



BZW06-13(B) / 376(B) SERIES

Transient Voltage Suppressor Diodes



Voltage Range
13 to 376 Volts
600 Watts Peak Power

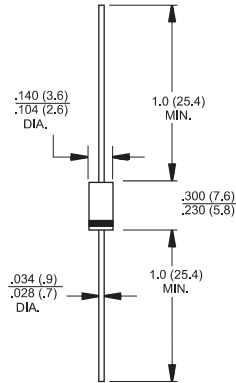
Features

- ✦ UL Recognized File # E-96005
- ✦ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ✦ Exceeds environmental standards of MIL-STD-19500
- ✦ 600W surge capability at 10 x 100 us waveform, duty cycle: 0.01%
- ✦ Excellent clamping capability
- ✦ Low zener impedance
- ✦ Fast response time: Typically less than 1.0ps from 0 volts to VBR for unidirectional and 5.0 ns for bidirectional
- ✦ Typical I_R less than 1uA above 10V
- ✦ High temperature soldering guaranteed: 260°C / 10 seconds / .375", (9.5mm) lead length / 5lbs., (2.3kg) tension

Mechanical Data

- ✦ Case: Molded plastic
- ✦ Lead: Axial leads, solderable per MIL-STD-202, Method 208
- ✦ Polarity: Color band denotes cathode except bipolar
- ✦ Weight: 0.34gram

DO-15



Dimensions in inches and (millimeters)

Maximum Ratings and Electrical Characteristics ($T_A = 25^\circ\text{C}$)

Type Number	Symbol	Value	Units
Peak Pulse Power Dissipation at $T_A=25^\circ\text{C}$, $T_p=1\text{ms}$ (Note)	P_{PP}	Minimum 600	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ Lead Lengths .375", 9.5mm (Note 2)	P_D	1.7	Watts
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (Note 3)	I_{FSM}	100	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to + 175	$^\circ\text{C}$

Notes: For a surge greater than the maximum values, the diode will fall in short-circuit.

Thermal Resistances

Type Number	Symbol	Value	Units
Junction to leads	$R_{\theta_{JL}}$	60	$^\circ\text{C/W}$
Junction to ambient on printed circuit. L lead=10mm	$R_{\theta_{JA}}$	100	$^\circ\text{C/W}$

RATINGS AND CHARACTERISTIC CURVES (BZW06-13(B)/376(B)SERIES)

FIG.1- PEAK PULSE POWER VERSUS EXPONENTIAL PULSE DURATION

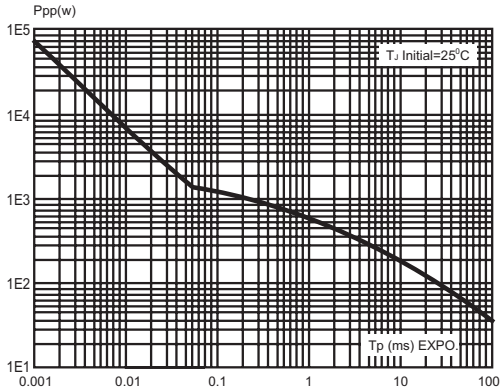


FIG.2- PEAK PULSE POWER DISSIPATION VERSUS INITIAL JUNCTION TEMPERATURE (PRINTED CIRCUIT BOARD)

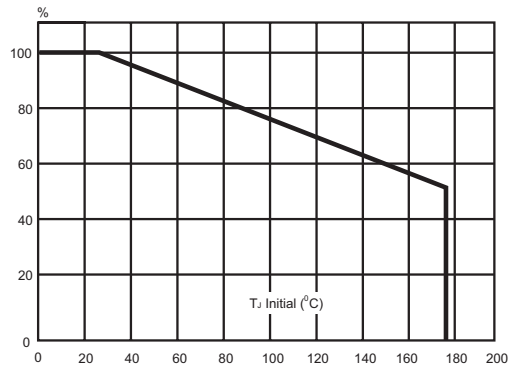


FIG.3- PULSE WAVEFORM

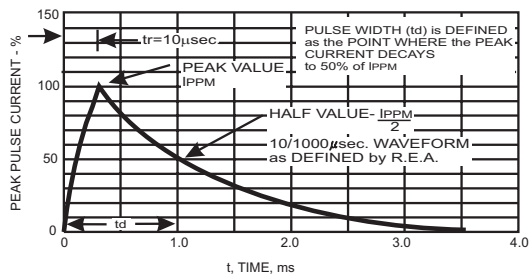


FIG.4- CLAMPING VOLTAGE VERSUS PEAK PULSE CURRENT.

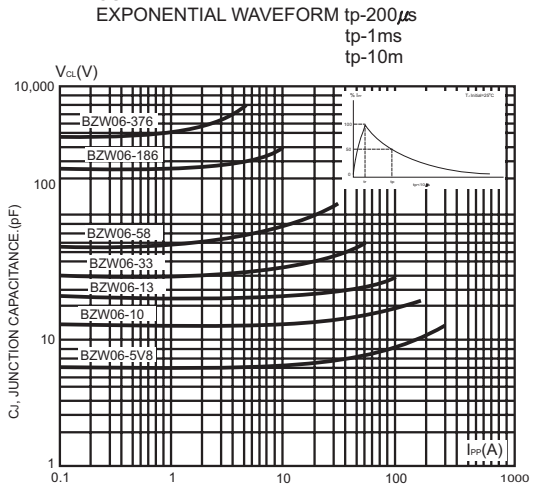
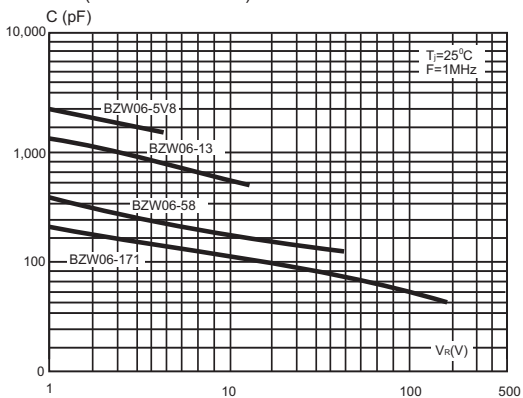


FIG.5- CHARACTERISTICS VERSUS REVERSE APPLIED VOLTAGE FOR UNIDIRECTIONAL TYPES (TYPICAL VALUES)



RATINGS AND CHARACTERISTIC CURVES (BZW06-13(B)/376(B)SERIES)

FIG.6- CHARACTERISTICS VERSUS REVERSE APPLIED VOLTAGE FOR UNIDIRECTIONAL TYPES (TYPICAL VALUES)

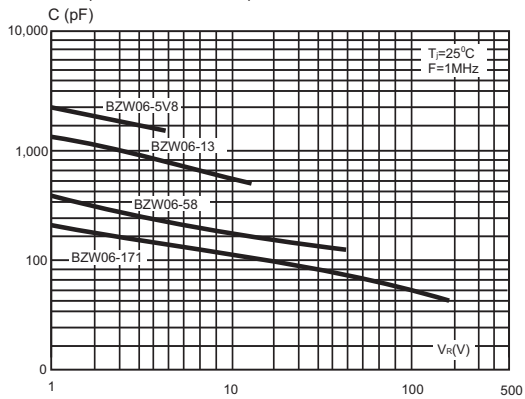


FIG.7- PEAK FORWARD VOLTAGE DROP VERSUS PEAK FORWARD CURRENT (TYPICAL VALUES FOR UNIDIRECTIONAL TYPES)

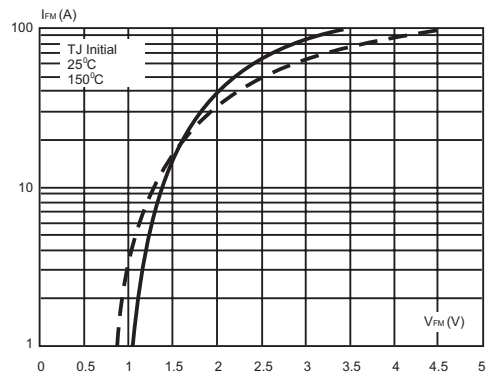


FIG.8- TRANSIENT THERMAL IMPEDANCE JUNCTION AMBIENT VERSUS PULSE DURATION (FOR FR4 PC BOARD WITH L LEAD=10mm)

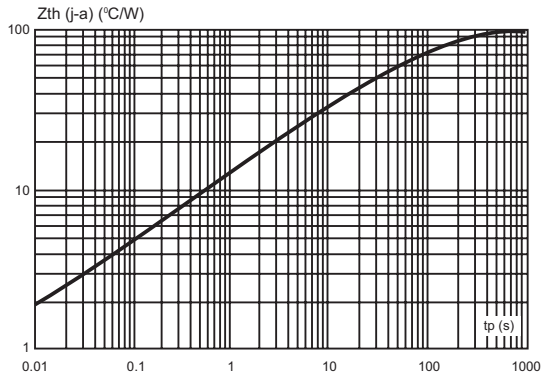
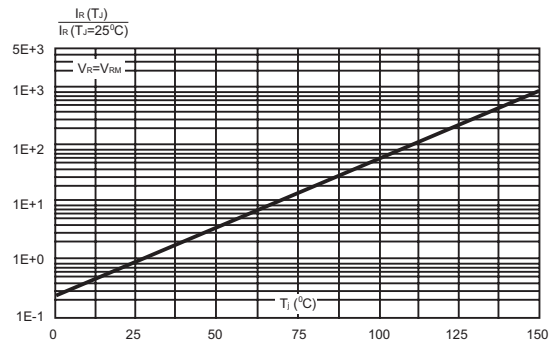


FIG.9- RELATIVE VARIATION OF LEAKAGE CURRENT VERSUS JUNCTION TEMPERATURE



ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Device		I _{RM} @ V _{RM}		V _{BR} @ I _R				V _{CL} @ I _{PP}		V _{CL} @ I _{PP}		αT	C
		max		note1				max		max		max	typ
		uA	V	Min	Nom.	Max.		10/1000uS	8/20uS	note2	note3		
Unidirectional	Bidirectional			V	V	V	mA	V	A	V	A	10 ⁻⁷ /°C	(pF)
BZW06-13	BZW06-13B	5	12.8	14.3	15.0	15.8	1	21.2	28	27.2	147	8.4	1900
BZW06-15	BZW06-15B	1	15.3	17.1	18.0	18.9	1	25.2	24	32.5	123	8.8	1600
BZW06-19	BZW06-19B	1	18.8	20.9	22.0	23.1	1	30.6	19.6	39.3	102	9.2	1350
BZW06-20	BZW06-20B	1	20.5	22.8	24.0	25.2	1	33.2	28.0	42.8	93	9.4	1250
BZW06-23	BZW06-23B	1	23.1	25.7	27.0	28.4	1	37.5	16.0	48.3	83	9.6	1150
BZW06-26	BZW06-26B	1	25.6	28.5	30.0	31.5	1	41.5	14.5	53.5	75	9.7	1075
BZW06-28	BZW06-28B	1	28.2	31.4	33.0	34.7	1	45.7	13.1	59.0	68	9.8	1000
BZW06-31	BZW06-31B	1	30.8	34.2	36.0	37.8	1	49.9	12.0	64.3	62	9.6	950
BZW06-33	BZW06-33B	1	33.3	37.1	39.0	41.0	1	53.9	11.1	69.7	57	10.0	900
BZW06-37	BZW06-37B	1	36.8	41.0	43.0	45.2	1	59.3	10.1	75.0	52	10.0	850
BZW06-40	BZW06-40B	1	40.2	44.7	47.0	49.4	1	64.8	0.3	84	48	10.1	800
BZW06-48	BZW06-48B	1	47.8	53.2	56.0	58.8	1	77.0	7.8	100	40	10.3	700
BZW06-58	BZW06-58B	1	58.1	64.6	68.0	71.4	1	92	6.5	121	33	10.4	625
BZW06-70	BZW06-70B	1	70.1	77.9	82.0	86.1	1	113	5.3	146	27	10.5	550
BZW06-85	BZW06-85B	1	85.5	95	100	105	1	137	4.4	178	23	10.6	500
BZW06-102	BZW06-102B	1	102	114	120	126	1	165	3.6	212	19	10.7	450
BZW06-128	BZW06-128B	1	128	143	150	158	1	207	2.9	265	15	10.8	400
BZW06-154	BZW06-154B	1	154	171	180	189	1	246	2.4	317	13	10.8	360
BZW06-171	BZW06-171B	1	171	190	200	210	1	274	2.2	353	11	10.8	350
BZW06-188	BZW06-188B	1	188	209	220	231	1	328	2.0	388	10.3	10.8	330
BZW06-213	BZW06-213B	1	231	237	250	263	1	344	2.0	442	9.0	11.0	310
BZW06-256	BZW06-256B	1	256	285	300	315	1	414	1.6	529	7.6	11.0	290
BZW06-273	BZW06-273B	1	273	304	320	336	1	438	1.6	564	7.1	11.0	280
BZW06-299	BZW06-299B	1	299	332	350	368	1	482	1.6	618	6.5	11.0	270
BZW06-342	BZW06-342B	1	342	380	400	420	1	548	1.3	706	5.7	11.0	360
BZW06-376	BZW06-376B	1	376	418	440	462	1	603	1.3	776	5.7	11.0	350

Notes: 1. Pulse test: tp < 50 ms.

2. $\Delta V_{BR} = \alpha T (T_{amb} - 25) * V_{BR} (25^{\circ}C)$

3. V_R=0V, F=1MHz, For bidirectional types, capacitance value is divided by 2