

BZW06 SERIES

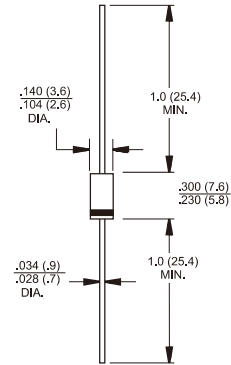
600 Watts Transient Voltage Suppressor

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

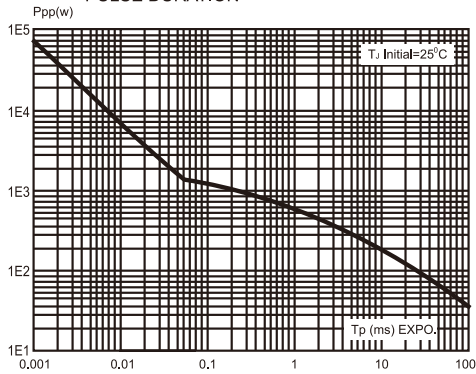


FIG.2- PEAK PULSE POWER DISSIPATION VERSUS INITIAL JUNCTION TEMPERATURE (PRINTED CIRCUIT BOARD)

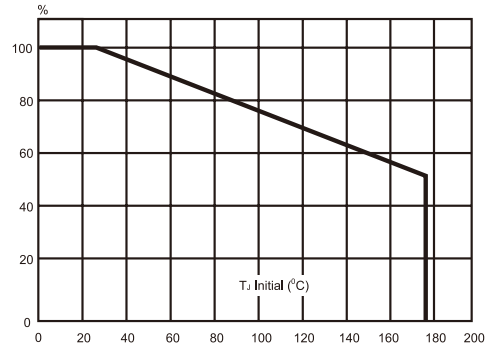


FIG.3- PULSE WAVEFORM

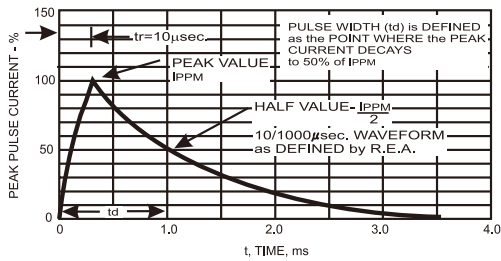


FIG.4- CLAMPING VOLTAGE VERSUS PEAK PULSE CURRENT. EXponential WAVEFORM tp=200µs, tp=1ms, tp=10m

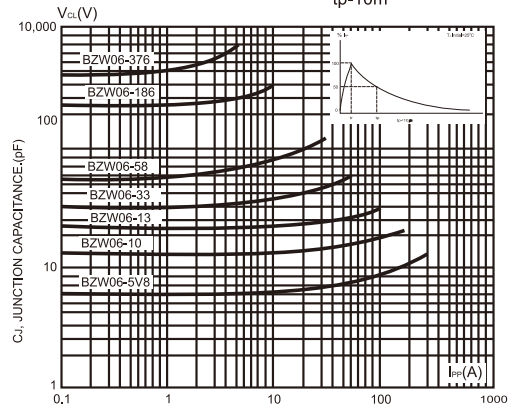
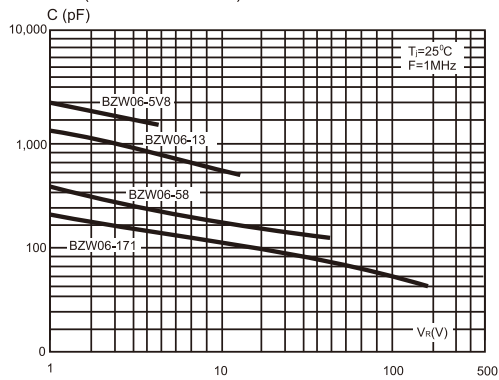


FIG.5- CHARACTERISTICS VERSUS REVERSE APPLIED VOLTAGE FOR UNIDIRECTIONAL TYPES (TYPICAL VALUES)



RATINGS AND CHARACTERISTIC CURVES (BZW06 SERIES)

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

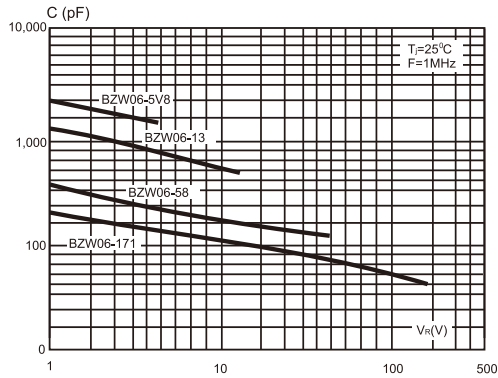


FIG.7- PEAK FORWARD VOLTAGE DROP VERSUS PEAK FORWARD CURRENT (TYPICAL VALUES FOR UNIDIRECTIONAL TYPES)

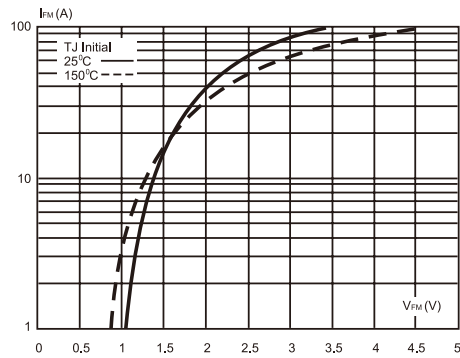


FIG.8- TRANSIENT THERMAL IMPEDANCE JUNCTION AMBIENT VERSUS PULSE DURATION (FOR FR4 PC BOARD WITH L LEAD=10mm)

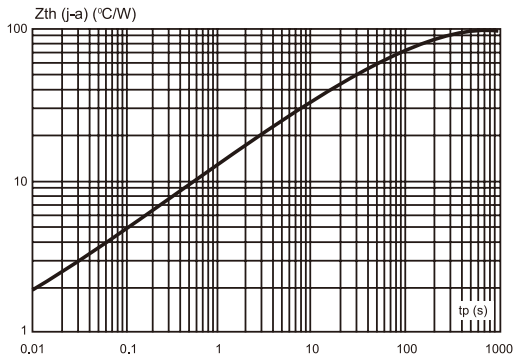
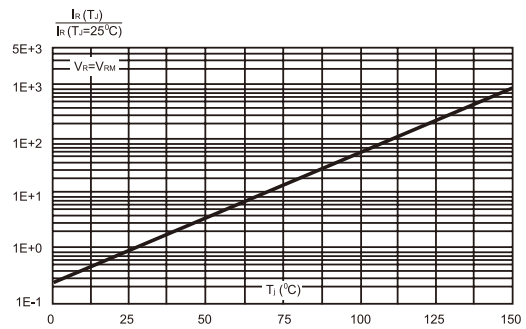


FIG.9- RELATIVE VARIATION OF LEAKAGE CURRENT VERSUS JUNCTION TEMPERATURE



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

| Device | | Breakdown Voltage (Note 1) | | | Test Current | Stand-Off Voltage | Reverse Leakage @V _{WM} | Clamping Voltage @ I _{PPM} (10/1000 us) | | Clamping Voltage @ I _{PPM} (8/20 us) | | Maximum Temperature Coefficient |
|----------------|---------------|----------------------------|------|------|--------------|-------------------|----------------------------------|--|-----------------|---|----------------|---------------------------------|
| | | V _{BR} | | | | | | I _T | V _{WM} | I _D | V _C | |
| | | 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_R=0V,F=1MHz,For bidirectional types,capacitance value is divided by 2.

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