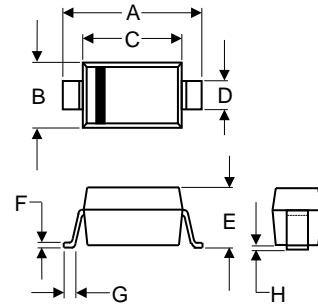


### Features

- \* Total power dissipation: Max. 500 mW
- \* Small plastic package suitable for surface mounted design
- \* Tolerance approximately  $\pm 5\%$



**RoHS**  
COMPLIANT



| DIM | SOD-123 |       |      |      |
|-----|---------|-------|------|------|
|     | INCHES  |       | MM   |      |
|     | MIN     | MAX   | MIN  | MAX  |
| A   | 0.138   | 0.150 | 3.50 | 3.80 |
| B   | 0.059   | 0.067 | 1.50 | 1.70 |
| C   | 0.100   | 0.106 | 2.54 | 2.70 |
| D   | 0.020   | 0.028 | 0.50 | 0.70 |
| E   | 0.036   | 0.048 | 0.91 | 1.21 |
| F   | 0.003   | 0.008 | 0.08 | 0.20 |
| G   | 0.008   | 0.016 | 0.20 | 0.40 |
| H   | ---     | 0.004 | ---  | 0.10 |

### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter                 | Symbol           | Value         | Unit             |
|---------------------------|------------------|---------------|------------------|
| Power Dissipation         | $P_{\text{tot}}$ | 500           | mW               |
| Junction Temperature      | $T_j$            | 150           | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{\text{Stg}}$ | - 55 to + 150 | $^\circ\text{C}$ |

### Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter                                  | Symbol                | Max. | Unit               |
|--|-----------------------|------|--------------------|
| Thermal Resistance Junction to Ambient Air | $R_{\theta\text{JA}}$ | 350  | $^\circ\text{C/W}$ |
| Forward Voltage at $I_F = 10 \text{ mA}$   | $V_F$                 | 0.9  | V                  |



# MMSZ5221B THRU MMSZ5267B

## Silicon Planar Zener Diodes

### Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

| Type      | Marking Code | Zener Voltage Range <sup>1)</sup> |                 |         |                    | Dynamic Impedance <sup>2)</sup> |                    |                 |                    | Reverse Current |                   |
|-----------|--------------|-----------------------------------|-----------------|---------|--------------------|---------------------------------|--------------------|-----------------|--------------------|-----------------|-------------------|
|           |              | V <sub>znom</sub>                 | V <sub>ZT</sub> |         | at I <sub>ZT</sub> | Z <sub>ZT</sub>                 | at I <sub>ZT</sub> | Z <sub>ZK</sub> | at I <sub>ZK</sub> | I <sub>R</sub>  | at V <sub>R</sub> |
|           |              | V                                 | Min. (v)        | Max.(v) | (mA)               | Max. (Ω)                        | (mA)               | Max. (Ω)        | (mA)               | Max.(μA)        | (V)               |
| MMSZ5221B | A4           | 2.4                               | 2.28            | 2.52    | 20                 | 30                              | 20                 | 1200            | 0.25               | 100             | 1                 |
| MMSZ5223B | B4           | 2.7                               | 2.57            | 2.84    | 20                 | 30                              | 20                 | 1300            | 0.25               | 75              | 1                 |
| MMSZ5225B | C4           | 3                                 | 2.85            | 3.15    | 20                 | 29                              | 20                 | 1600            | 0.25               | 50              | 1                 |
| MMSZ5226B | D4           | 3.3                               | 3.14            | 3.47    | 20                 | 28                              | 20                 | 1600            | 0.25               | 25              | 1                 |
| MMSZ5227B | E4           | 3.6                               | 3.42            | 3.78    | 20                 | 24                              | 20                 | 1700            | 0.25               | 15              | 1                 |
| MMSZ5228B | F4           | 3.9                               | 3.71            | 4.1     | 20                 | 23                              | 20                 | 1900            | 0.25               | 10              | 1                 |
| MMSZ5229B | H4           | 4.3                               | 4.09            | 4.52    | 20                 | 22                              | 20                 | 2000            | 0.25               | 5               | 1                 |
| MMSZ5230B | J4           | 4.7                               | 4.47            | 4.94    | 20                 | 19                              | 20                 | 1900            | 0.25               | 5               | 2                 |
| MMSZ5231B | K4           | 5.1                               | 4.85            | 5.36    | 20                 | 17                              | 20                 | 1600            | 0.25               | 5               | 2                 |
| MMSZ5232B | M4           | 5.6                               | 5.32            | 5.88    | 20                 | 11                              | 20                 | 1600            | 0.25               | 5               | 3                 |
| MMSZ5234B | N4           | 6.2                               | 5.89            | 6.51    | 20                 | 7                               | 20                 | 1000            | 0.25               | 5               | 4                 |
| MMSZ5235B | P4           | 6.8                               | 6.46            | 7.14    | 20                 | 5                               | 20                 | 750             | 0.25               | 3               | 5                 |
| MMSZ5236B | R4           | 7.5                               | 7.13            | 7.88    | 20                 | 6                               | 20                 | 500             | 0.25               | 3               | 6                 |
| MMSZ5237B | X4           | 8.2                               | 7.79            | 8.61    | 20                 | 8                               | 20                 | 500             | 0.25               | 3               | 6.5               |
| MMSZ5239B | Y4           | 9.1                               | 8.65            | 9.56    | 20                 | 10                              | 20                 | 600             | 0.25               | 3               | 7                 |
| MMSZ5240B | Z4           | 10                                | 9.5             | 10.5    | 20                 | 17                              | 20                 | 600             | 0.25               | 3               | 8                 |
| MMSZ5241B | A5           | 11                                | 10.45           | 11.55   | 20                 | 22                              | 20                 | 600             | 0.25               | 2               | 8.4               |
| MMSZ5242B | B5           | 12                                | 11.4            | 12.6    | 20                 | 30                              | 20                 | 600             | 0.25               | 1               | 9.1               |
| MMSZ5243B | C5           | 13                                | 12.35           | 13.65   | 9.5                | 13                              | 9.5                | 600             | 0.25               | 0.5             | 9.9               |
| MMSZ5245B | D5           | 15                                | 14.25           | 15.75   | 8.5                | 16                              | 8.5                | 600             | 0.25               | 0.1             | 11                |
| MMSZ5246B | E5           | 16                                | 15.2            | 16.8    | 7.8                | 17                              | 7.8                | 600             | 0.25               | 0.1             | 12                |
| MMSZ5247B | G5           | 17                                | 16.15           | 17.85   | 7.4                | 19                              | 7.4                | 600             | 0.25               | 0.1             | 13                |
| MMSZ5248B | F5           | 18                                | 17.1            | 18.9    | 7                  | 21                              | 7                  | 600             | 0.25               | 0.1             | 14                |
| MMSZ5249B | K9           | 19                                | 18.05           | 19.95   | 6.6                | 23                              | 6.6                | 600             | 0.25               | 0.1             | 14                |
| MMSZ5250B | H5           | 20                                | 19              | 21      | 6.2                | 25                              | 6.2                | 600             | 0.25               | 0.1             | 15                |
| MMSZ5251B | J5           | 22                                | 20.9            | 23.1    | 5.6                | 29                              | 5.6                | 600             | 0.25               | 0.1             | 17                |
| MMSZ5252B | K5           | 24                                | 22.8            | 25.2    | 5.2                | 33                              | 5.2                | 600             | 0.25               | 0.1             | 18                |
| MMSZ5253B | M9           | 25                                | 23.75           | 26.25   | 5                  | 35                              | 5                  | 600             | 0.25               | 0.1             | 19                |
| MMSZ5254B | M5           | 27                                | 25.65           | 28.35   | 4.6                | 41                              | 4.6                | 600             | 0.25               | 0.1             | 21                |
| MMSZ5256B | N5           | 30                                | 28.5            | 31.5    | 4.2                | 49                              | 4.2                | 600             | 0.25               | 0.1             | 23                |
| MMSZ5257B | P5           | 33                                | 31.35           | 34.65   | 3.8                | 58                              | 3.8                | 700             | 0.25               | 0.1             | 25                |
| MMSZ5258B | R5           | 36                                | 34.2            | 37.8    | 3.4                | 70                              | 3.4                | 700             | 0.25               | 0.1             | 27                |
| MMSZ5259B | X5           | 39                                | 37.05           | 40.95   | 3.2                | 80                              | 3.2                | 800             | 0.25               | 0.1             | 30                |
| MMSZ5260B | Y5           | 43                                | 40.85           | 45.15   | 3                  | 93                              | 3                  | 900             | 0.25               | 0.1             | 33                |
| MMSZ5261B | Z5           | 47                                | 44.65           | 49.35   | 2.7                | 105                             | 2.7                | 1000            | 0.25               | 0.1             | 36                |
| MMSZ5262B | A6           | 51                                | 48.45           | 53.55   | 2.5                | 125                             | 2.5                | 1100            | 0.25               | 0.1             | 39                |
| MMSZ5263B | B6           | 56                                | 53.2            | 58.8    | 2.2                | 150                             | 2.2                | 1300            | 0.25               | 0.1             | 43                |
| MMSZ5265B | C6           | 62                                | 58.9            | 65.1    | 2                  | 185                             | 2                  | 1400            | 0.25               | 0.1             | 47                |
| MMSZ5266B | D6           | 68                                | 64.6            | 71.4    | 1.8                | 230                             | 1.8                | 1600            | 0.25               | 0.1             | 52                |
| MMSZ5267B | E6           | 75                                | 71.25           | 78.75   | 1.7                | 270                             | 1.7                | 1700            | 0.25               | 0.1             | 56                |

Note: 1) V<sub>ZT</sub> is tested with pulses (20 ms)

2) Z<sub>ZT</sub> and Z<sub>ZK</sub> are measured by dividing the AC voltage drop across the device by the AC current applied.

The specified limits are for I<sub>Z(AC)</sub> = 0.1 I<sub>Z(DC)</sub> with the AC frequency = 1 KHz.

### Ratings and Characteristic Curves

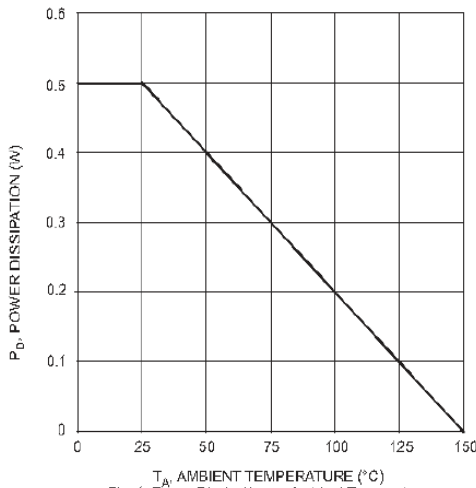


Fig. 1 Power Dissipation vs Ambient Temperature

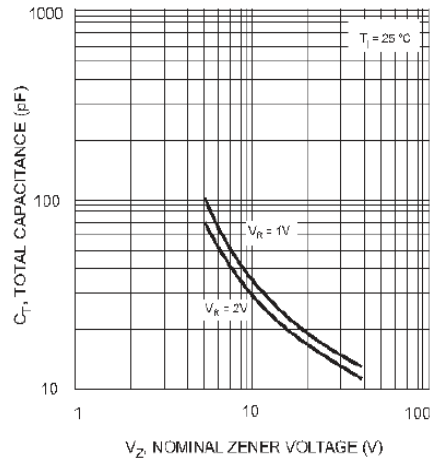


Fig. 2 Total Capacitance vs Nominal Zener Voltage

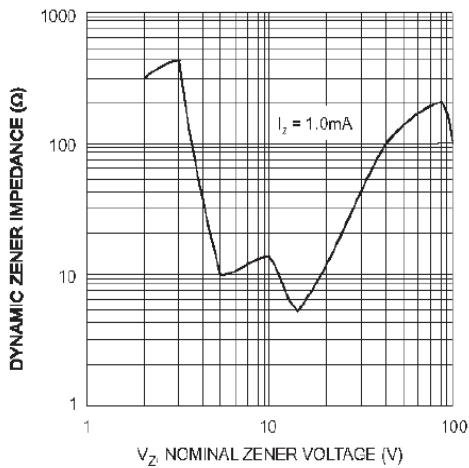


Fig. 3 Zener Voltage vs. Zener Impedance

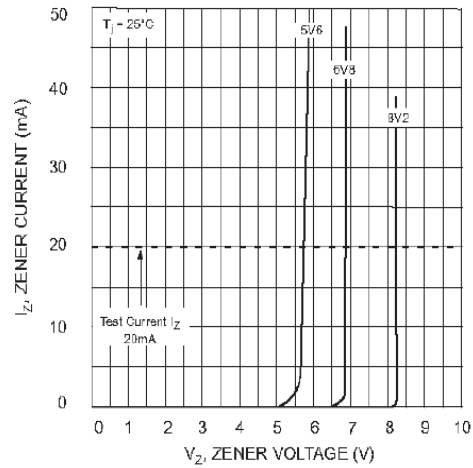


Fig. 4 Zener Breakdown Characteristics

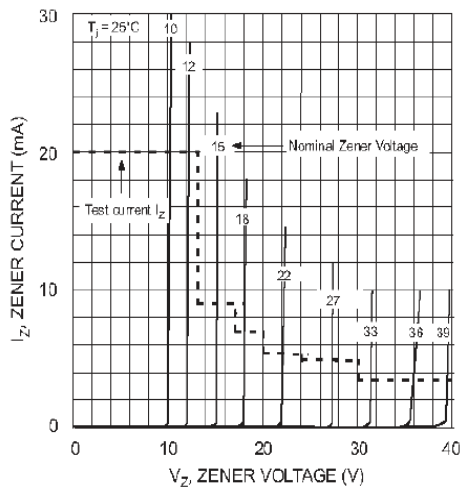


Fig. 5 Zener Breakdown Characteristics



## MMSZ5221B THRU MMSZ5267B *Silicon Planar Zener Diodes*

### Ordering Information

| Part No.                 | Package | Packing Code | Packing      |
|--------------------------|---------|--------------|--------------|
| MMSZ5221B THRU MMSZ5267B | SOD-123 | R30          | 3000pcs/Reel |

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