

## 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 Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note1) ("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(Note2)

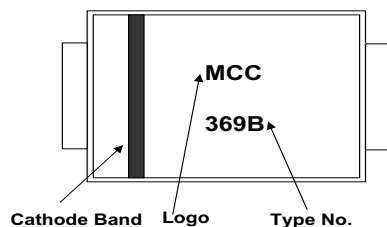
| Parameter                      | Symbol     | Rating | Conditions  |
|--------------------------------|------------|--------|-------------|
| Steady State Power Dissipation | $P_{(AV)}$ | 5.0W   | Note 3      |
| Maximum Forward Voltage        | $V_F$      | 1.2V   | $I_F=1.0mA$ |

Note: 1.High Temperature Solder Exemption Applied, See EU Directive Annex 7a.

2.Ambient Temperature at 15°C =  $T_A$  at Mounting Plane. Derate Linearly Above 15°C to Zero Power at 150°C

3.Lead Temperature at 75°C =  $T_L$  at Mounting Plane. Derate Linearly Above 75°C to Zero Power at 150°C

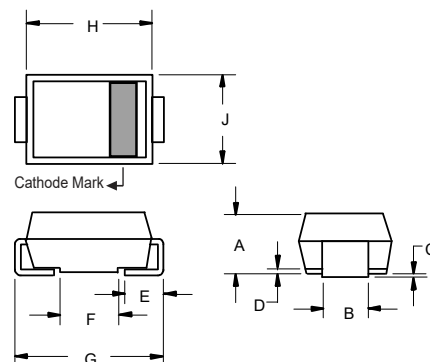
## Device Marking:



For Example: 339B for SMBJ5339B  
369B for SMBJ5369B

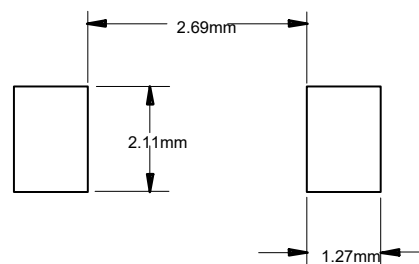
## 5.0 Watt Surface Mount Silicon Zener Diodes 5.1V to 200V

### 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<br>Part Number | Regulator<br>Voltage | Test Current | Maximum<br>Dynamic<br>Impedance | Maximum<br>Reverse<br>Current | Test<br>Voltage | Maximum<br>Regulator<br>Current | Maximum<br>Dynamic Knee<br>Impedance | Maximum<br>Surge<br>Current | Maximum<br>Voltage<br>Regulation |
|--------------------|----------------------|--------------|---------------------------------|-------------------------------|-----------------|---------------------------------|--------------------------------------|-----------------------------|----------------------------------|
|                    | $V_Z$                | $I_Z$        | $Z_{ZT}$                        | $I_R$                         | $V_R$           | $I_{ZM}$                        | $Z_{ZK} @ 1.0mA$                     | $I_{ZSM}$                   |                                  |
|                    | V                    | mA           | $\Omega$                        | $\mu A$                       | V               | mA                              | $\Omega$                             | A                           |                                  |
| 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  $\pm 10$  Milliseconds Pulse Current at  $25^\circ\text{C}$  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 ( $\Delta V_Z$ ) is The Difference Between The Voltage Measured at 10% and 50% ( $I_{ZM}$ ).

## Curve Characteristics

Fig. 1 - Power Derating Curve

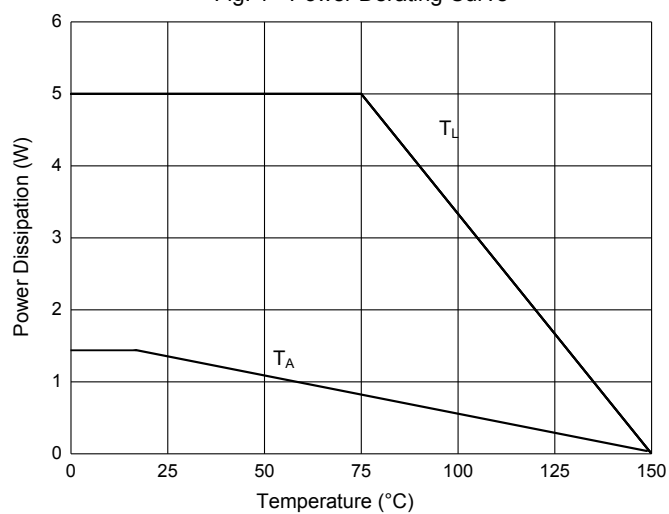


Fig. 2 - Typical Zener Breakdown Characteristics

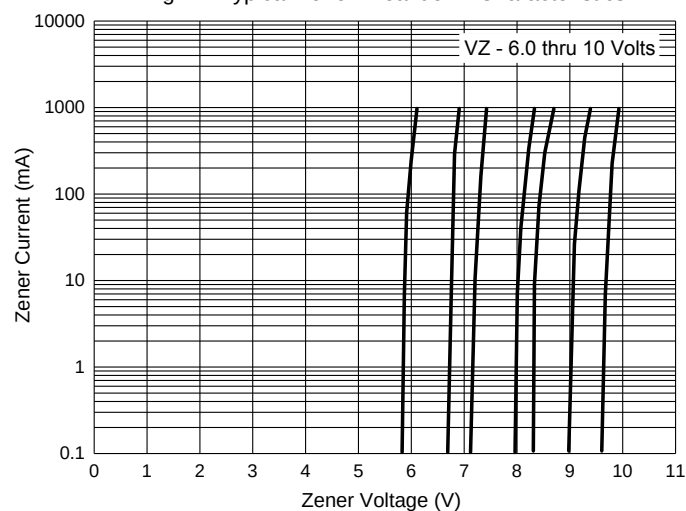


Fig. 3 - Typical Zener Breakdown Characteristics

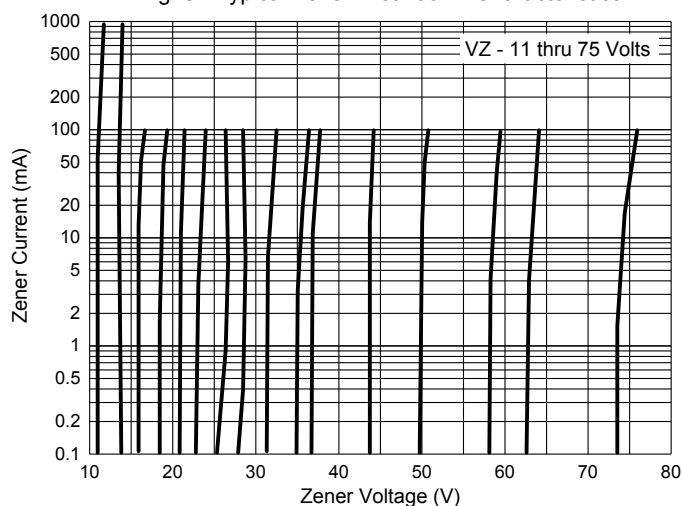
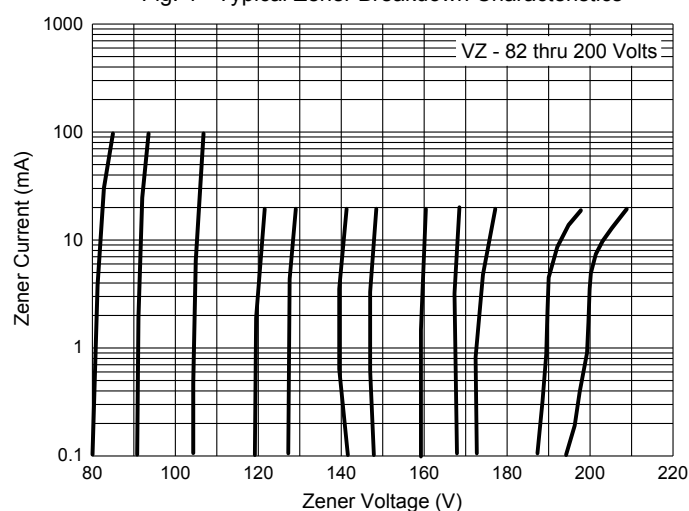


Fig. 4 - Typical Zener Breakdown Characteristics



## Ordering Information

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

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

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