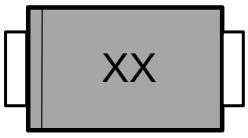
VOLTAGE RANGE
2.0 to 43 Volts
500 mW

## 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




## MECHANICAL DATA

* Case: Molded plastic
* Epoxy: UL 94V-0 rate flame retardant
* Metallurgically bonded construction
* Polarity: Color band denotes cathode end
* Mounting position: Any

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.
Single phase half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Forward Voltage (Note 2) @ $I_F$ = 10mA | $V_F$ | 0.9 | V |
| Power Dissipation(Note 1) | $P_D$ | 500 | mW |
| Thermal Resistance from Junction to Ambient(Note 1) | $R_{\theta JA}$ | 250 | ℃/W |
| Operation Junction and Storage Temperature Range | $T_J$,$T_{STG}$ | -55~+150 | ℃ |

## Characteristics at Ta = 25℃

| Type | Marking | Zener Voltage Range (2) | | | | Maximum Zener (3) Impedance | | | | Reverse Current (2) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $V_{ZT}$ ( at $I_{ZT}$ ) | | | $I_{ZT}$ | $Z_{ZT}@I_{ZT}$ | $I_{ZT}$ | $Z_{ZK}@I_{ZK}$ | $I_{ZK}$ | $I_R$ | @$V_R$ |
| | | Min ( V ) | Nom ( V ) | Max ( V ) | (mA) | (Ω) | (mA) | (Ω) | (mA) | μA | V |
| MMSZ4679 | CD | 1.91 | 2.0 | 2.09 | 5 | 100 | 5 | 600 | 1 | 150 | 1.0 |
| MMSZ4681 | CF | 2.2 | 2.4 | 2.6 | 5 | 100 | 5 | 600 | 1 | 50 | 1.0 |
| MMSZ4682 | CH | 2.5 | 2.7 | 2.9 | 5 | 100 | 5 | 600 | 1 | 20 | 1.0 |
| MMSZ4683 | CJ | 2.8 | 3.0 | 3.2 | 5 | 95 | 5 | 600 | 1 | 10 | 1.0 |
| MMSZ4684 | CK | 3.1 | 3.3 | 3.5 | 5 | 95 | 5 | 600 | 1 | 5.0 | 1.0 |
| MMSZ4685 | CM | 3.4 | 3.6 | 3.8 | 5 | 90 | 5 | 600 | 1 | 5.0 | 1.0 |
| MMSZ4686 | CN | 3.7 | 3.9 | 4.1 | 5 | 90 | 5 | 600 | 1 | 3.0 | 1.0 |
| MMSZ4687 | CP | 4 | 4.3 | 4.6 | 5 | 90 | 5 | 600 | 1 | 3.0 | 1.0 |
| MMSZ4688 | CT | 4.4 | 4.7 | 5 | 5 | 80 | 5 | 500 | 1 | 3.0 | 2.0 |
| MMSZ4689 | CU | 4.8 | 5.1 | 5.4 | 5 | 60 | 5 | 480 | 1 | 2.0 | 2.0 |
| MMSZ4690 | CV | 5.2 | 5.6 | 6 | 5 | 40 | 5 | 400 | 1 | 1.0 | 2.0 |
| MMSZ4691 | CA | 5.8 | 6.2 | 6.6 | 5 | 10 | 5 | 150 | 1 | 3.0 | 4.0 |
| MMSZ4692 | CX | 6.4 | 6.8 | 7.2 | 5 | 15 | 5 | 80 | 1 | 2.0 | 4.0 |
| MMSZ4693 | CY | 7 | 7.5 | 7.9 | 5 | 15 | 5 | 80 | 1 | 1.0 | 5.0 |
| MMSZ4694 | CZ | 7.7 | 8.2 | 8.7 | 5 | 15 | 5 | 80 | 1 | 0.7 | 5.0 |
| MMSZ4696 | DD | 8.5 | 9.1 | 9.6 | 5 | 15 | 5 | 100 | 1 | 0.5 | 6.0 |
| MMSZ4697 | DE | 9.4 | 10 | 10.6 | 5 | 20 | 5 | 150 | 1 | 0.2 | 7.0 |
| MMSZ4698 | DF | 10.4 | 11 | 11.6 | 5 | 20 | 5 | 150 | 1 | 0.1 | 8.0 |
| MMSZ4699 | DH | 11.4 | 12 | 12.7 | 5 | 25 | 5 | 150 | 1 | 0.1 | 8.0 |
| MMSZ4700 | DJ | 12.4 | 13 | 14.1 | 5 | 30 | 5 | 170 | 1 | 0.1 | 8.0 |
| MMSZ4702 | DM | 13.8 | 15 | 15.6 | 5 | 30 | 5 | 200 | 1 | 0.1 | 10.5 |
| MMSZ4703 | DN | 15.3 | 16 | 17.1 | 5 | 40 | 5 | 200 | 1 | 0.1 | 11.2 |
| MMSZ4705 | DT | 16.8 | 18 | 19.1 | 5 | 45 | 5 | 225 | 1 | 0.1 | 12.6 |
| MMSZ4707 | DV | 18.8 | 20 | 21.2 | 5 | 55 | 5 | 225 | 1 | 0.1 | 14.0 |
| MMSZ4708 | DA | 20.8 | 22 | 23.3 | 5 | 55 | 5 | 250 | 1 | 0.1 | 15.4 |
| MMSZ4709 | DX | 22.8 | 24 | 25.6 | 5 | 70 | 5 | 250 | 1 | 0.1 | 16.8 |
| MMSZ4711 | EA | 25.1 | 27 | 28.9 | 2 | 80 | 2 | 300 | 0.5 | 0.1 | 18.9 |
| MMSZ4713 | ED | 28 | 30 | 32 | 2 | 80 | 2 | 300 | 0.5 | 0.1 | 21.0 |
| MMSZ4714 | EE | 31 | 33 | 35 | 2 | 80 | 2 | 325 | 0.5 | 0.1 | 23.1 |
| MMSZ4715 | EF | 34 | 36 | 38 | 2 | 90 | 2 | 350 | 0.5 | 0.1 | 25.2 |
| MMSZ4716 | EH | 37 | 39 | 41 | 2 | 130 | 2 | 350 | 0.5 | 0.1 | 27.3 |
| MMSZ4717 | EJ | 40 | 43 | 46 | 2.5 | 130 | 2 | 500 | 1 | 2 | 33 |

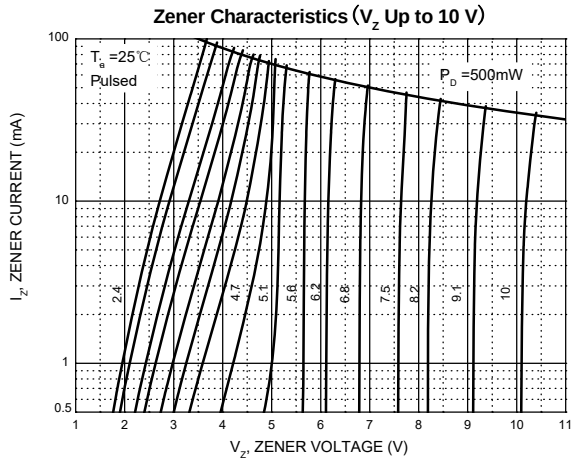
Notes: 1.The value of RθJA is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25 ℃.

2. Short duration test pulse used to minimize self-heating effect

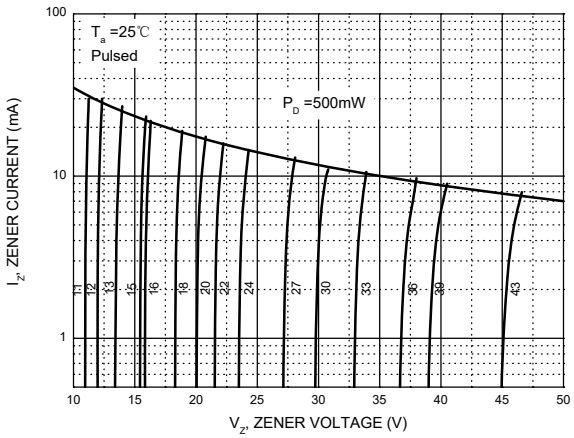
3. f=1kHz

## RATING AND CHARACTERISTIC CURVES

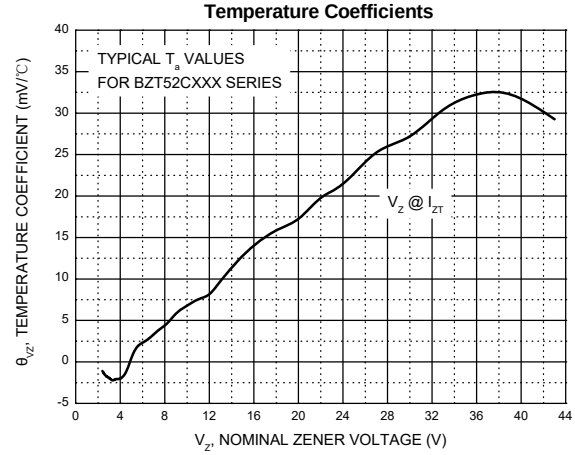
### Zener Characteristics ($V_Z$ Up to 10 V)



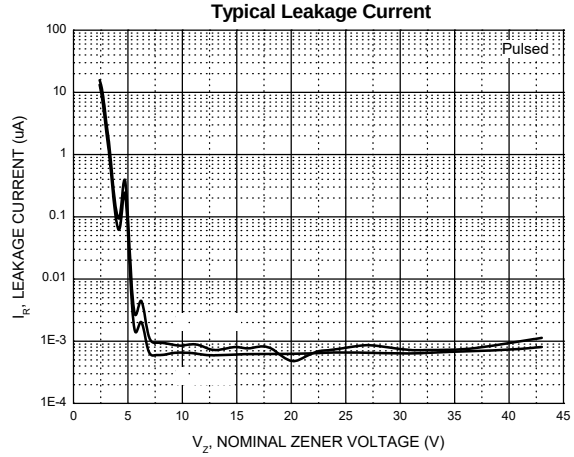

### Zener Characteristics (11 V to 43 V)



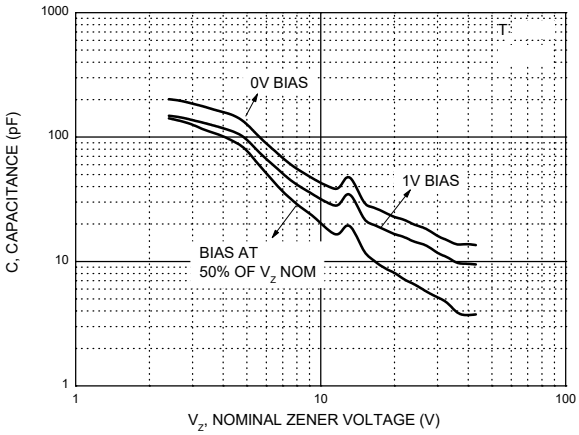

### Temperature Coefficients



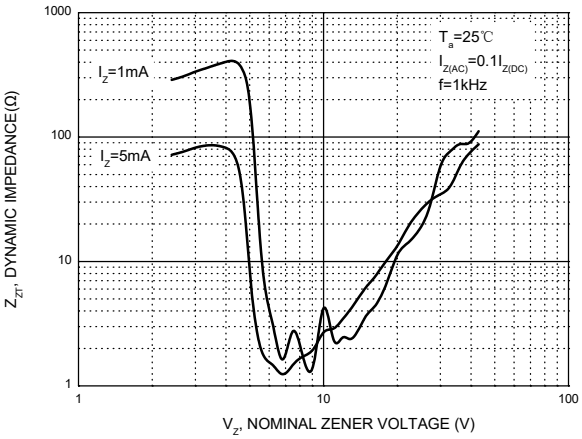

### Typical Leakage Current



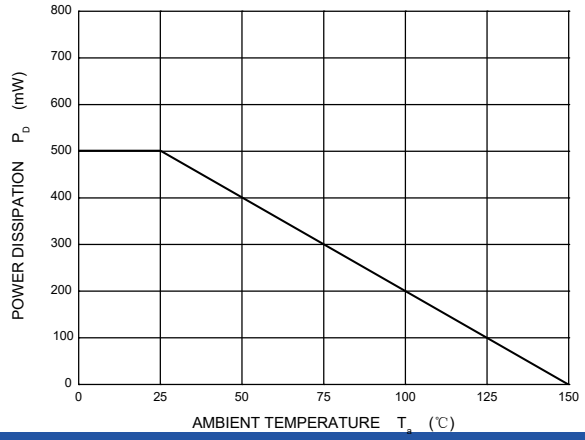

### Typical Capacitance




### Effect of Zener Voltage on Zener Impedance



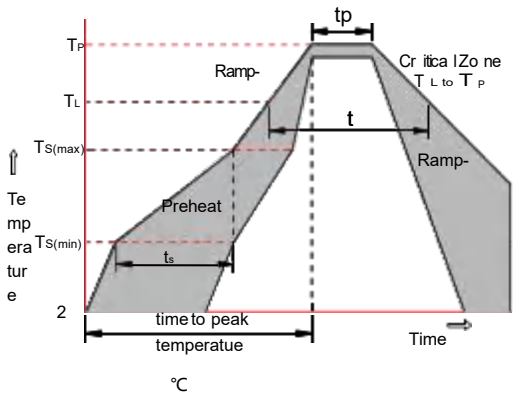

### Power Derating Curve



## Soldering parameters

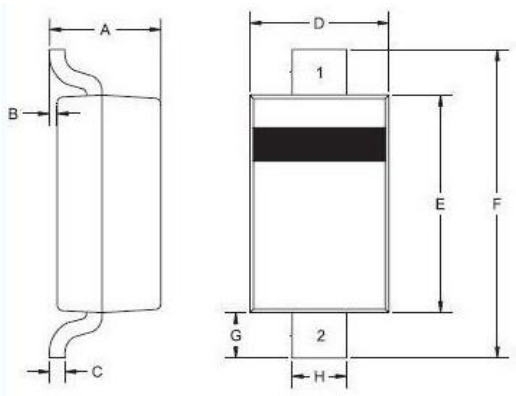
| Reflow Condition | | Pb-Free assembly (see as bellow) |
|---|---|---|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150℃ |
| | -Temperature Max($T_{s(max)}$) | +200℃ |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquid us Temp ($T_L$) to peak) | | 3℃/sec. Max |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate | | 3℃/sec. Max |
| Reflow | -Temperature($T_L$)(Liquid us) | +217℃ |
| | -Temperature($t_L$) | 60-150 secs. |
| Peak Temp ($T_p$) | | +260(+0/-5)℃ |
| Time within 5℃ of actual Peak Temp ($t_p$) | | 30 secs. Max |
| Ramp-down Rate | | 6℃/sec. Max |
| Time 25℃ to Peak Temp ($T_P$) | | 8 min. Max |
| Do not exceed | | +260℃ |

**FIG5:** Reflow condition

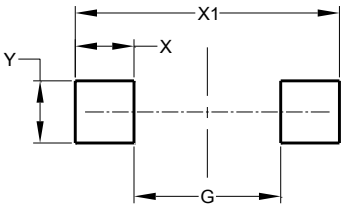



## Package Dimensions & Suggested Pad Layout

**SOD123**



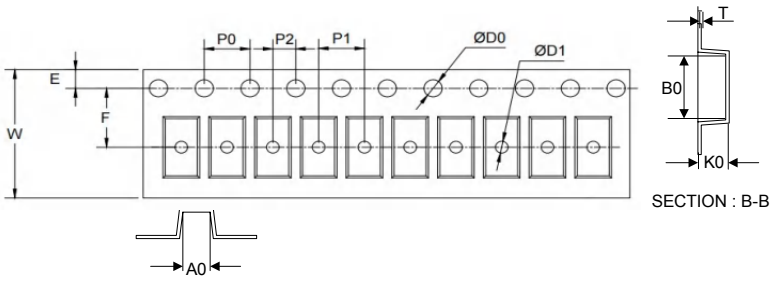

| SOD123 | | |
|---|---|---|
| **Dim** | **Min** | **Max** |
| **A** | 0.95 | 1.35 |
| **B** | 0.00 | 0.12 |
| **C** | - | 0.20 |
| **D** | 1.40 | 1.80 |
| **E** | 2.50 | 2.80 |
| **F** | 3.60 | 3.90 |
| **G** | 0.40 | - |
| **H** | 0.50 | 0.70 |
| **All Dimensions in mm** | | |




| Dimensions | Value (in mm) |
|---|---|
| **G** | 2.20 |
| **X** | 1.20 |
| **X1** | 4.60 |
| **Y** | 1.20 |

## Tape & rell specification

Tape

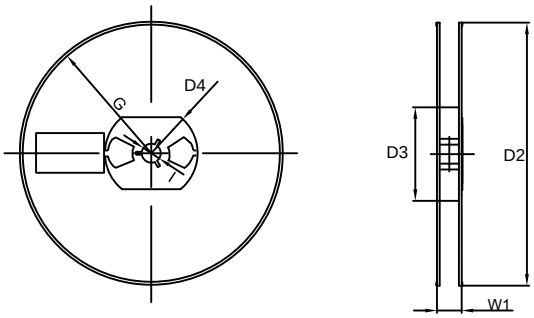



SECTION : A-A

SECTION : B-B

| Symbol | Dimension (mm) |
|---|---|
| P0 | 4.00±0.20 |
| P1 | 4.00±0.20 |
| P2 | 2.00±0.20 |
| D0 | 1.55±0.10 |
| D1 | 1.00±0.20 |
| E | 1.75±0.20 |
| F | 3.60±0.20 |
| W | 8.00±0.40 |
| A0 | 2.30±0.40 |
| B0 | 4.00±0.40 |
| K0 | 1.50±0.40 |
| T | 0.23±0.10 |

7” Reel




| | |
|---|---|
| D2 | 177.0±3.0 |
| D3 | 55Min. |
| D4 | R24.0±3.0 |
| G | R82.0±3.0 |
| I | 13.0±2.0 |
| W1 | 11.0±3.0 |

Quantity: 3000PCS