

**/ Descriptions**

SOD-123

Zener Diode in a SOD-123 Plastic Package.

**/ Features**

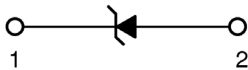
2.4V-110V

500mW

Wide zener reverse voltage range 2.4V-110V, Maximum  $P_D$  to 500mW. HF Product.**/ Applications**

500mW SOD-123

Design for 500mW SOD-123 surface mount.

**/ Equivalent Circuit****/ Pinning**

PIN1:Cathode

PIN2:Anode

**/  $h_{FE}$  Classifications & Marking**

See Electrical Characteristics.

## / Absolute Maximum Ratings(Ta=25 )

| Parameter                                          | Symbol                            | Rating  | Unit |
|----------------------------------------------------|-----------------------------------|---------|------|
| Forward Voltage (Note 2) ( IF=10mA)                | V <sub>F</sub>                    | 0.9     | V    |
| Power Dissipation(Note 1)                          | P <sub>D</sub>                    | 500     | mW   |
| Thermal Resistance Junction to Ambient Air(Note 1) | R <sub>θJA</sub>                  | 350     | /W   |
| Operating and Storage Temperature Range            | T <sub>j</sub> , T <sub>stg</sub> | -65 150 |      |

## / Electrical Characteristics(Ta=25 )

| Device    | Device Marking | Zener Voltage<br>(Note 2) |     |       |                   | Max. Zener Impedance<br>(Note 3)  |                                   |      | Max Reverse Leakage<br>Current(Note 2) |     |
|-----------|----------------|---------------------------|-----|-------|-------------------|-----------------------------------|-----------------------------------|------|----------------------------------------|-----|
|           |                | V <sub>Z</sub> (V)        |     |       | @ I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> |      | I <sub>R</sub> @ V <sub>R</sub>        |     |
|           |                | Min                       | Nom | Max   | mA                | Ω                                 | Ω                                 | mA   | uA                                     | V   |
| MMSZ5221B | HC1            | 2.28                      | 2.4 | 2.52  | 20                | 30                                | 1200                              | 0.25 | 100                                    | 1   |
| MMSZ5222B | HC2            | 2.38                      | 2.5 | 2.63  | 20                | 30                                | 1250                              | 0.25 | 100                                    | 1   |
| MMSZ5223B | HC3            | 2.57                      | 2.7 | 2.84  | 20                | 30                                | 1300                              | 0.25 | 75                                     | 1   |
| MMSZ5224B | HC4            | 2.66                      | 2.8 | 2.94  | 20                | 30                                | 1400                              | 0.25 | 75                                     | 1   |
| MMSZ5225B | HC5            | 2.85                      | 3.0 | 3.15  | 20                | 29                                | 1600                              | 0.25 | 50                                     | 1   |
| MMSZ5226B | HD1            | 3.13                      | 3.3 | 3.47  | 20                | 28                                | 1600                              | 0.25 | 25                                     | 1   |
| MMSZ5227B | HD2            | 3.42                      | 3.6 | 3.78  | 20                | 24                                | 1700                              | 0.25 | 15                                     | 1   |
| MMSZ5228B | HD3            | 3.71                      | 3.9 | 4.10  | 20                | 23                                | 1900                              | 0.25 | 10                                     | 1   |
| MMSZ5229B | HD4            | 4.09                      | 4.3 | 4.52  | 20                | 22                                | 2000                              | 0.25 | 5                                      | 1   |
| MMSZ5230B | HD5            | 4.47                      | 4.7 | 4.94  | 20                | 19                                | 1900                              | 0.25 | 5                                      | 2   |
| MMSZ5231B | HE1            | 4.85                      | 5.1 | 5.36  | 20                | 17                                | 1600                              | 0.25 | 5                                      | 2   |
| MMSZ5232B | HE2            | 5.32                      | 5.6 | 5.88  | 20                | 11                                | 1600                              | 0.25 | 5                                      | 3   |
| MMSZ5233B | HE3            | 5.70                      | 6.0 | 6.30  | 20                | 7                                 | 1600                              | 0.25 | 5                                      | 3.5 |
| MMSZ5234B | HE4            | 5.89                      | 6.2 | 6.51  | 20                | 7                                 | 1000                              | 0.25 | 5                                      | 4   |
| MMSZ5235B | HE5            | 6.46                      | 6.8 | 7.14  | 20                | 5                                 | 750                               | 0.25 | 3                                      | 5   |
| MMSZ5236B | HF1            | 7.13                      | 7.5 | 7.88  | 20                | 6                                 | 500                               | 0.25 | 3                                      | 6   |
| MMSZ5237B | HF2            | 7.79                      | 8.2 | 8.61  | 20                | 8                                 | 500                               | 0.25 | 3                                      | 6.5 |
| MMSZ5238B | HF3            | 8.27                      | 8.7 | 9.14  | 20                | 8                                 | 600                               | 0.25 | 3                                      | 6.5 |
| MMSZ5239B | HF4            | 8.65                      | 9.1 | 9.56  | 20                | 10                                | 600                               | 0.25 | 3                                      | 7   |
| MMSZ5240B | HF5            | 9.50                      | 10  | 10.50 | 20                | 17                                | 600                               | 0.25 | 3                                      | 8   |
| MMSZ5241B | HH1            | 10.45                     | 11  | 11.55 | 20                | 22                                | 600                               | 0.25 | 2                                      | 8.4 |
| MMSZ5242B | HH2            | 11.40                     | 12  | 12.60 | 20                | 30                                | 600                               | 0.25 | 1                                      | 9.1 |
| MMSZ5243B | HH3            | 12.35                     | 13  | 13.65 | 9.5               | 13                                | 600                               | 0.25 | 0.5                                    | 9.9 |
| MMSZ5244B | HH4            | 13.30                     | 14  | 14.70 | 9.0               | 15                                | 600                               | 0.25 | 0.1                                    | 10  |
| MMSZ5245B | HH5            | 14.25                     | 15  | 15.75 | 8.5               | 16                                | 600                               | 0.25 | 0.1                                    | 11  |
| MMSZ5246B | HJ1            | 15.20                     | 16  | 16.80 | 7.8               | 17                                | 600                               | 0.25 | 0.1                                    | 12  |
| MMSZ5247B | HJ2            | 16.15                     | 17  | 17.85 | 7.4               | 19                                | 600                               | 0.25 | 0.1                                    | 13  |
| MMSZ5248B | HJ3            | 17.10                     | 18  | 18.90 | 7.0               | 21                                | 600                               | 0.25 | 0.1                                    | 14  |
| MMSZ5249B | HJ4            | 18.05                     | 19  | 19.05 | 6.6               | 23                                | 600                               | 0.25 | 0.1                                    | 14  |
| MMSZ5250B | HJ5            | 19.00                     | 20  | 21.00 | 6.2               | 25                                | 600                               | 0.25 | 0.1                                    | 15  |
| MMSZ5251B | HK1            | 20.90                     | 22  | 23.10 | 5.6               | 29                                | 600                               | 0.25 | 0.1                                    | 17  |
| MMSZ5252B | HK2            | 22.80                     | 24  | 25.20 | 5.2               | 33                                | 600                               | 0.25 | 0.1                                    | 18  |

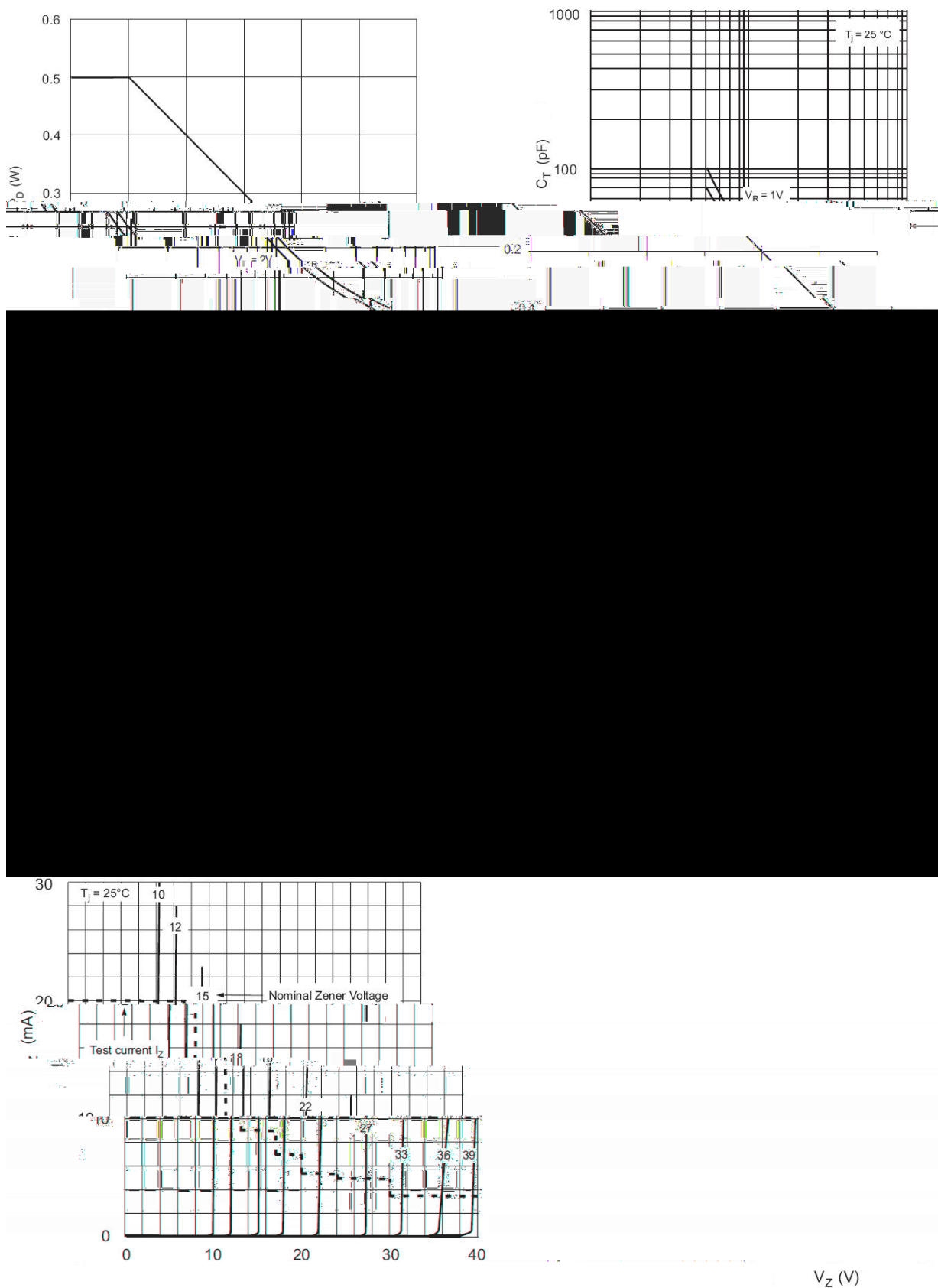
**/ Electrical Characteristics(Ta=25 )**

| Device    | Device Marking | Zener Voltage<br>(Note 2) |     |       |                   | Max. Zener Impedance<br>(Note 3)  |                                   |      | Max Reverse Leakage Current(Note 2) |    |
|-----------|----------------|---------------------------|-----|-------|-------------------|-----------------------------------|-----------------------------------|------|-------------------------------------|----|
|           |                | V <sub>z</sub> (V)        |     |       | @ I <sub>zT</sub> | Z <sub>zt</sub> @ I <sub>zT</sub> | Z <sub>zk</sub> @ I <sub>zk</sub> |      | I <sub>R</sub> @ V <sub>R</sub>     |    |
|           |                | Min                       | Nom | Max   | mA                | Ω                                 | Ω                                 | mA   | uA                                  | V  |
| MMSZ5253B | HK3            | 23.75                     | 25  | 26.25 | 5.0               | 35                                | 600                               | 0.25 | 0.1                                 | 19 |
| MMSZ5254B | HK4            | 25.65                     | 27  | 28.35 | 4.6               | 41                                | 600                               | 0.25 | 0.1                                 | 21 |
| MMSZ5255B | HK5            | 26.60                     | 28  | 29.40 | 4.5               | 44                                | 600                               | 0.25 | 0.1                                 | 21 |
| MMSZ5256B | HM1            | 28.50                     | 30  | 31.50 | 4.2               | 49                                | 600                               | 0.25 | 0.1                                 | 23 |
| MMSZ5257B | HM2            | 31.35                     | 33  | 34.65 | 3.8               | 58                                | 700                               | 0.25 | 0.1                                 | 25 |
| MMSZ5258B | HM3            | 34.20                     | 36  | 37.80 | 3.4               | 70                                | 700                               | 0.25 | 0.1                                 | 27 |
| MMSZ5259B | HM4            | 37.05                     | 39  | 40.95 | 3.2               | 80                                | 800                               | 0.25 | 0.1                                 | 30 |
| MMSZ5260B | HM5            | 40.85                     | 43  | 45.15 | 3.0               | 93                                | 900                               | 0.25 | 0.1                                 | 33 |
| MMSZ5261B | HN1            | 44.65                     | 47  | 49.35 | 2.7               | 105                               | 1000                              | 0.25 | 0.1                                 | 36 |
| MMSZ5262B | HN2            | 48.45                     | 51  | 53.55 | 2.5               | 125                               | 1100                              | 0.25 | 0.1                                 | 39 |
| MMSZ5263B | HN3            | 53.20                     | 56  | 58.80 | 2.2               | 150                               | 1300                              | 0.25 | 0.1                                 | 43 |
| MMSZ5264B | HN4            | 57.00                     | 60  | 63.00 | 2.1               | 170                               | 1400                              | 0.25 | 0.1                                 | 46 |
| MMSZ5265B | HN5            | 58.90                     | 62  | 65.10 | 2.0               | 185                               | 1400                              | 0.25 | 0.1                                 | 47 |
| MMSZ5266B | HP1            | 64.60                     | 68  | 71.40 | 1.8               | 230                               | 1600                              | 0.25 | 0.1                                 | 52 |
| MMSZ5267B | HP2            | 71.25                     | 75  | 78.75 | 1.7               | 270                               | 1700                              | 0.25 | 0.1                                 | 56 |
| MMSZ5268B | HP3            | 77.90                     | 82  | 86.10 | 1.5               | 330                               | 2000                              | 0.25 | 0.1                                 | 62 |
| MMSZ5269B | HP4            | 82.65                     | 87  | 91.35 | 1.4               | 370                               | 2200                              | 0.25 | 0.1                                 | 68 |
| MMSZ5270B | HP5            | 86.45                     | 91  | 95.55 | 1.4               | 400                               | 2300                              | 0.25 | 0.1                                 | 69 |
| MMSZ5272B | HR2            | 104.5                     | 110 | 115.5 | 1.1               | 750                               | 3000                              | 0.25 | 0.1                                 | 84 |

Notes:

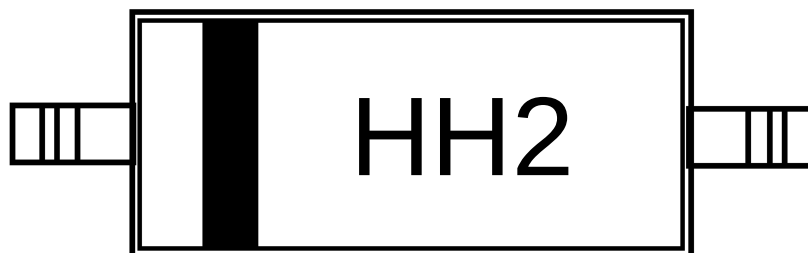
1. Device mounted on ceramic PCB; 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>.
2. Short duration test pulse used to minimize self-heating effect.
3. f = 1kHz.

/ Electrical Characteristic Curve





/ Marking Instructions



H

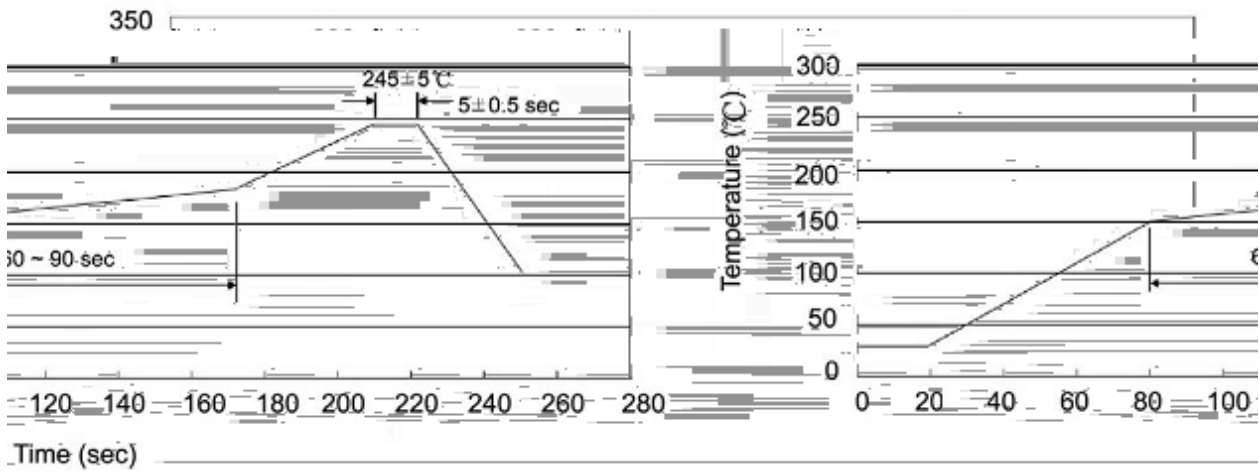
H2

Note:

H: Company Code.

H2: Product Type.

### ( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- |   |       |     |           |        |                                         |
|---|-------|-----|-----------|--------|-----------------------------------------|
| 1 | 150   | 180 | 60        | 90sec; | 1.Preheating:150~180 , Time:60~90sec.   |
| 2 | 245±5 |     | 5±0.5sec; |        | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 |       | 2   | 10        | /sec.  | 3. Cooling Speed: 2~10 /sec.            |

### / Resistance to Soldering Heat Test Conditions

260±5      10±1 sec.      Temp.:260±5      Time:10±1 sec

### / Packaging SPEC.

/ REEL

| Package Type<br>封装形式 | Units 包装数量         |                         |                        |                              |                        | Dimension 包装尺寸 (unit: mm <sup>3</sup> ) |             |             |
|----------------------|--------------------|-------------------------|------------------------|------------------------------|------------------------|-----------------------------------------|-------------|-------------|
|                      | Units/Reel<br>只/卷盘 | Reels/Inner Box<br>卷盘/盒 | Units/Inner Box<br>只/盒 | Inner Boxes/Outer Box<br>盒/箱 | Units/Outer Box<br>只/箱 | Reel                                    | Inner Box 盒 | Outer Box 箱 |
| SOD-123              | 3,000              | 10                      | 30,000                 | 6                            | 180,000                | 7 ×8                                    | 180×120×180 | 390×385×205 |

### / Notices