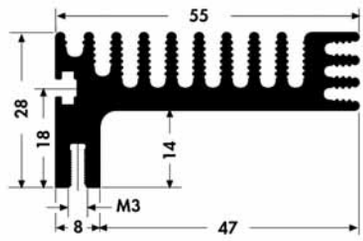
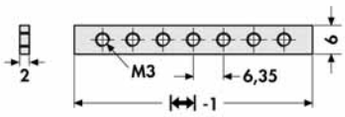
Extruded heatsinks for PCB mounting

Heatsink for PCB with threaded rail

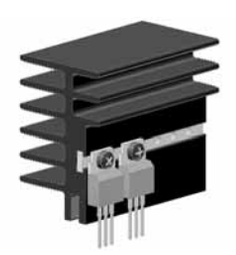
– transistor mounting onto the heatsink using a push-in rail with M 3 thread
– easily positioning using a grid 6,35 mm
– other rail grids on request
– suitable for TO 220, TO 218, TO 247 and similar

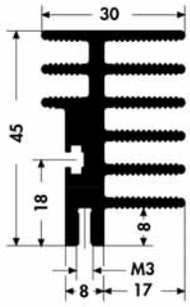


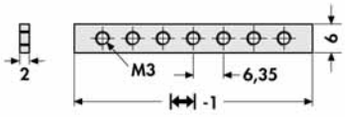




art. no.	↔ [mm]	R_{th} [K/W]	⌖	version
SK 517 50 GS	50	5.0	TO 220	with threaded rail
SK 517 75 GS	75	3.9	TO 220	with threaded rail
SK 517 84 GS	84	3.6	TO 220	with threaded rail
SK 517 50	50	5.0	–	without threaded rail
SK 517 75	75	3.9	–	without threaded rail
SK 517 84	84	3.6	–	without threaded rail







art. no.	↔ [mm]	R_{th} [K/W]	⌖	version
SK 518 50 GS	50	4.3	TO 220	with threaded rail
SK 518 75 GS	75	3.3	TO 220	with threaded rail
SK 518 84 GS	84	3.0	TO 220	with threaded rail
SK 518 50	50	4.3	–	without threaded rail
SK 518 75	75	3.3	–	without threaded rail
SK 518 84	84	3.0	–	without threaded rail

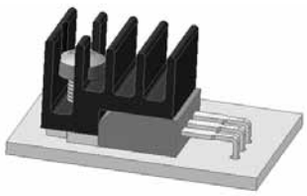
please note: profile threads → A 4
suitable screws M 3 **(art. no.: SZ M 3 x 8)**
screw-in solder pin M 3 **(art. no.: ELS 3)**

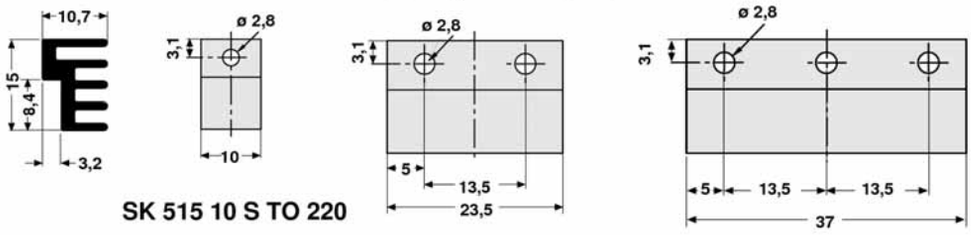
specific versions on customer´s request
surface treatment: black anodised

Extruded heatsinks for PCB mounting

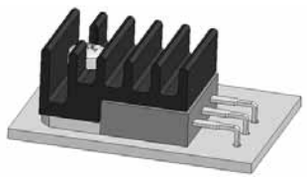
Attachable heatsinks for transistors

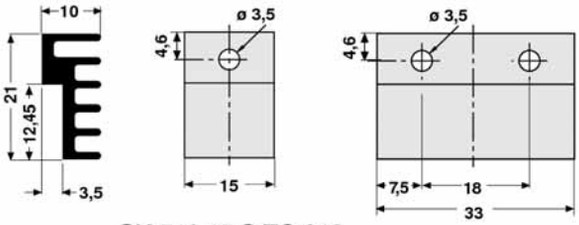
– compact heatsink in transistor dimensions
– for horizontal and vertical transistors
– can be screwed or glued





art. no.	↔ [mm]	R_{th} [K/W]	⌖	version
SK 515 10 S TO 220	10.0	30.0	TO 220	for screw fastening M 2.5
SK 515 23,5 S 2 x TO 220	23.5	27.5	2 x TO 220	for screw fastening M 2.5
SK 515 37 S 3 x TO 220	37.0	26.1	3 x TO 220	for screw fastening M 2.5
SK 515 10 TO 220	10.0	30.0	–	without screw fastening
SK 515 23,5 TO 220	23.5	27.5	–	without screw fastening
SK 515 37 TO 220	37.0	26.1	–	without screw fastening





art. no.	↔ [mm]	R_{th} [K/W]	⌖	version
SK 516 15 S TO 218	15	28.4	TO 218	for screw fastening M 3
SK 516 33 S 2 x TO 218	33	26.9	2 x TO 218	for screw fastening M 3
SK 516 15 TO 218	15	28.4	–	without screw fastening

specific versions on customer´s request
surface treatment: black anodised

Profiles for lock-in fixing spring → **A 85 – 89**
Assignment table → **A 18 - 20**
Technical introduction → **A 2 - 7**
Aluminium oxide wafers → **E 9 – 10**
Mica wafers → **E 11**
Kapton insulator washers → **E 8**
Thermal conductive paste → **E 13**
Silicone wafers → **E 2 – 4**

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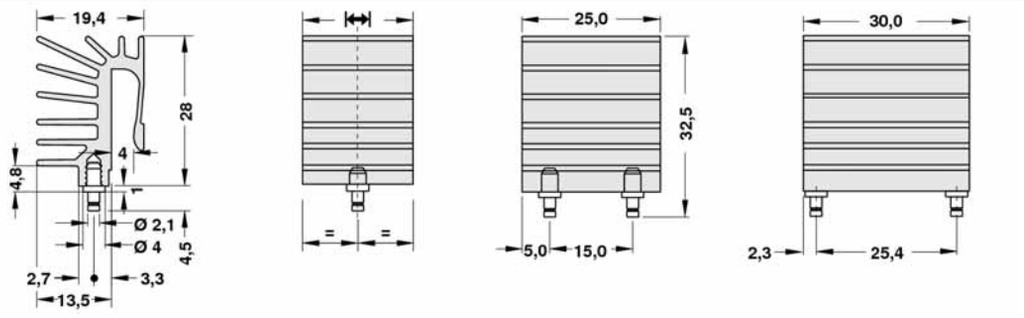
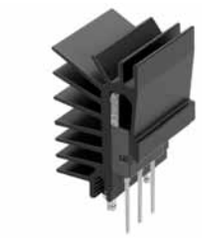
Extruded heatsinks for PCB mounting

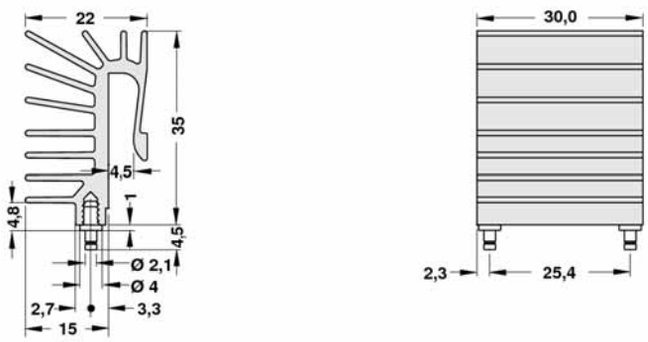
Attachable heatsinks for transistors

– extruded heatsink with intergrated, spring locking function
– simple assembly by pushing the heatsink onto the transistor
– optimum heat transfer between component and heatsink
– solderable pin for PCB mounting



art. no.	for transistor	↔ [mm]	R_{th} [K/W]	spring force [N]	version
SK 525 15	TO 220	15	13.3	54	without solder pin
SK 525 30	TO 220	30	7.8	100	without solder pin
SK 525 15 ST	TO 220	15	13.3	54	mit 1 solder pin
SK 525 20 ST	TO 220	20	10.7	70	mit 1 solder pin
SK 525 25 ST	TO 220	25	9.0	85	with 2 solder pins
SK 525 30 ST	TO 220	30	7.8	100	with 2 solder pins





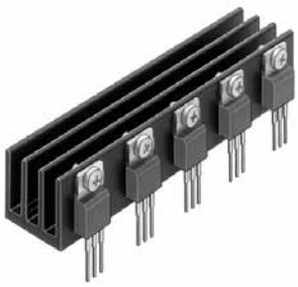
art. no.	for transistor	↔ [mm]	R_{th} [K/W]	spring force [N]	version
SK 526 30 ST	TO 247	30	6.3	100	with 2 solder pins

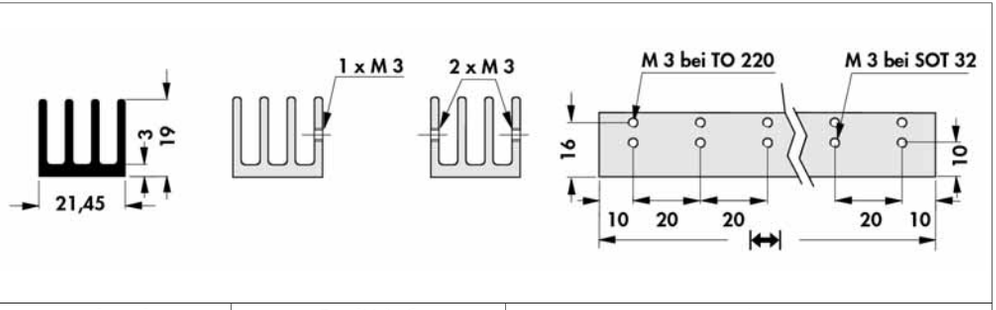
specific versions on customer´s request
surface treatment: black anodised

Extruded heatsinks for PCB mounting

Extruded heatsinks for transistors

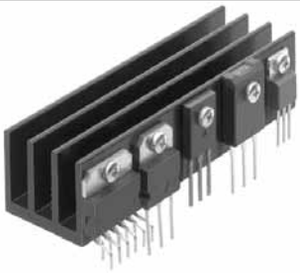
– compact PCB heatsink
– effective heat dissipation for single and double row transistor mounting

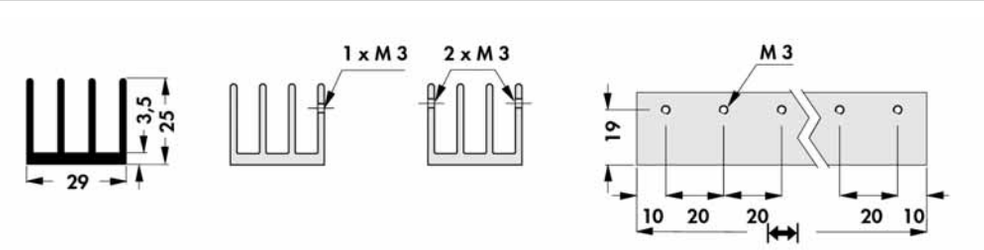




art. no.	⟷ [mm]	R_{th} [K/W]	⌖
SK 454 20 1 x M3 ...	20	10.8	TO 220/ SOT 32
SK 454 60 3 x M3 ...	60	7.7	TO 220/ SOT 32
SK 454 20 2 x M3 ...	20	10.8	TO 220/ SOT 32
SK 454 40 4 x M3 ...	40	9.4	TO 220/ SOT 32
SK 454 60 6 x M3 ...	60	7.7	TO 220/ SOT 32
SK 454 40 2 x M3 TO 220	40	9.4	TO 220
SK 454 80 4 x M3 TO 220	80	6.5	TO 220
SK 454 100 5 x M3 TO220	100	5.9	TO 220
SK 454 80 8 x M3 TO 220	80	6.5	TO 220
SK 454 100 10xM3 TO220	100	5.9	TO 220

please indicate: **... ⌖**
TO 220; SOT 32





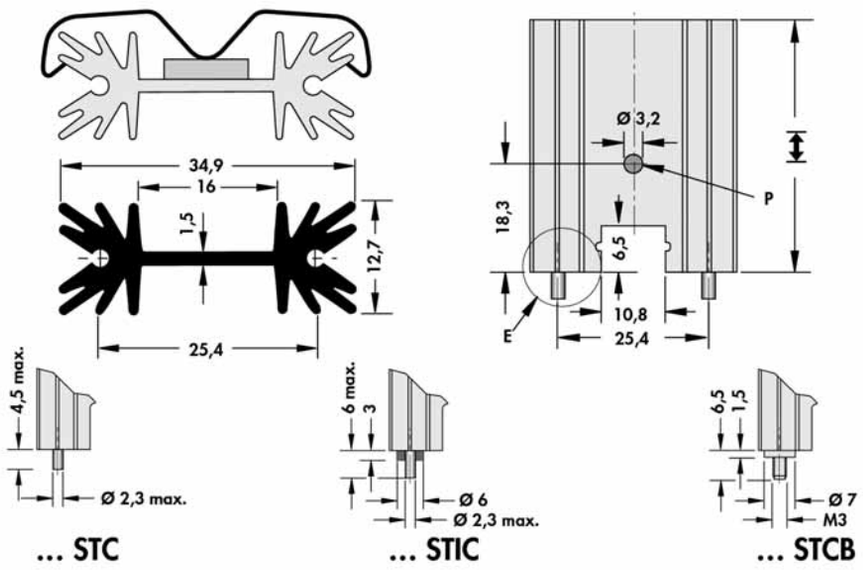
art. no.	⟷ [mm]	R_{th} [K/W]	⌖
SK 452 20 1 x M3	20	11.1	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 452 40 2 x M3	40	7.5	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 452 60 3 x M3	60	5.9	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 452 80 4 x M3	80	4.9	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 452 100 5 x M3	100	4.3	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 452 20 2 x M3	20	11.1	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 452 40 4 x M3	40	7.5	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 452 60 6 x M3	60	5.9	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 452 80 8 x M3	80	4.9	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 452 100 10 x M3	100	4.3	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P

profile SK 454 ➔ A24
profile SK 452 ➔ A27

specific versions on customer´s request
surface treatment: black anodised

Extruded heatsinks for PCB mounting

for semiconductor clip-mounting



art. no.	⟷ [mm]	R_{th} [K/W]	⌖
SK 104 25,4 ...	25.4	14	TO 220
SK 104 38,1 ...	38.1	11	TO 220
SK 104 50,8 ...	50.8	9	TO 220
SK 104 63,5 ...	63.5	8	TO 220

please indicate: **... mouting method**
STC =with solder pin
STIC =with solder pin and insulating washer
STCB=with threaded bolt M 3, brass

P = raised retaining stud, **E** = mounting method

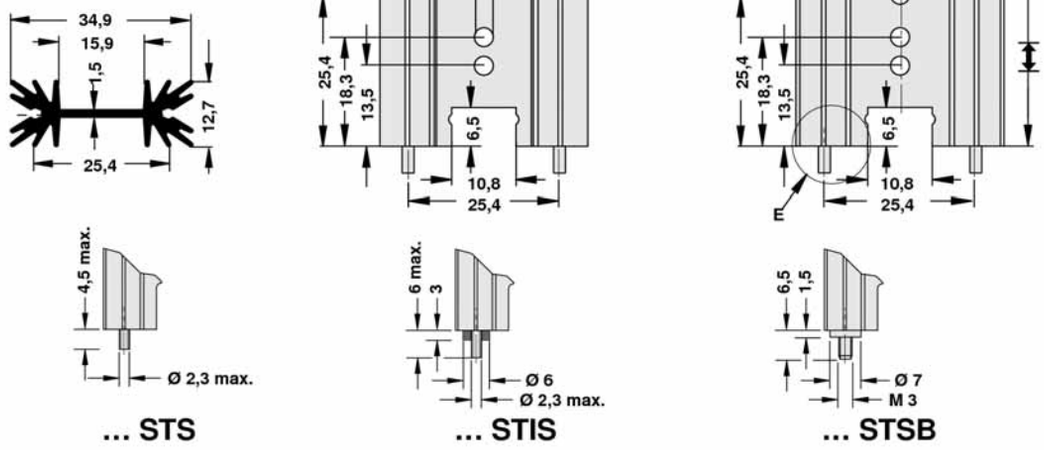
special lengths and transistor drillings on request

surface treatment: black anodised

Heatsinks with threaded rail → **A 93**
Profiles for PCB components → **A 92**
Retaining springs for transistors → **A 116 – 122**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Mounting for TO 3 angle → **A 125**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

Extruded heatsinks for PCB mounting

for semiconductor screw-mounting



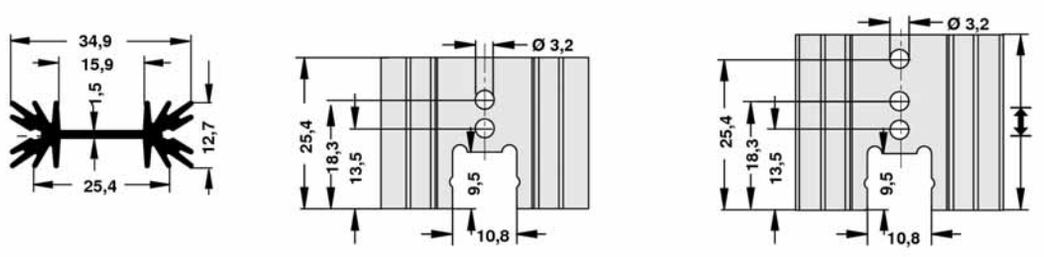
art. no.	⟷ [mm]	R_{th} [K/W]	⌖
SK 104 25,4 ...	25.4	14	TO 220/ SOT 32/ TO 3 P
SK 104 38,1 ...	38.1	11	TO 220/ SOT 32/ TO 3 P
SK 104 50,8 ...	50.8	9	TO 220/ SOT 32/ TO 3 P
SK 104 63,5 ...	63.5	8	TO 220/ SOT 32/ TO 3 P

please indicate: **... mouting method**
STS =with solder pin
STIS =with solder pins and insulating washer
STSB=with threaded bolt M 3, brass

E = mounting method

special lengths and transistor drillings on request
surface treatment: black anodised

horizontal for semiconductor screw-mounting



art. no.	⟷ [mm]	R_{th} [K/W]	⌖
SK 104 25,4 LS	25.4	14	TO 220/ SOT 32/ TO 3 P
SK 104 38,1 LS	38.1	11	TO 220/ SOT 32/ TO 3 P
SK 104 50,8 LS	50.8	9	TO 220/ SOT 32/ TO 3 P

special lengths and transistor drillings on request
surface treatment: black anodised

Heatsinks with threaded rail → **A 93**
Profiles for PCB components → **A 92**
Retaining springs for transistors → **A 116 – 122**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Mounting for TO 3 angle → **A 125**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

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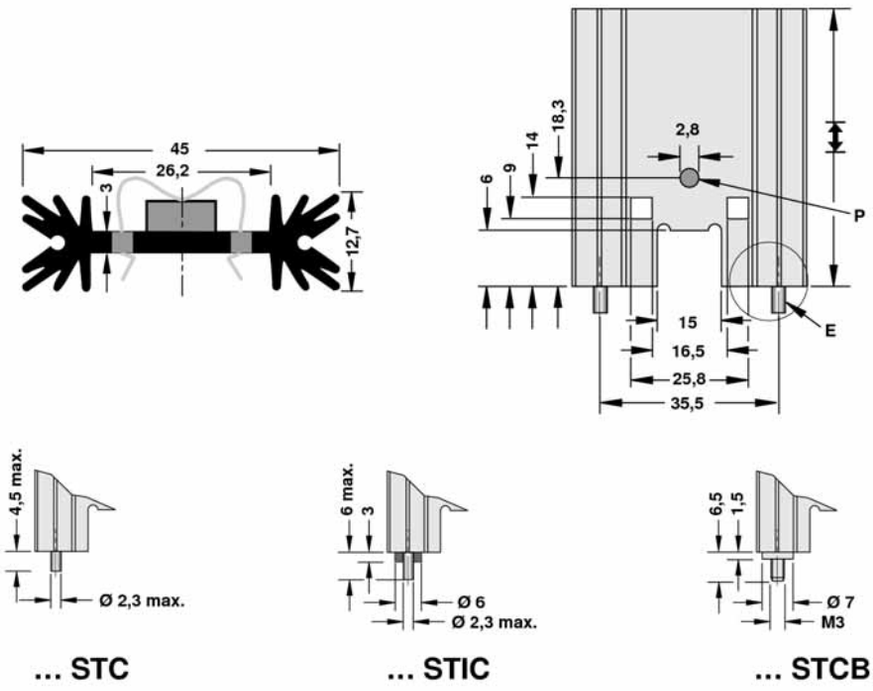
Extruded heatsinks for PCB mounting

for semiconductor clip-mounting



art. no.	⟷ [mm]	R_{th} [K/W]	⟲
SK 409 25,4 ...	25.4	8.2	TO 220/ TO 3 P
SK 409 38,1 ...	38.1	7.0	TO 220/ TO 3 P
SK 409 50,8 ...	50.8	6.2	TO 220/ TO 3 P
SK 409 63,5 ...	63.5	5.6	TO 220/ TO 3 P

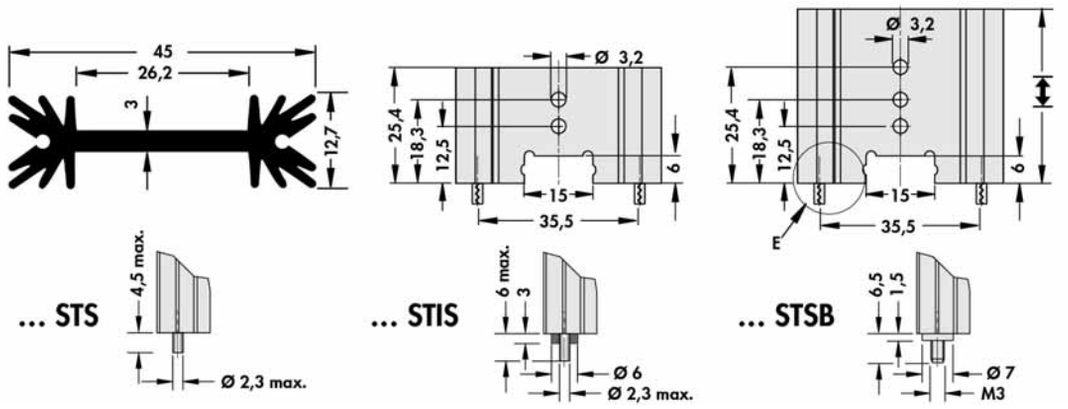
please indicate: **... mouting method**
STC =with solder pin
STIC =with solder pin and insulating washer
STCB=with threaded bolt M 3, brass

P = raised retaining stud, **E** = mounting method
special lengths and transistor drillings on request
surface treatment: black anodised

Heatsinks with threaded rail → **A 93**
Profiles for PCB components → **A 92**
Retaining springs for transistors → **A 116 – 122**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Mounting for TO 3 angle → **A 125**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

Extruded heatsinks for PCB mounting

for semiconductor screw-mounting



art. no.	⟷ [mm]	R_{th} [K/W]	⌖
SK 409 25,4 ...	25.4	8.2	TO 220/ TO 3 P
SK 409 38,1 ...	38.1	7.0	TO 220/ TO 3 P
SK 409 50,8 ...	50.8	6.2	TO 220/ TO 3 P
SK 409 63,5 ...	63.5	5.6	TO 220/ TO 3 P

please indicate: **... mouting method**
STS =with solder pin
STIS =with solder pins and insulating washer
STSB=with threaded bolt M 3, brass

E = mounting method

special lengths and transistor drillings on request
surface treatment: black anodised

Heatsinks with threaded rail → **A 93**
Profiles for PCB components → **A 92**
Retaining springs for transistors → **A 116 – 122**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Mounting for TO 3 angle → **A 125**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

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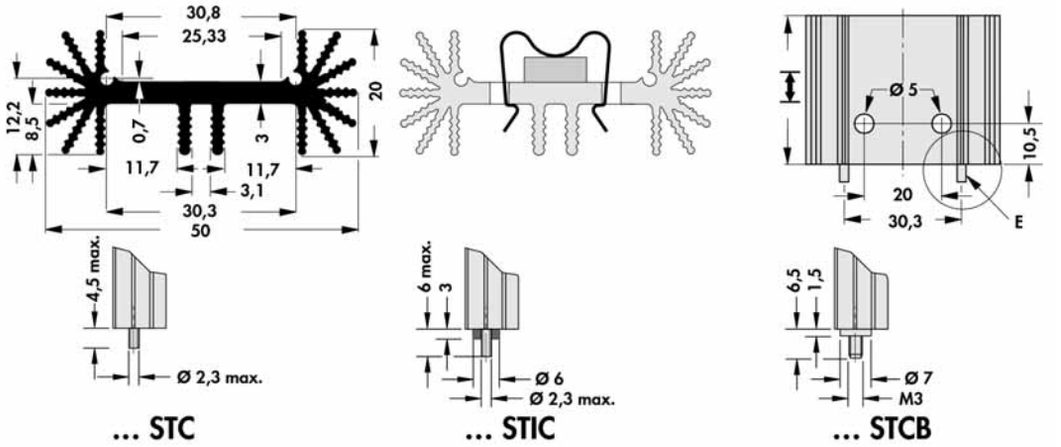
Extruded heatsinks for PCB mounting

for semiconductor clip-mounting



art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 459 25 ...	25.0	7.9	TO 218/ TO 220/ TO 247/ TO 248
SK 459 37,5 ...	37.5	6.3	TO 218/ TO 220/ TO 247/ TO 248
SK 459 50 ...	50.0	5.6	TO 218/ TO 220/ TO 247/ TO 248

please indicate: **... mouting method**
STC =with solder pin
STIC =with solder pin and insulating washer
STCB=with threaded bolt M 3, brass

E = mounting method

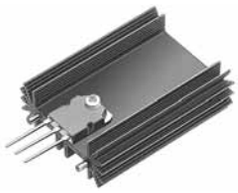
special lengths and drillings on request

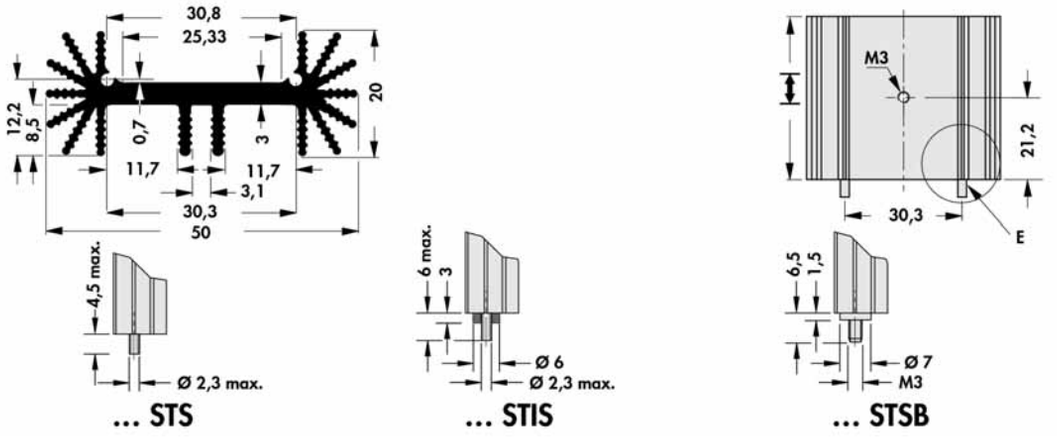
surface treatment: black anodised

Heatsinks with threaded rail → **A 93**
Profiles for PCB components → **A 92**
Retaining springs for transistors → **A 116 – 122**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Mounting for TO 3 angle → **A 125**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

Extruded heatsinks for PCB mounting

for semiconductor screw-mounting



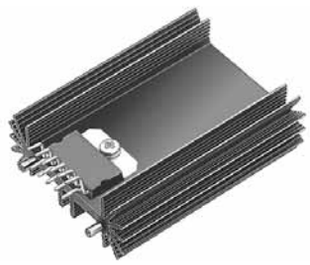


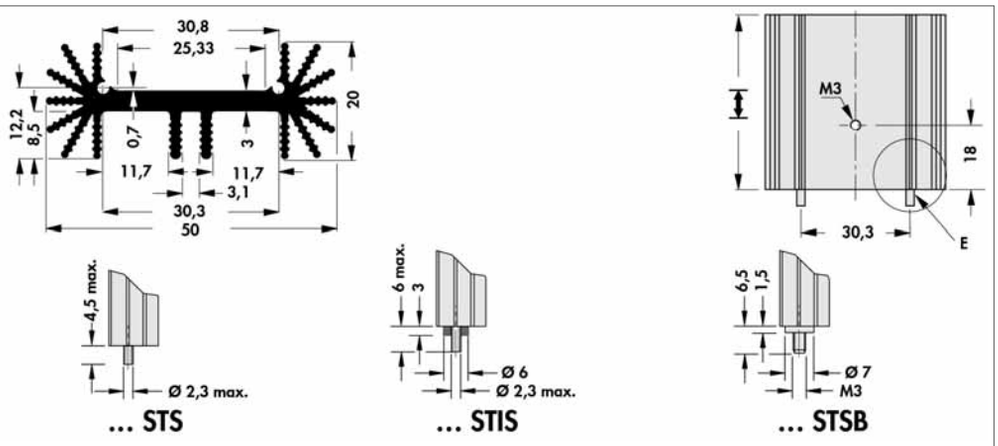
art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 459 25 ...	25.0	7.9	TO 218/ TO 220/ TO 247/ TO 248
SK 459 37,5 ...	37.5	6.3	TO 218/ TO 220/ TO 247/ TO 248
SK 459 50 ...	50.0	5.6	TO 218/ TO 220/ TO 247/ TO 248

please indicate: **... mouting method**
STS =with solder pin
STIS =with solder pins and insulating washer
STSB=with threaded bolt M 3, brass

E = mounting method

special lengths and drillings on request
surface treatment: black anodised
for semiconductor screw-mounting





art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 459 25 M ...	25.0	7.9	SIP Multiwatt
SK 459 37,5 M ...	37.5	6.3	SIP Multiwatt
SK 459 50 M ...	50.0	5.6	SIP Multiwatt

please indicate: **... mouting method**
STS =with solder pin
STIS =with solder pins and insulating washer
STSB=with threaded bolt M 3, brass

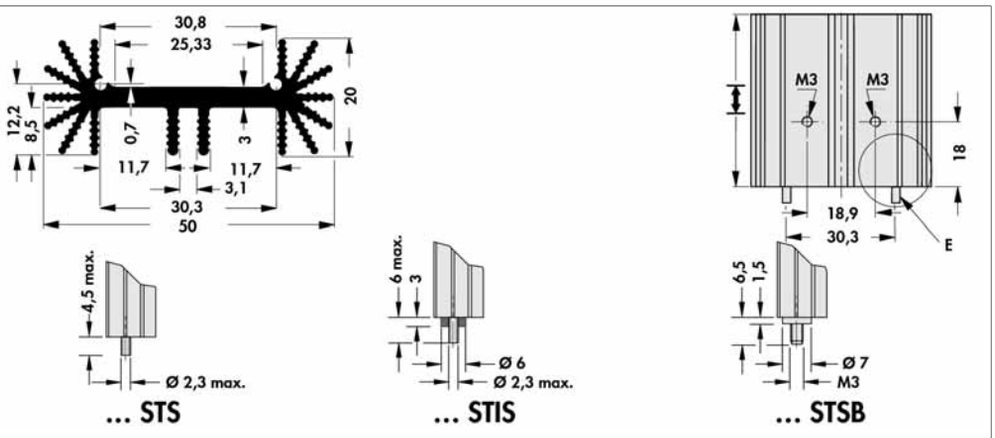
E = mounting method

special lengths and drillings on request
surface treatment: black anodised

Heatsinks with threaded rail → **A 93**
Profiles for PCB components → **A 92**
Retaining springs for transistors → **A 116 – 122**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Mounting for TO 3 angle → **A 125**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

Extruded heatsinks for PCB mounting

for semiconductor screw-mounting



art. no.	⟷ [mm]	R_{th} [K/W]	⟲
SK 459 25 2 x TO 220 ...	25.0	7.9	2 x TO 220/ 2 x SOT 32
SK 459 37,5 2 x TO 220 ...	37.5	6.3	2 x TO 220/ 2 x SOT 32
SK 459 50 2 x TO 220 ...	50.0	5.6	2 x TO 220/ 2 x SOT 32

please indicate: **... mouting method**
STS =with solder pin
STIS =with solder pins and insulating washer
STSB=with threaded bolt M 3, brass

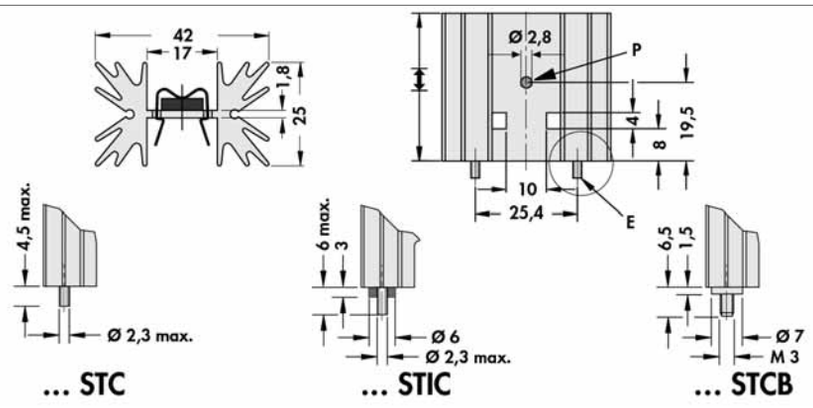
E = mounting method; with **combination-hole pattern** for mounting of 2 x TO 220 or 2 x SOT 32

special lengths and drillings on request

surface treatment: black anodised

Extruded heatsinks for PCB mounting

for semiconductor clip-mounting



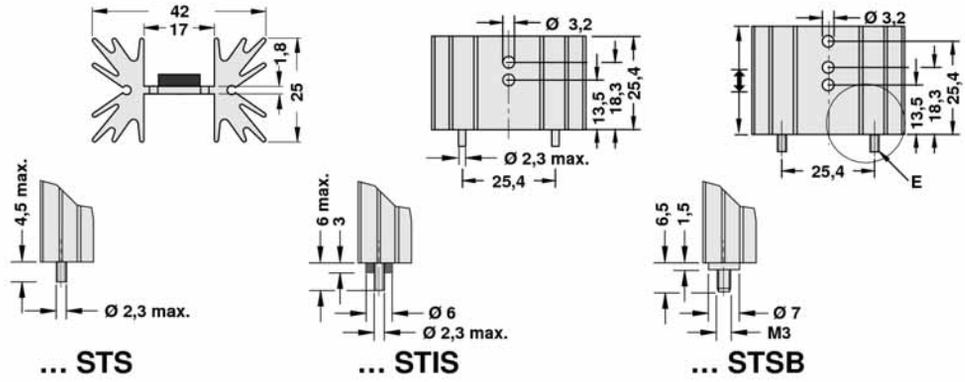
art. no.	⟷ [mm]	R_{th} [K/W]	⌖
SK 129 25,4 ...	25.4	7.8	TO 220
SK 129 38,1 ...	38.1	6.5	TO 220
SK 129 50,8 ...	50.8	5.3	TO 220
SK 129 63,5 ...	63.5	4.5	TO 220

please indicate: **... mouting method**
STC =with solder pin
STIC =with solder pin and insulating washer
STCB=with threaded bolt M 3, brass

P = raised retaining stud, **E** = mounting method

special lengths and drillings on request
surface treatment: black anodised

for semiconductor screw-mounting



art. no.	⟷ [mm]	R_{th} [K/W]	⌖
SK 129 25,4 ...	25.4	7.8	TO 220/ SOT 32/ TO 3 P
SK 129 38,1 ...	38.1	6.5	TO 220/ SOT 32/ TO 3 P
SK 129 50,8 ...	50.8	5.3	TO 220/ SOT 32/ TO 3 P
SK 129 63,5 ...	63.5	4.5	TO 220/ SOT 32/ TO 3 P

please indicate: **... mouting method**
STS =with solder pin
STIS =with solder pins and insulating washer
STSB=with threaded bolt M 3, brass

E = mounting method

special lengths and drillings on request
surface treatment: black anodised

Heatsinks with threaded rail → **A 93**
Profiles for PCB components → **A 92**
Retaining springs for transistors → **A 116 – 122**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Mounting for TO 3 angle → **A 125**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

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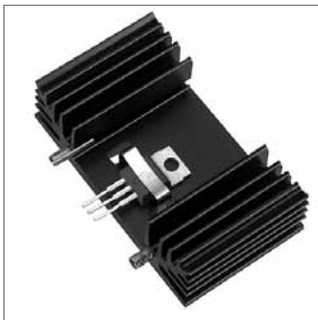
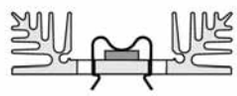
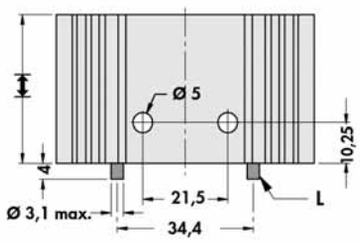
Extruded heatsinks for PCB mounting

for semiconductor clip-mounting







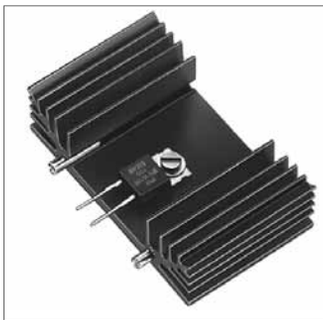
art. no.	↔ [mm]	R_{th} [K/W]	⌖	version
SK 185 25 STC TO 220	25.0	7.9	TO 220	with solder pins
SK 185 37,5 STC TO 220	37.5	6.4	TO 220	with solder pins
SK 185 50 STC TO 220	50.0	4.9	TO 220	with solder pins
SK 185 37,5 C TO 220	37.5	6.4	TO 220	without solder pins
SK 185 50 C TO 220	50.0	4.9	TO 220	without solder pins

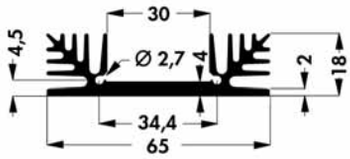
profile SK 185 ➔ A74

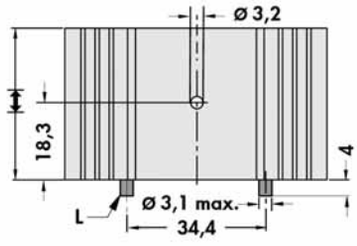
L = solderable pins

special lengths and drillings on request
surface treatment: black anodised

for semiconductor screw-mounting







art. no.	↔ [mm]	R_{th} [K/W]	⌖	version
SK 185 25 STS TO 220	25.0	7.9	TO 220	with solder pins
SK 185 37,5 STS TO 220	37.5	6.4	TO 220	with solder pins
SK 185 50 STS TO 220	50.0	4.9	TO 220	with solder pins
SK 185 25 TO 220	25.0	7.9	TO 220	without solder pins
SK 185 37,5 TO 220	37.5	6.4	TO 220	without solder pins
SK 185 50 TO 220	50.0	4.9	TO 220	without solder pins

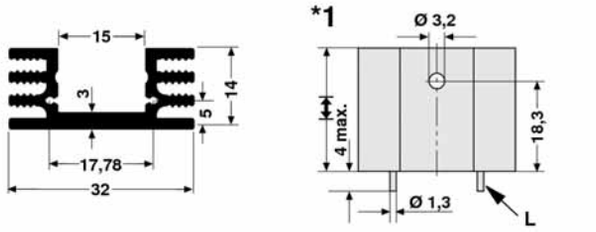
profile SK 185 ➔ A74

L = solderable pins

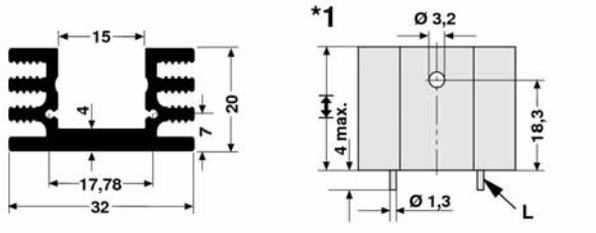
special lengths and drillings on request
surface treatment: black anodised

Extruded heatsinks for PCB mounting

for semiconductor screw-mounting



art. no.	⟷ [mm]	R_{th} [K/W]	⟲	version
SK 75 25 STS TO 220	25.0	12.5	TO 220 / *1	with solder pins
SK 75 37,5 STS TO 220	37.5	10.0	TO 220 / *1	with solder pins
SK 75 25	25.0	12.5	–	without solder pins
SK 75 25 TO 220	25.0	12.5	TO 220 / *2	without solder pins
SK 75 37,5	37.5	10.0	–	without solder pins
SK 75 37,5 TO 220	37.5	10.0	TO 220 / *2	without solder pins
SK 75 50	50.0	8.5	–	without solder pins
SK 75 75	75.0	7.0	–	without solder pins
SK 75 1000	1000.0	–	–	without solder pins



art. no.	⟷ [mm]	R_{th} [K/W]	⟲	version
SK 76 25 STS TO 220	25.0	10.0	TO 220 / *1	with solder pins
SK 76 37,5 STS TO 220	37.5	8.0	TO 220 / *1	with solder pins
SK 76 50 STS TO 220	50.0	7.0	TO 220 / *1	with solder pins
SK 76 25	25.0	10.0	–	without solder pins
SK 76 25 TO 220	25.0	10.0	TO 220 / *2	without solder pins
SK 76 37,5	37.5	8.0	–	without solder pins
SK 76 37,5 TO 220	37.5	8.0	TO 220 / *2	without solder pins
SK 76 50	50.0	7.0	–	without solder pins
SK 76 50 TO 220	50.0	7.0	TO 220 / *2	without solder pins
SK 76 75	75.0	5.9	–	without solder pins
SK 76 1000	1000.0	–	–	without solder pins

1 = versions with solder pins; ***2*** = versions without solder pins; **L** = solderable pins

special lengths and drillings on request
hole pattern is centered to the total length of the heatsink

surface treatment: black anodised

Heatsinks with threaded rail → **A 93**
Profiles for PCB components → **A 92**
Retaining springs for transistors → **A 116 – 122**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Mounting for TO 3 angle → **A 125**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

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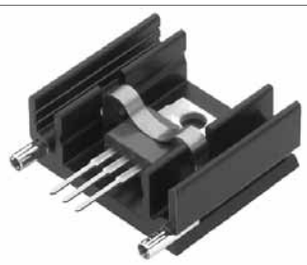
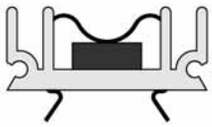
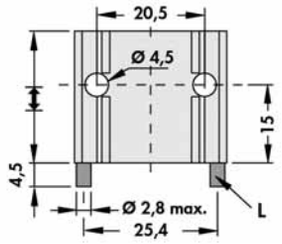
Extruded heatsinks for PCB mounting

for semiconductor clip-mounting





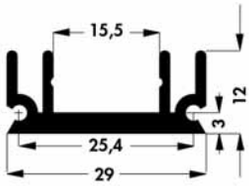


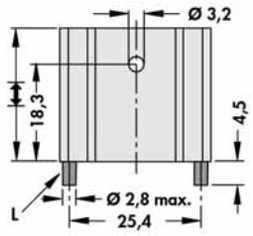
art. no.	↔ [mm]	R_{th} [K/W]	⌖	version
SK 145 25 STC	25	13.5	TO 218/ TO 220/ TO 247/ TO 248	with solder pins
SK 145 30 STC	30	12.4	TO 218/ TO 220/ TO 247/ TO 248	with solder pins
SK 145 50 STC	50	10.0	TO 218/ TO 220/ TO 247/ TO 248	with solder pins

L = solderable pins

special lengths and drillings on request
surface treatment: black anodised

for semiconductor screw-mounting



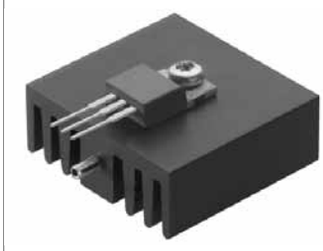


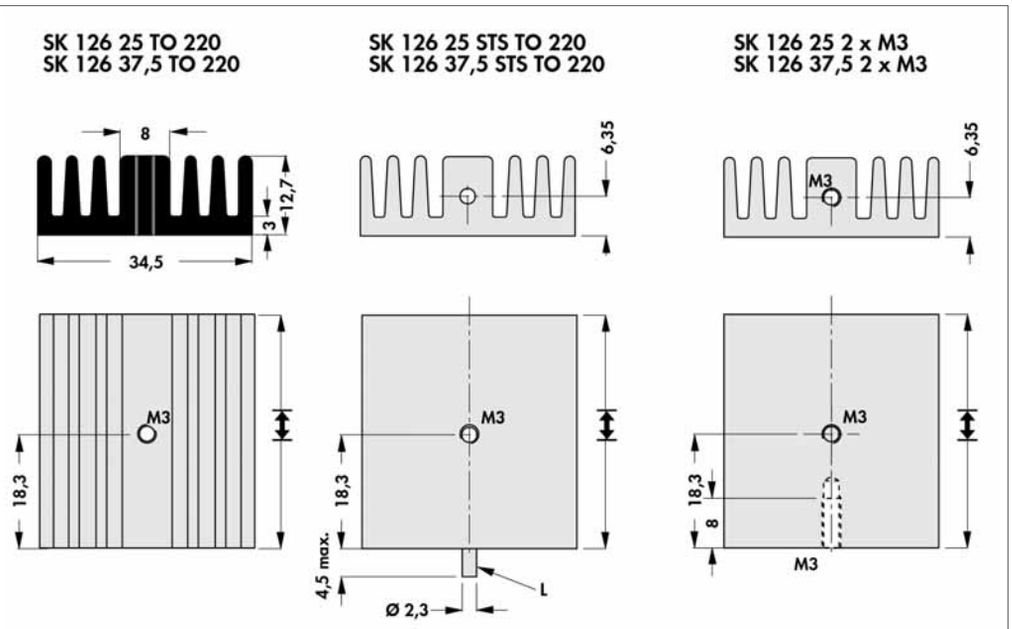
art. no.	↔ [mm]	R_{th} [K/W]	⌖	version
SK 145 25 STS TO 220	25.0	13.5	TO 218/ TO 220/ TO 247/ TO 248	with solder pins
SK 145 37,5 STS TO 220	37.5	12.0	TO 218/ TO 220/ TO 247/ TO 248	with solder pins
SK 145 50 STS TO 220	50.0	10.0	TO 218/ TO 220/ TO 247/ TO 248	with solder pins

profile **SK 145** → A 59
L = solderable pins

special lengths and drillings on request
surface treatment: black anodised

Extruded heatsinks for PCB mounting





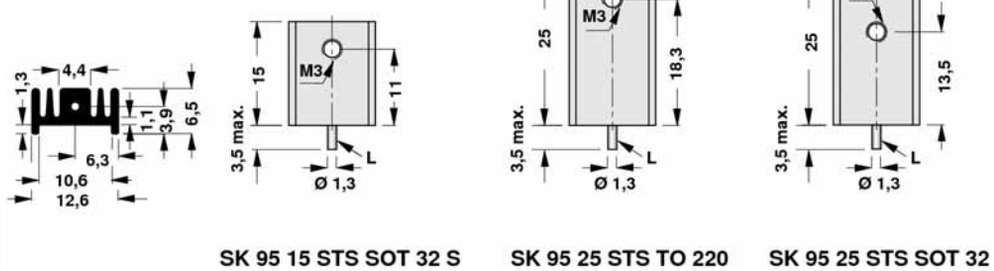
art. no.	↔ [mm]	R_{th} [K/W]	⊕	version
SK 126 25 STS TO 220	25.0	8.0	TO 218/ TO 220/ TO 247/ TO 248	with solder pin and thread M 3
SK 126 37,5 STS TO 220	37.5	6.5	TO 218/ TO 220/ TO 247/ TO 248	with solder pin and thread M 3
SK 126 25 TO 220	25.0	8.0	TO 218/ TO 220/ TO 247/ TO 248	without solder pin with thread M 3
SK 126 25 2 x M3	25.0	8.0	TO 218/ TO 220/ TO 247/ TO 248	without solder pin with thread M 3
SK 126 37,5 TO 220	37.5	6.5	TO 218/ TO 220/ TO 247/ TO 248	without solder pin with thread M 3
SK 126 37,5 2 x M3	37.5	6.5	TO 218/ TO 220/ TO 247/ TO 248	without solder pin with thread M 3
SK 126 25	25.0	8.0	–	–
SK 126 37,5	37.5	6.5	–	–
SK 126 1000	1000.0	–	–	–

L = solderable pins

special lengths and drillings on request
surface treatment: black anodised

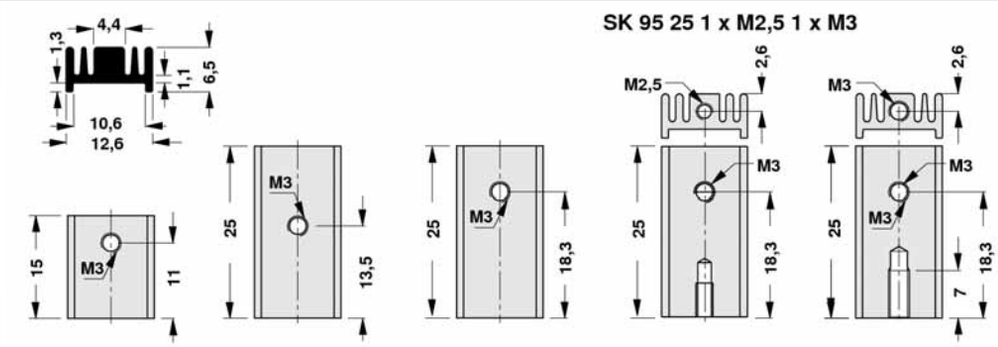
Heatsinks with threaded rail → **A 93**
Profiles for PCB components → **A 92**
Retaining springs for transistors → **A 116 – 122**
Order example → **A 21**
Attachable heatsinks for TO-cases → **A 94**
Mounting for TO 3 angle → **A 125**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

Extruded heatsinks for PCB mounting



SK 95 15 STS SOT 32 S | SK 95 25 STS TO 220 | SK 95 25 STS SOT 32

art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 95 15 STS SOT 32 S	15	38.5	SOT 32
SK 95 25 STS SOT 32	25	36.0	SOT 32
SK 95 25 STS TO 220	25	36.0	TO 220



SK 95 15 SOT 32 S | SK 95 25 SOT 32 | SK 95 25 TO 220 | SK 95 25 2 x M3

art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 95 15	15	38.5	–
SK 95 15 SOT 32 S	15	38.5	SOT 32
SK 95 25	25	36.0	–
SK 95 25 TO 220	25	36.0	TO 220
SK 95 25 SOT 32	25	36.0	SOT 32
SK 95 25 1 x M2,5 1 x M3	25	36.0	1 x M 2,5 / 1 x M 3
SK 95 25 2 x M3	25	36.0	2 x M 3 (TO 220)
SK 95 1000	1000	–	–

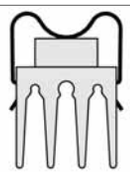
L = solderable pins

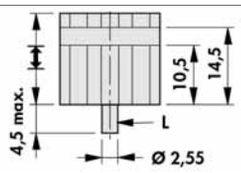
special lengths and drillings on request
surface treatment: black anodised
thread: not anodised

Retaining springs for transistors → **A 116 – 122**
Heatsinks for PCB → **A 90 – 92**
Heatsinks with threaded rail → **A 93**
SMD-heatsinks → **B 38 – 40**
Mounting parts for heatsinks → **E 43 – 44**
Unsupported thermal conductive film → **E 12**
Thermal conductive material → **E 2 – 15**
Lock-in transistor fixing spring → **A 119**

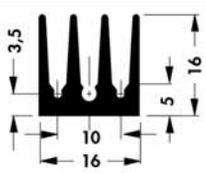
Extruded heatsinks for PCB mounting

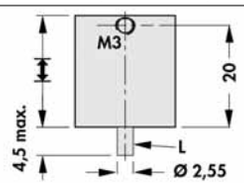
single solder pin





art. no.	↔ [mm]	R_{th} [K/W]	⊕
SK 437 25 STC	25	24	TO 218/ TO 220/ TO 247/ TO 248
SK 437 30 STC	30	22	TO 218/ TO 220/ TO 247/ TO 248
SK 437 35 STC	35	18	TO 218/ TO 220/ TO 247/ TO 248
SK 437 50 STC	50	14	TO 218/ TO 220/ TO 247/ TO 248

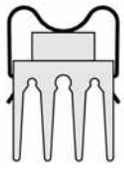


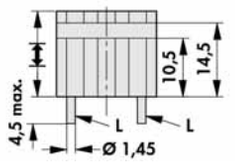


art. no.	↔ [mm]	R_{th} [K/W]	⊕
SK 437 25 STS	25	24	TO 218/ TO 220/ TO 247/ TO 248
SK 437 30 STS	30	22	TO 218/ TO 220/ TO 247/ TO 248
SK 437 35 STS	35	18	TO 218/ TO 220/ TO 247/ TO 248
SK 437 50 STS	50	14	TO 218/ TO 220/ TO 247/ TO 248

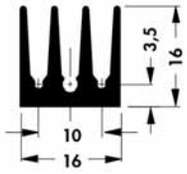
L = solderable pin, profile **SK 437** → A 24
special lengths and drillings on request
surface treatment: black anodised

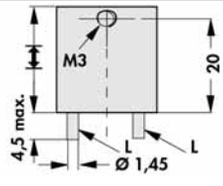
double solder pin





art. no.	↔ [mm]	R_{th} [K/W]	⊕
SK 437 25 STC 2	25	24	TO 218/ TO 220/ TO 247/ TO 248
SK 437 30 STC 2	30	22	TO 218/ TO 220/ TO 247/ TO 248
SK 437 35 STC 2	35	18	TO 218/ TO 220/ TO 247/ TO 248



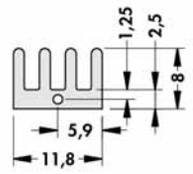


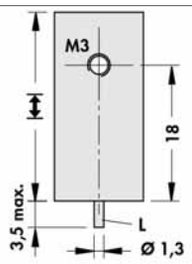
art. no.	↔ [mm]	R_{th} [K/W]	⊕
SK 437 25 STS 2	25	24	TO 218/ TO 220/ TO 247/ TO 248
SK 437 30 STS 2	30	22	TO 218/ TO 220/ TO 247/ TO 248
SK 437 35 STS 2	35	18	TO 218/ TO 220/ TO 247/ TO 248

L = solderable pin, profile **SK 437** → A 24>
special lengths and drillings on request
surface treatment: black anodised

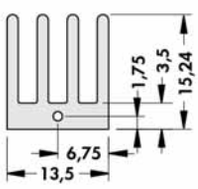
Retaining springs for transistors → **A 116 – 122**
Heatsinks for PCB → **A 90 – 92**
Heatsinks with threaded rail → **A 93**
SMD-heatsinks → **B 38 – 40**
Mounting parts for heatsinks → **E 43 – 44**
Unsupported thermal conductive film → **E 12**
Thermal conductive material → **E 2 – 15**
Lock-in transistor fixing spring → **A 119**

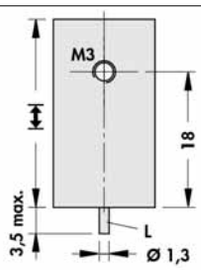
Extruded heatsinks for PCB mounting





art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 470 25 STS	25	29.0	TO 220/ SOT 32
SK 470 30 STS	30	27.2	TO 220/ SOT 32
SK 470 35 STS	35	25.6	TO 220/ SOT 32
SK 470 50 STS	50	23.2	TO 220/ SOT 32



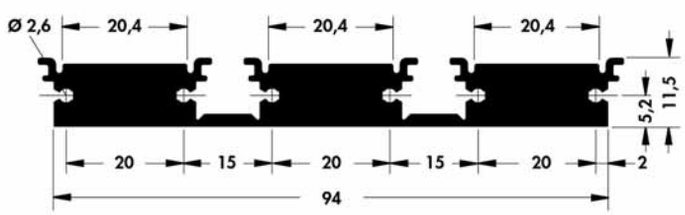


art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 469 25 STS	25	15.3	TO 220/ SOT 32
SK 469 30 STS	30	14.3	TO 220/ SOT 32
SK 469 35 STS	35	13.0	TO 220/ SOT 32
SK 469 50 STS	50	10.6	TO 220/ SOT 32

L = solderable pin

special versions on customer´s request
surface treatment: black anodised

– as mounting- and connecting piece
– for clamp mounting of the transistors
– triple unit can be seperated
– solder pin mounting possible



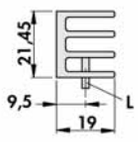
art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 484 25	25.0	6.0	TO 218/ TO 220/ TO 247/ TO 264/ TO 3 P
SK 484 37,5	37.5	4.5	TO 218/ TO 220/ TO 247/ TO 264/ TO 3 P
SK 484 50	50.0	3.7	TO 218/ TO 220/ TO 247/ TO 264/ TO 3 P
SK 484 75	75.0	2.8	TO 218/ TO 220/ TO 247/ TO 264/ TO 3 P

special versions on customer´s request

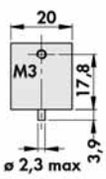
Retaining springs for transistors → **A 116 – 122**
Heatsinks for PCB → **A 90 – 92**
Heatsinks with threaded rail → **A 93**
SMD-heatsinks → **B 38 – 40**
Mounting parts for heatsinks → **E 43 – 44**
Unsupported thermal conductive film → **E 12**
Thermal conductive material → **E 2 – 15**
Lock-in transistor fixing spring → **A 119**

Extruded heatsinks for PCB mounting

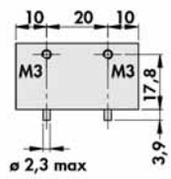
– compact PCB heatsinks
– especially suitable for vertical PCB mounting in housings, racks etc.
– easy solder fixing



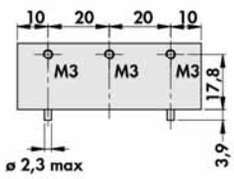
SK 454 20 1 x M 3 L



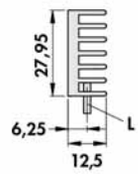
SK 454 40 2 x M 3 L



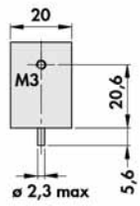
SK 454 60 3 x M 3 L



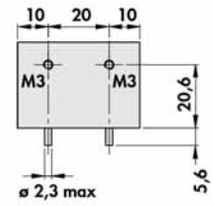
art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 454 20 1 x M3 L	20	10.1	TO 220/ SOT 32
SK 454 40 2 x M3 L	40	8.8	TO 220/ SOT 32
SK 454 60 3 x M3 L	60	7.5	TO 220/ SOT 32



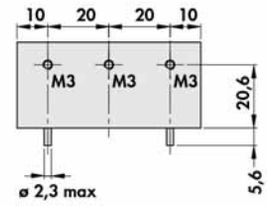
SK 448 20 1 x M 3 L



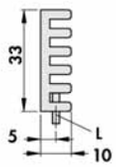
SK 448 40 2 x M 3 L



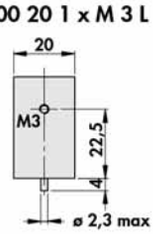
SK 448 60 3 x M 3 L



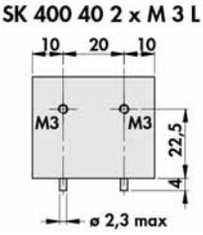
art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 448 20 1 x M3 L	20	11.8	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 448 40 2 x M3 L	40	9.8	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 448 60 3 x M3 L	60	7.1	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P



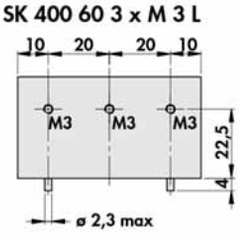
SK 400 20 1 x M 3 L



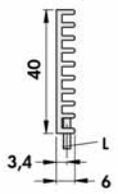
SK 400 40 2 x M 3 L



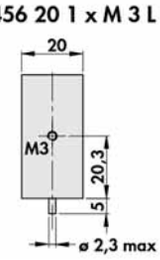
SK 400 60 3 x M 3 L



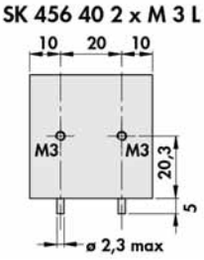
art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 400 20 1 x M3 L	20	11.6	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 400 40 2 x M3 L	40	8.2	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 400 60 3 x M3 L	60	7.2	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P



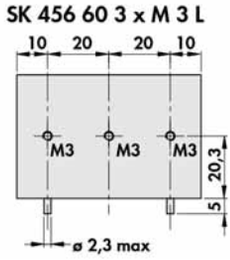
SK 456 20 1 x M 3 L



SK 456 40 2 x M 3 L



SK 456 60 3 x M 3 L



art. no.	↔ [mm]	R_{th} [K/W]	⌖
SK 456 20 1 x M3 L	20	13.0	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 456 40 2 x M3 L	40	10.5	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P
SK 456 60 3 x M3 L	60	8.5	TO 218/ TO 220/ TO 247/ TO 248/ TO 3 P

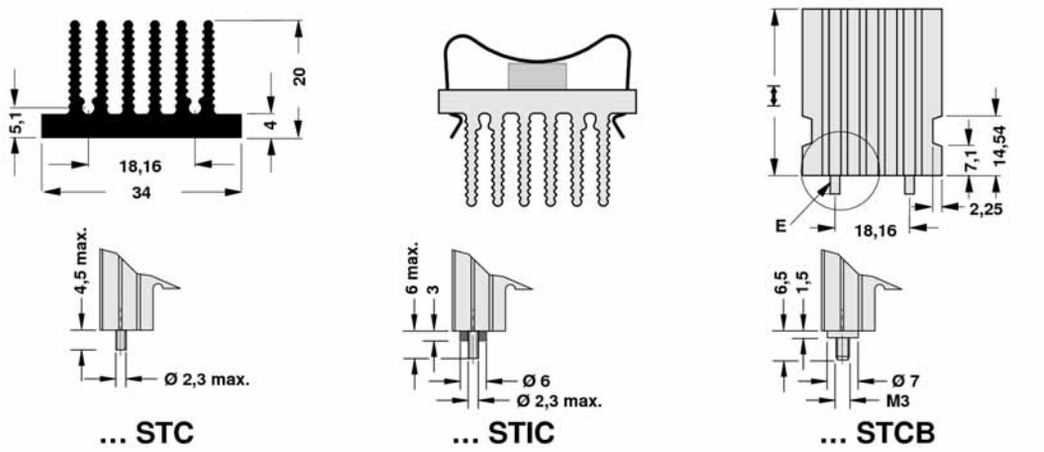
L = solderable pin

special versions on customer´s request

Retaining springs for transistors → **A 116 – 122**
Heatsinks for PCB → **A 90 – 92**
Heatsinks with threaded rail → **A 93**
SMD-heatsinks → **B 38 – 40**
Mounting parts for heatsinks → **E 43 – 44**
Unsupported thermal conductive film → **E 12**
Thermal conductive material → **E 2 – 15**
Lock-in transistor fixing spring → **A 119**

Extruded heatsinks for PCB mounting

for semiconductor clip-mounting

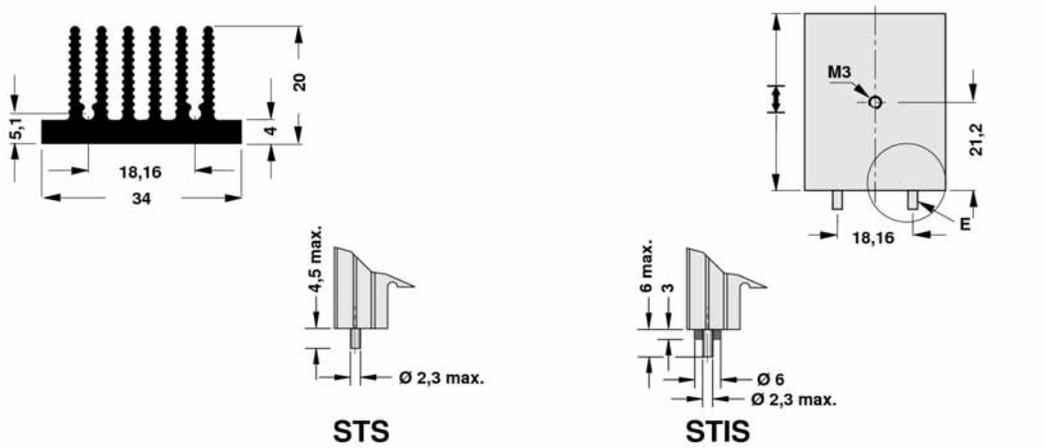


art. no.	↔ [mm]	R_{th} [K/W]	
SK 460 25 ...	25.0	9.0	TO 218/ TO 220/ TO 247/ TO 248/ SIP Multiwatt
SK 460 37,5 ...	37.5	7.9	TO 218/ TO 220/ TO 247/ TO 248/ SIP Multiwatt
SK 460 50 ...	50.0	7.0	TO 218/ TO 220/ TO 247/ TO 248/ SIP Multiwatt
please indicate:	**... mouting method** **STC =with solder pin** **STIC =with solder pin and insulating washer** **STCB=with threaded bolt M 3, brass**		

E = mounting method

special versions on customer´s request
surface treatment: black anodised

for semiconductor screw-mounting



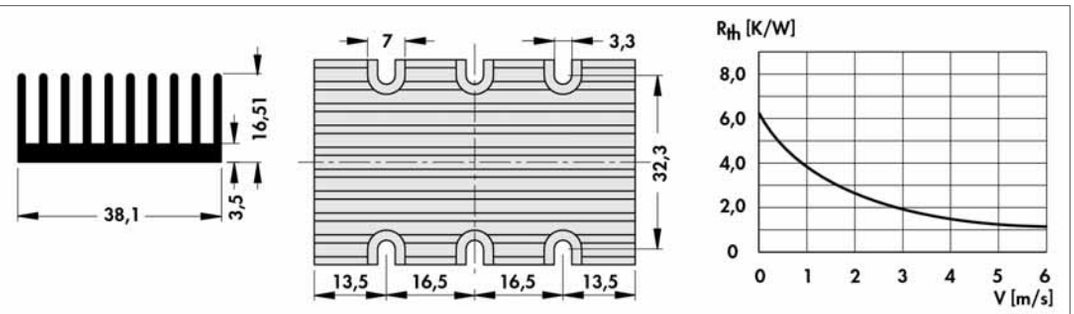
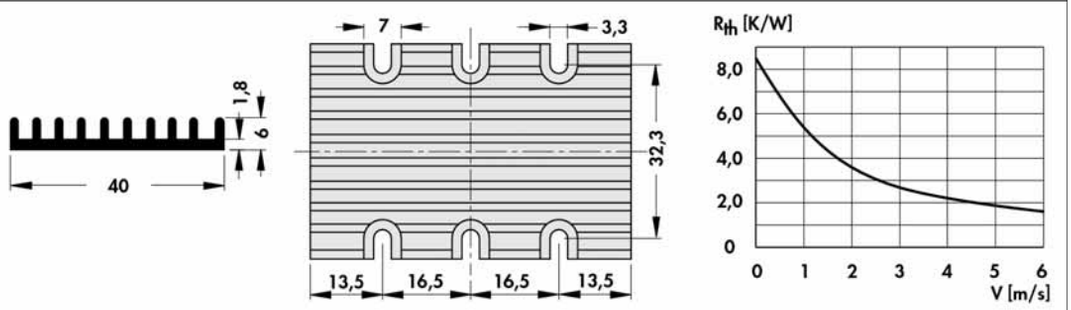
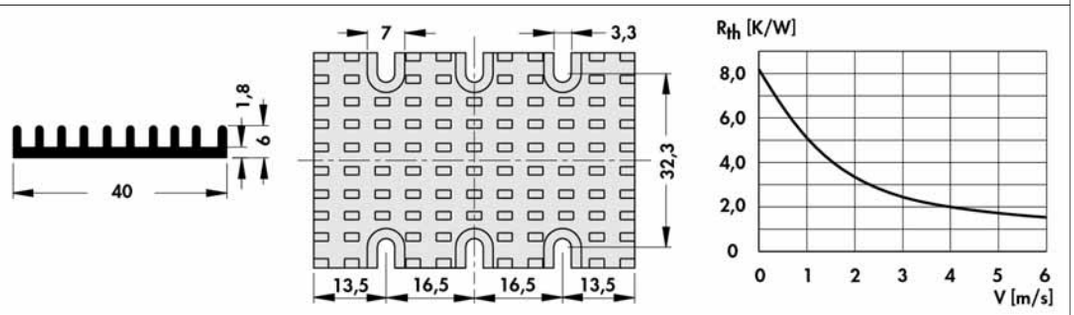
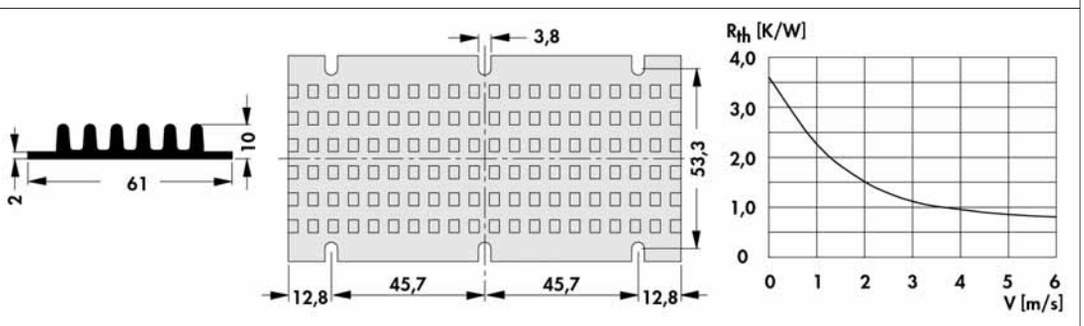
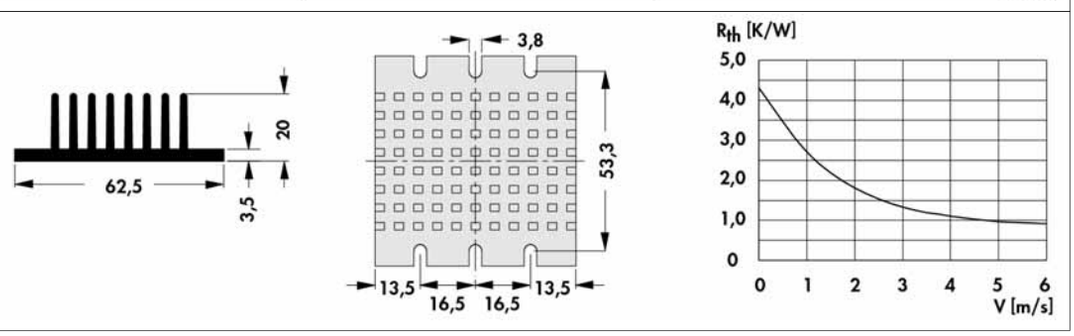
art. no.	↔ [mm]	R_{th} [K/W]	
SK 460 25 STS	25.0	9.0	TO 218/ TO 220/ TO 247/ TO 248/ SIP Multiwatt
SK 460 37,5 STS	37.5	7.9	TO 218/ TO 220/ TO 247/ TO 248/ SIP Multiwatt
SK 460 50 STIS	50.0	7.0	TO 218/ TO 220/ TO 247/ TO 248/ SIP Multiwatt

E = mounting method

special versions on customer´s request
surface treatment: black anodised

Retaining springs for transistors → A 116 – 122
Heatsinks for PCB → A 90 – 92
Heatsinks with threaded rail → A 93
SMD-heatsinks → B 38 – 40
Mounting parts for heatsinks → E 43 – 44
Unsupported thermal conductive film → E 12
Thermal conductive material → E 2 – 15
Lock-in transistor fixing spring → A 119

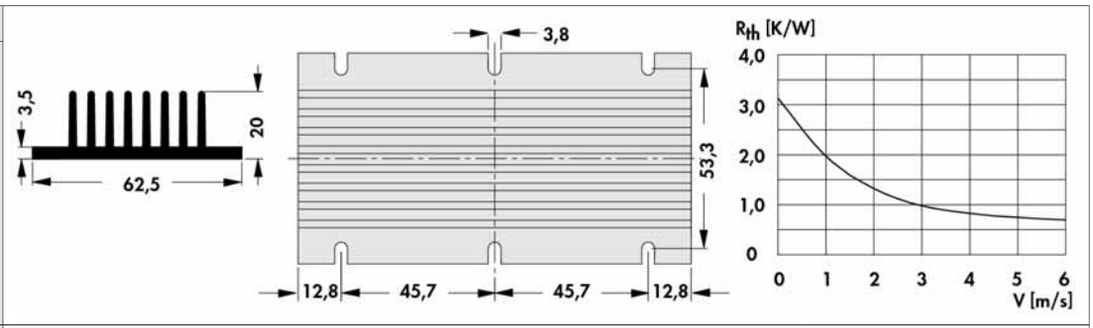
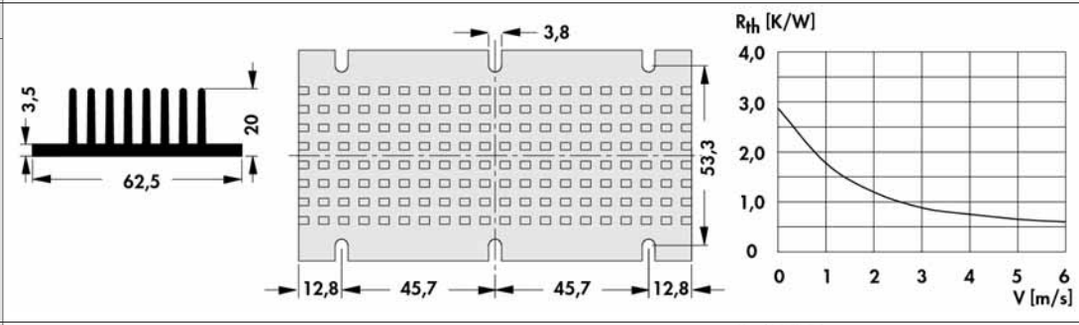
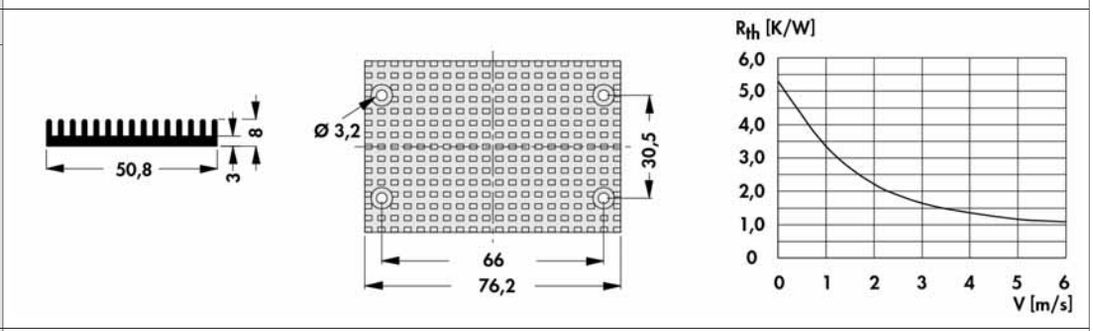
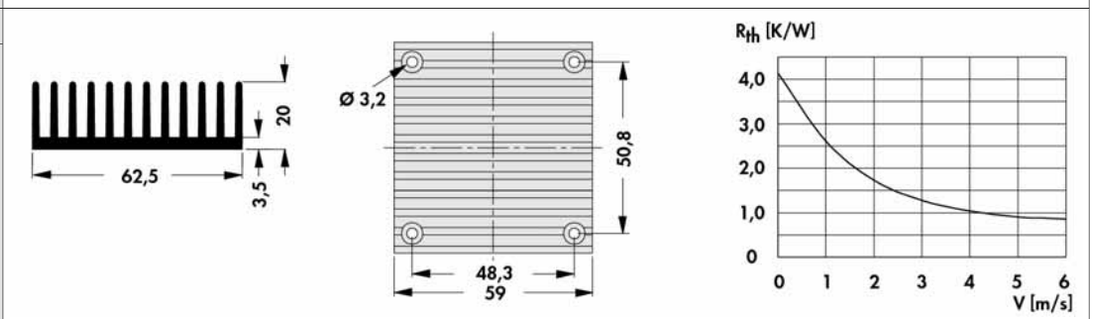
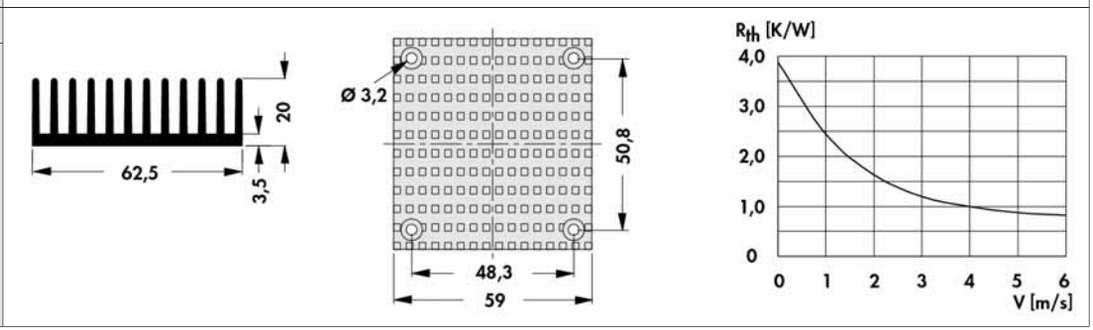
Extruded heatsinks for DC/DC converter

art. no.	
SK DC 10 60 SA	
art. no.	
SK DC 8 60 SA	
art. no.	
SK DC 8 1 60 SA	
art. no.	
SK DC 4 1 117 SA	
art. no.	
SK DC 6 1 60 SA	

special versions on customer´s request
surface treatment: black anodised

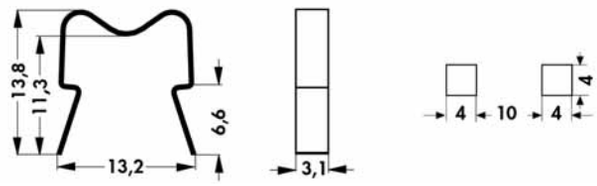
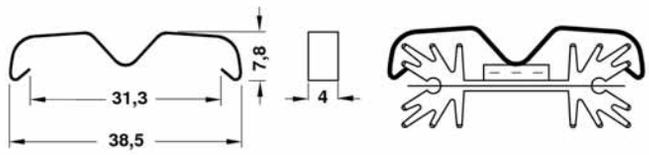
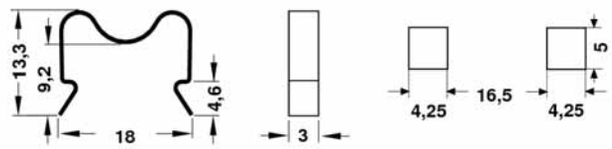
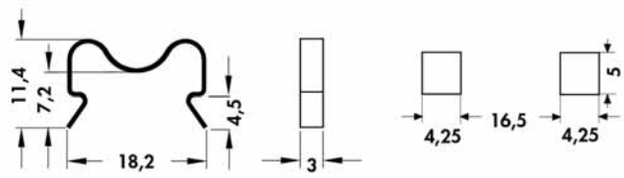
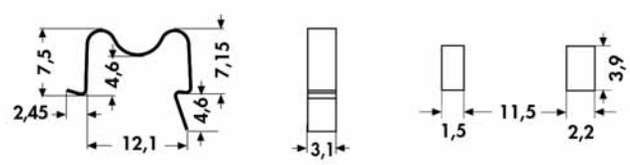
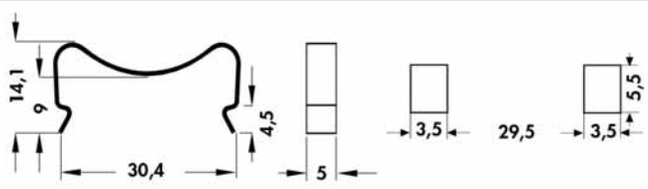
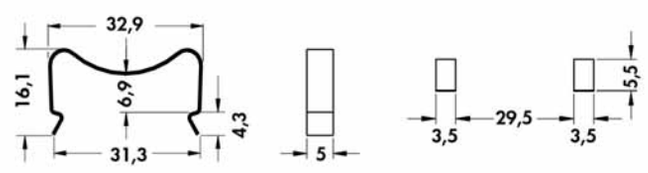
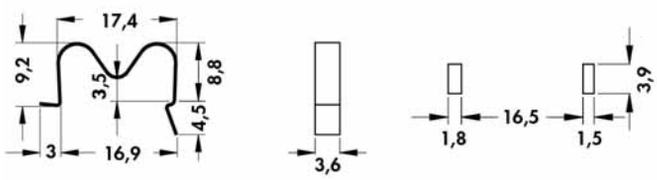
Heatsink profile-overview → **A 13 - 16**
Drilling pattern for Solid State Relais → **A 12**
Heatsinks for Solid State Relais → **A 11 - 12**
Special profiles → **A 136**
Standard aluminium profiles → **A 135 – 136**
Extruded heatsinks → **A 22 – 84**
Profiles for PCB mounting → **A 90 – 113**
Assignment table → **A 18 - 20**

Extruded heatsinks for DC/DC converter

art. no.	
SK DC 7 117 SA	
art. no.	
SK DC 7 1 117 SA	
art. no.	
SK DC 2 1 76 SA	
art. no.	
SK DC 5 59 SA	
art. no.	
SK DC 5 1 59 SA	

special versions on customer´s request
surface treatment: black anodised

Retaining springs for transistors

art. no.	for transistor-housing	suitable for heatsinks	plate thickness [mm]		
THF 129 TO 220	TO 220	SK 129 FK 219 FK 222	1 - 2	FS	
THF 104	TO 220 TO 3 P TO 247 TO 248	SK 104	1 - 2	FS	
THF 409 TO 220	TO 220 TO 3 P TO 247 TO 248	SK 409 UK 35	1.5 - 3	RS	
THF 409 SOT 32	SOT 32 TO 126 SOT 82	SK 409	2 - 3	RS	
THF 220	TO 220	FK 219 FK 222	1 - 2	FS	
THF 247	TO 220 TO 3 P TO 247 TO 248	SK 484	2	RS	
THF 247 4	TO 218 TO 220 TO 3 P TO 247 TO 248	SK 460	4	RS	
THF 220 17	TO 218 TO 220 TO 3 P TO 247 TO 248	UK 35	1 - 1.5	RS	

material: RS = stainless steel, FS = spring steel, corrosion protected

Mica wafers → **E 11**
Kapton insulator washers → **E 8**
Insulator caps → **E 44**
Mounting material for semiconduct. → **E 37 – 41**

Silicone wafers → **E 2 – 4**
Thermal conductive foil → **E 5**
Thermal conductive paste → **E 13**

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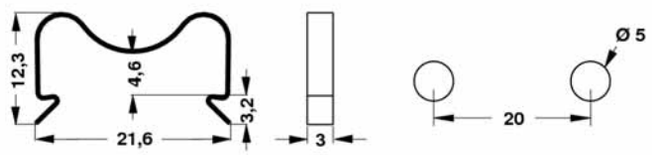
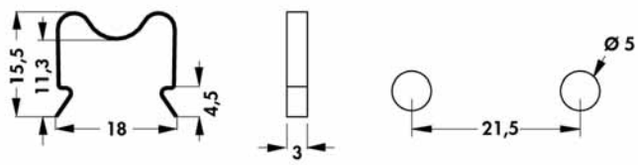
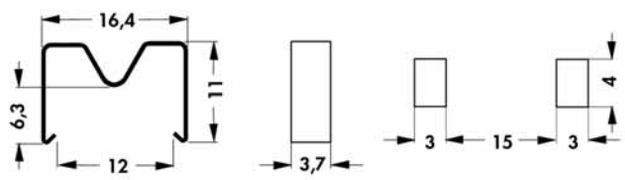
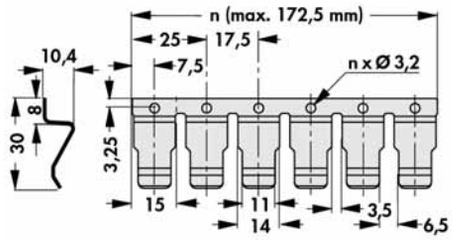
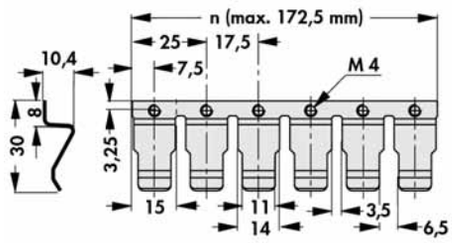
Retaining springs for transistors

art. no.	for transistor-housing	suitable for heatsinks	plate thickness [mm]		
THF 409 220 1	TO 218 TO 220 TO 3 P TO 247 TO 248	SK 409 SK 459	2 - 3	RS	
THF 409 220 2	TO 218 TO 220 TO 3 P TO 247 TO 248	SK 145 SK 185 SK 437	4	RS	
THF 249	TO 220	FK 249	1 - 1.5	FS	

material: RS = stainless steel, FS = spring steel, corrosion protected

universal **retaining spring** for transistor housings types TO 218, TO 220, TO 247, TO 264, SOT 32 and varius SIP Multiwatt etc.; **utility patent 200 14 739.0**; fast and easy mounting of the transistors; **number of retaining spring elements can be chosen (n = max. 10)**

art. no.	for transistor-housing	spring force [N]			
THFM ...	TO 218 TO 220 TO 247 TO 264 SOT 32 SIP Multiwatt	60 ±5	RS		
THFMG ...	TO 218 TO 220 TO 247 TO 264 SOT 32 SIP Multiwatt	60 ±5	RS		
please indicate:		**... number of retaining-spring elements 1-10**			

THFMG with thread M 4
specific versions and modifications on customer´s request
material: RS = stainless steel

Profiles for PCB components → **A 92**
Heatsink profile-overview → **A 13 - 16**
Assignment table → **A 18 - 20**
Heatsinks for PCB → **A 90 – 92**
Profiles for lock-in fixing spring → **A 85 – 89**
Profiles for PCB mounting → **A 90 – 113**
Thermal conductive material → **E 2 – 15**
Mounting parts for heatsinks → **E 43 – 44**

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Profiles for PCB components → A 92
Heatsink profile-overview → A 13 - 16
Assignment table → A 18 - 20
Heatsinks for PCB → A 90 – 92
Profiles for lock-in fixing spring → A 85 – 89
Profiles for PCB mounting → A 90 – 113
Thermal conductive material → E 2 – 15
Mounting parts for heatsinks → E 43 – 44

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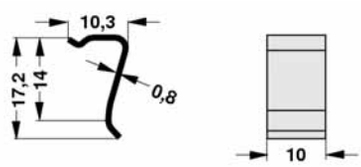
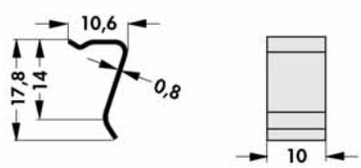
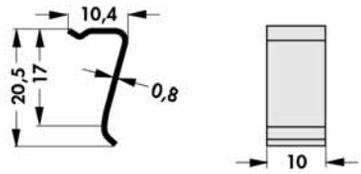
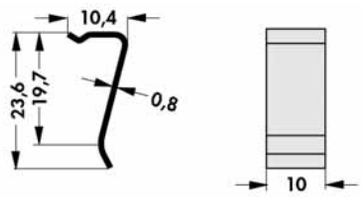
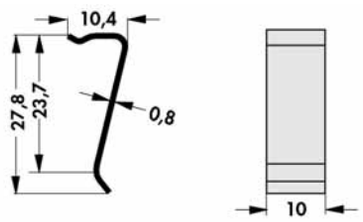
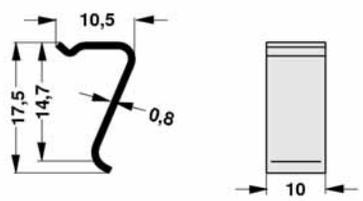
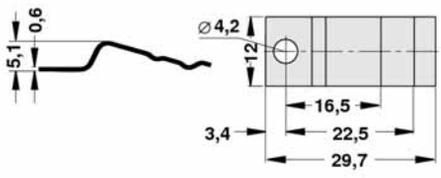
Retaining springs for transistors

art. no.	for transistor-housing	suitable for heatsinks	spring force [N]			
THFU 1	TO 218 TO 220 TO 247 TO 248 TO 3 P	SK 480 SK 481 SK 482 SK 483 SK 487 SK 489 SK 490 SK 492 SK 495 SK 499 SK 512 SK 514 SK 573 SK 574 SK 575 SK 576 SK 589 LAM 3 K LAM 4 K	60 ±5	RS		
THFU 2	TO 218 TO 220 TO 247 TO 248 TO 3 P	SK 480 SK 481 SK 482 SK 483 SK 487 SK 489 SK 490 SK 492 SK 495 SK 499 SK 512 SK 514 SK 573 SK 574 SK 575 SK 576 SK 589 LAM 3 K LAM 4 K	60 ±5	RS		
THFU 3	TO 218 TO 220 TO 247 TO 248 TO 3 P	SK 480 SK 481 SK 482 SK 483 SK 487 SK 489 SK 490 SK 492 SK 495 SK 499 SK 514 SK 573 SK 574 SK 575 SK 576 SK 589 LAM 4 K	50 ±5	RS		

Profiles for PCB components → **A 92**
Heatsink profile-overview → **A 13 - 16**
Assignment table → **A 18 - 20**
Heatsinks for PCB → **A 90 – 92**
Profiles for lock-in fixing spring → **A 85 – 89**
Profiles for PCB mounting → **A 90 – 113**
Thermal conductive material → **E 2 – 15**
Mounting parts for heatsinks → **E 43 – 44**

Retaining springs for transistors

art. no.	for transistor-housing	suitable for heatsinks	spring force [N]			
THFU 4	TO 218 TO 220 TO 247 TO 248 TO 3 P	SK 480 SK 481 SK 482 SK 483 SK 487 SK 489 SK 490 SK 495 SK 499 SK 514 SK 575 SK 589	32 ±5	RS		
THFU 5	TO 218 TO 220 TO 247 TO 248 TO 3 P	SK 489 SK 490 SK 589	25 ±5	RS		
THFU 6	TO 218 TO 220 TO 247 TO 248 TO 3 P	SK 480 SK 481 SK 482 SK 483 SK 487 SK 489 SK 490 SK 492 SK 495 SK 499 SK 512 SK 514 SK 573 SK 574 SK 575 SK 576 SK 589 LAM 3 K LAM 4 K	60 ±5	RS		
THFK 220	TO 220	-	79	RS		

Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90 – 92**
Profiles for lock-in fixing spring → **A 85 – 89**
Profiles for PCB mounting → **A 90 – 113**
Thermal conductive material → **E 2 – 15**
Mounting parts for heatsinks → **E 43 – 44**

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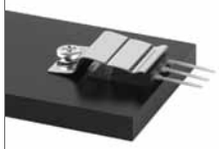
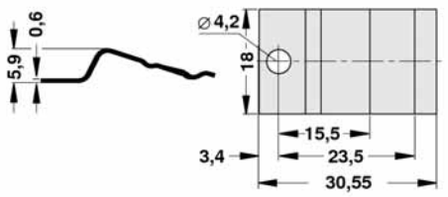
Retaining springs for transistors

art. no.	for transistor-housing	suitable for heatsinks	spring force [N]			
THFK 247	TO 218 TO 247	-	119	RS		

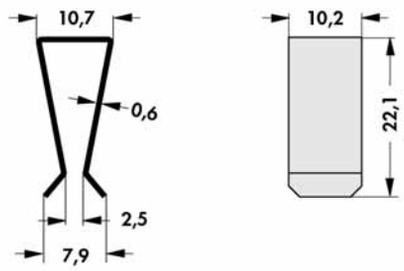
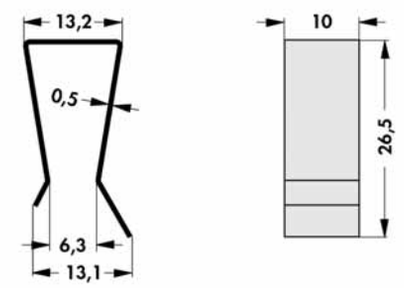
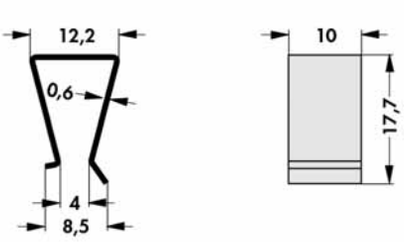
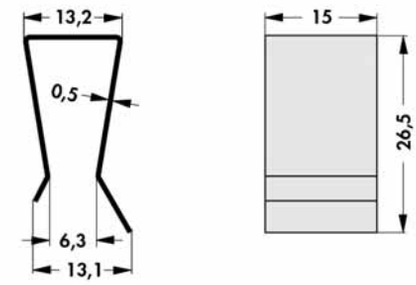
material: RS = stainless steel

Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90 – 92**
Profiles for lock-in fixing spring → **A 85 – 89**
Profiles for PCB mounting → **A 90 – 113**
Thermal conductive material → **E 2 – 15**
Mounting parts for heatsinks → **E 43 – 44**

Retaining springs for transistors

Transitor clamps

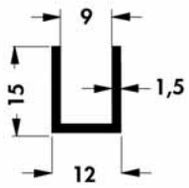
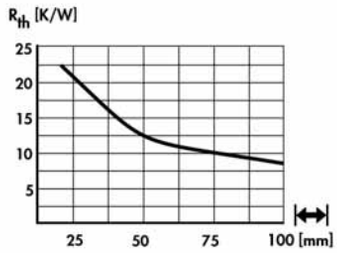
– able to slide on the transistor and mounting plate
– easy mounting
– high pressure force and firm grip

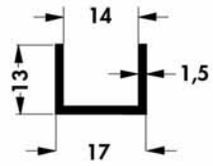
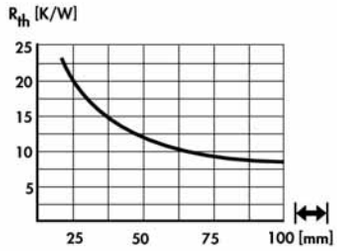
art. no.	for transistor-housing	plate thickness [mm]	holding force [N]			
THFA 1	TO 220	2	20	RS		
THFA 2	TO 220	6.5	20	FS		
THFA 3	TO 220	5.5	33	FS		
THFA 4	TO 247 TO 218	6.5	59	FS		

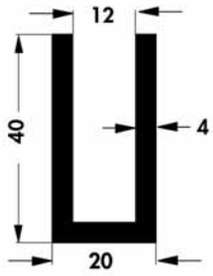
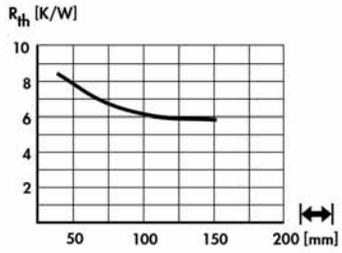
specific versions on customer´s request
material: RS = stainless steel, FS = spring steel, corrosion protected

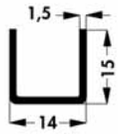
Mica wafers → **E 11**
Kapton insulator washers → **E 8**
Insulator caps → **E 44**
Mounting material for semiconduct. → **E 37 – 41**
Silicone wafers → **E 2 – 4**
Thermal conductive foil → **E 5**
Thermal conductive paste → **E 13**

U-Extruded heatsinks

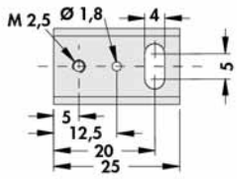
art. no.	
SK 12 ...	 
please indicate:	**... ↔** **1000 mm**

art. no.	
SK 13 ...	 
please indicate:	**... ↔** **25 35 mm**

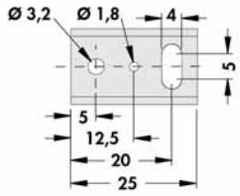
art. no.	
SK 115 ...	 
please indicate:	**... ↔** **37.5 50 1000 mm**



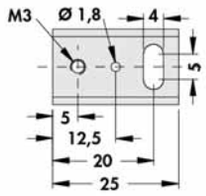
UK 14 SA 220



UK 14 SA 220 3,2



UK 14 SA M3

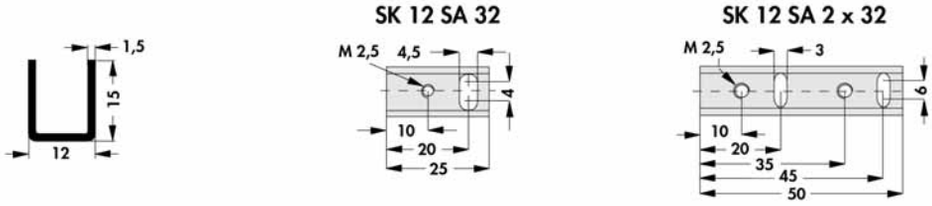


art. no.	R_{th} [K/W]	
UK 14 SA 220	20	TO 220
UK 14 SA 220 3,2	20	TO 220
UK 14 SA M3	20	TO 220

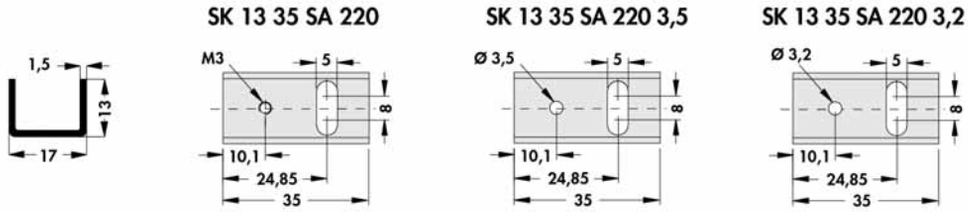
surface treatment: black anodised

U-Extruded heatsinks

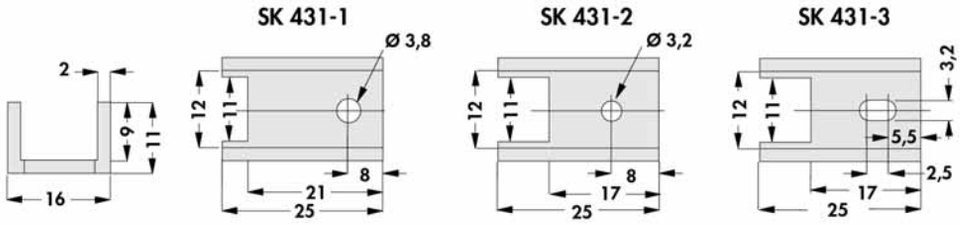
art. no.	R_{th} [K/W]	
ICK 35 SA	15	TO 220



art. no.	R_{th} [K/W]	
SK 12 SA 2 x 32	15	2 x SOT 32
SK 12 SA 32	30	1 x SOT 32



art. no.	R_{th} [K/W]	
SK 13 35 SA 220	17	TO 220
SK 13 35 SA 220 3,2	17	TO 220
SK 13 35 SA 220 3,5	17	TO 220



art. no.	R_{th} [K/W]	
SK 431-1	18	TO 220
SK 431-2	18	TO 220
SK 431-3	18	TO 220

surface treatment: black anodised

Profiles for PCB components → **A 92**
Heatsink profile-overview → **A 13 - 16**
Heatsinks for PCB → **A 90**
Hole pattern → **A 21**
Profiles for PCB mounting → **A 90 – 113**
Technical introduction → **A 2 - 7**
Retaining springs for transistors → **A 116 – 122**
Extruded heatsinks → **A 22 – 84**

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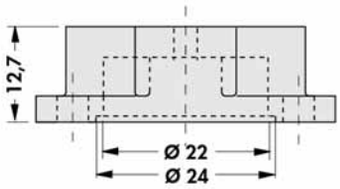
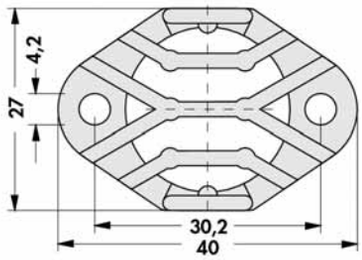
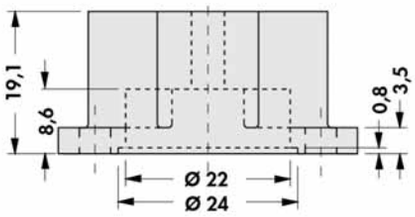
Die-cast heatsinks

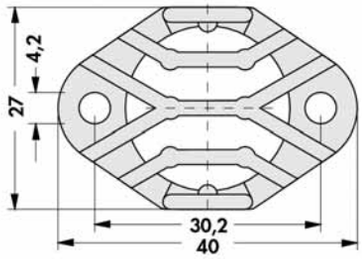
setup heatsinks and angle for TO 3





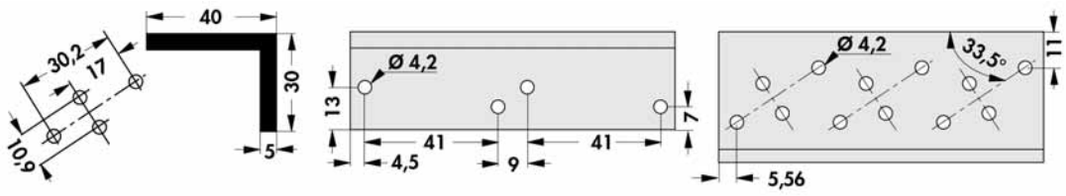
art. no.	↔ [mm]	R_{th} [K/W]
AKK 127	27	14





art. no.	↔ [mm]	R_{th} [K/W]
AKK 191	27	12

surface treatment: black lacquered
material: die-casting aluminium



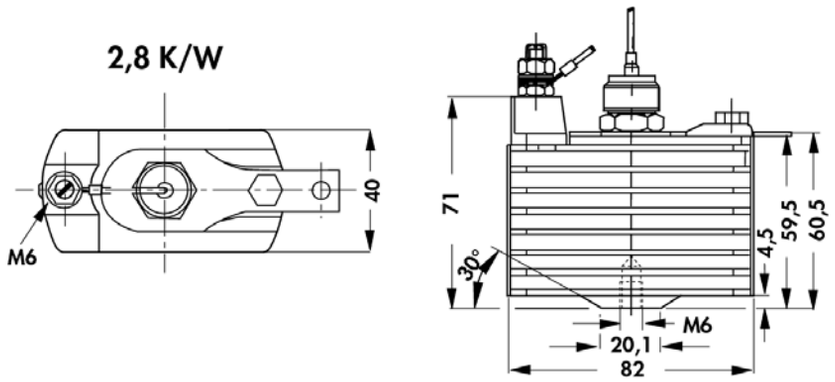
art. no.	↔ [mm]	R_{th} [K/W]	⌖
WP 4030 100 ...	100	3.7	–
WP 4030 100 3 ...	100	3.7	TO 3

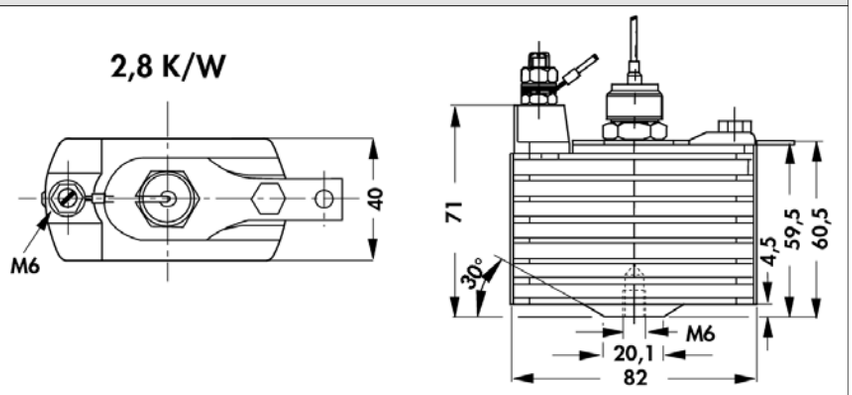
please indicate: **... surface treatment**
AL=raw degreased aluminium
SA=black anodised

socket: TF 3 2 →E 44

Die-cast heatsinks

Die-cast acc. To geman standard DIN 41882

art. no.		
		
K 3 ...	for mounting use insulator: **art. no.: IS 53**	
please indicate:	**... semiconductor retaining thread M 6; M 8; M 10; M 12; 1/4"-28 UNF**	

art. no.		
		
K 3 T ...	cathode lug insulator with an additional insulated connection (M 5/ M 3). for mounting use insulator: **art. no.: IS 53**	
please indicate:	**... semiconductor retaining thread M 6; M 8**	

other lengths and drillings on request
surface treatment: black lacquered

Lamella heatsinks → **A 129**
Special profiles → **A 136**
Standard aluminium profiles → **A 135 – 136**
Extruded heatsinks → **A 22 – 84**
Technical introduction → **A 2 - 7**
Mounting for TO 3 angle → **A 125**
Drilling pattern for Solid State Relais → **A 12**
High capacity heatsinks → **A 57 – 58**

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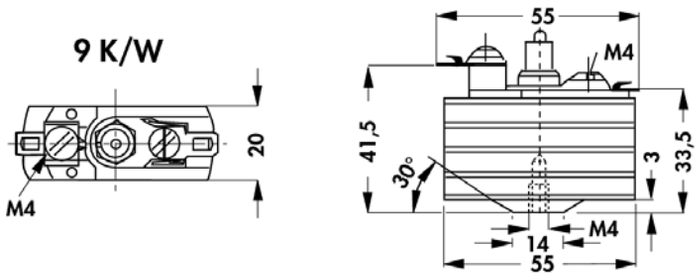
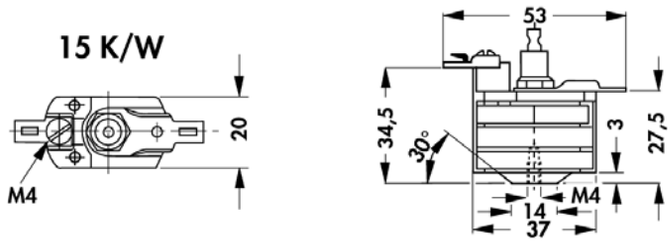
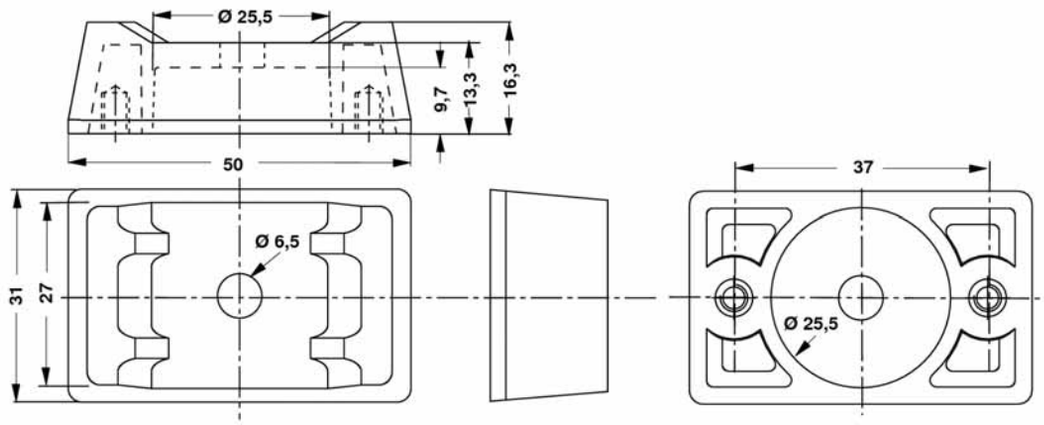
Die-cast heatsinks

art. no.		
K 9 ...		
art. no.		
K 15 ...		
please indicate:	**... semiconductor retaining thread M 4; M 5**	

other lengths and drillings on request
surface treatment: black lacquered

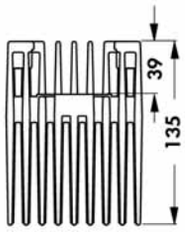
Mounting parts for heatsinks

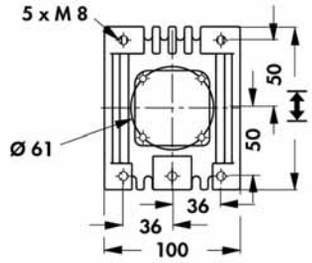
art. no.	
IS 53	

Die-cast heatsinks

– completely milled mounting surface for semiconductors with square bottom plates
– the mounting surface can be equipped with threads for fastening semiconductors with screwed glands(semiconductor thread tapping)
– threads from M 4 to M 32 x 1.5 or 4 x threads for semiconductors with clamping plate mounting are available
– strap fastening thread M 8

0,55 K/W

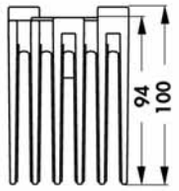


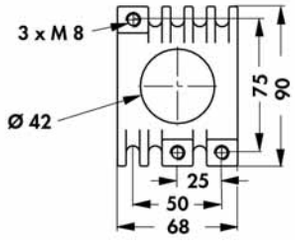


art. no.	↔ [mm]	R_{th} [K/W]
K 0,55 ...	120	0.55

please indicate: **... semiconductor retaining thread M 12; M 24 x 1,5**

1,1 K/W



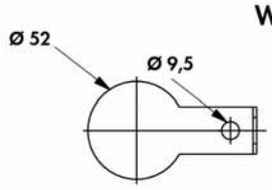


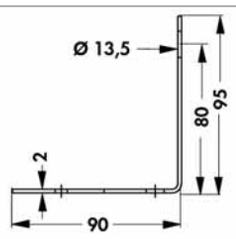
art. no.	↔ [mm]	R_{th} [K/W]
K 1,1 ...	90	1.1

please indicate: **... semiconductor retaining thread M 16 x 1,5; M 8; M 12**

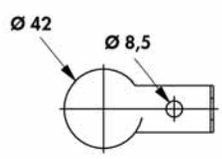
delivery without anode strap
other lengths and drillings on request
surface treatment: black lacquered

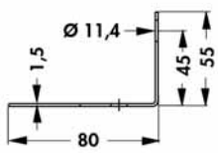
WL 0,55





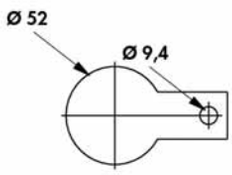
WL 1,1

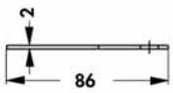




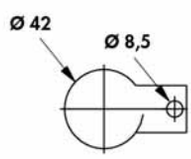
art. no.	art. no.
WL 0,55	**WL 1,1**

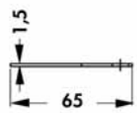
FL 0,55





FL 1,1





art. no.	art. no.
FL 0,55	**FL 1,1**

Lamella heatsinks → **A 129**
Special profiles → **A 136**
Standard aluminium profiles → **A 135 – 136**
Extruded heatsinks → **A 22 – 84**
Technical introduction → **A 2 - 7**
Mounting for TO 3 angle → **A 125**
Drilling pattern for Solid State Relais → **A 12**
High capacity heatsinks → **A 57 – 58**

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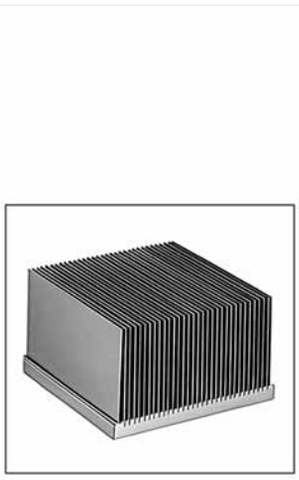
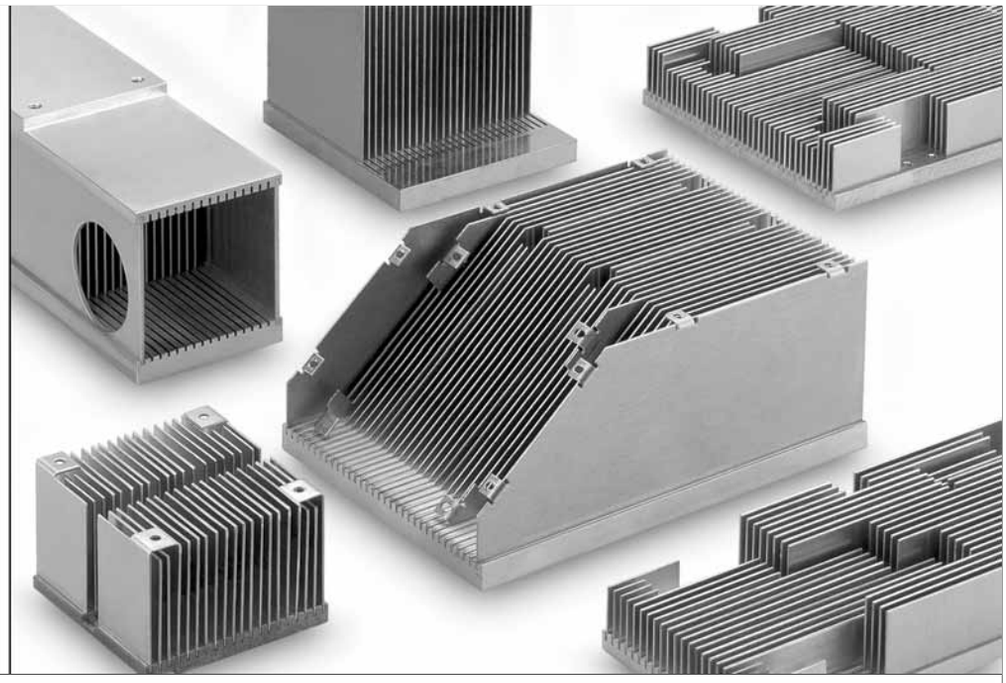
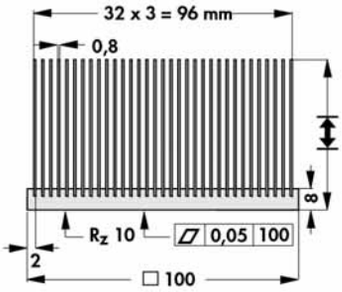
Fin coolers

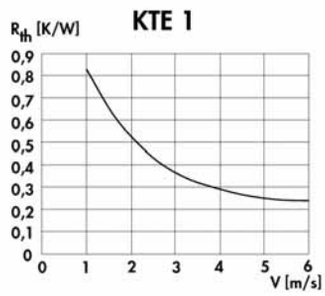
Standard fin coolers for thermoelectrical elements

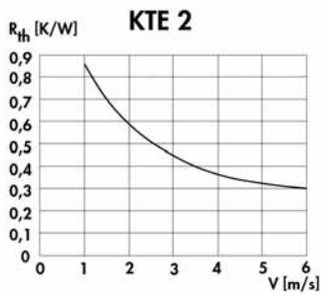
– fin coolers in special design
– especially suitable for thermoelectric elements (Peltier-elements) and similar power modules
– compact design with reduced volume
– large surface, therefore more efficient than extruded profiles
– particularly low heat resistance with forced air cooling
– ideally fitted fins from a heat engineer´s point of view
– accurately flat milled surfaces
– very low roughness











art. no.	↕ [mm]
KTE 1	58
KTE 2	46

machining for module mounting according to drawing
heat bridges (spacing bridges) on request

lapped surface on request
customer specific special design
material: aluminium, construction with copper on request

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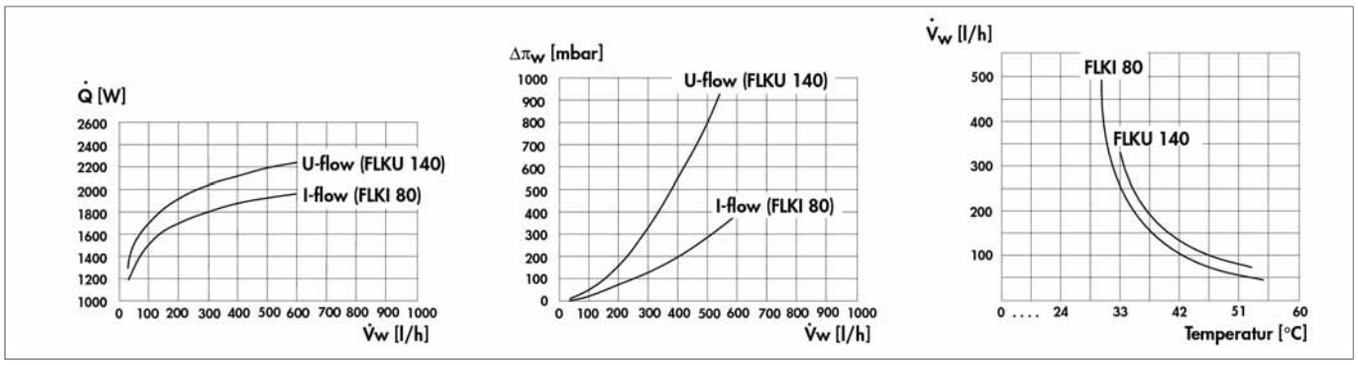
Fluid coolers

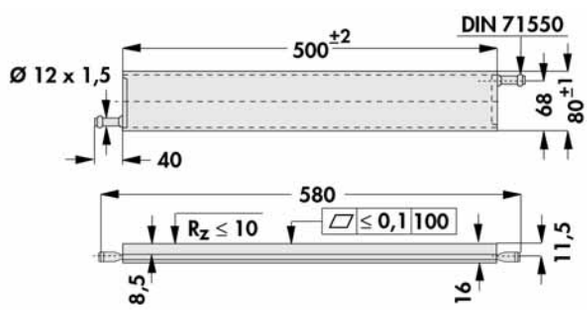
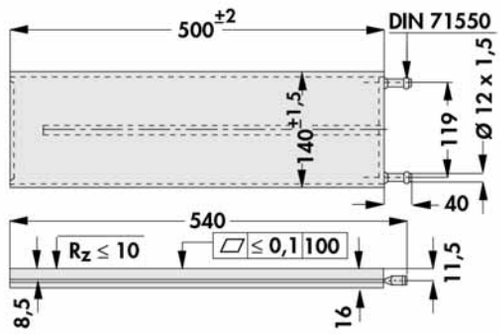
Fluid coolers for power modules

fluid cooler for dissipating large quantities of heat with low space requirement; **effective system to cool power modules**; suitable for water pH 6,5-8,5 with anticorrosives, as well as other fluids (eg. oil, alcohols, etc.); **compact design with internal fin structure for particularly good heat transfer to the fluid**; minimised flow pressure losses (see diagram); **operating pressure up to 2 bar possible**; thick base plate for optimum heat distribution and to secure the heat-emmiting elements; **mounting flange for the cooler according to customer's instructions** ; precisely face milled surface of component mounting area with very good eveness and low roughness depth; **dimensionally accurate adjustment to given mounting conditions**; connections using hole ports 12 mm in diameter with reinforcing seam to DIN 71550 or installation flange to customers instuctions; **I- or U-throughflow or multiple throughflow versions**; max. drilling depth in the base plate: 7 mm

To avoid corrosion in the water cooler the cooling fluid has to flow in a closed circuit and it has to contain 40-60% (preferred is 50%) anti-corrosive fluids for aluminium, if necessary with anti-freeze. For the choice and approval of the cooling fluid as well as for the possible consequences in the cooling circuit the user is the only liable person. Therefore we exclude any liability for damages caused by the choice or approval of the cooling fluids.



water-gycol mixture (60/40); inlet temperature approx. 26 °C

art. no.		
FLKI 80		
art. no.		
FLKU 140		

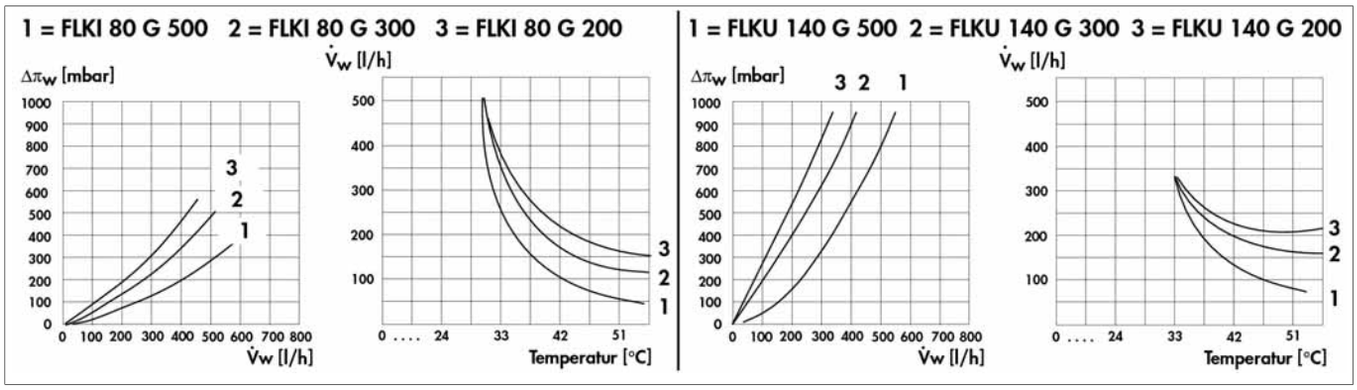
dimensions and designs using customer's instructions
material: EN AW 6060 (Al Mg Si 0,5)

Fluid coolers

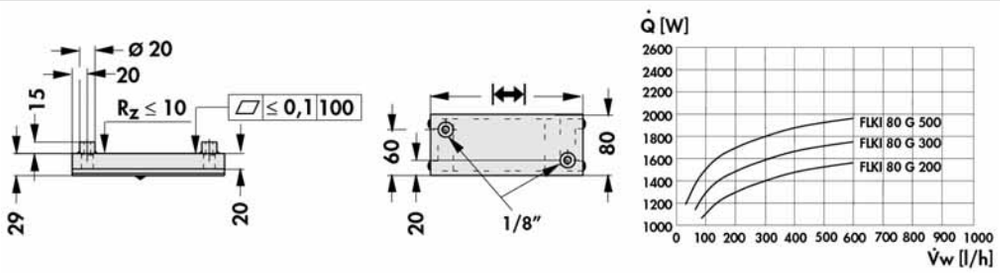
Fluid coolers for power modules

fluid cooler for dissipating large quantities of heat with low space requirement; **effective system to cool power modules**; suitable for water pH 6,5-8,5 with anticorrosive, as well as other fluids (eg. oil, alcohols, etc.); **compact design with internal fin structure for particularly good heat transfer to the fluid**; minimised flow pressure losses; **operating pressure up to 2 bar possible**; thick base plate for optimum heat distribution and to secure the heat-emitting elements; **mounting flange for the cooler according to customer's instructions** ;precisely face milled surface of component mounting area with very good eveness and low roughness depth; **for power modules like IGBT-module, Thyristor-module, SCR diode module, bridge amplifiers and others**;dimensionally accurate adjustment to given mounting conditions; **conncetions with thread muffle 1/8"" or mounting flange according to customer's instructions**; I- or U-throughflow or multiple throughflow versions; **max. drilling depth in the base plate: 17 mm**

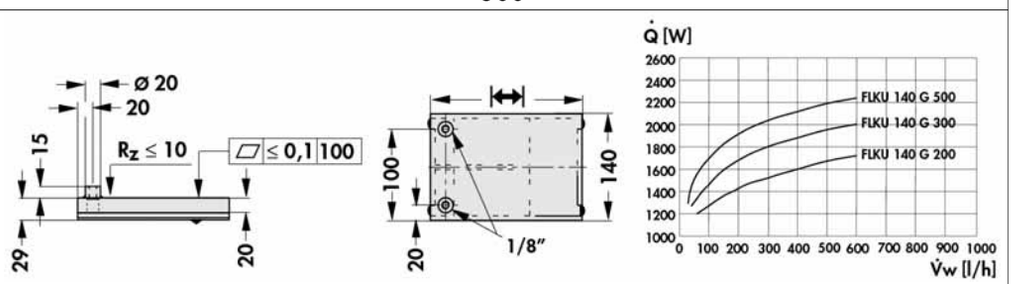
To avoid corrosion in the water cooler the cooling fluid has to flow in a closed circuit and it has to contain 40-60% (preferred is 50%) anti-corrosive fluids for aluminium, if necessary with anti-freeze. For the choice and approval of the cooling fluid as well as for the possible consequences in the cooling circuit the user is the only liable person. Therefore we exclude any liability for damages caused by the choice or approval of the cooling fluids.



water-gycol mixture (60 / 40); inlet temperature approx. 26 °C



art. no.	↔ [mm]
FLKI 80 G 200	200
FLKI 80 G 300	300
FLKI 80 G 500	500



art. no.	↔ [mm]
FLKU 140 G 200	200
FLKU 140 G 300	300
FLKU 140 G 500	500

dimensions and designs using customer's instructions
material: EN AW 6060 (Al Mg Si 0,5)

High capacity heatsinks → **A 57 – 58**
Heatsink special design → **A 133 - 134**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**
Cooling aggregates with radial fan → **D 30 – 32**
Drilling pattern for Solid State Relais → **A 12**
High capacity cooling aggregat. → **D 25 – 28**
Mounting material for semiconduct. → **E 37 – 41**

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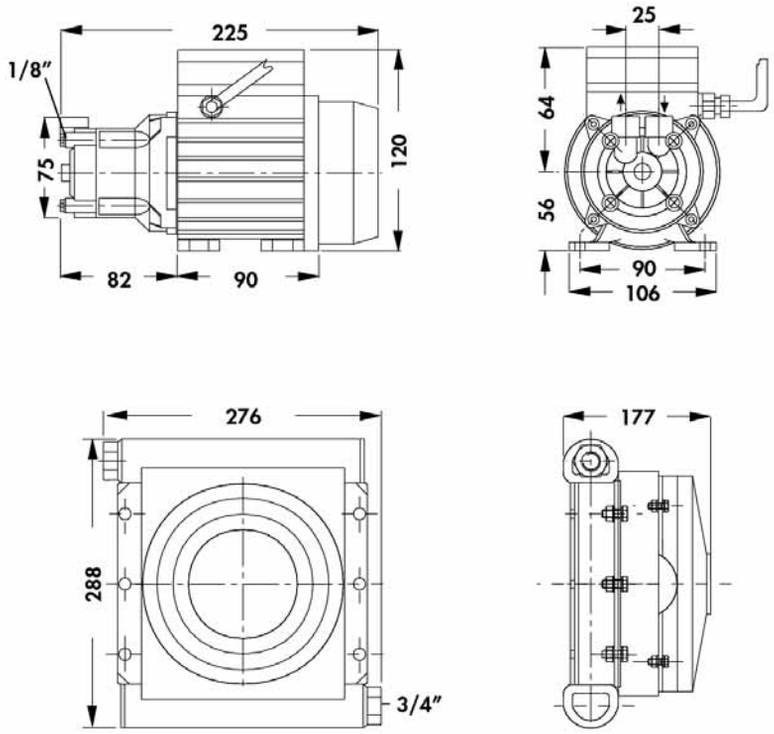
Fluid coolers

Recooling systems for liquid coolers

– recooling system for all types of liquid coolers
– cools up to 2.600 watts thermal power loss
– consists of pump and recooler
– pump as normally aspirating, single-stage centrifugal pump with spiral housing in block construction
– recooler with liquid-conducting tube system with air lamella and electrically driven fan motor
– further information free of charge under: FLK R1-Info
– notes: anticorrosive agents are required when water is used as coolant (eg. water/glykol - 60/40)
– the hose systems used (NOT in scope of delivery) must be resistant to anticorrosive agents (eg. material EPDM according to DIN 73411, ISO 4081)

To avoid corrosion in the water cooler the cooling fluid has to flow in a closed circuit and it has to contain 40-60% (preferred is 50%) anti-corrosive fluids for aluminium, if necessary with anti-freeze. For the choice and approval of the cooling fluid as well as for the possible consequences in the cooling circuit the user is the only liable person. Therefore we exclude any liability for damages caused by the choice or approval of the cooling fluids.

art. no.		
FLKR 1		

scope of delivery: pump and recooler
thermal cooling capacity: max. 2.600 W
pump: single-phase 230 V AC, 120 W
recooler: single-phase 230 V AC, 120 W/ three-phase 400 V AC, 90 W

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A
B
C
D
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M
N

High capacity heatsinks → A 57 – 58
Heatsink special design → A 133 - 134
Hole pattern → A 21
Technical introduction → A 2 - 7
Cooling aggregates with radial fan → D 30 – 32
Drilling pattern for Solid State Relais → A 12
High capacity cooling aggregat. → D 25 – 28
Mounting material for semiconduct. → E 37 – 41

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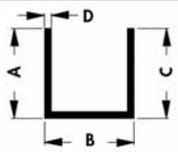
Aluminium flat-, quadrangular-, angled-, U- & T-profiles

Standard aluminium profiles

U-profiles



art. no.	A [mm]	B [mm]	C [mm]	D [mm]
SU 02	20	40	20	2.5
SU 03	20	40	20	2.0
SU 05	30	20	30	2.0
SU 09	20	20	20	1.5
SU 16	30	30	30	2.0
SU 27	40	40	40	2.5
SU 29	40	40	40	4.0
SU 32	30	30	30	3.0

tolerances: EN 755
material: EN AW 6060 (Al Mg Si 0,5)

flat profiles

art. no.	A [mm]	B [mm]
SFP 005	40	15
SFP 006	30	8
SFP 007	40	5
SFP 016	70	15
SFP 028	40	10
SFP 029	30	10
SFP 037	55	10
SFP 046	25	5
SFP 054	50	10
SFP 057	115	100
SFP 058	40	8
SFP 060	80	8
SFP 067	30	15
SFP 074	70	10
SFP 076	60	30
SFP 079	90	100
SFP 090	120	15
SFP 100	100	15
SFP 106	40	20
SFP 112	100	25

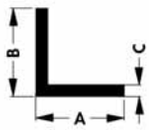
length, drilling and surface finishes to customer's instuctions.
other standard profiles on request

tolerances: EN 755
material: EN AW 6060 (Al Mg Si 0,5)

Aluminium flat-, quadrangular-, angled-, U- & T-profiles

Standard aluminium profiles

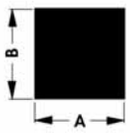
angled profile



art. no.	A [mm]	B [mm]	C [mm]
SWP 02	80	80	8
SWP 06	80	40	6
SWP 10	30	20	2
SWP 15	40	20	4
SWP 23	20	15	2
SWP 25	50	30	5
SWP 29	15	10	2
SWP 36	75	50	5
SWP 40	40	30	5
SWP 55	40	40	5
SWP 57	60	30	5

tolerances: EN 755
material: EN AW 6060 (Al Mg Si 0,5)

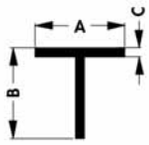
quadrangular profile



art. no.	A [mm]	B [mm]
SVP 01	8	8
SVP 04	25	25
SVP 10	10	10
SVP 12	50	50
SVP 13	55	55

tolerances: EN 755
material: EN AW 6060 (Al Mg Si 0,5)

T-profile



art. no.	A [mm]	B [mm]	C [mm]
STP 4	60	60	6
STP 5	20	20	2

length, machining and surface according to customer's instructions
other standard profiles on request

tolerances: EN 755
material: EN AW 6060 (Al Mg Si 0,5)

Hole pattern → **A 21**
Extruded heatsinks → **A 22 – 84**
Special profiles → **A 136**
High capacity heatsinks → **A 57 – 58**
Construction parts made of aluminium → **A 135**
Heatsink as visual & decor-parts → **A 10**
Special profiles → **A 136**
Technical introduction → **A 2 - 7**

Heatsinks for IC processor

art. no.	page	R_{th} [K/W]	dissipation loss [W]	mounting method	socket	suitable for processor type
ICK PGA 6 x 6 x 14	B 10	18.60	6.40	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 8 x 8 x 12	B 10	14.80	8.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 9 x 9	B 10	14.00	3.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 11 x 11 x 8	B 10	16.00	7.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 11 x 11	B 10	10.90	4.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 11 x 11 x 12	B 11	12.30	3.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 14 x 14	B 11	10.00	4.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 14 x 14 x 10	B 11	10.50	11.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 14 x 14 x 14	B 11	9.60	12.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 14 x 14 x 12	B 11	9.80	5.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 15 x 15	B 11	9.40	5.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 16 x 16 x 8	B 12	14.00	4.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 16 x 16 x 10	B 12	10.50	12.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 16 x 16 x 12	B 12	9.30	6.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 17 x 17	B 12	8.60	6.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 17 x 17 x 8	B 12	13.20	5.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 17 x 17 x 12	B 12	9.00	6.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 18 x 18	B 13	8.40	7.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 19 x 19	B 13	8.10	7.60	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 19 x 19 x 12	B 13	8.80	6.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 20 x 20	B 13	7.60	8.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 20 x 20 K	B 13	7.60	8.30	fixing clamp	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A
ICK PGA 20 x 20 x 8	B 14	12.00	6.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 20 x 20 x 8 K	B 14	12.00	6.30	fixing clamp	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A
ICK PGA 20 x 20 x 10	B 14	8.50	15.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 20 x 20 x 12	B 14	8.00	8.10	therm. conductive foil/ therm. cond. adhesive	universal	universal

Heatsinks for power-pc → **B 41**
Heatsinks for PLCC → **B 37**
Heatsinks for DIL-IC → **B 36**
Thermal conductive paste → **E 13**
Pin heatsinks for IC → **B 20 – 24**
Heatsinks for BGA → **B 16 – 19**
Heatsinks for PGA → **B 10 – 15**
SMD-heatsinks → **B 38 – 40**

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Heatsinks for IC processor

art. no.	page	R_{th} [K/W]	dissipation loss [W]	mounting method	socket	suitable for processor type
ICK PGA 20 x 20 x 12 K	B 14	8.00	8.10	fixing clamp	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A
ICK PGA 21 x 21	B 15	7.00	8.60	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 22 x 22	B 15	6.20	8.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PGA 25 x 25	B 15	5.00	11.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 10 x 10	B 16	31.00	1.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 10 x 10 x 10	B 16	28.50	1.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 14 x 14	B 16	29.00	2.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 14 x 14 x 10	B 16	27.40	2.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 21 x 21	B 16	24.30	2.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 23 x 23	B 17	22.00	2.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 23 x 23 x 10	B 17	21.00	2.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 27 x 27	B 17	20.00	3.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 27 x 27 x 10	B 17	18.50	3.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 27 x 27 x 14	B 17	13.50	9.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 27 x 27 x 22	B 17	13.50	9.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 31 x 31	B 18	18.60	3.40	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 31 x 31 x 10	B 18	17.00	3.70	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 35 x 35	B 18	16.50	3.70	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 35 x 35 x 10	B 18	15.70	3.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 37 x 37 x 6	B 18	15.70	9.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 37 x 37 x 10	B 18	14.00	10.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 40 x 40	B 19	14.30	4.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 40 x 40 x 10	B 19	13.80	4.40	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK BGA 42,5 x 45	B 19	13.60	4.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 10 x 10 x 6,5	B 20	29.90	2.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 10 x 10 x 12,5	B 20	26.30	2.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 14 x 14 x 6,5	B 20	10.00	5.00	therm. conductive foil/ therm. cond. adhesive	universal	universal

Heatsinks for power-pc → **B 41**
Heatsinks for PLCC → **B 37**
Heatsinks for DIL-IC → **B 36**
Thermal conductive paste → **E 13**
Pin heatsinks for IC → **B 20 – 24**
Heatsinks for BGA → **B 16 – 19**
Heatsinks for PGA → **B 10 – 15**
SMD-heatsinks → **B 38 – 40**

Heatsinks for IC processor

art. no.	page	R_{th} [K/W]	dissipation loss [W]	mounting method	socket	suitable for processor type
ICK S 14 x 14 x 10	B 21	9.80	5.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 17 x 17 x 15	B 21	8.36	5.95	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 17 x 17 x 20	B 21	7.89	6.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 18 x 18 x 6,5	B 21	7.00	7.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 18 x 18 x 10	B 21	6.80	7.35	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 25 x 25 x 6,5	B 21	5.80	12.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 25 x 25 x 12,5	B 21	5.30	14.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 25 x 25 x 18,5	B 22	5.20	14.40	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 29 x 29 x 10	B 22	5.70	13.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 29 x 29 x 20	B 22	3.70	20.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 32 x 32 x 10	B 22	5.40	13.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 32 x 32 x 20	B 22	3.70	20.40	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 36 x 36 x 10	B 22	4.70	16.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 36 x 36 x 15	B 23	3.90	19.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 36 x 36 x 20	B 23	3.20	23.40	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 40 x 40 x 10	B 23	4.60	16.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 40 x 40 x 20	B 23	3.50	21.40	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 40 x 40 x 25	B 23	3.10	23.70	therm. conductive foil	universal	universal
ICK S 45 x 45 x 10	B 23	4.70	16.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 45 x 45 x 20	B 24	4.40	17.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 50 x 50 x 20	B 24	2.70	27.70	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 50 x 50 x 25	B 24	2.40	31.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 50 x 50 x 40	B 24	6.05	13.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 50 x 50 x 50	B 24	4.05	14.32	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S 98 x 98 x 45	B 24	3.50	42.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S D 12 x 12 x 7,5	B 25	10.85	4.60	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S D 18 x 12 x 7,5	B 25	9.00	5.40	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S D 24 x 18 x 7,5	B 25	8.50	5.85	therm. conductive foil/ therm. cond. adhesive	universal	universal

Heatsinks for power-pc → **B 41**
Heatsinks for PLCC → **B 37**
Heatsinks for DIL-IC → **B 36**
Thermal conductive paste → **E 13**
Pin heatsinks for IC → **B 20 – 24**
Heatsinks for BGA → **B 16 – 19**
Heatsinks for PGA → **B 10 – 15**
SMD-heatsinks → **B 38 – 40**

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Heatsinks for IC processor

art. no.	page	R_{th} [K/W]	dissipation loss [W]	mounting method	socket	suitable for processor type
ICK S D 98 x 98 x 10	B 25	4.88	10.25	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 28,5 x 6,5	B 26	5.82	15.60	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 28,5 x 10	B 26	5.65	16.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 28,5 x 12,5	B 26	5.53	16.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 28,5 x 18,5	B 26	4.25	20.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 32,5 x 10	B 26	5.54	9.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 32,5 x 20	B 26	5.60	8.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 36,5 x 20	B 26	6.41	18.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 40 x 10	B 27	11.04	8.40	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 40 x 20	B 27	10.32	8.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R A 40 x 20	B 27	11.62	8.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 40 x 30	B 27	9.77	9.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 50 x 10	B 27	5.28	9.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 50 x 20	B 27	8.55	9.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 50 x 30	B 28	8.26	10.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 50 x 45	B 28	6.32	12.70	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 54 x 20	B 28	8.11	10.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 54 x 30	B 28	6.95	11.57	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK S R 54 x 45	B 28	5.37	15.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 23,5 x 14	B 29	18.58	6.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 23,5 x 14 G	B 29	19.16	6.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 27 x 10	B 29	17.69	6.70	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 27 x 10 G	B 29	18.24	6.60	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 28 x 15	B 29	15.24	7.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 28 x 15 G	B 30	15.72	7.60	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 29 x 11,5	B 30	17.26	8.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 29 x 11,5 G	B 30	17.80	8.00	therm. conductive foil/ therm. cond. adhesive	universal	universal

Heatsinks for power-pc → **B 41**
Heatsinks for PLCC → **B 37**
Heatsinks for DIL-IC → **B 36**
Thermal conductive paste → **E 13**
Pin heatsinks for IC → **B 20 – 24**
Heatsinks for BGA → **B 16 – 19**
Heatsinks for PGA → **B 10 – 15**
SMD-heatsinks → **B 38 – 40**

Heatsinks for IC processor

art. no.	page	R_{th} [K/W]	dissipation loss [W]	mounting method	socket	suitable for processor type
ICK LED R 32 x 14	B 30	15.71	7.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 32 x 14 G	B 30	15.23	7.60	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 33 x 10	B 30	17.60	6.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 33 x 10 G	B 30	18.15	6.60	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 33 x 16,5	B 31	13.87	8.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 33 x 16,5 G	B 31	14.30	8.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 35 x 10	B 31	16.90	9.35	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 35 x 10 G	B 31	17.50	9.20	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 36 x 12	B 31	12.88	10.00	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 36 x 12 G	B 31	13.28	8.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 40 x 10	B 31	12.28	9.45	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 40 x 10 G	B 32	12.66	9.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 40 x 27	B 32	9.41	12.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 40 x 27 G	B 32	9.71	11.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 45,7 x 16,5	B 32	10.46	11.05	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 45,7 x 16,5 G	B 32	10.79	10.80	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 50 x 10	B 32	10.57	10.50	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 50 x 10 G	B 32	10.90	10.30	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 50,8 x 16,5	B 33	10.17	11.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 50,8 x 16,5 G	B 33	10.49	10.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 54 x 20	B 33	9.48	12.10	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK LED R 54 x 20 G	B 33	9.78	11.90	therm. conductive foil/ therm. cond. adhesive	universal	universal
ICK PPC 51	B 41	8.10	14.00	screw fastening	–	Power PC
ICK PEN 3 XE	B 41	2.00	31.30	screw fastening	Slot 2	Intel® Pentium® III-Xeon™ Slot II Format
ICK PEN 3 XE 1	B 41	1.80	33.60	screw fastening	Slot 2	Intel® Pentium® III-Xeon™ Slot II Format
ICK PEN 38 F	B 42	4.00	15.10	thermally conductive foil	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A
ICK PEN 38 K	B 42	4.00	15.10	fixing clamp	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A

Heatsinks for power-pc → **B 41**
Heatsinks for PLCC → **B 37**
Heatsinks for DIL-IC → **B 36**
Thermal conductive paste → **E 13**
Pin heatsinks for IC → **B 20 – 24**
Heatsinks for BGA → **B 16 – 19**
Heatsinks for PGA → **B 10 – 15**
SMD-heatsinks → **B 38 – 40**

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Heatsinks for IC processor

art. no.	page	R_{th} [K/W]	dissipation loss [W]	mounting method	socket	suitable for processor type
ICK PEN 38 W	B 42	4.00	15.10	thermally conductive adhesive	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A
ICK PEN 45 W	B 42	3.50	21.00	thermally conductive adhesive	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A
ICK PRO 40 W	B 42	2.70	22.00	thermally conductive adhesive	socket 8	Intel® Pentium® PRO
ICK PEN 3 FC	B 42	3.50	22.00	fixing clamp	socket 7/ socket 370	Intel® Pentium® III FC PGA (Mendocino, Coppermine)

Fan coolers for IC processor

art. no.	page	R_{th} [K/W]	dissipation loss [W]	mounting method	socket	suitable for processor type
LA ICK 15 x 15 F 05	B 43	2.30	22.2	thermally conductive foil	universal	universal
LA ICK 15 x 15 F 12	B 43	2.30	22.2	thermally conductive foil	universal	universal
LA ICK 17 x 17 F 12	B 43	1.60	35.8	thermally conductive foil	universal	universal
LA ICK 17 x 17 F 12 A	B 43	1.60	35.8	thermally conductive foil	universal	universal
LA ICK 17 x 17 W 05	B 43	1.60	35.8	thermally conductive adhesive	universal	universal
LA ICK 17 x 17 W 12	B 43	1.60	35.8	thermally conductive adhesive	universal	universal
LA ICK 18 x 18 F 12	B 43	1.50	41.7	thermally conductive foil	universal	universal
LA ICK 18 x 18 W 12	B 43	1.50	41.7	thermally conductive adhesive	universal	universal
LA ICK 21 x 21 F 05	B 43	1.40	46.3	thermally conductive foil	universal	universal
LA ICK 21 x 21 F 12	B 43	1.40	46.3	thermally conductive adhesive	universal	universal
LA ICK 21 x 21 W 05	B 43	1.40	46.3	thermally conductive adhesive	universal	universal
LA ICK 21 x 21 W 12	B 43	1.40	46.3	thermally conductive adhesive	universal	universal
LA ICK PEN 8 F 05	B 44	2.50	23.4	thermally conductive foil	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PEN 8 F 12	B 44	2.50	23.4	thermally conductive foil	socket 370/ socket 7	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PEN 8 W 05	B 44	2.50	23.4	thermally conductive adhesive	socket 370/ socket 7	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PEN 8 W 12	B 44	2.50	23.4	thermally conductive adhesive	socket 370/ socket 7	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PEN 16 K 12	B 44	1.20	51.1	fixing clamp	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PEN 16 W 12	B 44	1.20	51.1	thermally conductive adhesive	socket 370/ socket 7	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PEN 16 W 12 A	B 44	1.20	51.1	thermally conductive adhesive	socket 370/ socket 7	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PEN 18 K 05	B 44	1.60	38.6	fixing clamp	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PEN 18 W 12	B 44	1.60	38.6	thermally conductive adhesive	socket 370/ socket 7	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PEN 38 K 12	B 44	1.10	53.6	fixing clamp	socket 7/ socket 370	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar

Heatsinks for BGA → **B 16 – 19**
Heatsinks for PGA → **B 10 – 15**
Fan cooler, universal → **B 43**
Heatsinks for Pentium PRO → **B 41**
Heatsinks for P II-Mobile Module → **B 41**
Fan cooler for Pentium IV → **B 45**
Thermal conductive material → **E 2 – 15**
Thermal conduct. foil WLFT 404/405 → **E 5**

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Fan coolers for IC processor

art. no.	page	R_{th} [K/W]	dissipation loss [W]	mounting method	socket	suitable for processor type
LA ICK PEN 38 W 12	B 44	1.10	53.6	thermally conductive adhesive	socket 370/ socket 7	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar
LA ICK PRO 25 F 12	B 44	0.97	60.0	thermally conductive foil	socket 8	Intel® Pentium® PRO
LA ICK PEN 2 K 12	B 45	1.20	58.0	fixing clamp	Slot 1/ Slot A	AMD® Athlon®/ Intel® Pentium® II
LA ICK PEN 3 XE	B 45	0.80	61.8	screw fastening	Slot 2	Intel® Pentium® III-Xeon™
LA ICK PEN 4 1 K	B 45	0.60	85.0	fixing clamp	socket 423/ socket 463	Intel® Pentium® IV

Heatsinks
- excellent thermal efficiency achieved by flow-favorable omnidirectional fin geometry and black anodised surface
- easy mounting using fixing clamp, thermally conductive adhesive foil or thermally conductive glue

Fan coolers
- special high-grade industrial type
- compact design with high mechanical stability
- fan motor axle with double ball bearings ensures high reliability and long product life
- low current consumption and thus low self-heating
- effctive heat dissipation achieved by optimum design of fan motor and heatsink
- fan motors with other operating voltages on request
- fan motors also available with pulse output and alarm device cicuit

Technical introduction
- the thermal resitances and the power dissipation were determined with an ambient temperature of 25 °C and an IC case-temeperature of 85 °C
- with higher IC case-temperature, the power to be dissipated icreases proportionally

Fixing methods

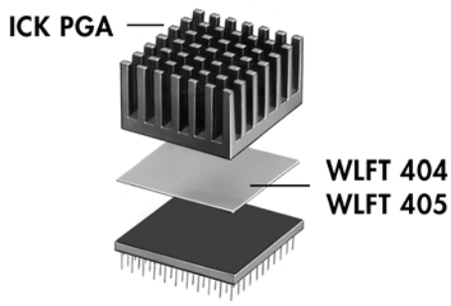
K = fixing clamp, **F** = double sided thermally conductive adhesive foil, **W** = thermally conductive glue, **SB** = screw fixing

Technical data for fans with pulse output: → B 43
- pulse output for control of the alarm device circuit
- puls form is like rectangle with the triple frequency of rotation speed
- with blocked rotor the output signal can be L (0,8 v) or H (Vcc-1V)
- the pulse output must not be connected with GND or Vcc without a mutiplier (>10K)
- to prevent short circuits, do not isolate the used puls output

Heatsinks for BGA → **B 16 – 19**
Heatsinks for PGA → **B 10 – 15**
Fan cooler, universal → **B 43**
Heatsinks for Pentium PRO → **B 41**
Heatsinks for P II-Mobile Module → **B 41**
Fan cooler for Pentium IV → **B 45**
Thermal conductive material → **E 2 – 15**
Thermal conduct. foil WLFT 404/405 → **E 5**

Heatsinks for PGA

surface: black anodised



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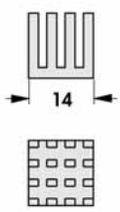
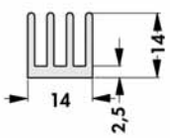
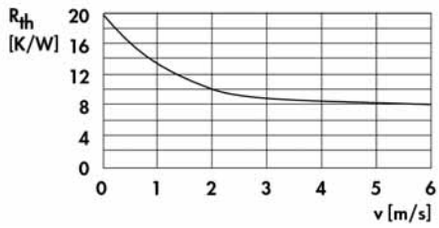
ICK PGA 6 x 6 x 14 WLF ... 14 x 14			
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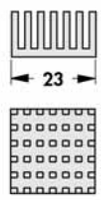
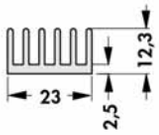
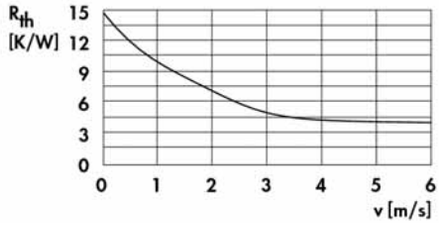
ICK PGA 8 x 8 x 12 WLF ... 23 x 23			
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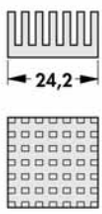
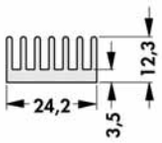
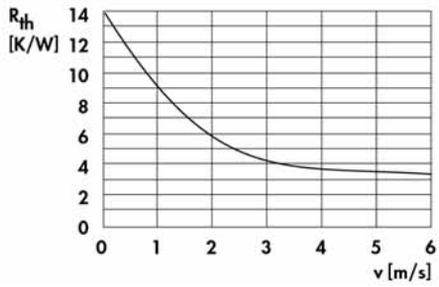
ICK PGA 9 x 9 WLF ... 24 x 24			
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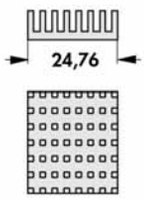
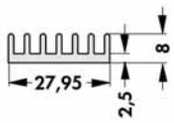
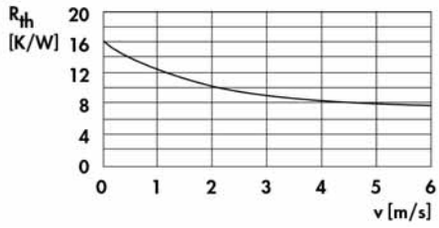
ICK PGA 11 x 11 x 8 WLF ... 24 x 27			
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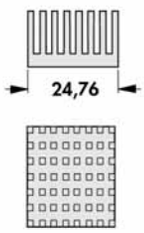
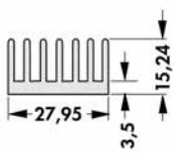
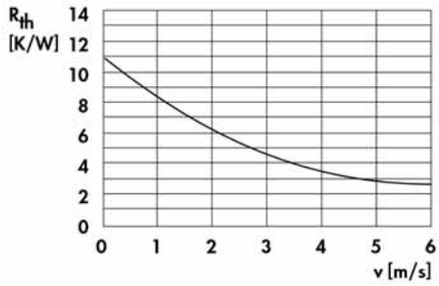
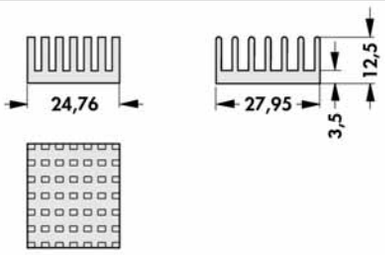
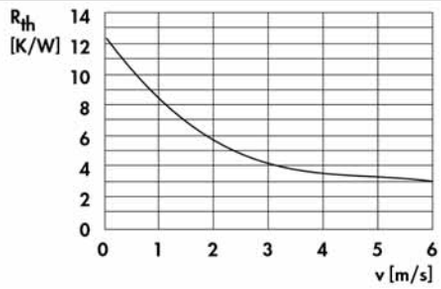
ICK PGA 11 x 11 WLF ... 24 x 27			

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 9**
SMD-heatsinks → **B 38 – 40**
Mounting material for semiconduct. → **E 37 – 41**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

Heatsinks for PGA

art. no.			
ICK PGA 11 x 11 x 12 WLF ... 24 x 27			
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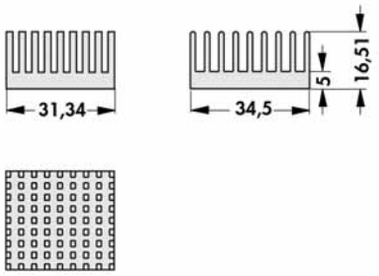
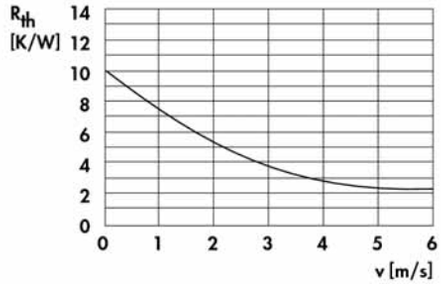
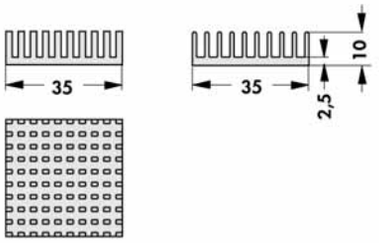
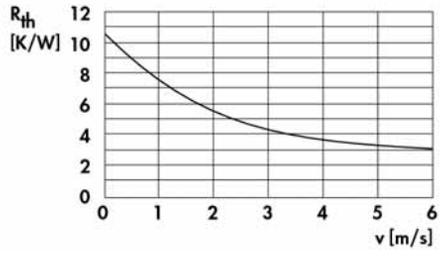
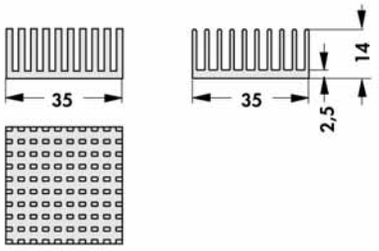
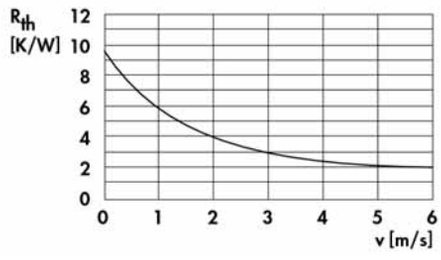
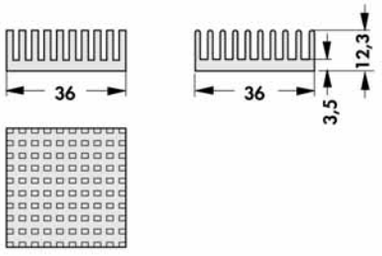
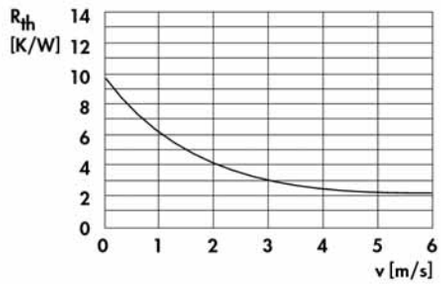
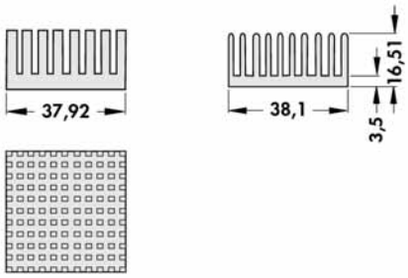
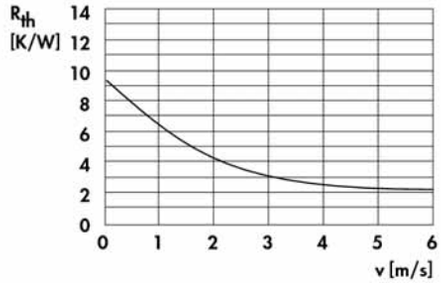
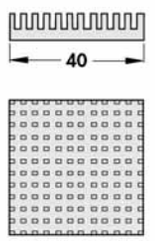
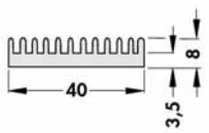
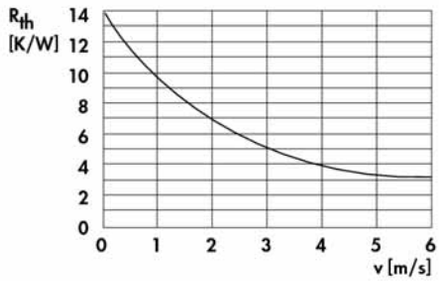
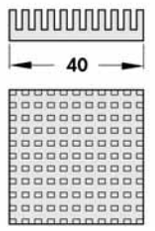
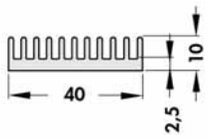
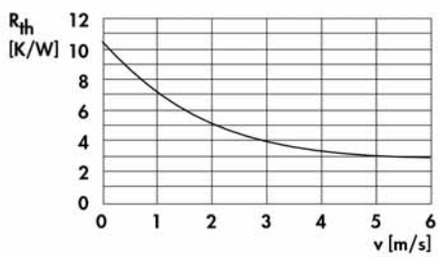
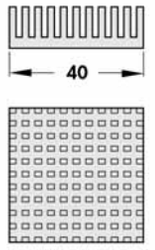
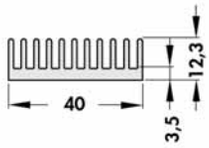
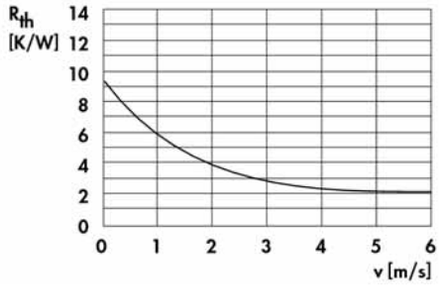
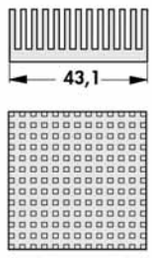
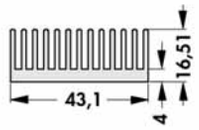
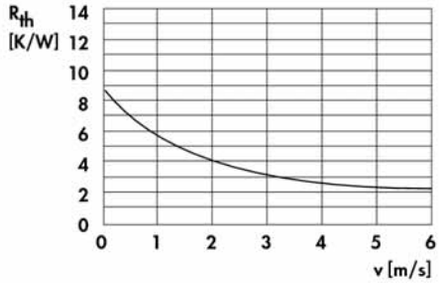
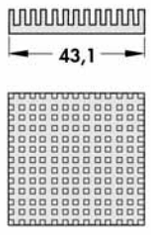
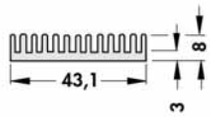
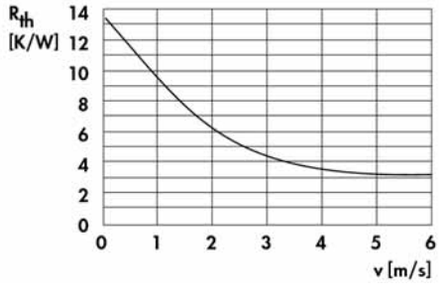
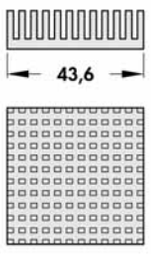
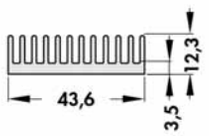
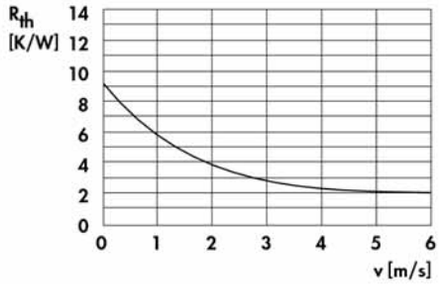
ICK PGA 14 x 14 WLF ... 31 x 34			
art. no.			
ICK PGA 14 x 14 x 10 WLF ... 35 x 35			
art. no.			
ICK PGA 14 x 14 x 14 WLF ... 35 x 35			
art. no.			
ICK PGA 14 x 14 x 12 WLF ... 36 x 36			
art. no.			
ICK PGA 15 x 15 WLF ... 37 x 37			

Heatsinks for PGA

art. no.			
ICK PGA 16 x 16 x 8 WLF ... 40 x 40			
art. no.			
ICK PGA 16 x 16 x 10 WLF ... 40 x 40			
art. no.			
ICK PGA 16 x 16 x 12 WLF ... 40 x 40			
art. no.			
ICK PGA 17 x 17 WLF ... 43 x 43			
art. no.			
ICK PGA 17 x 17 x 8 WLF ... 43 x 43			
art. no.			
ICK PGA 17 x 17 x 12 WLF ... 43 x 43			

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 9**
SMD-heatsinks → **B 38 – 40**
Mounting material for semiconduct. → **E 37 – 41**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

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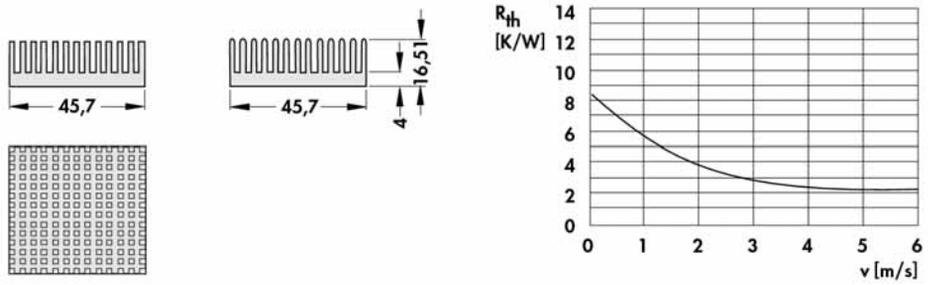
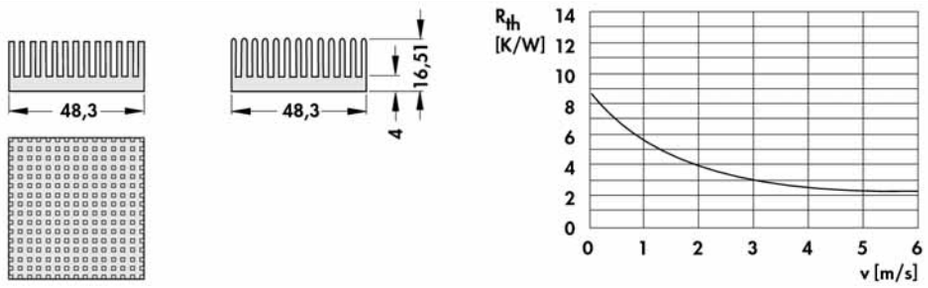
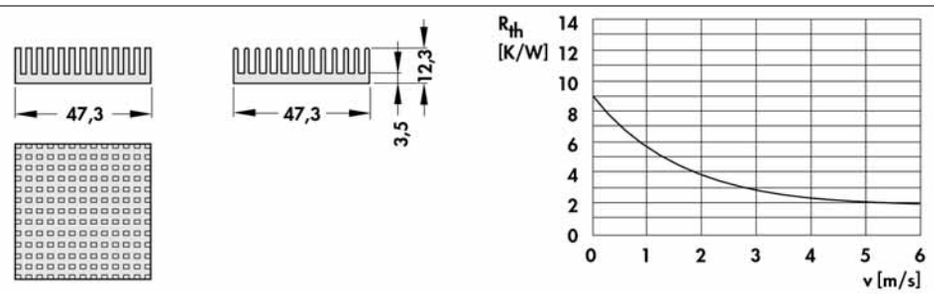
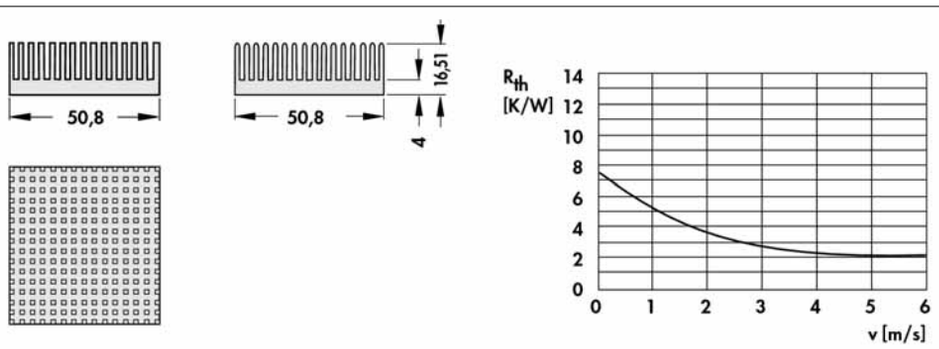
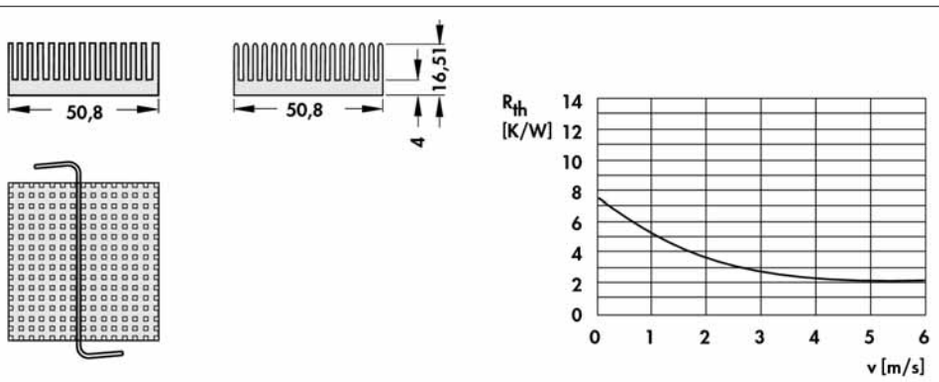
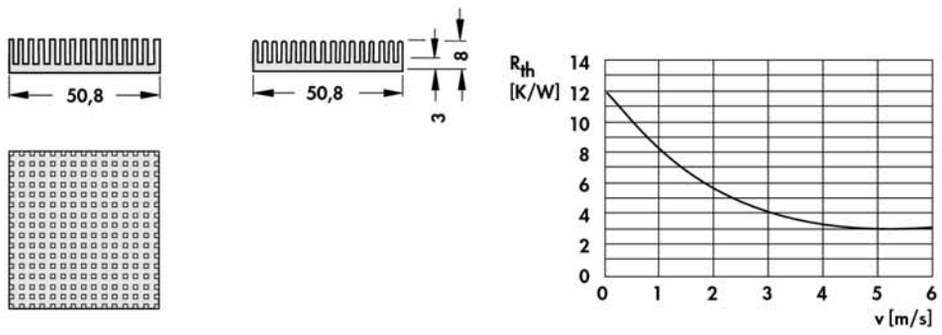
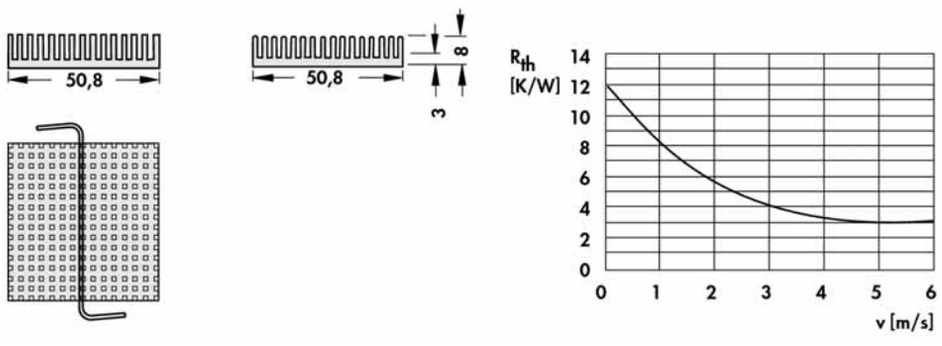
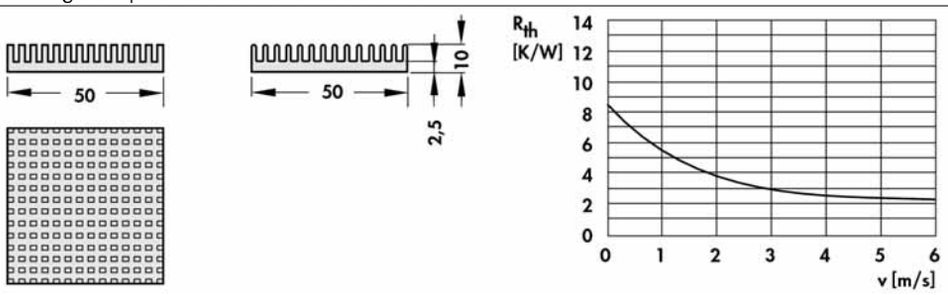
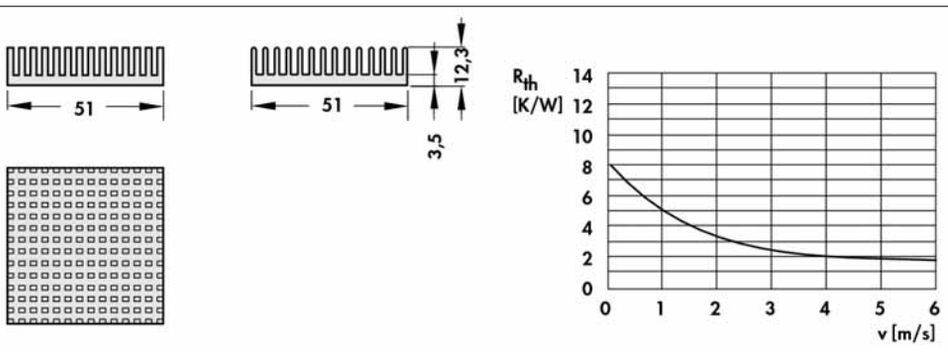
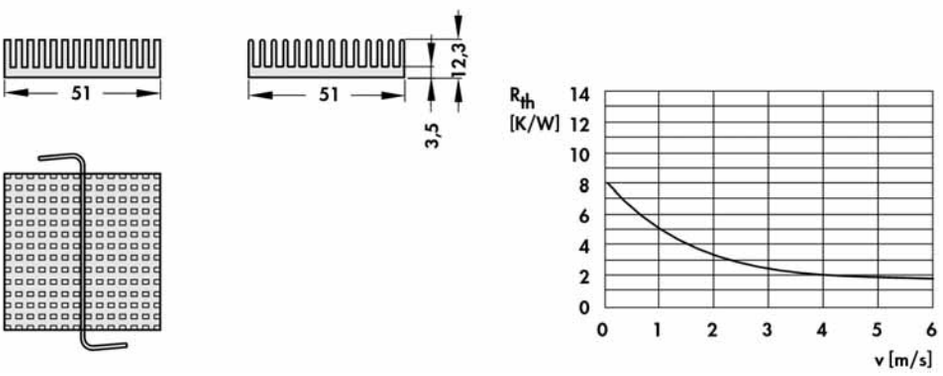
Heatsinks for PGA

art. no.	
ICK PGA 18 x 18 WLF ... 45 x 45	
art. no.	
ICK PGA 19 x 19 WLF ... 48 x 48	
art. no.	
ICK PGA 19 x 19 x 12 WLF ... 47 x 47	
art. no.	
ICK PGA 20 x 20 WLF ... 50 x 50	
art. no.	
ICK PGA 20 x 20 K WLF ... 50 x 50	 with fixing clamp for socket 7 and socket 370

Heatsinks for PGA

art. no.	
ICK PGA 20 x 20 x 8 WLF ... 50 x 50	
art. no.	
ICK PGA 20 x 20 x 8 K WLF ... 50 x 50	
with fixing clamp for socket 7 and socket 370	
art. no.	
ICK PGA 20 x 20 x 10 WLF ... 48 x 48	
art. no.	
ICK PGA 20 x 20 x 12 WLF ... 50 x 50	
art. no.	
ICK PGA 20 x 20 x 12 K WLF ... 50 x 50	
with fixing clamp for socket 7 and socket 370	

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 9**
SMD-heatsinks → **B 38 – 40**
Mounting material for semiconduct. → **E 37 – 41**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

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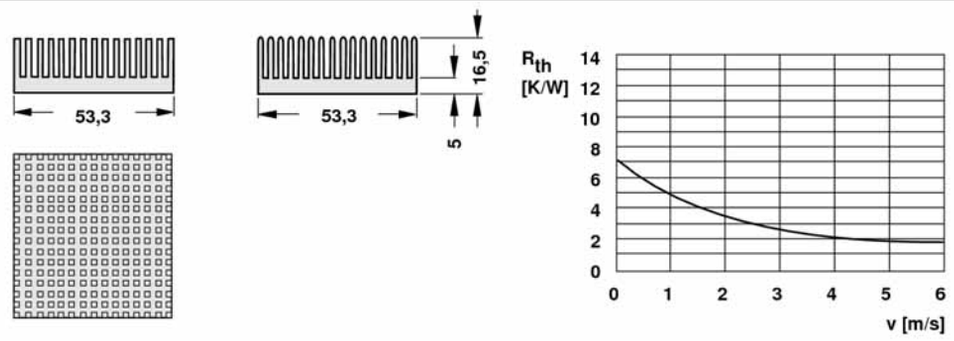
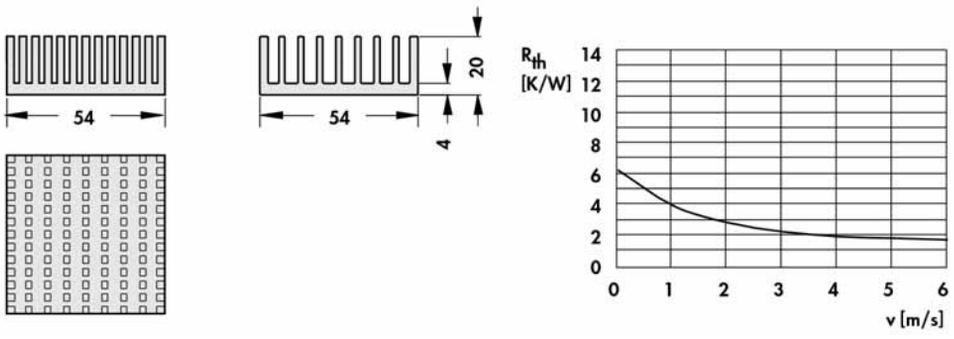
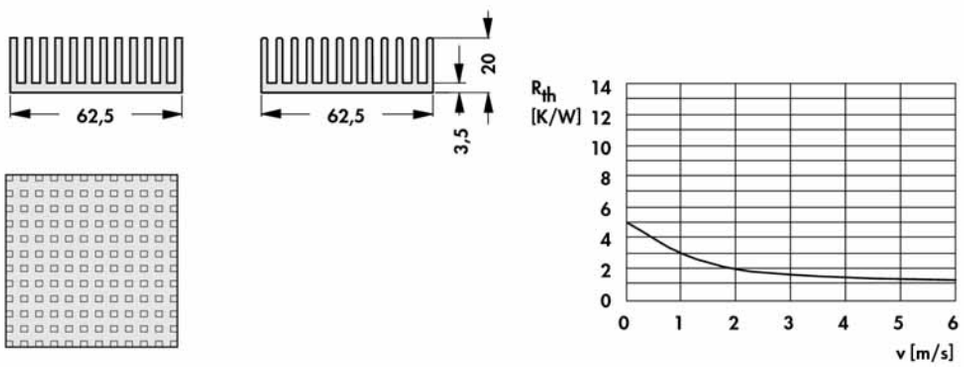
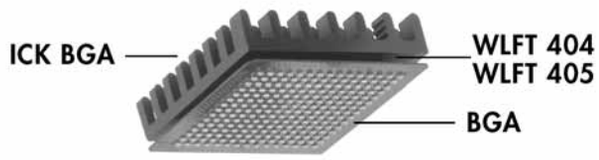
Heatsinks for PGA

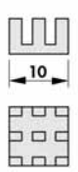
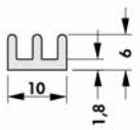
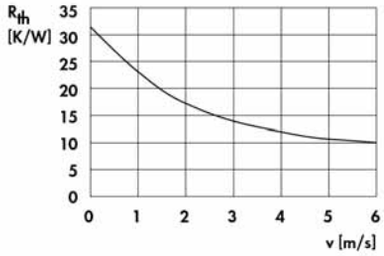
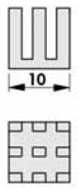
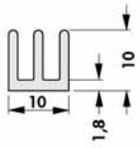
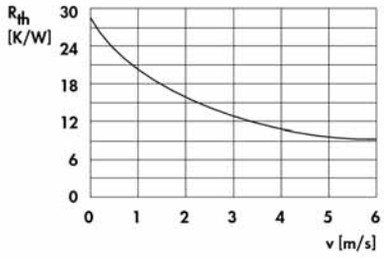
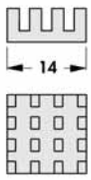
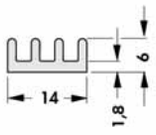
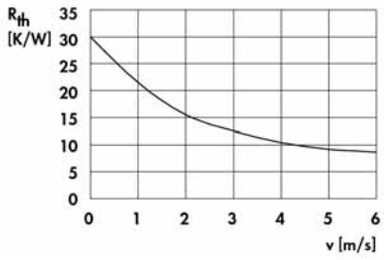
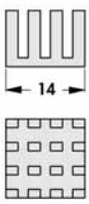
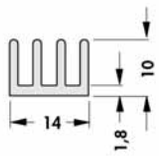
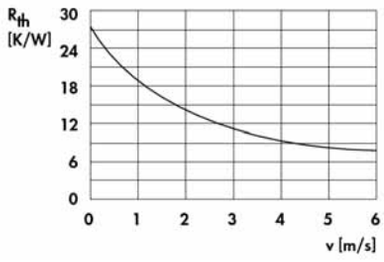
art. no.	
ICK PGA 21 x 21 WLF ... 53 x 53	
art. no.	
ICK PGA 22 x 22 WLF ... 54 x 54	
art. no.	
ICK PGA 25 x 25 WLF ... 62 x 62	

Thermal conduct. foil WLFT 404/405	→ E 5	SMD-heatsinks	→ B 38 – 40
Thermal conductive glue	→ E 15	Mounting material for semiconduct.	→ E 37 – 41
Thermal conductive paste	→ E 13	Hole pattern	→ A 21
Processor overview	→ B 2 - 9	Technical introduction	→ A 2 - 7

Heatsinks for BGAs



– particularly suited for **B**all **G**rid **A**rrays
– heatsink dimensions match the respective BGA-type
– can be glued directly on the BGA component
surface: black anodised

art. no.			
ICK BGA 10 x 10 WLF ... 10 x 10			
art. no.			
ICK BGA 10 x 10 x 10 WLF ... 10 x 10			
art. no.			
ICK BGA 14 x 14 WLF ... 14 x 14			
art. no.			
ICK BGA 14 x 14 x 10 WLF ... 14 x 14			
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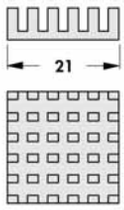
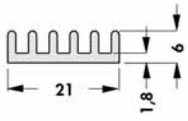
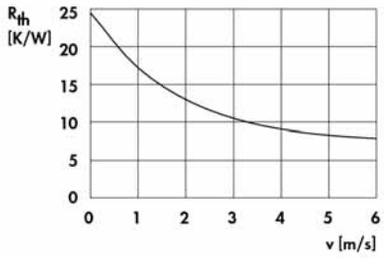
ICK BGA 21 x 21 WLF ... 21 x 21			

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 7**
SMD-heatsinks → **B 38 – 40**
Mounting material for semiconduct. → **E 37 – 41**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

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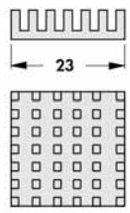
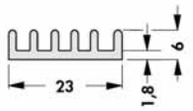
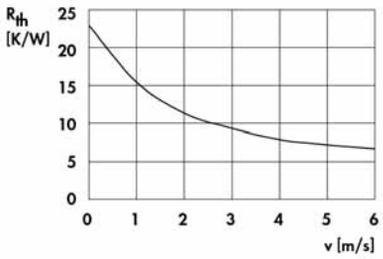
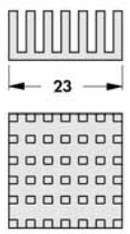
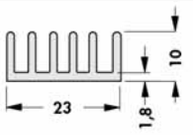
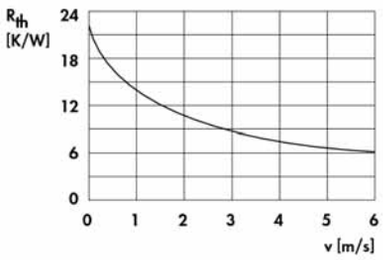
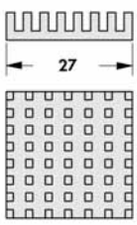
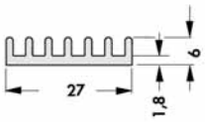
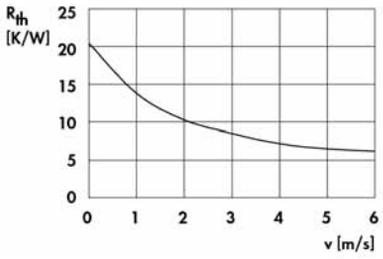
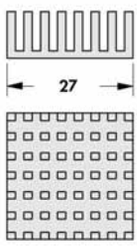
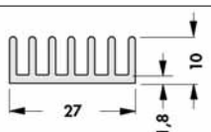
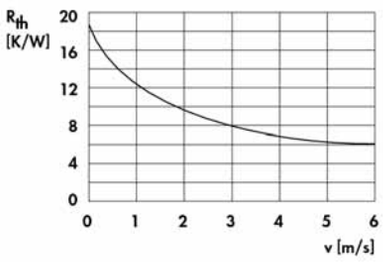
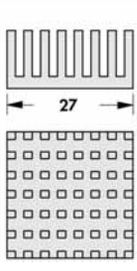
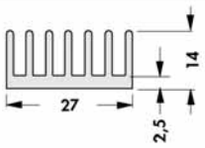
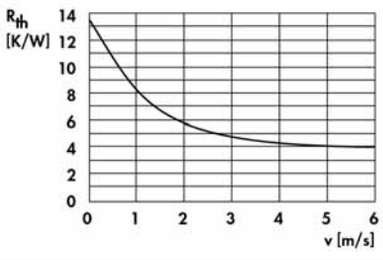
Heatsinks for BGAs

art. no.			
ICK BGA 23 x 23 WLF ... 23 x 23			
art. no.			
ICK BGA 23 x 23 x 10 WLF ... 23 x 23			
art. no.			
ICK BGA 27 x 27 WLF ... 27 x 27			
art. no.			
ICK BGA 27 x 27 x 10 WLF ... 27 x 27			
art. no.			
ICK BGA 27 x 27 x 14 WLF ... 27 x 27			
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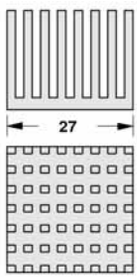
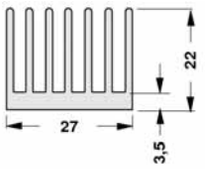
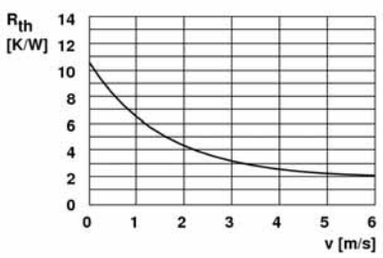
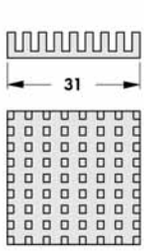
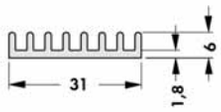
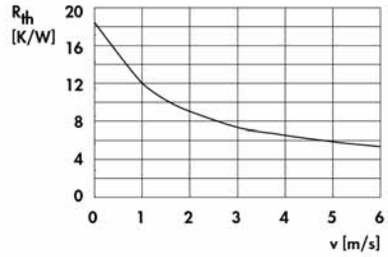
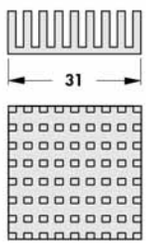
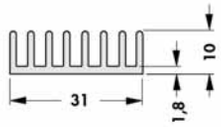
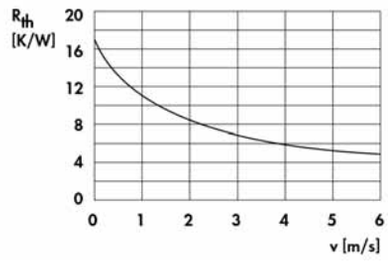
ICK BGA 27 x 27 x 22 WLF ... 27 x 27			

Thermal conduct. foil WLFT 404/405 → E 5
Thermal conductive glue → E 15
Thermal conductive paste → E 13
Processor overview → B 2 - 7
SMD-heatsinks → B 38 – 40
Mounting material for semiconduct. → E 37 – 41
Hole pattern → A 21
Technical introduction → A 2 - 7

Heatsinks for BGAs

art. no.			
ICK BGA 31 x 31 WLF ... 31 x 31			
art. no.			
ICK BGA 31 x 31 x 10 WLF ... 31 x 31			
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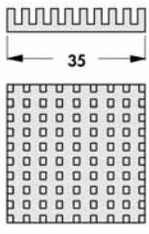
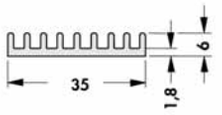
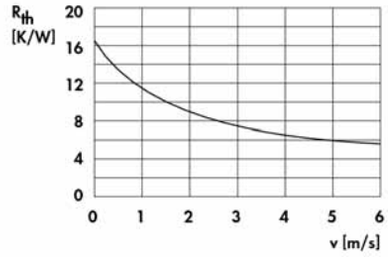
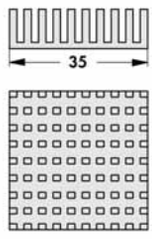
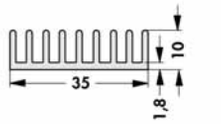
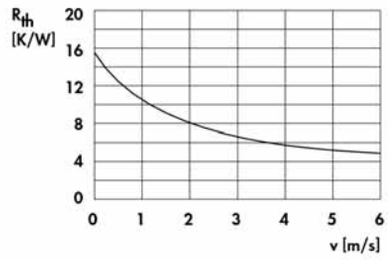
ICK BGA 35 x 35 WLF ... 35 x 35			
art. no.			
ICK BGA 35 x 35 x 10 WLF ... 35 x 35			
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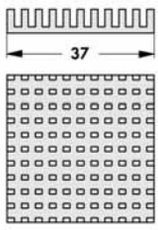
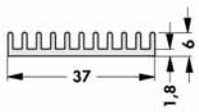
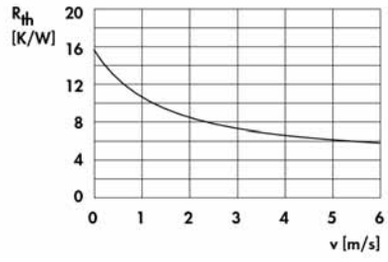
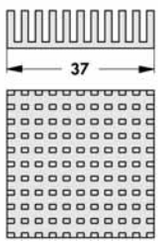
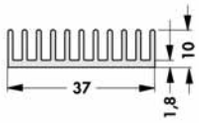
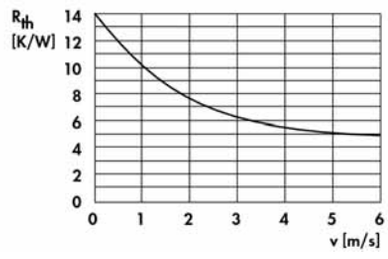
ICK BGA 37 x 37 x 6 WLF ... 37 x 37			
art. no.			
ICK BGA 37 x 37 x 10 WLF ... 37 x 37			

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 7**
SMD-heatsinks → **B 38 – 40**
Mounting material for semiconduct. → **E 37 – 41**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

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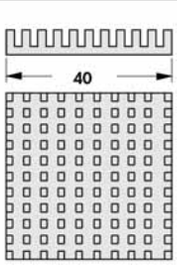
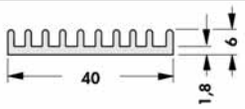
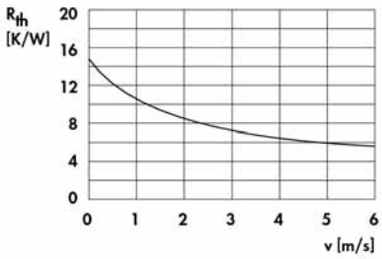
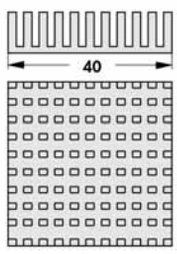
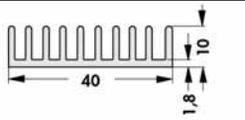
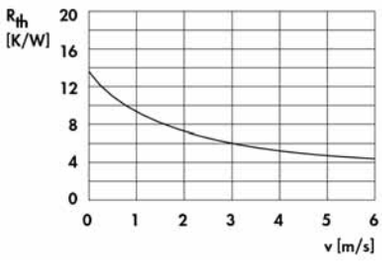
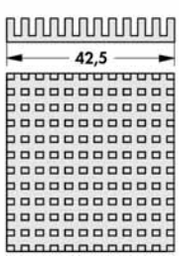
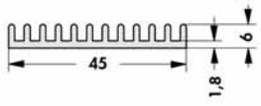
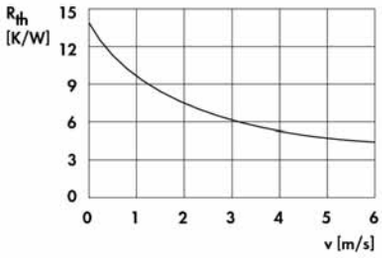
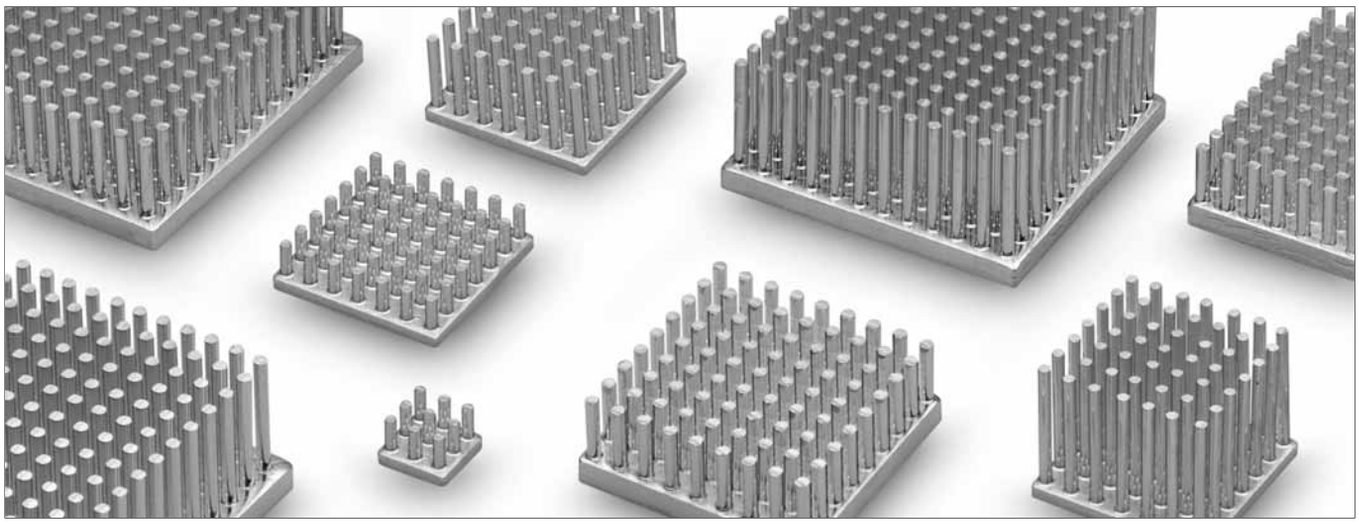
Heatsinks for BGAs

art. no.			
ICK BGA 40 x 40 WLF ... 40 x 40			
art. no.			
ICK BGA 40 x 40 x 10 WLF ... 40 x 40			
art. no.			
ICK BGA 42,5 x 45 WLF ... 42,5 x 45			

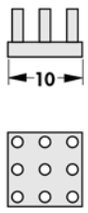
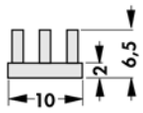
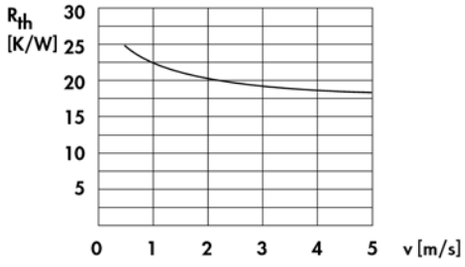
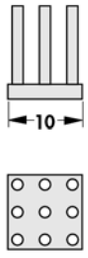
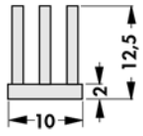
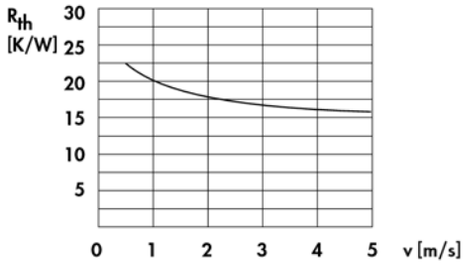
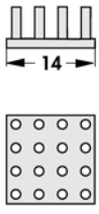
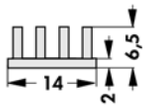
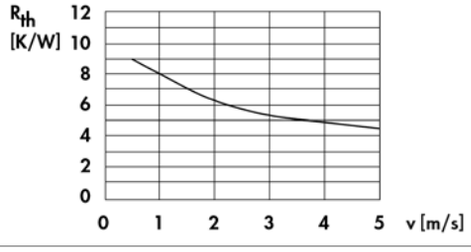
Thermal conduct. foil WLFT 404/405	→ E 5	SMD-heatsinks	→ B 38 – 40
Thermal conductive glue	→ E 15	Mounting material for semiconduct.	→ E 37 – 41
Thermal conductive paste	→ E 13	Hole pattern	→ A 21
Processor overview	→ B 2 - 7	Technical introduction	→ A 2 - 7

Pin heatsinks



– arrangement and number of pins for optimum air flow
– suitable for forced and free convention
– excellent thermal conductivity by the alloy material (Al99,5; 220 W/mK) and homogeneous arrangement of materials
– constant heat distribution in the base and the pins, in the direction of heat flow
– low weight achieved by optimised geometry
– Components fastened using glue, adhesive foil or clamps

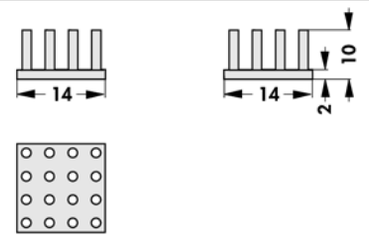
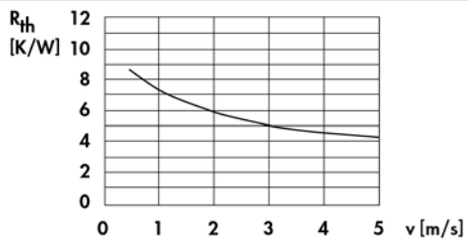
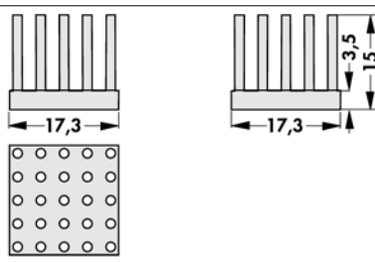
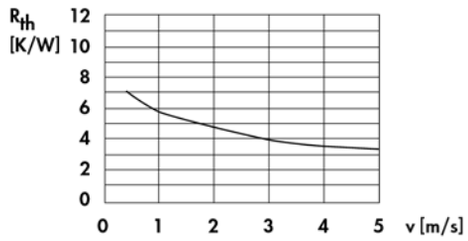
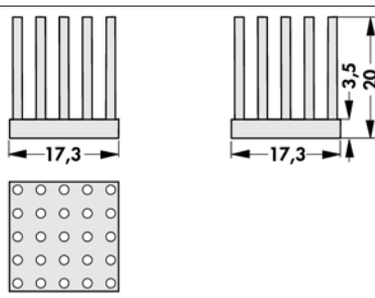
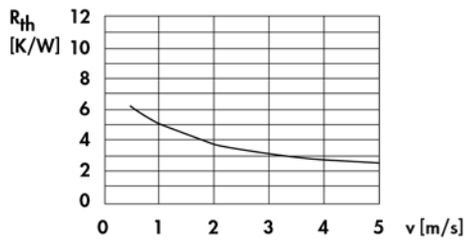
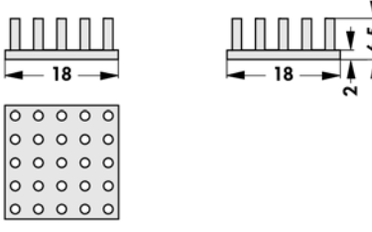
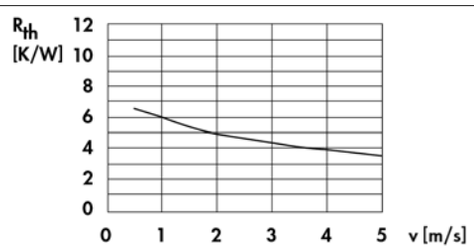
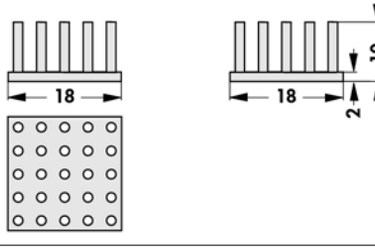
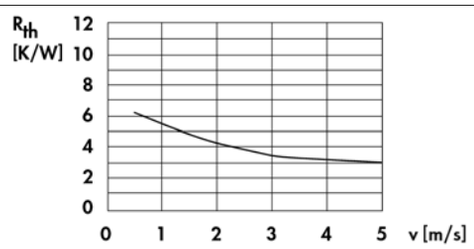
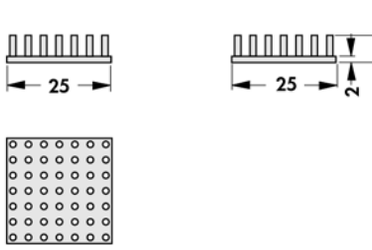
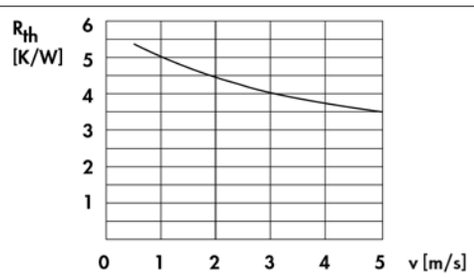
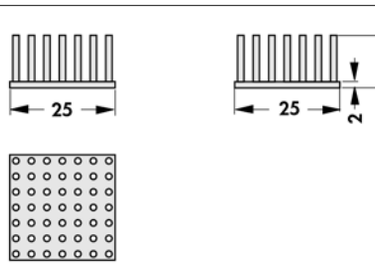
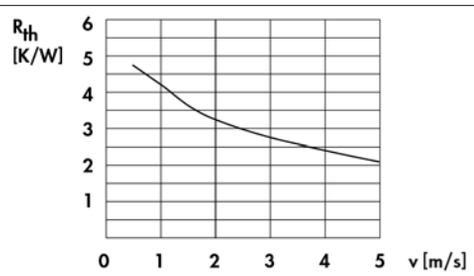
customer-specific modifications and special designs; other pin-lengths and surfaces on request
surface: Al-natural

art. no.			
ICK S 10 x 10 x 6,5 WLF ... 10 x 10 weight: 1 g			
art. no.			
ICK S 10 x 10 x 12,5 WLF ... 10 x 10 weight: 1.3 g			
art. no.			
ICK S 14 x 14 x 6,5 WLF ... 14 x 14 weight: 1.5 g			

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 7**
SMD-heatsinks → **B 38 – 40**
Mounting material for semiconduct. → **E 37 – 41**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

fischer elektronik

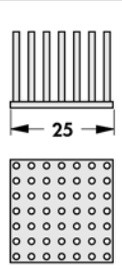
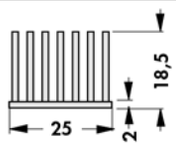
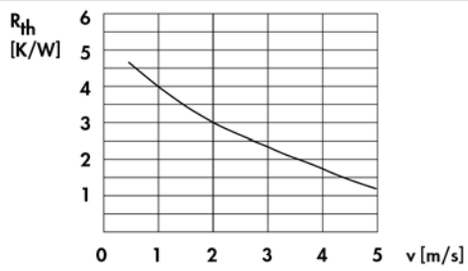
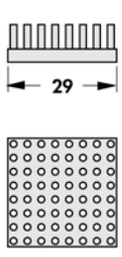
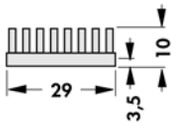
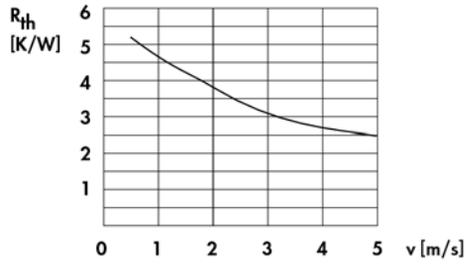
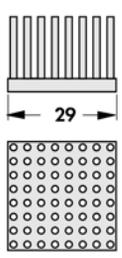
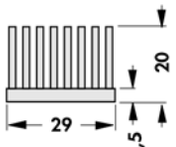
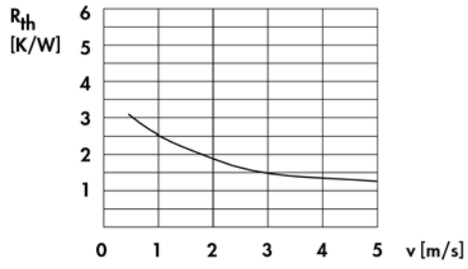
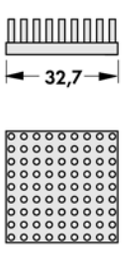
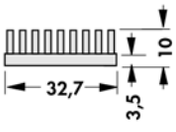
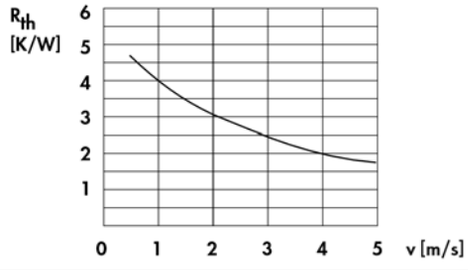
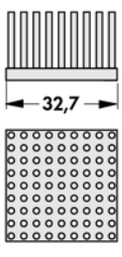
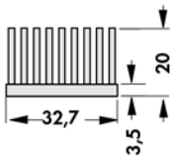
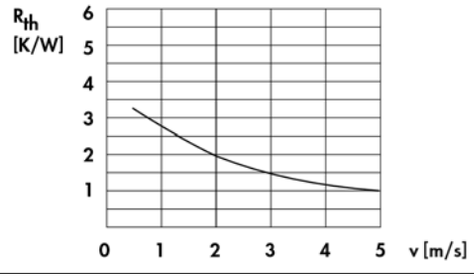
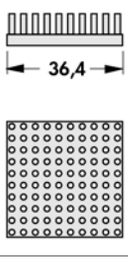
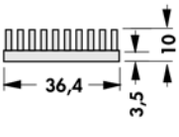
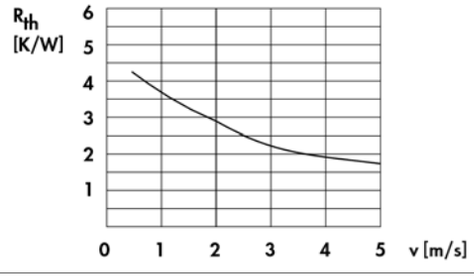
Pin heatsinks

art. no.			
ICK S 14 x 14 x 10 WLF ... 14 x 14 weight: 1.9 g			
art. no.			
ICK S 17 x 17 x 15 WLF ... 17 x 17 weight: 4.7 g			
art. no.			
ICK S 17 x 17 x 20 WLF ... 17 x 17 weight: 5.6 g			
art. no.			
ICK S 18 x 18 x 6,5 WLF ... 18 x 18 weight: 2.5 g			
art. no.			
ICK S 18 x 18 x 10 WLF ... 18 x 18 weight: 3.1 g			
art. no.			
ICK S 25 x 25 x 6,5 WLF ... 25 x 25 weight: 4 g			
art. no.			
ICK S 25 x 25 x 12,5 WLF ... 25 x 25 weight: 6 g			

B 21

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 7**
SMD-heatsinks → **B 38 – 40**
Mounting material for semiconduct. → **E 37 – 41**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

Pin heatsinks

art. no.			
ICK S 25 x 25 x 18,5 WLF ... 25 x 25 weight: 7 g			
art. no.			
ICK S 29 x 29 x 10 WLF ... 29 x 29 weight: 11 g			
art. no.			
ICK S 29 x 29 x 20 WLF ... 29 x 29 weight: 15 g			
art. no.			
ICK S 32 x 32 x 10 WLF ... 32 x 32 weight: 14 g			
art. no.			
ICK S 32 x 32 x 20 WLF ... 32 x 32 weight: 19 g			
art. no.			
ICK S 36 x 36 x 10 WLF ... 36 x 36 weight: 17 g			

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 7**
SMD-heatsinks → **B 38 – 40**
Mounting material for semiconduct. → **E 37 – 41**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

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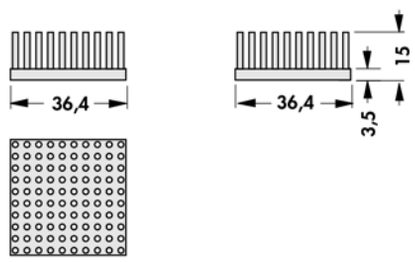
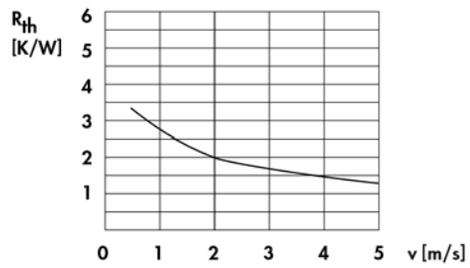
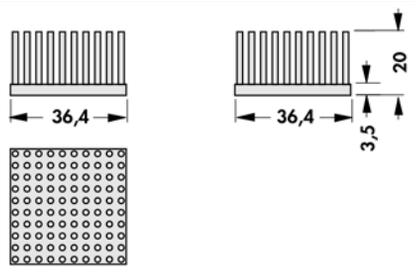
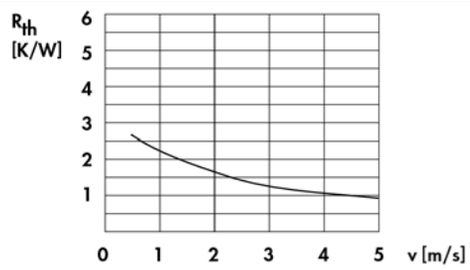
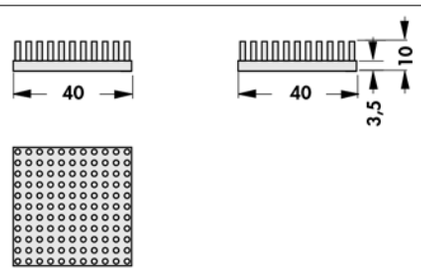
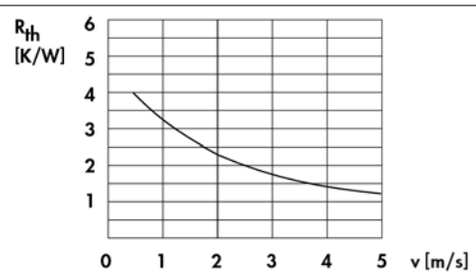
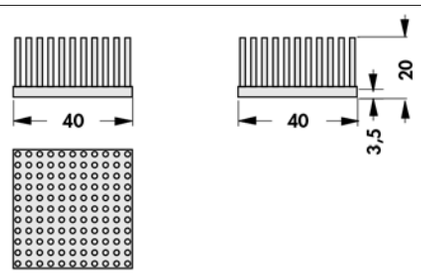
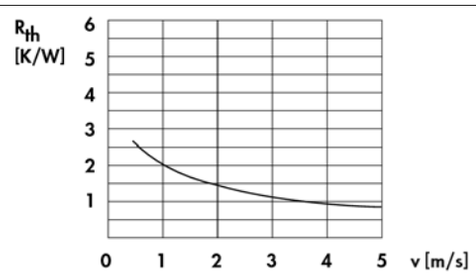
Pin heatsinks

art. no.			
ICK S 36 x 36 x 15 WLF ... 36 x 36 weight: 20 g		
art. no.			
ICK S 36 x 36 x 20 WLF ... 36 x 36 weight: 24 g		
art. no.			
ICK S 40 x 40 x 10 WLF ... 40 x 40 weight: 21 g		
art. no.			
ICK S 40 x 40 x 20 WLF ... 40 x 40 weight: 29 g		
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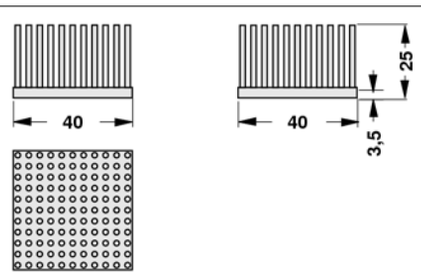
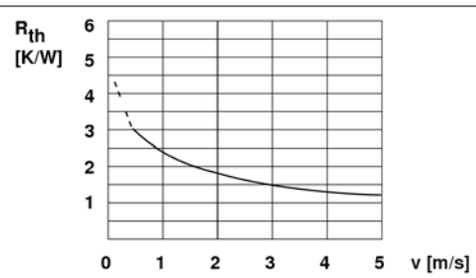
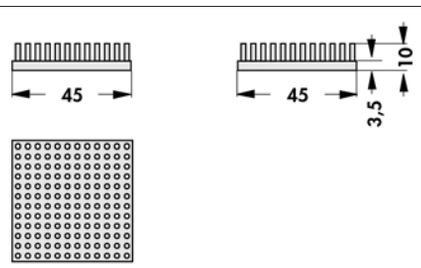
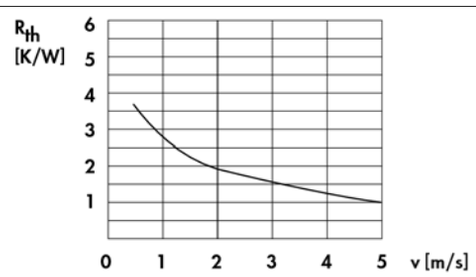
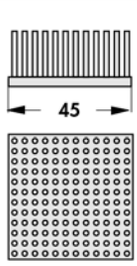
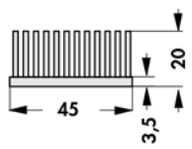
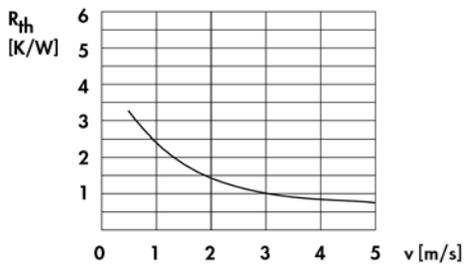
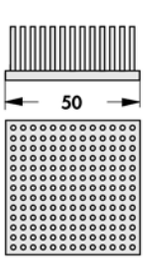
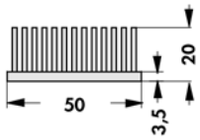
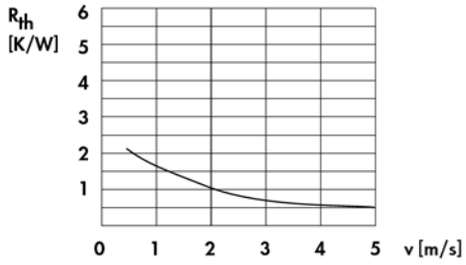
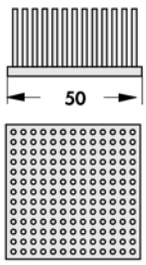
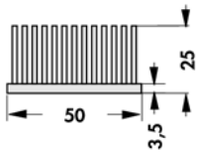
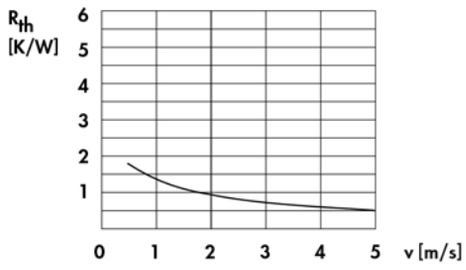
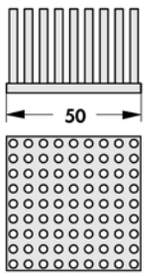
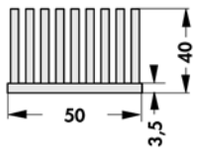
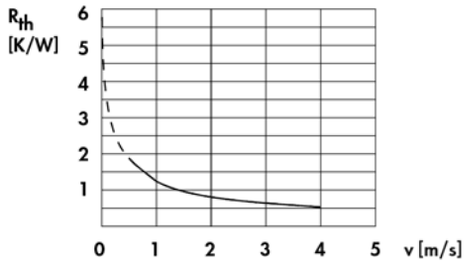
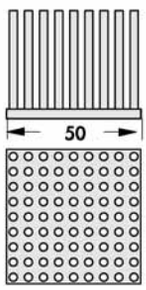
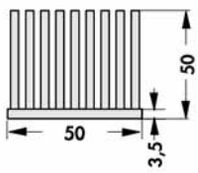
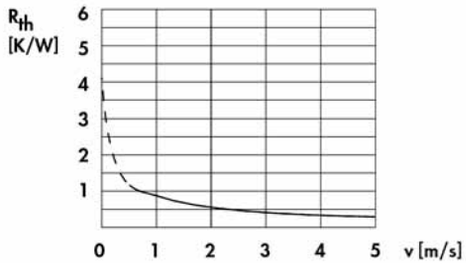
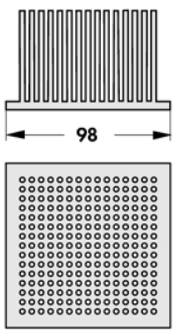
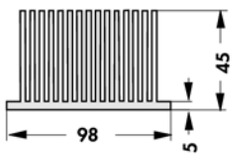
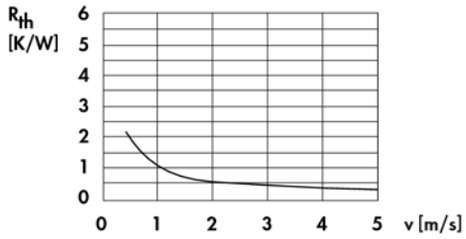
ICK S 40 x 40 x 25 WLF ... 40 x 40 weight: 37 g		
art. no.			
ICK S 45 x 45 x 10 WLF ... 45 x 45 weight: 26 g		

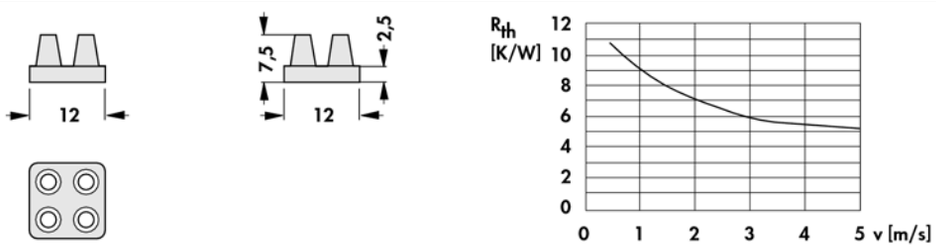
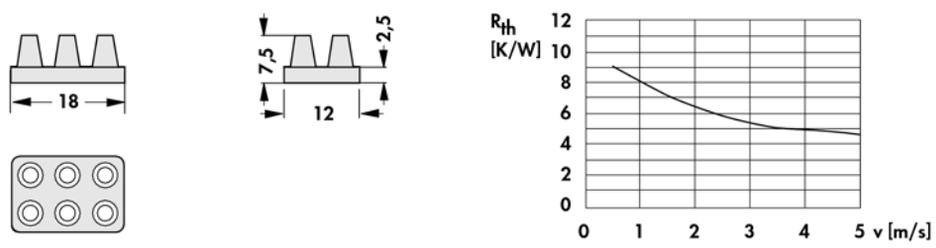
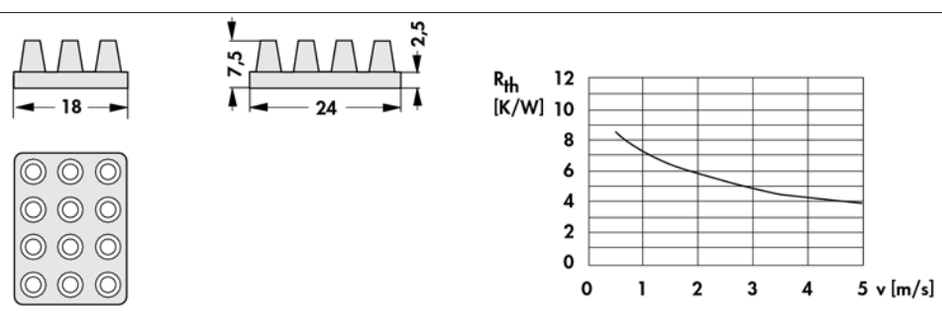
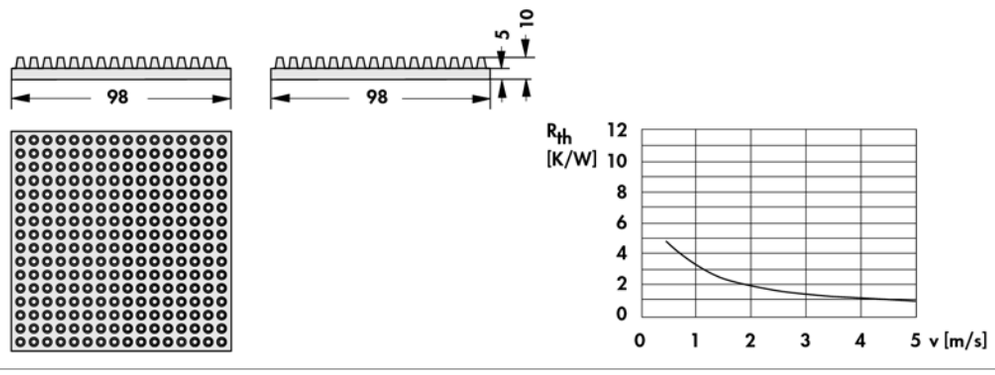
Pin heatsinks

art. no.			
ICK S 45 x 45 x 20 WLF ... 45 x 45 weight: 36 g			
art. no.			
ICK S 50 x 50 x 20 WLF ... 50 x 50 weight: 43 g			
art. no.			
ICK S 50 x 50 x 25 WLF ... 50 x 50 weight: 49 g			
art. no.			
ICK S 50 x 50 x 40 WLF ... 50 x 50 weight: 80.05 g			
art. no.			
ICK S 50 x 50 x 50 WLF ... 50 x 50 weight: 95.51 g			
art. no.			
ICK S 98 x 98 x 45 WLF ... 98 x 98 weight: 301.3 g			

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 7**
SMD-heatsinks → **B 38 – 40**
Mounting material for semiconduct. → **E 37 – 41**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

Pin heatsinks

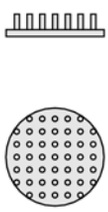
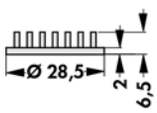
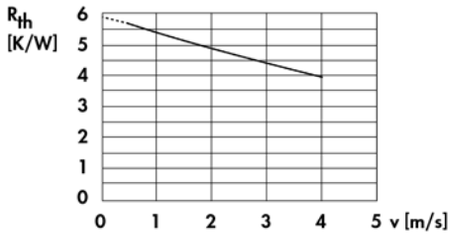
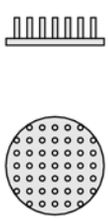
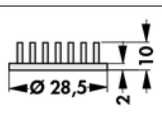
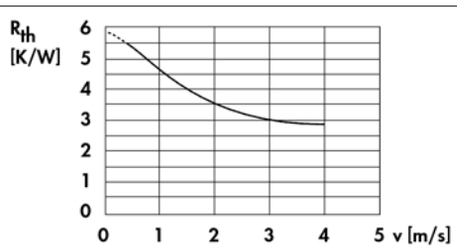
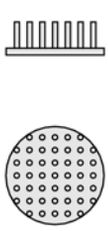
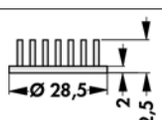
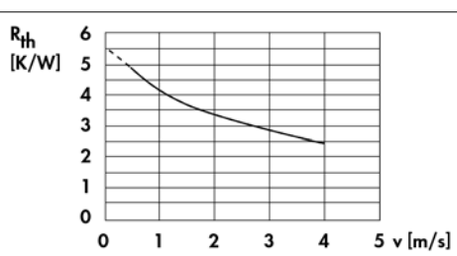
Dome

art. no.	
ICK S D 12 x 12 x 7,5 WLF ... 12 x 12 weight: 1.8 g	
art. no.	
ICK S D 18 x 12 x 7,5 WLF ... 12 x 18 weight: 2.7 g	
art. no.	
ICK S D 24 x 18 x 7,5 WLF ... 18 x 24 weight: 4.4 g	
art. no.	
ICK S D 98 x 98 x 10 WLF ... 98 x 98 weight: 154 g	

Thermal conduct. foil WLFT 404/405 → E 5
Thermal conductive glue → E 15
Thermal conductive paste → E 13
Processor overview → B 2 - 7
SMD-heatsinks → B 38 – 40
Mounting material for semiconduct. → E 37 – 41
Hole pattern → A 21
Technical introduction → A 2 - 7

Pin heatsinks

Round

art. no.			
ICK S R 28,5 x 6,5 WLF ... D 28,5 weight: 4.41 g			
art. no.			
ICK S R 28,5 x 10 WLF ... D 28,5 weight: 5.16 g			
art. no.			
ICK S R 28,5 x 12,5 WLF ... D 28,5 weight: 5.7 g			
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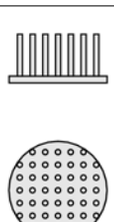
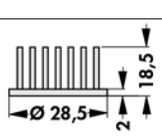
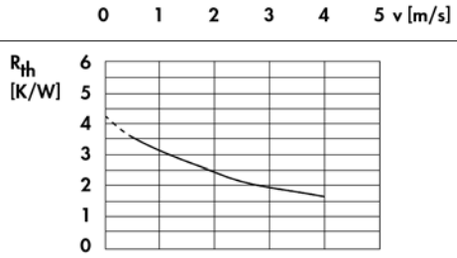
ICK S R 28,5 x 18,5 WLF ... D 28,5 weight: 6.98 g			
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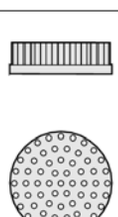
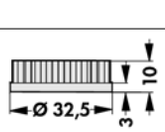
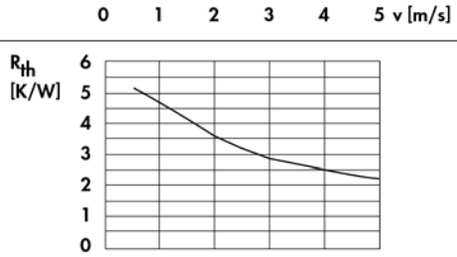
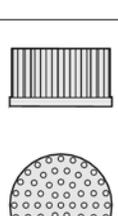
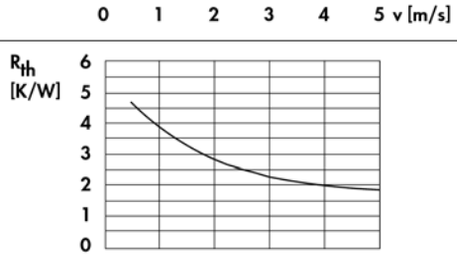
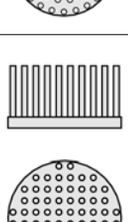
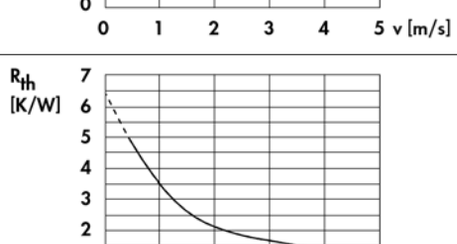
ICK S R 32,5 x 10 WLF ... D 32 weight: 9.7 g			
art. no.			
ICK S R 32,5 x 20 WLF ... D 32 weight: 13.8 g			
art. no.			
ICK S R 36,5 x 20 WLF ... D 36,5 weight: 17.59 g			

Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
SMD-heatsinks → **B 38 – 40**
Thermal conduct. foil WLFT 404/405 → **E 5**
Mounting material for semiconduct. → **E 37 – 41**
Thermal conduct. foil WLFT 404/405 → **E 5**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

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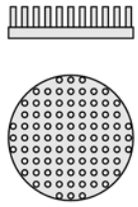
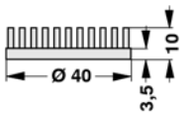
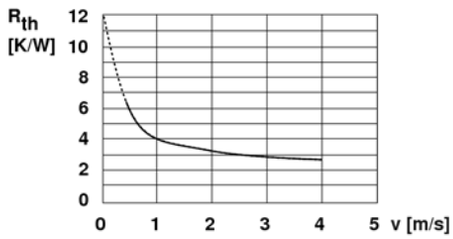
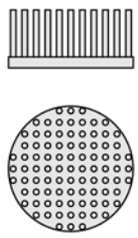
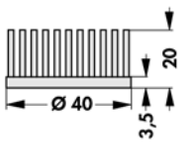
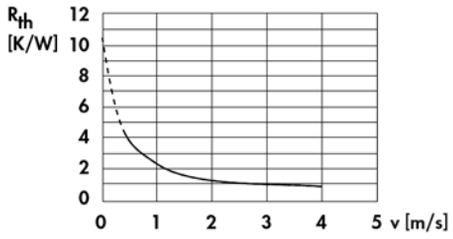
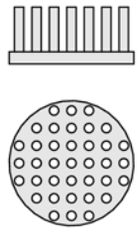
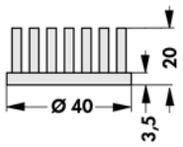
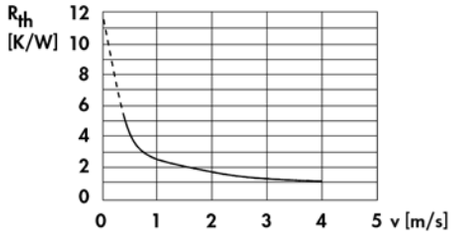
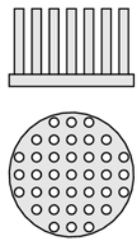
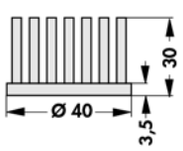
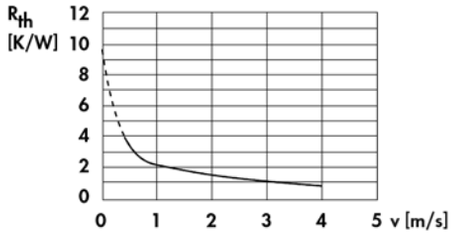
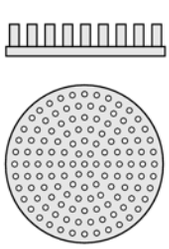
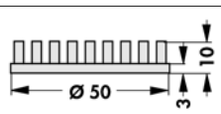
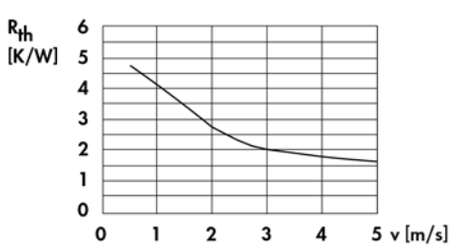
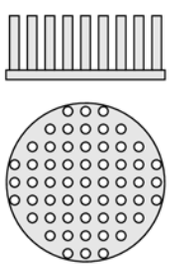
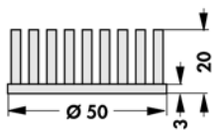
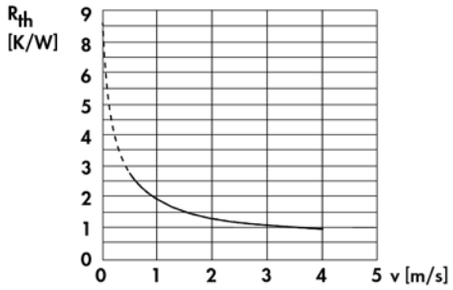
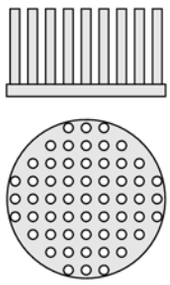
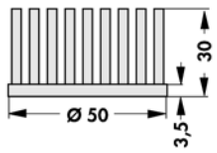
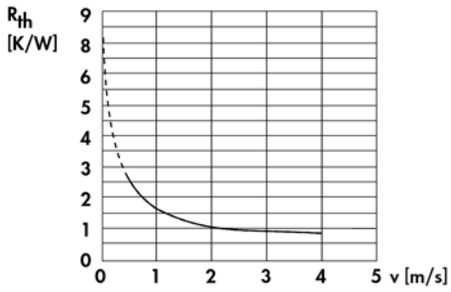
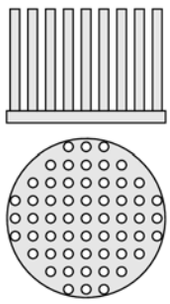
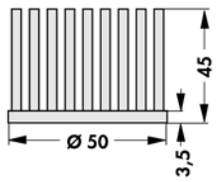
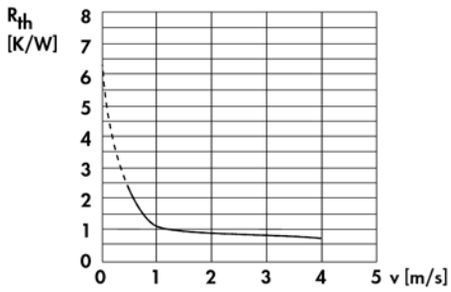
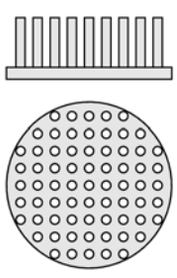
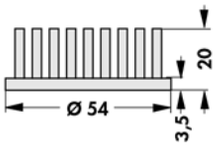
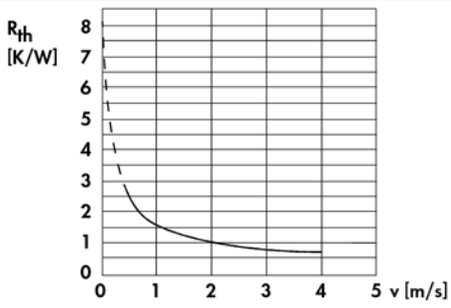
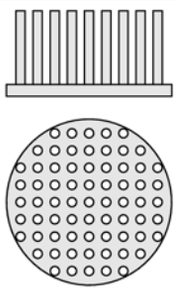
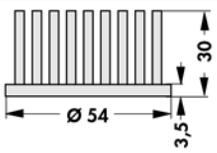
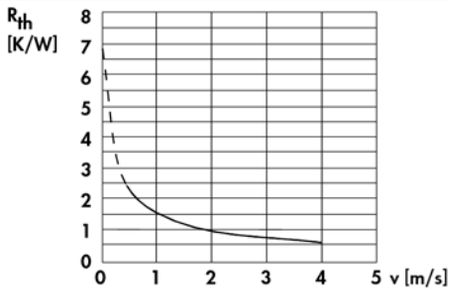
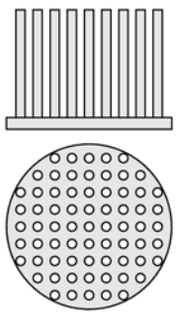
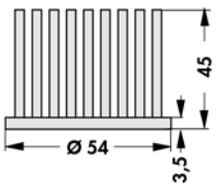
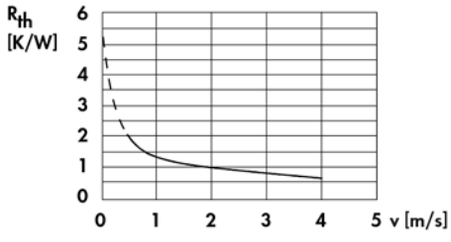
Pin heatsinks

art. no.			
ICK S R 40 x 10 WLF ... D 40 weight: 15.85 g			
art. no.			
ICK S R 40 x 20 WLF ... D 40 weight: 21.96 g			
art. no.			
ICK S R A 40 x 20 WLF ... D 40 weight: 22.18 g			
art. no.			
ICK S R 40 x 30 WLF ... D 40 weight: 29.24 g			
art. no.			
ICK S R 50 x 10 WLF ... D 50 weight: 22 g			
art. no.			
ICK S R 50 x 20 WLF ... D 50 weight: 34.39 g			

Thermal conductive glue → E 15
Thermal conductive paste → E 13
SMD-heatsinks → B 38 – 40
Thermal conduct. foil WLFT 404/405 → E 5
Mounting material for semiconduct. → E 37 – 41
Thermal conduct. foil WLFT 404/405 → E 5
Hole pattern → A 21
Technical introduction → A 2 - 7

Pin heatsinks

art. no.			
ICK S R 50 x 30 WLF ... D 50 weight: 45.28 g			
art. no.			
ICK S R 50 x 45 WLF ... D 50 weight: 61.59 g			
art. no.			
ICK S R 54 x 20 WLF ... D 54 weight: 40.94 g			
art. no.			
ICK S R 54 x 30 WLF ... D 54 weight: 54.11 g			
art. no.			
ICK S R 54 x 45 WLF ... D 54 weight: 73.86 g			

Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
SMD-heatsinks → **B 38 – 40**
Thermal conduct. foil WLFT 404/405 → **E 5**
Mounting material for semiconduct. → **E 37 – 41**
Thermal conduct. foil WLFT 404/405 → **E 5**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

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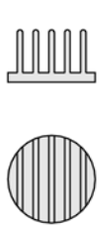
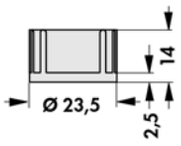
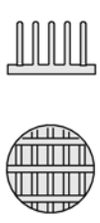
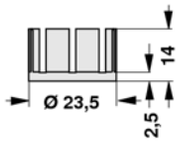
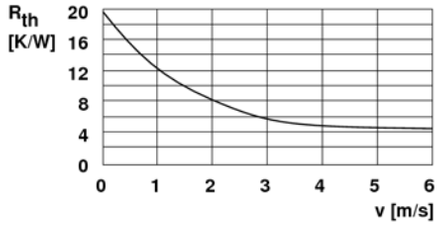
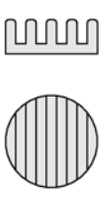
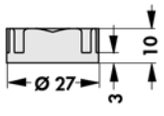
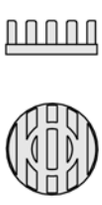
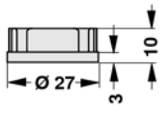
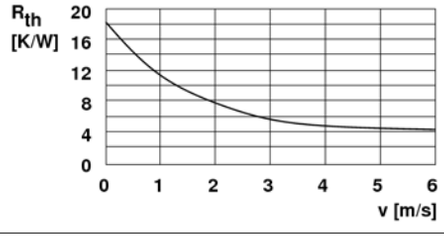
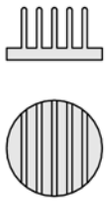
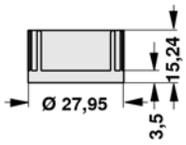
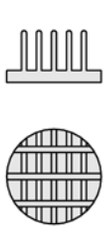
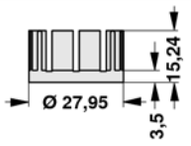
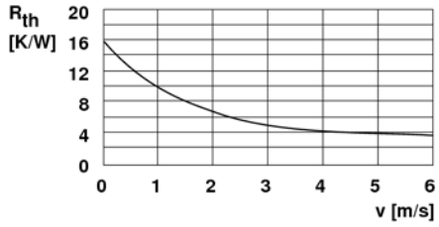
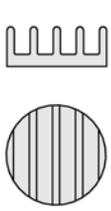
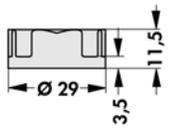
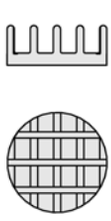
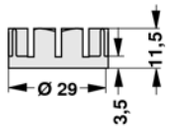
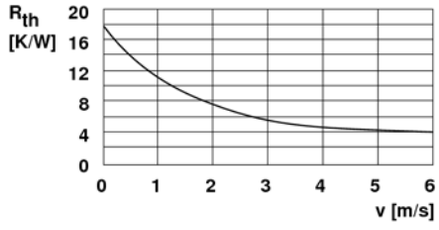
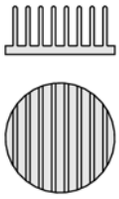
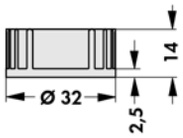
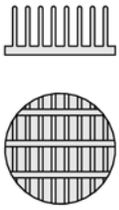
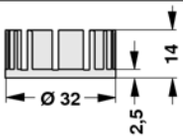
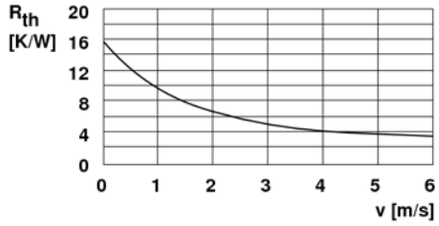
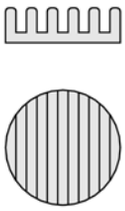
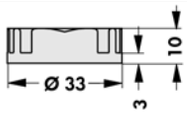
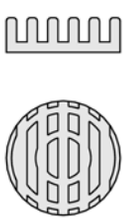
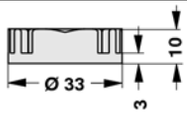
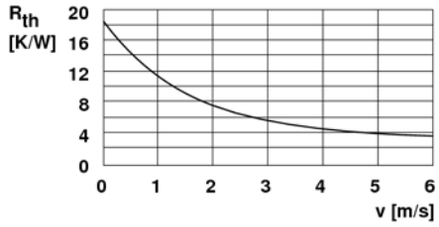
Heatsinks for LEDs

– suitable for free or forced convection
– heat sink dimensions are fitted to the respective LED typ
– simple mounting by using thermally conductive adhesive foil, glue or screw mounting
– specific versions on customer´s request
– special design, surfaces and modification to customer specification on request
surface: black anodised

art. no.		
ICK LED R 23,5 x 14 WLF ... D 23	 	R_{th} = 18,58 K/W
art. no.		
ICK LED R 23,5 x 14 G WLF ... D 23	 	
art. no.		
ICK LED R 27 x 10 WLF ... D 27	 	R_{th} = 17,69 K/W
art. no.		
ICK LED R 27 x 10 G WLF ... D 27	 	
art. no.		
ICK LED R 28 x 15 WLF ... D 28	 	R_{th} = 15,24 K/W

Mounting material for semiconduct. → **E 37 – 41**
SMD-heatsinks → **B 38 – 40**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 8**
Thermally conductive material → **E 15**
Thermal conduct. foil WLFT 404/405 → **E 5**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

Heatsinks for LEDs

art. no.			
ICK LED R 28 x 15 G WLF ... D 28			
art. no.			
ICK LED R 29 x 11,5 WLF ... D 29			R_{th} = 17,26 K/W
art. no.			
ICK LED R 29 x 11,5 G WLF ... D 29			
art. no.			
ICK LED R 32 x 14 WLF ... D 32			R_{th} = 15,23 K/W
art. no.			
ICK LED R 32 x 14 G WLF ... D 32			
art. no.			
ICK LED R 33 x 10 WLF ... D 33			R_{th} = 17,6 K/W
art. no.			
ICK LED R 33 x 10 G WLF ... D 33			

Mounting material for semiconduct. → **E 37 – 41**
SMD-heatsinks → **B 38 – 40**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 8**
Thermally conductive material → **E 15**
Thermal conduct. foil WLFT 404/405 → **E 5**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

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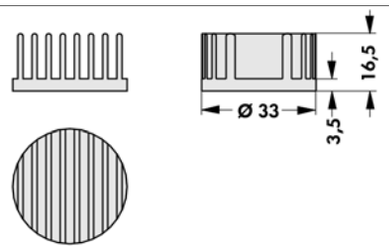
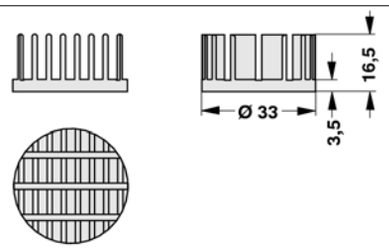
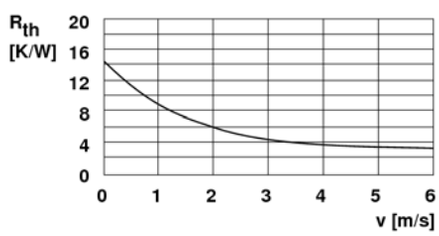
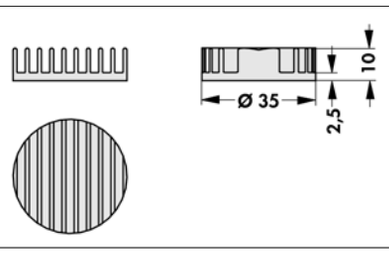
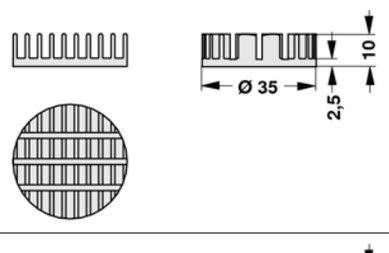
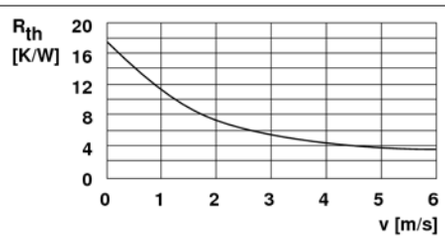
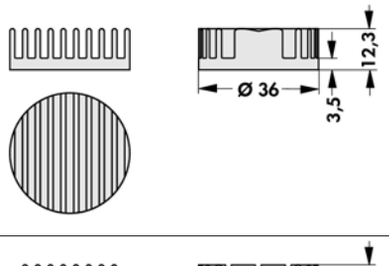
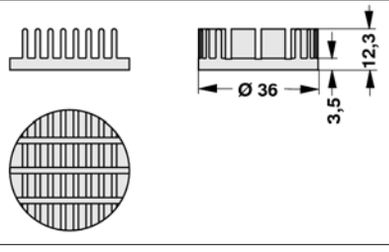
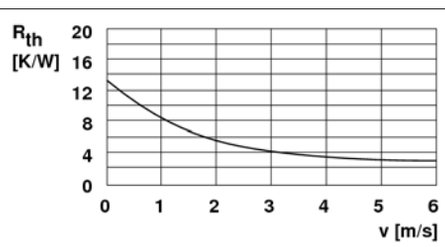
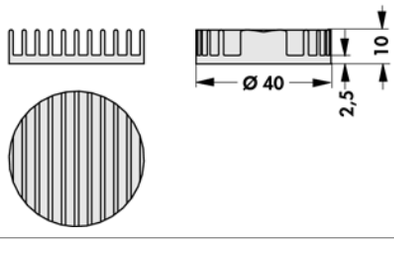
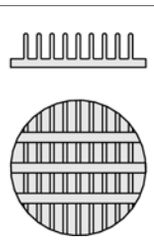
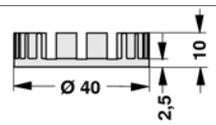
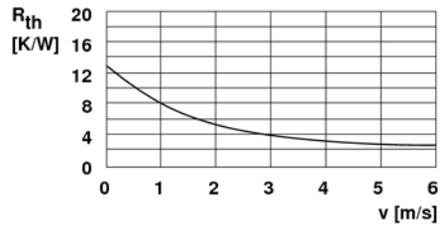
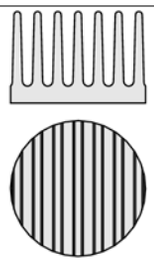
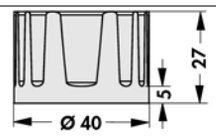
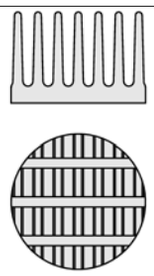
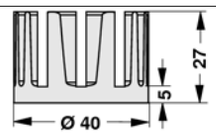
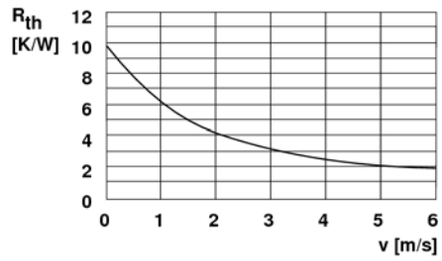
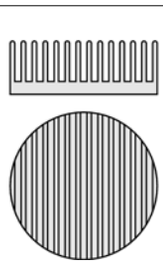
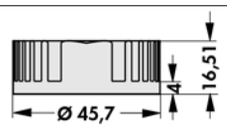
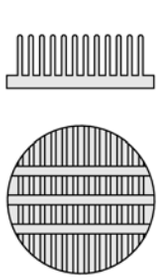
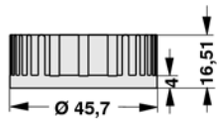
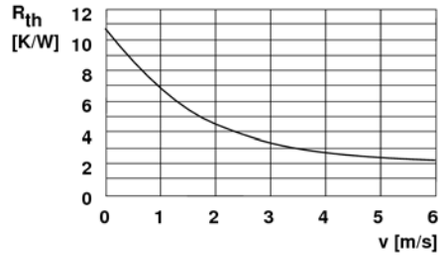
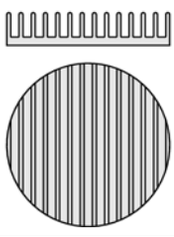
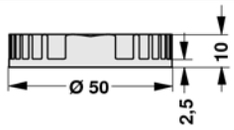
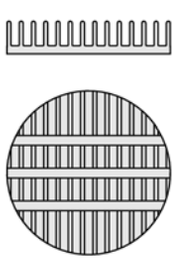
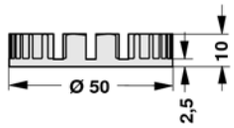
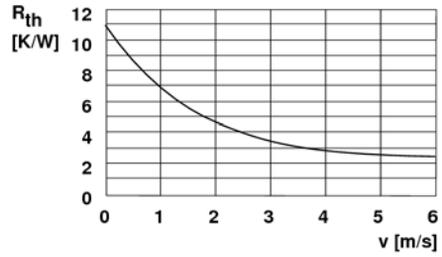
Heatsinks for LEDs

art. no.		
ICK LED R 33 x 16,5 WLF ... D 33		R_{th} = 13,87 K/W
art. no.		
ICK LED R 33 x 16,5 G WLF ... D 33		
art. no.		
ICK LED R 35 x 10 WLF ... D 35		R_{th} = 16,9 K/W
art. no.		
ICK LED R 35 x 10 G WLF ... D 35		
art. no.		
ICK LED R 36 x 12 WLF ... D 36		R_{th} = 12,88 K/W
art. no.		
ICK LED R 36 x 12 G WLF ... D 36		
art. no.		
ICK LED R 40 x 10 WLF ... D 40		R_{th} = 12,28 K/W

Mounting material for semiconduct. → E 37 – 41
SMD-heatsinks → B 38 – 40
Thermal conductive paste → E 13
Processor overview → B 2 - 8
Thermally conductive material → E 15
Thermal conduct. foil WLFT 404/405 → E 5
Hole pattern → A 21
Technical introduction → A 2 - 7

Heatsinks for LEDs

art. no.			
ICK LED R 40 x 10 G WLF ... D 40			
art. no.			
ICK LED R 40 x 27 WLF ... D 40			R_{th} = 9,41 K/W
art. no.			
ICK LED R 40 x 27 G WLF ... D 40			
art. no.			
ICK LED R 45,7 x 16,5 WLF ... D 45			R_{th} = 10,46 K/W
art. no.			
ICK LED R 45,7 x 16,5 G WLF ... D 45			
art. no.			
ICK LED R 50 x 10 WLF ... D 50			R_{th} = 10,57 K/W
art. no.			
ICK LED R 50 x 10 G WLF ... D 50			

Mounting material for semiconduct. → **E 37 – 41**
SMD-heatsinks → **B 38 – 40**
Thermal conductive paste → **E 13**
Processor overview → **B 2 - 8**
Thermally conductive material → **E 15**
Thermal conduct. foil WLFT 404/405 → **E 5**
Hole pattern → **A 21**
Technical introduction → **A 2 - 7**

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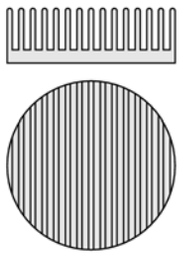
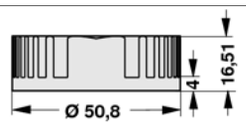
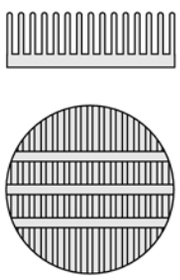
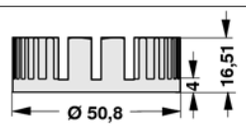
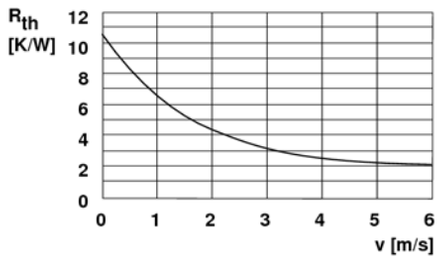
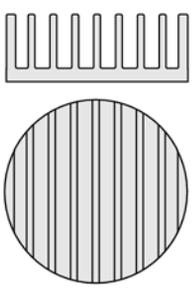
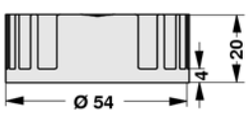
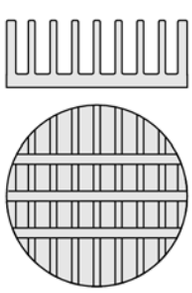
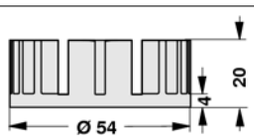
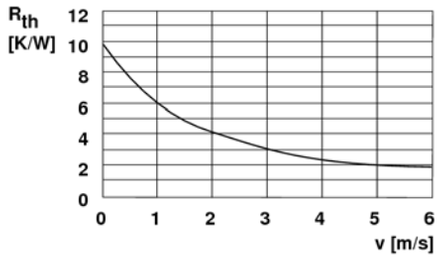
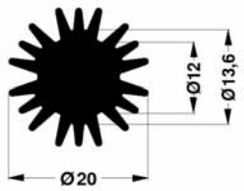
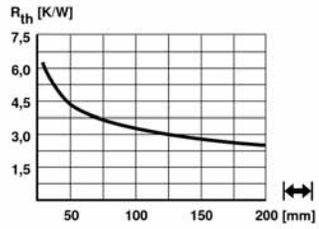
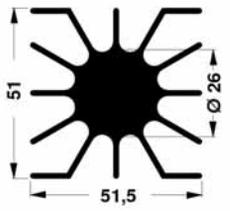
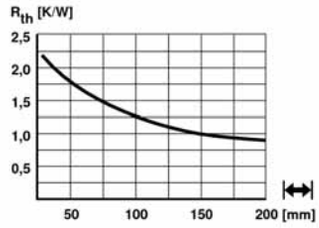
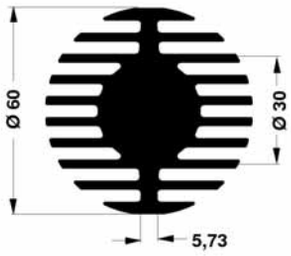
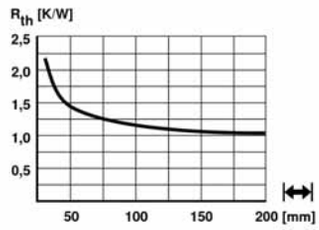
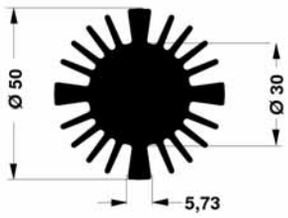
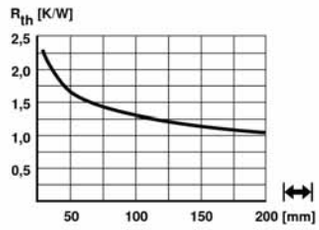
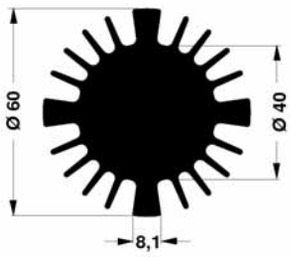
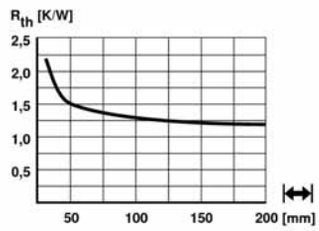
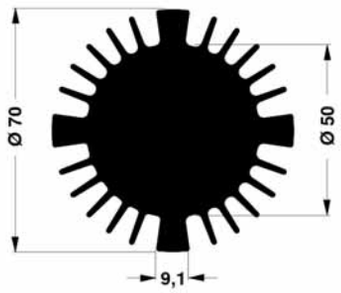
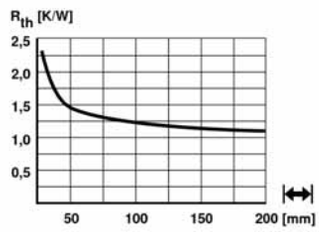
Heatsinks for LEDs

art. no.			
ICK LED R 50,8 x 16,5 WLF ... D 50			R_{th} = 10,17 K/W
art. no.			
ICK LED R 50,8 x 16,5 G WLF ... D 50			
art. no.			
ICK LED R 54 x 20 WLF ... D 54			R_{th} = 9,48 K/W
art. no.			
ICK LED R 54 x 20 G WLF ... D 54			

Mounting material for semiconduct. → E 37 – 41
SMD-heatsinks → B 38 – 40
Thermal conductive paste → E 13
Processor overview → B 2 - 8
Thermally conductive material → E 15
Thermal conduct. foil WLFT 404/405 → E 5
Hole pattern → A 21
Technical introduction → A 2 - 7

Heatsinks for LEDs

art. no.		
SK 585 ...		
art. no.		
SK 46 ...		
art. no.		
SK 578 ...		
art. no.		
SK 577 ...		
art. no.		
SK 569 ...		
art. no.		
SK 570 ...		
please indicate:	**... ↔**	
	10 15 20 25 37.5 50 1000 mm	

special design, surfaces and modification to customer specification on request
surface: black anodised

Pin heatsinks Ø → **B 26 – 28**
SMD-heatsinks → **B 38**
Special heatsink design → **A 135 - 136**
Thermal conductive paste → **E 13**
Heatsinks for LED Ø → **B 29 – 33**
Thermally conductive material → **E 15**
Thermal conduct. foil WLFT 404/405 → **E 5**

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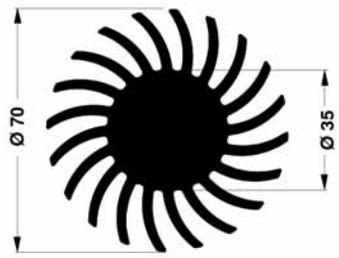
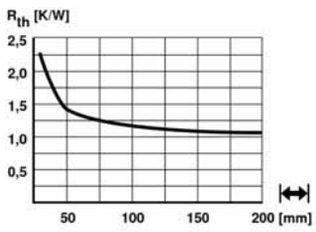
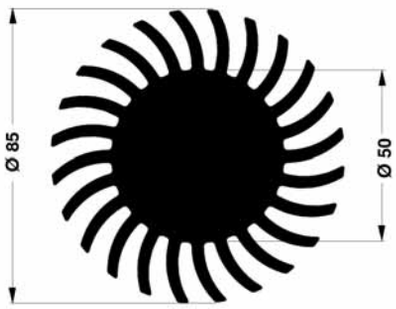
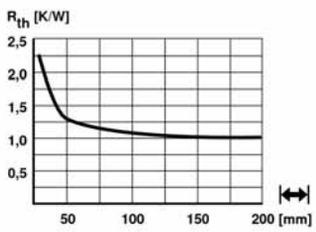
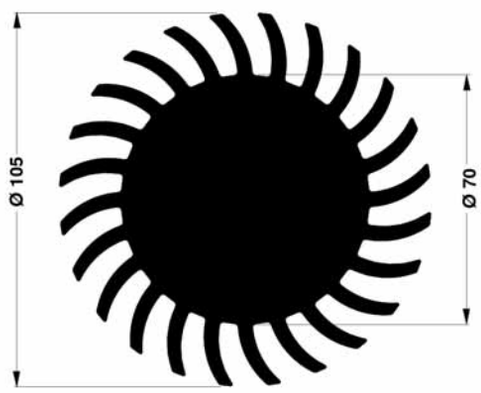
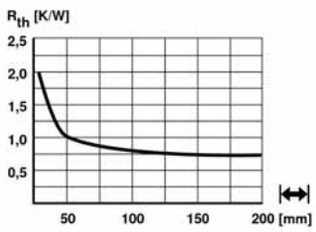
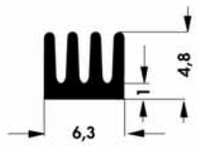
Heatsinks for LEDs

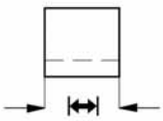
art. no.	
SK 571 ...	 
art. no.	
SK 572 ...	 
art. no.	
SK 584 ...	 
please indicate:	**... ↔**
	10 15 20 25 37.5 50 1000 mm

special design, surfaces and modification to customer specification on request
surface: black anodised

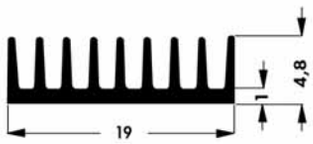
Heatsinks for DIL-IC, PLCC and SMD

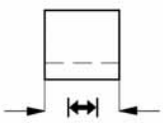
Heatsinks for DIL-IC





art. no.	for housings	↔ [mm]	R_{th} [K/W]
ICK 6 8 L	6/8 contacts	8.5	83
ICK 14 16 L	14/16 contacts	19.0	46
ICK 20 L	20 contacts	25.0	34

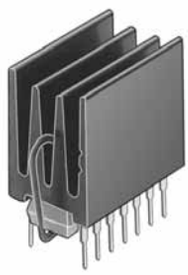


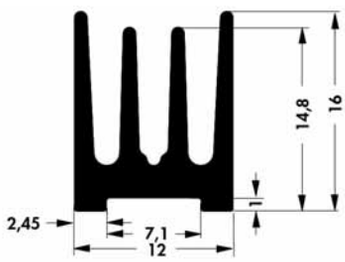


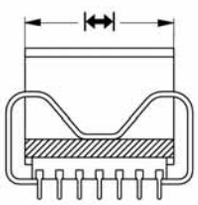
art. no.	for housings	↔ [mm]	R_{th} [K/W]
ICK 14 16 B	14/16 contacts	6.3	50.0
ICK 24 B	24 contacts	33.0	13.0
ICK 28 B	28 contacts	37.0	11.5
ICK 36 B	36 contacts	47.0	9.5
ICK 40 B	40 contacts	51.0	8.5
ICK 1000 B	–	1000.0	–

other length on request
surface: black anodised

with clip







art. no.	for housings	↔ [mm]	R_{th} [K/W]
ICK 14 H	14 contacts	18.0	20
ICK 16 H	16 contacts	20.5	18
ICK 18 H	18 contacts	23.0	16
ICK 1000 H	–	1000.0	–

other length on request
surface: black anodised

Aluminium oxide wafers → **E 9 – 10**
Mica wafers → **E 11**
Kapton insulator washers → **E 8**
Insulting clamping parts → **E 38**
Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Hole pattern → **A 21**
Profiles for PCB mounting → **A 90 – 113**

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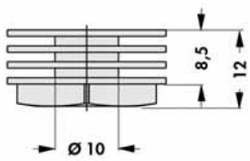
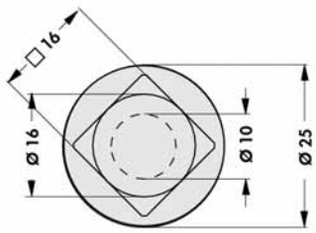
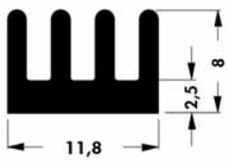
Heatsinks for DIL-IC, PLCC and SMD

Heatsinks for PLCC





art. no.	↔ [mm]	R_{th} [K/W]
ICK R	25	19



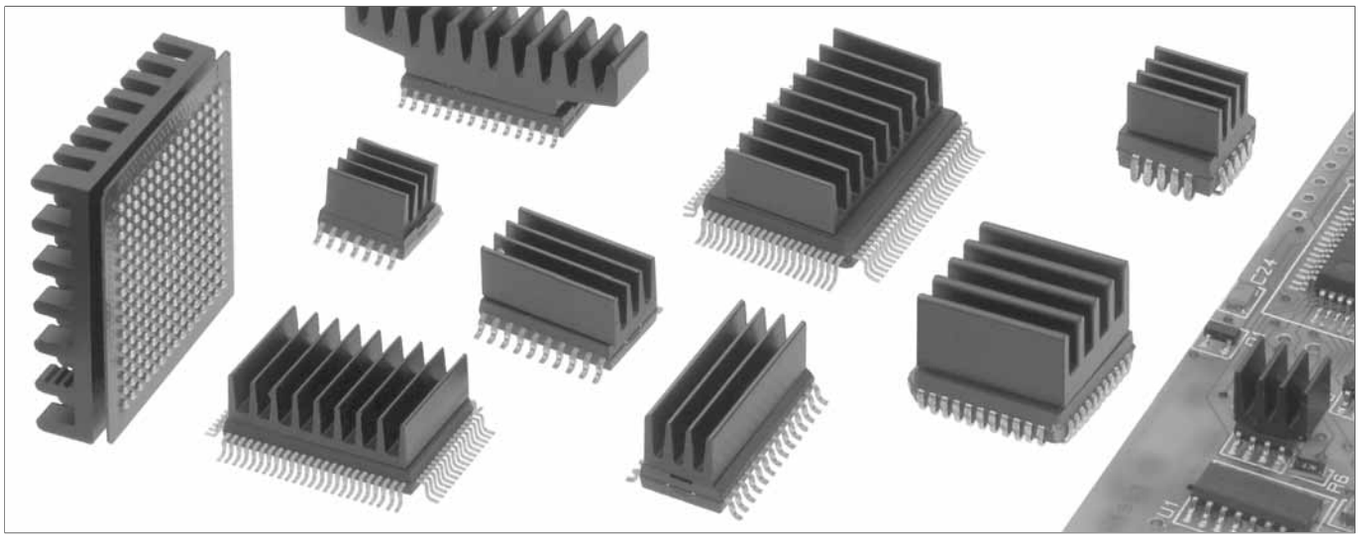
art. no.	↔ [mm]	R_{th} [K/W]
ICK PLCC 28	11.8	25

surface: black anodised

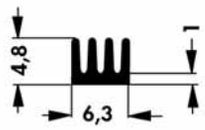
Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive paste → **E 13**
Mounting material for semiconduct. → **E 37 – 41**
Mounting parts for heatsinks → **E 43 – 44**
Unsupported thermal conductive film → **E 12**
Thermal conductive glue → **E 15**
Heatsinks for PLCC → **B 37**
Thermal. conductive silicone foam foil → **E 6**

Heatsinks for DIL-IC, PLCC and SMD

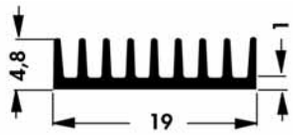
Heatsinks for SMD



– particularly suitable for SMD components
– low profile
– reduced weight
– effective heat dissipation
– can be glued directly onto the component
– soudable versions
– customer specific versions on request
– special packaging like tape and real, bar magazin, tary etc. on request



art. no.	↔ [mm]	R_{th} [K/W]
ICK SMD A 5 ...	5	123
ICK SMD A 8 ...	8	87
ICK SMD A 10 ...	10	75
ICK SMD A 13 ...	13	63
ICK SMD A 17 ...	17	51
ICK SMD A 22 ...	22	34



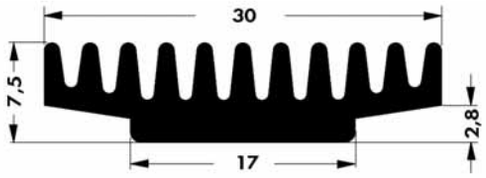
art. no.	↔ [mm]	R_{th} [K/W]
ICK SMD B 5 ...	5	56
ICK SMD B 7 ...	7	47
ICK SMD B 10 ...	10	35
ICK SMD B 13 ...	13	29
ICK SMD B 19 ...	19	22

please indicate: **... surface treatment**
SA=black anodised
MI=solderable surface

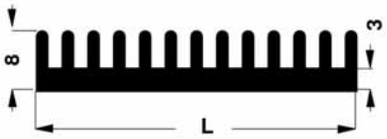
Aluminium oxide wafers → **E 9 – 10**
Mica wafers → **E 11**
Kapton insulator washers → **E 8**
Insulting clamping parts → **E 38**
Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
SMD-heatsinks → **B 38 – 40**
Profiles for PCB mounting → **A 90 – 113**

Heatsinks for DIL-IC, PLCC and SMD

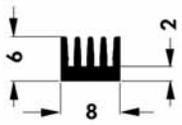
Heatsinks for SMD



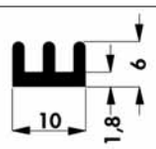
art. no.	↔ [mm]	R_{th} [K/W]
ICK SMD C 7 ...	7	33
ICK SMD C 10 SA	10	26
ICK SMD C 17 ...	17	17



art. no.	↔ [mm]	R_{th} [K/W]
ICK SMD E 15 ...	15.3	27
ICK SMD E 22 ...	22.3	21
ICK SMD E 29 SA	29.0	18



art. no.	↔ [mm]	R_{th} [K/W]
ICK SMD F 8 ...	8	74
ICK SMD F 10 ...	10	71
ICK SMD F 17 SA	17	42
ICK SMD F 19 ...	19	37
ICK SMD F 21 ...	21	33
ICK SMD F 26 ...	26	26

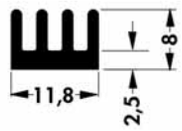


art. no.	↔ [mm]	R_{th} [K/W]
ICK SMD G 8 MI	8	73
ICK SMD G 10 ...	10	70
ICK SMD G 13 SA	13	61
ICK SMD G 17 ...	17	41
ICK SMD G 19 SA	19	36
ICK SMD G 21 ...	21	32

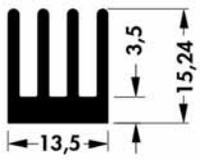
please indicate: **... surface treatment**
SA=black anodised
MI=solderable surface

Heatsinks for DIL-IC, PLCC and SMD

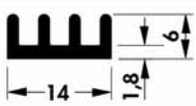
Heatsinks for SMD



art. no.	⟷ [mm]	R_{th} [K/W]
ICK SMD H 8 ...	8	33.0
ICK SMD H 10 ...	10	29.0
ICK SMD H 17 ...	17	24.5
ICK SMD H 19 SA	19	23.0
ICK SMD H 25 ...	25	20.0



art. no.	⟷ [mm]	R_{th} [K/W]
ICK SMD K 8 ...	8	25.6
ICK SMD K 10 SA	10	23.4
ICK SMD K 13 ...	13	21.5
ICK SMD K 17 ...	17	19.4
ICK SMD K 19 ...	19	18.0
ICK SMD K 21 ...	21	16.5



art. no.	⟷ [mm]	R_{th} [K/W]
ICK SMD M 8 SA	8	72.0
ICK SMD M 10 ...	10	66.0
ICK SMD M 17 MI	17	40.0
ICK SMD M 19 ...	19	35.0
ICK SMD M 21 SA	21	31.0
ICK SMD M 26 SA	26	30.2

please indicate: **... surface treatment**
SA=black anodised
MI=solderable surface

Sample box SMD heatsinks

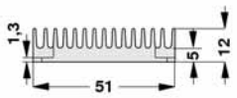
art. no.
ICK SMD BOX 1

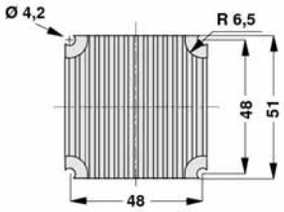
Contains an assortment of SMD heatsinks with anodised and solderable surface as well as thermally conductive glue (WLK) and double-sided adhesive thermal foil (WLF).

Thermal conduct. foil WLFT 404/405 → **E 5**
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Silicone wafers → **E 2 – 4**

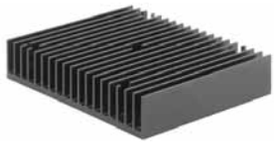
Profiles for PCB mounting → **A 90 – 113**
U-shaped heatsink → **A 123 – 124**
Heatsinks for PCB → **A 90 – 92**
Pin heatsinks for IC → **B 20 – 27**

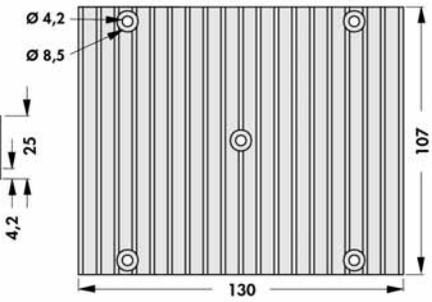
Passive heatsinks for processors

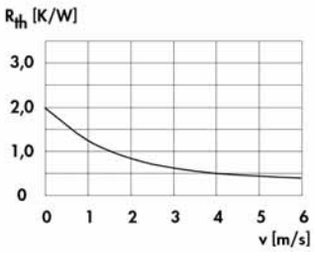




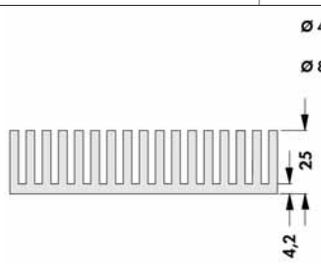
art. no.	R_{th} [K/W]	suitable for processor type
ICK PPC 51	8.1	Power PC

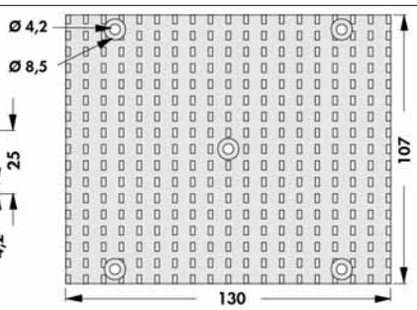


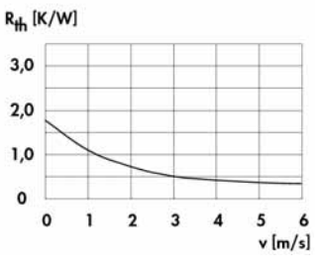




art. no.	R_{th} [K/W]	suitable for processor type
ICK PEN 3 XE	2	Intel® Pentium® III-Xeon™ Slot II Format



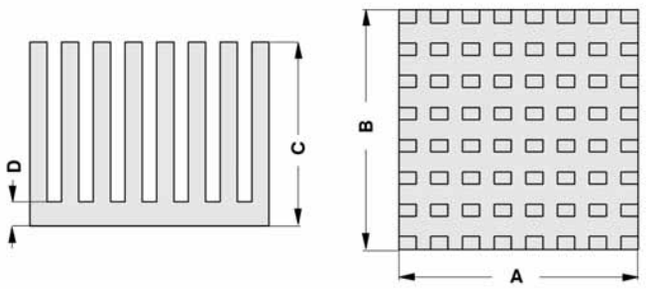


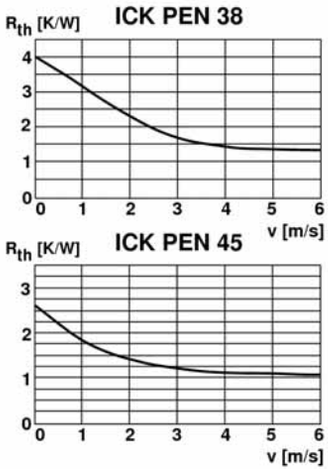


art. no.	R_{th} [K/W]	suitable for processor type
ICK PEN 3 XE 1	1.8	Intel® Pentium® III-Xeon™ Slot II Format

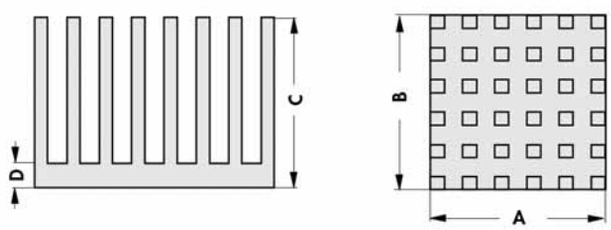
fixing method: SB = screw fixing

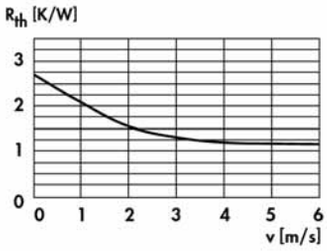
Passive heatsinks for processors





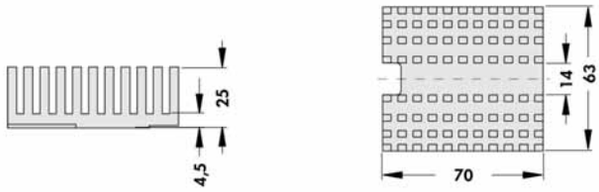
art. no.	R_{th} [K/W]	suitable for processor type	dim. [mm] A	B	C	D
ICK PEN 38 F	4.0	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A	49.5	49.5	38	5.0
ICK PEN 38 K	4.0	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A	49.5	49.5	38	5.0
ICK PEN 38 W	4.0	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A	49.5	49.5	38	5.0
ICK PEN 45 W	3.5	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A	50.0	50.0	45	3.5

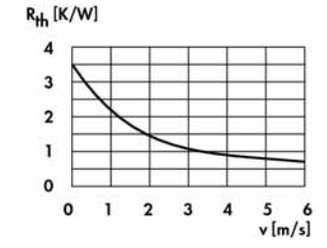




art. no.	R_{th} [K/W]	suitable for processor type	dim. [mm] A	B	C	D
ICK PRO 40 W	2.7	Intel® Pentium® PRO	65	67.5	40	4.5

K = with fixing clamp (incl. one-sided adherent conductive foil); **F** = with double-sided thermally conductive adhesive foil;
W = for thermally conductive adhesive (please order separately) **WLK ...→** E 15





art. no.	R_{th} [K/W]	suitable for processor type
ICK PEN 3 FC	3.5	Intel® Pentium® III FC PGA (Mendocino, Coppermine)

fixing method: K = with fixing clamp (icl. onesided adherent thermal foil)
customer specific versions and modifications on request

Fan cooler, universal → **B 43**
heatsinks for Pentium III FC PGA → **B 42**
Fan cooler for Pentium IV → **B 45**
Fan cooler for Pentium PRO → **B 44**
fan cooler for Pentium and MMX → **B 44**
Processor overview → **B 2 - 9**
Heatsinks for PGA → **B 10 – 15**

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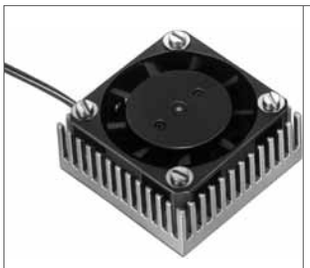
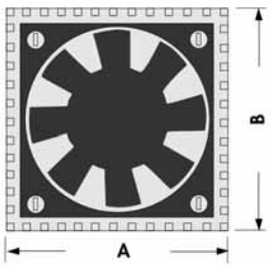
Active heatsinks for processors





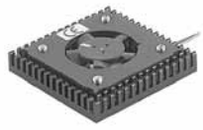
art. no.	R_{th} [K/W]	suitable for processor type	dim. [mm]		
			A	B	C
LA ICK 15 x 15 F 05	2.3	universal	37.92	38.10	20
LA ICK 15 x 15 F 12	2.3	universal	37.92	38.10	20
LA ICK 17 x 17 F 12	1.6	universal	43.10	43.10	20
LA ICK 17 x 17 F 12 A	1.6	universal	43.10	43.10	20
LA ICK 17 x 17 W 05	1.6	universal	43.10	43.10	20
LA ICK 17 x 17 W 12	1.6	universal	43.10	43.10	20
LA ICK 18 x 18 F 12	1.5	universal	45.70	45.70	20
LA ICK 18 x 18 W 12	1.5	universal	45.70	45.70	20
LA ICK 21 x 21 F 05	1.4	universal	53.34	53.34	20
LA ICK 21 x 21 F 12	1.4	universal	53.34	53.34	20
LA ICK 21 x 21 W 05	1.4	universal	53.34	53.34	20
LA ICK 21 x 21 W 12	1.4	universal	53.34	53.34	20

used fans:
5 Volt = **Sepa MFB 25 A 05 H / MFB 40 H 05 / MFB 40 H 05 A**;
12 Volt = **Sepa MFB 25 F 12 / MFB 40 H 12 /MFB 40 H 12 A**
F = with double-sided thermally conductive adhesive foil; **W** = for thermally conductive adhesive (please order separately)
A = alarm exit; **WLK ...→** D 15

Heatsinks for BGA → **B 16 – 19**
Heatsinks for PGA → **B 10 – 15**
Fan cooler, universal → **B 43**
Heatsinks for Pentium PRO → **B 41**
Heatsinks for P II-Mobile Module → **B 41**
Fan cooler for Pentium IV → **B 45**
Thermal conductive material → **E 2 – 15**
Thermal conduct. foil WLFT 404/405 → **E 5**

Active heatsinks for processors

easy assembly on ZIF socket by fixing clamp



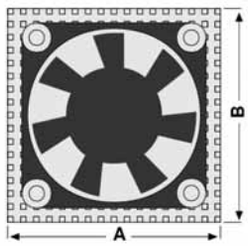
LA ICK PEN 8

LA ICK PEN 16

LA ICK PEN 18

LA ICK PEN 38

LA ICK PRO 25



art. no.	R_{th} [K/W]	suitable for processor type	dim. [mm]			
			A	B	C	D
LA ICK PEN 8 F 05	2.50	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	50.8	50.8	8.00	9.00
LA ICK PEN 8 F 12	2.50	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	50.8	50.8	8.00	9.00
LA ICK PEN 8 W 05	2.50	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	50.8	50.8	8.00	9.00
LA ICK PEN 8 W 12	2.50	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	50.8	50.8	8.00	9.00
LA ICK PEN 16 K 12	1.20	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	50.8	50.8	16.51	26.51
LA ICK PEN 16 W 12	1.20	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	50.8	50.8	16.51	26.51
LA ICK PEN 16 W 12 A	1.20	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	50.8	50.8	16.51	26.51
LA ICK PEN 18 K 05	1.60	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	50.8	50.8	8.00	18.00
LA ICK PEN 18 W 12	1.60	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	50.8	50.8	8.00	18.00
LA ICK PEN 38 K 12	1.10	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	49.5	49.5	38.00	48.00
LA ICK PEN 38 W 12	1.10	Intel® Pentium®/ MMX/ AMD® K6-2/ AMD® K6-III/ IDT C6/ IDT W2A/ Cyrix M II and similar	49.5	49.5	38.00	48.00
LA ICK PRO 25 F 12	0.97	Intel® Pentium® PRO	63.5	67.5	25.00	35.00

used fans: 5 Volt = **Sepa MFB 50 E 05**; 12 Volt = **Sepa MFB 50 E 12/ Sepa MFB 50 E 12 A**;
LA ICK PEN 8: 5 Volt = **Sepa HFB 44 X 05 A** ; 12 Volt = **Sepa HFB 44 B 12 AK** = with fixing clamp (incl. one-sided adherent conductive foil); **F** = with double-sided thermally conductive adhesive foil
W = for thermally conductive adhesive (please order separately); **A** = alarm exit; **WLK ...→** D 15

Heatsinks for PGA → **B 10 – 15**
Heatsinks for Pentium PRO → **B 42**
Heatsinks for Pentium III-Xeon → **B 41**
Fan cooler for Pentium III-Xeon → **B 45**
Fan cooler for Pentium IV → **B 45**
Fan cooler, universal → **B 43**
Processor overview → **B 2 - 7**
Thermal conduct. foil WLFT 404/405 → **E 5**

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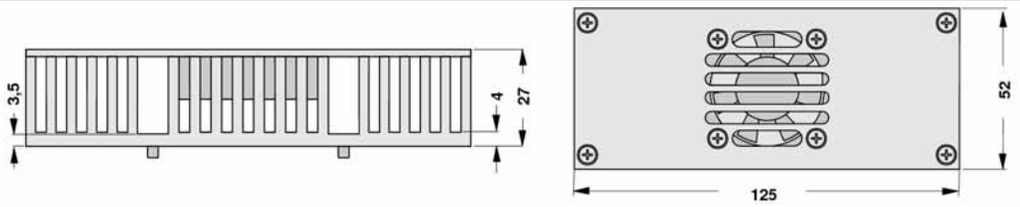
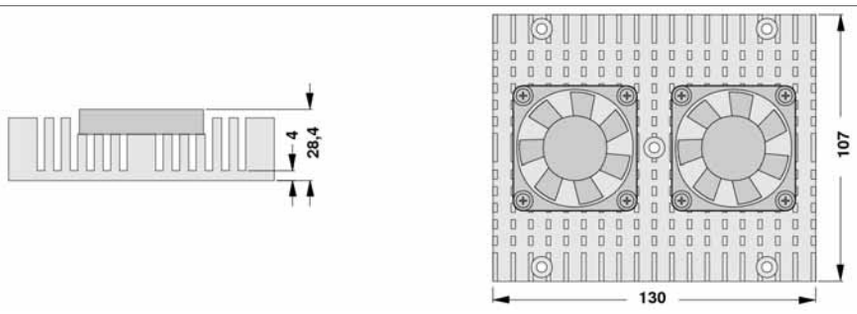
Active heatsinks for processors



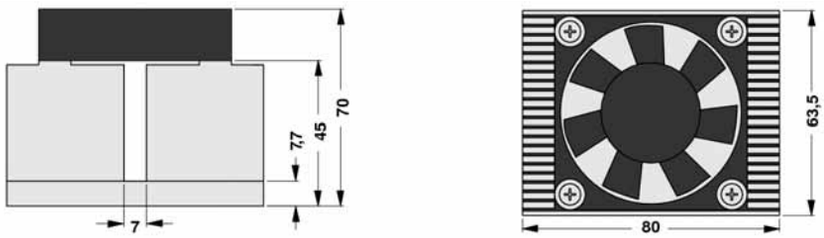
art. no.	R_{th} [K/W]	suitable for processor type
LA ICK PEN 2 K 12 ...	1.2	AMD® Athlon®/ Intel® Pentium® II
please indicate:	**... mountings (optional)** **SM=molex connection plug**	

fixing method:
K = with fixing clamp (incl. one sided adherent thermal foil)
used fans:
12 Volt = **Sepa MFB 40 H 12**



art. no.	R_{th} [K/W]	suitable for processor type
LA ICK PEN 3 XE	0.8	Intel® Pentium® III-Xeon™
please indicate:	**... mountings (optional)** **SM=molex connection plug** **A =alarm exit**	

fixing method:
SB = screw fixing
used fans:
12 Volt = **Sepa MFB 50 E 12**



art. no.	R_{th} [K/W]	suitable for processor type
LA ICK PEN 4 1 K	0.6	Intel® Pentium® IV
please indicate:	**... mountings (optional)** **SM=molex connection plug**	

fixing method:
K = with fixing clamp
operating voltage of the fan motor: 12 Volt (Papst 612 NHH)
with copper base plate
customer specific designs and modifications on request

Technical data of the fans

molex crimp case series: 6471; molex crimp terminals: 2759

5 volt fan

	Sepa MFB 25 A 05 H	Sepa MFB 40 H 05	Sepa MFB 40 H 05 A	Sepa MFB 50 E 05	Sepa HFB 44 X 05 A	ebmpapst 405 F
circuit voltage	4.5 - 5.5 V DC	4.5 - 5.5 V DC	4.5 - 5.5 V DC	4.5 - 5.5 V DC	4.5 - 5.5 V DC	4.5 - 5.5 V DC
bearing type	double ball bearing	double ball bearing	double ball bearing	double ball bearing	ball bearing	double slide bearing
fan dimensions	25 x 25 x 10 mm	40 x 40 x 10 mm	40 x 40 x 10 mm	50 x 50 x 10 mm	44 x 44 x 6,2 mm	40 x 40 x 10 mm
cur. consumpt.	85 mA	120 mA	90 mA	50 mA	110 mA	140 mA
max. iuitial current	220 mA	250 mA	250 mA	120 mA	160 mA	–
max. volume flow	32 l/min 1.92 m^3/h	110 l/min 6.6 m^3/h	184 l/min 11 m^3/h	169 l/min 10,1 m^3/h	50 l/min 3.0 m^3/h	132 l/min 8 m^3/h
max. static pressure	2.3 mm H_2O 22.6 Pa	3.0 mm H_2O 29.4 Pa	3.1 mm H_2O 30.5 Pa	1.6 mm H_2O 15.6 Pa	2.6 mm H_2O 25.5 Pa	3.06 mm H_2O 30 Pa
noise level	17 dB(A), 1 m lateral	21 dB(A), 1 m lateral	24 dB(A), 1 m lateral	16 dB(A), 1 m lateral	28 dB(A), 1 m lateral	22,1 dB(A), 1 m lateral
temperature range	-40°C ... +80°C	-40°C ... +80°C	-40°C ... +80°C	-40°C ... +80°C	-40°C ... +80°C	-20°C ... +70°C
failure rate (L_{10})	95.000 h	95.000 h	95.000 h	95.000 h	75.000 h	45.000 h (20 °C)
MTBF	280.000 h (20°C) 80.000 h (70°C)	280.000 h (20°C) 80.000 h (70°C)	280.000 h (20°C) 80.000 h (70°C)	280000	210.000 h (60°C)	–
weight	8 g	13 g	13 g	19 g	7 g	17 g
cases	plastic PBT (UL E54695)	plastic PBT (UL E54695)	plastic PBT (UL E54695)	plastic PBT (UL E54695)	plastic PBT (UL E54695)	plastic PBT (UL E38324)

Sepa-fan 24 h BURN-IN tested

12 volt fan

	Sepa MFB 25 F 12	Sepa MFB 40 H 12	Sepa MFB 40 H 12 A	Sepa MFB 50 E 12	Sepa HFB 44 B 12 A	ebmpapst 412 F
circuit voltage	10.2 - 13.8 V DC	10.2 - 13.8 V DC	10.2 - 13.8 V DC	10.2 - 13.8 V DC	10.2 - 13.8 V DC	10 - 14 V DC
bearing type	double ball bearing	double ball bearing	double ball bearing	ball bearing	ball bearing	double slide bearing
fan dimensions	25 x 25 x 10 mm	40 x 40 x 10 mm	40 x 40 x 10 mm	50 x 50 x 10 mm	44 x 44 x 6,2 mm	40 x 40 x 10 mm
cur. consumpt.	70 mA	40 mA	40 mA	40 mA	40 mA	60 mA
max. iuitial current	150 mA	90 mA	90 mA	100 mA	70 mA	–
max. volume flow	68 l/min 4 m^3/h	185 l/min 11 m^3/h	185 l/min 11 m^3/h	238 l/min 14.3 m^3/h	50 l/min 3.0 m^3/h	132 l/min 8 m^3/h
max. static pressure	2.24 mm H_2O 41.5 Pa	2.9 mm H_2O 28 Pa	2.9 mm H_2O 28 Pa	2.7 mm H_2O 26.9 Pa	2.6 mm H_2O 25.5 Pa	3.06 mm H_2O 30 Pa
noise level	23 dB(A), 1 m lateral	24 dB(A), 1 m lateral	24 dB(A), 1 m lateral	25 dB(A), 1 m lateral	28 dB(A), 1 m lateral	22,1 dB(A), 1 m lateral
temperature range	-40 °C ... +70 °C	-40°C ... +80°C	-40°C ... +80°C	-40°C ... +80°C	-40°C ... +80°C	-20°C ... +70°C
failure rate (L_{10})	95.000 h (20°C) 20.000 h (70°C)	95.000h (20°C) 29.000h (70°C)	95.000h (20°C) 29.000h (70°C)	95.000h (20°C) 29.000h (70°C)	75.000 h	45.000 h (20 °C)
MTBF	280.000 h (20°C) 55.000 h (70°C)	280.000 h (20°C) 80.000 h (70°C)	280.000 h (20°C) 80.000 h (70°C)	280.000 h (20°C) 80.000 h (70°C)	210.000 h (60°C)	–
weight	8 g	13 g	13 g	19 g	7 g	17 g
cases	plastic PBT (UL E54695)	plastic PBT (UL E54695)	plastic PBT (UL E54695)	plastic PBT (UL E54695)	plastic PBT (UL E54695)	plastic PBT (UL E38324)

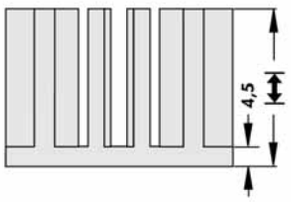
Sepa-fan 24 h BURN-IN tested

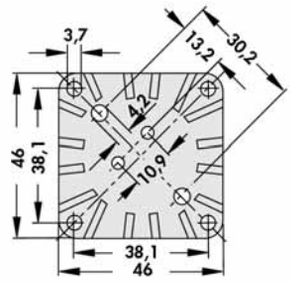
Fans with pulse output - Technical data of fans with pulse output:

– pulse output for activation of the alarm control
– pulse similar to a square pulse with three times the frequency of the rotor speed
– when the rotor is blocked, the output signal may be L (≤ 0,8 V) or H (Vcc-1 V)
– the pulse output must not be connected to GND or Vcc withoutb protective resistor (>10 K)
– in order to avoid short circuits, the pulse output not being used must be insulated

fan cooler for Pentium and MMX → **B 44**
Fan cooler, universal → **B 43**
Fan cooler for Pentium III-Xeon → **B 45**
Fan cooler for Pentium III-Xeon → **B 45**
Fan cooler for Pentium IV → **B 45**
Fan cooler for Pentium PRO → **B 44**

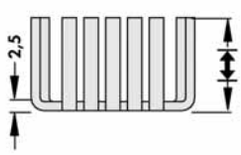
Finger shaped heatsinks for power semiconductors

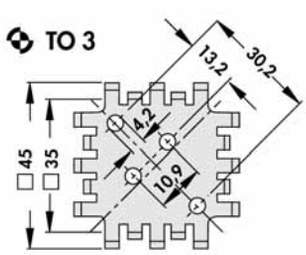


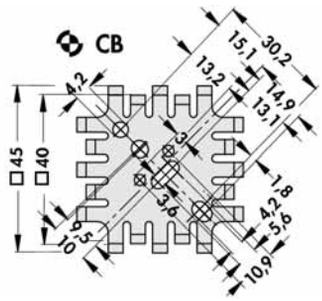


art. no.	↕ [mm]	R_{th} [K/W]	⊕	art. no.	↕ [mm]	R_{th} [K/W]	⊕
FK 318 SA-3	31.8	4.8	TO 3	**FK 318 SA**	31.8	4.8	without
FK 254 SA-3	25.4	5.8	TO 3				

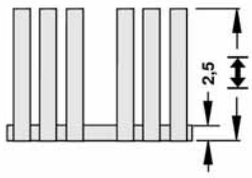
material: die-cast aluminium
surface treatment: black lacquered

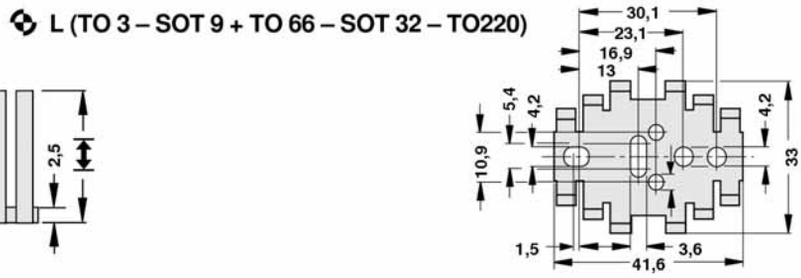






art. no.	↕ [mm]	R_{th} [K/W]	⊕	art. no.	↕ [mm]	R_{th} [K/W]	⊕
FK 201 SA	25.4	6	without	**FK 202 SA**	12.7	8	without
FK 201 SA 3	25.4	6	TO 3	**FK 202 SA 3**	12.7	8	TO 3
FK 201 SA CB	25.4	6	CB	**FK 202 SA CB**	12.7	8	CB





art. no.	↕ [mm]	R_{th} [K/W]	⊕
FK 205 SA L	31.8	9.0	L
FK 206 SA L	25.4	10.5	L
FK 207 SA L	19.1	12.0	L
FK 208 SA L	12.7	14.0	L

material: aluminium
surface treatment: black anodised

Attachable heatsinks → **C 10 – 14**
Heatsinks for TO 5 and TO 18 → **C 16 – 17**
Heatsinks for D PAK → **C 19**
Aluminium oxide wafers → **E 9 – 10**
Snap rivet → **E 37**
Kapton insulator washers → **E 8**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

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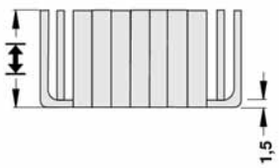
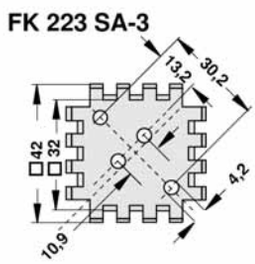
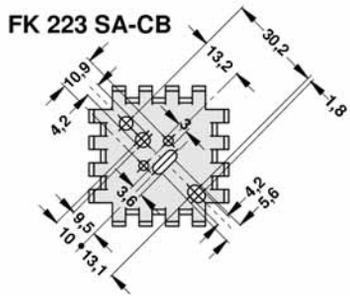
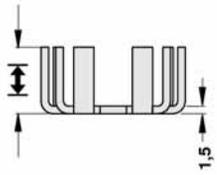
Finger shaped heatsinks for power semiconductors

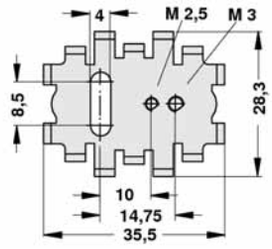






art. no.	↕ [mm]	R_{th} [K/W]	⟲
FK 223 SA	17	6.8	without
FK 223 SA-3	17	6.8	TO 3
FK 223 SA-CB	17	6.8	CB



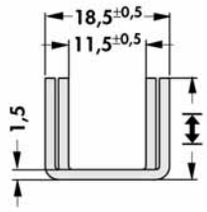


art. no.	↕ [mm]	R_{th} [K/W]	⟲
FK 217 SA	13	16	without
FK 217 SA CB 2	13	16	CB 2 (SOT 32; TO 220)

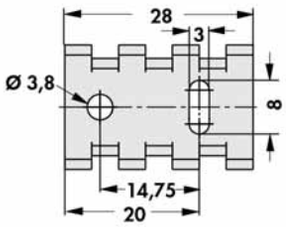
material: aluminium
surface treatment: black anodised

Heatsinks for transistors in plastic case

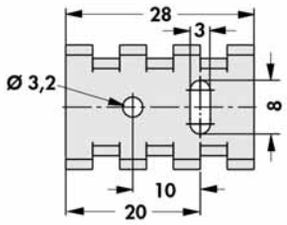
for semiconductor screw-assembly, horizontal



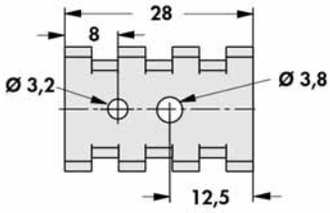
FK 234 SA L 1



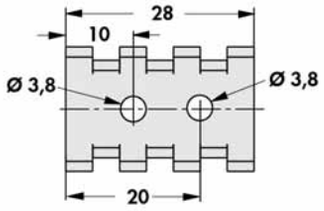
FK 234 SA L 2



FK 234 SA L 3



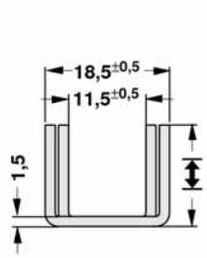
FK 234 SA L 4



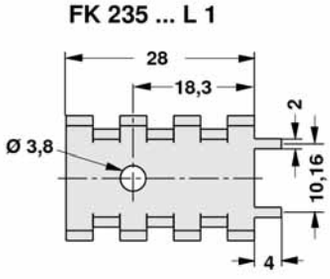
art. no.	↕ [mm]	R_{th} [K/W]	⌖
FK 234 SA L 1	15	17	TO 220
FK 234 SA L 2	15	17	SOT 32
FK 234 SA L 3	15	17	CB
FK 234 SA L 4	15	17	CB

material: aluminium
surface treatment: black anodised

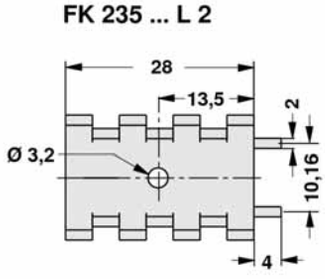
for semiconductor screw-assembly, vertical



FK 235 ... L 1



FK 235 ... L 2



art. no.	↕ [mm]	R_{th} [K/W]	⌖
FK 235 MI L 1	15	16	SOT 32
FK 235 MI L 2	15	16	SOT 32
FK 235 SA L 1	15	16	TO 220
FK 235 SA L 2	15	16	TO 220

material: aluminium
surface treatment: solderable

Attachable heatsinks → **C 10 – 14**
Heatsinks for TO 5 and TO 18 → **C 16 – 17**
Heatsinks for D PAK → **C 19**
Aluminium oxide wafers → **E 9 – 10**
Snap rivet → **E 37**
Kapton insulator washers → **E 8**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**

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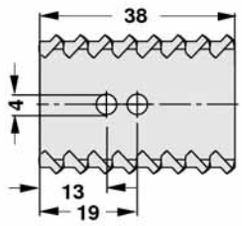
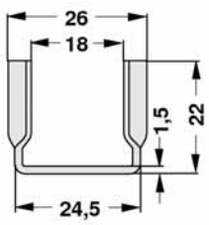
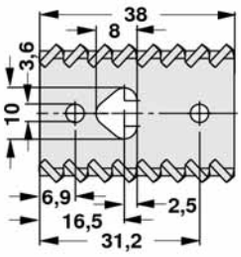
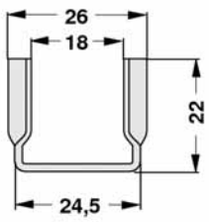
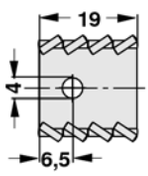
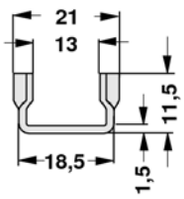
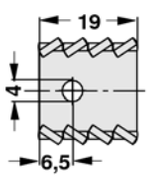
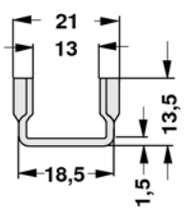
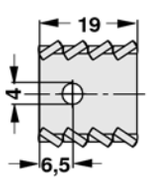
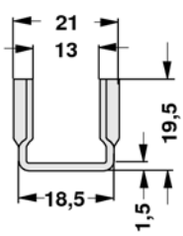
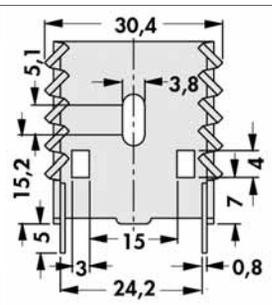
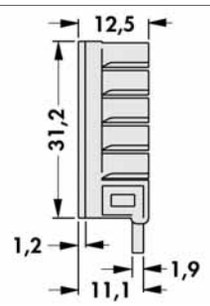
Heatsinks for transistors in plastic case

art. no.				
FK 225 SA L 1			9,9 K/W TO 220	
art. no.				
FK 225 SA L 2			9,9 K/W TO 220	
art. no.				
FK 228 SA L 1			30 K/W TO 220	
art. no.				
FK 229 SA L 1			27 K/W TO 220	
art. no.				
FK 230 SA L 1			21 K/W TO 220	

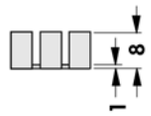
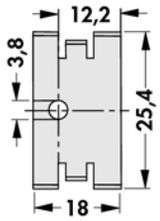
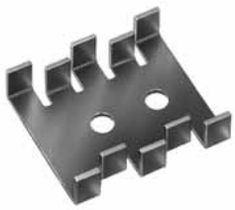
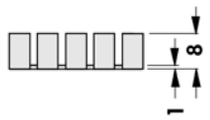
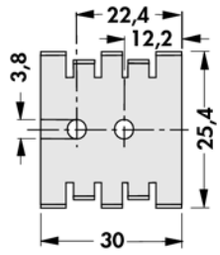
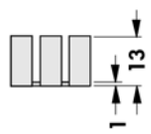
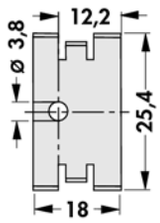
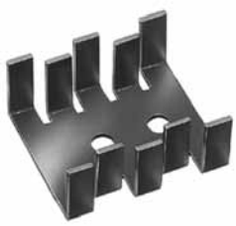
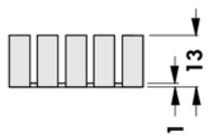
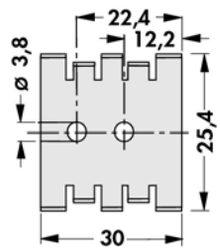
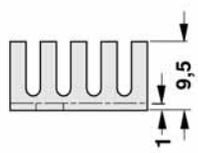
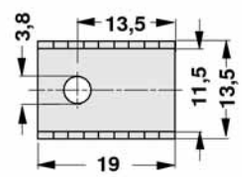
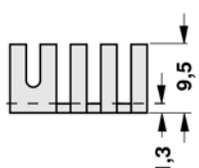
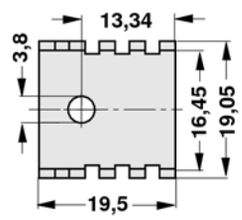
material: aluminium
surface treatment: black anodised

art. no.				
FK 249 SA 220			17 K/W TO 220	

material: aluminium
surface treatment: black passivated, solder pins tin plated

Retaining springs for transistors → **A 116 – 122**
Heatsinks for D PAK → **C 19**
GEL thermal conductive foil → **E 7**
Insulator caps → **E 44**
Mounting material for semiconduct. → **E 37 – 41**
Mounting pads → **E 39**
Mounting pads for transistors → **E 40**
Mounting parts for heatsinks → **E 43 – 44**

Heatsinks for transistors in plastic case

art. no.			
FK 209 SA 32		 25 K/W ◈ SOT 32	
art. no.			
FK 210 SA CB		 18 K/W ◈ CB (SOT 32 + TO 220)	
art. no.			
FK 213 SA 32		 21 K/W ◈ SOT 32	
art. no.			
FK 214 SA CB		 15 K/W ◈ CB (SOT 32 + TO 220)	
art. no.			
FK 231 SA 220		 24 K/W ◈ TO 220	
art. no.			
FK 239 SA 32		 24 K/W ◈ SOT 32	

The heatsinks FK 209 ... 214 are available without hole pattern as well, e.g. FK 209 SA
material: aluminium
surface treatment: black anodised

Retaining springs for transistors → **A 116 – 122**
Heatsinks for D PAK → **C 19**
GEL thermal conductive foil → **E 7**
Insulator caps → **E 44**
Mounting material for semiconduct. → **E 37 – 41**
Mounting pads → **E 39**
Mounting pads for transistors → **E 40**
Mounting parts for heatsinks → **E 43 – 44**

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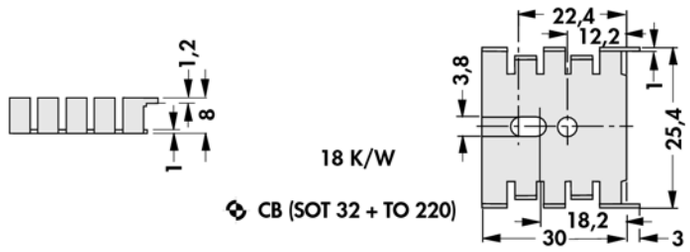
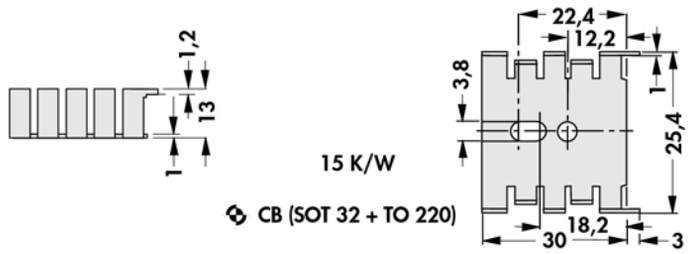
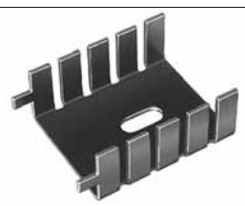
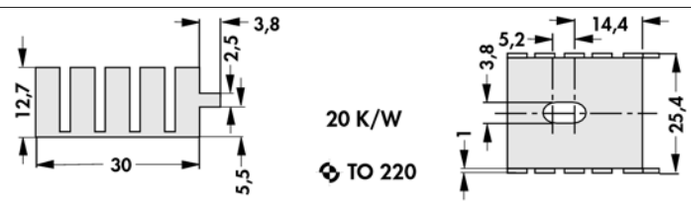
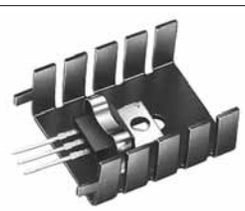
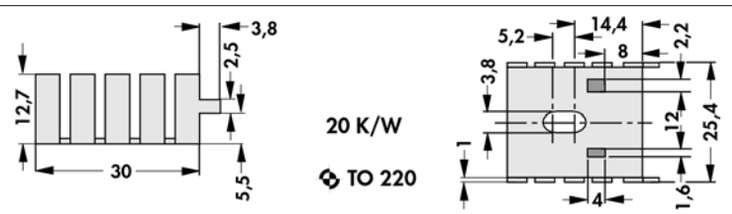
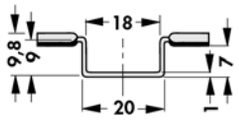
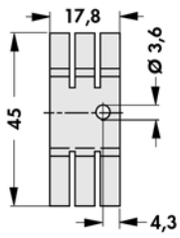
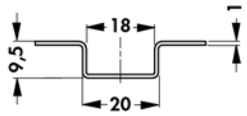
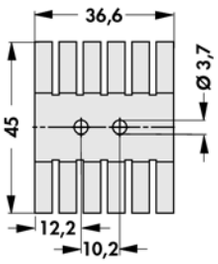
Heatsinks for transistors in plastic case

art. no. **FK 211 32 ...**		
art. no. **FK 212 CB ...**		
art. no. **FK 215 32 ...**		
art. no. **FK 216 CB**		
art. no. **FK 222 ...**		
art. no. **FK 222 THF ...**		
art. no. **FK 247 220 ...**		
please indicate:	**... surface treatment** **SA=black anodised** **MI=solderable**	

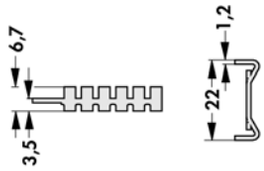
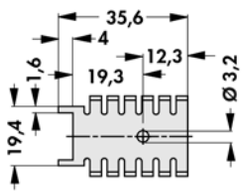
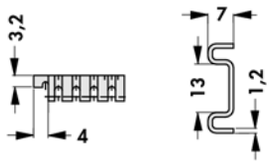
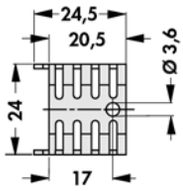
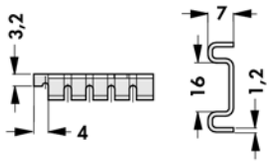
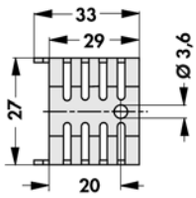
material: aluminium / The heatsinks FK 211 ... 216 are available without hole pattern as well, e.g. FK 211 SA

Retaining springs for transistors → **A 116 – 122**
Heatsinks for D PAK → **C 19**
GEL thermal conductive foil → **E 7**
Insulator caps → **E 44**
Mounting material for semiconduct. → **E 37 – 41**
Mounting pads → **E 39**
Mounting pads for transistors → **E 40**
Mounting parts for heatsinks → **E 43 – 44**

Heatsinks for transistors in plastic case

art. no.				
FK 227 SA L 1			22 K/W TO 220	
art. no.				
FK 238 SA L 1			12 K/W TO 220	

material: aluminium
surface treatment: black anodised

art. no.				
FK 218 32 ...			21 K/W SOT 32 TO 220	
art. no.				
FK 232 220 ...			21 K/W TO 220	
art. no.				
FK 233 220 ...			20,2 K/W TO 220	
please indicate:	... surface treatment SA=black anodised MI=solderable			

material: aluminium

Technical introduction → A 2 - 7
Hole pattern → A 21
Heatsink profile-overview → A 13 - 16
Thermal conductive paste → E 13
Thermal conductive foil → E 5
Thermal conductive glue → E 15
Kapton insulator washers → E 8

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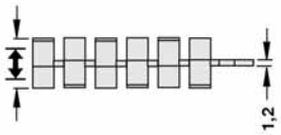
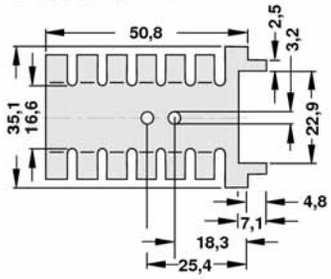
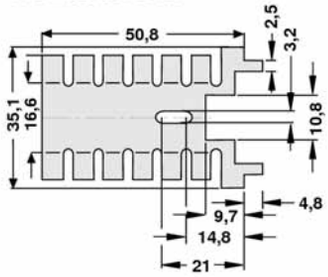
Heatsinks for transistors in plastic case



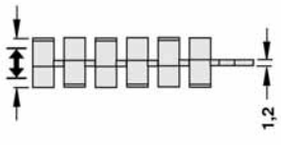
FK 219 CB 1 ...

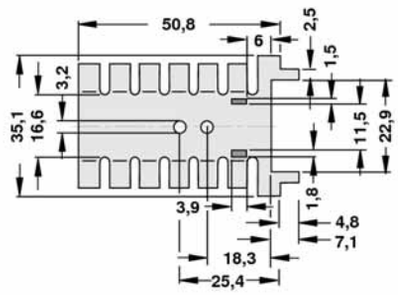


FK 219 CB 2 ...

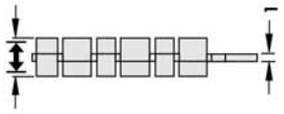


art. no.	↕ [mm]	R_{th} [K/W]	⟲
FK 219 CB 1 ...	12.6	14	CB 1 (TO 220)
FK 219 CB 2 ...	12.6	14	CB 2 (TO 220)

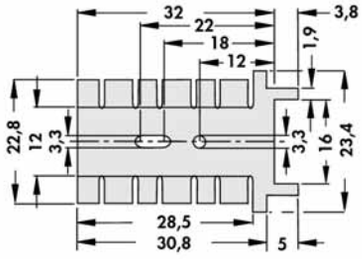




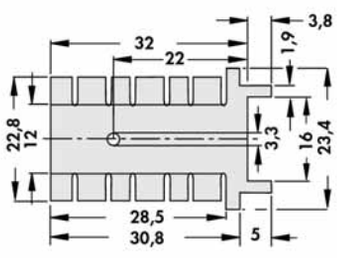
art. no.	↕ [mm]	R_{th} [K/W]	⟲
FK 219 CB 3 ...	12.6	14	CB 3 (TO 220)



FK 236 CB ...



FK 236 220 ...



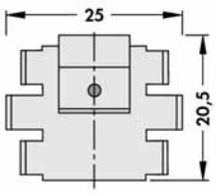
art. no.	↕ [mm]	R_{th} [K/W]	⟲
FK 236 220 ...	5	18	TO 220
FK 236 CB ...	5	18	CB

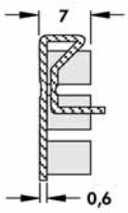
please indicate: **... surface treatment**
SA=black anodised
MI=solderable

material: aluminium

Retaining springs for transistors → **A 116 – 122**
Lock-in transistor fixing spring → **A 119**
Profiles for lock-in fixing spring → **A 85 – 89**
Profiles for PCB mounting → **A 90 – 113**
Heatsinks for TO 5 and TO 18 → **C 16 – 17**
Attachable heatsinks → **C 10 – 14**
Silicone wafers → **E 2 – 4**
Kapton insulator washers → **E 8**

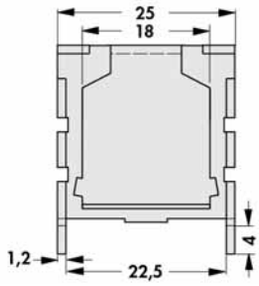
Attachable heatsink

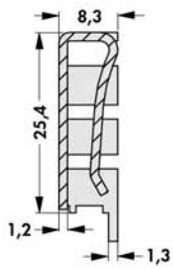




art. no.	R_{th} [K/W]	
FK 220 SA 220	25	TO 220

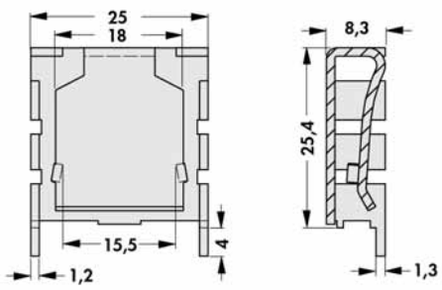
surface: black anodised



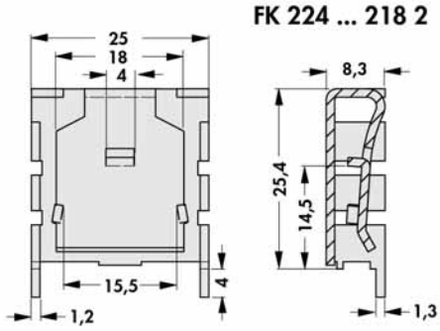


art. no.	R_{th} [K/W]	
FK 224 ... P SIP	18	P SIP

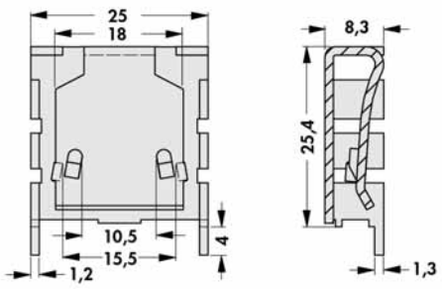
FK 224 ... 218 1



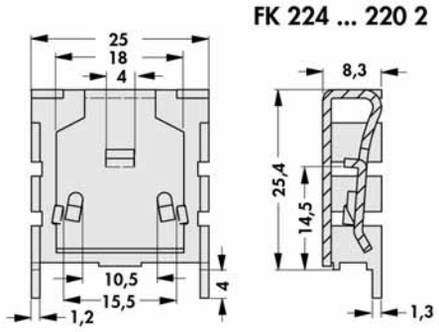
FK 224 ... 218 2



FK 224 ... 220 1



FK 224 ... 220 2

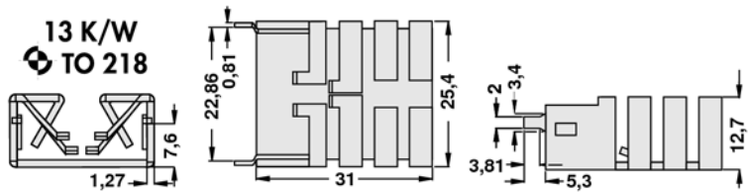


art. no.	R_{th} [K/W]	
FK 224 ... 218 1	18	TO 218
FK 224 ... 218 2	18	TO 218
FK 224 ... 220 1	18	TO 220
FK 224 ... 220 2	18	TO 220

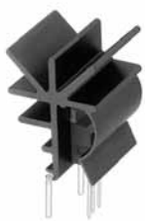
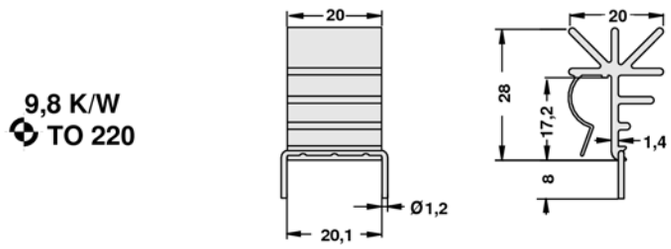
please indicate: **... surface treatment**
SA=black anodised
MI=solderable

Heatsinks for D PAK → **C 19**
Heatsinks for transistors → **C 4 – 9**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**
Technical introduction → **A 2 - 7**
U-shaped heatsink → **A 123 – 124**
Kapton insulator washers → **E 8**

Attachable heatsink

art. no.		
FK 241 SA 218 V		
	with tinned soldering lug for direct soldering onto circuit board, for vertical installation	

material: aluminium
surface treatment: black anodised

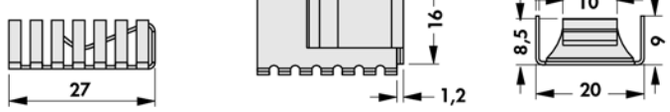
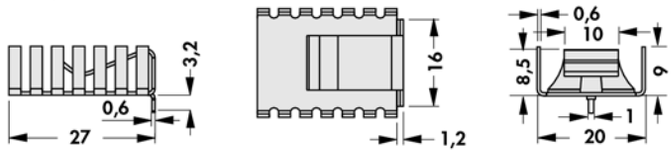
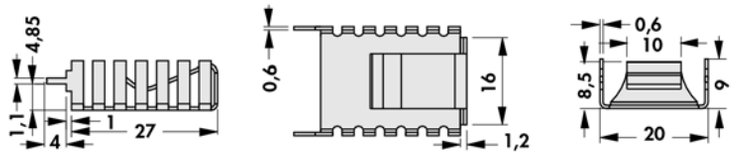
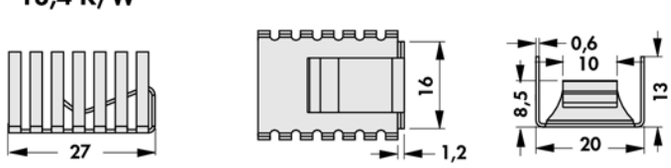
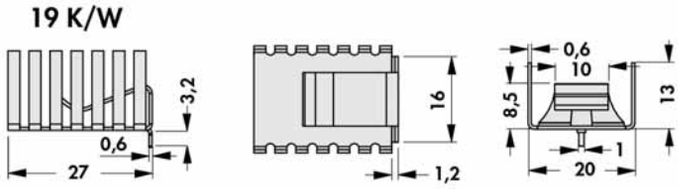
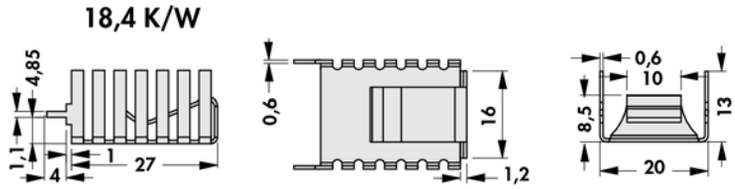
art. no.		
FK 248 SA 220		

material: aluminium
surface treatment: black anodised, solder pins tin plated

Heatsinks for D PAK → C 19
Heatsinks for transistors → C 4 – 9
Silicone wafers → E 2 – 4
Mica wafers → E 11
Technical introduction → A 2 - 7
U-shaped heatsink → A 123 – 124
Kapton insulator washers → E 8

Attachable heatsink

- universal clip on heatsinks for type TO 218, TO 229, TO 247, TO 248, SIP-Muliwatt and similar
- easy assembly by pushing the heatsink onto the component
- for vertical and horizontal fastening by soldering
- fin height variations on request
- special design accord. to customized specification

art. no.		
FK 245 MI 247 O		20,2 K/W 
without soldering lug		
art. no.		
FK 245 MI 247 H		20,5 K/W 
with soldering lug for horizontal mounting		
art. no.		
FK 245 MI 247 V		19,7 K/W 
with soldering lug for vertical mounting		
art. no.		
FK 243 MI 247 O		18,4 K/W 
without soldering lug		
art. no.		
FK 243 MI 247 H		19 K/W 
with soldering lug for horizontal mounting		
art. no.		
FK 243 MI 247 V		18,4 K/W 
with soldering lug for vertical mounting		

material: copper (Cu)
surface treatment: solderable
material thickness: 0.6 mm

Solder pins → **E 36**
Solder terminals → **E 35**
Plugs → **E 36**
Thermal conductive material → **E 2 – 15**
Heatsinks for D PAK → **C 19**
Finger-shaped heatsinks → **C 2 – 3**
Heatsinks for TO 5 and TO 18 → **C 16 – 17**
Heatsinks for transistors → **C 4 – 9**

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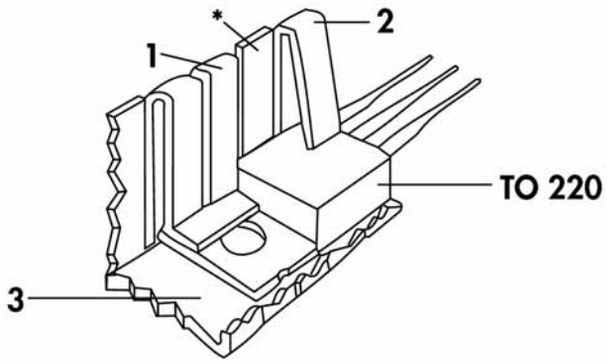
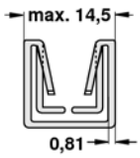
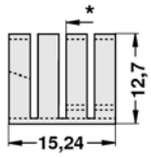
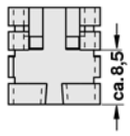
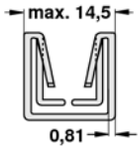
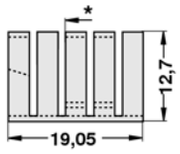
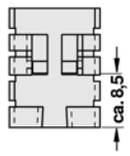
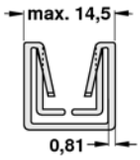
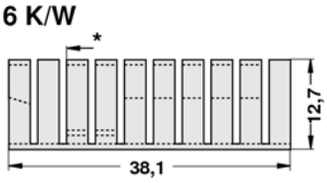
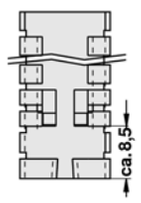
Attachable heatsink



– narrow version with better thermal resistance
– max. 14.5 mm wide
– 3 different lengths for varied dissipation power
– takes less space than any other attachable heatsink
– simple assembly by pushing the heatsink onto the TO 220 housing
– the cooling fingers form spring clamps **(1+2)**, which pushes the TO 220 and it's mounting flange onto the heatsink **(3)**
– optimum heat transfer due the constant pressure on the entire contact surface of the TO 220 cases
– effective heat emmision with horizontal and vertical mounting

without soldering lug

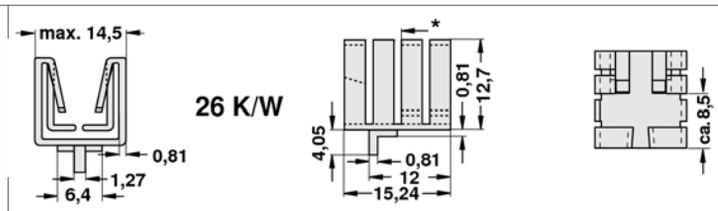
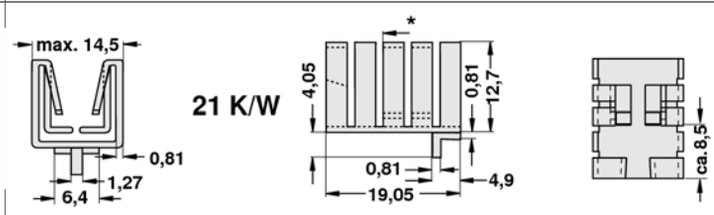
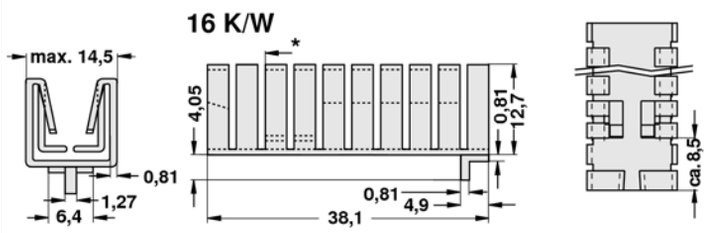
art. no.						
FK 242 SA 220 O			26 K/W		
art. no.						
FK 237 SA 220 O			21 K/W		
art. no.						
FK 240 SA 220 O			16 K/W		

***** = touch in edge of transistor

material: aluminium
surface treatment: black anodised

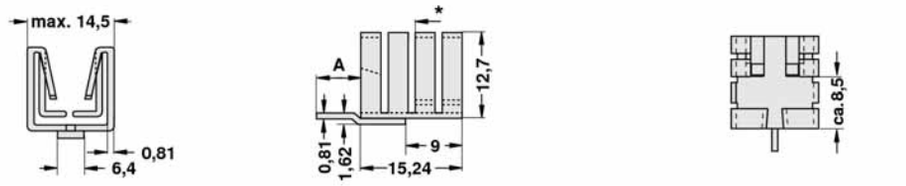
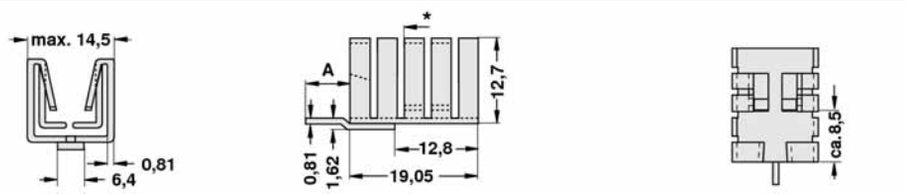
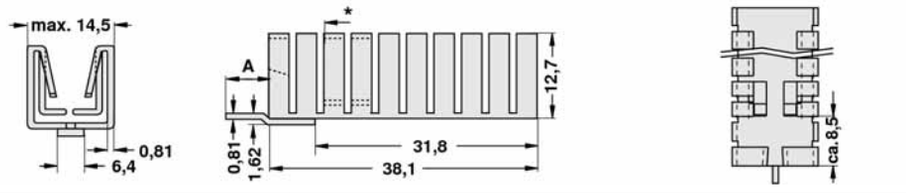
Attachable heatsink

with tinned soldering lug for direct soldering onto circuit board, for horizontal installation

art. no.		
FK 242 SA 220 H		
art. no.		
FK 237 SA 220 H		
art. no.		
FK 240 SA 220 H		

* = touch in edge of transistor
material: aluminium
surface treatment: black anodised

with tinned soldering lug for direct soldering onto circuit board, for vertical installation

					
art. no.	A [mm]	R_{th} [K/W]	**art. no.**	A [mm]	R_{th} [K/W]
FK 242 SA 220 V	6.35	26	**FK 242 SA 220 VL**	9.53	26
					
art. no.	A [mm]	R_{th} [K/W]	**art. no.**	A [mm]	R_{th} [K/W]
FK 237 SA 220 V	6.35	21	**FK 237 SA 220 VL**	9.53	21
					
art. no.	A [mm]	R_{th} [K/W]	**art. no.**	A [mm]	R_{th} [K/W]
FK 240 SA 220 V	6.35	16	**FK 240 SA 220 VL**	9.53	16

* = touch in edge of transistor
material: aluminium
surface treatment: black anodised

Heatsinks for D PAK → **C 19**
Heatsinks for transistors → **C 4 – 9**
Silicone wafers → **E 2 – 4**
Mica wafers → **E 11**
technical annotations → **A 2 - 7**
U-shaped heatsink → **A 123 – 124**
Kapton insulator washers → **E 8**

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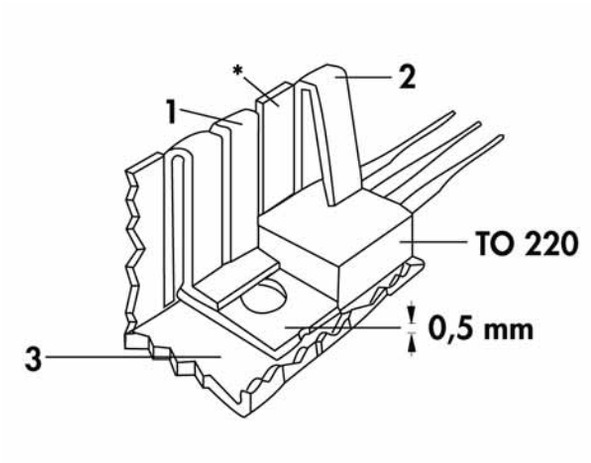
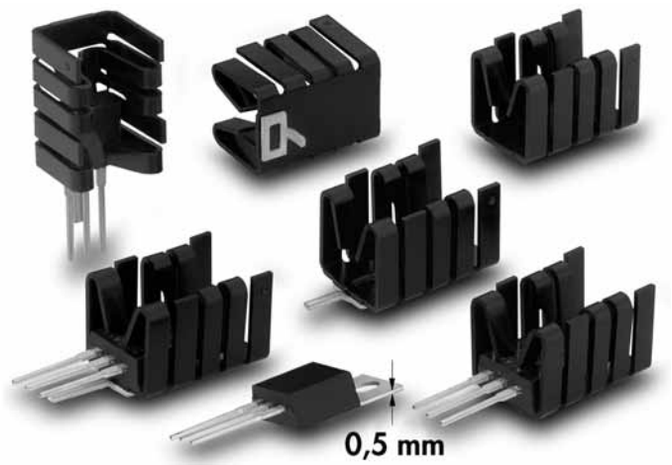
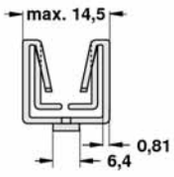
Attachable heatsink for TO 220 with a bottom plate thickness of 0.5 mm

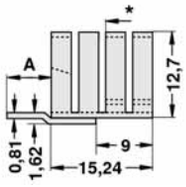


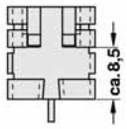


– narrow version with better thermal resistance
– max. 14.5 mm wide
– 3 different lengths for varied dissipation power
– takes less space than any other attachable heatsink
– simple assembly by pushing the heatsink onto the TO 220 housing
– the cooling fingers form spring clamps **(1+2)**, which pushes the TO 220 and it's mounting flange onto the heatsink **(3)**
– optimum heat transfer due the constant pressure on the entire contact surface of the TO 220 cases
– effective heat emmision with horizontal and vertical mounting

with tinned soldering lug for direct soldering onto circuit board, for vertical installation







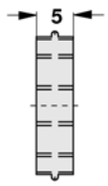
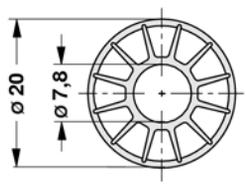
art. no.	A [mm]	R_{th} [K/W]
FK 252 SA 220 V	6.35	21

***** = touch in edge of transistor

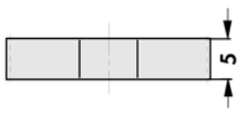
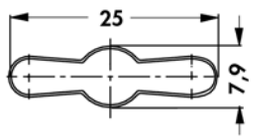
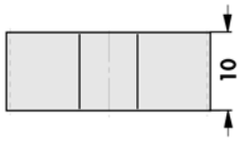
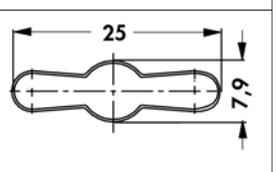
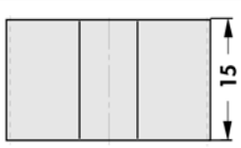
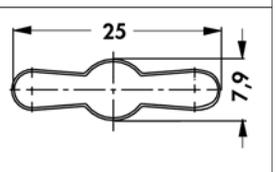
material: aluminium
surface treatment: black anodised

Aluminium oxide wafers → **E 9 – 9**
Heatsinks for D PAK → **C 19**
Heatsinks for transistors → **C 4 – 9**
Silicone wafers → **E 2 – 4**
Technical introduction → **A 2 - 7**
Mica wafers → **E 11**
U-shaped heatsink → **A 123 – 124**
Kapton insulator washers → **E 8**

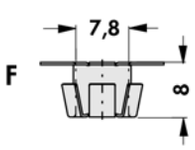
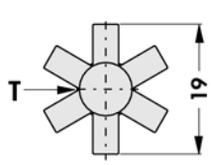
Clip-on heatsinks

art. no.				
KK 55			62 K/W TO 5	

material: aluminium
surface treatment: black anodised

art. no.				
KF 5/5			57 K/W TO 5	
art. no.				
KF 5/10			46 K/W TO 5	
art. no.				
KF 5/15			40 K/W TO 5	

material: brass
surface treatment: blackened

art. no.				
KK 562 GS			60 K/W TO 5	

T = gap; **F** = springy

material: special bronze Cu Zn 15
material thickness: 0.3 mm
surface treatment: blackened

Attachable heatsinks → **C 10 – 14**
Finger-shaped heatsinks → **C 2 – 3**
Heatsinks for D PAK → **C 19**
Heatsinks for transistors → **C 4 – 9**
Extruded heatsinks → **A 22 – 84**
Standard aluminium profiles → **A 135 – 136**
Heatsink profile-overview → **A 13 - 17**
Classification table → **A 18 - 20**

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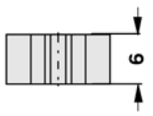
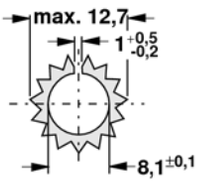
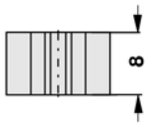
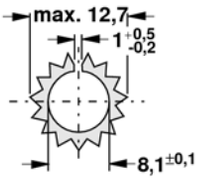
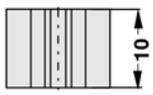
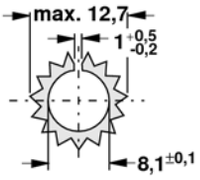
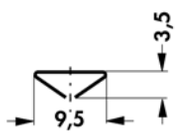
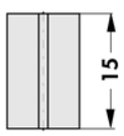
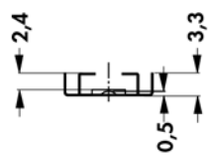
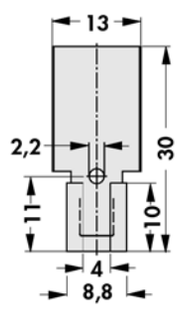
Clip-on heatsinks

art. no.				
SKK 56			63 K/W TO 5	
art. no.				
SKK 58			55 K/W TO 5	
art. no.				
SKK 510			44 K/W TO 5	

material: aluminium
surface treatment: etched (other surfaces on request)

art. no.				
KK 92			80 K/W TO 126 SOT 32 SOT 82	
art. no.				
KK 32			60 K/W TO 126 SOT 32 SOT 82	

material: special bronze Cu Zn 6
surface treatment: blackened

Extruded heatsinks → A 22 – 84
Heatsinks for transistors → C 4 – 9
Heatsinks for D PAK → C 19
Finger-shaped heatsinks → C 2 – 3
Attachable heatsinks → C 10 – 14
Standard aluminium profiles → A 135 – 136

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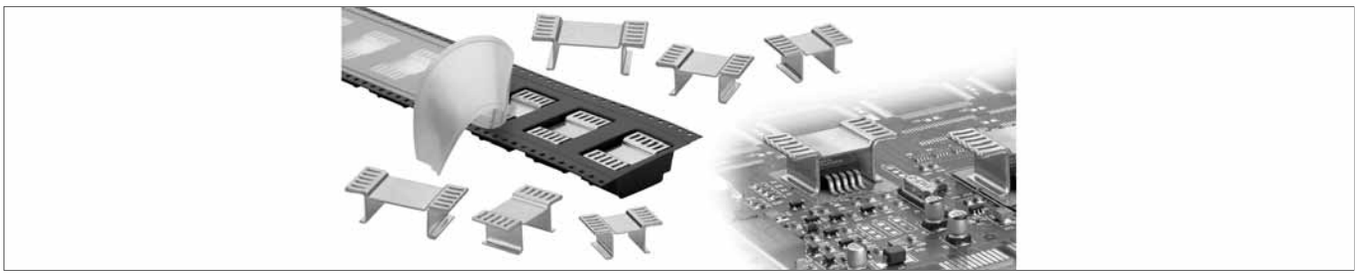
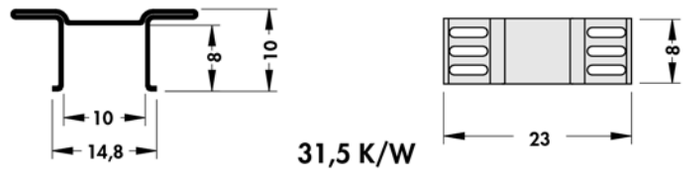
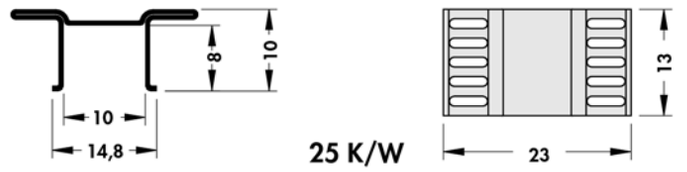
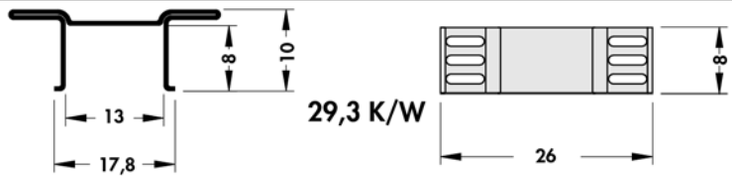
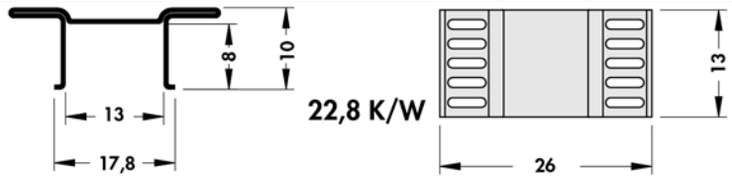
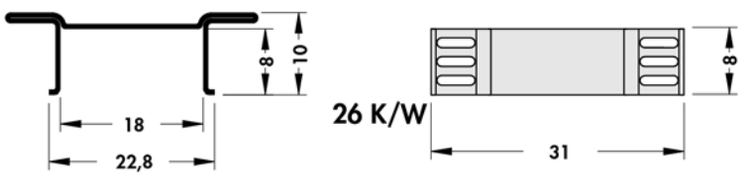
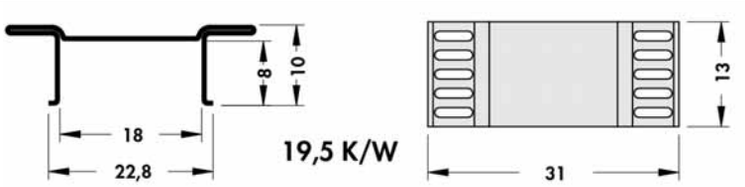
Heatsinks for D PAK and others



– copper heatsinks with excellent heat conductivity
– direct mounting on printed circuit through solderable surface
– especially suitable for SMD components of type D PAK (TO 252), D^2 PAK (TO 263), D^3 PAK (TO 268), SOT 669 LF PAK, SO IC-8 FL MP, Power SO-8, Power SO-10, Power SO-20, Power SO-36, SO-14, SO-16, SOT 223 etc
– available standard packing: loose parts or reel
– special packing like magazine, tray etc. on request; - special versions according to customers specifications
– **tape width**: 44 mm, **reel diameter**: 330 mm, **quantity**: FK 244 08 = 450, FK 244 13 = 200

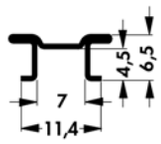
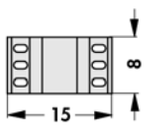
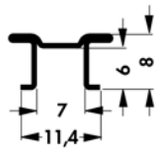
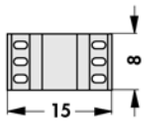
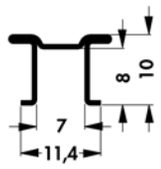
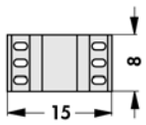
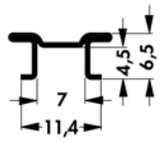
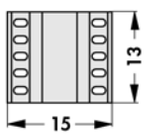
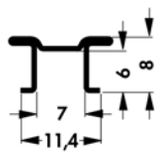
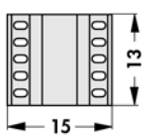
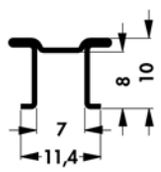
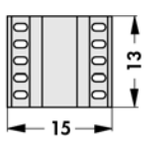
art. no.		
FK 244 08 D PAK ... weight: 2 g		
art. no.		
FK 244 13 D PAK ... weight: 3.3 g		
art. no.		
FK 244 08 D2 PAK ... weight: 2.2 g		
art. no.		
FK 244 13 D2 PAK ... weight: 3.6 g		
art. no.		
FK 244 08 D3 PAK ... weight: 2.5 g		
art. no.		
FK 244 13 D3 PAK ... weight: 3.9 g		
please indicate:	**... packing (option)** **TR=tape and reel**	

surface treatment: solderable
material: copper (Cu)
material thickness: 0.6 mm

Heatsinks for transistors → **C 4 – 9**
Heatsinks for TO 5 and TO 18 → **C 16 – 17**
Attachable heatsinks → **C 10 – 14**
Finger-shaped heatsinks → **C 2 – 3**
High capacity heatsinks → **A 57 – 58**
Designed parts out of aluminium → **A 135**
Heatsink profile-overview → **A 13 - 16**
Classification table → **A 18 - 20**

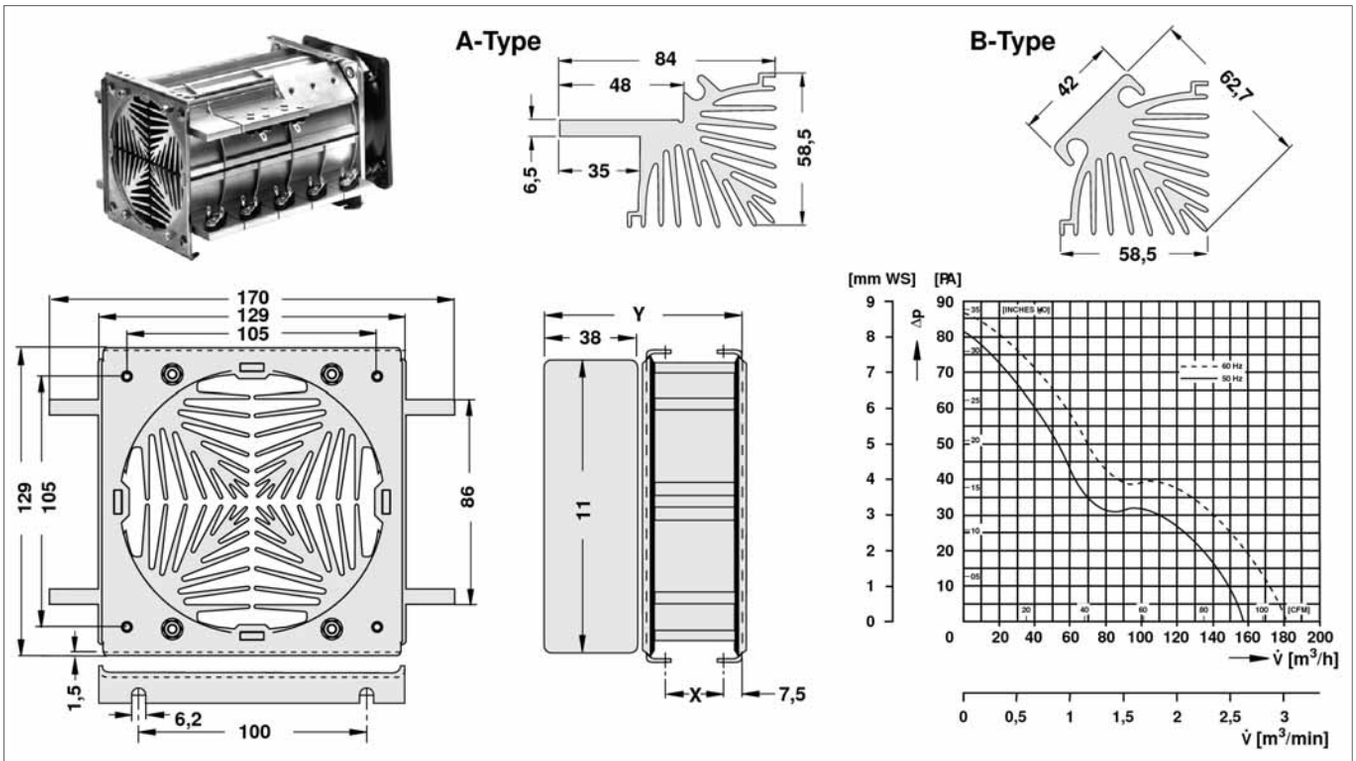
Heatsinks for D PAK and others

– **tape width**: 24 mm, **reel diameter**: 330 mm, **quantity**: FK 250 06 = 450, FK 250 08 = 450, FK 250 10 = 350
– **tape width**: 24 mm, **reel diameter**: 330 mm, **quantity**: FK 251 06 = 450, FK 251 08 = 350, FK 251 10 = 250

art. no.				
FK 250 06 LF PAK ... weight: 1 g			37 K/W	
art. no.				
FK 250 08 LF PAK ... weight: 1.1 g			34,8 K/W	
art. no.				
FK 250 10 LF PAK ... weight: 1.2 g			28,8 K/W	
art. no.				
FK 251 06 LF PAK ... weight: 1.3 g			32 K/W	
art. no.				
FK 251 08 LF PAK ... weight: 1.4 g			29,8 K/W	
art. no.				
FK 251 10 LF PAK ... weight: 1.5 g			24 K/W	
please indicate:	**... packing (option)** **TR=tape and reel**			

surface treatment: solderable
material: copper (Cu)
material thickness: 0.6 mm

Multi module cooling aggregates



art. no.	L [mm]	dim. [mm]	
		X	Y
LA 1 01 ...	35.0	26.0	88.6
LA 1 02 ...	71.5	62.5	125.1
LA 1 03 ...	108.0	99.0	161.6
LA 1 04 ...	144.5	135.5	198.1
LA 1 05 ...	181.0	172.0	234.6
LA 1 06 ...	217.5	208.5	271.1
LA 1 07 ...	254.0	245.0	307.6
LA 1 08 ...	290.5	281.5	344.1
LA 1 09 ...	327.0	318.0	380.6
LA 1 10 ...	363.5	354.5	417.1

... for A-types: please add an "A", for B-types: please add a "B".
L: unit lengths of the segments incl. insulation; **X**: mounting distance; **Y**: length of the cooling aggregate incl. fan
24 V DC fan on request
In case of order please use order form.
segments also available in meter length: **art. no. for A-type: LA 1 1000 A; art. no. for B-type: LA 1 1000 B**

Technical data of the fan

	... 230
type	ebmpapst, ball bearing
dimensions	119 x 119 x 38 mm
voltage	230 V AC
power input	19 W
max. air flow	160 m^3/h
temperature range	-40 °C ... +85 °C
noise level	47 dB(A)
rated speed	2,650 min^{-1}
weight	550 g
failure rate (L_{10})	L_{10} > 37.500 h (40 °C)

Other fan types and fan voltages on request.

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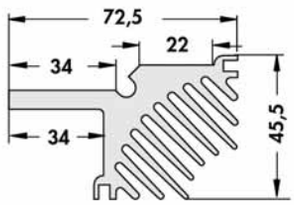
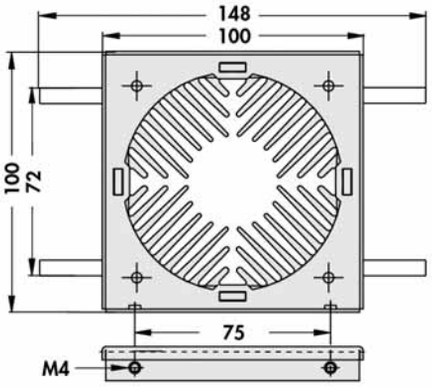
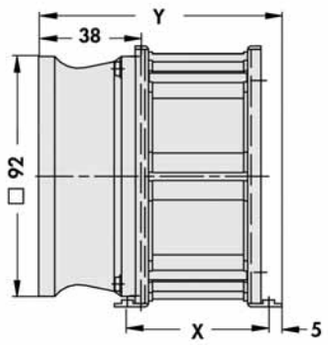
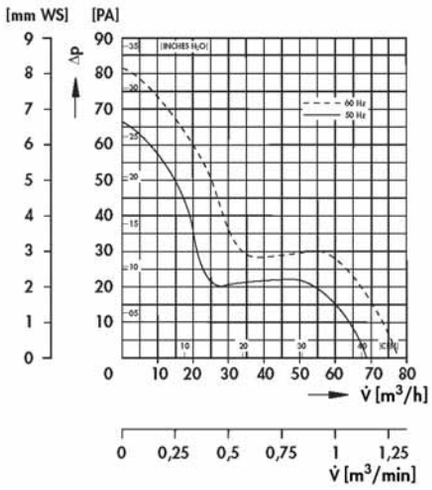
Multi module cooling aggregates









art. no.	L [mm]	dim. [mm]	
		X	Y
LA 2 01 ...	35.0	54.2	92.0
LA 2 02 ...	71.5	90.7	128.5
LA 2 03 ...	108.0	127.2	165.0
LA 2 04 ...	144.5	163.7	201.5
LA 2 05 ...	181.0	200.2	238.0
LA 2 06 ...	217.5	236.7	274.5
LA 2 07 ...	254.0	273.2	311.0
LA 2 08 ...	290.5	309.7	347.5
LA 2 09 ...	327.0	346.2	384.0
LA 2 10 ...	363.5	382.7	420.5

L: unit lengths of the segments incl. insulation; **X**: mounting distance; **Y**: length of the cooling aggregate incl. fan
24 V DC fan on request
In case of order please use order form.
segments also available in meter length: **art. no. for A-type: LA 1 1000 A; art. no. for B-type: LA 2 1000 B**

Technical data of the fan

	... 230
type	ebmpapst, ball bearing
dimensions	92 x 92 x 38 mm
voltage	230 V AC
power input	12 W
max. air flow	75 m^3/h
temperature range	-40 °C ... +75 °C
noise level	37 dB(A)
rated speed	2,700 min^{-1}
weight	420 g
failure rate (L_{10})	L_{10} > 52.500 h (40 °C)

Other fan types and fan voltages on request.

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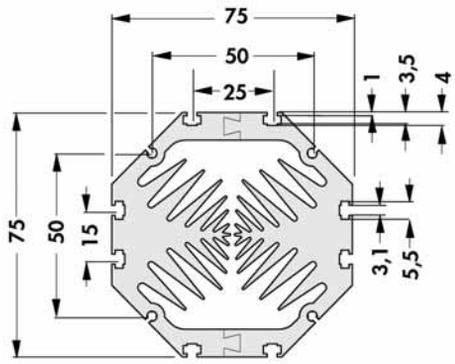
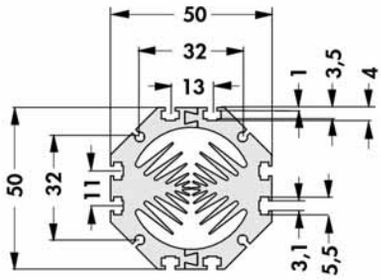
Miniature cooling aggregates

– made for dissipation of high power within an very small space
– approximate length is optimised to the fan motor
– slide-nut channels for M3 nuts for mounting the transistors and circuit boards

art. no.			
LAM 1		↔ 140 mm 0,3 K/W	
LAM 2		↔ 100 mm 0,73 K/W	

surface: clear anodised

Technical data of the fans

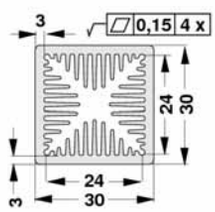
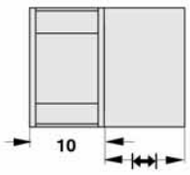
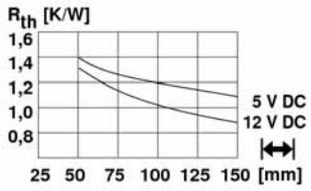
	LAM 1	**LAM 2**
type	ebmpapst 612 NHH-118	ebmpapst 412 F
dimensions	60 x 60 x 25 mm	40 x 40 x 10 mm
voltage	12 V DC	12 V DC
power input	2.9 W	0.7 W
max. air flow	56 m^3/h	8 m^3/h
temperature range	-20 °C ... +70 °C	-20 °C ... +70 °C
noise level	41 dB(A)	22.1 dB(A)
rated speed	6,800 min^{-1}	5,400 min^{-1}
weight	66 g	17 g
failure rate (L_{10})	L_{10} > 60.000 h (40 °C)	L_{10} > 45.000 h (20 °C)

Other fan types and fan voltages on request.

High capacity heatsinks → **A 57 – 58**
Special heatsink design → **A 133 - 134**
Hollow-fin cooling aggregates → **D 15 – 24**
Extruded heatsink-cooling aggregat. → **D 13**
Distance sleeves for PCB´s in HP grid → **E 31**
Screw mounted guide rails → **E 17 – 20**
Spacers → **E 32 – 33**
Kapton insulator washers → **E 8**

Miniature cooling aggregates

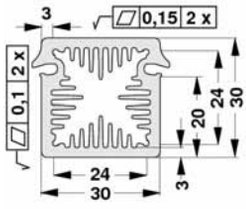
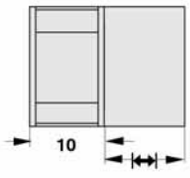
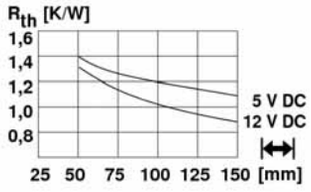
– compact design
– homogeneous heat dissipation
– mounting possible on any side
– powerful axial-fan motor

art. no.				
LAM 3 ...				

please indicate: **... ↔** **50 75 100 125 150 mm** **... fan type** **5 =5 V DC** **12=12 V DC**

other lengths, special designs and processing according to customers requirements
surface: clear anodised, other surface treatment on request!

– compact design
– homogeneous heat dissipation
– mounting possible on any side
– powerful axial-fan motor

art. no.				
LAM 3 K ...				

please indicate: **... ↔** **50 75 100 125 150 mm** **... fan type** **5 =5 V DC** **12=12 V DC**

other lengths, special designs and processing according to customers requirements
surface: clear anodised, other surface treatment on request!

Technical data of the fans

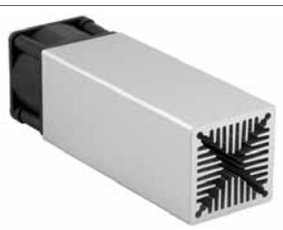
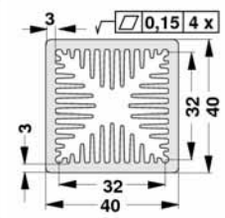
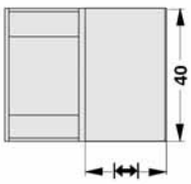
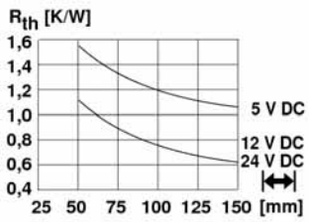
	... 5	**... 12**
type	Sepa, ball bearing	Sepa, ball bearing
dimensions	30 x 30 x 10 mm	30 x 30 x 10 mm
voltage	5 V DC	12 V DC
max. air flow	6.8 m^3/h	7.7 m^3/h
temperature range	-10 °C ... +70 °C	-10 °C ... +70 °C
cur. consumpt.	130 mA	70 mA
noise level	21 dB(A)	23 dB(A)
rated speed	8,500 min^{-1}	9,100 min^{-1}
weight	8 g	8 g
failure rate (L_{10})	L_{10} > 95.000 h (20 °C) MTBF > 280.000 h (20 °C)	L_{10} > 95.000 h (20 °C) MTBF > 280.000 h (20 °C)

Other fan types and fan voltages on request.

Hole pattern → **A 21**
Technical introduction → **A 2 - 7**
Fluid coolers → **A 131 – 133**
Lamella heatsinks → **A 129**
Insulting clamping parts → **E 38**
Mounting material for semiconduct. → **E 37 – 41**
Mounting pads for transistors → **E 40**
Thermal conductive material → **E 2 – 15**

Miniature cooling aggregates

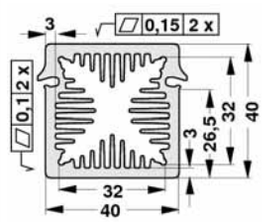
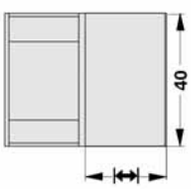
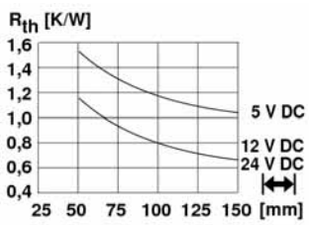
– compact design
– homogeneous heat dissipation
– mounting possible on any side
– powerful axial-fan motor

art. no.				
LAM 4 ...				

please indicate: **... ↔** **50 75 100 125 150 mm** **... fan type** **5 =5 V DC** **12=12 V DC** **24=24 V DC**

other lengths, special designs and processing according to customers requirements
surface: clear anodised, other surfaces treatment on request!

– mit Nute für Transistorhaltefeder THFU ➔ A 119...
– compact design
– homogeneous heat dissipation
– mounting possible on any side
– powerful axial-fan motor

art. no.				
LAM 4 K ...				

please indicate: **... ↔** **50 75 100 125 150 mm** **... fan type** **5 =5 V DC** **12=12 V DC** **24=24 V DC**

other lengths, special designs and processing according to customers requirements
surface: clear anodised, other surfaces treatment on request!

Technical data of the fans

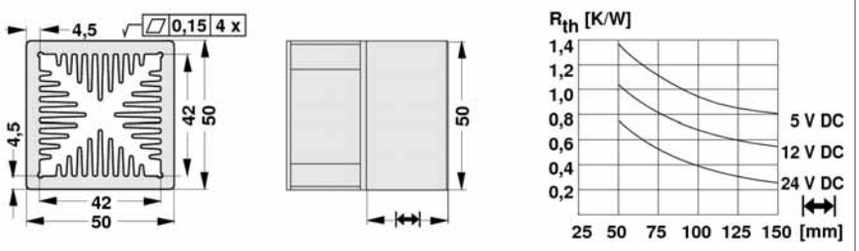
	... 5	**... 12**	**... 24**
type	ebmpapst 405	ebmpapst 412 JHH	ebmpapst 414 JHH
dimensions	40 x 40 x 20 mm	40 x 40 x 25 mm	40 x 40 x 25 mm
voltage	5 V DC	12 V DC	24 V DC
power input	0.9 W	3.3 W	3.6 W
max. air flow	10 m^3/h	24 m^3/h	24 m^3/h
temperature range	-20 °C ... +70 °C	-20 °C ... +60 °C	-20 °C ... +60 °C
noise level	18 dB(A)	46 dB(A)	46 dB(A)
rated speed	6,000 min^{-1}	13,000 min^{-1}	13,000 min^{-1}
weight	27 g	50 g	50 g
failure rate (L_{10})	L_{10} > 50.000 h (40 °C) L_{10} > 20.000 h (tmax)	L_{10} > 57.500 h (40 °C) L_{10} > 35.000 h (tmax)	L_{10} > 57.500 h (40 °C) L_{10} > 35.000 h (tmax)

Other fan types and fan voltages on request.

Thermal conductive material ➔ **E 2 – 15**
Mounting material for semiconduct. ➔ **E 37 – 41**
Mounting pads for transistors ➔ **E 40**
Lock-in transistor fixing spring ➔ **A 119**
Insulting clamping parts ➔ **E 38**
Fluid coolers ➔ **A 131 – 133**
Lamella heatsinks ➔ **A 129**

Miniature cooling aggregates

– compact design
– homogeneous heat dissipation
– mounting possible on any side
– powerful axial-fan motor

art. no.		
LAM 5 ...		

please indicate: **... ⟷** **50 75 100 125 150 mm**

... fan type
5 =5 V DC
12=12 V DC
24=24 V DC

other lengths, special designs and processing according to customers requirements
surface: clear anodised, other surfaces treatment on request!

Technical data of the fan

	... 5	**... 12**	**... 24**
type	Sepa, ball bearing	Sepa, ball bearing	ebmpapst
dimensions	50 x 50 x 10 mm	50 x 50 x 10 mm	50 x 50 x 15 mm
voltage	5 V DC	12 V DC	24 V DC
max. air flow	10.1 m^3/h	14.3 m^3/h	20 m^3/h
temperature range	-40 °C ... +80 °C	-40 °C ... +80 °C	-20 °C ... +70 °C
cur. consumpt.	50 mA	40 mA	42 mA
noise level	16 dB(A)	25 dB(A)	30 dB(A)
rated speed	3,500 min^{-1}	4,800 min^{-1}	5,000 min^{-1}
weight	19 g	19 g	25 g
failure rate (L_{10})	L_{10} > 95.000 h (20 °C) MTBF > 280.000 h (20 °C)	L_{10} > 95.000 h (20 °C) MTBF > 280.000 h (20 °C)	L_{10} 50.000 h (20 °C)
alarm output	mit	mit	–

Other fan types and fan voltages on request.

Thermal conductive material → **E 2 – 15**
Mounting material for semiconduct. → **E 37 – 41**
Mounting pads for transistors → **E 40**
Lock-in transistor fixing spring → **A 119**
Insulting clamping parts → **E 38**
Fluid coolers → **A 131 – 133**
Lamella heatsinks → **A 129**

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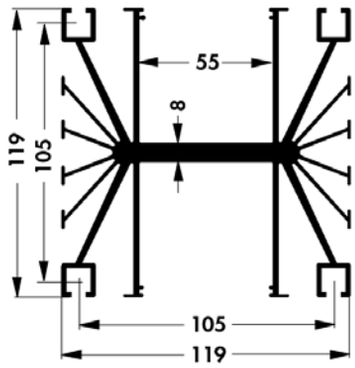
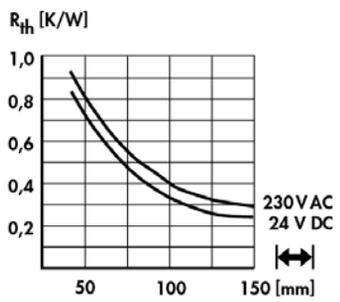
Cooling aggregates with axial fan

Heatsink-cooling aggregates

– especially suitable for IGBT, SSR, semiconductor modules, high performance transistors etc.
– effective construction with axial fans
– good thermic performance

art. no.			
LA 4 ...			
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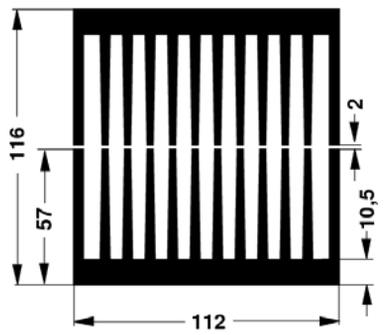
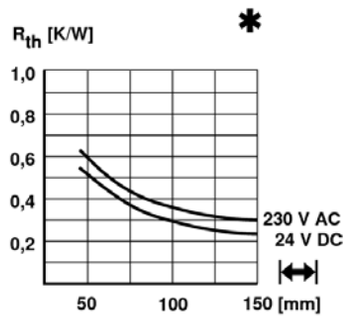
LA 5 ...			

please indicate: **... ↔** **75 100 150 mm** **... fan type** **24 =24 V DC** **230=230 V AC**

– * for one segment
– additional machining according to customer's instructions
– cooling aggregates also available without fans

Technical data of the fans

	... 24	... 230
type	ebmpapst, ball bearing	ebmpapst, ball bearing
dimensions	119 x 119 x 38 mm	119 x 119 x 38 mm
voltage	24 V DC	230 V AC
power input	11 W	19 W
max. air flow	237 m^3/h	160 m^3/h
temperature range	-30 °C ... +55 °C	-40 °C ... +85 °C
noise level	59 dB(A)	47 dB(A)
rated speed	4,400 min^{-1}	2,650 min^{-1}
weight	390 g	550 g
failure rate (L_{10})	L_{10} > 70.000 h (40 °C)	L_{10} > 37.500 h (40 °C)

Other fan types and fan voltages on request.

Cooling aggreg. in segment mount. → **D 5 – 7**
Miniature cooling aggregates → **D 9 – 11**
Protection grid for axial fans → **D 33**
High capacity cooling aggregat. → **D 25 – 28**
Extruded heatsinks → **A 22 – 84**
Cooling aggregates with radial fan → **D 30 – 32**
Heatsinks with hollow fin profile → **D 29**
Hollow-fin cooling aggregates → **D 15 – 24**

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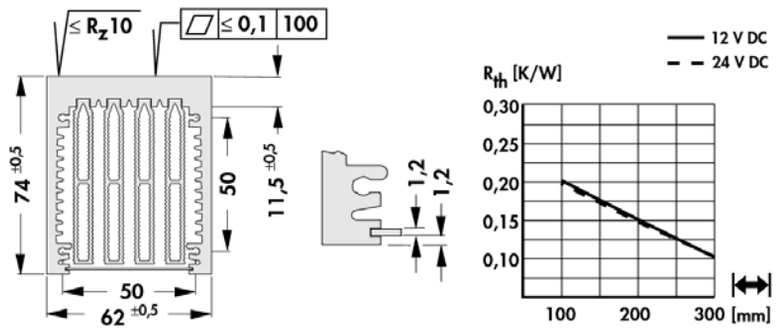
Cooling aggregates with axial fan

Hollow-fin cooling aggregates

- geometry of hollow fin opimising the air flow
- particularly effective heat dissipation
- compact construction
- semiconductor mounting surface for milled flat

art. no.		
LA 6 ...		
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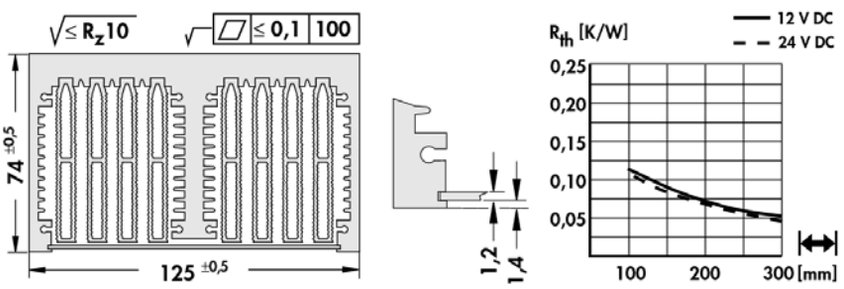
LA 7 ...		
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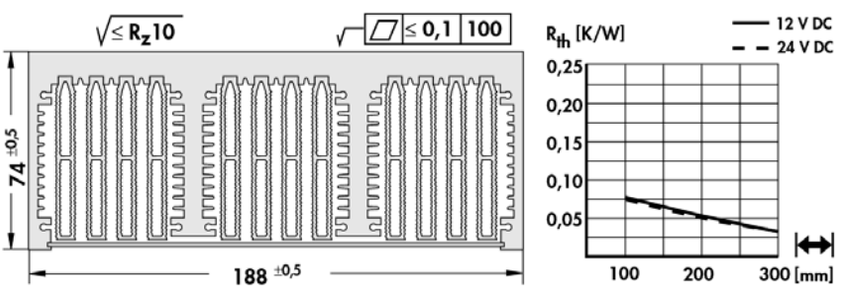
LA 8 ...		

please indicate: **... ↔** **100 150 200 250 300 mm** **··· fan type 12=12 V DC 24=24 V DC**

Technical data of the fans

	... 12	**... 24**
type	ebmpapst, ball bearing	ebmpapst, ball bearing
dimensions	60 x 60 x 25 mm	60 x 60 x 25 mm
voltage	12 V DC	24 V DC
power input	2.9 W	3 W
max. air flow	56 m^3/h	56 m^3/h
temperature range	-20 °C ... +70 °C	-20 °C ... +70 °C
noise level	41 dB(A)	41 dB(A)
rated speed	6,800 min^{-1}	6,850 min^{-1}
weight	66 g	66 g
failure rate (L_{10})	L_{10} > 60.000 h (40 °C)	L_{10} > 60.000 h (40 °C)

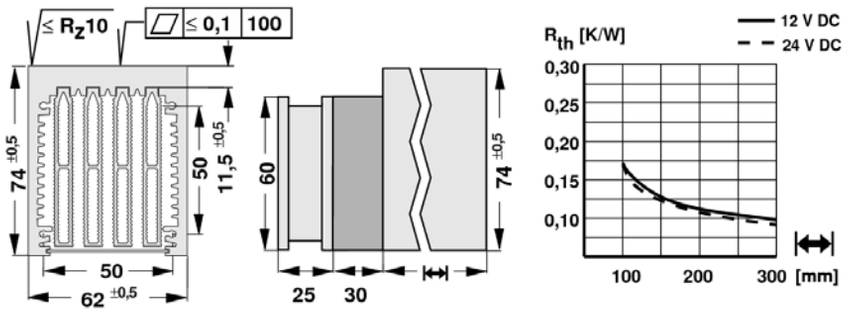
Other fan types and fan voltages on request.

Miniature cooling aggregates → **D 9 – 11**
Protection grid for axial fans → **D 33**
Heatsinks for Solid State Relay → **A 12**
High capacity heatsinks → **A 57 – 58**
Special heatsink design → **A 133 - 134**
Hole pattern → **A 21**
Standard aluminium profiles → **A 135 – 136**
Technical introduction → **A 2 - 7**

Cooling aggregates with axial fan

Hollow-fin cooling aggregates

- with air flow chamber
- geometry of hollow fin optimising the air flow
- particularly effective heat dissipation
- compact construction
- semiconductor mounting surface milled flat

art. no.		
LA V 6 ...		
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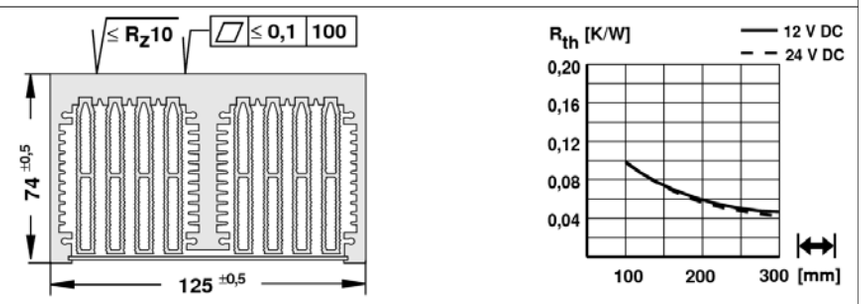
LA V 7 ...		
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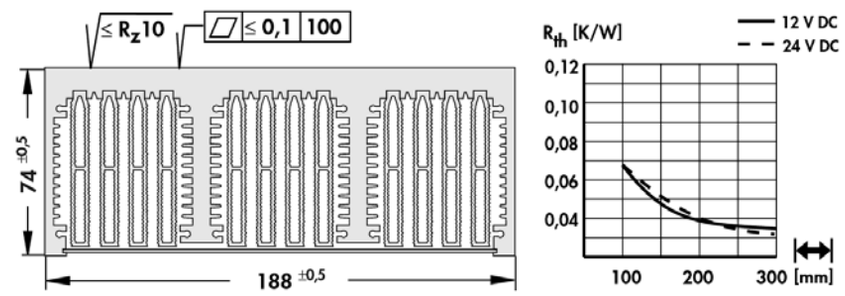
LA V 8 ...		

please indicate: **... ↔**

100 150 200 250 300 mm

... fan type

12=12 V DC

24=24 V DC

Technical data of the fans

	... 12	**... 24**
type	ebmpapst, ball bearing	ebmpapst, ball bearing
dimensions	60 x 60 x 25 mm	60 x 60 x 25 mm
voltage	12 V DC	24 V DC
power input	2.9 W	3 W
max. air flow	56 m³/h	56 m³/h
temperature range	-20 °C ... +70 °C	-20 °C ... +70 °C
noise level	41 dB(A)	41 dB(A)
rated speed	6,800 min^{-1}	6,850 min^{-1}
weight	66 g	66 g
failure rate (L_{10})	L_{10} > 60.000 h (40 °C)	L_{10} > 60.000 h (40 °C)

Other fan types and fan voltages on request.

Protection grid for axial fans → D 33
High capacity cooling aggregat. → D 25 – 28
Cooling aggregates with radial fan → D 30 – 32
Cooling aggreg. in segment mount. → D 5 – 7
Hole pattern → A 21
Silicone wafers → E 2 – 4
Thermal. conductive silicone foam foil → E 6
Mounting pads → E 39

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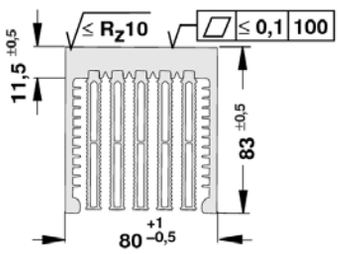
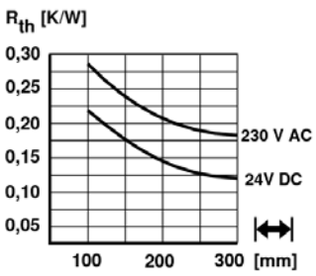
Cooling aggregates with axial fan

Hollow-fin cooling aggregates

- geometry of hollow fin opimising the air flow
- particularly effective heat dissipation
- compact construction
- semiconductor mounting surface for milled flat

art. no.			
LA 9 ...			
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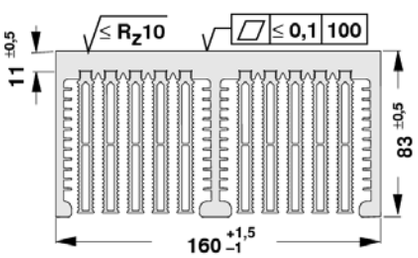
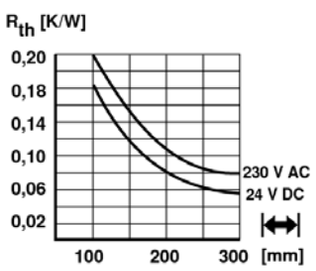
LA 10 ...			
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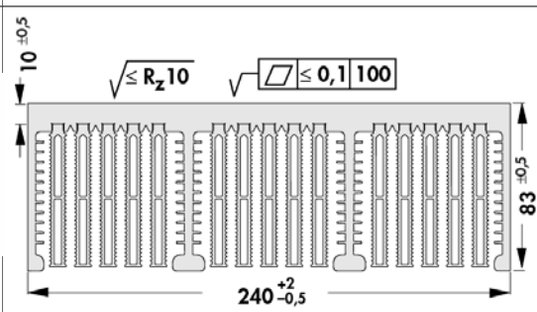
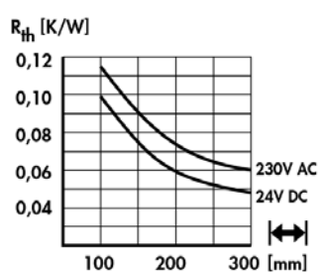
LA 11 ...			

please indicate: **... ↔**

100 150 200 250 300 mm

... fan type
24 =24 V DC
230=230 V AC

Technical data of the fans

	... 24	**... 230**
type	ebmpapst, ball bearing	ebmpapst, ball bearing
dimensions	80 x 80 x 32 mm	80 x 80 x 38 mm
voltage	24 V DC	230 V AC
power input	6 W	12 W
max. air flow	80 m^3/h	50 m^3/h
temperature range	-20 °C ... +75 °C	-40 °C ... +90 °C
noise level	48 dB(A)	31 dB(A)
rated speed	5,000 min^{-1}	2,800 min^{-1}
weight	170 g	480 g
failure rate (L_{10})	L_{10} > 55.000 h (40 °C)	L_{10} > 52.500 h (40 °C)

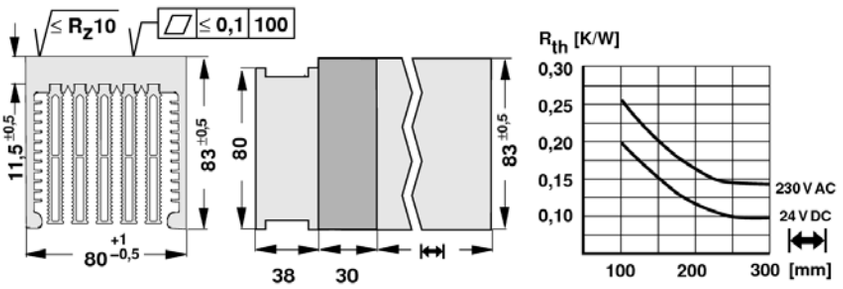
Other fan types and fan voltages on request.

Miniature cooling aggregates → **D 9 – 11**
Protection grid for axial fans → **D 33**
Heatsinks for Solid State Relay → **A 12**
High capacity heatsinks → **A 57 – 58**
Special heatsink design → **A 133 - 134**
Hole pattern → **A 21**
Standard aluminium profiles → **A 135 – 136**
Technical introduction → **A 2 - 7**

Cooling aggregates with axial fan

Hollow-fin cooling aggregates

– with air flow chamber
– geometry of hollow fin optimising the air flow
– particularly effective heat dissipation
– compact construction
– semiconductor mounting surface for milled flat

art. no.		
LA V 9 ...		
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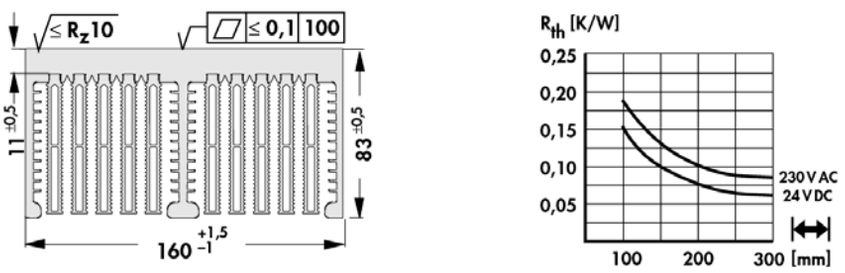
LA V 10 ...		
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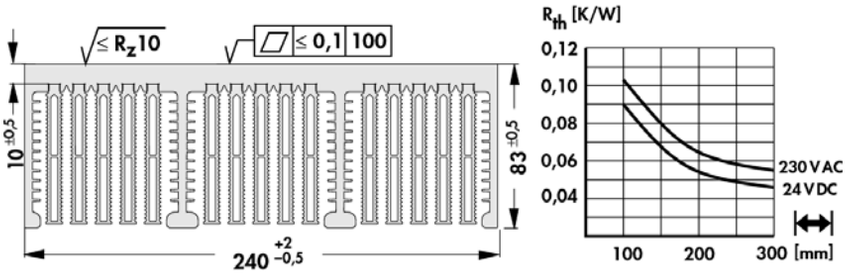
LA V 11 ...		

please indicate: **... ⟷** **100 150 200 250 300 mm** **... fan type** **24 =24 V DC** **230=230 V AC**

Technical data of the fans

	... 24	**... 230**
type	ebmpapst, ball bearing	ebmpapst, ball bearing
dimensions	80 x 80 x 32 mm	80 x 80 x 38 mm
voltage	24 V DC	230 V AC
power input	6 W	12 W
max. air flow	80 m³/h	50 m³/h
temperature range	-20 °C ... +75 °C	-40 °C ... +90 °C
noise level	48 dB(A)	31 dB(A)
rated speed	5,000 min^{-1}	2,800 min^{-1}
weight	170 g	480 g
failure rate (L_{10})	L_{10} > 55.000 h (40 °C)	L_{10} > 52.500 h (40 °C)

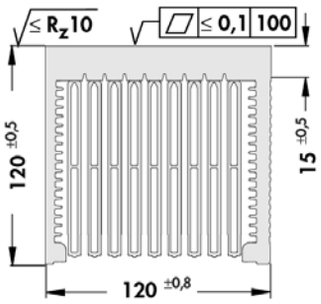
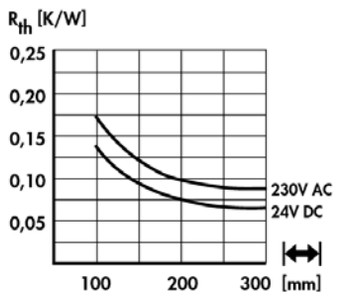
Other fan types and fan voltages on request.

Protection grid for axial fans → **D 33**
High capacity cooling aggregat. → **D 25 – 28**
Cooling aggregates with radial fan → **D 30 – 32**
Cooling aggreg. in segment mount. → **D 5 – 7**
Hole pattern → **A 21**
Silicone wafers → **E 2 – 4**
Thermal. conductive silicone foam foil → **E 6**
Mounting pads → **E 39**

Cooling aggregates with axial fan

Hollow-fin cooling aggregates

– extremly low losses due to optimised hollow fin geometry
– particularly effective heat dissipation
– compact design with axial fan
– semiconductor mounting surface for milled flat

art. no.			
LA 14 ...			
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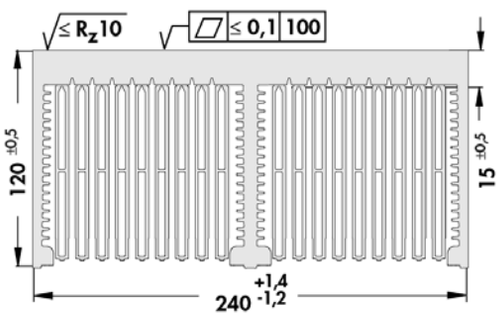
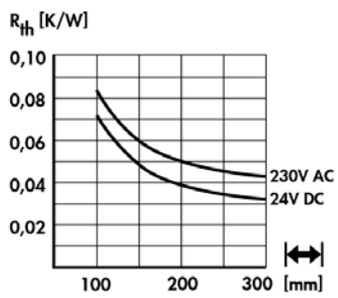
LA 15 ...			

please indicate: **... ↔** **100 150 200 250 300 400 mm** **··· fan type** **24 =24 V DC** **230=230 V AC**

addtional design to customer's intructions

Technical data of the fans

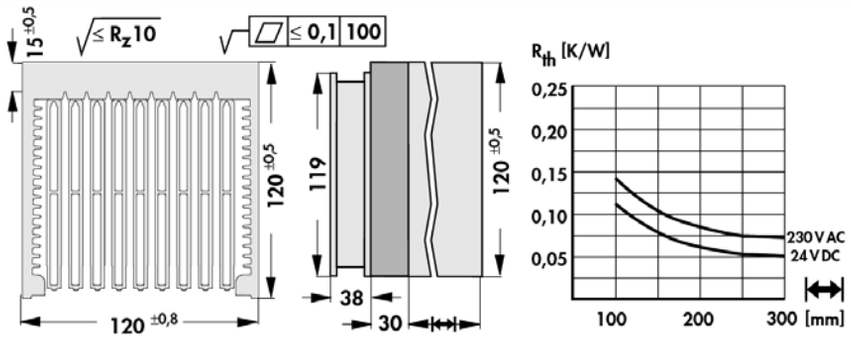
	... 24	**... 230**
type	ebmpapst, ball bearing	ebmpapst, ball bearing
dimensions	119 x 119 x 38 mm	119 x 119 x 38 mm
voltage	24 V DC	230 V AC
power input	11 W	19 W
max. air flow	237 m^3/h	160 m^3/h
temperature range	-30 °C ... +55 °C	-40 °C ... +85 °C
noise level	59 dB(A)	47 dB(A)
rated speed	4,400 min^{-1}	2,650 min^{-1}
weight	390 g	550 g
failure rate (L_{10})	L_{10} > 70.000 h (40 °C)	L_{10} > 37.500 h (40 °C)

Other fan types and fan voltages on request.

Cooling aggregates with axial fan

Hollow-fin cooling aggregates

– with air flow chamber
– extremly low losses due to optimised hollow fin geometry
– particularly effective heat dissipation
– compact design with axial fan
– semiconductor mounting surface for milled flat

art. no.		
LA V 14 ...		
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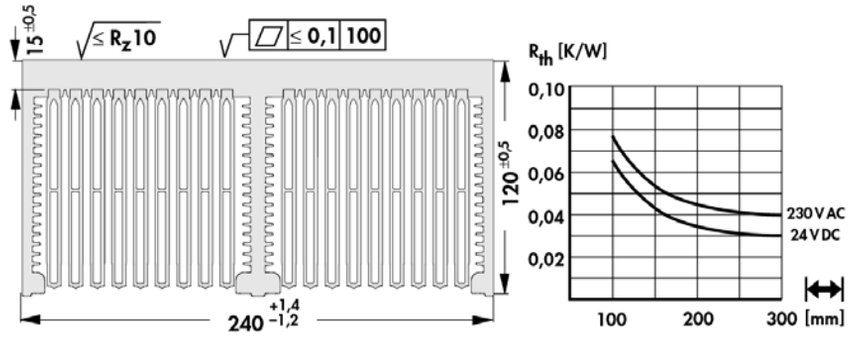
LA V 15 ...		

please indicate: **... ⟷**

100 150 200 250 300 400 mm

... fan type
24 =24 V DC
230=230 V AC

addtional design to customer's intructions on request

Technical data of the fans

	... 24	**... 230**
type	ebmpapst, ball bearing	ebmpapst, ball bearing
dimensions	119 x 119 x 38 mm	119 x 119 x 38 mm
voltage	24 V DC	230 V AC
power input	11 W	19 W
max. air flow	237 m^3/h	160 m^3/h
temperature range	-30 °C ... +55 °C	-40 °C ... +85 °C
noise level	59 dB(A)	47 dB(A)
rated speed	4,400 min^{-1}	2,650 min^{-1}
weight	390 g	550 g
failure rate (L_{10})	L_{10} > 70.000 h (40 °C)	L_{10} > 37.500 h (40 °C)

Other fan types and fan voltages on request.

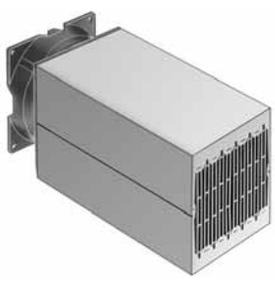
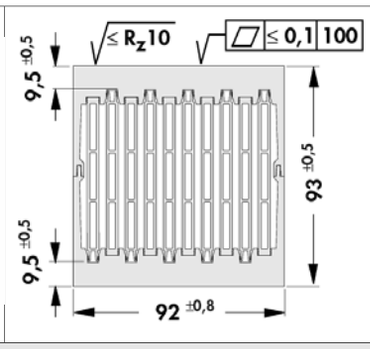
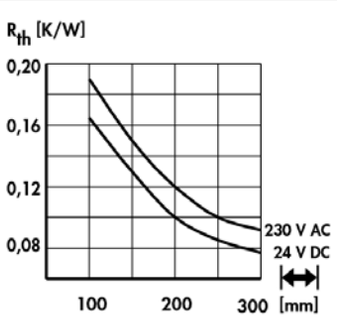
Protection grid for axial fans → **D 33**
High capacity cooling aggregat. → **D 25 – 28**
Cooling aggregates with radial fan → **D 30 – 32**
Cooling aggreg. in segment mount. → **D 5 – 7**
Hole pattern → **A 21**
Silicone wafers → **E 2 – 4**
Thermal. conductive silicone foam foil → **E 6**
Mounting pads → **E 39**

Cooling aggregates with axial fan

Hollow-fin cooling aggregates

- extremly low losses due to optimised hollow fin geometry
- effective heat dissipation
- compact construction with axial fans
- two oposite mounting surfaces are miled flat

without air flow chamber

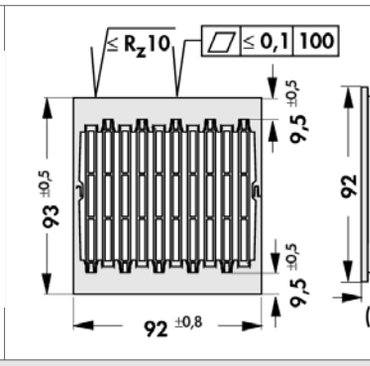
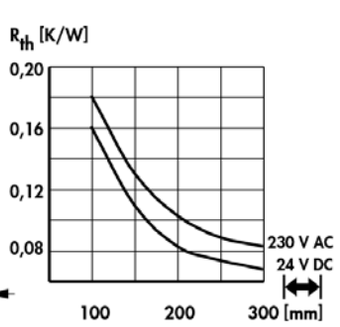
art. no.			
LA 21 ...			

please indicate: **... ↔**
100 150 200 250 300 400 mm

... fan type
24 =24 V DC
230=230 V AC

Additional treatment upon customer's request.

with air flow chamber

art. no.			
LA V 21 ...			

please indicate: **... ↔**
100 150 200 250 300 400 mm

... fan type
24 =24 V DC
230=230 V AC

Additional treatment upon customer's request.

Technical data of the fans

	... 24	**... 230**
type	ebmpapst, ball bearing	ebmpapst, ball bearing
dimensions	92 x 92 x 32 mm	92 x 92 x 38 mm
voltage	24 V DC	230 V AC
power input	5.3 W	12 W
max. air flow	107 m^3/h	75 m^3/h
temperature range	-20 °C ... +75 °C	-40 °C ... +75 °C
noise level	47 dB(A)	37 dB(A)
rated speed	4,000 min^{-1}	2,700 min^{-1}
weight	190 g	420 g
failure rate (L_{10})	L_{10} > 57.500 h (40 °C)	L_{10} > 52.500 h (40 °C)

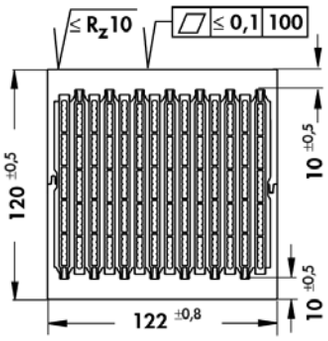
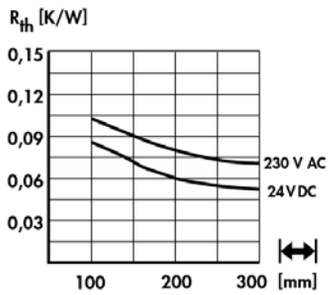
Other fan types and fan voltages on request.

Cooling aggregates with axial fan

Hollow-fin cooling aggregates

– extremly low losses due to optimised hollow fin geometry
– effective heat dissipation
– compact construction with axial fans
– two oposite mounting surfaces are miled flat

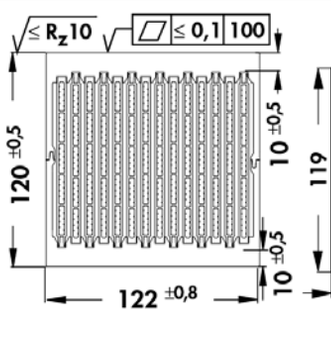
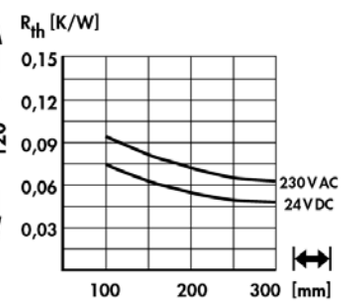
without air flow chamber

art. no.			
LA 17 ...			

please indicate: **... ⟷** **100 150 200 250 300 400 mm** **... fan type** **24 =24 V DC** **230=230 V AC**

additional treatment upon customer's request

with air flow chamber

art. no.			
LA V 17 ...			

please indicate: **... ⟷** **100 150 200 250 300 400 mm** **... fan type** **24 =24 V DC** **230=230 V AC**

additional treatment upon customer's request

Protection grid for axial fans → **D 33**
High capacity cooling aggregat. → **D 25 – 28**
Cooling aggregates with radial fan → **D 30 – 32**
Cooling aggreg. in segment mount. → **D 5 – 7**
Hole pattern → **A 21**
Silicone wafers → **E 2 – 4**
Thermal. conductive silicone foam foil → **E 6**
Mounting pads → **E 39**

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Cooling aggregates with axial fan

Technical data of the fans

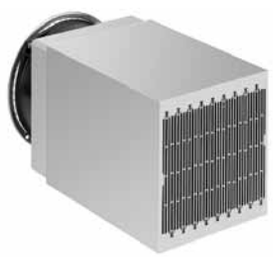
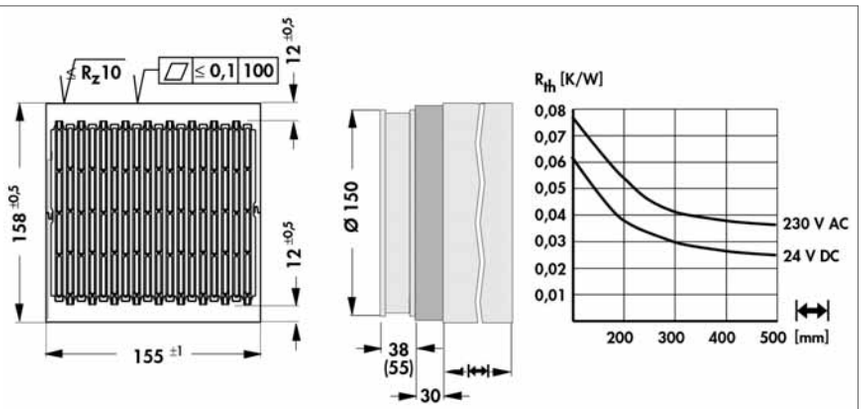
	... 24	**... 230**
type	ebmpapst, ball bearing	ebmpapst, ball bearing
dimensions	119 x 119 x 38 mm	119 x 119 x 38 mm
voltage	24 V DC	230 V AC
power input	11 W	19 W
max. air flow	237 m^3/h	160 m^3/h
temperature range	-30 °C ... +55 °C	-40 °C ... +85 °C
noise level	59 dB(A)	47 dB(A)
rated speed	4,400 min^{-1}	2,650 min^{-1}
weight	390 g	550 g
failure rate (L_{10})	L_{10} > 70.000 h (40 °C)	L_{10} > 37.500 h (40 °C)

Other fan types and fan voltages on request.

Cooling aggregates with axial fan

Hollow-fin cooling aggregates

– with air flow chamber
– extremly low losses due optimised hollow fin geometry
– especially effective heat dissipation
– compact construction with axial fans
– two oposite mounting surfaces are miled flat

art. no.		
LA V 24 ...		

please indicate: **... ↔**
200 300 400 mm

... fan type
24 =24 V DC
230=230 V AC

additional treatment upon customer's request

Technical data of the fans

	... 24	**... 230**
type	ebmpapst, ball bearing, with grid	ebmpapst, ball bearing, with grid
dimensions	⌀ 150 x 38 mm	⌀ 150 x 55 mm
voltage	24 V DC	230 V AC
power input	19 W	47 W
max. air flow	420 m^3/h	390 m^3/h
temperature range	-25 °C ... +72 °C	-30 °C ... +60 °C
noise level	59 dB(A)	58 dB(A)
rated speed	3,350 min^{-1}	2,700 min^{-1}
weight	620 g	1,100 g
failure rate (L_{10})	L_{10} > 75.000 h (40 °C)	L_{10} > 40.000 h (40 °C)

Other fan types and fan voltages on request.

Miniature cooling aggregates → **D 9 – 11**
Protection grid for axial fans → **D 33**
Heatsinks for Solid State Relay → **A 12**
High capacity heatsinks → **A 57 – 58**
Special heatsink design → **A 133 - 134**
Hole pattern → **A 21**
Standard aluminium profiles → **A 135 – 136**
Technical introduction → **A 2 - 7**

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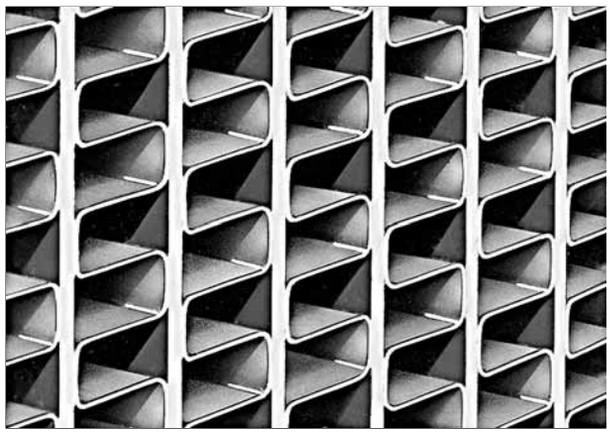
Cooling aggregates with axial fan

High performance cooling aggregate

– extremely low losses of air flow as compared to cooling aggregates with extruded aluminium
– compact dimensions, that means high performance density due to large heat-conducting surfaces
– maximum heat flow due to brazing or thermal adhesion
– high performance cooling aggregates are only effective with forced ventilation by means of the fan, but not with free convection



material: solder-plated aluminium sheet, thus minimal weight due to the thickness of the material

An optimised unit for any application can be produced from the wide range of existing components upon request.
The specific capacity will be determinated by a test run upon customer´s request.

Technical data of the fan

	... 230
type	ebmpapst, ball bearing
dimensions	119 x 119 x 38 mm
voltage	230 V AC
power input	19 W
max. air flow	160 m^3/h
temperature range	-40 °C ... +85 °C
noise level	47 dB(A)
rated speed	2,650 min^{-1}
weight	550 g
failure rate (L_{10})	L_{10} > 37.500 h (40 °C)

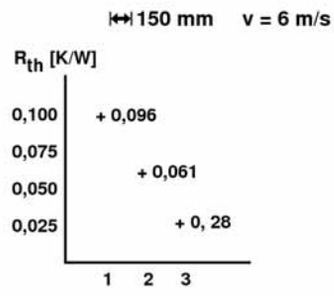
Other fan types and fan voltages on request.

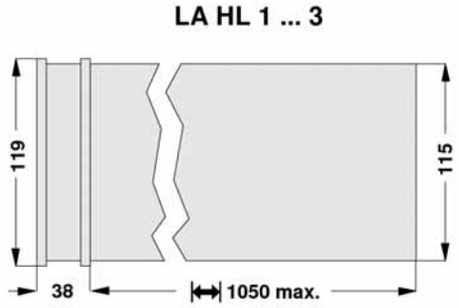
Cooling aggregates with radial fan → **D 30 – 32**
Heatsinks with hollow fin profile → **D 29**
Hollow-fin cooling aggregates → **D 15 – 24**
Extruded heatsink-cooling aggregat. → **D 13**
Protection grid for axial fans → **D 33**
Cooling aggreg. in segment mount. → **D 5 – 7**
Miniature cooling aggregates → **D 9 – 11**
Thermal conductive material → **E 2 – 15**

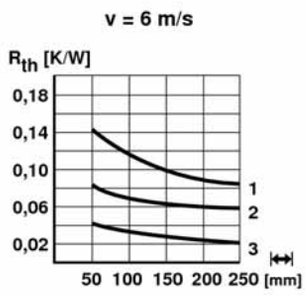
Cooling aggregates with axial fan

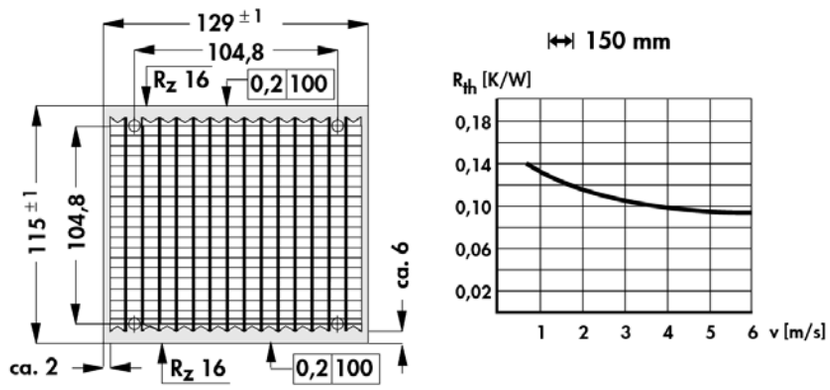
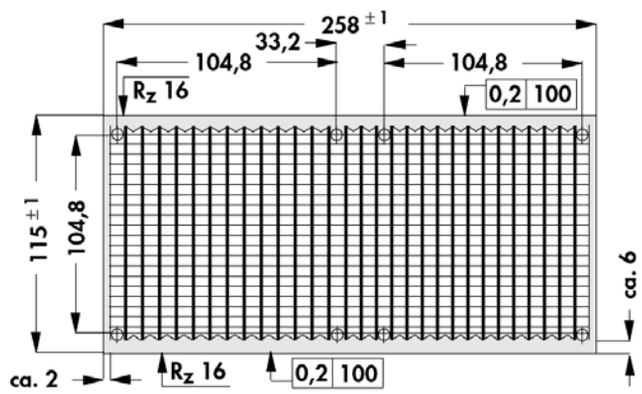
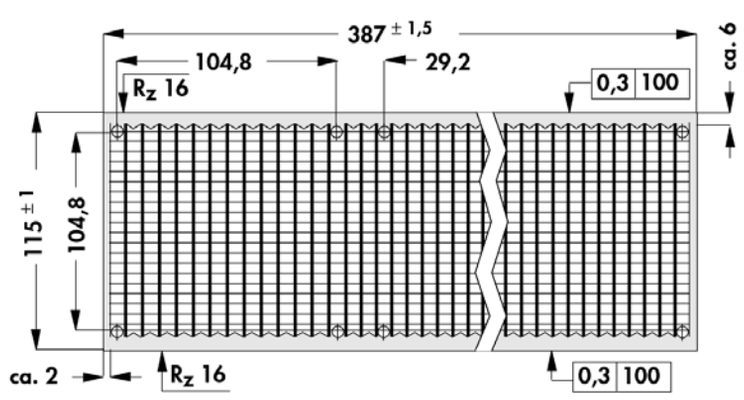
High performance cooling aggregate

without air flow chamber







art. no.		
LA HL 1 ...		
art. no.		
LA HL 2 ...		
art. no.		
LA HL 3 ...		

please indicate: ... ⟷

100 150 200 250 300 400 mm

Special heatsink design	→ A 133 - 134	Cooling aggregates with radial fan	→ D 30 – 32
Lamella heatsinks	→ A 129	Order example	→ A 21
Heatsinks for Solid State Relay	→ A 11 - 12	Miniature cooling aggregates	→ D 9 – 11
Technical introduction	→ A 2 - 7	Protection grid for axial fans	→ D 33

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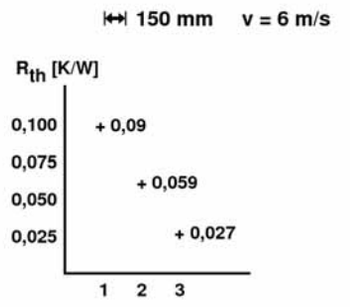
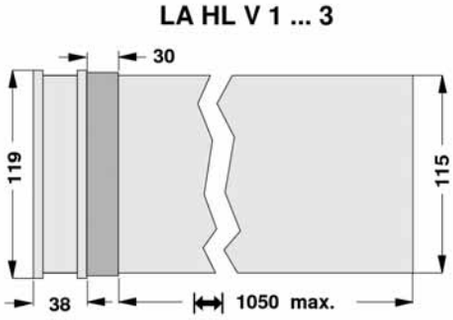
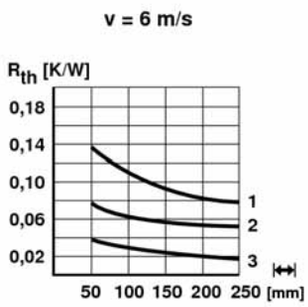
Cooling aggregates with axial fan

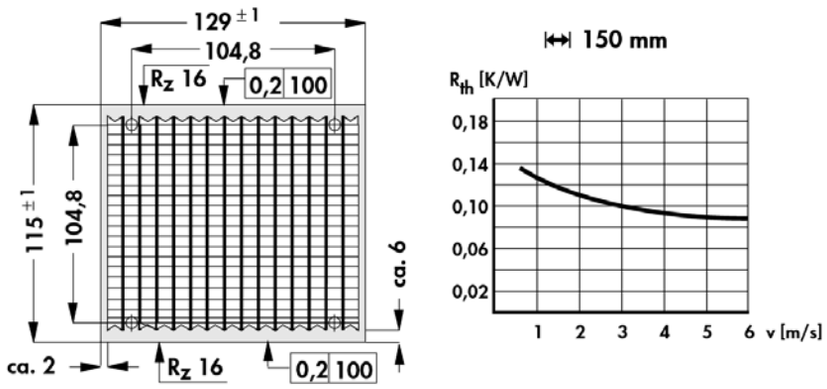
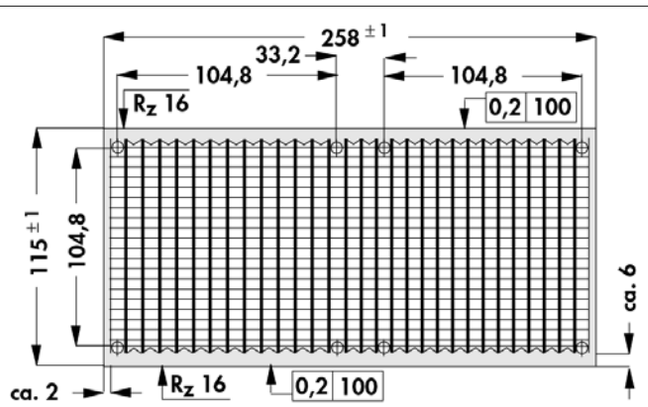
High performance cooling aggregate

with air flow chamber







art. no.		
LA HLV 1 ...		
art. no.		
LA HLV 2 ...		
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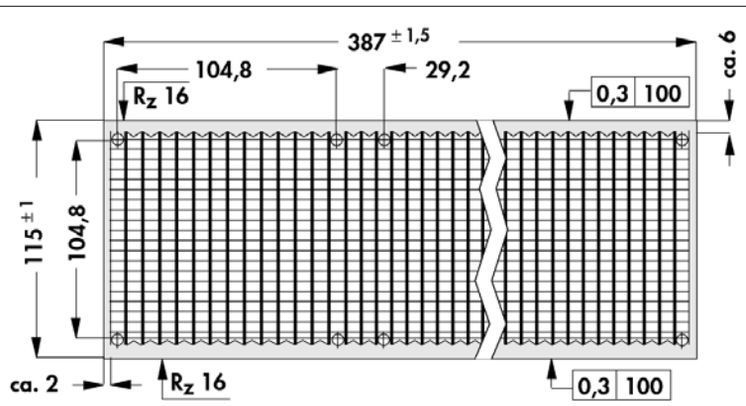
LA HLV 3 ...		

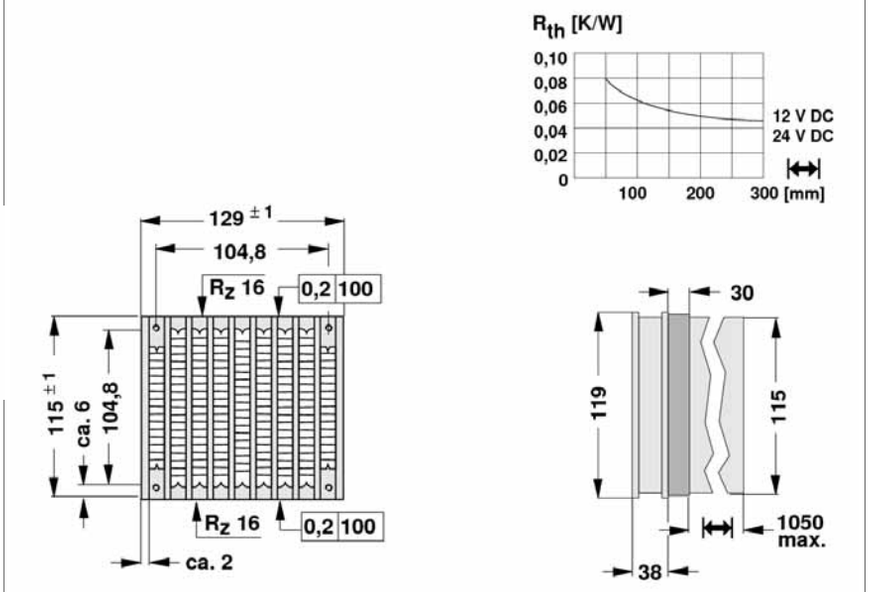
please indicate: ... ↔

100 150 200 250 300 400 mm

Special heatsink design → A 133 - 134
Lamella heatsinks → A 129
Heatsinks for Solid State Relay → A 11 - 12
Technical introduction → A 2 - 7
Cooling aggregates with radial fan → D 30 – 32
Order example → A 21
Miniature cooling aggregates → D 9 – 11
Protection grid for axial fans → D 33

Cooling aggregates with axial fan

– high performance cooling aggregate
– innovative, efficient heatsink design
– thick web plates for maximum heat dissipation
– specially formed laminated structures ensure optimum heat exchange with the air flow
– newly developed powerful mixed axial fan for highly effcient heat dissipation
– reduced noise output achieved by an optimised adaption of fan motor and heatsink

art. no.		
LAHL D 1 ...		

please indicate: **... ↔**
100 150 200 250 300 400 mm

... fan type
12=12 V DC
24=24 V DC

additional treatment and modifications upon customer's request
other versions (double, triple) will follow

Technical data of the fans

	... 12	**... 24**
type	ebmpapst, ball bearing, with grid	ebmpapst, ball bearing, with grid
dimensions	119 x119 x 38 mm	119 x119 x 38 mm
voltage	12 V DC	24 V DC
power input	19.5 W	19.5 W
max. air flow	310 m^3/h	310 m^3/h
temperature range	-20 °C ... +65 °C	-20 °C ... +65 °C
noise level	65 dB(A)	65 dB(A)
rated speed	6,000 min^{-1}	6,000 min^{-1}
weight	390 g	390 g
failure rate (L_{10})	L_{10} > 65.000 h (40 °C) L_{10} > 37.500 h (65 °C)	L_{10} > 65.000 h (40 °C) L_{10} > 37.500 h (65 °C)

Other fan types and fan voltages on request.

Special heatsink design → **A 133 - 134**
Lamella heatsinks → **A 129**
Heatsinks for Solid State Relay → **A 11 - 12**
Technical introduction → **A 2 - 7**
Cooling aggregates with radial fan → **D 30 – 32**
Order example → **A 21**
Miniature cooling aggregates → **D 9 – 11**
Protection grid for axial fans → **D 33**

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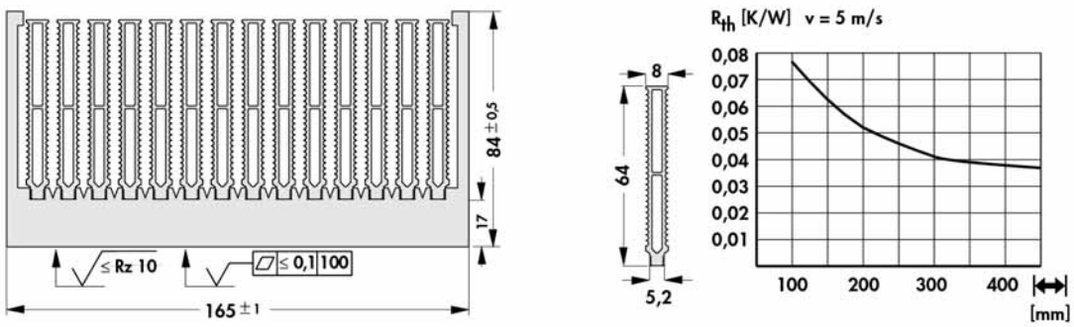
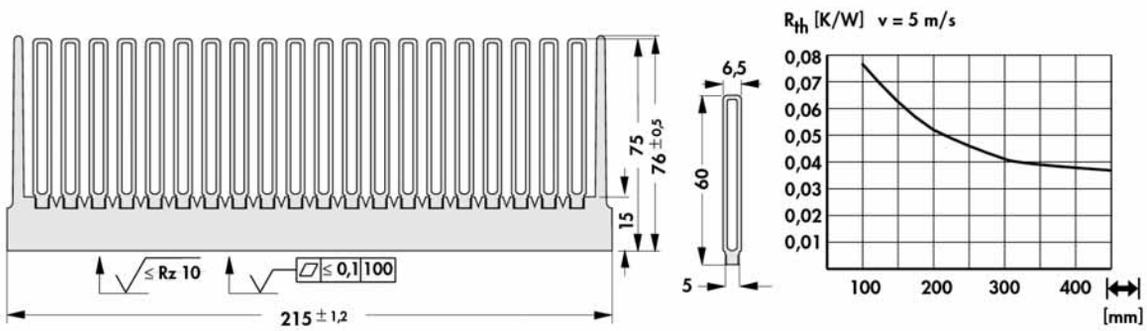
High-performance heatsinks

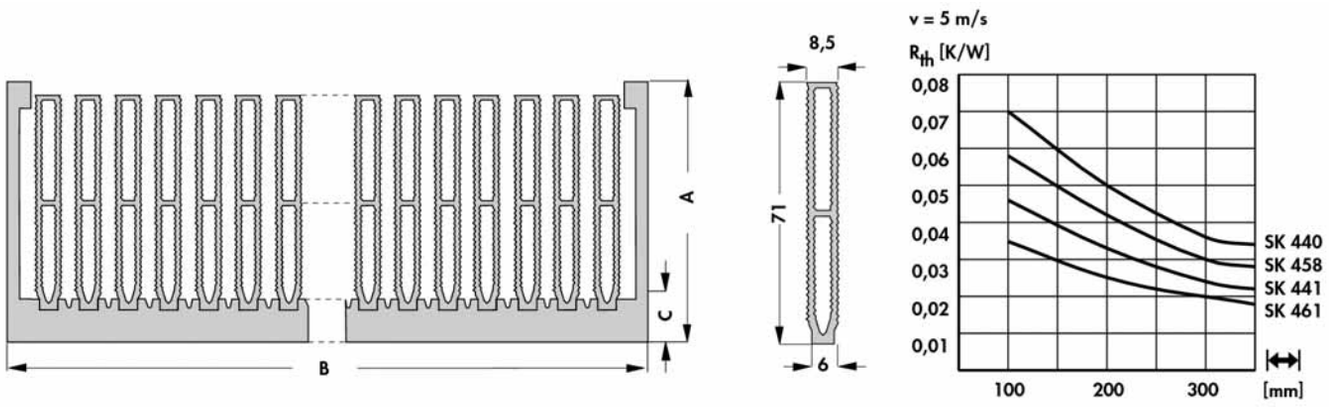
High performance heatsinks with hollow-fin profile

- high performance heatsinks for fan operation
- exclusively for forced convection
- preferably for radial or tangential fans
- hollow fin geometry optimises the air flow
- particularly effective heat dissipation
- flat milled base (except length 1000 mm)

art. no.	
SK 497 ...	
art. no.	
SK 498 ...	

please indicate: **... ↔**
150 200 250 300 1000 mm

··· surface treatment
AL=raw degreased aluminium
SA=black anodised



art. no.	number of fins	dim. [mm]		
		A	B	C
SK 440 ...	15	84 ±1	200 ±1.2	16
SK 458 ...	19	84 ±1	250 ±1.4	16
SK 441 ...	23	84 ±1	300 ±1.6	16
SK 461 ...	31	88 ±1	400 ±2.0	20

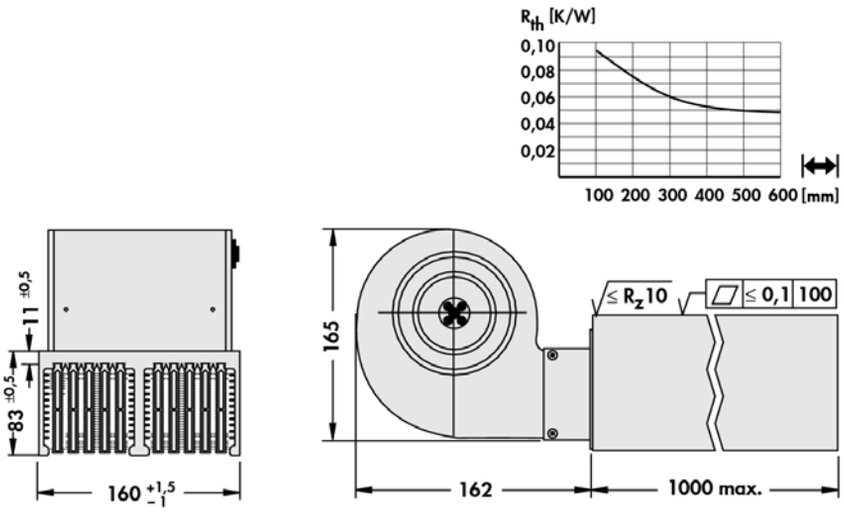
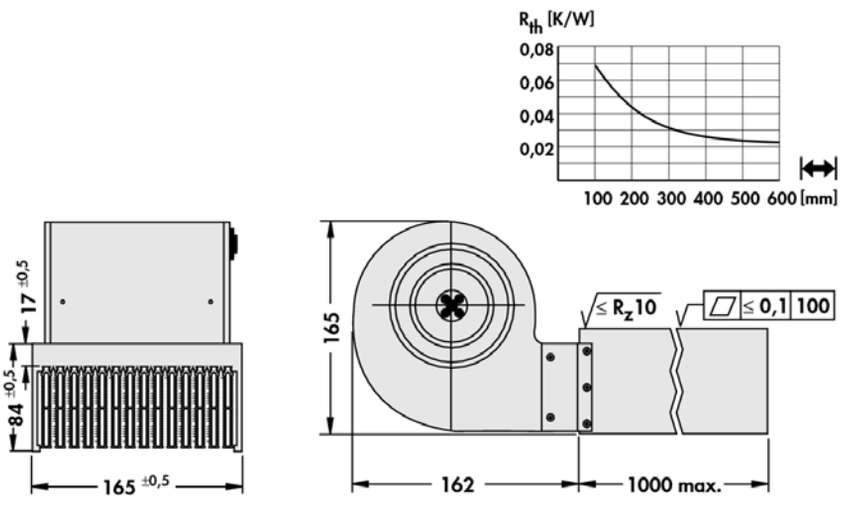
please indicate: **... ↔**
150 200 300 1000 mm

··· surface treatment
AL=raw degreased aluminium
SA=black anodised

High capacity cooling aggregat. → **D 25 – 28**
Cooling aggregates with radial fan → **D 30 – 32**
Heatsinks with hollow fin profile → **D 29**
Hollow-fin cooling aggregates → **D 15 – 24**
Extruded heatsink-cooling aggregat. → **D 13**
Cooling aggreg. in segment mount. → **D 5 – 7**
Miniature cooling aggregates → **D 9 – 11**
Order example → **D 7**

Cooling aggregates with radial fan

– high performance cooling aggregate
– optimised air flow due to hollow fin geometrie
– very good thermic performance
– optimized high performance construction with radial fan
– mounting surface for semiconductor milled flat

art. no.		
LA 25 ...		
art. no.		
LA 26 ...		

please indicate: **... ⟷**

200 300 400 500 600 mm

cover plate for fin side upon request
additional customized treatment upon request
motor condenser: **art. no. LAHLR K 2**

Technical data of the fan

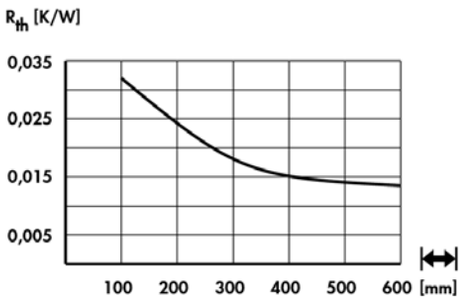
type	ebmpapst, radial blower with grid, double sided absorbtion
bearing type	ball bearing
discharge air flow	435 m^3/h
rotation speed	1,950 min^{-1}
power input	87 W
current consumption	0.39 A
temperature range	-25 °C ... +40 °C
circuit voltage	230 V AC
motor condenser	2_400V
acoustic level	58 db(A)
weight	1,500 g

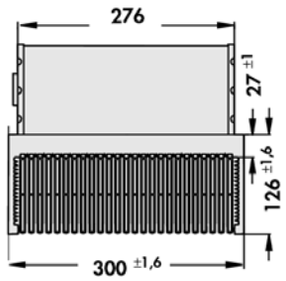
Heatsinks for Solid State Relay → **A 12**
Die-cast heatsinks → **A 125**
High capacity heatsinks → **A 57 – 58**
Special heatsink design → **A 133 - 134**
Technical introduction → **A 2 - 7**
Lamella heatsinks → **A 129**
Hole pattern → **A 21**

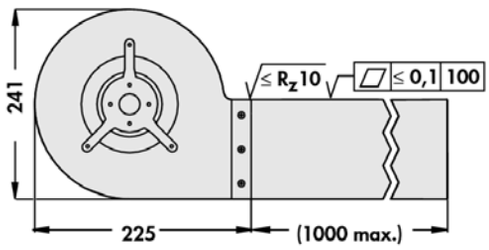
Cooling aggregates with radial fan

- high performance cooling aggregate
- optimised air flow due to hollow fin geometrie
- very good thermic performance
- optimized high performance construction with radial fan
- mounting surface for semiconductor milled flat

art. no.	
LA 20 ...	







please indicate: ... ↔

200 300 400 500 600 mm

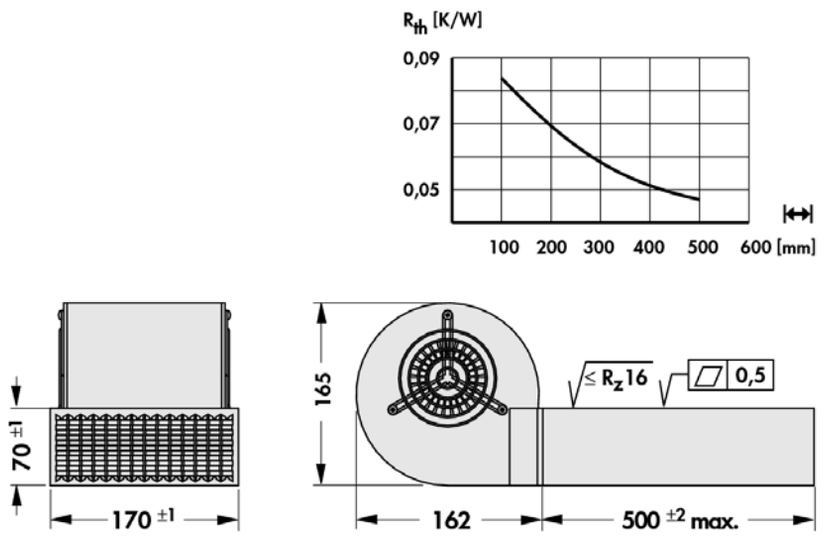
additional customized treatment upon request
cooling aggregate also available without radial fan
cover plate for fan side upon request
motor condenser: **art. no. LA 20 K 6**

Technical data of the fan

type	ebmpapst, radial blower with grid, double sided absorbtion
bearing type	ball bearing
discharge air flow	1,310 m^3/h
rotation speed	1,350 min^{-1}
power input	185 W
current consumption	0.81 A
temperature range	-25 °C ... +70 °C
circuit voltage	230 V AC
motor condenser	6 µF
acoustic level	64 db(A)
weight	5,900 g

Cooling aggregates with radial fan

high performance cooling aggregate

art. no.		
LAHLR 1 500		

other lengths upon request
motor condenser: **art. no. LAHLR K 2**

Technical data of the cooling element

construction	solid frame construction with inner animation and carrier plates, thermally connected by soldering
weight	6,300 g
material	aluminium alloy
surface treatment	blanc, milled flat

Technical data of the fan

type	ebmpapst, radial blower with grid, double sided absorbtion
bearing type	ball bearing
discharge air flow	435 m^3/h
rotation speed	1,950 min^{-1}
power input	87 W
current consumption	0.39 A
temperature range	-25 °C ... +40 °C
circuit voltage	230 V AC
motor condenser	2_400V
acoustic level	58 db(A)
weight	1,500 g

Heatsinks for Solid State Relay → **A 12**
Die-cast heatsinks → **A 125**
High capacity heatsinks → **A 57 – 58**
Technical introduction → **A 2 - 7**
Special heatsink design → **A 133 - 134**
Lamella heatsinks → **A 129**
Hole pattern → **A 21**

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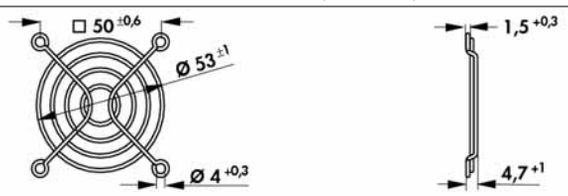
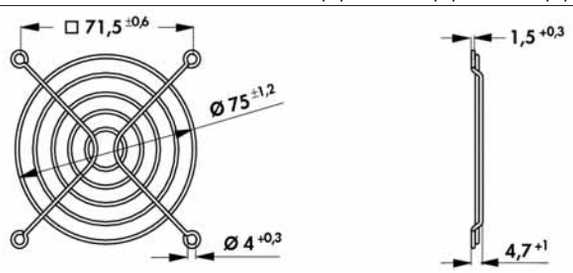
Protection grid for fans

protection against contact as per EN 294; **aerodynamic contruction**; minimized noise modification; **only low modification of the air flow**

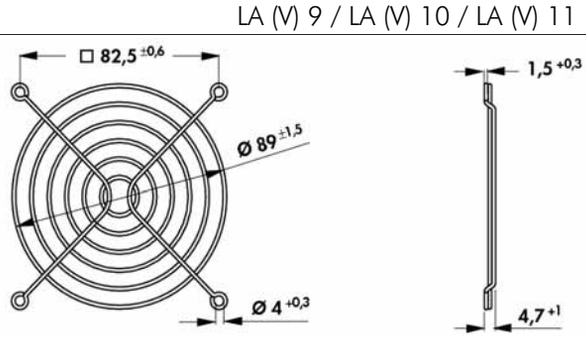
art. no.	suitable for cooling aggregate
LAGI 40	LAM 2/ LAM 4/ LAM 4 K



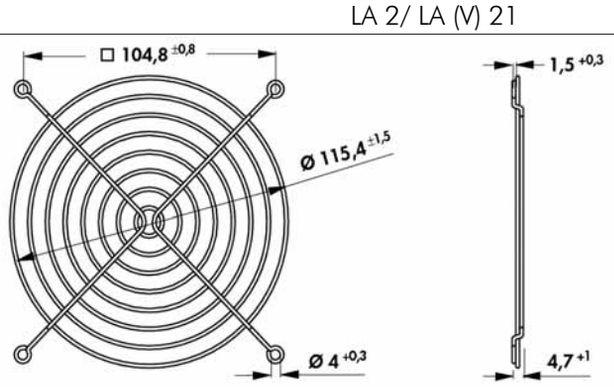
art. no.	suitable for cooling aggregate
LAGI 60	LAM 1/ LA (V) 6 / LA (V) 7 / LA (V) 8



art. no.	suitable for cooling aggregate
LAGI 80	LA (V) 9 / LA (V) 10 / LA (V) 11



art. no.	suitable for cooling aggregate
LAGI 92	LA 2/ LA (V) 21

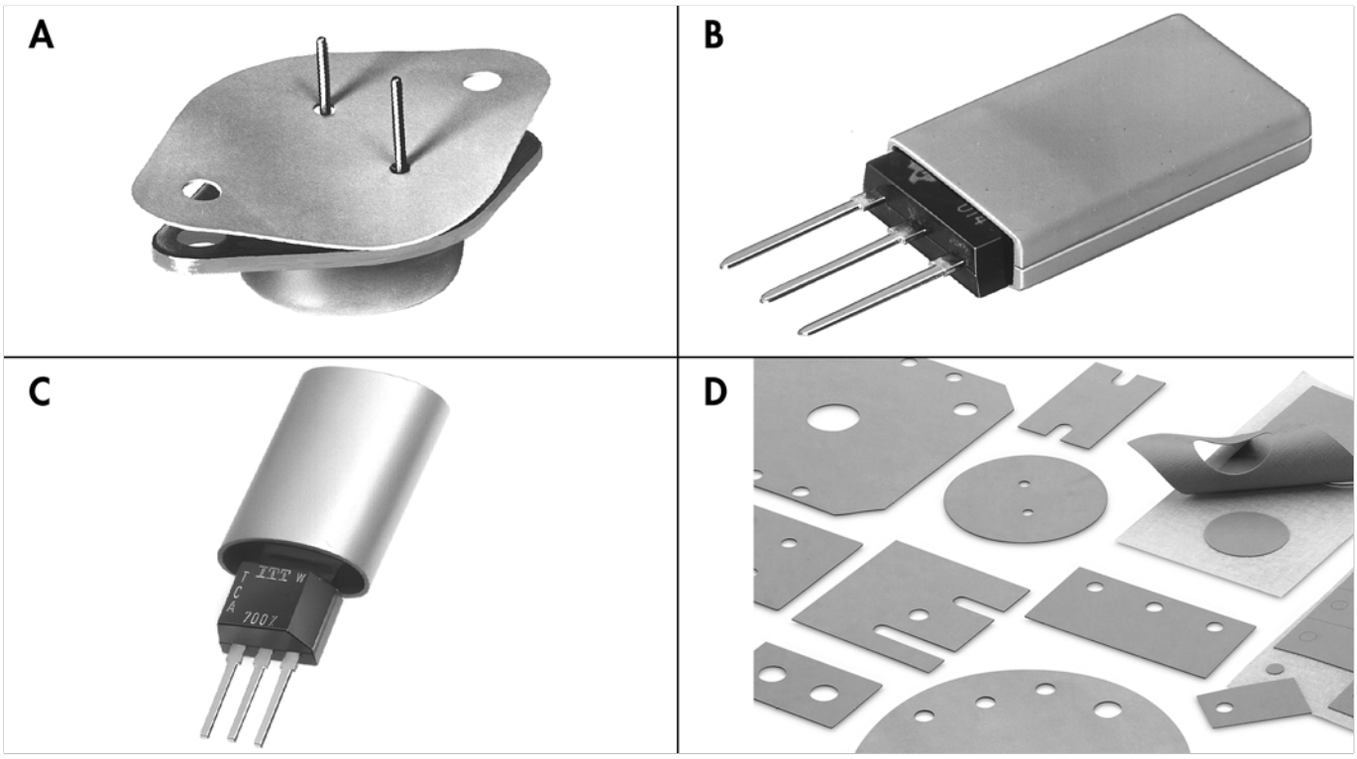


art. no.	suitable for cooling aggregate
LAGI 119	LA 4/ LA 5/ LA (V) 14 / LA (V) 15 / LA (V) 17 / LA HL (V) 1 / LA HL (V) 2 / LA HL (V) 3 / LA HL D1

material: steel wire
surface: nickel

Thermally conductive foil made of siliconelastomer

Silicon-rubber insulating material for semiconductors



A: washer; **B**: insulating cap; **C**: insulating tube; **D**: cutting

Our thermal conduction wafers effect following advantages:
– good surface contact, as material is flexible
– reduced production costs as a matter of mounting without thermal conducting paste (clean and fast)
– spring-back of the elastic material protects the transistor against damage
– free of any toxic substances

customer specific versions:
– cutting and blanks of our thermal conductive foil according to drawing
– as plate or reel-ware
– other foils, plastics, papers, etc. upon request

Technical data

	foil WS ...	cap WSI ...	foil WG ...	foil WK ...	foil WB ...
material thickness	0.3 mm	0.9 mm	0.2 mm	0.2 mm	0.15 mm
material hardness	75 Shore A	75 Shore A	87 Shore A	87 Shore A	90 Shore A
breakdown voltage	10 kV	15 kV	6,5 kV	6,5 kV	3 kV
thermal resistance	0.4 K/W	0.96 K/W	0.42 K/W	0.45 K/W	0.34 K/W
insulation resistance	$2.9 \cdot 10^{15}$ Ω cm	$2.9 \cdot 10^{15}$ Ω cm	$5.7 \cdot 10^{15}$ Ω cm	$5.7 \cdot 10^{15}$ Ω cm	$1.6 \cdot 10^{15}$ Ω cm
thermal conductivity	–	–	–	–	–
extensibility	100 %	100 %	2 %	2 %	4 %
temperature range	-60 °C ... +180 °C	-60 °C ... +180 °C	-60 °C ... +180 °C	-60 °C ... +180 °C	-60 °C ... +180 °C
flammability	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0	UL 94 V-0

The thermal details refer to an area of 1 $inch^2$ (6.45 cm^2).

Heatsinks for TO 5 and TO 18 → **C 16 – 17**
Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Profiles for lock-in fixing spring → **A 85 – 89**
Profiles for PCB mounting → **A 90 – 113**
Processor overview → **B 2 - 7**
Pin heatsinks for IC → **B 20 – 27**
Heatsinks for BGA → **B 16 – 19**

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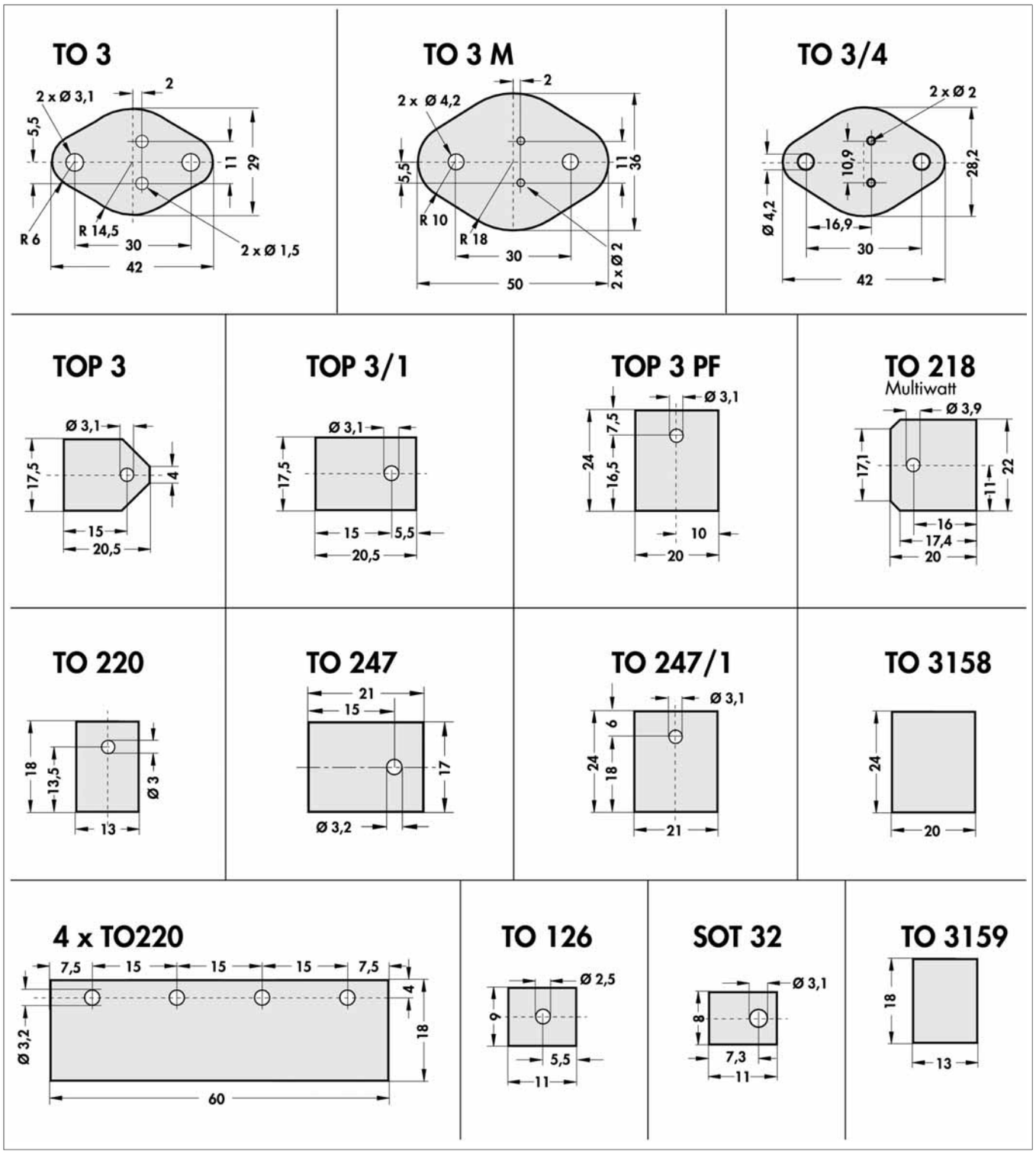
Thermally conductive foil made of siliconelastomer

Silicone rubber insulating material for semiconductors



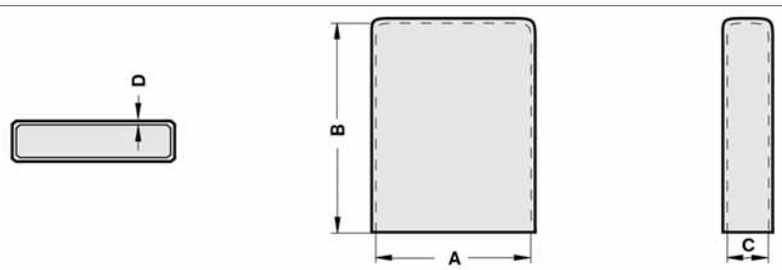
other cuttings on request

Heatsinks for TO 5 and TO 18 → C 16 – 17
Profiles for PCB components → A 92
Heatsinks for PCB → A 90
Profiles for lock-in fixing spring → A 85 – 89
Profiles for PCB mounting → A 90 – 113
Processor overview → B 2 - 7
Pin heatsinks for IC → B 20 – 27
Heatsinks for BGA → B 16 – 19

Thermally conductive foil made of siliconelastomer

foil type material	foil WS silicone foil, standard	foil WG silicone foil, GF reinforced	foil WK silicone foil, GF reinforced, one-sided self-adhesive	foil WB silicone foil, GF reinforced
Washer				
TO-3	**WS 3**	**WG 3**	**WK 3**	**WB 3**
TO-3 M	**WS 3 M**			
TO-3/4	**WS 3/4**		**WK 3/4**	
TO-3 PF	**WS 3 P**	**WG 3 P**	**WK 3 P**	**WB 3 P**
3158	**WS 3158**		**WK 3158**	**WB 3158**
TOP 3	**WS TOP 3**			
TOP 3/1	**WS TOP 3/1**		**WK TOP 3/1**	
TO 218		**WG 218**		
TO 247	**WS 247**		**WK 247**	
TO 220	**WS 220**	**WG 220**	**WK 220**	**WB 220**
4 X TO 220	**WS 4 220**			
3159	**WS 3159**		**WK 3159**	**WB 3159**
TO 126			**WK 126**	
SOT 32			**WK 32**	
TO 247/1	**WS 247/1**			
Insulating tube				
TO-220 Ø 11 mm, length 25 mm	**WSC-220**			
TO-3 PF Ø 13.5 mm, length 25 mm	**WSC-3 P**			
TO-247 Ø 14.5 mm, length 30 mm	**WSC-247**			
Insulating tube as meterpiece				
TO-220 Ø 11 mm	**WSM-220**			
TO-3 PF Ø 13.5 mm	**WSM-3 P**			
Tape material (width)				
24 mm			**WKT 24**	
30 mm	**WST 30**			**WBT 30**
36 mm	**WST 36**			
85 mm	**WST 85**			
300 mm		**WGT 300**	**WKT 300**	**WBT 300**

Insulating cap



art. no.	type	dim. [mm]			
		A	B	C	D
WSI 220 210	TO 220	11	21.0	5.0	0.9
WSI 220 225	TO 220	11	22.5	5.0	0.3
WSI TOP 3 235	TOP 3	18	23.5	5.0	0.9
WSI TOP 3 280	TO 3 PL/ TO 247	16	28.0	5.0	0.3
WSI TO 3 PL	TO 3 PL / TO 247	22	34.0	5.5	0.9

Heatsinks for TO 5 and TO 18 → **C 16 – 17**
Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Profiles for lock-in fixing spring → **A 85 – 89**
Profiles for PCB mounting → **A 90 – 113**
processor overview → **B 2 - 7**
Pin heatsinks for IC → **B 20 – 27**
Heatsinks for BGA → **B 16 – 19**

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Thermally conductive foil both sides adhesive

– good thermal charactaristics
– double-sided adhesive layers
– replaces mechanical fastenings
– cuttings and cut-outs upon request

art. no.	width [mm]	version	art. no.	width [mm]	version
WLFT 404 R25	25	running metre	**WLFT 414 R100**	100	running metre
WLFT 404 R50	50	running metre	**WLFT 414 R200**	200	running metre
WLFT 404 R100	100	running metre	**WLFT 405 R25**	25	running metre
WLFT 404 R200	200	running metre	**WLFT 405 R50**	50	running metre
WLFT 414 R25	25	running metre	**WLFT 405 R100**	100	running metre
WLFT 414 R50	50	running metre	**WLFT 405 R200**	200	running metre

art. no.	dimensions [mm]	version	art. no.	dimensions [mm]	version
WLFT 404 100x100	100 x 100	plate	**WLFT 414 200x200**	200 x 200	plate
WLFT 404 100x200	100 x 200	plate	**WLFT 405 100x100**	100 x 100	plate
WLFT 404 200x200	200 x 200	plate	**WLFT 405 100x200**	100 x 200	plate
WLFT 414 100x100	100 x 100	plate	**WLFT 405 200x200**	200 x 200	plate
WLFT 414 100x200	100 x 200	plate			

Technical data

	WLFT 404	**WLFT 414**	**WLFT 405**
description	isolations, double-sided adhesive	isolations, double-sided adhesive	non isolations, double-sided adhesive
complete thickness	0.127 (± 0.03) mm	0.127 (± 0.03) mm	0.15 (± 0.03) mm
truss material	polyimide 0.025 mm	polyimide 0.025 mm	aluminium foil 0.05 mm
glue layer	acrylate (pressure sensitive) double-sided	acrylate (pressure sensitive) double-sided	acrylate (pressure sensitive) double-sided
specific thermal resistance	3.7 °C cm^2/W	3.7 °C cm^2/W	3.4 °C cm^2/W
thermal conductivity	0.37 W/mK	0.37 W/mK	0.5 W/mK
holding force (overlapping)	0.86 MPa	0.86 MPa	0.93 MPa
holding force (shear rate)	**Al** 25 °C 0.897 [MPa]/ **Al** 150 °C 0.345 [MPa]/ **Cu** 25 °C 0.828 [MPa]/ **Cu** 150 °C 0.31 [MPa]/ **Al**$_2$O$_3$ 25 °C 1.17 [MPa]/ **Al**$_2$O$_3$ 150 °C 0.34 [MPa]	**Al** 25 °C 0.897 [MPa]/ **Al** 150 °C 0.345 [MPa]	**Al** 25 °C 0.86 [MPa]/ **Al** 150 °C 0.38 [MPa]/ **Cu** 25 °C 1.1 [MPa]/ **Cu** 150 °C 0.48 [MPa]/ **Al**$_2$O$_3$ 25 °C 1.0 [MPa]/ **Al**$_2$O$_3$ 150 °C 0.41 [MPa]
temperature range	-30 °C ... +125 °C	-30 °C ... +125 °C	-30 °C ... +125 °C
breakdown voltage	5 kV (AC)	5 kV (AC)	–
flammability	UL 94 V-0	UL 94 V-0	UL 94 V-0

Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90 – 92**
Profiles for PCB mounting → **A 90 – 113**
Heatsinks for transistors → **C 4 – 9**
Finger-shaped heatsinks → **C 2 – 3**
Distance sleeves → **E 24 – 31**
Spacers → **E 32 – 33**
GEL thermal conductive foil → **E 7**

Heat conductive foam and gel foils

Heat conductive silicon foam foil

– elastomer foam with closed cell structure
– good heat conductor e.g. between components, heatsinks and casing parts
– electrical insulating
– can be compressed even with a low contact pressure
– absorbs shocks and vibrations

art. no.	material thickness [mm]
WSF 16	1.60 $^{\pm 0.4}$
WSF 32	3.20 $^{\pm 0.8}$
WSF 635	6.35 $^{\pm 1.2}$
WSFS 635	6.35 $^{\pm 1.2}$

WSF ... not adhesive; **WSFS 635** one side adhesive; WSFS 635 double sided adhesive and WSF ... adhesive upon request
according to NASA gas emission requirements
available as plates 914 x 914 mm, cuttings on customer's requirements

Thermal resistance at 3.2 mm material thickness:

compression %	contact	10	25	50
contact pressure PSI	ü 1	5	12	34
R_{th} K/W (1 in^2 x 3.2 mm)	6	4.5	2.5	1
heat conductivity W/mK	0.3	0.4	0.45	0.65

thermal conductivity	0.108 W/mK (substrate)
hardness range	13 Shore A
compression, 25%	9...18 PSI
temperature range	-61 °C ... +204 °C
extensibility	150 %
tensile strength	120 PSI
breakdown voltage	2.5 kV/mm
tightness	1.118 g/cm^3
flammability	UL 94 : V-1 at thickness ≥ 3.2 mm

Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90 – 92**
Profiles for PCB mounting → **A 90 – 113**
Heatsinks for transistors → **C 4 – 9**
Finger-shaped heatsinks → **C 2 – 3**
Distance sleeves → **E 24 – 31**
Spacers → **E 32 – 33**
GEL thermal conductive foil → **E 7**

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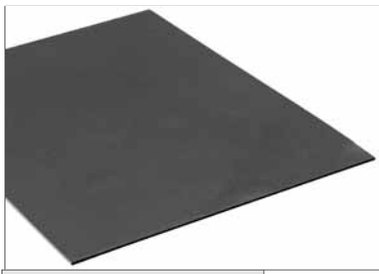
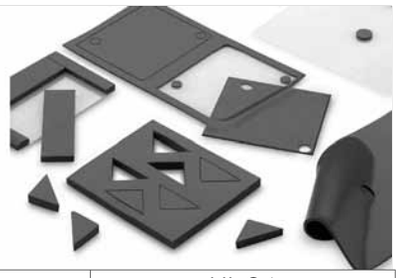
Heat conductive foam and gel foils

Gel thermal conducting foil

– highly heat-conductive silocon foil
– smooth, elastic and compressible
– equals uneven surfaces very well (Gap-Filler)





art. no.	material thickness [mm]	R_{th} [°C in²/W]	UL 94
GEL 05	0.5 ±0.1	0.57	V-0
GEL 10	1.0 ±0.2	1.02	V-0
GEL 15	1.5 ±0.2	1.45	V-0
GEL 20	2.0 ±0.3	1.71	V-0
GEL 25	2.5 ±0.3	2.11	V-0
GEL 30	3.0 ±0.3	2.34	V-0
GEL 35	3.5 ±0.3	2.59	V-0
GEL 40	4.0 ±0.4	2.79	V-0
GEL 45	4.5 ±0.4	3.03	V-0
GEL 50	5.0 ±0.5	3.30	V-0
GEL G05	0.5 ±0.1	0.67	V-1
GEL G1	1.0 ±0.2	1.11	V-1
GEL G15	1.5 ±0.2	1.66	V-1
GEL G2	2.0 ±0.3	1.92	V-1
GEL G25	2.5 ±0.3	2.40	V-1
GEL G3	3.0 ±0.3	2.68	V-0
GEL G35	3.5 ±0.3	2.75	V-0
GEL G4	4.0 ±0.4	2.92	V-0
GEL G45	4.5 ±0.4	3.19	V-0
GEL G5	5.0 ±0.5	3.37	V-0

version:
art. no. GEL ... standard
art. no. GEL G ... PA-mesh reinforced, adherent layer on one side
delivery form:
plates, usable plain 300 X 200 mm, covered with protection film on booth sides, cuttings on customer's requirements

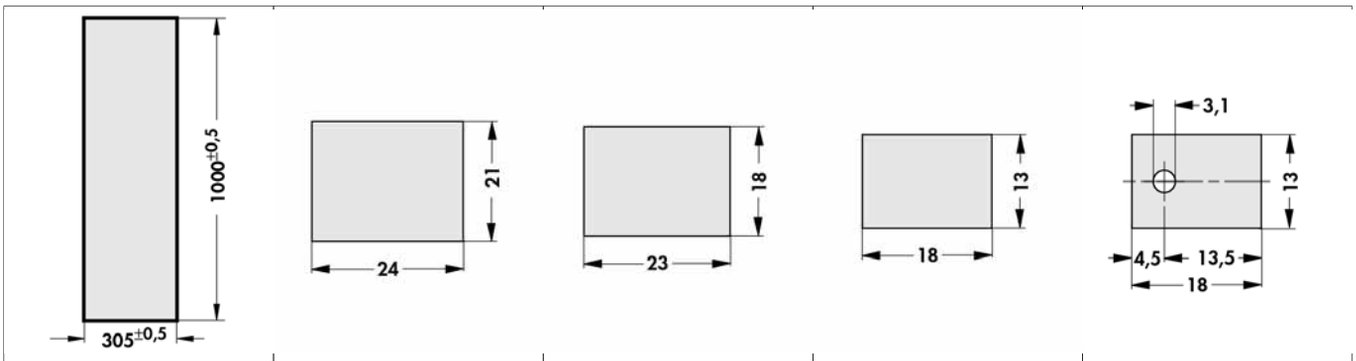
Technical data

	GEL	**GEL G**
thermal conductivity	1.5	1.5
volume resistance	>1x10⁶ MΩ/m	>1x10⁶ MΩ/m
hardness range	< 49 Shore 00	< 49 Shore 00
temperature range	-60 °C ... + 200 °C	-60 °C ... + 200 °C
extensibility	100 %	60 %
dielectric constant	5.8 [50 Hz]/ 5.6 [1 KHz] / 5.5 [1 MHz]	5.8 [50 Hz]/ 5.6 [1 KHz] / 5.5 [1 MHz]
breakdown voltage	14 kV/mm (AC)	8 kV/mm (AC)
tightness	2.6 g/cm³	2.6 g/cm³
dielectric loss factor	0.048 [50 Hz]/ 0.015 [1 KHz]/ 0.003 [1 MHz]	0.048 [50 Hz]/ 0.015 [1 KHz]/ 0.003 [1 MHz]

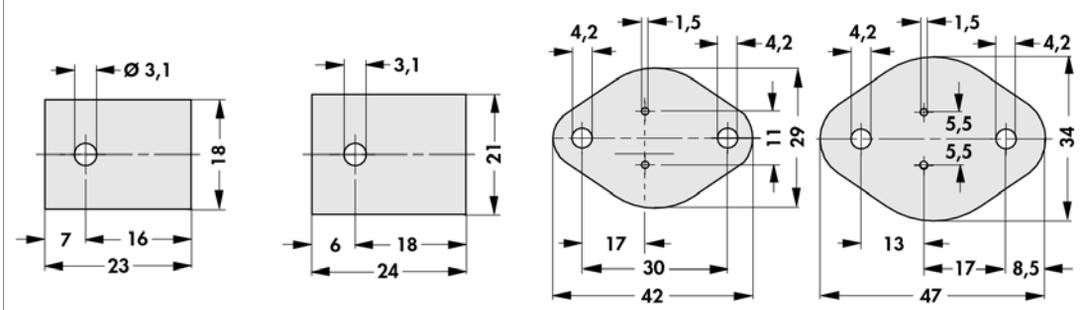
Thermal conductive glue → **E 15**
Thermal conductive paste → **E 13**
Thermal conduct. foil WLFT 404/405 → **E 5**
SMD-heatsinks → **B 38 – 40**
Heatsinks for PGA → **B 10 – 15**
Profiles for PCB mounting → **A 90 – 113**
Mounting for TO 3 angle → **A 125**
Profiles for lock-in fixing spring → **A 85 – 89**

Kapton insulator washers

- very low thermal resistance
- optimised heat conductivity
- best mechanical charactaristics
- polyimide-carrier foil with silicone-free phase changing thermal conductive layer completely coated on both sides
- clean processing, no abrasion of the coating
- stacked foils do not stick together
- good resistance against cleening agents
- no cold flow
- low pressure force necessary, thus particularly applicable for spring-fixing of semiconductors
- cuttings and special versions according to customer's requirements



art. no.	art. no.	art. no.	art. no.	art. no.
KAP 1 P suitable for pre-cut parts (plate)	**KAP 247 O** TO 248/ TO 218/ TO 247	**KAP 218 O** TO 218	**KAP 220 O** TO 220	**KAP 220 K** TO 220



art. no.	art. no.	art. no.	art. no.
KAP 220 G TO 220	**KAP 218** TO 248/ TO 218/ TO 247	**KAP 3 K** TO 3	**KAP 3 G** TO 3

material	polyimide; polyimide-carrier foil with silicone-free phase changing thermal conductive layer completely coated on both sides
material thickness	0,077
thermal conductivity	0.45 W/mK (substrate)
insulation resistance	10^{14} Ω
thermal resistance	0.15 K/W (at 1 inch²; = 6.45 cm²; = TO 3 (KAP 3))
temperature range	-40 °C ... +150 °C
phase change temperature	52 °C
extensibility	30 %
breakdown voltage	7.8 kV
flammability	UL 94 V-0

The thermal details refer to an area of 1 inch² (6.45 cm²).

Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90 – 92**
Profiles for PCB mounting → **A 90 – 113**
Heatsinks for transistors → **C 4 – 9**
Finger-shaped heatsinks → **C 2 – 3**
Distance sleeves → **E 24 – 31**
Spacers → **E 32 – 33**
GEL thermal conductive foil → **E 7**

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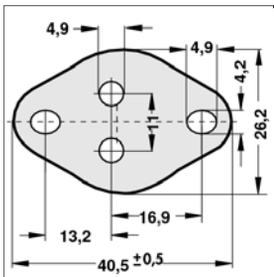
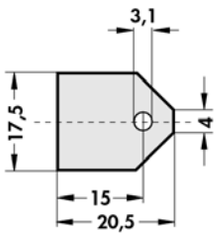
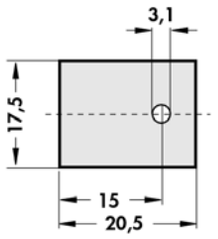
Aluminium oxide wafers



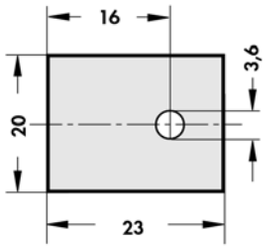
art. no.	AOS 3
	⏊ 2.9 mm ⏥ 0.123



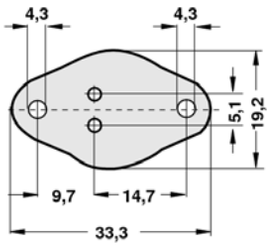
art. no.	AOS 3 P
	⏊ 1.5 mm ⏥ 0.061



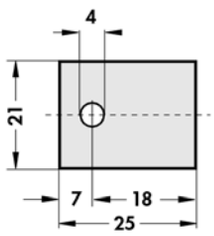
art. no.	AOS 3 P SL
	⏊ 1.5 mm ⏥ 0.15



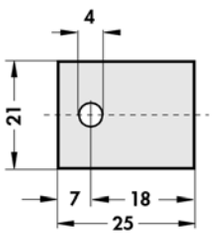
art. no.	AOS 3 P 2
	⏊ 1 mm ⏥ 0.15



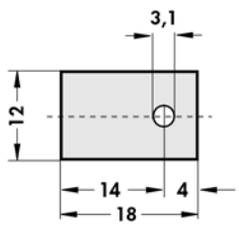
art. no.	AOS 66
	⏊ 2.5 mm ⏥ 0.10



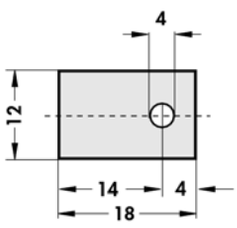
art. no.	AOS 218 247
	⏊ 3 mm ⏥ 0.15



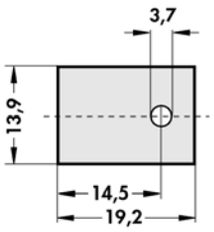
art. no.	AOS 218 247 1
	⏊ 1.5 mm ⏥ 0.02



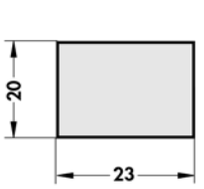
art. no.	AOS 220
	⏊ 1.5 mm ⏥ 0.054



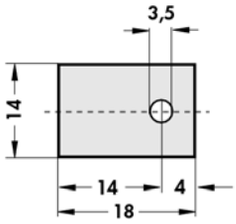
art. no.	AOS 220 4
	⏊ 1.5 mm ⏥ 0.054



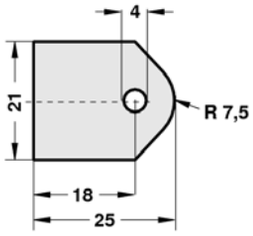
art. no.	AOS 220 3
	⏊ 1.6 mm ⏥ 0.11



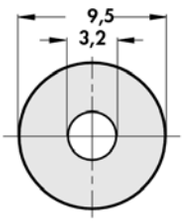
art. no.	AOS 247
	⏊ 1 mm ⏥ 0.02



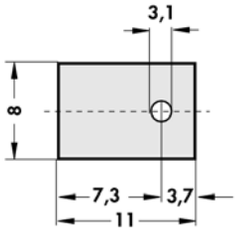
art. no.	AOS 220 SL
	⏊ 4.5 mm ⏥ 0.054



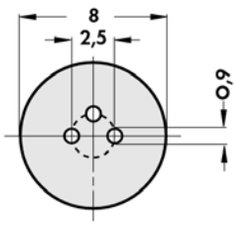
art. no.	AOS 127
	⏊ 3 mm ⏥ 0.076



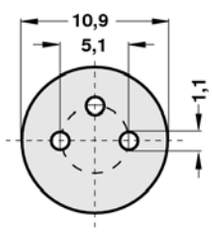
art. no.	AOS 93
	⏊ 2.3 mm ⏥ 0.03



art. no.	AOS 32
	⏊ 1.5 mm ⏥ 0.033



art. no.	AOS 18
	⏊ 1.5 mm ⏥ 0.023



art. no.	AOS 5
	⏊ 1.5 mm ⏥ 0.032

⏊ = thickness; ⏥ = flatness
other thicknesses and versions on request

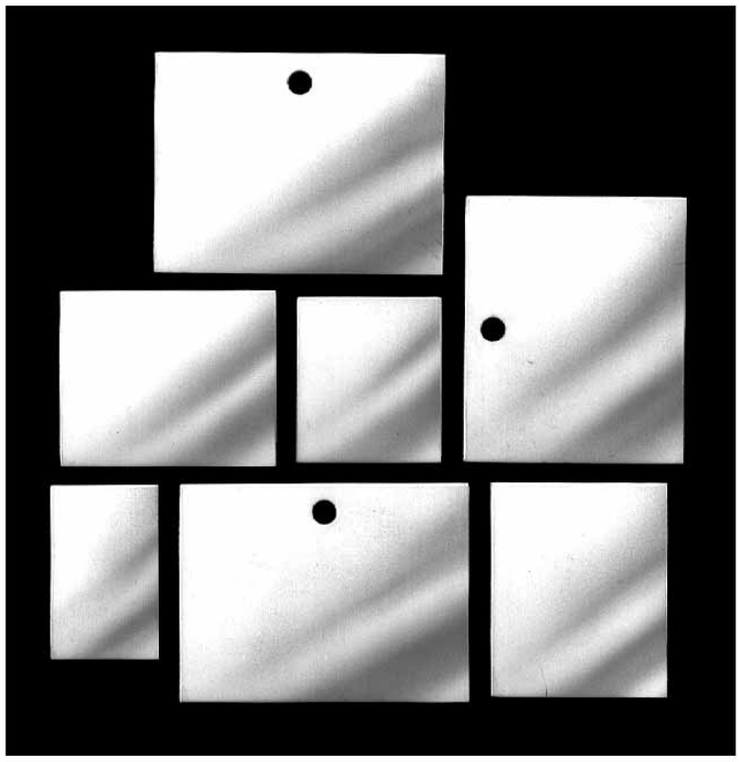
material	AL_2O_3 - ceramics
thermal resistance	0,3K/W
specific electrical resistance	$>10^{14}$ Ω/cm
thermal conductivity	25 W/mK
dielectric constant	9
linear expansion coefficient	~$8 \cdot 10^{-6}$/K
snap through stability	10 KV/mm

Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90 – 92**
Profiles for PCB mounting → **A 90 – 113**
Heatsinks for transistors → **C 4 – 9**
Finger-shaped heatsinks → **C 2 – 3**
Distance sleeves → **E 24 – 31**
Spacers → **E 32 – 33**
GEL thermal conductive foil → **E 7**

Aluminium oxide wafers

Aluminium oxide wafers according to customer's instuctions

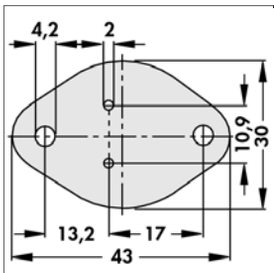
– laser-cut versions with outer dimensions and cutouts according to customer's requirements
– other plate dimensions on request



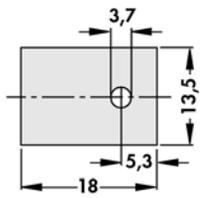
material thickness [mm]	outer dimensions [mm]
2.540	114 x 114
2.000	114 x 114
1.500	114 x 114
1.270	114 x 114
1.000	114 x 114/ 160 x 113/ 165 x 115
0.800	114 x 114/ 160 x 113/ 165 x 115
0.635	106,5 x 106,5/ 114 x 114/ 160 x 113/ 165 x 115
0.500	106,5 x 106,5/ 114 x 114
0.400	106,5 x 106,5/ 114 x 114
0.300	106,5 x 106,5/ 114 x 114
0.250	106,5 x 106,5/ 114 x 114

Heatsinks for transistors → **C 4 – 9**
Finger-shaped heatsinks → **C 2 – 3**
Insulting clamping parts → **E 38**
Mounting material for semiconduct. → **E 37 – 41**
Kapton insulator washers → **E 8**
GEL thermal conductive foil → **E 7**
Insulator sleeves → **E 46**
Heatsinks for PCB → **A 90**

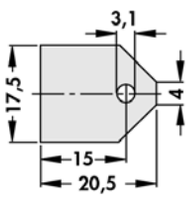
Mica wafers



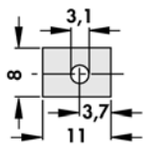
art. no.
GS 3
TO-3



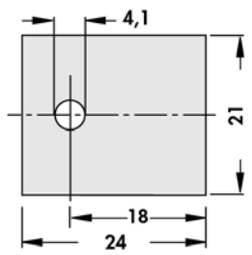
art. no.
GS 66 P
TO 66



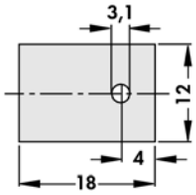
art. no.
GS 3 P
TOP 3



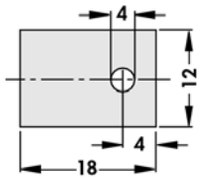
art. no.
GS 32 P
SOT 32



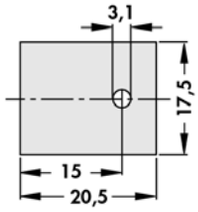
art. no.
GS 218
TO 218



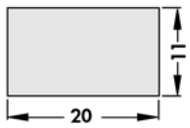
art. no.
GS 220 P
TO 220



art. no.
GS 220 4
TO 220



art. no.
GS 3 P SL
TOP 3

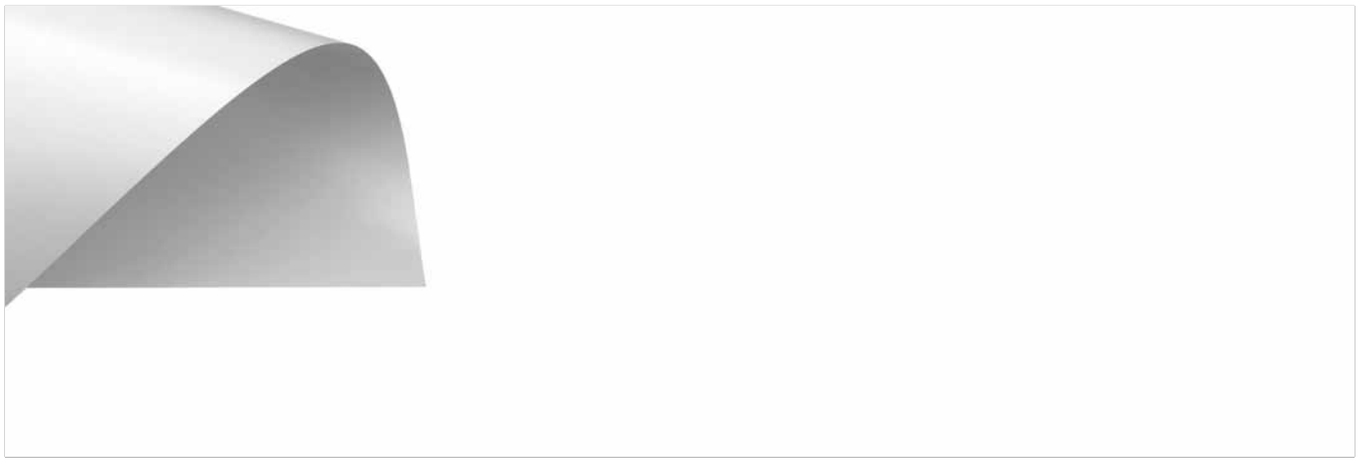


art. no.
GS 220 C
TO 220

material	muskovit
material thickness	0.05 mm
insulation resistance	3 x 10^{17} Ω/cm
thermal resistance (GS 3)	0.4 K/W
snap through stability	5 kV

Thermal transfer compound and thermal interface film

Free standing film



– self-supporting differential phase changing thermal interface material, contains no substrate (Free Standing Film)
– materials with phase change temperature at 52 °C;
– best thermal conductivity, exceeding phase change temperature point, material flows into all gaps between components and heatsink
– thixotropic, does not migrate from the interface area
– no lowering of thermal conductivity though thermal cycling
– application with very low contact pressure, due to non elastomeric material, particularly suitable for clamp mounting of components
– electrically non-conductive, but not an insulator
– self adhering characteristics, also suitable for large areas
– no toxic ingredients
– custom required shapes on request

art. no.	container	dimensions [mm]
FSF 52 P	plate, protection foil on both sides	330 x 343 x 0.127 ± 0.025

All with protection foil on both sides.

phase change temperature	52 °C
colour	white
tightness	2 g/cm^3
thermal conductivity	0.9
thermal resistance (1 in^2, TO 3) at contact pressure of	0.03 K/W 0.031 N/mm^2
temperature range	max. +200 °C
adhesive holding force	0.35 N/mm^2
flammability	UL 94 V-0
dielectric constant	3.8_3.4

Silicone wafers → **E 2**
Finger-shaped heatsinks → **C 2**
Distance sleeves for PCB´s in HP grid → **E 31**
Distance sleeves → **E 24**
GEL thermal conductive foil → **E 7**
Spacers → **E 32**
Profiles for PCB components → **A 92**

Thermal transfer compound and thermal interface film

Silicon thermal transfer compound

Thermal transfer compound used to reduce the thermal transmission resistance between semiconductor and heatsink.

art. no.	container	delivery quantity [g]
WLP 004	box	4
WLP 035	box	35
WLP 500	box	500
WLP 300 S	cartridge	300
WLP 500 S	cartridge	500

Silicone-free thermal transfer compound

Thermal transfer compound used to reduce the thermal transmission resistance between semiconductor and heatsink.

art. no.	container	delivery quantity [ml]
WLPF 05	syringe	2
WLPF 10	syringe	5
WLPF 20	syringe	10
WLPF 50	syringe	20

Technical data

	WLP	**WLPF**
composition	silicone oil, inorganic filling material	Silicone free synthetic liquid. Metal oxide filling.
consistance	pastey	pastey
colour	white	white-grey
tightness	1.1 g/cm^3	ca. 2 g/cm^3
thermal conductivity	0.61	>0.7
specific electrical resistance	>10^{12} Ω/cm	>10^{12} Ω/cm
flashpoint	none (DIN 53213)	of the basic oil >280 °C (ISO 2592)
drop point	>260 °C	–
thermal resistance	no bleeding at (4 h / 200°C)	<1 % (96 h / 200 °C)
temperature range	-70 °C ... +250 °C	-40 °C ... +150 °C
acid number	< 0.01 mg KOH/g	–
solubility in water	insoluble	insoluble

Mica wafers → **E 11**
Kapton insulator washers → **E 8**
Mounting pads → **E 39**
Mounting parts for heatsinks → **E 43 – 44**
Silicone wafers → **E 2 – 4**
Thermal conductive foil → **E 5**
Thermal. conductive silicone foam foil → **E 6**
Insulator caps → **E 44**

Thermal transfer compound and thermal interface film

Graphit thermal transfer compound

art. no.	container	delivery quantity [ml]
WLPG 02	syringe	2
WLPG 05	syringe	5
WLPG 10	syringe	10
WLPG 20	syringe	20

Technical data

	WLPG
composition	graphite filler, silicone free, organic filling material, biodegradable matrix based on oil
consistance	pastey
colour	black
tightness	>1.25 g/cm^3
thermal conductivity	10.5 W/mK
specific electrical resistance	10^5 Ω/cm (typical)
breakdown voltage	not applicable, because conducting
flashpoint	for oil DIN 51755, 321 °C
temperature range	-40 °C ... +320 °C
solubility in water	soluble

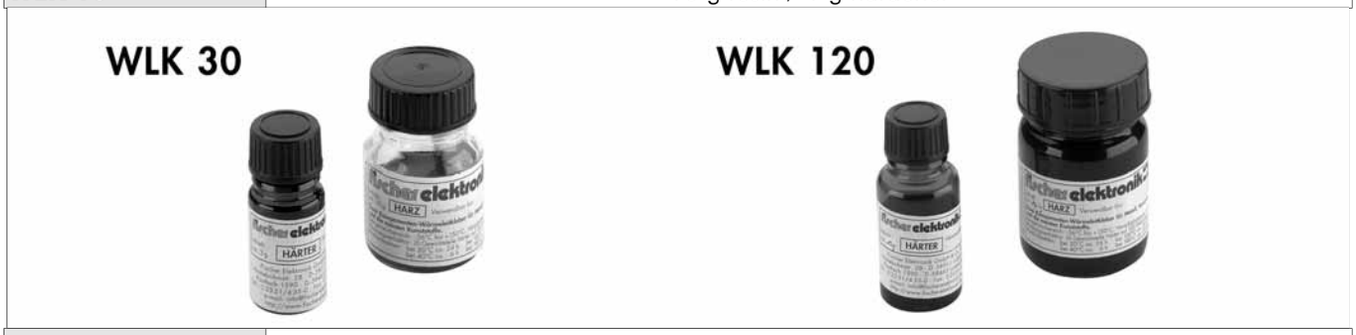
Mica wafers → **E 11**
Kapton insulator washers → **E 8**
Mounting pads → **E 39**
Mounting parts for heatsinks → **E 43 – 44**
Silicone wafers → **E 2 – 4**
Thermal conductive foil → **E 5**
Thermal. conductive silicone foam foil → **E 6**
Insulator caps → **E 44**

fischer elektronik

Thermally conductive material

– thermally conductive, electrically non-conductive adhesive
– two part epoxy resin adhesive, metaloxide filled
– fully replaces mechanical fastenings
– excellent function and application characteristics

art. no.	composition
WLK 5	5 g resin / 0.5 g hardener
WLK 10	10 g resin / 1 g hardener



art. no.	composition
WLK 30	30 g resin / 3 g hardener
WLK 120	120 g resin / 12 g hardener

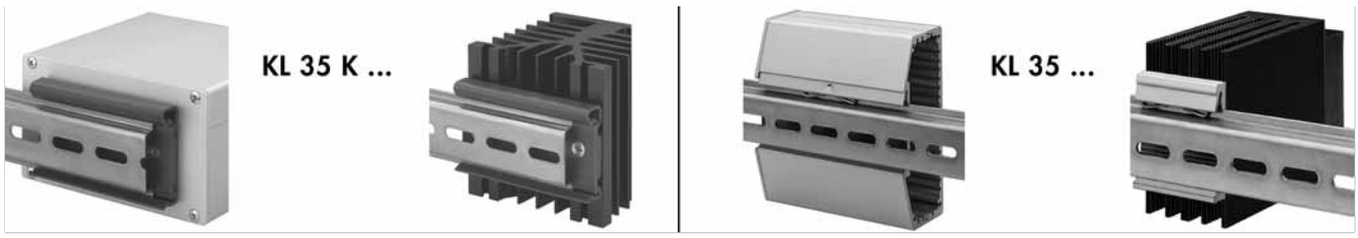
to be stored at a cool and dark place

thermal conductivity	0.836 W/mK
specific thermal resistance	120 °C cm/W
pass resistance	10^{16} Ω/cm
temperature range	-56 °C ... +149 °C
hardening time	190 °C approx. 20 min/ 38 °C approx. 6 h/ 20 °C approx. 16 - 24 h
glue layer	epoxide
mixture proportion	10:1

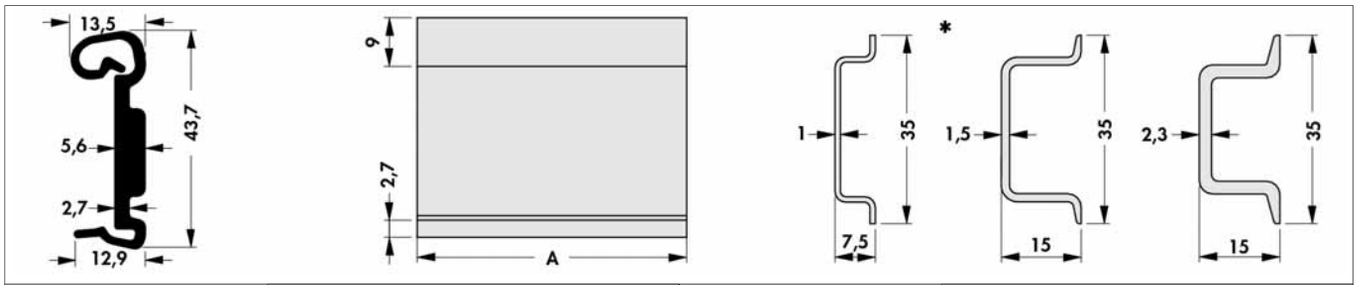
Mica wafers → **E 11**
Kapton insulator washers → **E 8**
Mounting pads → **E 39**
Mounting parts for heatsinks → **E 43 – 44**
Silicone wafers → **E 2 – 4**
Thermal conductive foil → **E 5**
Thermal. conductive silicone foam foil → **E 6**
Insulator caps → **E 44**

Fastening for mounting rail

universal, solid plastic clip fastening for all 35 mm mounting rails; **suitable for rail material thicknesses from 1 to 2.3 mm according to DIN EN 50 022**; registrated design DE 200 07 435.0; **fast and easy mounting of heatsinks, casings etc. due to direct snap up on the mounting rail**



safe hold due to a stable extruded plastic profile with integrated spring back; **electroconductive material or surface on request**; special lengths and treatments on customer's request

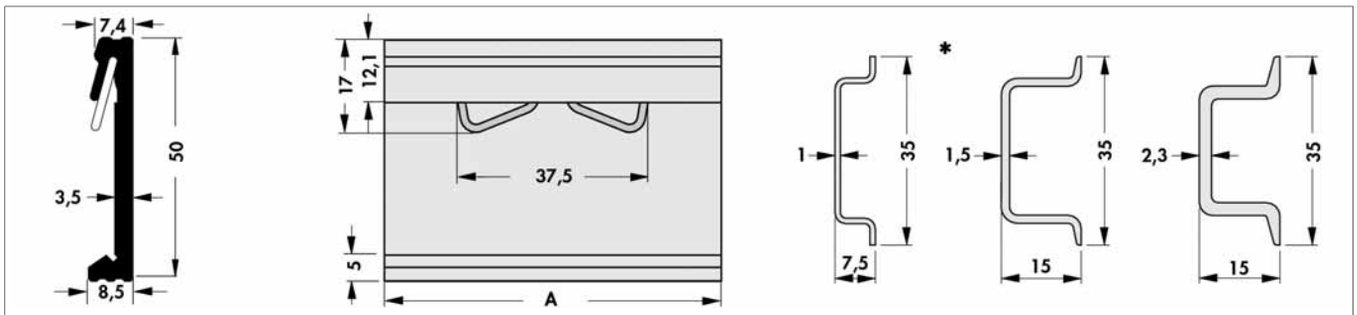


art. no.	dim. [mm] length on stock	art. no.	dim. [mm] length on stock
KL 35 K 40	40	**KL 35 K 75**	75
KL 35 K 50	50	**KL 35 K 100**	100

***** = examples of mounting rail versions suitable for KL 35 K

material	rigid PVC
heat distortion	-30 °C ... +80 °C
colour	anthracite grey
flammability	UL 94 V-0

safe hold due to a stable extuded profile with integrated stainless steel spring; **special lengths (≥** 40mm), treatments and surfaces on request



art. no.	dim. [mm] length on stock	art. no.	dim. [mm] length on stock
KL 35 50	50	**KL 35 100**	100
KL 35 75	75		

***** = examples of mounting rail versions suitable for KL 35

surface clear anodised

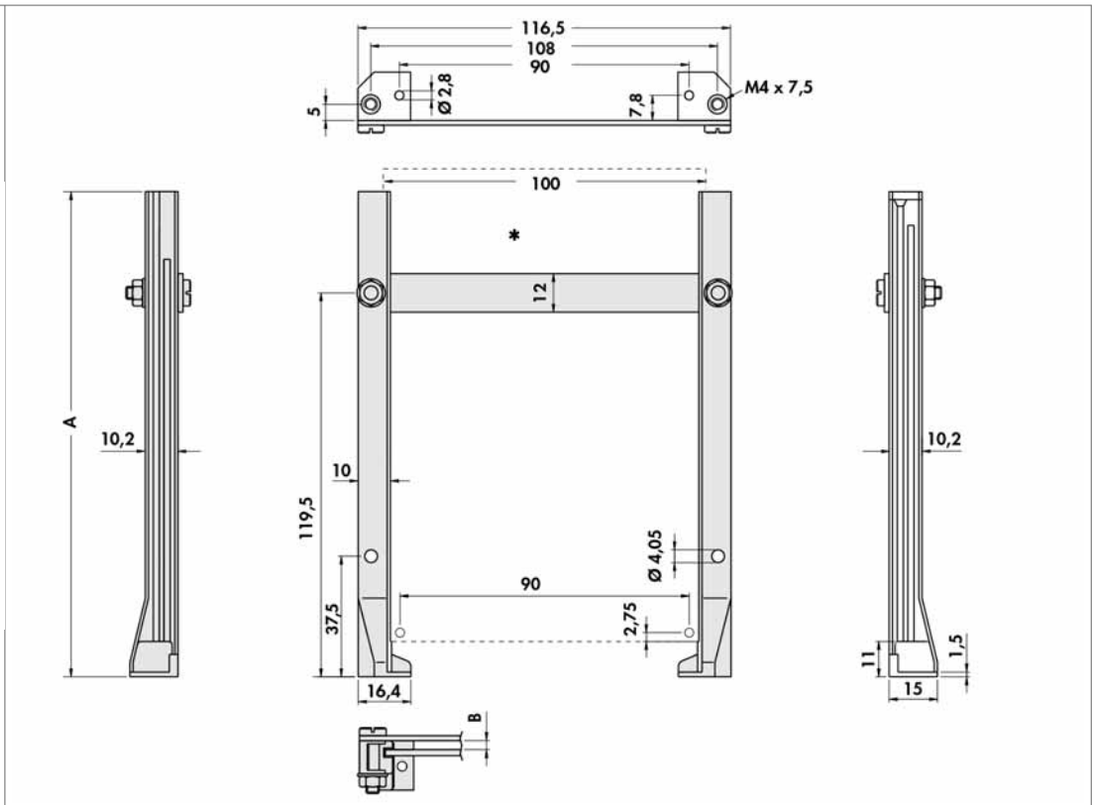
material	aluminium

Distance sleeves for PCB´s in HP grid → **E 31**
Extractors for guide rails → **E 22**
Insulting clamping parts → **E 38**
Miniature distance sleeves → **E 26**
Mounting pads for transistors → **E 40**
Mounting parts for heatsinks → **E 43 – 44**
Heatsink profile-overview → **A 13 - 16**
Vibration dampers → **E 34**

Guide rails

Srew-on type

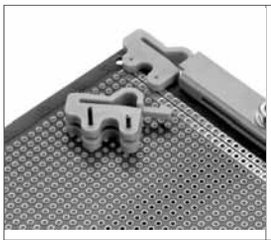
– for eurocards
– connectors according to DIN 41612 or VG 95324 mountable
– high stability through inner reinforcements
– stable foot mounting trough inserted brass- thread inserts
– groove depth: 2.2 mm, groove width 1.9 mm
– suitable for PCB thicknesses from 0.5 to 1.85 mm

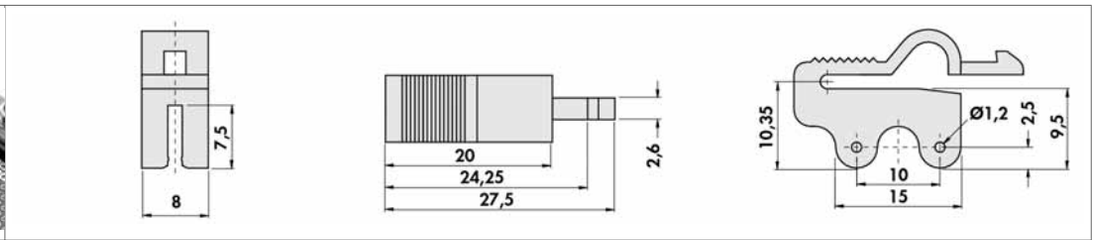


art. no.	dim. [mm]	
	A	B
FS 151 P	151	2.5

***** = printed circuit board

– only for FS 151 P



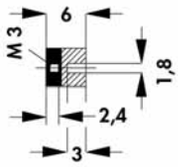


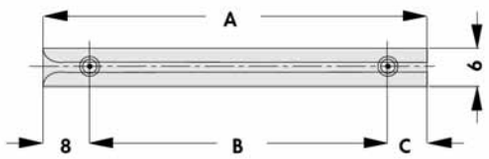
art. no.
CLIP 151

material	polycarbonate, GF reinforced
temperature range	-40 °C ... +125 °C
flammability	UL 94 V-0

Guide rails

Srew-on type

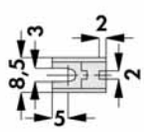


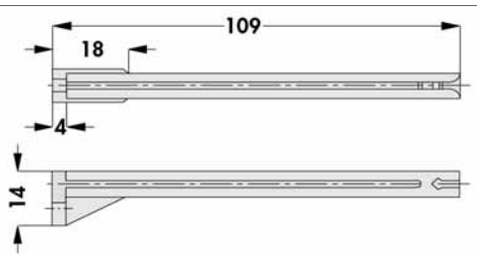


art. no.	dim. [mm]		
	A	B	C
FS 6 065	65	50	7
FS 6 070	70	50	12
FS 6 080	80	67	5
FS 6 090	90	67	15
FS 6 100	100	84	8
FS 6 110	110	84	18
FS 6 120	120	84	28
FS 6 130	130	84	38

material	polycarbonate, GF reinforced
temperature range	-20 °C ... +130 °C
thread nut	brass nickel-plated
flammability	UL 94 V-0

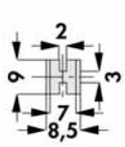
art. no.

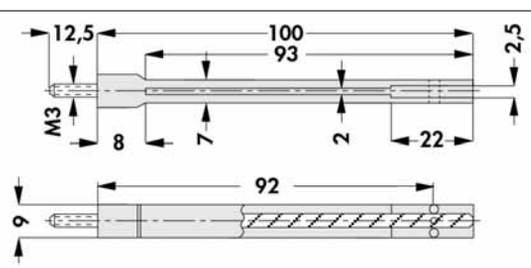




FS 109

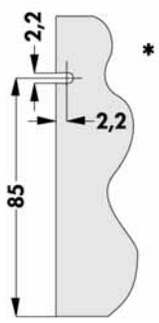
art. no.

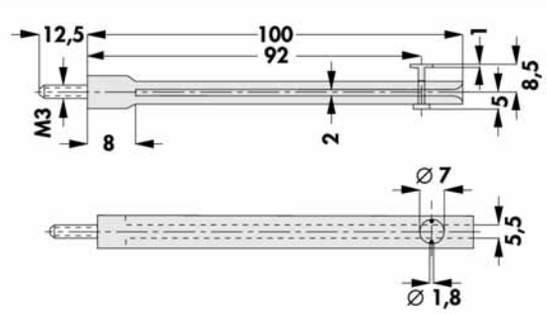




FS 100

art. no.





MSVL 100

***** = position of snap-in slot

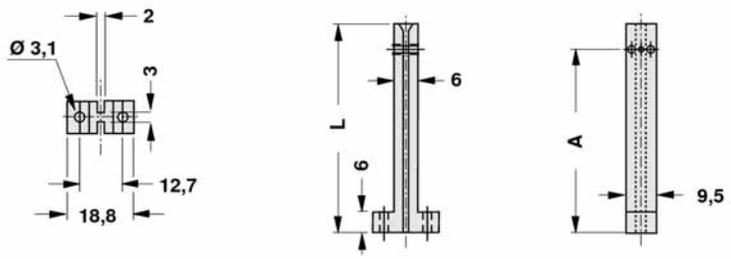
material	polyamide, GF reinforced
temperature range	-40 °C ... +205 °C
flammability	UL 94 V-0

Distance sleeves for PCB´s in HP grid → **E 31**
Snap-in guide rails → **E 21 – 22**
Extractors for guide rails → **E 22**
Insulting clamping parts → **E 38**
Solder pins → **E 36**
Mounting pads for transistors → **E 40**
Vibration dampers → **E 34**
Heatsinks for PCB → **A 90 – 92**

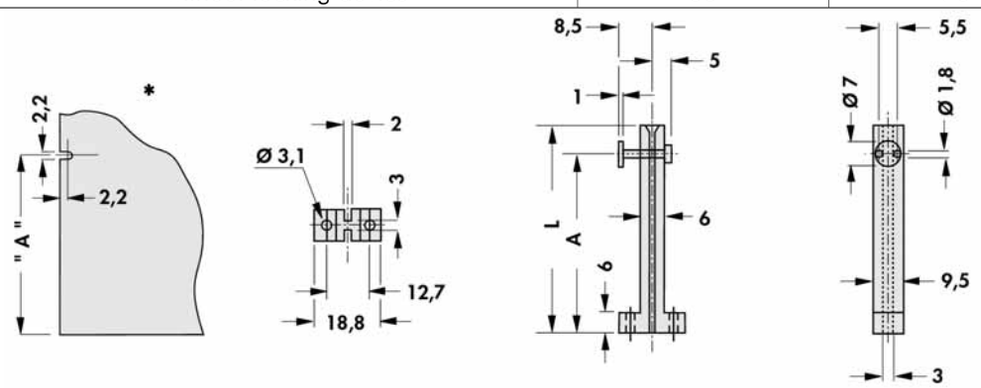
Guide rails

Lockable mounting rails

– lockable by pushing the plastic pin or the metal button
– no conductive connection to the PCB
– the PCB requires a snap-in slot in accordance to the drawing
– other position with locking device on request



art. no.	version	dim. [mm]	
		L	A
FS 85 50	without locking device	50	42
FS 85 60	without locking device	60	52
FS 85 70	without locking device	70	62
FS 85	without locking device	85	76



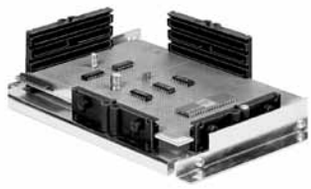
art. no.	version	dim. [mm]	
		L	A
MSVL 50	with locking device	50	42
MSVL 60	with locking device	60	52
MSVL 70	with locking device	70	62
MSVL 85	with locking device	85	76

***** = position of snap-in slot

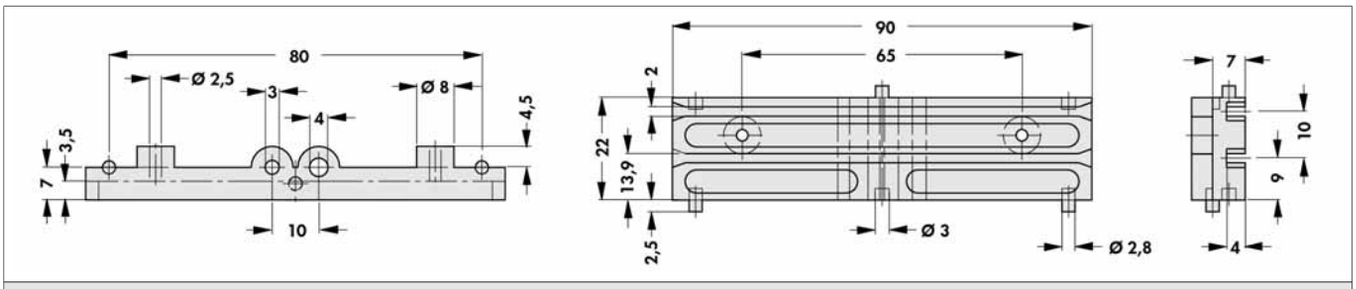
material	polyamide, GF reinforced
temperature range	-40 °C ... +205 °C
flammability	UL 94 V-0

Distance sleeves for PCB´s in HP grid → **E 31**
Snap-in guide rails → **E 21 – 22**
Extractors for guide rails → **E 22**
Insulting clamping parts → **E 38**
Solder pins → **E 36**
Mounting pads for transistors → **E 40**
Vibration dampers → **E 34**
Heatsinks for PCB → **A 90 – 92**

Guide rails



The guide bars have got mounting holes for vertical and horizontal assembly of printed circuits. They can also be stacked together horizontally or vertically using pins and treatments.



art. no.
MSHV 90

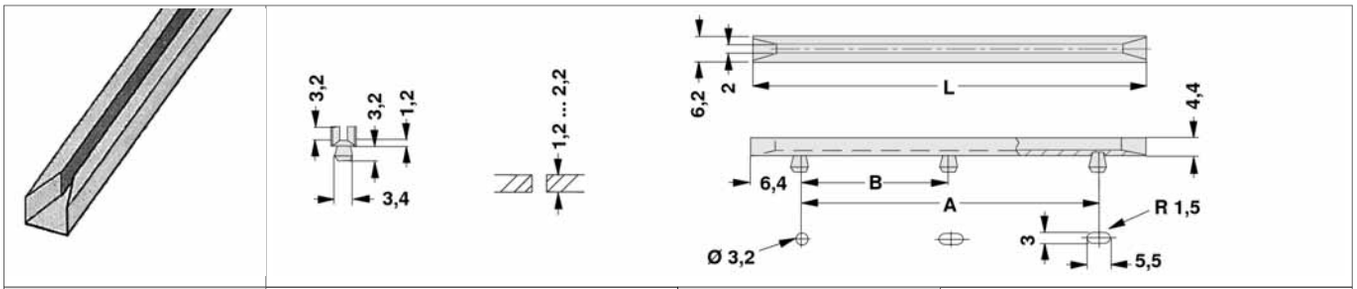
material	polyamide, GF reinforced
flammability	UL 94 V-0

Distance sleeves for PCB´s in HP grid → **E 31**
Snap-in guide rails → **E 21 – 22**
Extractors for guide rails → **E 22**
Insulting clamping parts → **E 38**
Solder pins → **E 36**
Mounting pads for transistors → **E 40**
Vibration dampers → **E 34**
Heatsinks for PCB → **A 90 – 92**

Guide rails

Snap-in

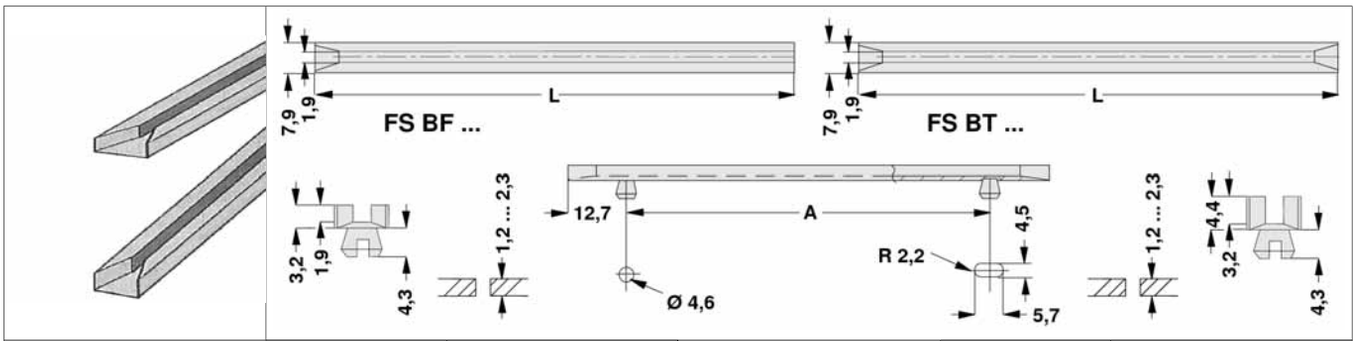
narrow version



art. no.	dim. [mm]		art. no.	dim. [mm]		
	L	A		L	A	B
FS S 06 2	63.5	50.8	**FS S 15 2**	152.4	139.7	–
FS S 07 2	76.2	63.5	**FS S 16 2**	165.1	152.4	–
FS S 08 2	88.9	76.2	**FS S 19 3**	190.5	177.8	88.9
FS S 10 2	101.6	88.9	**FS S 20 2**	203.2	190.5	–
FS S 11 2	114.3	101.6	**FS S 20 3**	203.2	190.5	95.2
FS S 12 2	127.0	114.3	**FS S 21 2**	215.9	203.2	–
FS S 13 2	139.7	127.0	**FS S 21 3**	215.9	203.2	101.6

material	nylon, natural coloured
temperature range	-40 °C ... +120 °C
flammability	UL 94 V-2

wide version



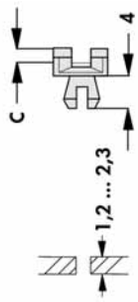
art. no.	version	dim. [mm]		art. no.	version	dim. [mm]	
		L	A			L	A
FS BF 06	shallow groove	63.5	38.1	**FS BT 07**	deep groove	76.2	50.8
FS BF 07	shallow groove	76.2	50.8	**FS BT 08**	deep groove	88.9	63.5
FS BF 08	shallow groove	88.9	63.5	**FS BT 10**	deep groove	101.6	76.2
FS BF 10	shallow groove	101.6	76.2	**FS BT 11**	deep groove	114.3	88.9
FS BF 11	shallow groove	114.3	88.9	**FS BT 12**	deep groove	127.0	101.6
FS BF 12	shallow groove	127.0	101.6	**FS BT 13**	deep groove	139.7	114.3
FS BF 13	shallow groove	139.7	114.3	**FS BT 15**	deep groove	152.4	127.0
FS BF 15	shallow groove	152.4	127.0	**FS BT 16**	deep groove	165.1	139.7
FS BF 17	shallow groove	177.8	152.4	**FS BT 17**	deep groove	177.8	152.4
FS BF 19	shallow groove	190.5	165.1	**FS BT 19**	deep groove	190.5	165.1
FS BF 20	shallow groove	203.2	177.8	**FS BT 20**	deep groove	203.2	177.8
FS BT 06	deep groove	63.5	38.1				

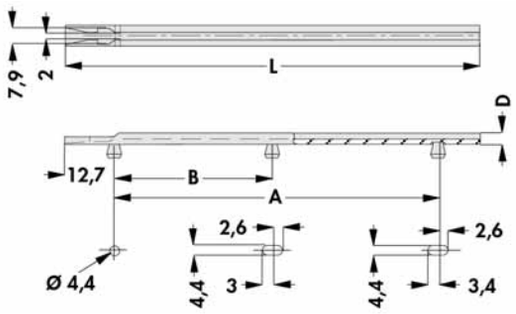
material	nylon, natural coloured
temperature range	-40 °C ... +120 °C
flammability	UL 94 V-2

Ejectors → **E 23**
Spacers → **E 32 – 33**
Insulting clamping parts → **E 38**
Clamp fixing for DIN-rail → **E 16**
Solder pins → **E 36**
Profiles for PCB mounting → **A 90 – 113**
Heatsinks for PCB → **A 90**
Profiles for PCB components → **A 92**

Ejectors

– low profile
– suitable for ejectors **art. no. AHG V 14** und **AHG V 17**

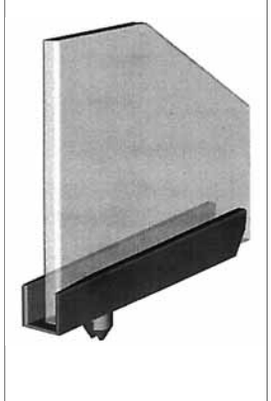


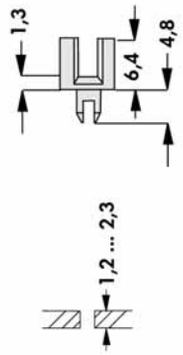


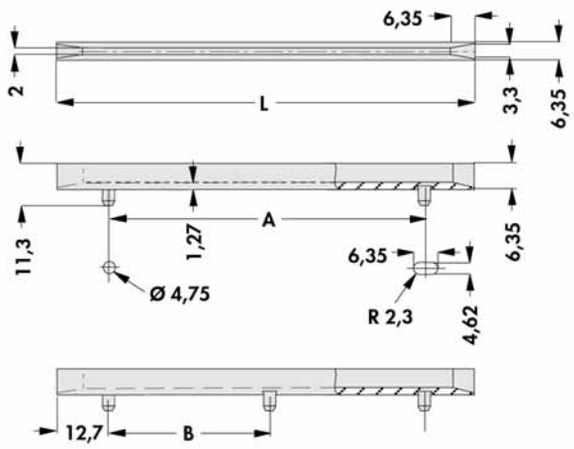
art. no.	dim. [mm]				art. no.	dim. [mm]				
	L	A	C	D		L	A	B	C	D
FS LP 05	50.8	25.8	2	3.2	**FS LP 17**	177.8	153.2	–	2.0	3.2
FS LP 07	76.2	38.5	2	3.2	**FS LP 22**	228.6	191.3	95.7	2.0	3.6
FS LP 08	88.9	38.5	2	3.2	**FS LP 27**	279.4	229.4	114.7	2.0	3.6
FS LP 10	101.6	76.6	2	3.2	**FS LP 29**	292.1	267.9	134.0	2.4	4.0
FS LP 11	114.3	76.6	2	3.2	**FS LP 30**	304.8	267.9	134.0	2.4	4.0
FS LP 12	127.0	76.6	2	3.2	**FS LP 31**	317.5	267.9	134.0	2.4	4.0
FS LP 13	139.7	76.6	2	3.2	**FS LP 33**	330.2	306.0	153.0	2.4	4.0
FS LP 15	152.4	127.4	2	3.2	**FS LP 34**	342.9	306.0	153.0	2.4	4.0
FS LP 16	165.1	127.4	2	3.2	**FS LP 35**	355.6	306.0	153.0	2.4	4.0

material	polyamide, GF reinforced
temperature range	-40 °C ... +120 °C
flammability	UL 94 V-0

– deep guideway
– bevelled entrance zone







art. no.	dim. [mm]		
	L	A	B
FS U 06	63.5	38.1	–
FS U 11	114.3	88.9	–
FS U 15	152.4	127.0	–
FS U 20	203.2	177.8	88.9

material	polyamide, GF reinforced
temperature range	-40 °C ... +120 °C
flammability	UL 94 V-0

Ejectors → **E 23**
Spacers → **E 32 – 33**
Insulting clamping parts → **E 38**
Clamp fixing for DIN-rail → **E 16**
Solder pins → **E 36**
Profiles for PCB mounting → **A 90 – 113**
Heatsinks for PCB → **A 90**
Profiles for PCB components → **A 92**

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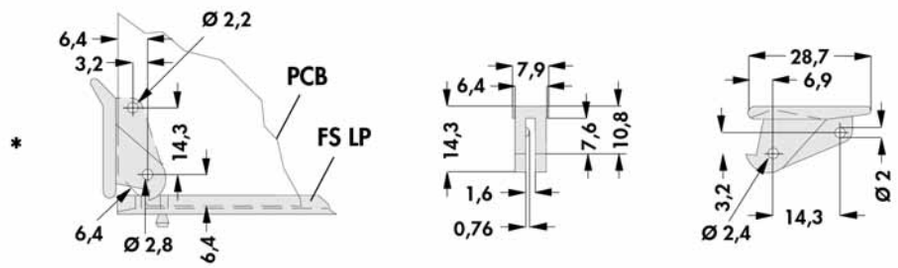
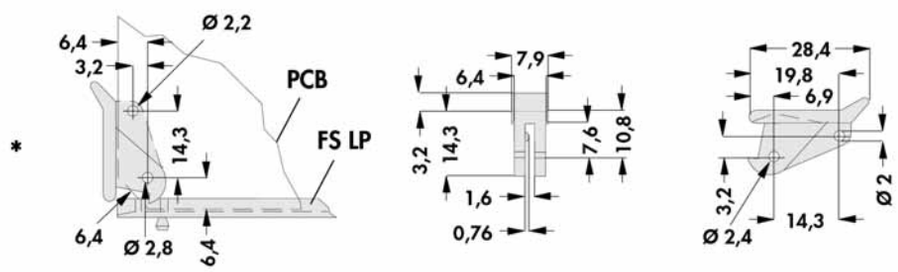
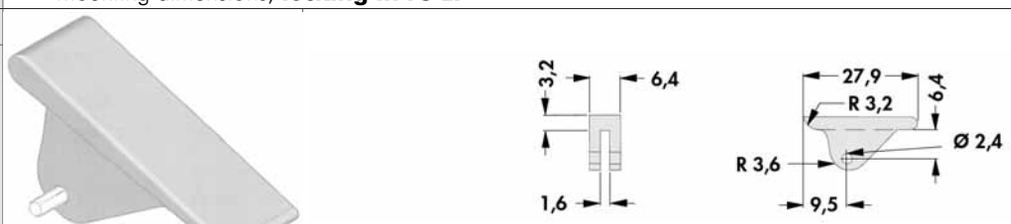
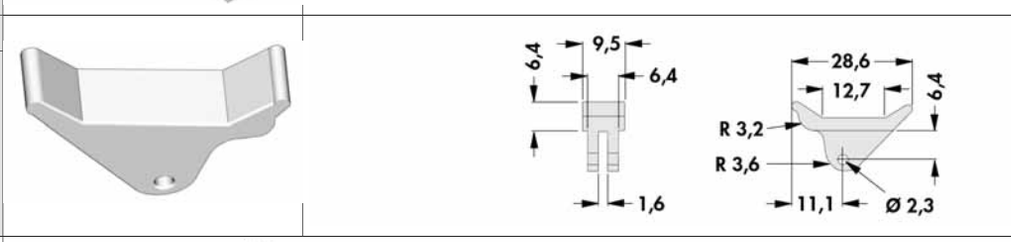
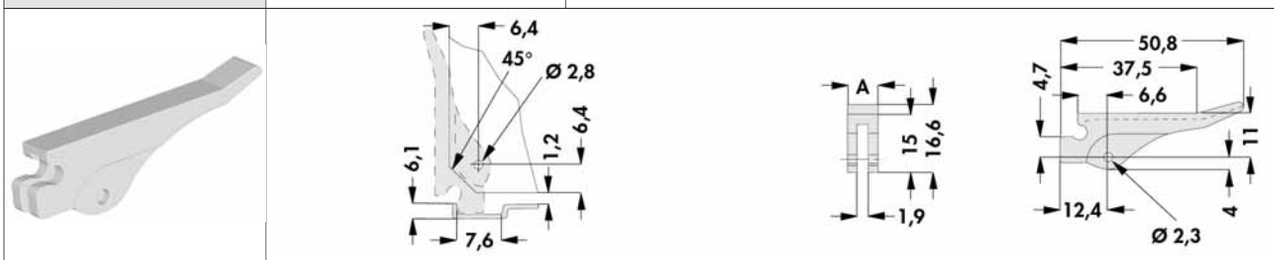
Guide rails

Ejectors

art. no.	
	
AHG V 14	* = mounting dimensions; **locking in FS LP**
art. no.	
	
AHG V 17	* = mounting dimensions; **locking in FS LP**
art. no.	
	
AHG K 27	
art. no.	
	
AHG K 28	
	
art. no.	dim. [mm] A
AHG L 7	7.4
AHG L 8	8.9

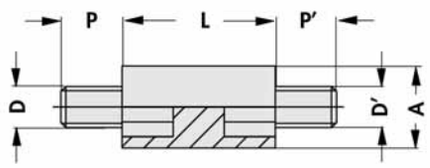
contents of delivery: all ejectors with matching spring pin

material	nylon
temperature range	-40 °C ... +120 °C
flammability	UL 94 V-2

Distance sleeves and spacers

Insulating spacers with internal and external thread

- insulated assembly of stacked PCBs
- insulated assembly of stacked heatsinks with varying capacities
- insulated assembly of chassis plates in cases
- insulated supports in the wiring
- mechanicaly very stable, as threads are made of brass
- other lengths on request



art. no.	dim. [mm]			
	A	D/D'	L	P/P'
ISAB 25 A ...	6.5	M2.5/M2.5	10/ 15/ 20/ 25	6.0
ISAB 3 A ...	8.0	M3/M3	10/ 20	6.0
ISAB 4 A ...	8.0	M4/M4	15/ 20	6.0
ISAB 6 A ...	12.7	M6/M6	25	12.7

... Please indicate length "L"
other lengths on request
dimensions = nominal size: deviation ±0.5 mm

dielectric strength	approx. 40 KV/mm
creeping current resistance	3c, level KA
thread inserts	brass
temperature range	-30 °C ... +85 °C (short term +200 °C)
surface treatment	raw
plastic body	polyamide 66
colour	natural (opaque)

Distance sleeves for PCB´s in HP grid → **E 31**
Spacers → **E 32 – 33**
Guide rails for PCBs → **E 17 – 22**
Clamp fixing for DIN-rail → **E 16 – 16**
Mounting parts for heatsinks → **E 43 – 44**
Thermal conductive material → **E 2 – 15**
Profiles for PCB mounting → **A 90 – 113**
Profiles for PCB components → **A 92**

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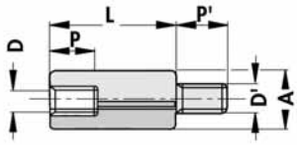
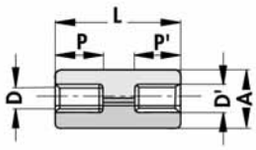
Distance sleeves and spacers



art. no.	dim. [mm]			
	A	D/D'	L	P/P'
ISAB 25 B ...	6.5	M2.5/M2.5	10/ 13/ 15/ 18/ 20/ 25/ 30	6.0
ISAB 3 B ...	8.0	M3/M3	10/ 13/ 15/ 18/ 20/ 25/ 30/ 35/ 40	6.0
ISAB 4 B ...	8.0	M4/M4	15/ 20/ 25/ 30/ 40	6.0
ISAB 5 B ...	9.5	M5/M5	20/ 30/ 40	10.0
ISAB 6 B ...	12.7	M6/M6	25/ 30/ 35/ 40/ 50	12.7



art. no.	dim. [mm]			
	A	D/D'	L	P/P'
ISAB 25 C ...	6.5	M2.5/M2.5	10/ 13/ 15/ 18/ 20/ 25/ 30	6.0
ISAB 3 C ...	8.0	M3/M3	10/ 13/ 15/ 18/ 20	6.0
ISAB 4 C ...	8.0	M4/M4	15/ 35	6.0
ISAB 5 C ...	9.5	M5/M5	20	10.0
ISAB 6 C ...	12.7	M6/M6	25	12.0
ISAB 6 C ...	12.7	M6/M6	30/ 25	12.7

... Please indicate length "L"
other lengths on request
dimensions = nominal size: deviation ±0.5 mm; at ISAB 3 C ... L=10 => P/P'=3.5

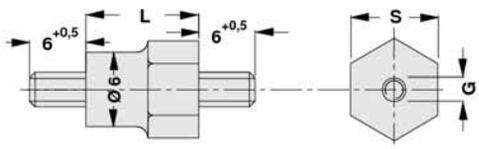
dielectric strength	approx. 40 KV/mm
creeping current resistance	3c, level KA
thread inserts	brass
temperature range	-30 °C ... +85 °C (short term +200 °C)
surface treatment	raw
plastic body	polyamide 66
colour	natural (opaque)

Screw mounted guide rails → **E 17 – 20**
Snap-in guide rails → **E 21 – 22**
Guide rails for PCBs → **E 17 – 22**
Insulting clamping parts → **E 38**
Miniature distance sleeves → **E 26**
Thermal conductive material → **E 2 – 15**
Insulator sleeves → **E 46**
Distance sleeves for PCB´s in HP grid → **E 31**

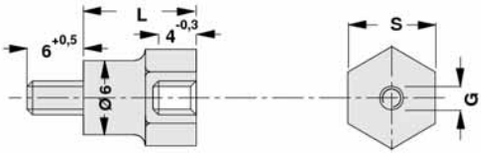
Distance sleeves and spacers

Miniature spacers with threads

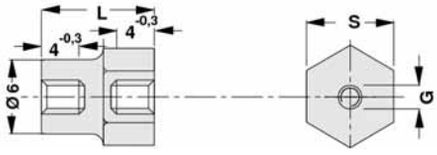
– allows compact, insulated constructions
– reduced volume in case of stack assembly
– insulated mounting of heatsinks, PCB, housingparts etc.
– very good mechanical stability due to brass inserts



art. no.	dim. [mm]		
	S	G	L
ISAM 2 A ...	6	M 2.5	4/ 5/ 7/ 9/ 11/ 12
ISAM 3 A ...	7	M 3	4/ 5/ 7/ 8/ 9/ 10



art. no.	dim. [mm]		
	S	G	L
ISAM 2 B ...	6	M 2.5	7/ 8/ 9/ 10/ 11
ISAM 3 B ...	7	M 3	7/ 8/ 9/ 10/ 11/ 12



art. no.	dim. [mm]		
	S	G	L
ISAM 2 C ...	6	M 2.5	9/ 10
ISAM 3 C ...	7	M 3	9/ 10/ 12

... Please indicate length "L"
dimensions = nominal size: L ± 0.5 mm

dielectric strength	30 KV/mm
creeping current resistance	3c, level KA
thread inserts	brass
temperature range	-30 °C ... +85 °C (short term +200 °C)
surface treatment	raw
plastic body	polyamide 66
colour	natural (opaque)

Distance sleeves for PCB´s in HP grid → E 31
Spacers → E 32 – 33
Snap rivet → E 37
Mounting parts for heatsinks → E 43 – 44
Vibration dampers → E 34
Insulating distance sleeves → E 24 – 26
Insulting clamping parts → E 38
Mounting material for semiconduct. → E 37 – 41

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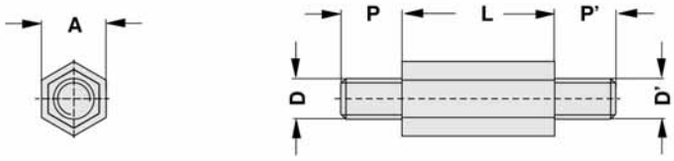
Distance sleeves and spacers

Insulating spacers with internal and external thread

- insulated assembly of stacked PCBs
- insulated assembly of stacked heatsinks with varying capacities
- insulated assembly of chassis plates in cases
- insulated supports in the wiring
- mechanicaly very stable, as threads are made of brass
- other lengths on request



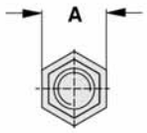
art. no.	dim. [mm]			
	A	D/D'	L	P/P'
ISAS 25 A ...	6.35	M2.5/M2.5	15/ 20/ 25/ 30/ 35/ 40	6.0
ISAS 30 A ...	6.35	M3/M3	15/ 20/ 25/ 30/ 35/ 40/ 45/ 50	6.0
ISAS 40 A ...	8.00	M4/M4	15/ 20/ 25/ 30/ 35/ 40/ 45/ 50	6.0
ISAS 50 A ...	9.50	M5/M5	20/ 25/ 30/ 35/ 40/ 45/ 50	10.0
ISAS 60 A ...	12.70	M6/M6	25/ 30/ 35/ 40/ 45/ 50/ 60	12.7

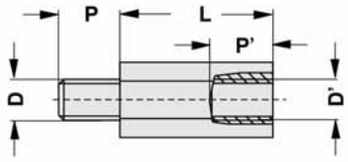
... Please indicate length "L"
other lengths on request
dimensions = nominal size: deviation ±0.5 mm

dielectric strength	approx. 40 KV/mm
creeping current resistance	3c, level KA
thread inserts	brass
temperature range	-30 °C ... +85 °C (short term +200 °C)
surface treatment	raw
plastic body	polyamide 66
colour	natural (opaque)

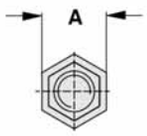
Distance sleeves for PCB´s in HP grid → **E 31**
Spacers → **E 32 – 33**
Snap rivet → **E 37**
Mounting parts for heatsinks → **E 43 – 44**
Vibration dampers → **E 34**
Insulating distance sleeves → **E 24 – 26**
Insulting clamping parts → **E 38**
Mounting material for semiconduct. → **E 37 – 41**

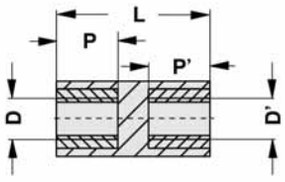
Distance sleeves and spacers





art. no.	dim. [mm]			
	A	D/D'	L	P/P'
ISAS 25 B ...	6.35	M2.5/M2.5	15/ 20/ 25/ 30/ 35/ 40	6.0
ISAS 30 B ...	6.35	M3/M3	15/ 20/ 25/ 30/ 35/ 40/ 45/ 50	6.0
ISAS 40 B ...	8.00	M4/M4	15/ 20/ 25/ 30/ 35/ 40/ 45/ 50	6.0
ISAS 50 B ...	9.50	M5/M5	20/ 25/ 30/ 35/ 40/ 45/ 50	10.0
ISAS 60 B ...	12.70	M6/M6	25/ 30/ 35/ 40/ 45/ 50/ 60	12.7





art. no.	dim. [mm]			
	A	D/D'	L	P/P'
ISAS 25 C ...	6.35	M2.5/M2.5	15/ 20/ 25/ 30/ 35/ 40	6.0
ISAS 30 C ...	6.35	M3/M3	15/ 20/ 25/ 30/ 35/ 40/ 45/ 50	6.0
ISAS 40 C ...	8.00	M4/M4	15/ 20/ 25/ 30/ 35/ 40/ 45/ 50	6.0
ISAS 50 C ...	9.50	M5/M5	20/ 25/ 30/ 35/ 40/ 45/ 50	10.0
ISAS 60 C ...	12.70	M6/M6	25/ 30/ 35/ 40/ 45/ 50/ 60	12.7

... Please indicate length "L"
other lengths on request
dimensions = nominal size: deviation ±0.5 mm

dielectric strength	approx. 40 KV/mm
creeping current resistance	3c, level KA
thread inserts	brass
temperature range	-30 °C ... +85 °C (short term +200 °C)
surface treatment	raw
plastic body	polyamide 66
colour	natural (opaque)

Distance sleeves for PCB´s in HP grid → **E 31**
Spacers → **E 32 – 33**
Snap rivet → **E 37**
Mounting parts for heatsinks → **E 43 – 44**
Vibration dampers → **E 34**
Insulating distance sleeves → **E 24 – 26**
Insulting clamping parts → **E 38**
Mounting material for semiconduct. → **E 37 – 41**

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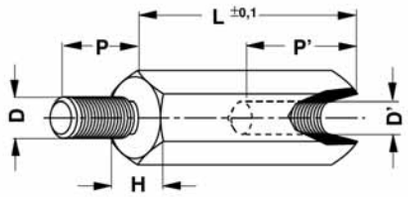
Distance sleeves and spacers

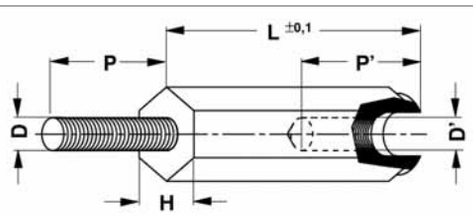
spacers with internal and external thread



art. no.	dim. [mm]				
	H	D/D'	L	P	P'
GBM 2550 ...	5	M 2.5	5	6	2.5
GBM 2550 ...	5	M 2.5	10	6	5.0
GBM 2550 ...	5	M 2.5	15/ 20	6	8.0
GBM 2550 ...	5	M 2.5	25/ 30/ 35	8	10.0
GBM 3050 ...	5	M 3	5	8	2.5
GBM 3050 ...	5	M 3	10/ 12/ 14	8	5.0
GBM 3050 ...	5	M 3	15/ 18/ 20	8	10.0
GBM 3050 ...	5	M 3	25/ 30/ 35/ 40/ 45/ 50	10	10.0
GBM 4070 ...	7	M 4	5	8	2.5
GBM 4070 ...	7	M 4	10	8	5.0
GBM 4070 ...	7	M 4	15	8	8.0
GBM 4070 ...	7	M 4	20	8	10.0
GBM 4070 ...	7	M 4	25/ 30/ 35/ 40/ 45/ 50	10	10.0
GBM 5080 ...	8	M 5	10	8	5.0
GBM 5080 ...	8	M 5	15/ 20	8	6.0
GBM 5080 ...	8	M 5	25/ 30/ 35/ 40/ 45/ 50	10	10.0

... Please indicate length "L"
other lengths and threads on request

material	brass
surface treatment	6 µm nickel-plated, solderable



art. no.	dim. [mm]				
	H	D/D'	L	P	P'
GBP 3060 ...	6	M 3	10	8	7
GBP 3060 ...	6	M 3	12	8	8
GBP 3060 ...	6	M 3	15/ 18/ 20/ 25/ 30	8	10
GBP 4080 ...	8	M 4	10	8	7
GBP 4080 ...	8	M 4	12	8	9
GBP 4080 ...	8	M 4	15/ 18/ 20/ 25/ 30/ 35/ 40/ 45	8	10

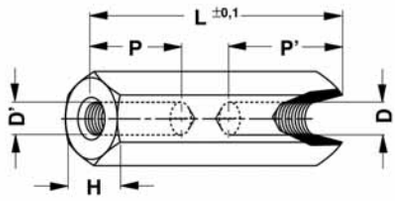
... Please indicate length "L"
other lengths and threads on request

material	polyamide, GF reinforced
temperature range	-30 °C ... +110 °C
colour	black

Distance sleeves for PCB´s in HP grid → **E 31**
Spacers → **E 32 – 33**
Snap rivet → **E 37**
Mounting parts for heatsinks → **E 43 – 44**
Vibration dampers → **E 34**
Insulating distance sleeves → **E 24 – 26**
Insulting clamping parts → **E 38**
Mounting material for semiconduct. → **E 37 – 41**

Distance sleeves and spacers

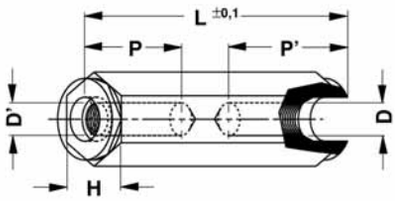
distance sleeves with internal thread



art. no.	dim. [mm]				
	H	D/D'	L	P	P'
ABM 2550 ...	5	M 2.5	5/ 8/ 10/ 12/ 15	=L	–
ABM 2550 ...	5	M 2.5	18	8	8
ABM 2550 ...	5	M 2.5	20/ 25/ 30/ 35/ 40/ 45/ 50	10	10
ABM 3050 ...	5	M 3	5/ 8/ 9/ 10/ 12/ 13/ 15	=L	–
ABM 3050 ...	5	M 3	16/ 18/ 19	8	8
ABM 3050 ...	5	M 3	20/ 25/ 29/ 30/ 35/ 40/ 45/ 50	10	10
ABM 4070 ...	7	M 4	5/ 8/ 10/ 12/ 15	=L	–
ABM 4070 ...	7	M 4	18	9	9
ABM 4070 ...	7	M 4	20/ 25/ 30/ 35/ 40/ 45/ 50	10	10

... Please indicate length "L"
other lengths and threads on request

material	brass
surface treatment	6 µm nickel-plated, solderable



art. no.	dim. [mm]				
	H	D/D'	L	P	P'
ABP 2550 ...	5	M 2.5	10	=L	–
ABP 2550 ...	5	M 2.5	15/ 20/ 25/ 30	6	6
ABP 3060 ...	6	M 3	10/ 12/ 15	=L	–
ABP 3060 ...	6	M 3	20	8	8
ABP 3060 ...	6	M 3	25/ 30	10	10
ABP 4080 ...	8	M 4	10/ 15/ 20	=L	–
ABP 4080 ...	8	M 4	20	10	10

... Please indicate length "L"
other lengths and threads on request

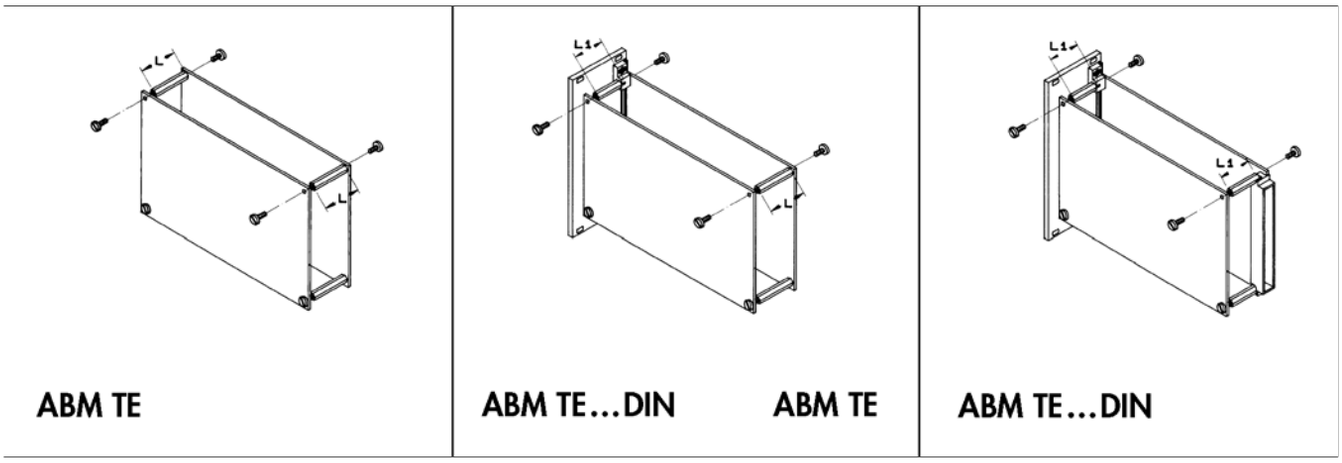
material	polyamide, GF reinforced
temperature range	-30 °C ... +110 °C
colour	black

Distance sleeves for PCB´s in HP grid → **E 31**
Spacers → **E 32 – 33**
Snap rivet → **E 37**
Mounting parts for heatsinks → **E 43 – 44**
Vibration dampers → **E 34**
Insulating distance sleeves → **E 24 – 26**
Insulting clamping parts → **E 38**
Mounting material for semiconduct. → **E 37 – 41**

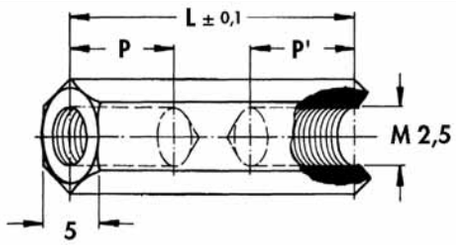
Distance sleeves and spacers

Distance sleeves for PCB in HP grid

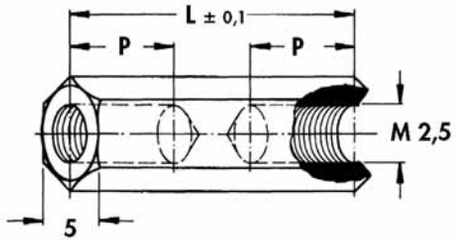
These internally threaded distance sleeves mount PCBs to the correct pitch for insertion into subracks



ABM TE: spacer between two PC boards
ABM TE ... DIN:spacer between two PC boards, one of them equipped with DIN-connector resp. A front panal/PCB Interconnection deviece VS 1.



art. no.	suitable for TE	dim. [mm]	
		L	P/P'
ABM TE 04	4	18.72	8
ABM TE 06	6	28.88	8
ABM TE 08	8	39.04	8



art. no.	suitable for TE	dim. [mm]	
		L	P
ABM TE 04 DIN	4	12.72	=L
ABM TE 06 DIN	6	22.88	8
ABM TE 08 DIN	8	33.04	8

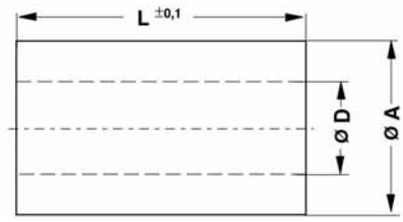
spacers with internal and external thread to HP grid on request

material	brass
surface treatment	8 µm nickel-plated, solderable

Solder pins → **E 36**
Plugs → **E 36**
Miniature distance sleeves → **E 26**
Mounting parts for heatsinks → **E 43 – 44**
Heatsink profile-overview → **A 13 - 16**
Heatsinks for PCB → **A 90**
Special profiles → **A 136**
Clamp fixing for DIN-rail → **E 16**

Distance sleeves and spacers

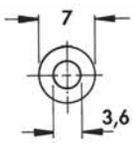
Spacers

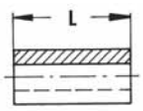


art. no.	dim. [mm]		
	A	D	L
AHM 3260...	6	3.2	1/ 2/ 3/ 4/ 5/ 6/ 7/ 8/ 9/ 10/ 12/ 15/ 18/ 25/ 30
AHM 4380...	8	4.3	1/ 2/ 3/ 4/ 5/ 6/ 7/ 8/ 9/ 10/ 12/ 15/ 18/ 25

... Please indicate length "L"

material	brass
surface treatment	8 µm nickel-plated, solderable





art. no.	length [mm]	art. no.	length [mm]
DR 071 V0	1	**DR 713 V0**	13
DR 072 V0	2	**DR 714 V0**	14
DR 073 V0	3	**DR 715 V0**	15
DR 074 V0	4	**DR 720 V0**	20
DR 075 V0	5	**DR 725 V0**	25
DR 076 V0	6	**DR 730 V0**	30
DR 077 V0	7	**DR 735 V0**	35
DR 078 V0	8	**DR 740 V0**	40
DR 079 V0	9	**DR 745 V0**	45
DR 710 V0	10	**DR 750 V0**	50
DR 711 V0	11	**DR 760 V0**	60
DR 712 V0	12		

special lengths on request

material	polyamide
heat distortion	180 °C
temperature range	+180 °C
colour	black
flammability	UL 94 V-0

Solder pins → **E 36**
Plugs → **E 36**
Miniature distance sleeves → **E 26**
Mounting parts for heatsinks → **E 43 – 44**
Heatsink profile-overview → **A 13 - 16**
Heatsinks for PCB → **A 90**
Special profiles → **A 136**
Clamp fixing for DIN-rail → **E 16**

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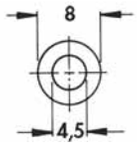
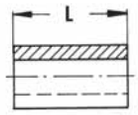
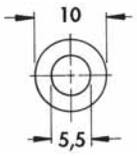
Distance sleeves and spacers

Spacers





art. no.	length [mm]	art. no.	length [mm]
DR 081 V0	1	**DR 813 V0**	13
DR 082 V0	2	**DR 814 V0**	14
DR 083 V0	3	**DR 815 V0**	15
DR 084 V0	4	**DR 820 V0**	20
DR 085 V0	5	**DR 825 V0**	25
DR 086 V0	6	**DR 830 V0**	30
DR 087 V0	7	**DR 835 V0**	35
DR 088 V0	8	**DR 840 V0**	40
DR 089 V0	9	**DR 845 V0**	45
DR 810 V0	10	**DR 850 V0**	50
DR 811 V0	11	**DR 860 V0**	60
DR 812 V0	12		



art. no.	length [mm]	art. no.	length [mm]
DR 105 V0	5	**DR 135 V0**	35
DR 110 V0	10	**DR 140 V0**	40
DR 115 V0	15	**DR 145 V0**	45
DR 120 V0	20	**DR 150 V0**	50
DR 125 V0	25	**DR 160 V0**	60
DR 130 V0	30		

special lengths on request

material	polyamide
heat distortion	180 °C
temperature range	+180 °C
colour	black
flammability	UL 94 V-0

Solder pins → **E 36**
Plugs → **E 36**
Miniature distance sleeves → **E 26**
Mounting parts for heatsinks → **E 43 – 44**
Heatsink profile-overview → **A 13 - 16**
Heatsinks for PCB → **A 90**
Special profiles → **A 136**
Clamp fixing for DIN-rail → **E 16**

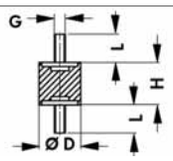
Vibration dampers and solder terminals

Vibration dampers, rubber metal buffers

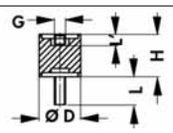
Contructional elements to vibration damping and insulation

Universal applicable round metal, anti vibration buffers for solving vibration problems.

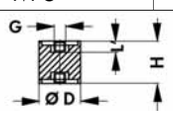
– reduction of dynamic component stress
– vibration insulation for disc drives and motors
– impact reducing on sensitive instruments
– reduction of the noise level
– prevention of vibration resonance phenomena (amplified effect)
– compensation of mechanical inbalances



art. no.	dim. [mm]			
	H	G	Ø D	L
SMP 410 A ...	10	M 4	10	10
SMP 415 A ...	15/ 20	M 4	15	10
SMP 515 A ...	15/ 20	M 5	15	12



art. no.	dim. [mm]				
	H	G	Ø D	L'	L
SMP 410 B ...	10	M 4	10	4	10
SMP 415 B ...	15/ 20	M 4	15	4	10
SMP 515 B ...	15/ 20	M 5	15	5	12



art. no.	dim. [mm]			
	H	G	Ø D	L'
SMP 410 C ...	15/ 20	M 4	10	4
SMP 415 C ...	15/ 20	M 4	15	4
SMP 515 C ...	20	M 5	15	5

... please indicate height "H"

other lengths and hardness range on request

material	rubber-metal connection
rubber	natural rubber (NR according to ISO)
hardness range	approx. 50 Shore A
extensibility and tebsile strength	very good
colour	black
metall parts	steel tin-plated
temperature range	-40 °C ... +80 °C (short term +90 °C)

Distance sleeves for PCB´s in HP grid → **E 31**
Spacers → **E 32 – 33**
Guide rails for PCBs → **E 17 – 22**
Clamp fixing for DIN-rail → **E 16**
Mounting parts for heatsinks → **E 43 – 44**
Thermal conductive material → **E 2 – 15**
Profiles for PCB mounting → **A 90 – 113**
Profiles for PCB components → **A 92**

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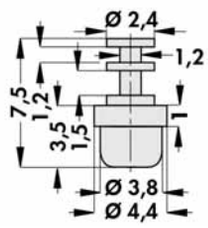
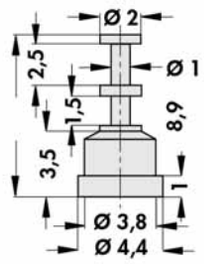
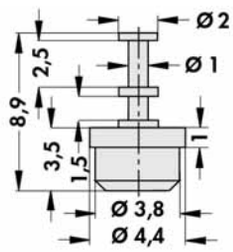
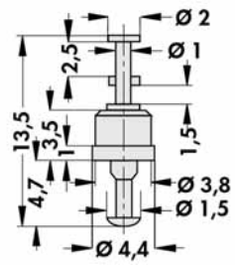
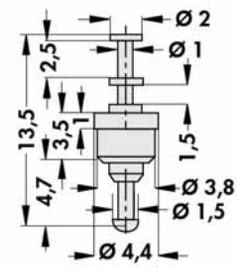
Vibration dampers and solder terminals

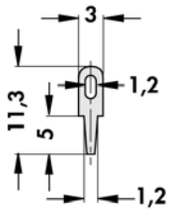
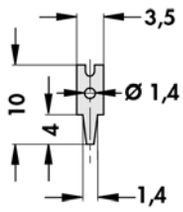
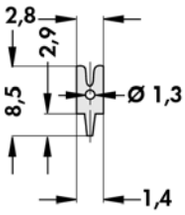
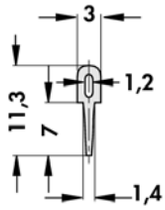
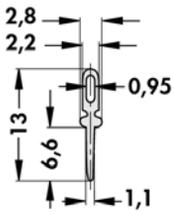
Solder terminals

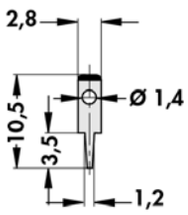
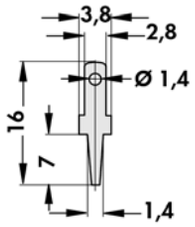
art. no.		
LSD 07520		
art. no.		
LSD 08910		
art. no.		
LSD 08920		
art. no.		
LSD 13510		
art. no.		
LSD 13520		

material	insulating body: PTFE (teflon)
contact pin	brass, 2 µm Ni, 4 µm Ag
temperature range	-200 °C ... +260 °C

Distance sleeves for PCB´s in HP grid → **E 31**
Spacers → **E 32 – 33**
Guide rails for PCBs → **E 17 – 22**
Clamp fixing for DIN-rail → **E 16**
Mounting parts for heatsinks → **E 43 – 44**
Thermal conductive material → **E 2 – 15**
Profiles for PCB mounting → **A 90 – 113**
Profiles for PCB components → **A 92**

Solder pins

				
art. no.	**art. no.**	**art. no.**	**art. no.**	**art. no.**
LS 101 ≒ 0.6 mm	**LS 102** ≒ 0.6 mm	**LS 103** ≒ 0.6 mm	**LS 104** ≒ 0.6 mm	**LS 105** ≒ 0.5 mm

	
art. no.	**art. no.**
LS 106 ≒ 0.8 mm	**LS 107** ≒ 0.5 mm

≒ = thickness

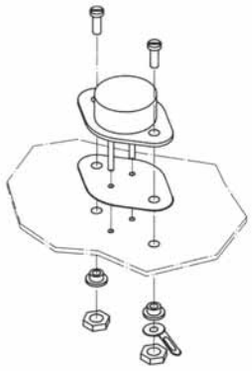
material	brass, 6 µm Sn

Solder terminals → **E 35**
Distance sleeves for PCB´s in HP grid → **E 31**
Spacers → **E 32 – 33**
Insulting clamping parts → **E 38**
Miniature distance sleeves → **E 26**
Mounting material for semiconduct. → **E 37 – 41**
Mounting parts for heatsinks → **E 43 – 44**
Extruded heatsinks → **A 22 – 84**

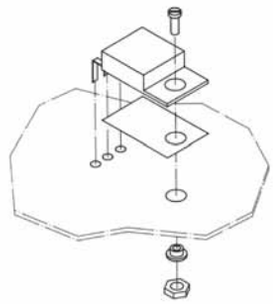
fischer elektronik

Mounting kits for insulation of power transistors

MST 3
MSTS 3



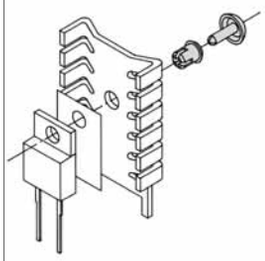
MST 220
MSTS 220

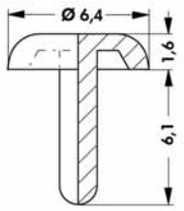


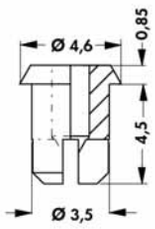
art. no.	for transistor	version	contents of delivery
MST 3	TO 3	with mica wafer GS 3	1 mica wafer, 2 insulator sleeves, 1 tin-plated solder lug, 2 cheese head screws, nickel-plated, 2 screw nuts M 3 nickel-plated
MSTS 3	TO 3	with silicone wafer WS 3	1 silicone wafer, 2 insulator sleeves, 1 tin-plated solder lug, 2 cheese head screws, nickel-plated, 2 screw nuts M 3 nickel-plated
MST 220	TO 220	with mica wafer GS 220	1 mica wafer, 1 tin-plated solder lug, 1 cheese head screw, nickel-plated, 1 screw nut M 3 nickel-plated
MSTS 220	TO 220	with silicone wafer WS 220	1 silicone wafer, 1 insulator sleeve, 1 tin-plated solder lug, 1 cheese head screw, nickel-plated, 1 screw nut M 3 nickel-plated

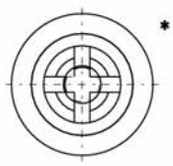
Snap rivet for quick fastening of TO 220

- detachable plastic snap rivet for quick fastening of transistors onto heatsinks and cooling plates (e.g. FK 212-CB, FK 216-CB, FK 222-220, FK 232, FK 233, FK 235-L 1)
- suitable for material thickness: 1.0 – 1.5 mm
- suitable for hole diameter: 3.5 – 4.0 mm









art. no.	for transistor
EPN 1	TO 220

***** = bottom view. Pin not inserted

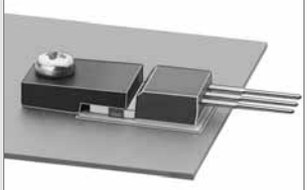
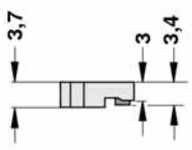
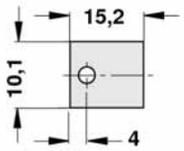
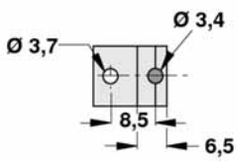
material	polysulphone, GF reinforced
temperature range	-70 °C ... +180 ° (5 sec. +260 °C)
flammability	UL 94 V-0

Distance sleeves for PCB´s in HP grid → **E 31**
Spacers → **E 32 – 33**
Guide rails for PCBs → **E 17 – 22**
Clamp fixing for DIN-rail → **E 16**
Mounting parts for heatsinks → **E 43 – 44**
Thermal conductive material → **E 2 – 15**
Profiles for PCB mounting → **A 90 – 113**
Profiles for PCB components → **A 92**

Insulating clamping parts for power transistors

Plastic insulating clamping parts for mounting transistors in cases TO 220, TO 218 and TO 247 for enhanced dielectric stengths

– electrically insulating assembly of the transistor by means of a plastic clamping part
– pin with a reaching into the hole of the transistor plate
– fastening of clamping part onto the mounting plate by screws, no electroinsulating connection to the transistor
– dielectric strength only determined by the insulating washer between transistor and mounting surface
– no insulating bush necessary, thus no dielectric breakdown

art. no.				
ISP 220				
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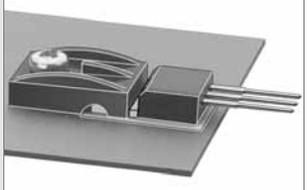
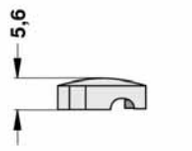
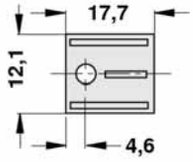
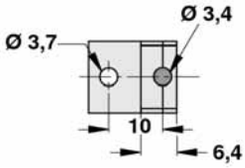
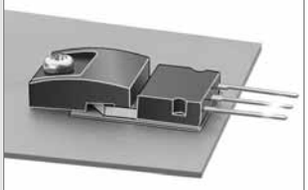
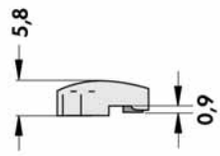
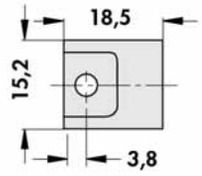
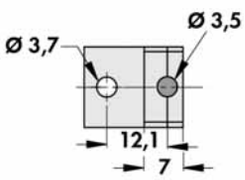
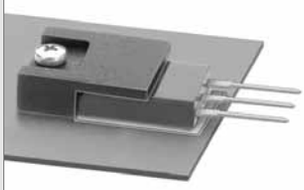
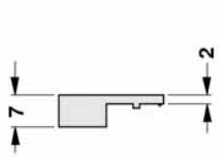
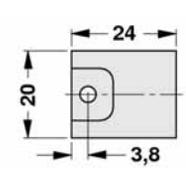
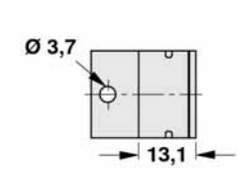
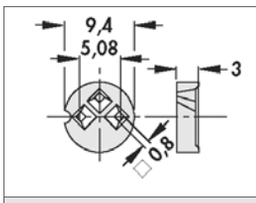
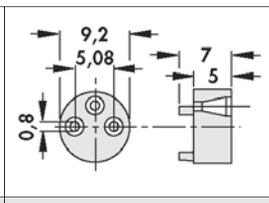
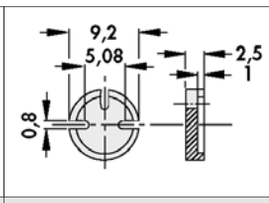
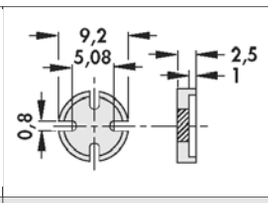
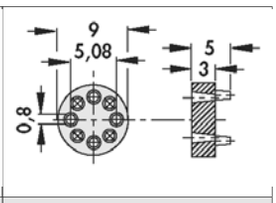
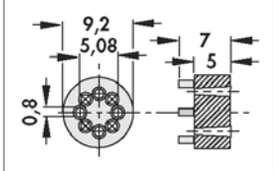
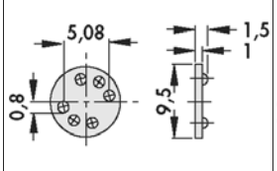
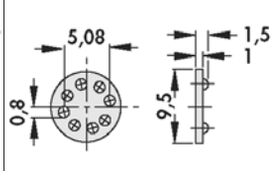
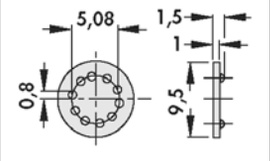
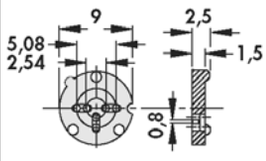
ISP 220 V				
art. no.				
ISP 218				
art. no.				
ISP 247				

material	polyamide, GF reinforced
heat distortion	205(1,8 MPa)135(8 MPa)
dielectric strength	>27 KV/mm
dielectric constant	8 [100 Hz] 4,5 [1 MHz]
dielectric loss factor	1300 [100 Hz] 450 [1 MHz]
specific volume resistance	$>10^{13}$ Ω/cm
colour	black
flammability	UL 94 V-0

Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Profiles for PCB mounting → **A 90 – 113**
Thermal conductive material → **E 2 – 15**
Insulating distance sleeves → **E 24 – 26**
Vibration dampers → **E 34**
Snap rivet → **E 37**

Mounts

				
art. no.	**art. no.**	**art. no.**	**art. no.**	**art. no.**
MS 53 3 TO 5	**MS 53 7** TO 5	**MS 53 25** TO 5	**MS 54 25** TO 5	**MS 58 5** TO 5-8 p.
				
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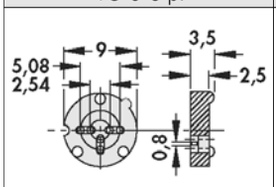
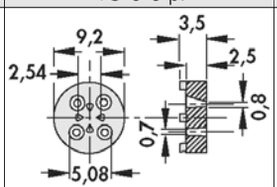
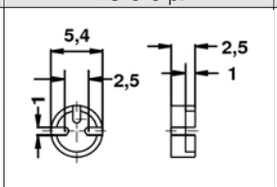
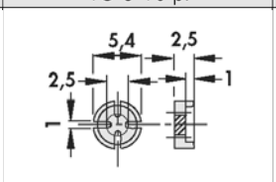
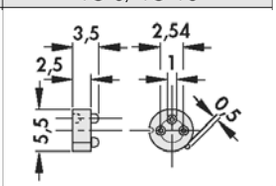
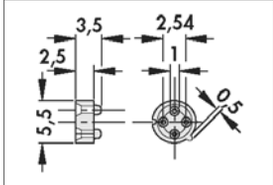
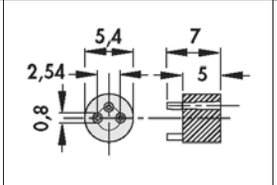
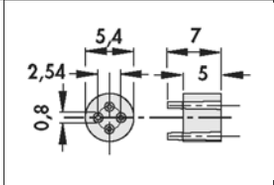
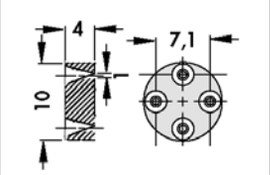
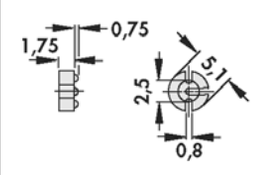
MS 58 7 TO 5-8 p.	**MS 56 15** TO 5-6 p.	**MS 58 15** TO 5-8 p.	**MS 510 15** TO 5-10 p.	**MS 3518 25** TO 5/ TO 18
				
art. no.	**art. no.**	**art. no.**	**art. no.**	**art. no.**
MS 3518 35 TO 5/ TO 18	**MS 34 518** TO 5 / TO 18	**MS 183 25** TO 18	**MS 184 25** TO 18	**MS 183 35** TO 18
				
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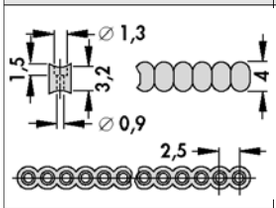
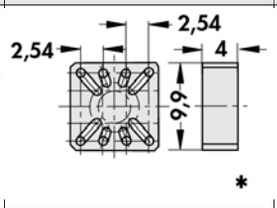
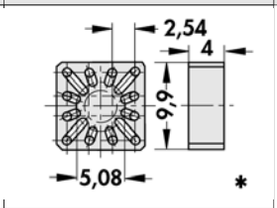
MS 184 35 TO 18	**MS 183 7** TO 18	**MS 184 7** TO 18	**MS 84 4** TO 8	**MS 923 25** TO 92
				
art. no.	**art. no.**	**art. no.**		
MS 4016 max. 16 contacts	**US 58 4** TO 5	**US 512 4** TO 5		

* = **mounting pads**: the US-pads convent the TO 5 pin circle to a pitch of .1".

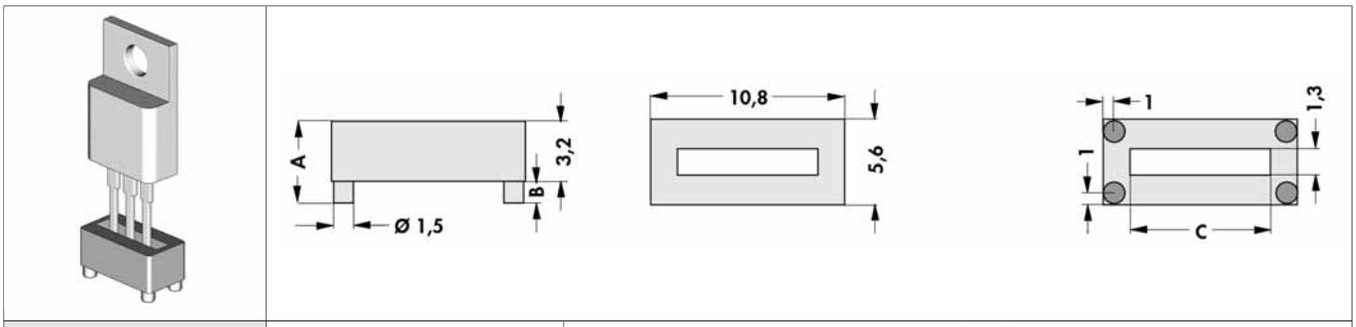
material	polyamide 6, GF reinforced
temperature range	-40 °C ... +205 °C
flammability	UL 94 V-0 (at thickness ≥ 3 mm), UL 94 V-1

Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Profiles for PCB mounting → **A 90 – 113**
Thermal conductive material → **E 2 – 15**
Insulating distance sleeves → **E 24 – 26**
Vibration dampers → **E 34**
Snap rivet → **E 37**

Mounts

Mounts for power transistors

for TO 220, TO 219, TO 202 and similar; **for vertical and horizontal mounting;** also suitable as mounting bracket for angled connections

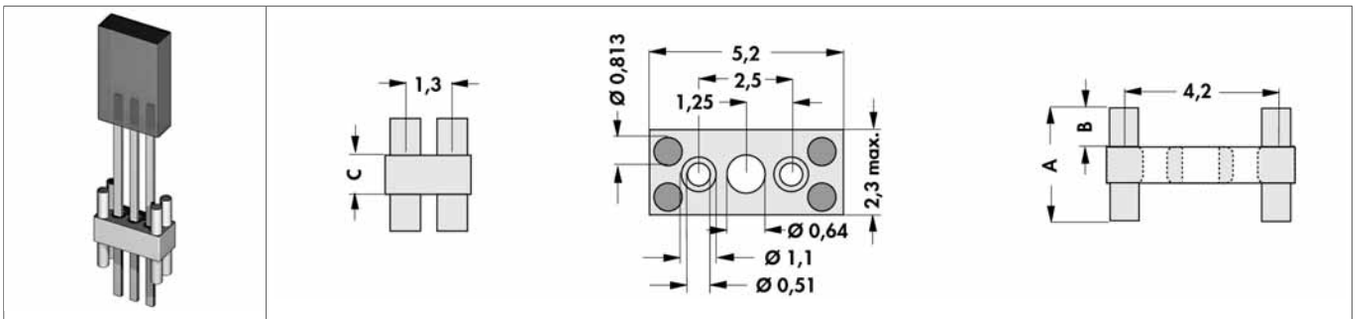


art. no.	colour	dim. [mm]		
		A	B	C
MLW 32	white	3.2	–	7.1
MLW 44	white	4.4	1.3	7.1
MLW 51	white	5.1	1.9	7.1

material	polyamide 6 (nylon)
temperature range	-40 ... +120
flammability	UL 94 V-2

Mounts for rectangular LEDs

for LED 2x4 mm oder 2x5 mm; **symmetric version for easy assembly;** self-adhesive



art. no.	dim. [mm]		
	A	B	C
MRL 20	2	0.5	1

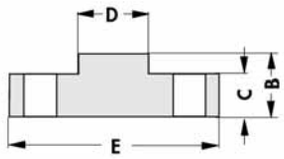
material	polyamide 6 (nylon), white
temperature range	-40 ... +120
flammability	UL 94 V-2

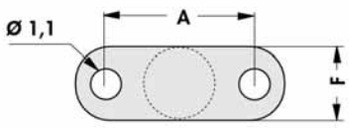
Profiles for PCB components → **A 92**
Heatsinks for PCB → **A 90**
Profiles for PCB mounting → **A 90 – 113**
Thermal conductive material → **E 2 – 15**
Insulating distance sleeves → **E 24 – 26**
Vibration dampers → **E 34**
Snap rivet → **E 37**

Mounts

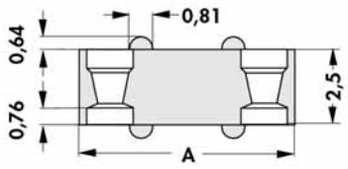
Mounts for discrete components

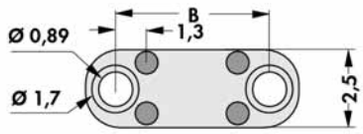
suitable for various components e.g. resistors, capacitors etc.



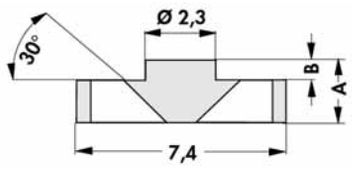


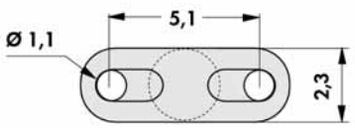
art. no.	dim. [mm]					
	A	B	C	D	E	F
MD A 04	2.5	1.1	0.55	1.3	4.6	2.3
MD A 06	3.8	1.1	0.55	2.3	6.9	3.2
MD A 07	5.1	1.1	0.55	2.3	7.4	2.3
MD A 08	6.4	1.1	0.66	2.3	8.6	2.3
MD A 09	7.6	1.1	0.66	3.6	9.9	2.3
MD A 12	10.2	1.1	0.76	4.8	12.4	2.3





art. no.	dim. [mm]	
	A	B
MD B 07	7.6	5.1
MD B 08	8.9	6.4
MD B 10	10.2	7.6
MD B 11	11.4	8.9
MD B 12	12.7	10.2
MD B 15	15.2	12.7





art. no.	dim. [mm]	
	A	B
MD C 13	1.3	–
MD C 18	1.8	0.56
MD C 22	2.2	0.89

material	polyamide 6 (nylon)
temperature range	-30 ... +110
flammability	UL 94 V-2

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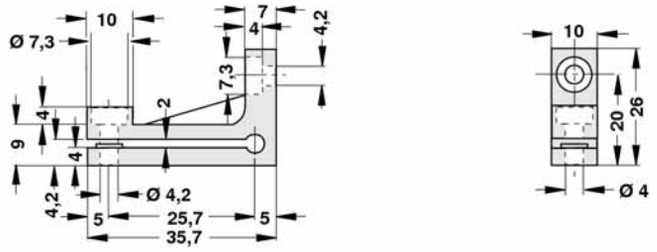
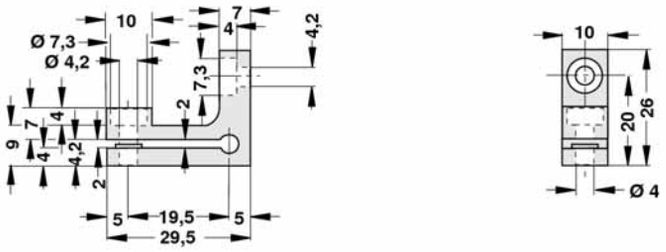
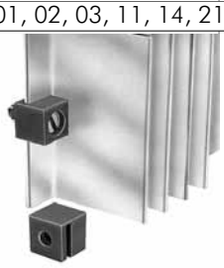
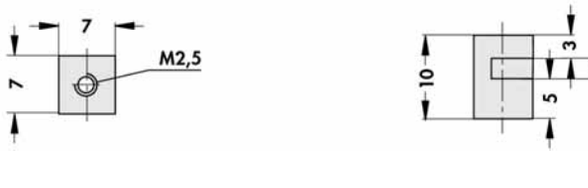
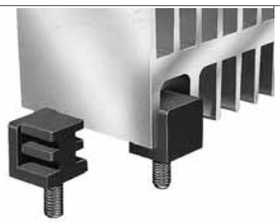
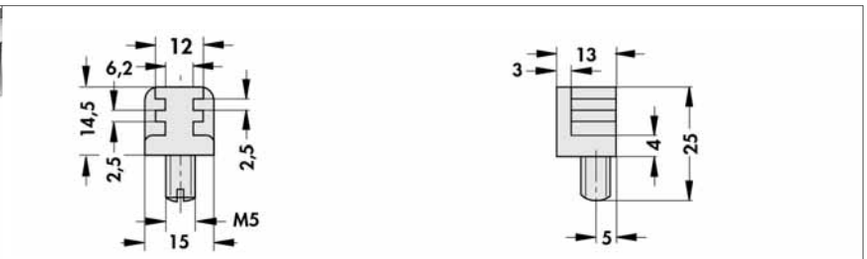
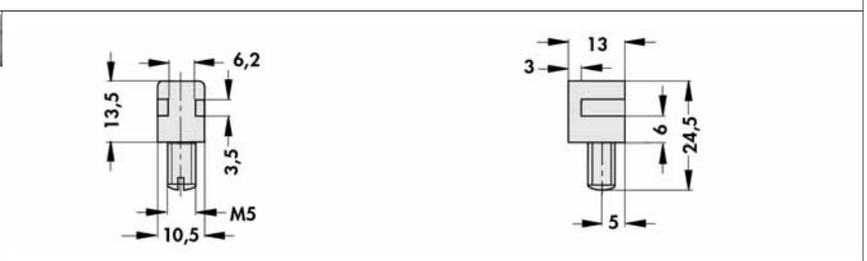
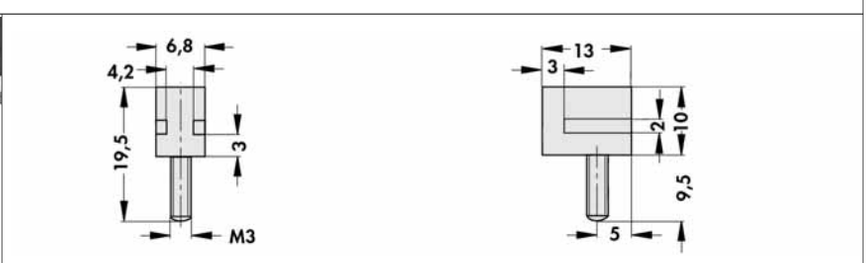
Mounting parts for heatsinks

art. no.		
		
IS 1	for SK 01, 02, 03, 11, 14, 21, 30, 34, 36, 39, 46, 69; heatsink length: 50 mm	
art. no.		
		
IS 2	for SK 01, 02, 03, 11, 14, 21, 30, 34, 36, 39, 46, 69; heatsink length: 37,5 75 100 mm	
art. no.		
		
IS 3	for SK 01, 02, 03, 11, 14, 21, 30, 34, 36, 39, 46, 69	
art. no.		
		
IS 4	for SK 06	
art. no.		
		
IS 5	for SK 20	

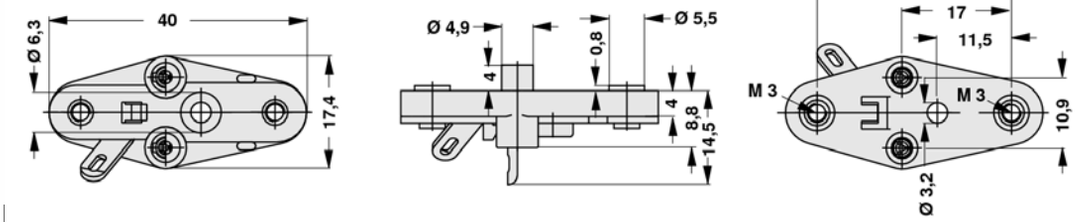
material	polyamide 6, GF reinforced
flammability	UL 94 V-0

Mounting parts for heatsinks

art. no.		
		
IS 6	for SK 67	
art. no.		
IS 7	for SK 70	
art. no.		
IS 8	for SK 20	

material	polyamide 6, GF reinforced
flammability	UL 94 V-0

Sockets for power transistors TO 3

		
art. no.		dim. [mm] number of contacts
TF 3 2		3

insulator	PCT, glassfibre filled
contact	beryllium copper; 4 ... 6 µm Sn
current rating	15 A max.
contact resistance	<10 mΩ
temperature range	-65 °C ... +290 °C
insulation resistance	$>10^{10}$ Ω/cm
capacity	1 pF
test voltage	1650 V

Heatsink profile-overview → **A 13 - 16**
Profiles for PCB mounting → **A 90 – 113**
Heatsinks for PCB → **A 90**
Insulating distance sleeves → **E 24 – 26**
Insulting clamping parts → **E 38**
Mounting pads for transistors → **E 40**
Mounting pads for single components → **E 41**
Mounting material for semiconduct. → **E 37 – 41**

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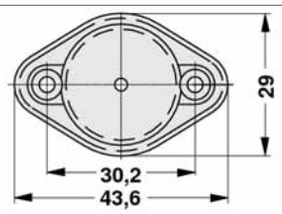
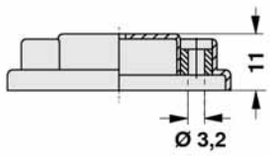
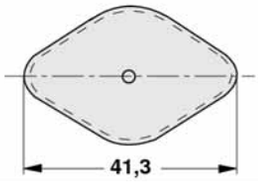
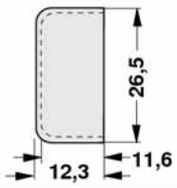
Insulating caps

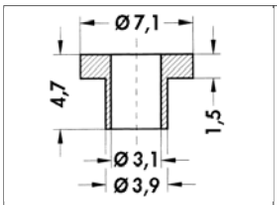
different transistor flange levels will be compensated by the impressed sleeves

art. no.			
IK 341 3			
art. no.			
IK 3			

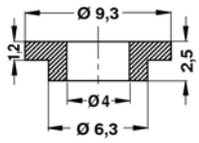
material	polyamide, GF reinforced (caps)
pressed-in sleeves	brass, nickel-plated
flammability	UL 94 V-0

Mica wafers → **E 11**
Thermal conductive material → **E 2 – 4**
Mounting for TO 3 angle → **A 125**
Kapton insulator washers → **E 8**
Aluminium oxide wafers → **E 9 – 10**
Thermal conductive paste → **E 13**
Thermal conductive glue → **E 15**
Distance sleeves → **E 24 – 25**

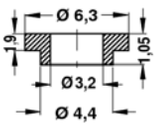
Insolater sleeves



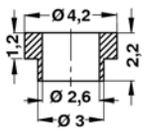
art. no.
IB 1 / IBT 1



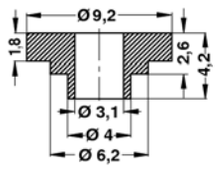
art. no.
IB 2 / IBT 2



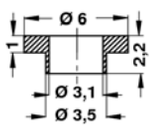
art. no.
IB 3 / IBT 3



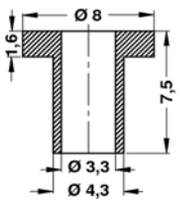
art. no.
IB 4 / IBT 4



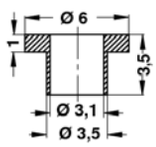
art. no.
IB 5



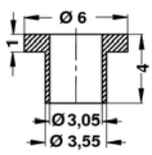
art. no.
IB 6 / IBT 6



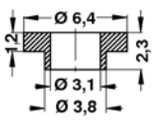
art. no.
IB 7 / IBT 7



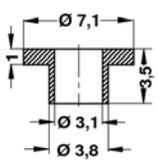
art. no.
IB 8 / IBT 8



art. no.
IB 9 / IBT 9



art. no.
IB 10 / IBT 10



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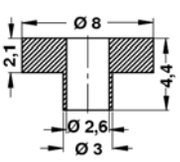
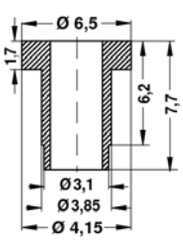
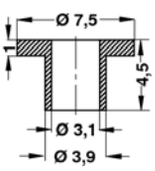
IB 11 / IBT 11



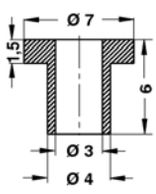
art. no.
IB 12 / IBT 12



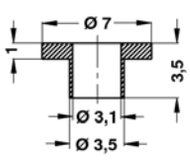
art. no.
IB 13



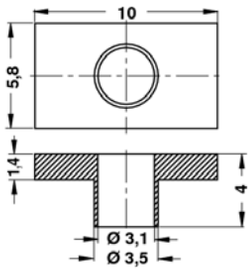
art. no.
IB 14 / IBT 14



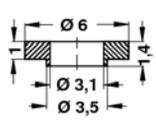
art. no.
IB 15 / IBT 15



art. no.
IB 16



art. no.
IB 17



art. no.
IB 18 / IBT 18

	IB 1 - IB 7 / 18	IB 8 - IB 17	IBT 1 - IBT 15 / 18
material	polyamide 4.6, GF reinforced	thermoplastic resin	PTFE (teflon)
form stability	-40 °C ... +250°C (1.8 MPa)	-40 °C ... +200 °C	-260 °C ... +250 °C
dielectric strength	>30 KV/mm	>38 KV/mm	>40 KV/mm
flammability	UL 94 V-0	accordant UL 94 V-0	UL 94 V-0

Heatsink profile-overview → **A 13 - 16**
Profiles for PCB mounting → **A 90 – 113**
Heatsinks for PCB → **A 90**
Insulating distance sleeves → **E 24 – 26**
Insulting clamping parts → **E 38**
Mounting pads for transistors → **E 40**
Mounting pads for single components → **E 41**
Mounting material for semiconduct. → **E 37 – 41**

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