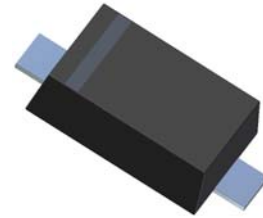


## 500mW SOD-123 SURFACE MOUNT Flat Lead Surface Mount Plastic Package Zener Voltage Regulators

Green Product



SOD-123 Flat Lead

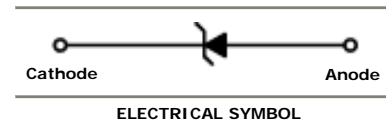
### Absolute Maximum Ratings T<sub>A</sub> = 25°C unless otherwise noted

| Symbol           | Parameter                   | Value       | Units |
|------------------|-----------------------------|-------------|-------|
| P <sub>D</sub>   | Power Dissipation           | 500         | mW    |
| T <sub>STG</sub> | Storage Temperature Range   | -65 to +150 | °C    |
| T <sub>OPR</sub> | Operating Temperature Range | -65 to +150 | °C    |

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

### Specification Features:

- Wide Zener Voltage Range Selection, 2.0V to 75V
- VZ Tolerance Selection of ±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<sub>A</sub> = 25°C unless otherwise noted

| Device Type | Device Marking | V <sub>Z</sub> @ I <sub>ZT</sub> (Volts) |     |       | I <sub>ZT</sub> (mA) | Z <sub>ZT</sub> @ I <sub>ZT</sub> (Ω) Max | I <sub>ZK</sub> (mA) | Z <sub>ZK</sub> @ I <sub>ZK</sub> (Ω) Max | I <sub>R</sub> @ V <sub>R</sub> (μA) Max | V <sub>R</sub> (Volts) |
|-------------|----------------|------------------------------------------|-----|-------|----------------------|-------------------------------------------|----------------------|-------------------------------------------|------------------------------------------|------------------------|
|             |                | Min                                      | Nom | Max   |                      |                                           |                      |                                           |                                          |                        |
| MMSZ2V0CW   | 2V0Z           | 1.90                                     | 2.0 | 2.10  | 5                    | 100                                       | 1                    | 564                                       | 120                                      | 0.5                    |
| MMSZ2V2CW   | 2V2Z           | 2.09                                     | 2.2 | 2.31  | 5                    | 100                                       | 1                    | 564                                       | 120                                      | 0.7                    |
| 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                      |

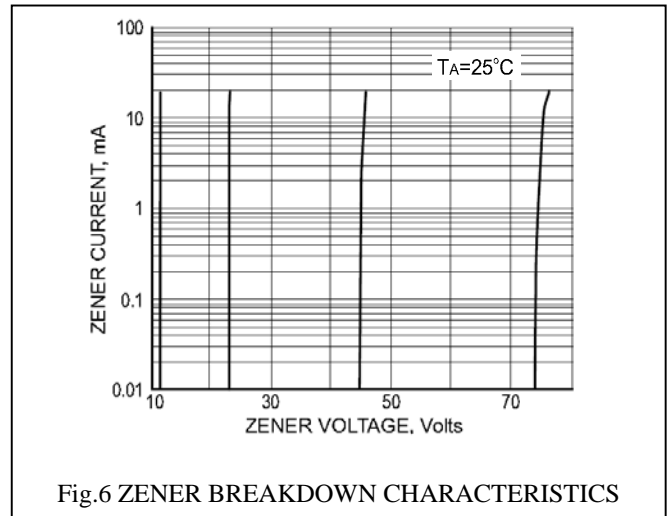
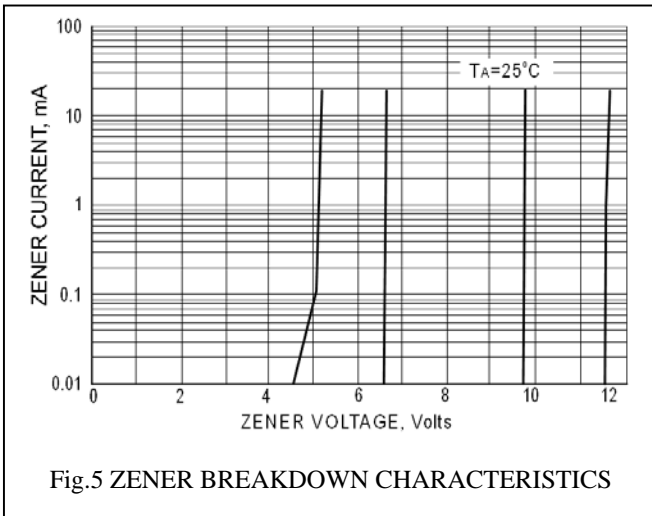
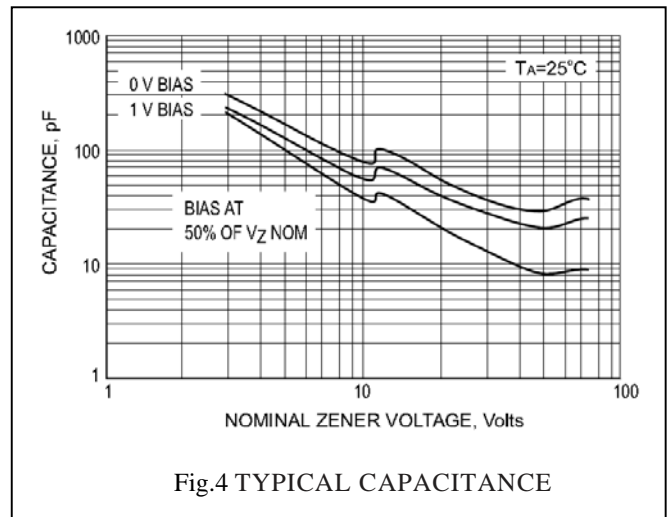
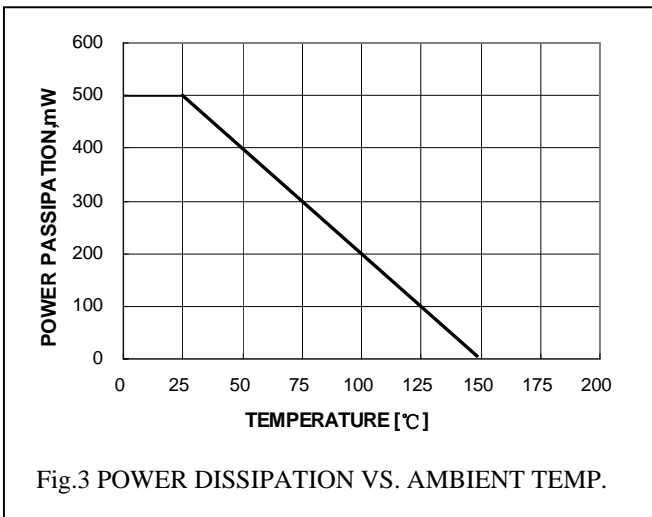
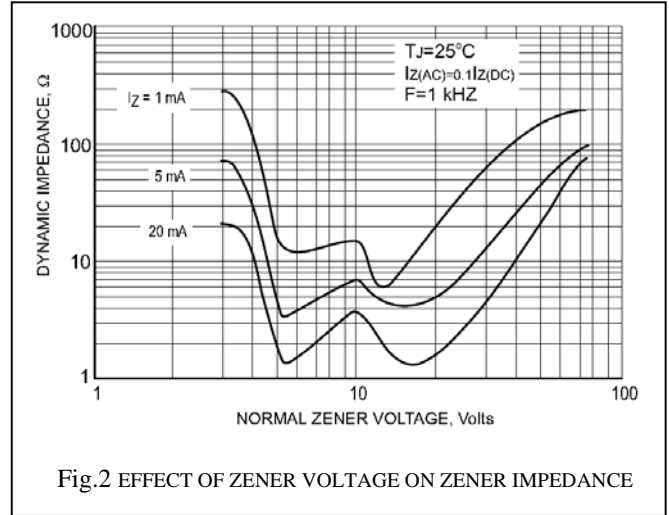
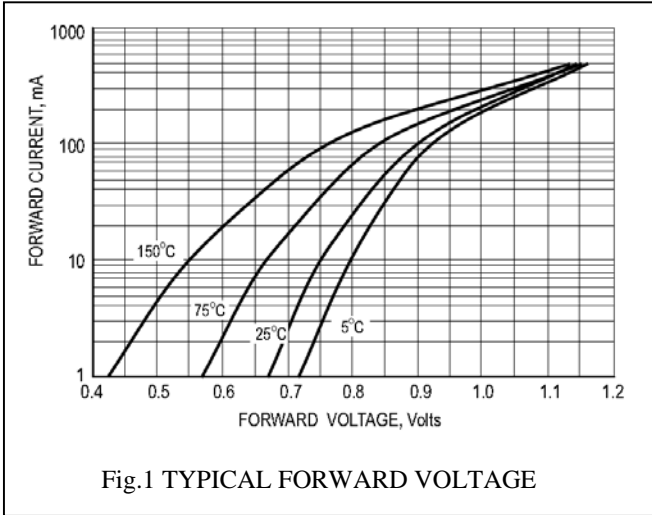
**Electrical Characteristics**  $T_A = 25^\circ\text{C}$  unless otherwise noted

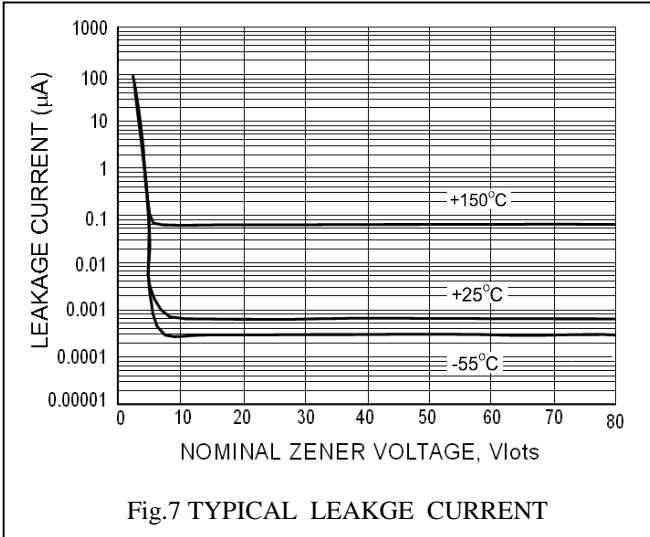
| Device Type | Device Marking | $V_Z @ I_{ZT}$<br>(Volts) |     |       | $I_{ZT}$<br>(mA) | $Z_{ZT} @ I_{ZT}$<br>( $\Omega$ )<br>Max | $I_{ZK}$<br>(mA) | $Z_{ZK} @ I_{ZK}$<br>( $\Omega$ )<br>Max | $I_R @ V_R$<br>( $\mu\text{A}$ )<br>Max | $V_R$<br>(Volts) |
|-------------|----------------|---------------------------|-----|-------|------------------|------------------------------------------|------------------|------------------------------------------|-----------------------------------------|------------------|
|             |                | Min                       | Nom | Max   |                  |                                          |                  |                                          |                                         |                  |
| 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             |
| 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 | 2                | 80                                       | 0.5              | 282                                      | 0.045                                   | 18.9             |
| MMSZ30VCW   | 30VZ           | 28.50                     | 30  | 31.50 | 2                | 80                                       | 0.5              | 282                                      | 0.045                                   | 21.0             |
| MMSZ33VCW   | 33VZ           | 31.35                     | 33  | 34.65 | 2                | 80                                       | 0.5              | 306                                      | 0.045                                   | 23.0             |
| MMSZ36VCW   | 36VZ           | 34.20                     | 36  | 37.80 | 2                | 90                                       | 0.5              | 329                                      | 0.045                                   | 25.2             |
| MMSZ39VCW   | 39VZ           | 37.05                     | 39  | 40.95 | 2                | 130                                      | 0.5              | 329                                      | 0.045                                   | 27.3             |
| MMSZ43VCW   | 43VZ           | 40.85                     | 43  | 45.15 | 2                | 150                                      | 0.5              | 353                                      | 0.045                                   | 30.1             |
| MMSZ47VCW   | 47VZ           | 44.65                     | 47  | 49.35 | 2                | 170                                      | 0.5              | 353                                      | 0.045                                   | 33.0             |
| MMSZ51VCW   | 51VZ           | 48.45                     | 51  | 53.55 | 2                | 180                                      | 0.5              | 376                                      | 0.045                                   | 35.7             |
| MMSZ56VCW   | 56VZ           | 53.20                     | 56  | 58.80 | 2                | 200                                      | 0.5              | 400                                      | 0.045                                   | 39.2             |
| MMSZ62VCW   | 62VZ           | 58.90                     | 62  | 65.10 | 2                | 215                                      | 0.5              | 423                                      | 0.045                                   | 43.4             |
| MMSZ68VCW   | 68VZ           | 64.60                     | 68  | 71.40 | 2                | 240                                      | 0.5              | 447                                      | 0.045                                   | 47.6             |
| MMSZ75VCW   | 75VZ           | 71.25                     | 75  | 78.75 | 2                | 255                                      | 0.5              | 470                                      | 0.045                                   | 52.5             |

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

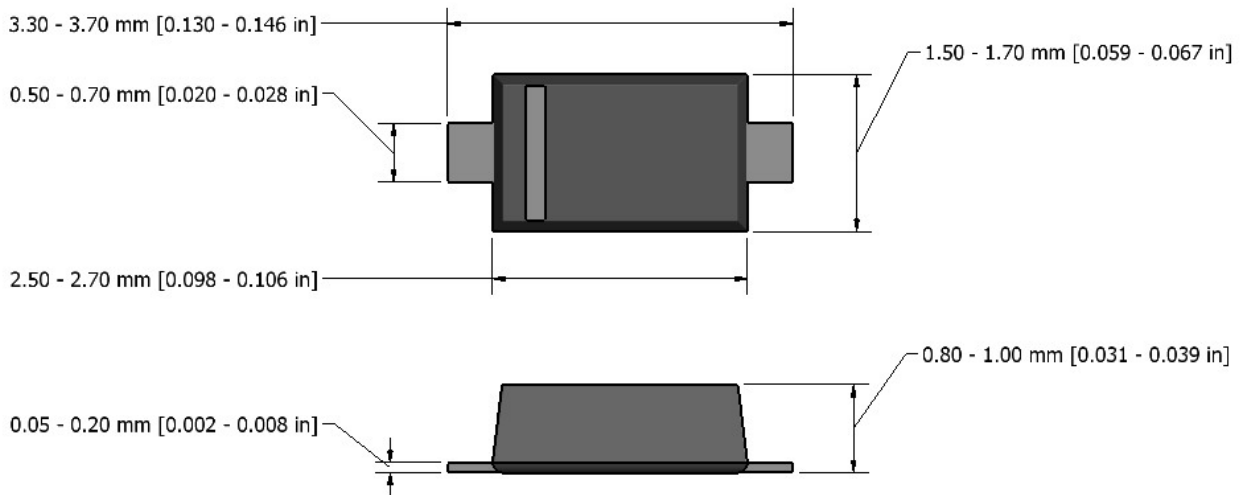
**Notes:**

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**




**Flat Lead SOD-123 Package Outline**



**Note:** Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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