



## Features

- Planar Die Construction
- 500mW Power Dissipation on Ceramic PCB
- General Purpose, Medium Current
- Ideally Suited for Automated Assembly Processes
- Available in Lead Free Version



SOD-123



## Package Marking and Ordering Information

| Product ID          | Pack    | Marking | Qty(PCS) |
|---------------------|---------|---------|----------|
| MMSZ5221B-MMSZ5259B | SOD-123 | XX      | 3000     |

XX=Device code, see table on page2 the marking code.

The marking bar indicates the cathode.

## Absolute Maximum Ratings(Ta=25°C)

| Characteristic                              | Symbol           | Value      | Unit |
|---------------------------------------------|------------------|------------|------|
| Forward voltage @I <sub>F</sub> =10mA       | V <sub>F</sub>   | 0.9        | V    |
| Power Dissipation                           | P <sub>D</sub>   | 500        | mW   |
| Thermal Resistance, Junction to Ambient Air | R <sub>θJA</sub> | 556        | °C/W |
| Junction Temperature                        | T <sub>j</sub>   | 150        | °C   |
| Storage Temperature Range                   | T <sub>stg</sub> | -55 ~ +150 | °C   |

Notes: Device mounted on ceramic PCB;5.0mm×7.0mm with pad areas 35 mm<sup>2</sup>

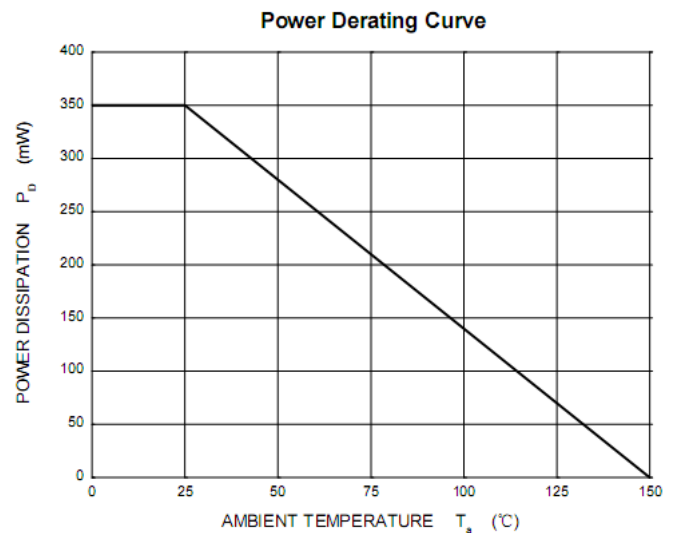
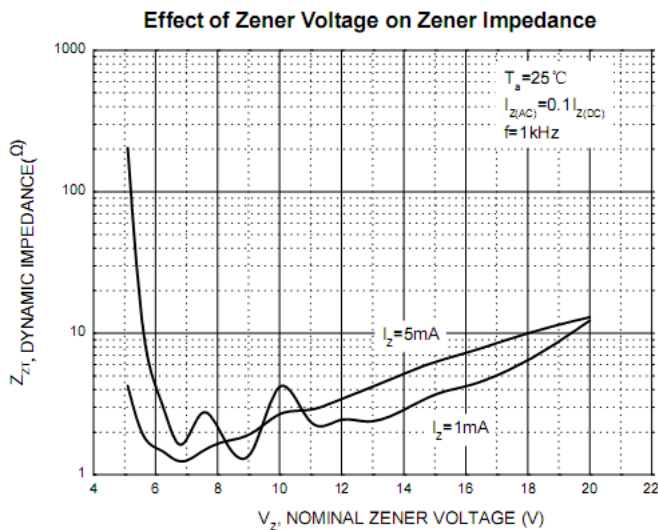
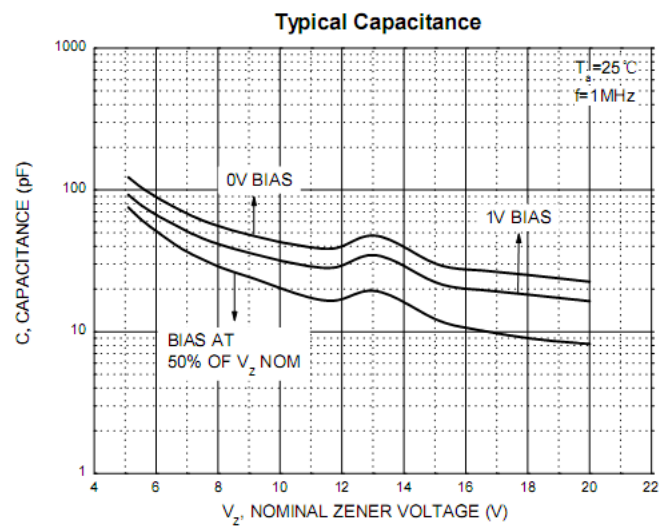
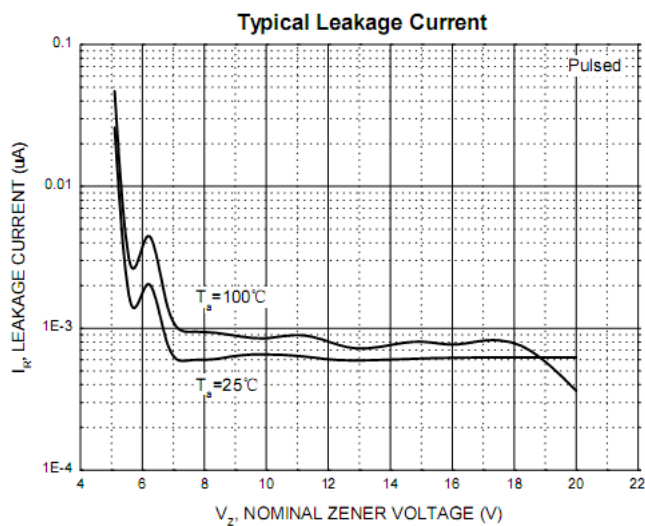
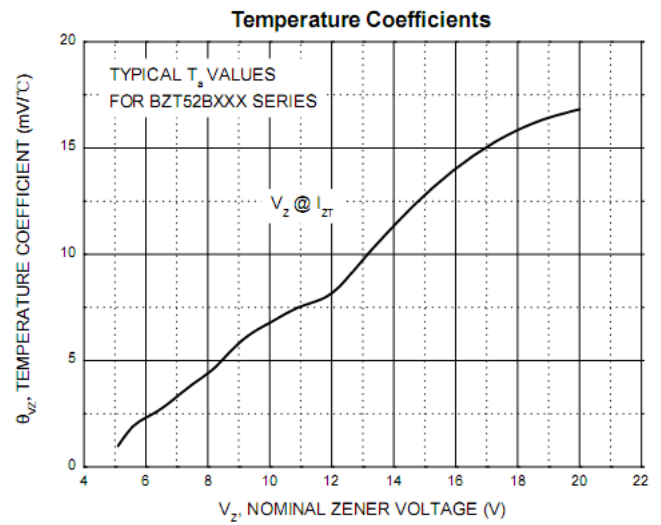
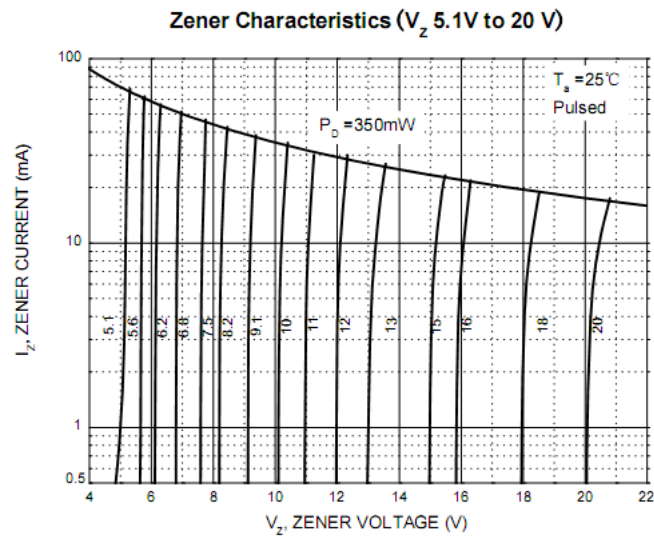


**Electrical Characteristics (Ta=25°C unless otherwise specified)**

| Type<br>Number | Code | Zener Voltage Range (Note 2)    |        |        |                 | Maximum Zener Impedance<br>(Note 4) |                                  |                 | Maximum<br>Reverse<br>Current |                |
|----------------|------|---------------------------------|--------|--------|-----------------|-------------------------------------|----------------------------------|-----------------|-------------------------------|----------------|
|                |      | V <sub>Z</sub> @I <sub>ZT</sub> |        |        | I <sub>ZT</sub> | Z <sub>YT</sub> @I <sub>ZT</sub>    | Z <sub>ZK</sub> @I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>                | V <sub>R</sub> |
|                |      | Nom(V)                          | Min(V) | Max(V) | mA              | Ω                                   |                                  | mA              | μA                            | V              |
| MMSZ5221B      | C1   | 2.4                             | 2.28   | 2.52   | 20              | 30                                  | 1200                             | 0.25            | 100                           | 1.0            |
| MMSZ5223B      | C3   | 2.7                             | 2.57   | 2.84   | 20              | 30                                  | 1300                             | 0.25            | 75                            | 1.0            |
| MMSZ5225B      | C5   | 3.0                             | 2.85   | 3.15   | 20              | 30                                  | 1600                             | 0.25            | 50                            | 1.0            |
| MMSZ5226B      | G1   | 3.3                             | 3.14   | 3.47   | 20              | 28                                  | 1600                             | 0.25            | 25                            | 1.0            |
| MMSZ5227B      | G2   | 3.6                             | 3.42   | 3.78   | 20              | 24                                  | 1700                             | 0.25            | 15                            | 1.0            |
| MMSZ5228B      | G3   | 3.9                             | 3.71   | 4.10   | 20              | 23                                  | 1900                             | 0.25            | 10                            | 1.0            |
| MMSZ5229B      | G4   | 4.3                             | 4.09   | 4.52   | 20              | 22                                  | 2000                             | 0.25            | 5                             | 1.0            |
| MMSZ5230B      | G5   | 4.7                             | 4.47   | 4.94   | 20              | 19                                  | 1900                             | 0.25            | 5                             | 2.0            |
| MMSZ5231B      | E1   | 5.1                             | 4.85   | 5.36   | 20              | 17                                  | 1600                             | 0.25            | 5                             | 2.0            |
| MMSZ5232B      | E2   | 5.6                             | 5.32   | 5.88   | 20              | 11                                  | 1600                             | 0.25            | 5                             | 3.0            |
| MMSZ5233B      | E3   | 6.0                             | 5.70   | 6.30   | 20              | 7                                   | 1600                             | 0.25            | 5                             | 3.5            |
| MMSZ5234B      | E4   | 6.2                             | 5.89   | 6.51   | 20              | 7                                   | 1000                             | 0.25            | 5                             | 4.0            |
| MMSZ5235B      | E5   | 6.8                             | 6.46   | 7.14   | 20              | 5                                   | 750                              | 0.25            | 3                             | 5.0            |
| MMSZ5236B      | F1   | 7.5                             | 7.13   | 7.88   | 20              | 6                                   | 500                              | 0.25            | 3                             | 6.0            |
| MMSZ5237B      | F2   | 8.2                             | 7.79   | 8.61   | 20              | 8                                   | 500                              | 0.25            | 3                             | 6.5            |
| MMSZ5238B      | F3   | 8.7                             | 8.27   | 9.14   | 20              | 8                                   | 600                              | 0.25            | 3                             | 6.5            |
| MMSZ5239B      | F4   | 9.1                             | 8.65   | 9.56   | 20              | 10                                  | 600                              | 0.25            | 3                             | 7.0            |
| MMSZ5240B      | F5   | 10                              | 9.50   | 10.50  | 20              | 17                                  | 600                              | 0.25            | 3                             | 8.0            |
| MMSZ5241B      | H1   | 11                              | 10.45  | 11.55  | 20              | 22                                  | 600                              | 0.25            | 2.0                           | 8.4            |
| MMSZ5242B      | H2   | 12                              | 11.40  | 12.60  | 20              | 30                                  | 600                              | 0.25            | 1.0                           | 9.1            |
| MMSZ5243B      | H3   | 13                              | 12.35  | 13.65  | 9.5             | 13                                  | 600                              | 0.25            | 0.5                           | 9.9            |
| MMSZ5244B      | H4   | 14                              | 13.30  | 14.70  | 9.0             | 15                                  | 600                              | 0.25            | 0.1                           | 10             |
| MMSZ5245B      | H5   | 15                              | 14.25  | 15.75  | 8.5             | 16                                  | 600                              | 0.25            | 0.1                           | 11             |
| MMSZ5246B      | J1   | 16                              | 15.20  | 16.80  | 7.8             | 17                                  | 600                              | 0.25            | 0.1                           | 12             |
| MMSZ5247B      | J2   | 17                              | 16.15  | 17.85  | 7.4             | 19                                  | 600                              | 0.25            | 0.1                           | 13             |
| MMSZ5248B      | J3   | 18                              | 17.10  | 18.90  | 7.0             | 21                                  | 600                              | 0.25            | 0.1                           | 14             |
| MMSZ5250B      | J5   | 20                              | 19.00  | 21.00  | 6.2             | 25                                  | 600                              | 0.25            | 0.1                           | 15             |
| MMSZ5251B      | K1   | 22                              | 20.90  | 23.10  | 5.6             | 29                                  | 600                              | 0.25            | 0.1                           | 17             |
| MMSZ5252B      | K2   | 24                              | 22.80  | 25.20  | 5.2             | 33                                  | 600                              | 0.25            | 0.1                           | 18             |
| MMSZ5253B      | K3   | 25                              | 23.75  | 26.25  | 5.0             | 35                                  | 600                              | 0.25            | 0.1                           | 19             |
| MMSZ5254B      | K4   | 27                              | 25.65  | 28.35  | 5.0             | 41                                  | 600                              | 0.25            | 0.1                           | 21             |
| MMSZ5255B      | K5   | 28                              | 26.60  | 29.40  | 4.5             | 44                                  | 600                              | 0.25            | 0.1                           | 21             |
| MMSZ5256B      | M1   | 30                              | 28.50  | 31.50  | 4.2             | 49                                  | 600                              | 0.25            | 0.1                           | 23             |
| MMSZ5257B      | M2   | 33                              | 31.35  | 34.65  | 3.8             | 58                                  | 700                              | 0.25            | 0.1                           | 25             |
| MMSZ5258B      | M3   | 36                              | 34.20  | 37.80  | 3.4             | 70                                  | 700                              | 0.25            | 0.1                           | 27             |
| MMSZ5259B      | M4   | 39                              | 37.05  | 40.95  | 3.2             | 80                                  | 800                              | 0.25            | 0.1                           | 30             |

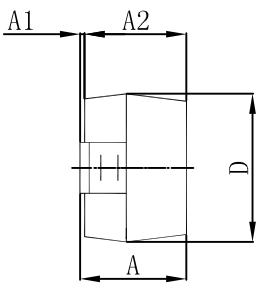
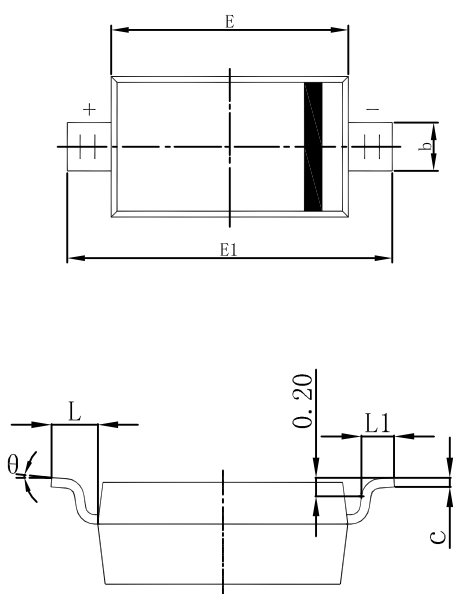


## Typical Characteristics

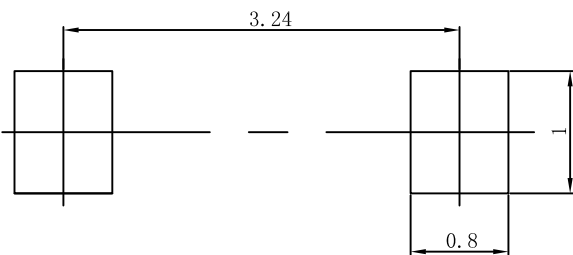




SOD-123 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.050                     | 1.250 | 0.041                | 0.049 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 1.050                     | 1.150 | 0.041                | 0.045 |
| b      | 0.450                     | 0.650 | 0.018                | 0.026 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 1.500                     | 1.700 | 0.059                | 0.067 |
| E      | 2.600                     | 2.800 | 0.102                | 0.110 |
| E1     | 3.550                     | 3.850 | 0.140                | 0.152 |
| L      | 0.500 REF                 |       | 0.020 REF            |       |
| L1     | 0.250                     | 0.450 | 0.010                | 0.018 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |



**Note:**  
1.Controlling dimension:in millimeters.  
2.General tolerance:± 0.05mm.  
3.The pad layout is for reference purposes only.



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