



THE DATASHEET OF SMBJ5339B-TP



Features

- Low Profile Package for Surface Mounting(Flat Handling Surface for Accurate Placement)
- Zener Voltage 5.1V to 200V
- Available on Tape and Reel(See E1A Std RS-481)
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note 2) ("P" Suffix Designates Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 15°C/W Junction to Lead
- Thermal Resistance: 90°C/W Junction to Ambient(Note3)

| Parameter | Symbol | Rating | Conditions |
|--------------------------------|------------|--------|-------------|
| Steady State Power Dissipation | $P_{(AV)}$ | 5.0W | Note 4 |
| Maximum Forward Voltage | V_F | 1.2V | $I_F=1.0mA$ |

Note:

- 1.Halogen free "Green"products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 2.High Temperature Solder Exemption Applied, See EU Directive Annex 7a.
- 3.Ambient Temperature at 15°C = T_A at Mounting Plane. Derate Linearly Above 15°C to Zero Power at 150°C
- 4.Lead Temperature at 75°C = T_L at Mounting Plane. Derate Linearly Above 75°C to Zero Power at 150°C

Device Marking:



For Example: 339B for SMBJ5339B
369B for SMBJ5369B

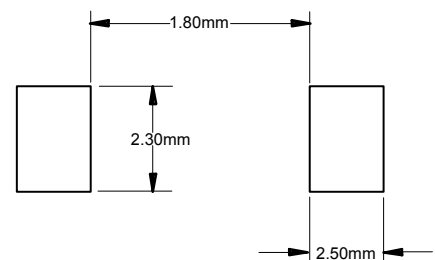
5.0 Watt Surface Mount Silicon Zener Diodes 5.1V to 200V

SMB (DO-214AA) (LEAD FRAME)



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.079 | 0.103 | 2.00 | 2.62 | |
| B | 0.075 | 0.087 | 1.91 | 2.21 | |
| C | 0.002 | 0.008 | 0.05 | 0.20 | |
| D | 0.006 | 0.012 | 0.15 | 0.31 | |
| E | 0.030 | 0.060 | 0.76 | 1.52 | |
| F | 0.065 | 0.091 | 1.65 | 2.32 | |
| G | 0.200 | 0.220 | 5.08 | 5.59 | |
| H | 0.160 | 0.191 | 4.06 | 4.85 | |
| J | 0.130 | 0.155 | 3.30 | 3.94 | |

SUGGESTED SOLDER PAD LAYOUT



Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC Part Number | Regulator Voltage | Test Current | Maximum Dynamic Impedance | Maximum Reverse Current | Test Voltage | Maximum Regulator Current | Maximum Dynamic Knee Impedance | Maximum Surge Current | Maximum Voltage Regulation |
|--------------------|----------------------|--------------|---------------------------------|-------------------------------|-----------------|---------------------------------|--------------------------------------|-----------------------------|----------------------------------|
| | V_Z | I_Z | Z_{ZT} | I_R | V_R | I_{ZM} | $Z_{Zk} @ 1.0mA$ | I_{ZSM} | |
| | V | mA | Ω | μA | V | mA | Ω | A | V |
| SMBJ5338B | 5.1 | 240 | 1.5 | 1 | 1 | 930 | 400 | 14.4 | 0.39 |
| SMBJ5339B | 5.6 | 220 | 1 | 1 | 2 | 865 | 400 | 13.4 | 0.25 |
| SMBJ5340B | 6 | 200 | 1 | 1 | 3 | 790 | 300 | 12.7 | 0.19 |
| SMBJ5341B | 6.2 | 200 | 1 | 1 | 3 | 765 | 200 | 12.4 | 0.1 |
| SMBJ5342B | 6.8 | 175 | 1 | 10 | 5.2 | 700 | 200 | 11.5 | 0.15 |
| SMBJ5343B | 7.5 | 175 | 1.5 | 10 | 5.7 | 630 | 200 | 10.7 | 0.15 |
| SMBJ5344B | 8.2 | 150 | 1.5 | 10 | 6.2 | 580 | 200 | 10 | 0.2 |
| SMBJ5345B | 8.7 | 150 | 2 | 10 | 6.6 | 545 | 200 | 9.5 | 0.2 |
| SMBJ5346B | 9.1 | 150 | 2 | 7.5 | 6.9 | 520 | 150 | 9.2 | 0.22 |
| SMBJ5347B | 10 | 125 | 2 | 5 | 7.6 | 475 | 125 | 8.6 | 0.22 |
| SMBJ5348B | 11 | 125 | 2.5 | 5 | 8.4 | 430 | 125 | 8 | 0.25 |
| SMBJ5349B | 12 | 100 | 2.5 | 2 | 9.1 | 395 | 125 | 7.5 | 0.25 |
| SMBJ5350B | 13 | 100 | 2.5 | 1 | 9.9 | 365 | 100 | 7 | 0.25 |
| SMBJ5351B | 14 | 100 | 2.5 | 1 | 10.6 | 340 | 75 | 6.7 | 0.25 |
| SMBJ5352B | 15 | 75 | 2.5 | 1 | 11.5 | 315 | 75 | 6.3 | 0.25 |
| SMBJ5353B | 16 | 75 | 2.5 | 1 | 12.2 | 295 | 75 | 6 | 0.3 |
| SMBJ5354B | 17 | 70 | 2.5 | 0.5 | 12.9 | 280 | 75 | 5.8 | 0.35 |
| SMBJ5355B | 18 | 65 | 2.5 | 0.5 | 13.7 | 264 | 75 | 5.5 | 0.4 |
| SMBJ5356B | 19 | 65 | 3 | 0.5 | 14.4 | 250 | 75 | 5.3 | 0.4 |
| SMBJ5357B | 20 | 65 | 3 | 0.5 | 15.2 | 237 | 75 | 5.1 | 0.4 |
| SMBJ5358B | 22 | 50 | 3.5 | 0.5 | 16.7 | 216 | 75 | 4.7 | 0.45 |
| SMBJ5359B | 24 | 50 | 3.5 | 0.5 | 18.2 | 198 | 100 | 4.4 | 0.55 |
| SMBJ5360B | 25 | 50 | 4 | 0.5 | 19 | 190 | 110 | 4.3 | 0.55 |
| SMBJ5361B | 27 | 50 | 5 | 0.5 | 20.6 | 176 | 120 | 4.1 | 0.6 |
| SMBJ5362B | 28 | 50 | 6 | 0.5 | 21.2 | 170 | 130 | 3.9 | 0.6 |
| SMBJ5363B | 30 | 40 | 8 | 0.5 | 22.8 | 158 | 140 | 3.7 | 0.6 |
| SMBJ5364B | 33 | 40 | 10 | 0.5 | 25.1 | 144 | 150 | 3.5 | 0.6 |
| SMBJ5365B | 36 | 30 | 11 | 0.5 | 27.4 | 132 | 160 | 3.3 | 0.65 |
| SMBJ5366B | 39 | 30 | 14 | 0.5 | 29.7 | 122 | 170 | 3.1 | 0.65 |
| SMBJ5367B | 43 | 30 | 20 | 0.5 | 32.7 | 110 | 190 | 2.8 | 0.7 |
| SMBJ5368B | 47 | 25 | 25 | 0.5 | 35.8 | 100 | 210 | 2.7 | 0.8 |
| SMBJ5369B | 51 | 25 | 27 | 0.5 | 38.8 | 93 | 230 | 2.5 | 0.9 |
| SMBJ5370B | 56 | 20 | 35 | 0.5 | 42.6 | 86 | 280 | 2.3 | 1 |
| SMBJ5371B | 60 | 20 | 40 | 0.5 | 45.5 | 79 | 350 | 2.2 | 1.2 |
| SMBJ5372B | 62 | 20 | 42 | 0.5 | 47.1 | 76 | 400 | 2.1 | 1.35 |
| SMBJ5373B | 68 | 20 | 44 | 0.5 | 51.7 | 70 | 500 | 2 | 1.5 |
| SMBJ5374B | 75 | 20 | 45 | 0.5 | 56 | 63 | 620 | 1.9 | 1.6 |
| SMBJ5375B | 82 | 15 | 65 | 0.5 | 62.2 | 58 | 720 | 1.8 | 1.8 |
| SMBJ5376B | 87 | 15 | 75 | 0.5 | 66 | 54.5 | 760 | 1.7 | 2 |
| SMBJ5377B | 91 | 15 | 75 | 0.5 | 69.2 | 52.5 | 760 | 1.6 | 2.2 |
| SMBJ5378B | 100 | 12 | 90 | 0.5 | 76 | 47.5 | 800 | 1.5 | 2.3 |
| SMBJ5379B | 110 | 12 | 125 | 0.5 | 83.6 | 43 | 1000 | 1.4 | 2.5 |
| SMBJ5380B | 120 | 10 | 170 | 0.5 | 91.2 | 39.5 | 1150 | 1.3 | 2.5 |
| SMBJ5381B | 130 | 10 | 190 | 0.5 | 98.8 | 36.6 | 1250 | 1.2 | 2.5 |
| SMBJ5382B | 140 | 8.0 | 230 | 0.5 | 106 | 34 | 1500 | 1.2 | 2.5 |
| SMBJ5383B | 150 | 8.0 | 330 | 0.5 | 114 | 31.6 | 1500 | 1.1 | 3 |
| SMBJ5384B | 160 | 8.0 | 350 | 0.5 | 122 | 29.4 | 1650 | 1.1 | 3 |
| SMBJ5385B | 170 | 8.0 | 380 | 0.5 | 129 | 28 | 1750 | 1.0 | 3 |
| SMBJ5386B | 180 | 5.0 | 430 | 0.5 | 137 | 26.4 | 1750 | 1.0 | 4 |
| SMBJ5387B | 190 | 5.0 | 450 | 0.5 | 144 | 25 | 1850 | 0.9 | 5 |
| SMBJ5388B | 200 | 5.0 | 480 | 0.5 | 152 | 23.6 | 1850 | 0.9 | 5 |

Remarks:

1. Devices Listed Have a $\pm 5\%$ Tolerance on Nominal V_Z . Suffix C Denotes a $+2\%$
2. Nominal Zener Voltage (V_Z) is Tested With a 40 +/-10 Milliseconds Pulse Current at 25°C to Avoid Self-heat Affection.
3. The Zener Impedance (Z_{ZT} or Z_{ZK}) is Derived from The 60Hz AC Voltage, Which Results When an AC Current Having a rms value Equal to 10% of the DC Zener Current (I_{ZT} or I_{ZK}) Respectively.
4. The Maximum Reverse(Leakage) Current is Specified for Devices With $\pm 20\%$ and $\pm 10\%$ Voltage Tolerances on Nominal V_Z in Another Column.
5. The Maximum Zener Current(I_{ZM}) Shown is for $\pm 5\%$ Tolerance Devices. I_{ZM} for $\pm 10\%$ and $\pm 20\%$ Devices Can be Calculated Using the Formula:

$$I_{ZM} = \frac{P}{V_{ZM}}$$

Where " V_{ZM} " is V_Z at The High End of The Voltage Tolerance Specified and "P" is The Rated Power of The Device.

6. The Surge Current (I_{ZM}) is Specified As The Maximum Peak of a Nonrecurring Sine Wave of 8.3 Milliseconds Duration.
7. Voltage Regulation (ΔV_Z) is The Difference Between The Voltage Measured at 10% and 50% (I_{ZM}).

Curve Characteristics

Fig. 1 - Power Derating Curve



Fig. 2 - Typical Zener Breakdown Characteristics



Fig. H - Typical Zener Breakdown Characteristics



Fig. 4 - Typical Zener Breakdown Characteristics



Fig. 5 - Maximum Surge Current VS Nominal Vz

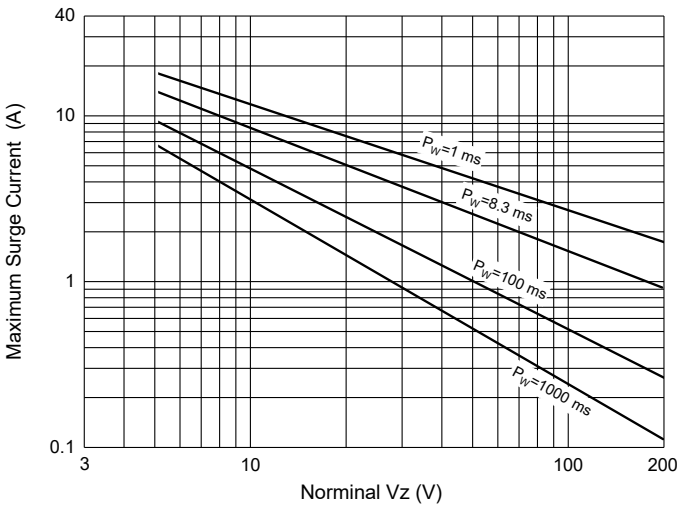


Fig. 6 - Non-Repetitive Peak Pulse Power



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |

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