

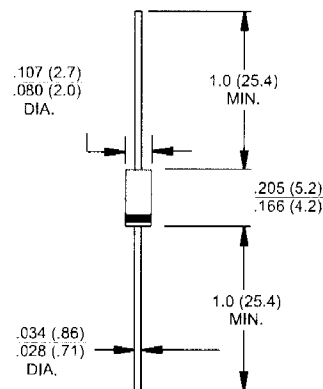
## BZW04 SERIES

400 Watts Transient Voltage Suppressor Diodes

### DO-41

### Features

- ◇ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◇ Exceeds environmental standards of MIL-STD-19500
- ◇ 400W surge capability at 10 x 1000 us waveform,
- ◇ Excellent clamping capability
- ◇ Low impedance surge resistance
- ◇ Very fast response time V
- ◇ 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

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 1)                                | $P_{PP}$        | Minimum 400  | Watts              |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$<br>Lead Lengths .375", 9.5mm (Note 2)                    | $P_D$           | 1.0          | Watts              |
| Peak Forward Surge Current, 8.3 ms Single Half<br>Sine-wave Superimposed on Rated Load<br>(JEDEC method) (Note 3) | $I_{FSM}$       | 40           | Amps               |
| Junction to leads   | $R_{\theta JL}$ | 60           | $^\circ\text{C/W}$ |
| Junction to ambient on printed circuit.<br>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 derated above  $T_A=25^\circ\text{C}$ .
  2. Mounted on copper pad area of 0.2 x 0.2" (5 x 5mm).
  3. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

## ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

| Device         |               | Breakdown Voltage $V_{BR} @ I_R$ (V) <sup>(1)</sup> |      | Test Current $I_T$ (mA) | Stand-off Voltage $V_{WM}$ (Volts) | Maximum Reverse Leakage @ $V_{WM}$ $I_o$ ( $\mu$ A) <sup>(3)</sup> | Maximum Peak Pulse Current $I_{PPM}$ (Amps) | Maximum Clamping Voltage @ $I_{PPM}$ $V_c$ (Volts) | Maximum Temperature Coefficient of $V_{(BR)}$ (% / °C) |
|----------------|---------------|---|------|-------------------------|------------------------------------|--|---|--|--|
|                |               | Min.  | Max. |                         |                                    |  |   |  |  |
| Unidirectional | Bidirectional |   |      |                         |                                    |  |   |  |  |
| BZW04-5V8      | BZW04-5V8B    | 6.45  | 7.14 | 10.0                    | 5.80                               | 1000   | 38.0  | 10.5   | 0.057  |
| BZW04-6V4      | BZW04-6V4B    | 7.13  | 7.88 | 10.0                    | 6.40                               | 500  | 35.4  | 11.3   | 0.061  |
| BZW04-7V0      | BZW04-7V0B    | 7.79  | 8.61 | 10.0                    | 7.02                               | 200  | 33.0  | 12.1   | 0.065  |
| BZW04-7V8      | BZW04-7V8B    | 8.65  | 9.55 | 1.0                     | 7.78                               | 50   | 30.0  | 13.4   | 0.068  |
| BZW04-8V5      | BZW04-8V5B    | 9.5   | 10.5 | 1.0                     | 8.55                               | 10   | 27.6  | 14.5   | 0.073  |
| BZW04-9V4      | BZW04-9V4B    | 10.5  | 11.6 | 1.0                     | 9.40                               | 5.0  | 25.7  | 15.6   | 0.075  |
| BZW04-10       | BZW04-10B     | 11.4  | 12.6 | 1.0                     | 10.2                               | 5.0  | 24.0  | 16.7   | 0.078  |
| BZW04-11       | BZW04-11B     | 12.4  | 13.7 | 1.0                     | 11.1                               | 5.0  | 22.0  | 18.2   | 0.081  |
| BZW04-13       | BZW04-13B     | 14.3  | 15.8 | 1.0                     | 12.8                               | 5.0  | 19.0  | 21.2   | 0.084  |
| BZW04-14       | BZW04-14B     | 15.2  | 16.8 | 1.0                     | 13.6                               | 1.0  | 17.8  | 22.5   | 0.083  |
| BZW04-15       | BZW04-15B     | 17.1  | 18.9 | 1.0                     | 15.3                               | 1.0  | 16.0  | 25.2   | 0.088  |
| BZW04-17       | BZW04-17B     | 19  | 21   | 1.0                     | 17.1                               | 1.0  | 14.5  | 27.7   | 0.090  |
| BZW04-19       | BZW04-19B     | 20.9  | 23.1 | 1.0                     | 18.8                               | 1.0  | 13.0  | 30.6   | 0.092  |
| BZW04-20       | BZW04-20B     | 22.8  | 25.2 | 1.0                     | 20.5                               | 1.0  | 12.0  | 33.2   | 0.094  |
| BZW04-23       | BZW04-23B     | 25.7  | 28.4 | 1.0                     | 23.1                               | 1.0  | 10.7  | 37.5   | 0.096  |
| BZW04-26       | BZW04-26B     | 28.5  | 31.5 | 1.0                     | 25.6                               | 1.0  | 9.6   | 41.5   | 0.097  |
| BZW04-28       | BZW04-28B     | 31.4  | 34.7 | 1.0                     | 28.2                               | 1.0  | 8.8   | 45.7   | 0.098  |
| BZW04-31       | BZW04-31B     | 34.2  | 37.8 | 1.0                     | 30.8                               | 1.0  | 8.0   | 49.9   | 0.099  |
| BZW04-33       | BZW04-33B     | 37.1  | 41   | 1.0                     | 33.3                               | 1.0  | 7.4   | 53.9   | 0.100  |
| BZW04-37       | BZW04-37B     | 40.9  | 45.2 | 1.0                     | 36.8                               | 1.0  | 6.7   | 59.3   | 0.101  |
| BZW04-40       | BZW04-40B     | 44.7  | 49.4 | 1.0                     | 40.2                               | 1.0  | 6.2   | 64.8   | 0.101  |
| BZW04-44       | BZW04-44B     | 48.5  | 53.6 | 1.0                     | 43.6                               | 1.0  | 5.7   | 70.1   | 0.102  |
| BZW04-48       | BZW04-48B     | 53.2  | 58.8 | 1.0                     | 47.8                               | 1.0  | 5.2   | 77   | 0.103  |
| BZW04-53       | BZW04-53B     | 58.9  | 65.1 | 1.0                     | 53.0                               | 1.0  | 4.7   | 85   | 0.104  |
| BZW04-58       | BZW04-58B     | 64.6  | 71.4 | 1.0                     | 58.1                               | 1.0  | 4.3   | 92   | 0.104  |
| BZW04-64       | BZW04-64B     | 71.3  | 78.8 | 1.0                     | 64.1                               | 1.0  | 3.9   | 103  | 0.105  |
| BZW04-70       | BZW04-70B     | 77.9  | 86.1 | 1.0                     | 70.1                               | 1.0  | 3.5   | 113  | 0.105  |
| BZW04-78       | BZW04-78B     | 86.5  | 95.5 | 1.0                     | 78.0                               | 1.0  | 3.2   | 125  | 0.105  |
| BZW04-85       | BZW04-85B     | 95  | 105  | 1.0                     | 85.5                               | 1.0  | 2.9   | 137  | 0.106  |
| BZW04-94       | BZW04-94B     | 105   | 116  | 1.0                     | 94.0                               | 1.0  | 2.6   | 152  | 0.107  |

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| Device         |               | Breakdown Voltage $V_{BR} @ I_R$ (V) <sup>(1)</sup> |      | Test Current $I_T$ (mA) | Stand-off Voltage $V_{WM}$ (Volts) | Maximum Reverse Leakage @ $V_{WM}$ $I_o$ ( $\mu$ A) <sup>(3)</sup> | Maximum Peak Pulse Current $I_{PPM}$ (Amps) | Maximum Clamping Voltage @ $I_{PPM}$ $V_c$ (Volts) | Maximum Temperature Coefficient of $V_{(BR)}$ (% / °C) |
|----------------|---------------|---|------|-------------------------|------------------------------------|--|---|--|--|
|                |               | Min.  | Max. |                         |                                    |  |   |  |  |
| Unidirectional | Bidirectional |   |      |                         |                                    |  |   |  |  |
| BZW04-102      | BZW04-102B    | 114   | 126  | 1.0                     | 102                                | 1.0  | 2.4   | 165  | 0.107  |
| BZW04-110      | BZW04-110B    | 124   | 137  | 1.0                     | 111                                | 1.0  | 2.2   | 179  | 0.107  |
| BZW04-128      | BZW04-128B    | 143   | 158  | 1.0                     | 128                                | 1.0  | 2.0   | 207  | 0.108  |
| BZW04-136      | BZW04-136B    | 152   | 168  | 1.0                     | 136                                | 1.0  | 1.8   | 219  | 0.108  |
| BZW04-145      | BZW04-145B    | 161   | 179  | 1.0                     | 145                                | 1.0  | 1.7   | 234  | 0.108  |
| BZW04-154      | BZW04-154B    | 171   | 189  | 1.0                     | 154                                | 1.0  | 1.6   | 246  | 0.108  |
| BZW04-171      | BZW04-171B    | 190   | 210  | 1.0                     | 171                                | 1.0  | 1.5   | 274  | 0.108  |
| BZW04-188      | BZW04-188B    | 209   | 231  | 1.0                     | 188                                | 1.0  | 1.4   | 301  | 0.108  |
| BZW04-213      | BZW04-213B    | 237   | 263  | 1.0                     | 213                                | 1.0  | 1.2   | 344  | 0.110  |
| BZW04-239      | BZW04-239B    | 266   | 294  | 1.0                     | 239                                | 1.0  | 1.1   | 384  | 0.110  |
| BZW04-256      | BZW04-256B    | 285   | 315  | 1.0                     | 256                                | 1.0  | 1.0   | 414  | 0.110  |
| BZW04-273      | BZW04-273B    | 304   | 336  | 1.0                     | 273                                | 1.0  | 0.90  | 438  | 0.110  |
| BZW04-299      | BZW04-299B    | 332   | 368  | 1.0                     | 299                                | 1.0  | 0.80  | 482  | 0.110  |
| BZW04-342      | BZW04-342B    | 380   | 420  | 1.0                     | 342                                | 1.0  | 0.75  | 548  | 0.110  |
| BZW04-376      | BZW04-376B    | 418   | 462  | 1.0                     | 376                                | 1.0  | 0.67  | 603  | 0.110  |