



Micro Commercial Components



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20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
Fax: (818) 701-4939

SMBJ5347BHE3 THRU SMBJ5388BHE3

5 Watt Surface Mount Silicon Zener Diode 10 to 200 Volts

Features

- AEC-Q101 Qualified
- Low Profile Package for Surface Mounting(Flat Handling Surface for Accurate Placement)
- Zener Voltage 10V to 200V
- High Surge Current Capability
- For Available Tolerances-see Note 1
- Available on Tape and Reel (see E1A std RS-481)
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Halogen free

Mechanical Data

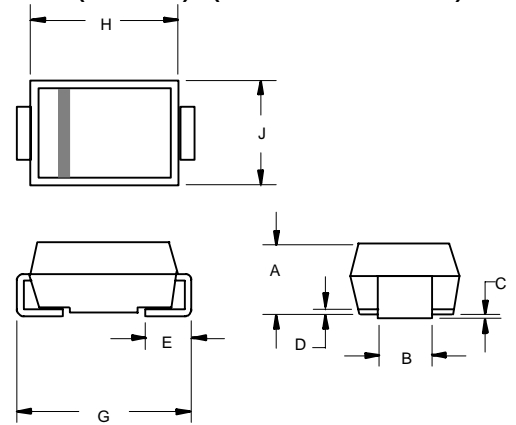
- Standard JEDEC Outlines as Shown
- Marking: See page 2
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Maximum Temperature for Soldering: 260°C for 10 Seconds

Electrical Characteristics @ 25°C Unless Otherwise Specified

| | | |
|------------------------------------|-----------------|-------------------|
| Forward Voltage at 1.0A Current | V_F | 1.2Volts |
| Steady State Power Dissipation | $P_{(AV)}$ | 5Watts See Note 2 |
| Operating and Storage Temperatures | T_J, T_{STG} | -55°C to +150°C |
| Thermal Resistance | $R_{\theta JL}$ | 15°C/W |
| | $R_{\theta JA}$ | 90°C/W |

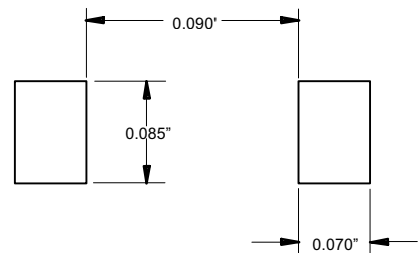
- Note: 1.High Tempertaure Solder Exemptions Applied,see EU Directive Annex 7.
 2. Lead temperature at 75°C = TL at mounting plane. Derate linearly above 75°C to zero power at 150 °C
 3. Ambient temperature at 15°C = TA at mounting plane. Derate linearly above 15°C to zero power at 150 °C

DO-214AA (SMB) (Lead Frame)



| DIM | INCHES | | MM | | NOTE |
|-----|--------|------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | .075 | .095 | 1.91 | 2.41 | |
| B | .077 | .083 | 1.96 | 2.10 | |
| C | .002 | .008 | .05 | .20 | |
| D | ---- | .02 | ---- | .51 | |
| E | .030 | .060 | .76 | 1.52 | |
| G | .200 | .220 | 5.08 | 5.59 | |
| H | .160 | .187 | 4.06 | 4.75 | |
| J | .130 | .155 | 3.30 | 3.94 | |

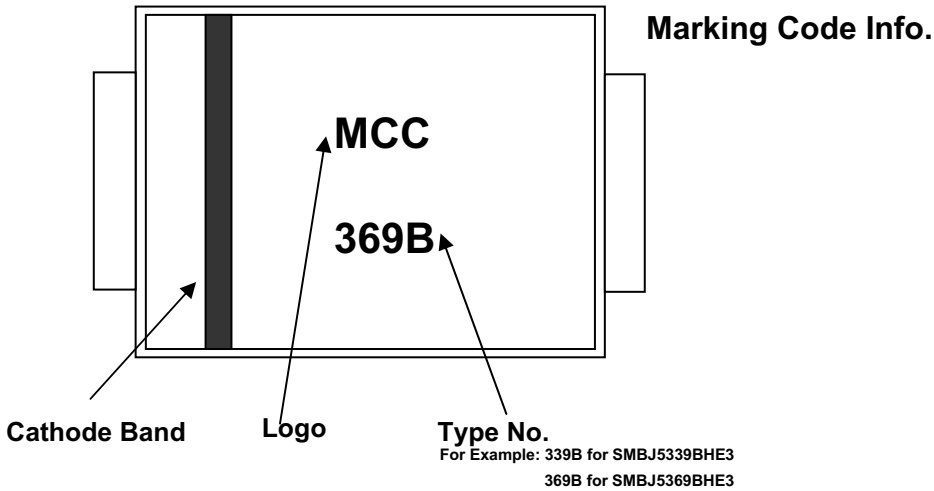
SUGGESTED SOLDER PAD LAYOUT



ELECTRICAL CHARACTERISTICS @25°C

| MCC PART NUMBER | REGULATOR VOLTAGE V_z | TEST CURRENT I_z | MAXIMUM DYNAMIC IMPEDANCE Z_{zT} | MAXIMUM REVERSE CURRENT I_R | TEST VOLTAGE V_R | MAXIMUM REGULATOR CURRENT I_{zM} | MAXIMUM DYNAMIC KNEE IMPEDANCE $Z_{zK}@1.0mA$ | MAXIMUM SURGE CURRENT I_{zSM} | MAXIMUM VOLTAGE REGULATION |
|-----------------|-------------------------|--------------------|------------------------------------|-------------------------------|--------------------|------------------------------------|---|---------------------------------|----------------------------|
| | VOLTS | mA | OHMS | μA | VOLTS | mA | OHMS | A | VOLTS |
| SMBJ5347BHE3 | 10 | 125 | 2 | 5 | 7.6 | 475 | 125 | 8.6 | 0.22 |
| SMBJ5348BHE3 | 11 | 125 | 2.5 | 5 | 8.4 | 430 | 125 | 8 | 0.25 |
| SMBJ5349BHE3 | 12 | 100 | 2.5 | 2 | 9.1 | 395 | 125 | 7.5 | 0.25 |
| SMBJ5350BHE3 | 13 | 100 | 2.5 | 1 | 9.9 | 365 | 100 | 7 | 0.25 |
| SMBJ5351BHE3 | 14 | 100 | 2.5 | 1 | 10.6 | 340 | 75 | 6.7 | 0.25 |
| SMBJ5352BHE3 | 15 | 75 | 2.5 | 1 | 11.5 | 315 | 75 | 6.3 | 0.25 |
| SMBJ5353BHE3 | 16 | 75 | 2.5 | 1 | 12.2 | 295 | 75 | 6 | 0.3 |
| SMBJ5354BHE3 | 17 | 70 | 2.5 | 0.5 | 12.9 | 280 | 75 | 5.8 | 0.35 |
| SMBJ5355BHE3 | 18 | 65 | 2.5 | 0.5 | 13.7 | 264 | 75 | 5.5 | 0.4 |
| SMBJ5356BHE3 | 19 | 65 | 3 | 0.5 | 14.4 | 250 | 75 | 5.3 | 0.4 |
| SMBJ5357BHE3 | 20 | 65 | 3 | 0.5 | 15.2 | 237 | 75 | 5.1 | 0.4 |
| SMBJ5358BHE3 | 22 | 50 | 3.5 | 0.5 | 16.7 | 216 | 75 | 4.7 | 0.45 |
| SMBJ5359BHE3 | 24 | 50 | 3.5 | 0.5 | 18.2 | 198 | 100 | 4.4 | 0.55 |
| SMBJ5360BHE3 | 25 | 50 | 4 | 0.5 | 19 | 190 | 110 | 4.3 | 0.55 |
| SMBJ5361BHE3 | 27 | 50 | 5 | 0.5 | 20.6 | 176 | 120 | 4.1 | 0.6 |
| SMBJ5362BHE3 | 28 | 50 | 6 | 0.5 | 21.2 | 170 | 130 | 3.9 | 0.6 |
| SMBJ5363BHE3 | 30 | 40 | 8 | 0.5 | 22.8 | 158 | 140 | 3.7 | 0.6 |
| SMBJ5364BHE3 | 33 | 40 | 10 | 0.5 | 25.1 | 144 | 150 | 3.5 | 0.6 |
| SMBJ5365BHE3 | 36 | 30 | 11 | 0.5 | 27.4 | 132 | 160 | 3.3 | 0.65 |
| SMBJ5366BHE3 | 39 | 30 | 14 | 0.5 | 29.7 | 122 | 170 | 3.1 | 0.65 |
| SMBJ5367BHE3 | 43 | 30 | 20 | 0.5 | 32.7 | 110 | 190 | 2.8 | 0.7 |
| SMBJ5368BHE3 | 47 | 25 | 25 | 0.5 | 35.8 | 100 | 210 | 2.7 | 0.8 |
| SMBJ5369BHE3 | 51 | 25 | 27 | 0.5 | 38.8 | 93 | 230 | 2.5 | 0.9 |
| SMBJ5370BHE3 | 56 | 20 | 35 | 0.5 | 42.6 | 86 | 280 | 2.3 | 1 |
| SMBJ5371BHE3 | 60 | 20 | 40 | 0.5 | 45.5 | 79 | 350 | 2.2 | 1.2 |
| SMBJ5372BHE3 | 62 | 20 | 42 | 0.5 | 47.1 | 76 | 400 | 2.1 | 1.35 |
| SMBJ5373BHE3 | 68 | 20 | 44 | 0.5 | 51.7 | 70 | 500 | 2 | 1.5 |
| SMBJ5374BHE3 | 75 | 20 | 45 | 0.5 | 56 | 63 | 620 | 1.9 | 1.6 |
| SMBJ5375BHE3 | 82 | 15 | 65 | 0.5 | 62.2 | 58 | 720 | 1.8 | 1.8 |
| SMBJ5376BHE3 | 87 | 15 | 75 | 0.5 | 66 | 54.5 | 760 | 1.7 | 2 |
| SMBJ5377BHE3 | 91 | 15 | 75 | 0.5 | 69.2 | 52.5 | 760 | 1.6 | 2.2 |
| SMBJ5378BHE3 | 100 | 12 | 90 | 0.5 | 76 | 47.5 | 800 | 1.5 | 2.3 |
| SMBJ5379BHE3 | 110 | 12 | 125 | 0.5 | 83.6 | 43 | 1000 | 1.4 | 2.5 |
| SMBJ5380BHE3 | 120 | 10 | 170 | 0.5 | 91.2 | 39.5 | 1150 | 1.3 | 2.5 |
| SMBJ5381BHE3 | 130 | 10 | 190 | 0.5 | 98.8 | 36.6 | 1250 | 1.2 | 2.5 |
| SMBJ5382BHE3 | 140 | 8.0 | 230 | 0.5 | 106 | 34 | 1500 | 1.2 | 2.5 |
| SMBJ5383BHE3 | 150 | 8.0 | 330 | 0.5 | 114 | 31.6 | 1500 | 1.1 | 3 |
| SMBJ5384BHE3 | 160 | 8.0 | 350 | 0.5 | 122 | 29.4 | 1650 | 1.1 | 3 |
| SMBJ5385BHE3 | 170 | 8.0 | 380 | 0.5 | 129 | 28 | 1750 | 1.0 | 3 |
| SMBJ5386BHE3 | 180 | 5.0 | 430 | 0.5 | 137 | 26.4 | 1750 | 1.0 | 4 |
| SMBJ5387BHE3 | 190 | 5.0 | 450 | 0.5 | 144 | 25 | 1850 | 0.9 | 5 |
| SMBJ5388BHE3 | 200 | 5.0 | 480 | 0.5 | 152 | 23.6 | 1850 | 0.9 | 5 |

SMBJ5347BHE3 thru SMBJ5388BHE3



Note 1 Devices listed have a $\pm 5\%$ tolerance on nominal V_Z . Suffix C denotes a $\pm 2\%$

Note 2 Nominal Zener Voltage (V_Z) is tested with a 40 ± 10 milliseconds pulse current at 25°C to avoid self-heat affection.

Note 3 The Zener impedance (Z_{ZT} or Z_{ZK}) is derived from the 60 Hz 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}) is superimposed on I_{ZT} or I_{ZK} respectively.

Note 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.

Note 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.

Note 6 The Surge Current (I_{SM}) is specified as the maximum peak of a nonrecurring sine wave of 8.3 milliseconds duration.

Note 7 Voltage Regulation (ΔV_Z) is the difference between the voltage measured at 10% and 50% I_{ZM} .

RATING AND CHARACTERISTICS CURVES
SMBJ5347BHE3 THRU SMBJ5388BHE3

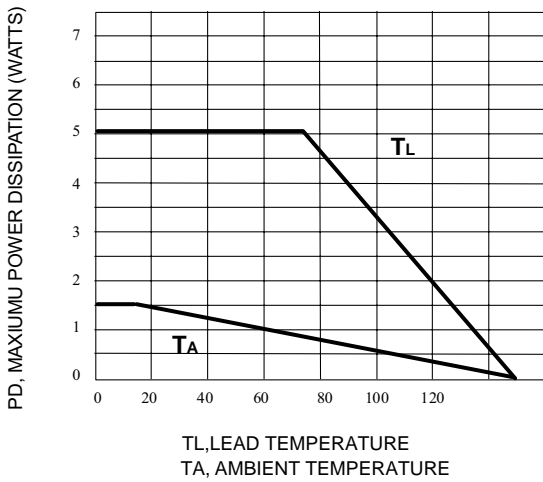


Fig. 1-POWER TEMPERATURE DERATING CURVE

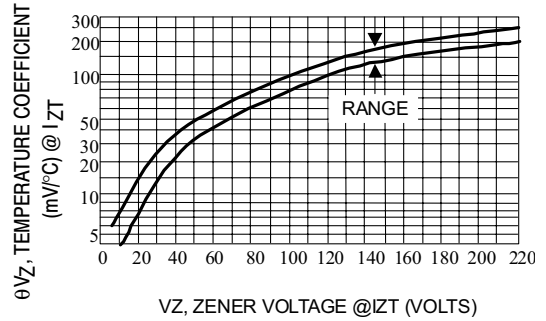


Fig. 2-TEMPERATURE COEFFICIENT-RANGE FOR UNITS 10 TO 51 VOLTS

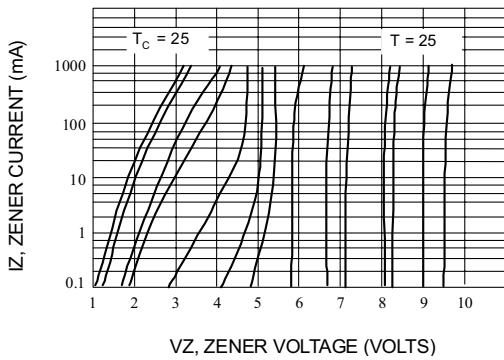


Fig. 3-ZENER VOLTAGE VERSUS ZENER CURRENT
VZ = 10 VOLTS

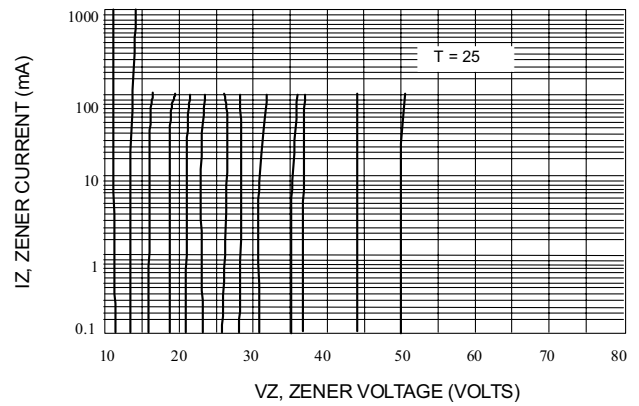


Fig. 4-ZENER VOLTAGE VERSUS ZENER CURRENT
VZ = 11 THRU 51 VOLTS



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Ordering Information :

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

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