

# BZW06 SERIES

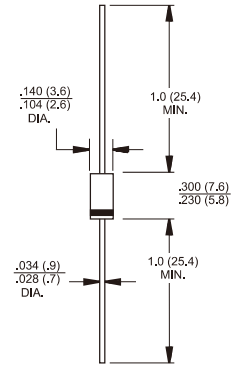
## 600 Watts Transient Voltage Suppressor

### DO-15



### Features

- ✧ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ✧ Exceeds environmental standards of MIL-STD-19500
- ✧ 600W surge capability at 10 x 1000 us waveform
- ✧ Excellent clamping capability
- ✧ Low Dynamic 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
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode.



Dimensions in inches and (millimeters)

### Marking Diagram



- BZW06XX = Specific Device Code
- G = Green Compound
- Y = Year
- WW = Work Week

### Mechanical Data

- ✧ Case: Molded plastic
- ✧ Lead: Axial leads, solderable per MIL-STD-202, Method 208
- ✧ Polarity: Color band denotes cathode except bipolar
- ✧ Weight: 0.354 grams

### Maximum Ratings and Electrical Characteristics

Type Number	Symbol	Value	Units
Peak Pulse Power Dissipation at $T_A=25^\circ\text{C}$ , $T_p=$ ms (Note1)	$P_{PK}$	Minimum 600	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ Lead Lengths .375", 9.5mm	$P_D$	1.7	Watts
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (Note 2)	$I_{FSM}$	100	Amps
Junction to leads	$R_{\theta JL}$	60	$^\circ\text{C/W}$
Junction to ambient on printed circuit. L lead=10mm	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to + 175	$^\circ\text{C}$

- Notes: 1. Non-repetitive Current Pulse, Per Fig. 3  
2. Mounted on 8.3ms single half sine-wave or equivalent square wave.

### RATINGS AND CHARACTERISTIC CURVES (BZW06 SERIES)

FIG.1- PEAK PULSE POWER VERSUS EXPONENTIAL PULSE DURATION

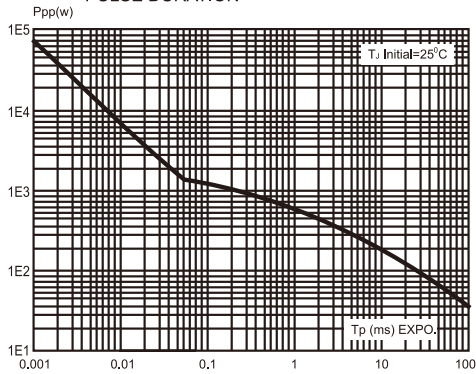


FIG.2- PEAK PULSE POWER DISSIPATION VERSUS INITIAL JUNCTION TEMPERATURE (PRINTED CIRCUIT BOARD)

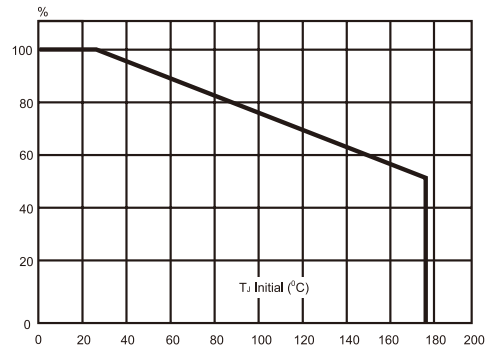


FIG.3- PULSE WAVEFORM

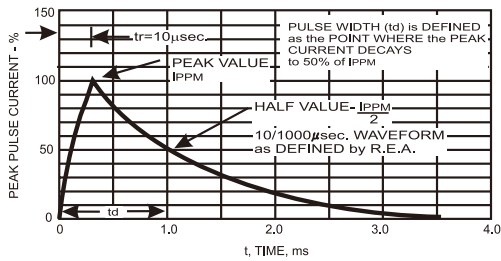


FIG.4- CLAMPING VOLTAGE VERSUS PEAK PULSE CURRENT. EXPONENTIAL WAVEFORM tp=200µs, tp=1ms, tp=10m

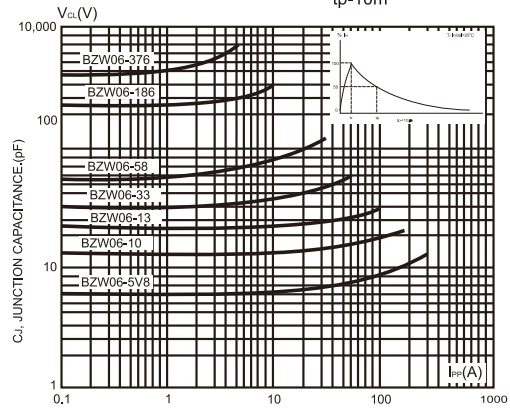
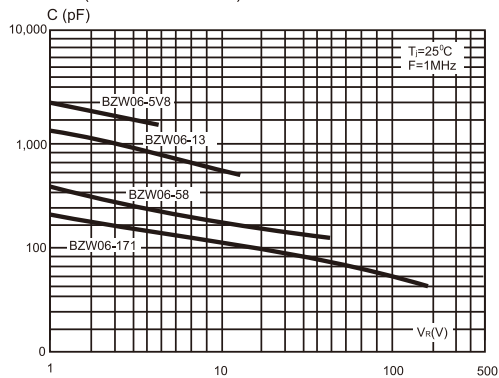
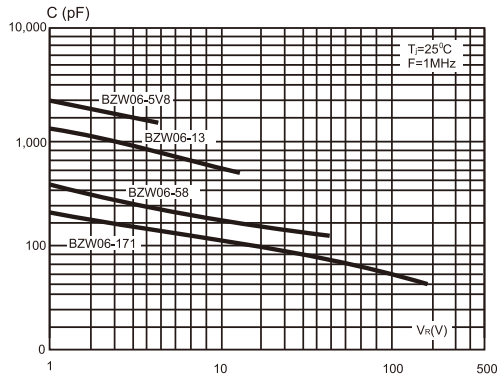


FIG.5- CHARACTERISTICS VERSUS REVERSE APPLIED VOLTAGE FOR UNIDIRECTIONAL TYPES (TYPICAL VALUES)

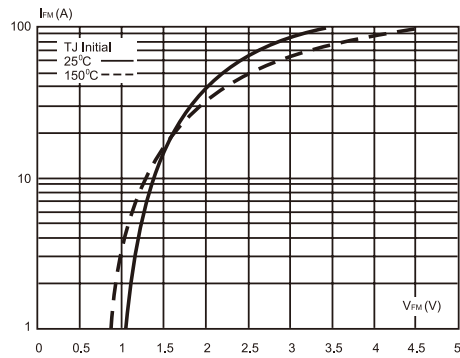


**RATINGS AND CHARACTERISTIC CURVES (BZW06 SERIES)**

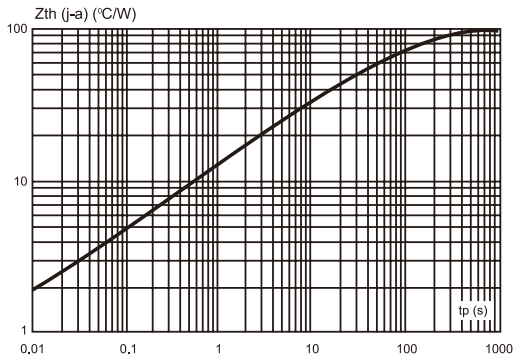
**FIG.6- CHARACTERISTICS VERSUS REVERSE APPLIED VOLTAGE FOR UNIDIRECTIONAL TYPES (TYPICAL VALUES)**



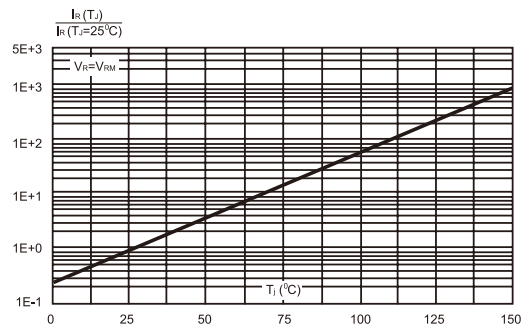
**FIG.7- PEAK FORWARD VOLTAGE DROP VERSUS PEAK FORWARD CURRENT (TYPICAL VALUES FOR UNIDIRECTIONAL TYPES)**



**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 (T<sub>A</sub> =25°C unless otherwise noted)

Device		Breakdown Voltage (Note 1)			Test Current	Stand-Off Voltage	Reverse Leakage @V <sub>WM</sub>	Clamping Voltage @ I <sub>PPM</sub> (10/1000 us)		Clamping Voltage @ I <sub>PPM</sub> (8/20 us)		Maximum Temperature Coefficient				
		V <sub>BR</sub>						I <sub>T</sub>	V <sub>WM</sub>	I <sub>D</sub>	V <sub>C</sub>		I <sub>PPM</sub>	V <sub>C</sub>	I <sub>PPM</sub>	V <sub>BR</sub>
		Min.	Nom.	Max.				mA	V	uA	V		A	V	A	% / °C
Unidirectional	Bidirectional	Min.	Nom.	Max.			Max.	Max.		Max.		(Note 2)				
BZW06-13	BZW06-13B	14.3	15	15.8	1	12.8	5	21.2	28.0	27.2	147	0.084				
BZW06-15	BZW06-15B	17.1	18	18.9	1	15.3	1	25.2	24.0	32.5	123	0.088				
BZW06-19	BZW06-19B	20.9	22	23.1	1	18.8	1	30.6	19.6	39.3	102	0.092				
BZW06-20	BZW06-20B	22.8	24	25.2	1	20.5	1	33.2	28.0	42.8	93	0.094				
BZW06-23	BZW06-23B	25.7	27	28.4	1	23.1	1	37.5	16.0	48.3	83	0.096				
BZW06-26	BZW06-26B	28.5	30	31.5	1	25.6	1	41.5	14.5	53.5	75	0.097				
BZW06-28	BZW06-28B	31.4	33	34.7	1	28.2	1	45.7	13.1	59.0	68	0.098				
BZW06-31	BZW06-31B	34.2	36	37.8	1	30.8	1	49.9	12.0	64.3	62	0.099				
BZW06-33	BZW06-33B	37.1	39	41.0	1	33.3	1	53.9	11.1	69.7	57	0.100				
BZW06-37	BZW06-37B	40.9	43	45.2	1	36.8	1	59.3	10.1	75.0	52	0.101				
BZW06-40	BZW06-40B	44.7	47	49.4	1	40.2	1	64.8	0.3	84.0	48	0.101				
BZW06-48	BZW06-48B	53.2	56	58.8	1	47.8	1	77.0	7.8	100	40	0.103				
BZW06-58	BZW06-58B	64.6	68	71.4	1	58.1	1	92.0	6.5	121	33	0.104				
BZW06-70	BZW06-70B	77.9	82	86.1	1	70.1	1	113	5.3	146	27	0.105				
BZW06-85	BZW06-85B	95.0	100	105	1	85.5	1	137	4.4	178	23	0.106				
BZW06-102	BZW06-102B	114	120	126	1	102	1	165	3.6	212	19	0.107				
BZW06-128	BZW06-128B	143	150	158	1	128	1	207	2.9	265	15	0.108				
BZW06-154	BZW06-154B	171	180	189	1	154	1	246	2.4	317	13	0.108				
BZW06-171	BZW06-171B	190	200	210	1	171	1	274	2.2	353	11	0.108				
BZW06-188	BZW06-188B	209	220	231	1	188	1	301	2.0	388	10.3	0.108				
BZW06-213	BZW06-213B	237	250	263	1	213	1	344	2.0	442	9	0.110				
BZW06-256	BZW06-256B	285	300	315	1	256	1	414	1.6	529	7.6	0.110				
BZW06-273	BZW06-273B	304	320	336	1	273	1	438	1.6	564	7.1	0.110				
BZW06-299	BZW06-299B	332	350	368	1	299	1	482	1.6	618	6.5	0.110				
BZW06-342	BZW06-342B	380	400	420	1	342	1	548	1.3	706	5.7	0.110				
BZW06-376	BZW06-376B	418	440	462	1	376	1	603	1.3	776	5.7	0.110				

Notes:

1. Pulse test : tp<50 ms.
2.  $\Delta V_{BR} = \alpha T (T_{amb} - 25) * V_{BR}(25^{\circ}C)$
3. V<sub>R</sub>=0V,F=1MHz,For bidirectional types,capacitance value is divided by 2.