



THE DATASHEET OF SMBJ5346B



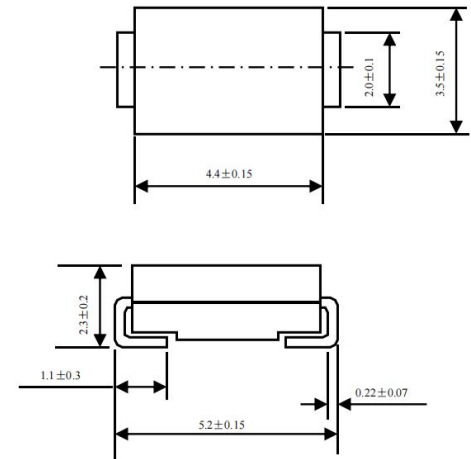
Features:

- Low Zener impedance at low current
- High reliability
- Resistance to soldering heat: SMD product 250°C/10S, lead end 1.5mm.

Mechanical properties:

- Packaging: Molded package
- Packaging material: Flame-retardant epoxy material approved by UL94V-0
- Terminal: Electroplating solderability complies with MIL-STD-202E, Method 208C
- Polarity: Color ring indicates cathode
- Mounting position: Any

SMB / DO-214AA



5w Zener (voltage regulator) diode
Dimensions: inches (mm)

Maximum Ratings And Characteristics (Measured at an ambient temperature of 25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|------------------|-----------|------|
| zener current | I_Z MAX | see table | mA |
| power dissipation @ TL = 75°C (Note 1) | P_t | 5 | W |
| forward voltage @IF=1.0A | VF | 1.2 | V |
| thermal impedance (Junction to Ambient, Note 1) | $R_{\theta(ja)}$ | 20 | °C/W |
| operating and storage temperature range | T_J, T_{STG} | -55~+150 | °C |

Note1: Install 5×5mm heat sink copper sheet at the end of the lead wire. Set to ambient temperature.



SMBJ5333B-SMBJ5388B

| Electrical Characteristics (Measured at 25°C unless otherwise specified) | | | | | | | | |
|--|---------------|-------------------|-----------------------------|-----------------------------|----------|---------------------------------|---------|---------------------------------------|
| Model (Note 1) | Zener Voltage | Measuring Current | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum DC Zener Current @V(BR) |
| | $V_Z@I_{ZT}$ | I_{ZT} | $Z_{ZT}@I_{ZT}$ (Note 2) | $Z_{ZK}@I_{ZK}$ (Note 2) | I_{ZK} | $I_R@V_R$ | @ V_R | $I_{ZM}@50^\circ\text{C}$ (Note 3) |
| | V | mA | Ω | Ω | mA | μA | V | mA |
| SMBJ5333B | 3.3 | 380 | 3 | 400 | 1 | 300 | 1.0 | 1440 |
| SMBJ5334B | 3.6 | 350 | 2.5 | 500 | 1 | 150 | 1.0 | 1320 |
| SMBJ5335B | 3.9 | 320 | 2 | 500 | 1 | 50 | 1.0 | 1220 |
| SMBJ5336B | 4.3 | 290 | 2 | 500 | 1 | 10 | 1.0 | 1100 |
| SMBJ5337B | 4.7 | 260 | 2 | 450 | 1 | 5 | 1.0 | 1010 |
| SMBJ5338B | 5.1 | 240 | 1.5 | 400 | 1 | 1 | 1.0 | 930 |
| SMBJ5339B | 5.6 | 220 | 1 | 400 | 1 | 1 | 2.0 | 856 |
| SMBJ5340B | 6.0 | 200 | 1 | 300 | 1 | 1 | 3.0 | 790 |
| SMBJ5341B | 6.2 | 200 | 1 | 200 | 1 | 1 | 4.0 | 765 |
| SMBJ5342B | 6.8 | 175 | 1 | 200 | 1 | 10 | 4.9 | 700 |
| SMBJ5343B | 7.5 | 175 | 1.5 | 200 | 1 | 10 | 5.4 | 630 |
| SMBJ5344B | 8.2 | 150 | 1.5 | 200 | 1 | 10 | 5.9 | 580 |
| SMBJ5345B | 8.7 | 150 | 2 | 200 | 1 | 10 | 6.3 | 545 |
| SMBJ5346B | 9.1 | 150 | 2 | 150 | 1 | 7.5 | 6.6 | 520 |
| SMBJ5347B | 10 | 125 | 2 | 125 | 1 | 5 | 7.2 | 475 |
| SMBJ5348B | 11 | 125 | 2.5 | 125 | 1 | 5 | 8 | 430 |
| SMBJ5349B | 12 | 100 | 2.5 | 125 | 1 | 2 | 8.6 | 395 |
| SMBJ5350B | 13 | 100 | 2.5 | 100 | 1 | 1 | 9.4 | 365 |
| SMBJ5351B | 14 | 100 | 2.5 | 75 | 1 | 1 | 10.1 | 340 |
| SMBJ5352B | 15 | 75 | 2.5 | 75 | 1 | 1 | 10.8 | 315 |
| SMBJ5353B | 16 | 75 | 2.5 | 75 | 1 | 1 | 11.5 | 295 |
| SMBJ5354B | 17 | 70 | 2.5 | 75 | 1 | 0.5 | 12.2 | 280 |
| SMBJ5355B | 18 | 65 | 2.5 | 75 | 1 | 0.5 | 13 | 265 |
| SMBJ5356B | 19 | 65 | 3 | 75 | 1 | 0.5 | 13.7 | 250 |
| SMBJ5357B | 20 | 50 | 3 | 75 | 1 | 0.5 | 14.4 | 237 |
| SMBJ5358B | 22 | 50 | 3.5 | 75 | 1 | 0.5 | 15.8 | 216 |
| SMBJ5359B | 24 | 50 | 3.5 | 100 | 1 | 0.5 | 17.3 | 198 |
| SMBJ5360B | 25 | 50 | 4 | 110 | 1 | 0.5 | 18 | 190 |
| SMBJ5361B | 27 | 50 | 5 | 120 | 1 | 0.5 | 19.4 | 176 |
| SMBJ5362B | 28 | 50 | 6 | 130 | 1 | 0.5 | 20.1 | 170 |
| SMBJ5363B | 30 | 40 | 8 | 140 | 1 | 0.5 | 21.6 | 158 |
| SMBJ5364B | 33 | 40 | 10 | 150 | 1 | 0.5 | 23.8 | 144 |
| SMBJ5365B | 36 | 30 | 11 | 160 | 1 | 0.5 | 25.9 | 132 |
| SMBJ5366B | 39 | 30 | 14 | 170 | 1 | 0.5 | 28.1 | 122 |
| SMBJ5367B | 43 | 30 | 20 | 190 | 1 | 0.5 | 31 | 110 |
| SMBJ5368B | 47 | 25 | 25 | 210 | 1 | 0.5 | 33.8 | 100 |
| SMBJ5369B | 51 | 25 | 27 | 230 | 1 | 0.5 | 36.7 | 93 |
| SMBJ5370B | 56 | 20 | 35 | 280 | 1 | 0.5 | 40.3 | 86 |
| SMBJ5371B | 60 | 20 | 40 | 350 | 1 | 0.5 | 43 | 79 |
| SMBJ5372B | 62 | 20 | 42 | 400 | 1 | 0.5 | 44.6 | 76 |
| SMBJ5373B | 68 | 20 | 44 | 500 | 1 | 0.5 | 49 | 70 |
| SMBJ5374B | 75 | 20 | 45 | 620 | 1 | 0.5 | 54 | 63 |

Electrical Characteristics (Measured at 25°C unless otherwise specified)

| Model (Note 1) | Zener Voltage | Measuring Current | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum DC Zener Current @V(BR) |
|-------------------|---------------|-------------------|-----------------------------|-----------------------------|----------|---------------------------------|---------|---------------------------------------|
| | $V_Z@I_{ZT}$ | I_{ZT} | $Z_{ZT}@I_{ZT}$ (Note 2) | $Z_{ZK}@I_{ZK}$ (Note 2) | I_{ZK} | $I_R@V_R$ | @ V_R | $I_{ZM}@50^\circ\text{C}$ (Note 3) |
| | V | mA | Ω | Ω | mA | μA | V | mA |
| SMBJ5375B | 82 | 15 | 65 | 720 | 1 | 0.5 | 59 | 58 |
| SMBJ5376B | 87 | 15 | 75 | 760 | 1 | 0.5 | 63 | 54.5 |
| SMBJ5377B | 91 | 15 | 75 | 760 | 1 | 0.5 | 65.5 | 52.5 |
| SMBJ5378B | 100 | 12 | 90 | 800 | 1 | 0.5 | 72 | 47.5 |
| SMBJ5379B | 110 | 12 | 125 | 1000 | 1 | 0.5 | 79.2 | 43 |
| SMBJ5380B | 120 | 10 | 170 | 1150 | 1 | 0.5 | 86.4 | 39.5 |
| SMBJ5381B | 130 | 10 | 190 | 1250 | 1 | 0.5 | 93.2 | 36.6 |
| SMBJ5382B | 140 | 8 | 230 | 1500 | 1 | 0.5 | 101 | 34 |
| SMBJ5383B | 150 | 8 | 330 | 1500 | 1 | 0.5 | 108 | 31.6 |
| SMBJ5384B | 160 | 8 | 350 | 1650 | 1 | 0.5 | 115 | 29.4 |
| SMBJ5385B | 170 | 8 | 380 | 1750 | 1 | 0.5 | 122 | 28 |
| SMBJ5386B | 180 | 5 | 430 | 1750 | 1 | 0.5 | 130 | 26.4 |
| SMBJ5387B | 190 | 5 | 450 | 1850 | 1 | 0.5 | 137 | 25 |
| SMBJ5388B | 200 | 5 | 480 | 1850 | 1 | 0.5 | 144 | 23.6 |

Notes:

1. The standard Zener voltage deviation is 10%; for special selections marked with subscript "B," the deviation is 5%.
2. The Zener impedance is derived from an AC voltage over 60 seconds, where the RMS AC current equals the sum of 10% of the DC stabilization current (I_{ZT} or I_{ZK}).
3. The maximum Zener current value here is not absolute; in practical steady-state applications, ensure the product of voltage and current does not exceed the rated power value.

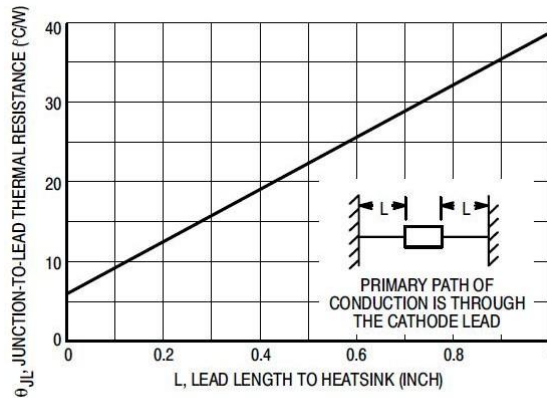


Figure 1. Typical Thermal Resistance

TEMPERATURE COEFFICIENTS

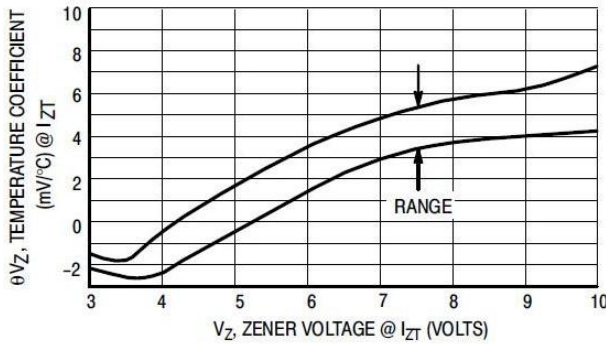


Figure 2. Temperature Coefficient-Range for Units 3 to 10 Volts

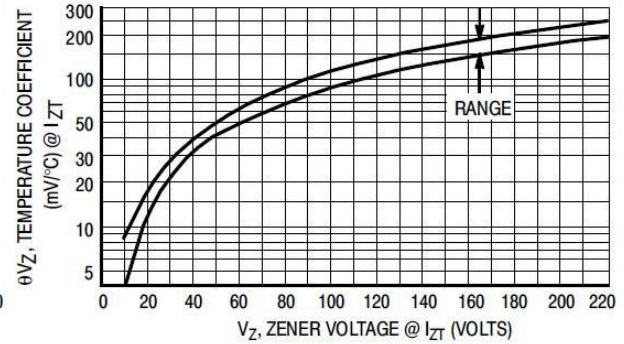


Figure 3. Temperature Coefficient-Range for Units 10 to 220 Volts

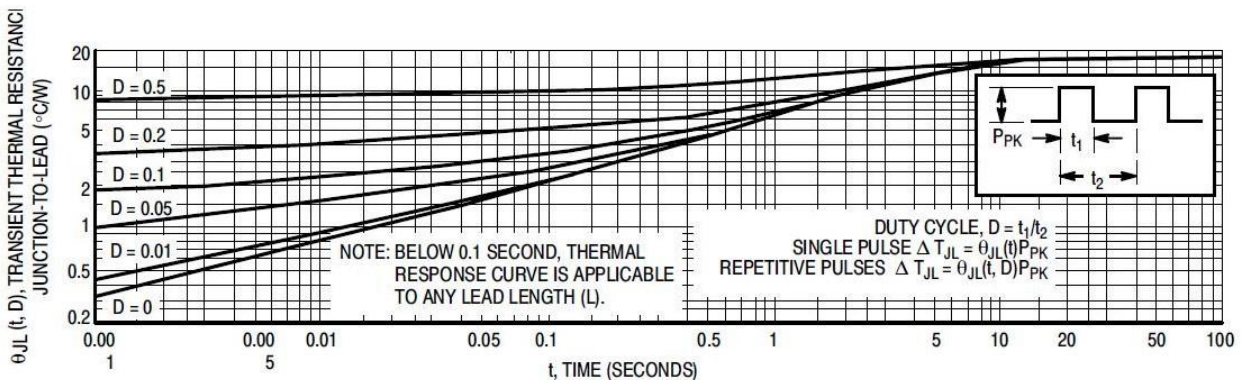


Figure 4. Typical Thermal Response
L, Lead Length = 3/8 Inch

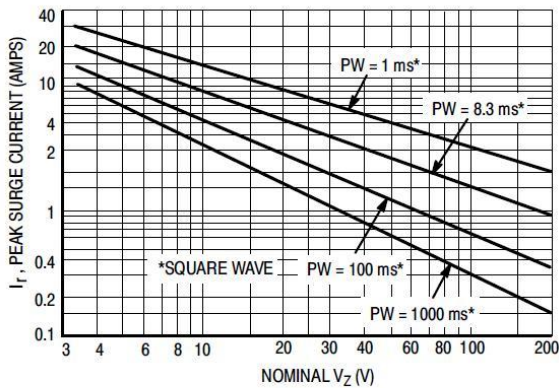


Figure 5. Maximum Non-Repetitive Surge Current versus Nominal Zener Voltage

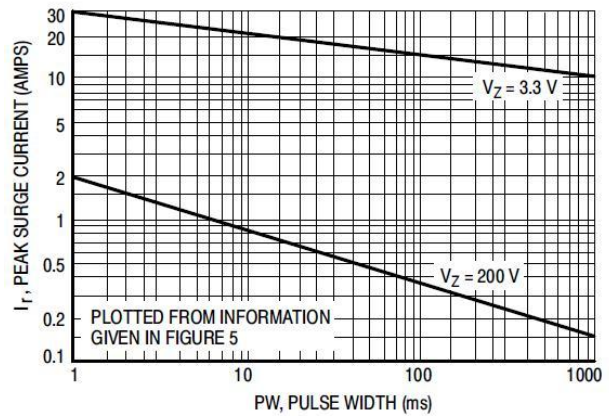
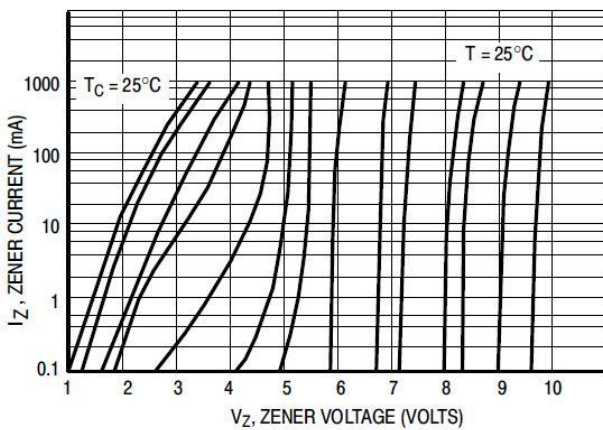
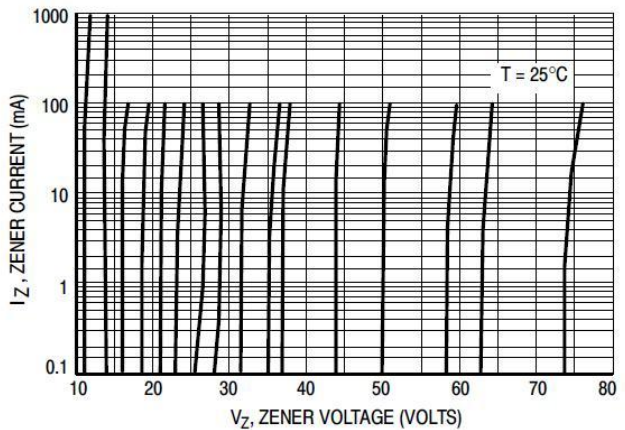


Figure 6. Peak Surge Current versus Pulse Width

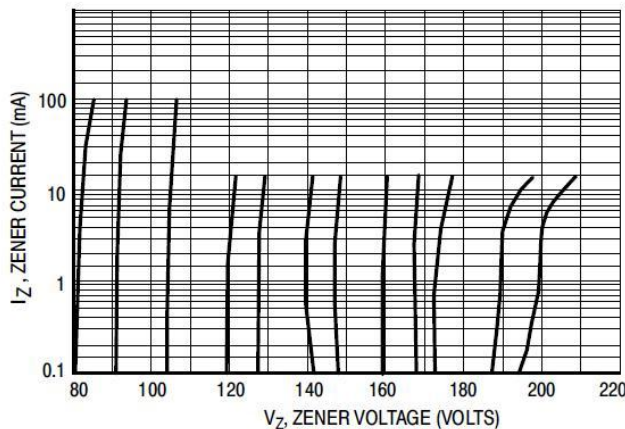


**Figure 7. Zener Voltage versus Zener Current
V_Z = 3.3 thru 10 Volts**



**Figure 8. Zener Voltage versus Zener Current
V_Z = 11 thru 75 Volts**



1N5333B Series





**Figure 9. Zener Voltage versus Zener Current
V_Z = 82 thru 200 Volts**

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