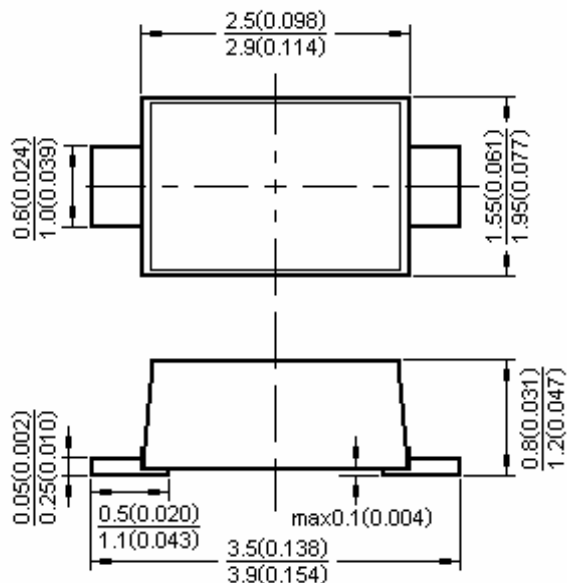

**SOD-123FL**


Dimensions in millimeters and (inches)

## Features

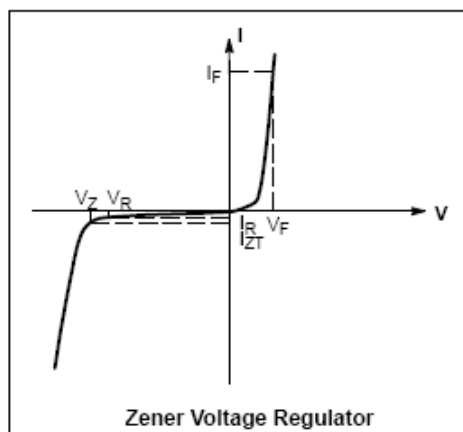
- Pb-Free Packages are Available
- Wide Zener Reverse Voltage Range – 1.8 V to 43 V
- Small Package Size for High Density Applications
- ESD Rating of Class 3 (>16 kV) per Human Body Model

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

| Characteristic                              | Symbol          | Value       | Unit               |
|---|-----------------|-------------|--------------------|
| Forward voltage @ $I_F = 10\text{mA}$       | $V_F$           | 0.9         | V                  |
| Power Dissipation                           | $P_D$           | 350         | mW                 |
| Thermal Resistance, Junction to Ambient Air | $R_{\theta JA}$ | 357         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range     | $T_i, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| symbol   | Parameter                        |
|----------|----------------------------------|
| $V_Z$    | Reverse zener voltage @ $I_{ZT}$ |
| $I_{ZT}$ | Reverse current                  |
| $I_R$    | Reverse leakage current @ $V_R$  |
| $V_R$    | Reverse voltage                  |
| $I_F$    | Forward current                  |
| $V_F$    | Forward voltage @ $I_F$          |



**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Device          | Device Marking | Zener Voltage (Notes 1) |            |             |               | Leakage Current |          |
|-----------------|----------------|-------------------------|------------|-------------|---------------|-----------------|----------|
|                 |                | $V_Z$ (Volts)           |            |             | @ $I_{ZT}$    | $I_R @ V_R$     |          |
|                 |                | Min                     | Nom        | Max         | $\mu\text{A}$ | $\mu\text{A}$   | Volts    |
| MMSZ4678        | CC             | 1.71                    | 1.8        | 1.89        | 50            | 7.5             | 1        |
| MMSZ4679        | CD             | 1.90                    | 2.0        | 2.10        | 50            | 5               | 1        |
| <b>MMSZ4680</b> | <b>CE</b>      | <b>2.09</b>             | <b>2.2</b> | <b>2.31</b> | <b>50</b>     | <b>4</b>        | <b>1</b> |
| MMSZ4681        | CF             | 2.28                    | 2.4        | 2.52        | 50            | 2               | 1        |
| MMSZ4682        | CH             | 2.565                   | 2.7        | 2.835       | 50            | 1               | 1        |
| MMSZ4683        | CJ             | 2.85                    | 3.0        | 3.15        | 50            | 0.8             | 1        |
| MMSZ4684        | CK             | 3.13                    | 3.3        | 3.47        | 50            | 7.5             | 1.5      |
| <b>MMSZ4685</b> | <b>CM</b>      | <b>3.42</b>             | <b>3.6</b> | <b>3.78</b> | <b>50</b>     | <b>7.5</b>      | <b>2</b> |
| MMSZ4686        | CN             | 3.70                    | 3.9        | 4.10        | 50            | 5               | 2        |
| MMSZ4687        | CP             | 4.09                    | 4.3        | 4.52        | 50            | 4               | 2        |
| MMSZ4688        | CT             | 4.47                    | 4.7        | 4.94        | 50            | 10              | 3        |
| MMSZ4689        | CU             | 4.85                    | 5.1        | 5.36        | 50            | 10              | 3        |
| <b>MMSZ4690</b> | <b>CV</b>      | <b>5.32</b>             | <b>5.6</b> | <b>5.88</b> | <b>50</b>     | <b>10</b>       | <b>4</b> |
| MMSZ4691        | CA             | 5.89                    | 6.2        | 6.51        | 50            | 10              | 5        |
| MMSZ4692        | CX             | 6.46                    | 6.8        | 7.14        | 50            | 10              | 5.1      |
| MMSZ4693        | CY             | 7.13                    | 7.5        | 7.88        | 50            | 10              | 5.7      |
| MMSZ4694        | CZ             | 7.79                    | 8.2        | 8.61        | 50            | 1               | 6.2      |
| MMSZ4695        | DC             | 8.27                    | 8.7        | 9.14        | 50            | 1               | 6.6      |
| MMSZ4696        | DD             | 8.65                    | 9.1        | 9.56        | 50            | 1               | 6.9      |
| MMSZ4697        | DE             | 9.50                    | 10         | 10.50       | 50            | 1               | 7.6      |
| MMSZ4698        | DF             | 10.45                   | 11         | 11.55       | 50            | 0.05            | 8.4      |
| MMSZ4699        | DH             | 11.40                   | 12         | 12.60       | 50            | 0.05            | 9.1      |
| MMSZ4700        | DJ             | 12.35                   | 13         | 13.65       | 50            | 0.05            | 9.8      |
| MMSZ4701        | DK             | 13.30                   | 14         | 14.70       | 50            | 0.05            | 10.6     |
| MMSZ4702        | DM             | 14.25                   | 15         | 15.75       | 50            | 0.05            | 11.4     |
| MMSZ4703*       | DN             | 15.20                   | 16         | 16.80       | 50            | 0.05            | 12.1     |
| MMSZ4704        | DP             | 16.15                   | 17         | 17.85       | 50            | 0.05            | 12.9     |
| MMSZ4705        | DT             | 17.10                   | 18         | 18.90       | 50            | 0.05            | 13.6     |
| MMSZ4706        | DU             | 18.05                   | 19         | 19.95       | 50            | 0.05            | 14.4     |
| MMSZ4707        | DV             | 19.00                   | 20         | 21.00       | 50            | 0.01            | 15.2     |
| MMSZ4708        | DA             | 20.90                   | 22         | 23.10       | 50            | 0.01            | 16.7     |
| MMSZ4709        | DX             | 22.80                   | 24         | 25.20       | 50            | 0.01            | 18.2     |
| MMSZ4710        | DY             | 23.75                   | 25         | 26.25       | 50            | 0.01            | 19.0     |
| MMSZ4711*       | EA             | 25.65                   | 27         | 28.35       | 50            | 0.01            | 20.4     |
| MMSZ4712        | EC             | 26.60                   | 28         | 29.40       | 50            | 0.01            | 21.2     |
| MMSZ4713        | ED             | 28.50                   | 30         | 31.50       | 50            | 0.01            | 22.8     |
| MMSZ4714        | EE             | 31.35                   | 33         | 34.65       | 50            | 0.01            | 25.0     |
| MMSZ4715        | EF             | 34.20                   | 36         | 37.80       | 50            | 0.01            | 27.3     |
| MMSZ4716        | EH             | 37.05                   | 39         | 40.95       | 50            | 0.01            | 29.6     |
| MMSZ4717        | EJ             | 40.85                   | 43         | 45.15       | 50            | 0.01            | 32.6     |

 1. Nominal Zener voltage is measured with the device junction in thermal equilibrium at  $T_L = 30^\circ\text{C} \pm 1^\circ\text{C}$

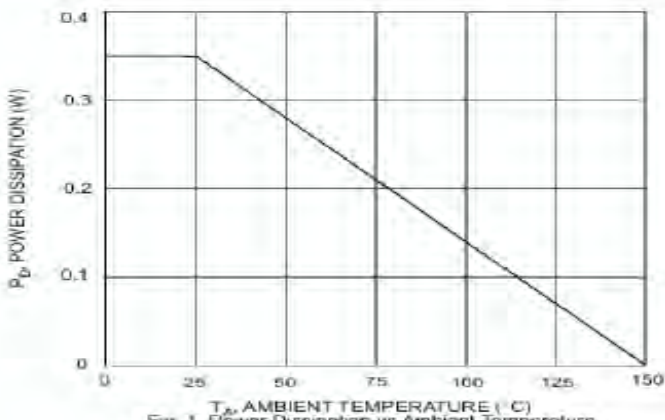
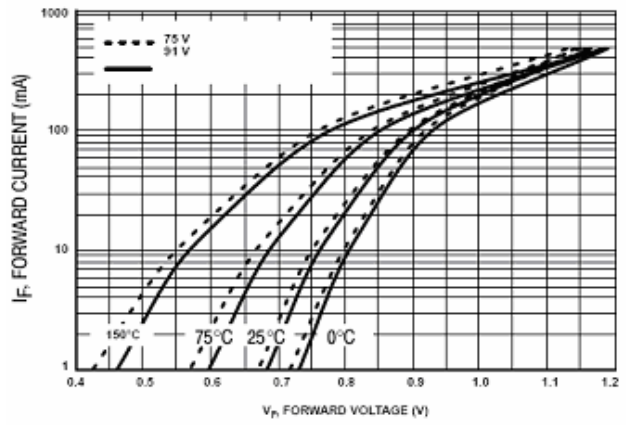
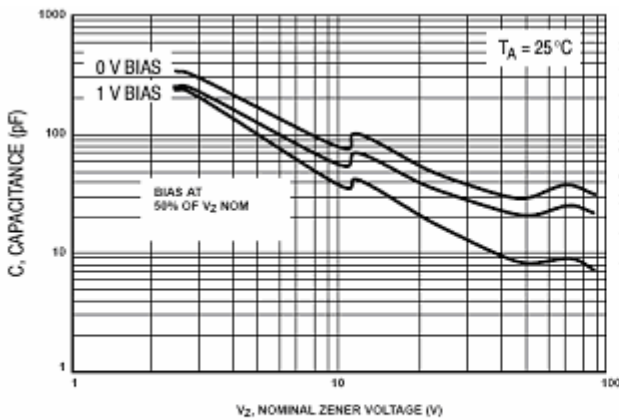
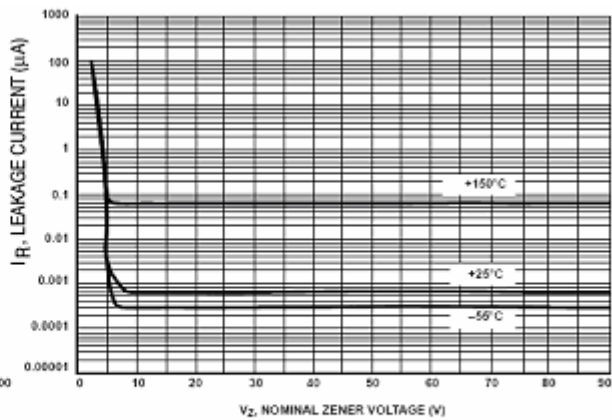
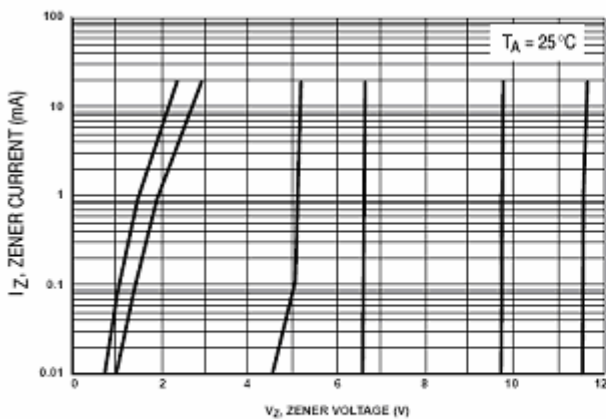
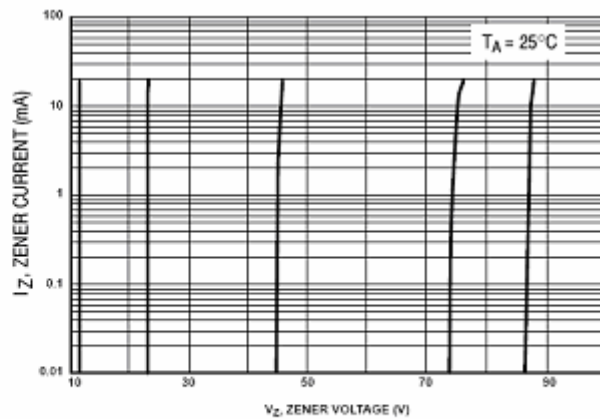
**Typical Characteristics**


Fig. 1 Power Dissipation vs Ambient Temperature


**Typical Forward Voltage**

**Typical Capacitance**

**Typical Leakage Current**

**Zener Voltage versus Zener Current  
( $V_Z$  Up to 12 V)**

**Zener Voltage versus Zener Current  
(12 V to 91 V)**