



BZW06-5V8(B) / 376(B) SERIES

Transient Voltage Suppressor Diodes



Voltage Range
5.8 to 376 Volts
600 Watts Peak Power

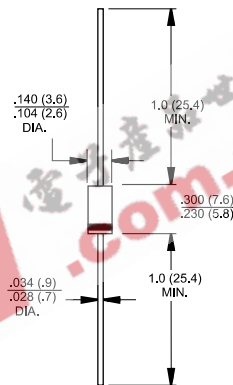
Features

- ✧ 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 (BZW06-5V8(B)/376(B)SERIES)

FIG.1- PEAK PULSE POWER VERSUS EXPONENTIAL PULSE DURATION

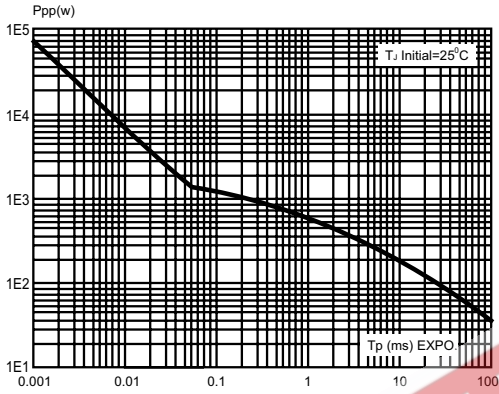


FIG.2- PEAK PULSE POWER DISSIPATION VERSUS INITIAL JUNCTION TEMPERATURE (PRINTED CIRCUIT BOARD)

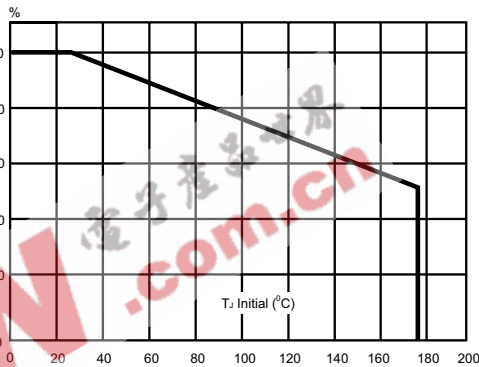


FIG.3- PULSE WAVEFORM

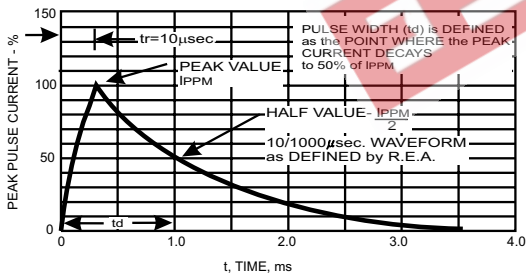


FIG.4- CLAMPING VOLTAGE VERSUS PEAK PULSE CURRENT.

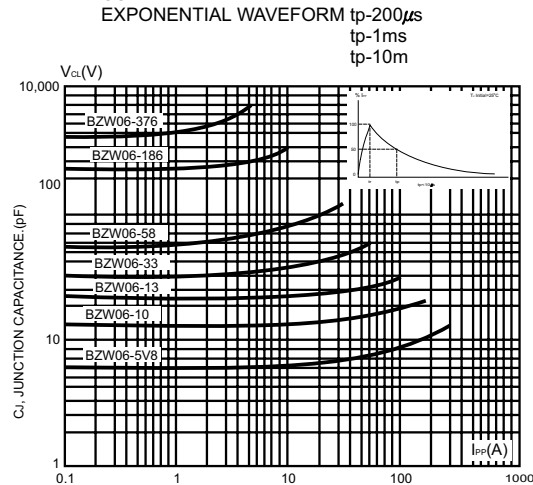
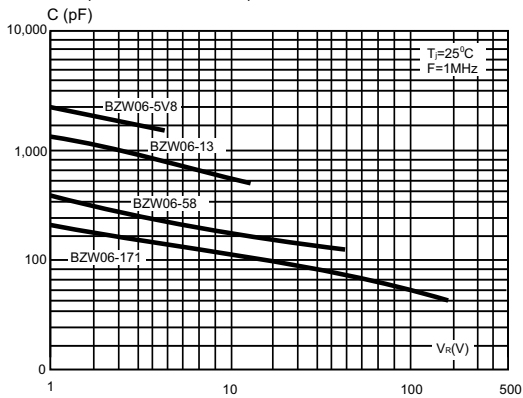


FIG.5- CHARACTERISTICS VERSUS REVERSE APPLIED VOLTAGE FOR UNIDIRECTIONAL TYPES (TYPICAL VALUES)





RATINGS AND CHARACTERISTIC CURVES (BZW06-5V8(B)/376(B)SERIES)

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

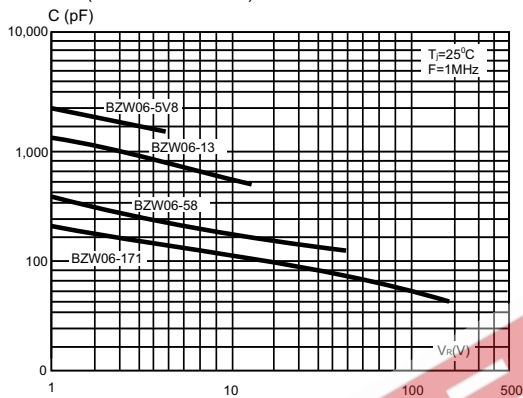


FIG.7- PEAK FORWARD VOLTAGE DROP VERSUS PEAK FORWARD CURRENT (TYPICAL VALUES FOR UNIDIRECTIONAL TYPES)

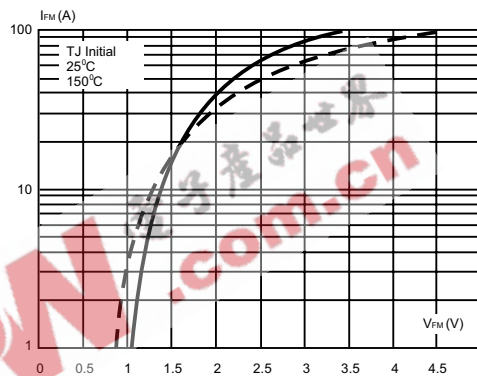


FIG.8- TRANSIENT THERMAL IMPEDANCE JUNCTION AMBIENT VERSUS PULSE DURATION (FOR FR4 PC BOARD WITH L LEAD=10mm)

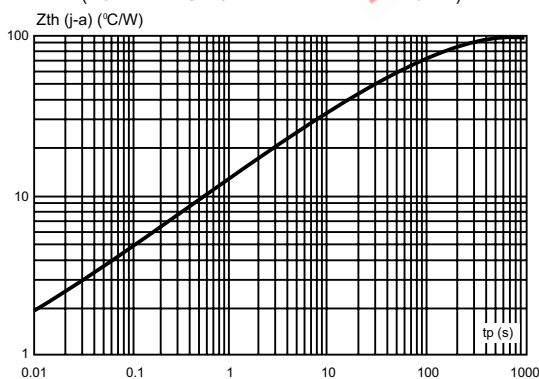
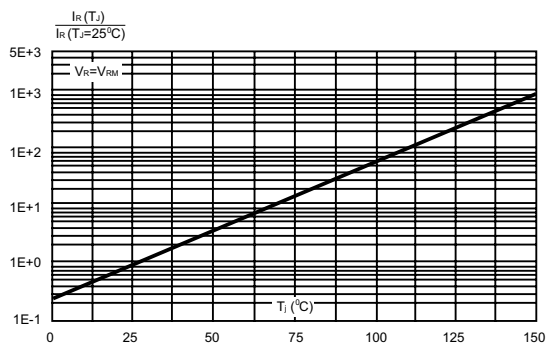


FIG.9- RELATIVE VARIATION OF LEAKAGE CURRENT VERSUS JUNCTION TEMPERATURE



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 | | min | | max | | max | | max | typ |
| | | | | note1 | | 10/1000uS | | 8/20uS | | note2 | note3 |
| Unidirectional | Bidirectional | uA | V | V | mA | V | A | V | A | 10 ⁻⁴ /°C | (pF) |
| BZW06-5V8 | BZW06-5V8B | 1000 | 5.8 | 6.45 | 10 | 10.5 | 57 | 13.4 | 298 | 5.7 | 4000 |
| BZW06-6V4 | BZW06-6V4B | 500 | 6.4 | 7.13 | 10 | 11.3 | 53 | 14.5 | 276 | 6.1 | 3700 |
| BZW06-8V5 | BZW06-8V5B | 10 | 8.5 | 9.5 | 1 | 14.5 | 41 | 18.6 | 215 | 7.3 | 2800 |
| BZW06-10 | BZW06-10B | 5 | 10.2 | 11.4 | 1 | 16.7 | 36 | 21.7 | 184 | 7.8 | 2300 |
| BZW06-13 | BZW06-13B | 5 | 12.8 | 14.3 | 1 | 21.2 | 28 | 27.2 | 147 | 8.4 | 1900 |
| BZW06-15 | BZW06-15B | 1 | 15.3 | 17.1 | 1 | 25.2 | 24 | 32.5 | 123 | 8.8 | 1600 |
| BZW06-19 | BZW06-19B | 1 | 18.8 | 20.9 | 1 | 30.6 | 19.6 | 39.3 | 102 | 9.2 | 1350 |
| BZW06-20 | BZW06-20B | 1 | 20.5 | 22.8 | 1 | 33.2 | 28.0 | 42.8 | 93 | 9.4 | 1250 |
| BZW06-23 | BZW06-23B | 1 | 23.1 | 25.7 | 1 | 37.5 | 16.0 | 48.3 | 83 | 9.6 | 1150 |
| BZW06-26 | BZW06-26B | 1 | 25.6 | 28.5 | 1 | 41.5 | 14.5 | 53.5 | 75 | 9.7 | 1075 |
| BZW06-28 | BZW06-28B | 1 | 28.2 | 31.4 | 1 | 45.7 | 13.1 | 59.0 | 68 | 9.8 | 1000 |
| BZW06-31 | BZW06-31B | 1 | 30.8 | 34.2 | 1 | 49.9 | 12.0 | 64.3 | 62 | 9.6 | 950 |
| BZW06-33 | BZW06-33B | 1 | 33.3 | 37.1 | 1 | 53.9 | 11.1 | 69.7 | 57 | 10.0 | 900 |
| BZW06-40 | BZW06-40B | 1 | 40.2 | 44.7 | 1 | 64.8 | 0.3 | 84 | 48 | 10.1 | 800 |
| BZW06-48 | BZW06-48B | 1 | 47.8 | 53.2 | 1 | 77.0 | 7.8 | 100 | 40 | 10.3 | 700 |
| BZW06-58 | BZW06-58B | 1 | 58.1 | 64.6 | 1 | 92 | 6.5 | 121 | 33 | 10.4 | 625 |
| BZW06-70 | BZW06-70B | 1 | 70.1 | 77.9 | 1 | 113 | 5.3 | 146 | 27 | 10.5 | 550 |
| BZW06-85 | BZW06-85B | 1 | 85.5 | 95 | 1 | 137 | 4.4 | 178 | 23 | 10.6 | 500 |
| BZW06-102 | BZW06-102B | 1 | 102 | 114 | 1 | 165 | 3.6 | 212 | 19 | 10.7 | 450 |
| BZW06-128 | BZW06-128B | 1 | 128 | 143 | 1 | 207 | 2.9 | 265 | 15 | 10.8 | 400 |
| BZW06-154 | BZW06-154B | 1 | 154 | 171 | 1 | 246 | 2.4 | 317 | 13 | 10.8 | 360 |
| BZW06-171 | BZW06-171B | 1 | 171 | 190 | 1 | 274 | 2.2 | 353 | 11 | 10.8 | 350 |
| BZW06-188 | BZW06-188B | 1 | 188 | 209 | 1 | 328 | 2.0 | 388 | 10.3 | 10.8 | 330 |
| BZW06-213 | BZW06-213B | 1 | 231 | 237 | 1 | 344 | 2.0 | 442 | 9.0 | 11.0 | 310 |
| BZW06-256 | BZW06-256B | 1 | 256 | 285 | 1 | 414 | 1.6 | 529 | 7.6 | 11.0 | 290 |
| BZW06-273 | BZW06-273B | 1 | 273 | 304 | 1 | 438 | 1.6 | 564 | 7.1 | 11.0 | 280 |
| BZW06-299 | BZW06-299B | 1 | 299 | 332 | 1 | 482 | 1.6 | 618 | 6.5 | 11.0 | 270 |
| BZW06-342 | BZW06-342B | 1 | 342 | 380 | 1 | 548 | 1.3 | 706 | 5.7 | 11.0 | 360 |
| BZW06-376 | BZW06-376B | 1 | 376 | 418 | 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