

BZW04 SERIES

V_{BR} : 6.8 - 440 Volts
P_{PK} : 400 Watts

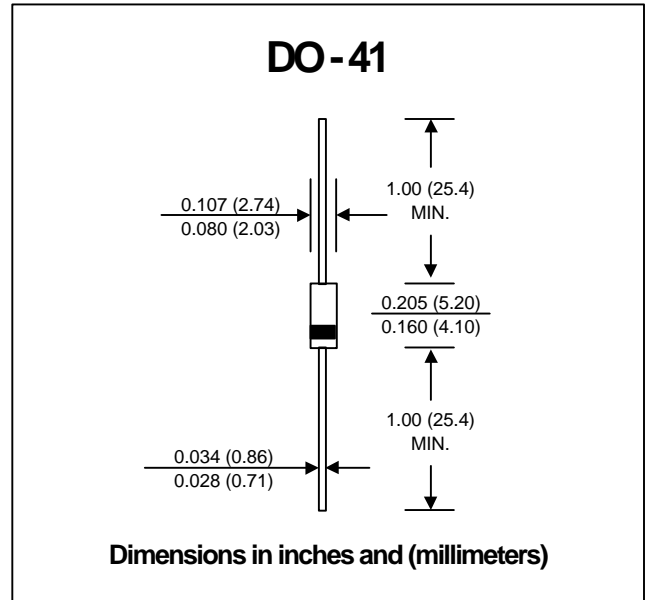
FEATURES :

- * 400W surge capability at 1ms
- * Excellent clamping capability
- * Low zener impedance
- * Fast response time : typically less than 1.0 ps from 0 volt to V_{BR(min)}
- * Typical I_R less than 1µA above 10V

MECHANICAL DATA

- * Case : DO-41 Molded plastic
- * Epoxy : UL94V-O rate flame retardant
- * Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
- * Polarity : Color band denotes cathode end except Bipolar.
- * Mounting position : Any
- * Weight : 0.339 gram

TRANSIENT VOLTAGE SUPPRESSOR



DEVICES FOR BIPOLAR APPLICATIONS

For bi-directional use B Suffix.
 Electrical characteristics apply in both directions

MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

| Rating | Symbol | Value | Unit |
|--|-----------------------------------|---------------|-------|
| Peak Power Dissipation at Ta = 25 °C, Tp=1ms (Note1) | P _{PK} | Minimum 400 | Watts |
| Steady State Power Dissipation at TL = 75 °C | | | |
| Lead Lengths 0.375", (9.5mm) (Note 2) | P _D | 1.0 | Watt |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3) | I _{FSM} | 40 | Amps. |
| Operating and Storage Temperature Range | T _J , T _{STG} | - 65 to + 175 | °C |

Note :

- (1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1
- (2) Mounted on Copper Leaf area of 1.57 in² (40mm²).
- (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

| TYPE | Breakdown Voltage @ It (Note 1) | | Working Peak Reverse Voltage VRWM | Maximum Reverse Leakage @ VRWM IR (μ A) | Maximum Reverse Current IRSM (A) | Maximum Clamping Voltage @ IRSM VRSM (V) | Maximum Temperature Co-efficient of VBR (% / °C) | |
|-----------|--------------------------------------|------|--|--|--|--|--|------------|
| | VBR (V) | | | | | | | It (mA) |
| | Min. | Max. | (mA) | | | | | |
| BZW04P5V8 | 6.45 | 7.48 | 10 | 5.80 | 1000 | 38.0 | 10.5 | 0.057 |
| BZW04-5V8 | 6.45 | 7.14 | 10 | 5.80 | 1000 | 38.0 | 10.5 | 0.057 |
| BZW04P6V4 | 7.13 | 8.25 | 10 | 6.40 | 500 | 35.4 | 11.3 | 0.061 |
| BZW04-6V4 | 7.13 | 7.88 | 10 | 6.40 | 500 | 35.4 | 11.3 | 0.061 |
| BZW04P7V0 | 7.79 | 9.02 | 10 | 7.02 | 200 | 33.0 | 12.1 | 0.065 |
| BZW04-7V0 | 7.79 | 8.61 | 10 | 7.02 | 200 | 33.0 | 12.1 | 0.065 |
| BZW04P7V8 | 8.65 | 10.0 | 1.0 | 7.78 | 50 | 30.0 | 13.4 | 0.068 |
| BZW04-7V8 | 8.65 | 9.55 | 1.0 | 7.78 | 50 | 30.0 | 13.4 | 0.068 |
| BZW04P8V5 | 9.50 | 11.0 | 1.0 | 8.55 | 10 | 27.6 | 14.5 | 0.073 |
| BZW04-8V5 | 9.50 | 10.5 | 1.0 | 8.55 | 10 | 27.6 | 14.5 | 0.073 |
| BZW04P9V4 | 10.5 | 12.1 | 1.0 | 9.40 | 5.0 | 25.7 | 15.6 | 0.075 |
| BZW04-9V4 | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 25.7 | 15.6 | 0.075 |
| BZW04P10 | 11.4 | 13.2 | 1.0 | 10.2 | 5.0 | 24.0 | 16.7 | 0.078 |
| BZW04-10 | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 24.0 | 16.7 | 0.078 |
| BZW04P11 | 12.4 | 14.3 | 1.0 | 11.1 | 5.0 | 22.0 | 18.2 | 0.081 |
| BZW04-11 | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 22.0 | 18.2 | 0.081 |
| BZW04P13 | 14.3 | 16.5 | 1.0 | 12.8 | 5.0 | 19.0 | 21.2 | 0.084 |
| BZW04-13 | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 19.0 | 21.2 | 0.084 |
| BZW04P14 | 15.2 | 17.6 | 1.0 | 13.6 | 5.0 | 17.8 | 22.5 | 0.086 |
| BZW04-14 | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 17.8 | 22.5 | 0.086 |
| BZW04P15 | 17.1 | 19.8 | 1.0 | 15.3 | 5.0 | 16.0 | 25.2 | 0.088 |
| BZW04-15 | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 16.0 | 25.2 | 0.088 |
| BZW04P17 | 19.0 | 22.0 | 1.0 | 17.1 | 5.0 | 14.5 | 27.7 | 0.090 |
| BZW04-17 | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 14.5 | 27.7 | 0.090 |
| BZW04P19 | 20.9 | 24.2 | 1.0 | 18.8 | 5.0 | 13.0 | 30.6 | 0.092 |
| BZW04-19 | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 13.0 | 30.6 | 0.092 |
| BZW04P20 | 22.8 | 26.4 | 1.0 | 20.5 | 5.0 | 12.0 | 33.2 | 0.094 |
| BZW04-20 | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 12.0 | 33.2 | 0.094 |
| BZW04P23 | 25.7 | 29.7 | 1.0 | 23.1 | 5.0 | 10.7 | 37.5 | 0.096 |
| BZW04-23 | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 10.7 | 37.5 | 0.096 |
| BZW04P26 | 28.5 | 33.0 | 1.0 | 25.6 | 5.0 | 9.6 | 41.5 | 0.097 |
| BZW04-26 | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 9.6 | 41.5 | 0.097 |
| BZW04P28 | 31.4 | 36.3 | 1.0 | 28.2 | 5.0 | 8.8 | 45.7 | 0.098 |
| BZW04-28 | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 8.8 | 45.7 | 0.098 |
| BZW04P31 | 34.2 | 39.6 | 1.0 | 30.8 | 5.0 | 8.0 | 49.9 | 0.099 |
| BZW04-31 | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 8.0 | 49.9 | 0.099 |
| BZW04P33 | 37.1 | 42.9 | 1.0 | 33.3 | 5.0 | 7.4 | 53.9 | 0.100 |
| BZW04-33 | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 7.4 | 53.9 | 0.100 |
| BZW04P37 | 40.9 | 47.3 | 1.0 | 36.8 | 5.0 | 6.7 | 59.3 | 0.101 |
| BZW04-37 | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 6.7 | 59.3 | 0.101 |
| BZW04P40 | 44.7 | 51.7 | 1.0 | 40.2 | 5.0 | 6.2 | 64.8 | 0.101 |
| BZW04-40 | 44.7 | 49.4 | 1.0 | 40.2 | 5.0 | 6.2 | 64.8 | 0.101 |
| BZW04P44 | 48.5 | 56.1 | 1.0 | 43.6 | 5.0 | 5.7 | 70.1 | 0.102 |
| BZW04-44 | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 5.7 | 70.1 | 0.102 |
| BZW04P48 | 53.2 | 61.6 | 1.0 | 47.8 | 5.0 | 5.2 | 77.0 | 0.103 |
| BZW04-48 | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 5.2 | 77.0 | 0.103 |
| BZW04P53 | 58.9 | 68.2 | 1.0 | 53.0 | 5.0 | 4.7 | 85.0 | 0.104 |
| BZW04-53 | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 4.7 | 85.0 | 0.104 |



Certificate Number: Q10561

Certificate Number: E17276

ELECTRICAL CHARACTERISTICS

Rating at = 25 °C ambient temperature unless otherwise specified

| TYPE | Breakdown Voltage @ It (Note 1) | | Working Peak Reverse Voltage | Maximum Reverse Leakage @ VRWM | Maximum Reverse Current | Maximum Clamping Voltage @ IRSM | Maximum Temperature Co-efficient of VBR | |
|-----------|--------------------------------------|------|------------------------------------|--------------------------------------|-------------------------------|---------------------------------------|--|----------|
| | VBR (V) | | | | | | | VRWM |
| | Min. | Max. | (mA) | (V) | (μ A) | (A) | (V) | (% / °C) |
| BZW04P58 | 64.6 | 74.8 | 1.0 | 58.1 | 5.0 | 4.3 | 92.0 | 0.104 |
| BZW04-58 | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 4.3 | 92.0 | 0.104 |
| BZW04P64 | 71.3 | 82.5 | 1.0 | 64.1 | 5.0 | 3.9 | 103 | 0.105 |
| BZW04-64 | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 3.9 | 103 | 0.105 |
| BZW04P70 | 77.9 | 90.2 | 1.0 | 70.1 | 5.0 | 3.5 | 113 | 0.105 |
| BZW04-70 | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 3.5 | 113 | 0.105 |
| BZW04P78 | 86.5 | 100 | 1.0 | 77.8 | 5.0 | 3.2 | 125 | 0.106 |
| BZW04-78 | 86.5 | 95.5 | 1.0 | 77.8 | 5.0 | 3.2 | 125 | 0.106 |
| BZW04P85 | 95.0 | 110 | 1.0 | 85.5 | 5.0 | 2.9 | 137 | 0.106 |
| BZW04-85 | 95.0 | 105 | 1.0 | 85.5 | 5.0 | 2.9 | 137 | 0.106 |
| BZW04P94 | 105 | 121 | 1.0 | 94.0 | 5.0 | 2.6 | 152 | 0.107 |
| BZW04-94 | 105 | 116 | 1.0 | 94.0 | 5.0 | 2.6 | 152 | 0.107 |
| BZW04P102 | 114 | 132 | 1.0 | 102 | 5.0 | 2.4 | 165 | 0.107 |
| BZW04-102 | 114 | 126 | 1.0 | 102 | 5.0 | 2.4 | 165 | 0.107 |
| BZW04P111 | 124 | 143 | 1.0 | 111 | 5.0 | 2.2 | 179 | 0.107 |
| BZW04-111 | 124 | 137 | 1.0 | 111 | 5.0 | 2.2 | 179 | 0.107 |
| BZW04P128 | 143 | 165 | 1.0 | 128 | 5.0 | 2.0 | 207 | 0.108 |
| BZW04-128 | 143 | 158 | 1.0 | 128 | 5.0 | 2.0 | 207 | 0.108 |
| BZW04P136 | 152 | 176 | 1.0 | 136 | 5.0 | 1.8 | 219 | 0.108 |
| BZW04-136 | 152 | 168 | 1.0 | 136 | 5.0 | 1.8 | 219 | 0.108 |
| BZW04P145 | 161 | 187 | 1.0 | 145 | 5.0 | 1.7 | 234 | 0.108 |
| BZW04-145 | 161 | 179 | 1.0 | 145 | 5.0 | 1.7 | 234 | 0.108 |
| BZW04P154 | 171 | 198 | 1.0 | 154 | 5.0 | 1.6 | 246 | 0.108 |
| BZW04-154 | 171 | 189 | 1.0 | 154 | 5.0 | 1.6 | 246 | 0.108 |
| BZW04P171 | 190 | 220 | 1.0 | 171 | 5.0 | 1.5 | 274 | 0.108 |
| BZW04-171 | 190 | 210 | 1.0 | 171 | 5.0 | 1.5 | 274 | 0.108 |
| BZW04P188 | 209 | 242 | 1.0 | 188 | 5.0 | 1.4 | 301 | 0.108 |
| BZW04-188 | 209 | 231 | 1.0 | 188 | 5.0 | 1.4 | 301 | 0.108 |
| BZW04P213 | 237 | 275 | 1.0 | 213 | 5.0 | 1.3 | 344 | 0.110 |
| BZW04-213 | 237 | 263 | 1.0 | 213 | 5.0 | 1.3 | 344 | 0.110 |
| BZW04P239 | 266 | 308 | 1.0 | 239 | 5.0 | 1.3 | 384 | 0.110 |
| BZW04-239 | 266 | 294 | 1.0 | 239 | 5.0 | 1.3 | 384 | 0.110 |
| BZW04P256 | 285 | 330 | 1.0 | 256 | 5.0 | 1.2 | 414 | 0.110 |
| BZW04-256 | 285 | 315 | 1.0 | 256 | 5.0 | 1.2 | 414 | 0.110 |
| BZW04P273 | 304 | 352 | 1.0 | 273 | 5.0 | 1.2 | 438 | 0.110 |
| BZW04-273 | 304 | 336 | 1.0 | 273 | 5.0 | 1.2 | 438 | 0.110 |
| BZW04P299 | 332 | 385 | 1.0 | 299 | 5.0 | 0.9 | 482 | 0.110 |
| BZW04-299 | 332 | 368 | 1.0 | 299 | 5.0 | 0.9 | 482 | 0.110 |
| BZW04P342 | 380 | 440 | 1.0 | 342 | 5.0 | 0.9 | 548 | 0.110 |
| BZW04-342 | 380 | 420 | 1.0 | 342 | 5.0 | 0.9 | 548 | 0.110 |
| BZW04P376 | 418 | 484 | 1.0 | 376 | 5.0 | 0.8 | 603 | 0.110 |
| BZW04-376 | 418 | 462 | 1.0 | 376 | 5.0 | 0.8 | 603 | 0.110 |

Note:

- (1) VBR measured after It applied for 300 μ s., It = square wave pulse or equivalent.
- (2) VF = 3.5 Vmax., IF = 25 Amps. (6.8 Volts thru 110 Volts)
VF = 5.0 Vmax., IF = 25 Amps. (120 Volts thru 440 Volts) per 1/2 square or equivalent sine wave.
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.

RATING AND CHARACTERISTIC CURVES (BZW04 SERIES)

FIG.1 - PULSE DERATING CURVE

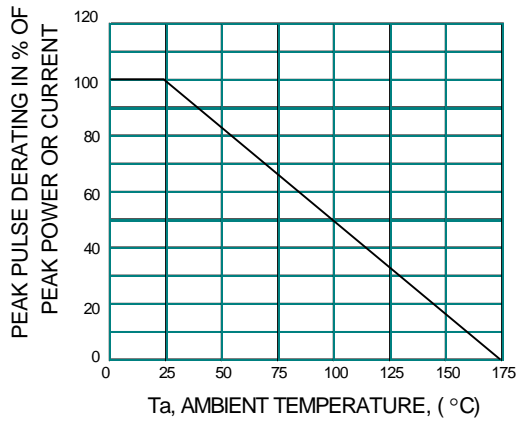


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

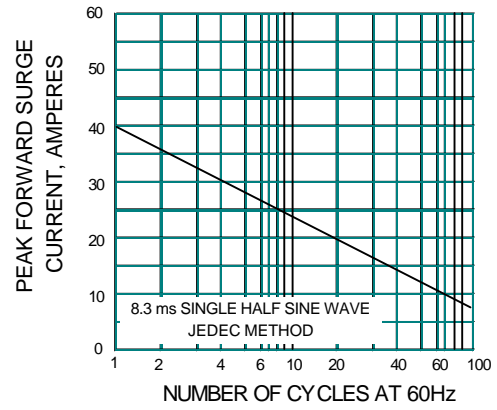


FIG.3 - STEADY STATE POWER DERATING

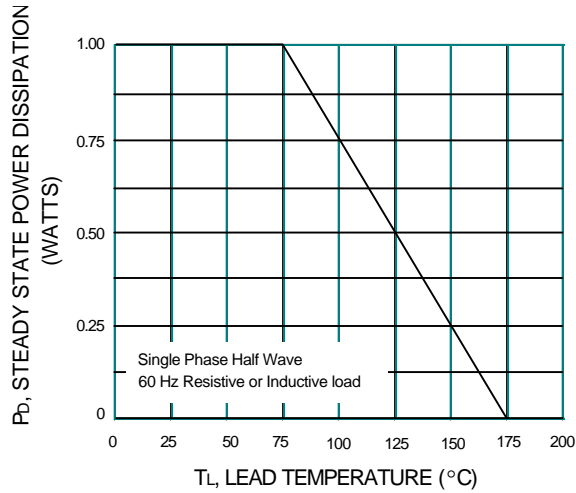


FIG.4 - PULSE RATING CURVE

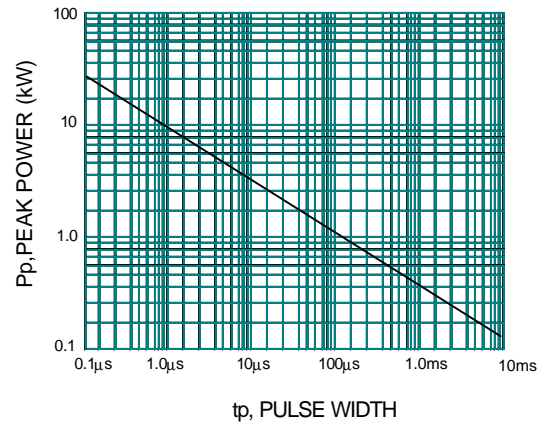


FIG.5 - PULSE WAVEFORM

