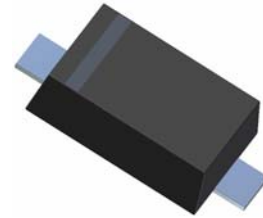


## 500mW SOD-123 SURFACE MOUNT Flat Lead Surface Mount Plastic Package Zener Voltage Regulators

Green Product



SOD-123 Flat Lead

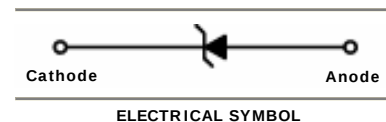
### Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

| Symbol    | Parameter                   | Value       | Units            |
|-----------|-----------------------------|-------------|------------------|
| $P_D$     | Power Dissipation           | 500         | mW               |
| $T_{STG}$ | Storage Temperature Range   | -65 to +150 | $^\circ\text{C}$ |
| $T_{OPR}$ | Operating Temperature Range | -65 to +150 | $^\circ\text{C}$ |

These ratings are limiting values above which the serviceability of the diode may be impaired.

### Specification Features:

- Wide Zener Voltage Range Selection, 2.4V to 75V
- VZ Tolerance Selection of  $\pm 5\%$  (C Series)
- Flat Lead SOD-123 Plastic Package
- Surface Device Type Mounting
- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish
- Band Indicates Cathode



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

| Device Type | Device Marking | $V_Z @ I_{ZT}$<br>(Volts) |     |       | $I_{ZT}$<br>(mA) | $Z_{ZT} @ I_{ZT}$<br>( $\Omega$ )<br>Max | $I_{ZK}$<br>(mA) | $Z_{ZK} @ I_{ZK}$<br>( $\Omega$ )<br>Max | $I_R @ V_R$<br>( $\mu\text{A}$ )<br>Max | $V_R$<br>(Volts) |
|-------------|----------------|---------------------------|-----|-------|------------------|------------------------------------------|------------------|------------------------------------------|-----------------------------------------|------------------|
|             |                | Min                       | Nom | Max   |                  |                                          |                  |                                          |                                         |                  |
| MMSZ2V4CW   | 2V4Z           | 2.28                      | 2.4 | 2.52  | 5                | 100                                      | 1                | 564                                      | 45                                      | 1                |
| MMSZ2V7CW   | 2V7Z           | 2.57                      | 2.7 | 2.84  | 5                | 100                                      | 1                | 564                                      | 18                                      | 1                |
| MMSZ3V0CW   | 3V0Z           | 2.85                      | 3.0 | 3.15  | 5                | 100                                      | 1                | 564                                      | 9                                       | 1                |
| MMSZ3V3CW   | 3V3Z           | 3.14                      | 3.3 | 3.47  | 5                | 95                                       | 1                | 564                                      | 4.5                                     | 1                |
| MMSZ3V6CW   | 3V6Z           | 3.42                      | 3.6 | 3.78  | 5                | 90                                       | 1                | 564                                      | 4.5                                     | 1                |
| MMSZ3V9CW   | 3V9Z           | 3.71                      | 3.9 | 4.10  | 5                | 90                                       | 1                | 564                                      | 2.7                                     | 1                |
| MMSZ4V3CW   | 4V3Z           | 4.09                      | 4.3 | 4.52  | 5                | 90                                       | 1                | 564                                      | 2.7                                     | 1                |
| MMSZ4V7CW   | 4V7Z           | 4.47                      | 4.7 | 4.94  | 5                | 80                                       | 1                | 470                                      | 2.7                                     | 2                |
| MMSZ5V1CW   | 5V1Z           | 4.85                      | 5.1 | 5.36  | 5                | 60                                       | 1                | 451                                      | 1.8                                     | 2                |
| MMSZ5V6CW   | 5V6Z           | 5.32                      | 5.6 | 5.88  | 5                | 40                                       | 1                | 376                                      | 0.9                                     | 2                |
| MMSZ6V2CW   | 6V2Z           | 5.89                      | 6.2 | 6.51  | 5                | 10                                       | 1                | 141                                      | 2.7                                     | 4                |
| MMSZ6V8CW   | 6V8Z           | 6.46                      | 6.8 | 7.14  | 5                | 15                                       | 1                | 75                                       | 1.8                                     | 4                |
| MMSZ7V5CW   | 7V5Z           | 7.11                      | 7.5 | 7.86  | 5                | 15                                       | 1                | 75                                       | 0.9                                     | 5                |
| MMSZ8V2CW   | 8V2Z           | 7.79                      | 8.2 | 8.61  | 5                | 15                                       | 1                | 75                                       | 0.63                                    | 5                |
| MMSZ9V1CW   | 9V1Z           | 8.65                      | 9.1 | 9.56  | 5                | 15                                       | 1                | 94                                       | 0.45                                    | 6                |
| MMSZ10VCW   | 10VZ           | 9.50                      | 10  | 10.50 | 5                | 20                                       | 1                | 141                                      | 0.18                                    | 7                |
| MMSZ11VCW   | 11VZ           | 10.45                     | 11  | 11.55 | 5                | 20                                       | 1                | 141                                      | 0.09                                    | 8                |
| MMSZ12VCW   | 12VZ           | 11.40                     | 12  | 12.60 | 5                | 25                                       | 1                | 141                                      | 0.09                                    | 8                |
| MMSZ13VCW   | 13VZ           | 12.35                     | 13  | 13.65 | 5                | 30                                       | 1                | 160                                      | 0.09                                    | 8                |
| MMSZ15VCW   | 15VZ           | 14.25                     | 15  | 15.75 | 5                | 30                                       | 1                | 188                                      | 0.045                                   | 10.5             |
| MMSZ16VCW   | 16VZ           | 15.20                     | 16  | 16.80 | 5                | 40                                       | 1                | 188                                      | 0.045                                   | 11.2             |

**Electrical Characteristics**  $T_A = 25^\circ\text{C}$  unless otherwise noted

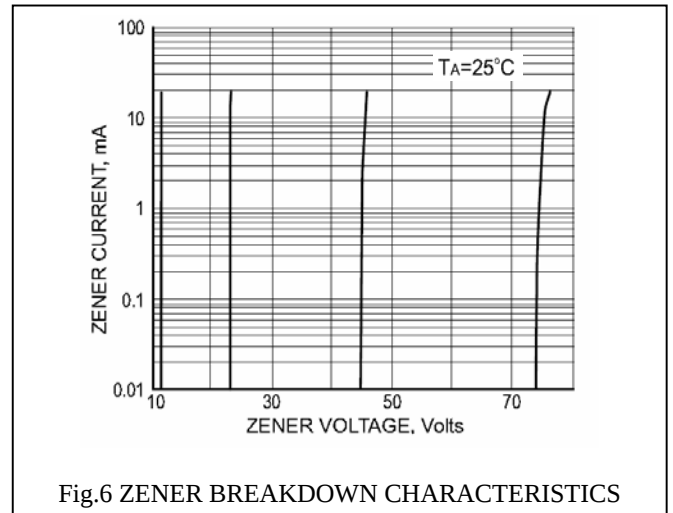
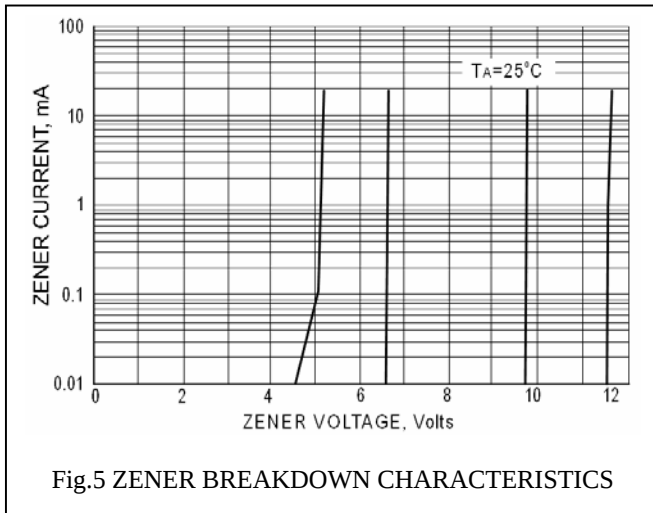
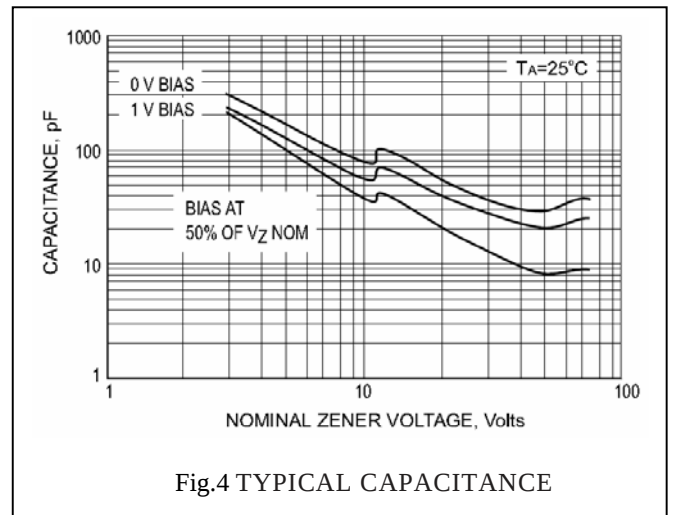
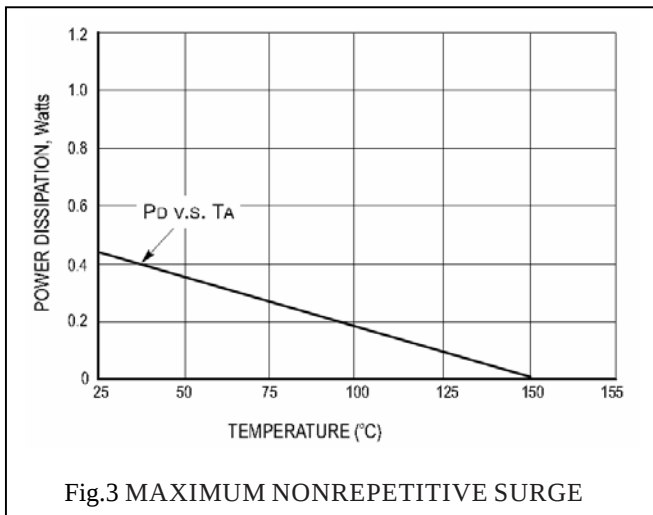
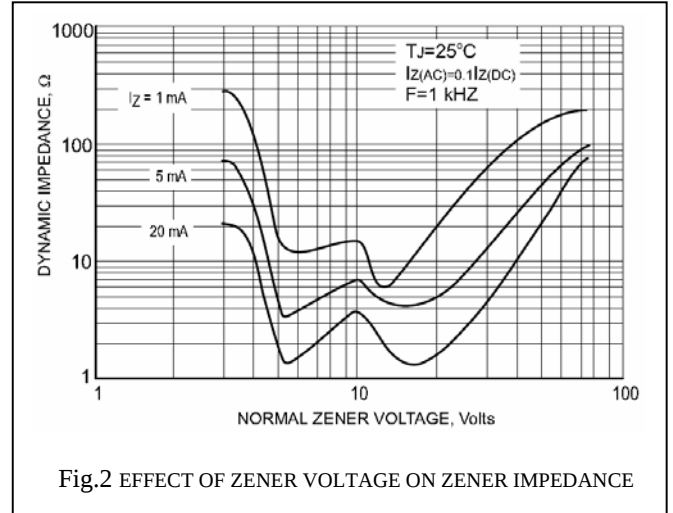
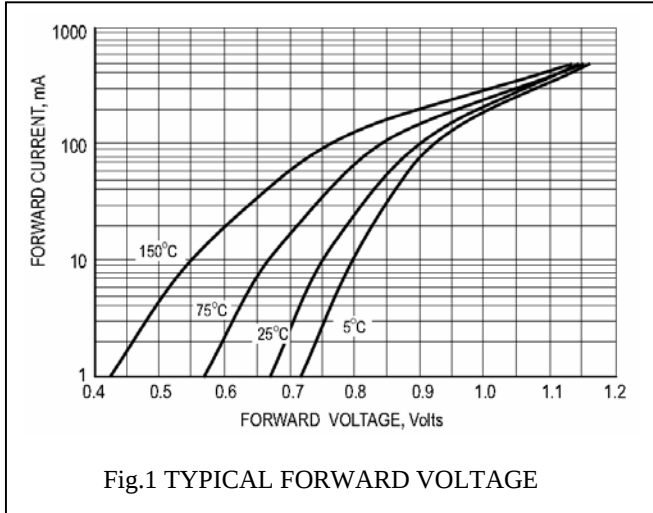
| Device Type | Device Marking | $V_Z @ I_{ZT}$<br>(Volts) |     |       | $I_{ZT}$<br>(mA) | $Z_{ZT} @ I_{ZT}$<br>( $\Omega$ )<br>Max | $I_{ZK}$<br>(mA) | $Z_{ZK} @ I_{ZK}$<br>( $\Omega$ )<br>Max | $I_R @ V_R$<br>( $\mu\text{A}$ )<br>Max | $V_R$<br>(Volts) |
|-------------|----------------|---------------------------|-----|-------|------------------|------------------------------------------|------------------|------------------------------------------|-----------------------------------------|------------------|
|             |                | Min                       | Nom | Max   |                  |                                          |                  |                                          |                                         |                  |
| MMSZ18VCW   | 18VZ           | 17.10                     | 18  | 18.90 | 5                | 45                                       | 1                | 212                                      | 0.045                                   | 12.6             |
| MMSZ20VCW   | 20VZ           | 19.00                     | 20  | 21.00 | 5                | 55                                       | 1                | 212                                      | 0.045                                   | 14.0             |
| MMSZ22VCW   | 22VZ           | 20.90                     | 22  | 23.10 | 5                | 55                                       | 1                | 235                                      | 0.045                                   | 15.4             |
| MMSZ24VCW   | 24VZ           | 22.80                     | 24  | 25.20 | 5                | 70                                       | 1                | 235                                      | 0.045                                   | 16.8             |
| MMSZ27VCW   | 27VZ           | 25.65                     | 27  | 28.35 | 5                | 80                                       | 0.5              | 282                                      | 0.045                                   | 18.9             |
| MMSZ30VCW   | 30VZ           | 28.50                     | 30  | 31.50 | 5                | 80                                       | 0.5              | 282                                      | 0.045                                   | 21.0             |
| MMSZ33VCW   | 33VZ           | 31.35                     | 33  | 34.65 | 5                | 80                                       | 0.5              | 306                                      | 0.045                                   | 23.0             |
| MMSZ36VCW   | 36VZ           | 34.20                     | 36  | 37.80 | 5                | 90                                       | 0.5              | 329                                      | 0.045                                   | 25.2             |
| MMSZ39VCW   | 39VZ           | 37.05                     | 39  | 40.95 | 5                | 130                                      | 0.5              | 329                                      | 0.045                                   | 27.3             |
| MMSZ43VCW   | 43VZ           | 40.85                     | 43  | 45.15 | 5                | 150                                      | 0.5              | 353                                      | 0.045                                   | 30.1             |
| MMSZ47VCW   | 47VZ           | 44.65                     | 47  | 49.35 | 5                | 170                                      | 0.5              | 353                                      | 0.045                                   | 33.0             |
| MMSZ51VCW   | 51VZ           | 48.45                     | 51  | 53.55 | 5                | 180                                      | 0.5              | 376                                      | 0.045                                   | 35.7             |
| MMSZ56VCW   | 56VZ           | 53.20                     | 56  | 58.80 | 5                | 200                                      | 0.5              | 400                                      | 0.045                                   | 39.2             |
| MMSZ62VCW   | 62VZ           | 58.90                     | 62  | 65.10 | 5                | 215                                      | 0.5              | 423                                      | 0.045                                   | 43.4             |
| MMSZ68VCW   | 68VZ           | 64.60                     | 68  | 71.40 | 5                | 240                                      | 0.5              | 447                                      | 0.045                                   | 47.6             |
| MMSZ75VCW   | 75VZ           | 71.25                     | 75  | 78.75 | 5                | 255                                      | 0.5              | 470                                      | 0.045                                   | 52.5             |

 $V_F$  Forward Voltage = 900mV Maximum @  $I_F = 10$  mA for all types

**Notes:**

1. The Zener Voltage ( $V_Z$ ) is tested under pulse condition of 10mS.
2. The device numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
3. For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Tak Cheong Electronics representative.
4. The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed to  $I_{ZT}$  or  $I_{ZK}$ .

**RATING AND CHARACTERISTIC CURVES**



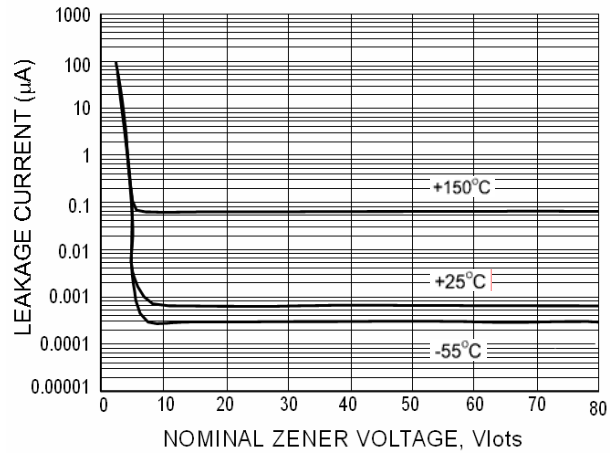
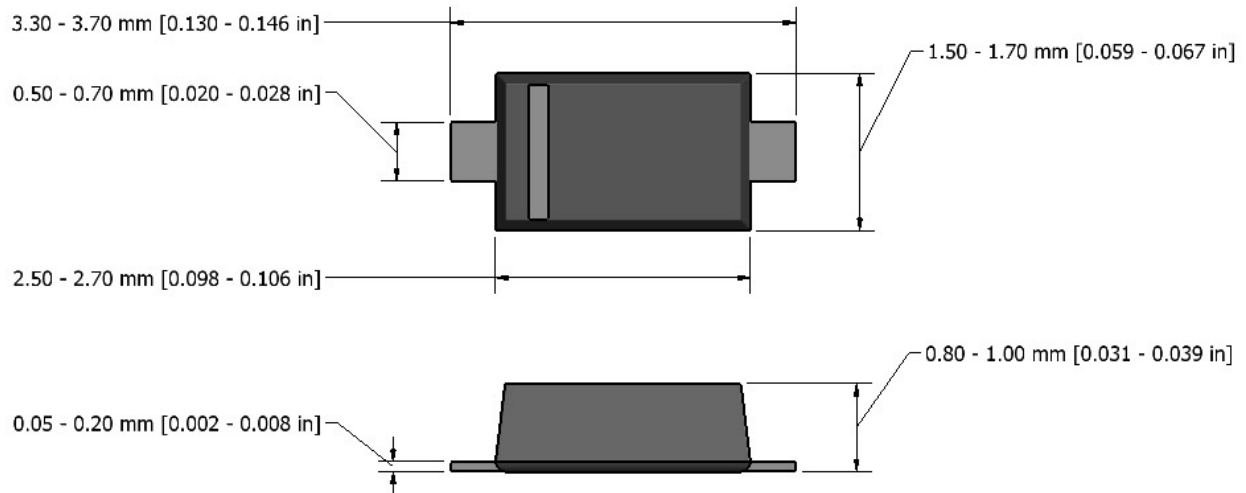


Fig.7 TYPICAL LEAKGE CURRENT

**Flat Lead SOD-123 Package Outline**


This datasheet presents technical data of Tak Cheong's Zener Diodes. Complete specifications for the individual devices are provided in the form of datasheets. A comprehensive Selector Guide is included to simplify the task of choosing the best set of components required for a specific application. For additional information, please visit our website <http://www.takcheong.com>.

Although information in this datasheet has been carefully checked, no responsibility for the inaccuracies can be assumed by Tak Cheong. Please consult your nearest Tak Cheong's sales office for further assistance.

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