

# BZW06-5V8B SERIES

# BIDIRECTIONAL TRANSIENT SUPPRESSOR

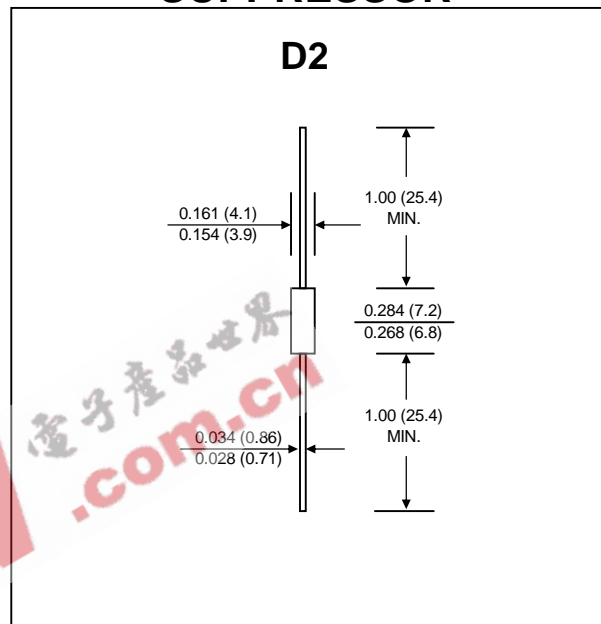
**V<sub>BR</sub> : 6.8 - 440 Volts**  
**PPK : 600 Watts**

### FEATURES :

- \* 600W surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time : typically less than 1.0 ps from 0 volt to V<sub>BR(min)</sub>
- \* Typical I<sub>R</sub> less than 1μA above 10V
- \* Pb / RoHS Free

### MECHANICAL DATA

- \* Case : D2 Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Axial lead solderable per MIL-STD-202, Method 208 guaranteed
- \* Mounting position : Any
- \* Weight : 0.465 gram



### DEVICES FOR BIPOLAR APPLICATIONS

For uni-directional without **B** suffix  
 Electrical characteristics apply in both directions

### MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

| Rating   | Symbol | Value         | Unit |
|--|--------|---------------|------|
| Peak Pulse Power for 1 msec. Exponential Pulse | PPP    | Minimum 600   | Watt |
| Steady State Power Dissipation ( L=10mm )      | PD     | 5.0           | Watt |
| Storage Temperature Range                      | TSTG   | - 65 to + 175 | °C   |

### Notes :

- (1) Non-repetitive Current pulse, per Fig. 5 and derated above T<sub>a</sub> = 25 °C per Fig. 1
- (2) Mounted on Copper Leaf area of 1.57 in<sup>2</sup> (40mm<sup>2</sup>).
- (3) 8.3 ms single half sine-wave, duty cycle = 4 pulses per minutes maximum.



Certificate Number: Q10561

Certificate Number: E17276

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| Types      | Breakdown Voltage @ It<br>( Note 1 ) |      |            | Working Peak<br>Reverse<br>Voltage<br>VRWM<br>(V) | Maximum<br>Reverse Leakage<br>@ VRWM<br>IRM<br>( $\mu$ A) | Maximum<br>Peak pulse<br>Current<br>IPP<br>(A) | Maximum<br>Clamping<br>Voltage @ IPP<br>VRSM<br>(V) | Typical<br>Capacitance<br>(Note 2)<br>C<br>(pF) |
|------------|--------------------------------------|------|------------|---|---|--|---|---|
|            | VBR (V)                              |      | It<br>(mA) |   |   |  |   |   |
|            | Min.                                 | Max. |            |   |   |  |   |   |
| BZW06P5V8B | 6.45                                 | 7.48 | 10         | 5.80  | 2000  | 57   | 10.5  | 2000  |
| BZW06-5V8B | 6.45                                 | 7.14 | 10         | 5.80  | 2000  | 57   | 10.5  | 2000  |
| BZW06P6V4B | 7.13                                 | 7.25 | 10         | 6.40  | 1000  | 53   | 11.3  | 1850  |
| BZW06-6V4B | 7.13                                 | 7.88 | 10         | 6.40  | 1000  | 53   | 11.3  | 1850  |
| BZW06P7V0B | 7.79                                 | 9.02 | 10         | 7.02  | 400   | 50   | 12.1  | 1700  |
| BZW06-7V0B | 7.79                                 | 8.61 | 10         | 7.02  | 400   | 50   | 12.1  | 1700  |
| BZW06P7V8B | 8.65                                 | 10.0 | 1.0        | 7.78  | 100   | 45   | 13.4  | 1550  |
| BZW06-7V8B | 8.65                                 | 9.55 | 1.0        | 7.78  | 100   | 45   | 13.4  | 1550  |
| BZW06P8V5B | 9.5                                  | 11.0 | 1.0        | 8.55  | 20  | 41   | 14.5  | 1400  |
| BZW06-8V5B | 9.5                                  | 10.5 | 1.0        | 8.55  | 20  | 41   | 14.5  | 1400  |
| BZW06P9V4B | 10.5                                 | 12.1 | 1.0        | 9.40  | 10  | 38   | 15.6  | 1250  |
| BZW06-9V4B | 10.5                                 | 11.6 | 1.0        | 9.40  | 10  | 38   | 15.6  | 1250  |
| BZW06P10B  | 11.4                                 | 13.2 | 1.0        | 10.2  | 5.0   | 36   | 16.7  | 1150  |
| BZW06-10B  | 11.4                                 | 12.6 | 1.0        | 10.2  | 5.0   | 36   | 16.7  | 1150  |
| BZW06P11B  | 12.4                                 | 14.3 | 1.0        | 11.1  | 5.0   | 33   | 18.2  | 1075  |
| BZW06-11B  | 12.4                                 | 13.7 | 1.0        | 11.1  | 5.0   | 33   | 18.2  | 1075  |
| BZW06P13B  | 14.3                                 | 16.5 | 1.0        | 12.8  | 5.0   | 28   | 21.2  | 950   |
| BZW06-13B  | 14.3                                 | 15.8 | 1.0        | 12.8  | 5.0   | 28   | 21.2  | 950   |
| BZW06P14B  | 15.2                                 | 17.6 | 1.0        | 13.6  | 5.0   | 27   | 22.5  | 900   |
| BZW06-14B  | 15.2                                 | 16.8 | 1.0        | 13.6  | 5.0   | 27   | 22.5  | 900   |
| BZW06P15B  | 17.1                                 | 19.8 | 1.0        | 15.3  | 1.0   | 24   | 25.2  | 800   |
| BZW06-15B  | 17.1                                 | 18.9 | 1.0        | 15.3  | 1.0   | 24   | 25.2  | 800   |
| BZW06P17B  | 19.0                                 | 22.0 | 1.0        | 17.1  | 1.0   | 22   | 27.2  | 750   |
| BZW06-17B  | 19.0                                 | 21.0 | 1.0        | 17.1  | 1.0   | 22   | 27.2  | 750   |
| BZW06P19B  | 20.9                                 | 24.2 | 1.0        | 18.8  | 1.0   | 20   | 30.6  | 675   |
| BZW06-19B  | 20.9                                 | 23.1 | 1.0        | 18.8  | 1.0   | 20   | 30.6  | 675   |
| BZW06P20B  | 22.8                                 | 26.4 | 1.0        | 20.5  | 1.0   | 18   | 33.2  | 625   |
| BZW06-20B  | 22.8                                 | 25.2 | 1.0        | 20.5  | 1.0   | 18   | 33.2  | 625   |
| BZW06P23B  | 25.7                                 | 29.7 | 1.0        | 23.1  | 1.0   | 16   | 37.5  | 575   |
| BZW06-23B  | 25.7                                 | 28.4 | 1.0        | 23.1  | 1.0   | 16   | 37.5  | 575   |
| BZW06P26B  | 28.5                                 | 33.0 | 1.0        | 25.6  | 1.0   | 14.5   | 41.5  | 538   |
| BZW06-26B  | 28.5                                 | 31.5 | 1.0        | 25.6  | 1.0   | 14.5   | 41.5  | 538   |
| BZW06P28B  | 31.4                                 | 36.3 | 1.0        | 28.2  | 1.0   | 13.1   | 45.7  | 500   |
| BZW06-28B  | 31.4                                 | 34.7 | 1.0        | 28.2  | 1.0   | 13.1   | 45.7  | 500   |
| BZW06P31B  | 34.2                                 | 39.6 | 1.0        | 30.8  | 1.0   | 12.0   | 49.9  | 475   |
| BZW06-31B  | 34.2                                 | 37.8 | 1.0        | 30.8  | 1.0   | 12.0   | 49.9  | 475   |
| BZW06P33B  | 37.1                                 | 42.9 | 1.0        | 33.3  | 1.0   | 11.1   | 53.9  | 450   |
| BZW06-33B  | 37.1                                 | 41.0 | 1.0        | 33.3  | 1.0   | 11.1   | 53.9  | 450   |
| BZW06P37B  | 40.9                                 | 47.3 | 1.0        | 36.8  | 1.0   | 10.1   | 59.3  | 425   |
| BZW06-37B  | 40.9                                 | 45.2 | 1.0        | 36.8  | 1.0   | 10.1   | 59.3  | 425   |
| BZW06P40B  | 44.7                                 | 51.7 | 1.0        | 40.2  | 1.0   | 9.3  | 64.8  | 400   |
| BZW06-40B  | 44.7                                 | 49.4 | 1.0        | 40.2  | 1.0   | 9.3  | 64.8  | 400   |
| BZW06P44B  | 48.5                                 | 56.1 | 1.0        | 43.6  | 1.0   | 8.6  | 70.1  | 375   |
| BZW06-44B  | 48.5                                 | 53.6 | 1.0        | 43.6  | 1.0   | 8.6  | 70.1  | 375   |
| BZW06P48B  | 53.2                                 | 61.6 | 1.0        | 47.8  | 1.0   | 7.8  | 77  | 350   |
| BZW06-48B  | 53.2                                 | 58.8 | 1.0        | 47.8  | 1.0   | 7.8  | 77  | 350   |



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## ELECTRICAL CHARACTERISTICS

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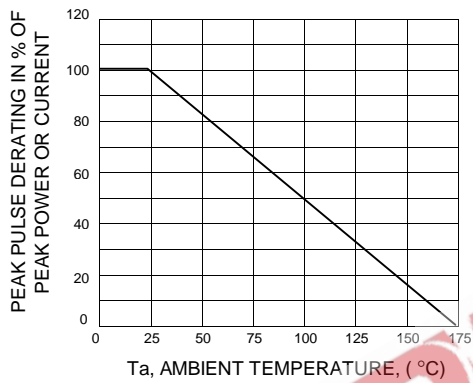
| Types      | Breakdown Voltage @ It<br>( Note 1 ) |      |            | Working Peak<br>Reverse<br>Voltage<br>VRWM<br>(V) | Maximum<br>Reverse Leakage<br>@ VRWM<br>IRM<br>( $\mu$ A) | Maximum<br>Peak pulse<br>Current<br>IPP<br>(A) | Maximum<br>Clamping<br>Voltage @ IPP<br>VRSM<br>(V) | Typical<br>Capaciynce<br>(Note 2)<br>C<br>(pF) |
|------------|--------------------------------------|------|------------|---|---|--|---|--|
|            | VBR (V)                              |      | It<br>(mA) |   |   |  |   |  |
|            | Min.                                 | Max. |            |   |   |  |   |  |
| BZW06P53B  | 58.9                                 | 68.2 | 1.0        | 53  | 1.0   | 7.1  | 85  | 325  |
| BZW06-53B  | 58.9                                 | 65.1 | 1.0        | 53  | 1.0   | 7.1  | 85  | 325  |
| BZW06P58B  | 64.6                                 | 74.8 | 1.0        | 58.1  | 1.0   | 6.5  | 92  | 313  |
| BZW06-58B  | 64.6                                 | 71.4 | 1.0        | 58.1  | 1.0   | 6.5  | 92  | 313  |
| BZW06P64B  | 71.3                                 | 82.5 | 1.0        | 64.1  | 1.0   | 5.8  | 103   | 288  |
| BZW06-64B  | 71.3                                 | 78.8 | 1.0        | 64.1  | 1.0   | 5.8  | 103   | 288  |
| BZW06P70B  | 77.9                                 | 90.2 | 1.0        | 70.1  | 1.0   | 5.3  | 113   | 275  |
| BZW06-70B  | 77.9                                 | 86.1 | 1.0        | 70.1  | 1.0   | 5.3  | 113   | 275  |
| BZW06P78B  | 86.5                                 | 100  | 1.0        | 77.8  | 1.0   | 4.8  | 125   | 263  |
| BZW06-78B  | 86.5                                 | 95.5 | 1.0        | 77.8  | 1.0   | 4.8  | 125   | 263  |
| BZW06P85B  | 95                                   | 110  | 1.0        | 85.8  | 1.0   | 4.4  | 137   | 250  |
| BZW06-85B  | 95                                   | 105  | 1.0        | 85.8  | 1.0   | 4.4  | 137   | 250  |
| BZW06P94B  | 105                                  | 121  | 1.0        | 94.0  | 1.0   | 3.9  | 152   | 235  |
| BZW06-94B  | 105                                  | 116  | 1.0        | 94.0  | 1.0   | 3.9  | 152   | 235  |
| BZW06P102B | 114                                  | 132  | 1.0        | 102   | 1.0   | 3.6  | 165   | 225  |
| BZW06-102B | 114                                  | 126  | 1.0        | 102   | 1.0   | 3.6  | 165   | 225  |
| BZW06P111B | 124                                  | 143  | 1.0        | 111   | 1.0   | 3.4  | 179   | 210  |
| BZW06-111B | 124                                  | 137  | 1.0        | 111   | 1.0   | 3.4  | 179   | 210  |
| BZW06P128B | 143                                  | 165  | 1.0        | 128   | 1.0   | 2.9  | 207   | 200  |
| BZW06-128B | 143                                  | 158  | 1.0        | 128   | 1.0   | 2.9  | 207   | 200  |
| BZW06P136B | 152                                  | 176  | 1.0        | 136   | 1.0   | 2.7  | 219   | 190  |
| BZW06-136B | 152                                  | 168  | 1.0        | 136   | 1.0   | 2.7  | 219   | 190  |
| BZW06P145B | 161                                  | 187  | 1.0        | 145   | 1.0   | 2.6  | 234   | 185  |
| BZW06-145B | 161                                  | 179  | 1.0        | 145   | 1.0   | 2.6  | 234   | 185  |
| BZW06P154B | 171                                  | 198  | 1.0        | 154   | 1.0   | 2.4  | 246   | 180  |
| BZW06-154B | 171                                  | 189  | 1.0        | 154   | 1.0   | 2.4  | 246   | 180  |
| BZW06P171B | 190                                  | 220  | 1.0        | 171   | 1.0   | 2.2  | 274   | 175  |
| BZW06-171B | 190                                  | 210  | 1.0        | 171   | 1.0   | 2.2  | 274   | 175  |
| BZW06P188B | 209                                  | 242  | 1.0        | 188   | 1.0   | 2.0  | 301   | 165  |
| BZW06-188B | 209                                  | 231  | 1.0        | 188   | 1.0   | 2.0  | 301   | 165  |
| BZW06P213B | 237                                  | 275  | 1.0        | 213   | 1.0   | 1.8  | 344   | 155  |
| BZW06-213B | 237                                  | 263  | 1.0        | 213   | 1.0   | 1.8  | 344   | 155  |
| BZW06P239B | 266                                  | 308  | 1.0        | 239   | 1.0   | 1.7  | 384   | 150  |
| BZW06-239B | 266                                  | 294  | 1.0        | 239   | 1.0   | 1.7  | 384   | 150  |
| BZW06P256B | 285                                  | 330  | 1.0        | 256   | 1.0   | 1.6  | 414   | 145  |
| BZW06-256B | 285                                  | 315  | 1.0        | 256   | 1.0   | 1.6  | 414   | 145  |
| BZW06P273B | 304                                  | 352  | 1.0        | 273   | 1.0   | 1.6  | 436   | 140  |
| BZW06-273B | 304                                  | 336  | 1.0        | 273   | 1.0   | 1.6  | 436   | 140  |
| BZW06P299B | 332                                  | 385  | 1.0        | 299   | 1.0   | 1.6  | 482   | 135  |
| BZW06-299B | 332                                  | 368  | 1.0        | 299   | 1.0   | 1.6  | 482   | 135  |
| BZW06P342B | 380                                  | 440  | 1.0        | 342   | 1.0   | 1.3  | 548   | 180  |
| BZW06-342B | 380                                  | 420  | 1.0        | 342   | 1.0   | 1.3  | 548   | 180  |
| BZW06P376B | 418                                  | 484  | 1.0        | 376   | 1.0   | 1.3  | 603   | 175  |
| BZW06-376B | 418                                  | 462  | 1.0        | 376   | 1.0   | 1.3  | 603   | 175  |

Note:

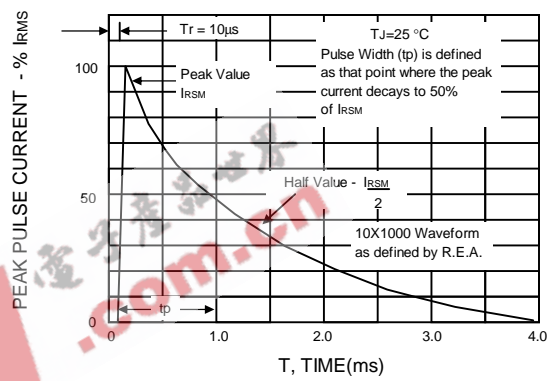
( 1 ) Pulse test : tp < 50 ms.

### RATING AND CHARACTERISTIC CURVES ( BZW06-5V8B SERIES )

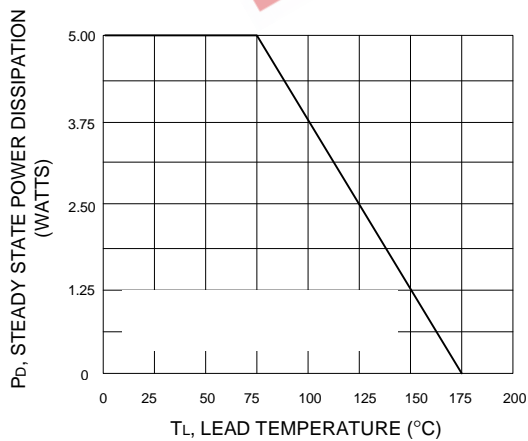
**FIG.1 - PULSE DERATING CURVE**



**FIG.2 - PULSE WAVEFORM**



**FIG.3 - STEADY STATE POWER DERATING**



**FIG.4 - PULSE RATING CURVE**

