

# MechaTronix in LED

## LPF6050-ZHC Citizen Zhaga LED Pin Fin Heat Sink ø60mm



### Features & Benefits

- Designed for Citizen CITED LED COB engines
- Diameter 60mm base - height 50mm
- Thermal resistance Rth 4.0°C/W
- Validated thermal design with CLL020-1202, CLL020-1203 and CLL020-1204 at nominal and full load with ambient temperature 25°C, 40°C and 50°C
- Specific mounting patterns for CITED CLL020 COB, Zhaga (book 3) LED holders and Tyco Electronics LED holders for CLL020 (1 and 2 part designs)
- Cable guidance hole



### Order Information



Your Connection to Light



Example : LPF6050-ZHC-B-1

LPF6050-ZHC - **1** - **2**

- 1** Anodising color - "B" - Black Anodised  
"C" - Clear Anodised  
"Z" - Custom ( specify )
- 2** B Mounting Options - see graphics for details  
Combinations available  
Ex. order code - 13  
means option 1 and 3 combined

MOUNTING OPTION	THREAD	THREAD DEPTH
NONE/BLANC	NONE	NONE
1	M8x1	5mm
2	5/16-24 UNC	0.197"
3	M60x2	Base contour

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### Product Details



#### Model n°

Dimension (mm) <sup>*1</sup>	ø60 x h50
Volume (mm <sup>3</sup> )	41094
Cooling Surface (mm <sup>2</sup> )	43447
Weight (gr)	110.95
Thermal Resistance (°C/W) <sup>*2</sup>	4.0
Power Pd (W) <sup>*3</sup>	12
Heat Sink Material	AL1070

<sup>\*1</sup> 3D files are available in ParaSolid, STP and IGS on request

<sup>\*2</sup> The thermal resistance Rth is determined with a calibrated heat source of 30mm x 30mm central placed on the heat sink, Tamb 40° and an open environment. Reference data @ heat sink to ambient temperature rise Ths-amb 50°C  
The thermal resistance of a LED cooler is not a fix value and will vary with the applied dissipated power Pd

<sup>\*3</sup> Dissipated power Pd. Reference data @ heat sink to ambient temperature rise Ths-amb 50°C  
The maximal dissipated power needs to be verified in function of required case temperature Tc or junction temperature Tj and related to the estimated ambient temperature where the light fixture will be placed  
Please be aware the dissipated power Pd is not the same as the electrical power Pe of a LED module

To calculate the dissipated power please use the following formula:  $Pd = Pe \times (1 - \eta_L)$

Pd - Dissipated power

Pe - Electrical power

$\eta_L$  = Light efficiency of the LED module

#### Notes:

- MechaTronix reserves the right to change products or specifications without prior notice.
- Mentioned models are an extraction of full product range.
- For specific mechanical adaptations please contact MechaTronix.

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### Mounting Options



#### Citizen CITILED CLL020 LED COB

The LPF6050-ZHC LED pin fin heat sink is designed in this way that it offers sufficient cooling for the complete Citizen CITILED CLL020 series

Design conditions:  
CLL020-1202, CLL020-1203, CLL020-1204

Module power  $P_e$  max 16.16W,  
Dissipated power  $P_d$  max 12.12W  
Ambient temperature  $T_a$  40°C

Please consult the thermal data graphs on the datasheet and the Citizen thermal validation overview on the website [www.led-heatsink.com](http://www.led-heatsink.com)

Mounting:  
2 screws M3 x 4mm  
Recommended torque 4 to 6 lb/in

MechaTronix recommends the use of a high thermal conductive interface between the LED COB module and the heat sink. Either thermal grease, a thermal pad with thickness 0.1-0.15mm or a phase change thermal pad thickness 0.1-0.15mm is recommended

Thermal pads or phase change thermal pads can be pre-applied from MechaTronix



#### Zhaga compliant LED modules and holders (book 3)

The LPF6050-ZHC LED pin fin heat sink is foreseen from mounting holes according the Zhaga standard (book 3)

3 extra mounting holes M3 x 3mm are foreseen for direct reflector mounting option

Mounting:  
2 screws M3 x 6mm  
Hole distance 35mm  
Recommended torque 4 to 6 lb/in



#### Tyco & BJB LED holders for Citizen CITILED CLL030

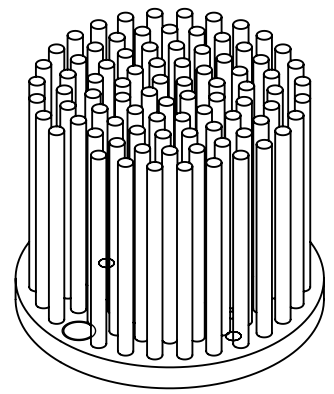
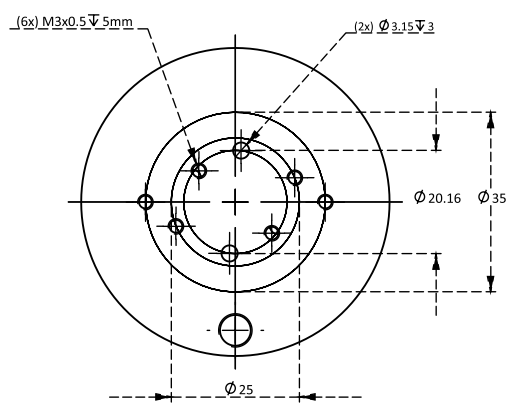
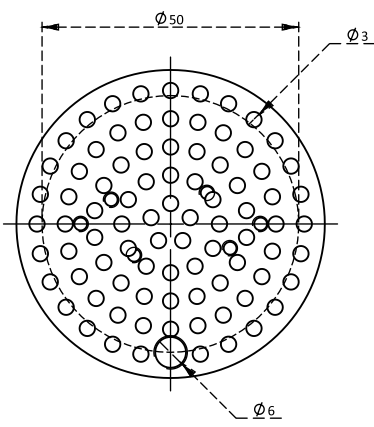
The LPF6050-ZHC LED pin fin heat sink is foreseen from mounting holes to fit the specific developed Tyco Electronics LED holders for Citizen CLL020 COB arrays

Models:  
1 part LED holders - TE 6-2154874-1  
2 parts LED holder - TE 2-2154857-1

Mounting:  
2 screws M3 x 6mm  
Recommended torque 4 to 6 lb/in



### Drawings & Dimensions





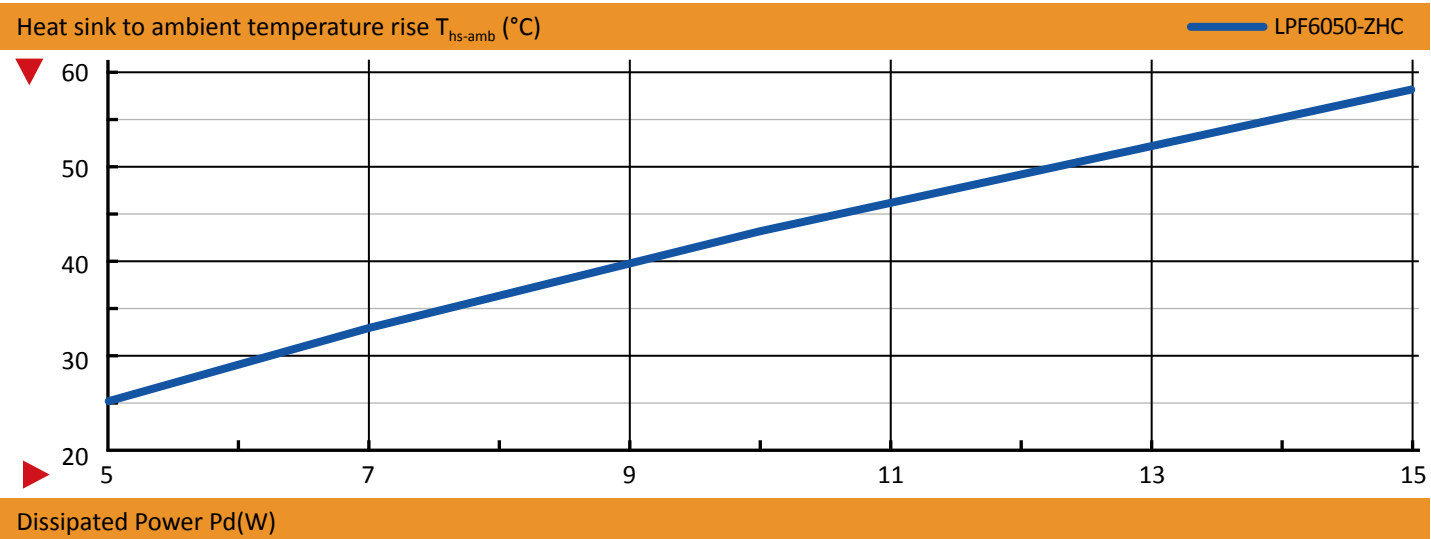
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### Thermal Data

$P_d = P_e \times (1-\eta_L)$			LED Light efficiency, $\eta_L$ (%)			Heat sink to ambient thermal resistance $R_{hs-amb}$ (°C/W)	Heat sink to ambient temperature rise $T_{hs-amb}$ (°C)
			17%	20%	25%		
Dissipated Power $P_d$ (W)	5	Electrical Power $P_e$ (W)	6.02	6.25	6.67	5.0	25
	7		8.43	8.75	9.33	4.7	33
	10		12.05	12.50	13.33	4.3	43
	15		18.07	18.75	20.00	3.9	58



### Citizen recommended case temperature $T_c \leq 85^\circ\text{C}$

Model	Forward Current $I_f$ (mA)	Electrical Power $P_e$ (W)	Case Temperature $T_c$ (°C)		
			@ Ambient Temperature $T_a$ 25°C	@ Ambient Temperature $T_a$ 40°C	@ Ambient Temperature $T_a$ 50°C
CLL-020-1202	120	4.4	42	57	67
CLL-020-1202	240	8.8	56	71	81
CLL-020-1203	180	6.2	47	62	72
CLL-020-1203	360	13.2	65	80	-
CLL-020-1204	240	8.3	52	67	77
CLL-020-1204	480	17.4	76	-	-