

# SMBJ5338B THRU SMBJ5388B

## Features

- Low Profile Package for Surface Mounting (Flat Handling Surface for Accurate Placement)
- Zener Voltage 5.1V 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 available upon request by adding suffix "-HF"

## Mechanical Data

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

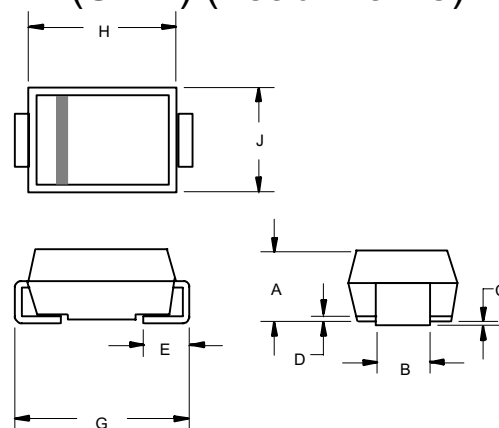
## Electrical Characteristics @ 25°C Unless Otherwise Specified

|                                    |                 |                   |
|------------------------------------|-----------------|-------------------|
| 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 Temperature 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

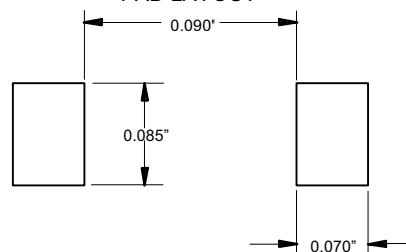
## 5 Watt Surface Mount Silicon Zener Diode 5.1 to 200 Volts

### DO-214AA (SMB) (Lead Frame)



| DIMENSIONS |        |      |      |      |      |
|------------|--------|------|------|------|------|
| 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 |      |
| I          | .130   | .155 | 3.30 | 3.94 |      |

### SUGGESTED SOLDER PAD LAYOUT



# SMBJ5338B thru SMBJ5388B



Micro Commercial Components

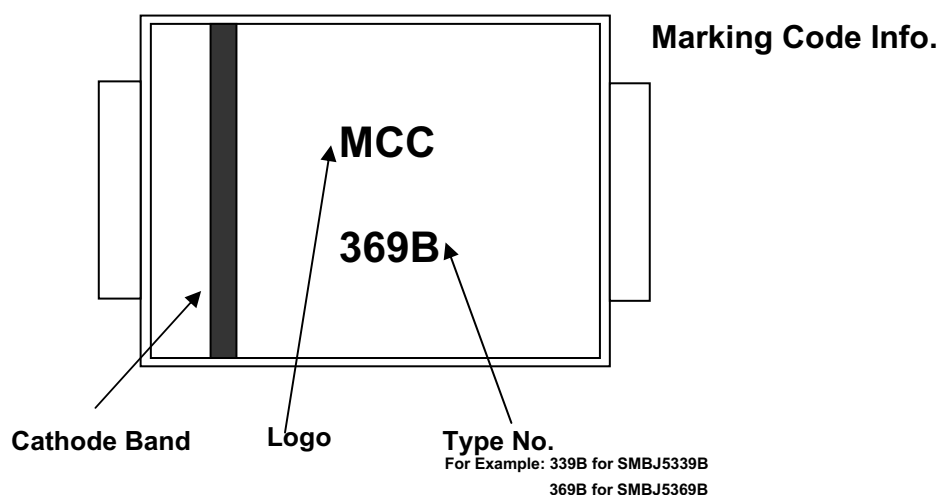
## ELECTRICAL CHARACTERISTICS @25°C

| 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                               | $\mu A$                       | VOLTS              | mA                                 | OHMS                                          | A                               | VOLTS                      |
| 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                          |

# SMBJ5338B thru SMBJ5388B



Micro Commercial Components



**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  $\pm 10$  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 ( $I_{ZM}$ ) is specified as the maximum peak of a nonrecurring sine wave of 8.3 milliseconds duration.

**Note 7** Voltage Regulation ( $\Delta V_Z$ ) is the difference between the voltage measured at 10% and 50%  $I_{ZM}$ .

# RATING AND CHARACTERISTICS CURVES

SMBJ5338B THRU SMBJ5388B

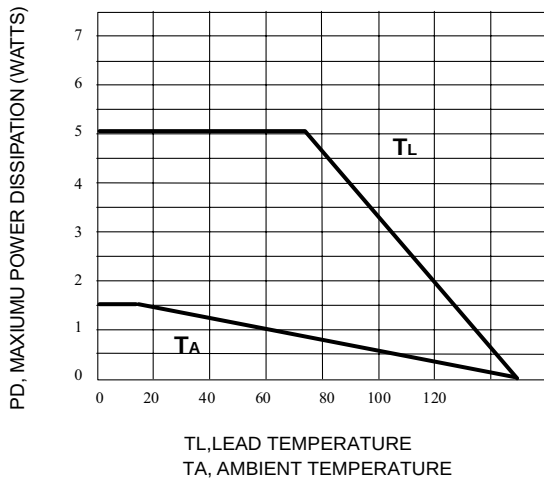


Fig. 1-POWER TEMPERATURE DERATING CURVE

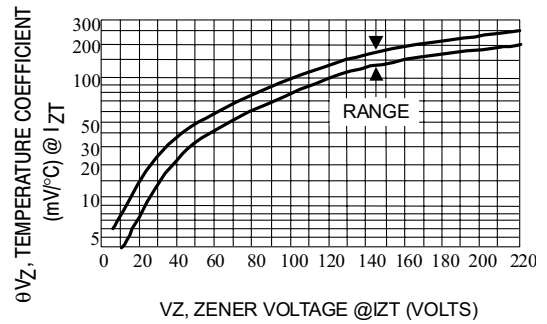


Fig. 2-TEMPERATURE COEFFICIENT-RANGE FOR UNITS 6 TO 51 VOLTS

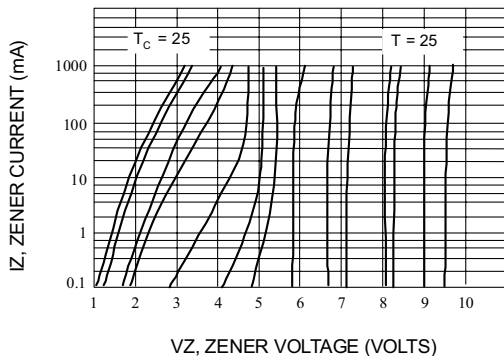


Fig. 3-ZENER VOLTAGE VERSUS ZENER CURRENT  
VZ = 6.8 THRU 10 VOLTS

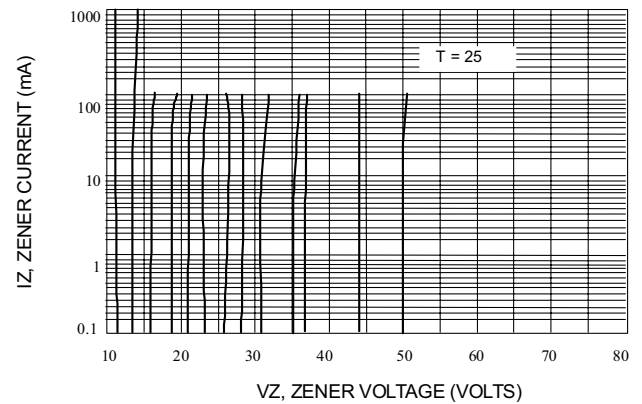


Fig. 4-ZENER VOLTAGE VERSUS ZENER CURRENT  
VZ = 11 THRU 51 VOLTS

# AMEYA360

## Components Supply Platform

Authorized Distribution Brand :



Website :

Welcome to visit [www.ameya360.com](http://www.ameya360.com)

Contact Us :

➤ Address :

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd  
Minhang District, Shanghai , China

➤ Sales :

Direct +86 (21) 6401-6692

Email [amall@ameya360.com](mailto:amall@ameya360.com)

QQ 800077892

Skype ameyasales1 ameyasales2

➤ Customer Service :

Email [service@ameya360.com](mailto:service@ameya360.com)

➤ Partnership :

Tel +86 (21) 64016692-8333

Email [mkt@ameya360.com](mailto:mkt@ameya360.com)