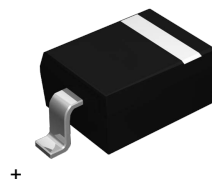


## Features

- Low zener impedance
- Power dissipation of 500mW
- High stability and reliability
- ESD capability according to AEC-Q101:  
Human body mode > 8kV, Machine mode > 800V



SOD-123

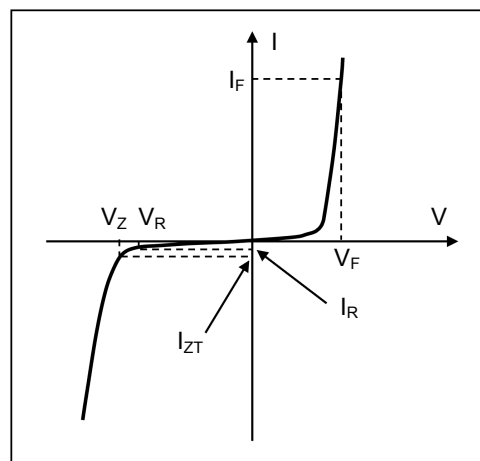
## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

| Parameter                                           | Symbol           | Value       | Unit |
|-----------------------------------------------------|------------------|-------------|------|
| Forward Voltage <sup>1</sup> @ I <sub>F</sub> =10mA | V <sub>F</sub>   | 0.9         | V    |
| Power Dissipation <sup>2</sup>                      | P <sub>D</sub>   | 500         | mW   |
| Thermal Resistance, Junction to Ambient Air         | R <sub>θJA</sub> | 340         | °C/W |
| Operating Temperature Range                         | T <sub>J</sub>   | -55 to +150 | °C   |
| Storage Temperature Range                           | T <sub>STG</sub> | -55 to +150 | °C   |

Notes:

1. Short duration test pulse used to minimize self-heating effect.
2. Device mounted on ceramic PCB: 7.6mmx9.4mmx0.87 with pad areas of 25mm<sup>2</sup>

| Symbol          | Parameter                                |
|-----------------|------------------------------------------|
| V <sub>Z</sub>  | Reverse Zener Voltage @ I <sub>ZT</sub>  |
| I <sub>ZT</sub> | Reverse Current                          |
| I <sub>R</sub>  | Reverse Leakage Current @ V <sub>R</sub> |
| V <sub>R</sub>  | Reverse Voltage                          |
| I <sub>F</sub>  | Forward Current                          |
| V <sub>F</sub>  | Forward Voltage @ I <sub>F</sub>         |



I-V Curve of Zener Voltage Regulator

## Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise specified)

| MPN      | Marking Code | Zener Voltage      |     |       |                   | Leakage Current                 |      |
|----------|--------------|--------------------|-----|-------|-------------------|---------------------------------|------|
|          |              | V <sub>Z</sub> (V) |     |       | @ I <sub>ZT</sub> | I <sub>R</sub> @ V <sub>R</sub> |      |
|          |              | Min                | Nom | Max   | μA                | μA                              | V    |
| SMSZ4678 | CC           | 1.71               | 1.8 | 1.89  | 50                | 7.5                             | 1    |
| SMSZ4679 | CD           | 1.90               | 2.0 | 2.10  | 50                | 5                               | 1    |
| SMSZ4680 | CE           | 2.09               | 2.2 | 2.31  | 50                | 4                               | 1    |
| SMSZ4681 | CF           | 2.28               | 2.4 | 2.52  | 50                | 2                               | 1    |
| SMSZ4682 | CH           | 2.57               | 2.7 | 2.84  | 50                | 1                               | 1    |
| SMSZ4683 | CJ           | 2.85               | 3.0 | 3.15  | 50                | 0.8                             | 1    |
| SMSZ4684 | CK           | 3.13               | 3.3 | 3.47  | 50                | 7.5                             | 1.5  |
| SMSZ4685 | CM           | 3.42               | 3.6 | 3.78  | 50                | 7.5                             | 2    |
| SMSZ4686 | CN           | 3.70               | 3.9 | 4.10  | 50                | 5                               | 2    |
| SMSZ4687 | CP           | 4.09               | 4.3 | 4.52  | 50                | 4                               | 2    |
| SMSZ4688 | CT           | 4.47               | 4.7 | 4.94  | 50                | 10                              | 3    |
| SMSZ4689 | CU           | 4.85               | 5.1 | 5.36  | 50                | 10                              | 3    |
| SMSZ4690 | CV           | 5.32               | 5.6 | 5.88  | 50                | 10                              | 4    |
| SMSZ4691 | CA           | 5.89               | 6.2 | 6.51  | 50                | 10                              | 5    |
| SMSZ4692 | CX           | 6.46               | 6.8 | 7.14  | 50                | 10                              | 5.1  |
| SMSZ4693 | CY           | 7.13               | 7.5 | 7.88  | 50                | 10                              | 5.7  |
| SMSZ4694 | CZ           | 7.79               | 8.2 | 8.61  | 50                | 1                               | 6.2  |
| SMSZ4695 | DC           | 8.27               | 8.7 | 9.14  | 50                | 1                               | 6.6  |
| SMSZ4696 | DD           | 8.65               | 9.1 | 9.56  | 50                | 1                               | 6.9  |
| SMSZ4697 | DE           | 9.50               | 10  | 10.50 | 50                | 1                               | 7.6  |
| SMSZ4698 | DF           | 10.45              | 11  | 11.55 | 50                | 0.05                            | 8.4  |
| SMSZ4699 | DH           | 11.40              | 12  | 12.60 | 50                | 0.05                            | 9.1  |
| SMSZ4700 | DJ           | 12.35              | 13  | 13.65 | 50                | 0.05                            | 9.8  |
| SMSZ4701 | DK           | 13.30              | 14  | 14.70 | 50                | 0.05                            | 10.6 |
| SMSZ4702 | DM           | 14.25              | 15  | 15.75 | 50                | 0.05                            | 11.4 |
| SMSZ4703 | DN           | 15.20              | 16  | 16.80 | 50                | 0.05                            | 12.1 |
| SMSZ4704 | DP           | 16.15              | 17  | 17.85 | 50                | 0.05                            | 12.9 |
| SMSZ4705 | DT           | 17.10              | 18  | 18.90 | 50                | 0.05                            | 13.6 |
| SMSZ4706 | DU           | 18.05              | 19  | 19.95 | 50                | 0.05                            | 14.4 |
| SMSZ4707 | DV           | 19.00              | 20  | 21.00 | 50                | 0.01                            | 15.2 |
| SMSZ4708 | DA           | 20.90              | 22  | 23.10 | 50                | 0.01                            | 16.7 |
| SMSZ4709 | DX           | 22.80              | 24  | 25.20 | 50                | 0.01                            | 18.2 |
| SMSZ4710 | DY           | 23.75              | 25  | 26.25 | 50                | 0.01                            | 19.0 |
| SMSZ4711 | EA           | 25.65              | 27  | 28.35 | 50                | 0.01                            | 20.4 |
| SMSZ4712 | EC           | 26.60              | 28  | 29.40 | 50                | 0.01                            | 21.2 |
| SMSZ4713 | ED           | 28.50              | 30  | 31.50 | 50                | 0.01                            | 22.8 |
| SMSZ4714 | EE           | 31.35              | 33  | 34.65 | 50                | 0.01                            | 25.0 |
| SMSZ4715 | EF           | 34.20              | 36  | 37.80 | 50                | 0.01                            | 27.3 |
| SMSZ4716 | EH           | 37.05              | 39  | 40.95 | 50                | 0.01                            | 29.6 |
| SMSZ4717 | EJ           | 40.85              | 43  | 45.15 | 50                | 0.01                            | 32.6 |

## Ratings and Characteristic Curves

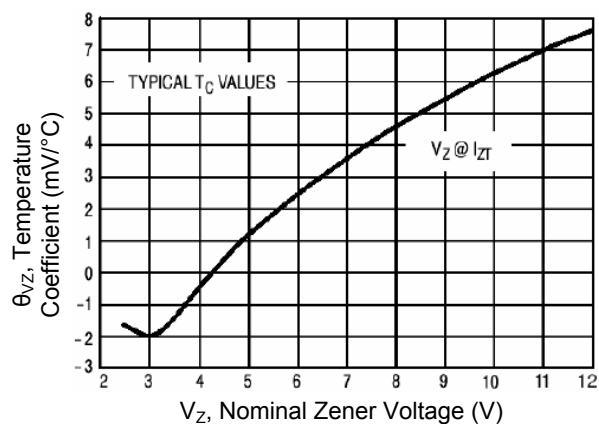


**Figure 1. Temperature Coefficients**  
 (Temperature Range -55°C to +150°C)

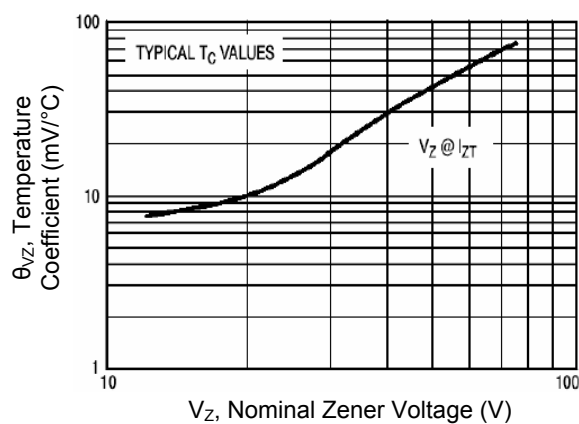


**Figure 2. Temperature Coefficients**  
 (Temperature Range -55°C to +150°C)

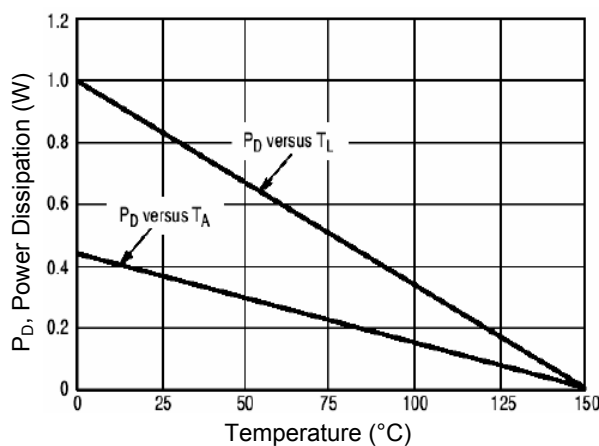


**Figure 3. Steady State Power Derating**

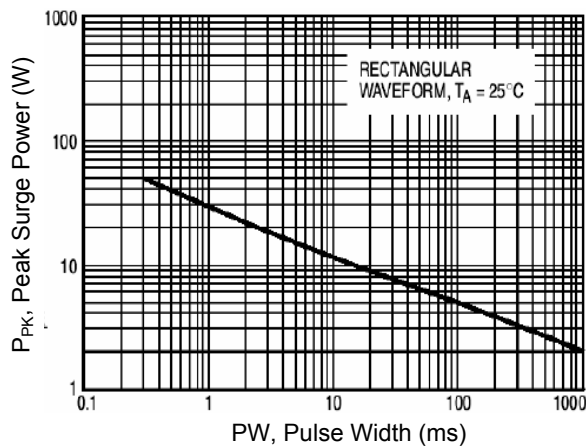


**Figure 4. Maximum Nonrepetitive Surge Power**

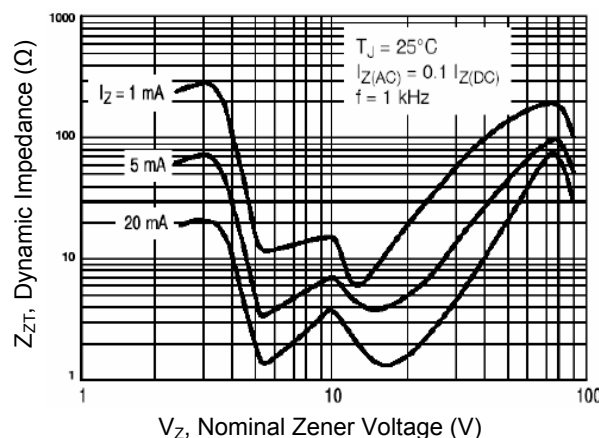


**Figure 5. Effect of Zener Voltage on Zener Impedance**

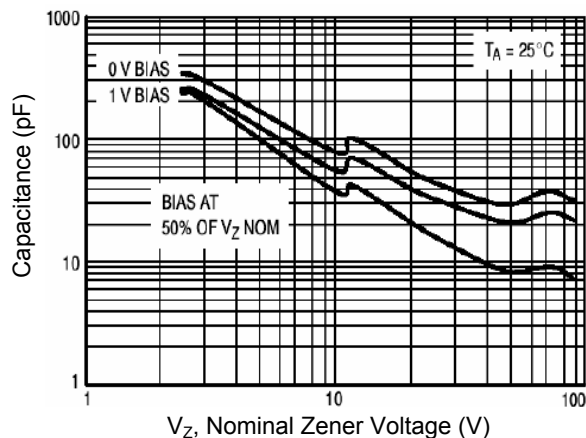


**Figure 6. Typical Capacitance**

## Ratings and Characteristic Curves

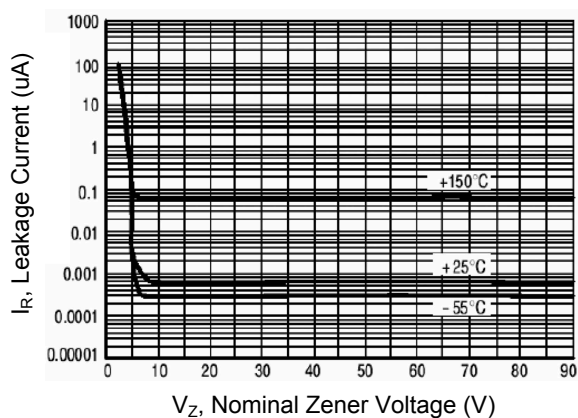


Figure 7. Typical Leakage Current

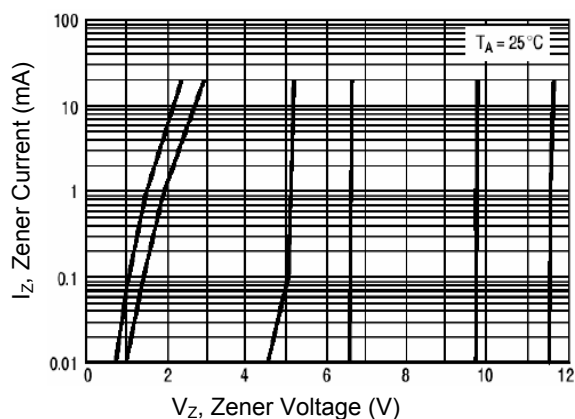


Figure 8. Zener Voltage vs. Zener Current  
(V<sub>Z</sub> up to 12V)

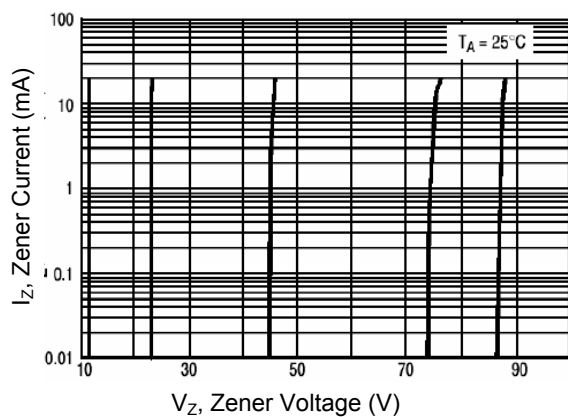
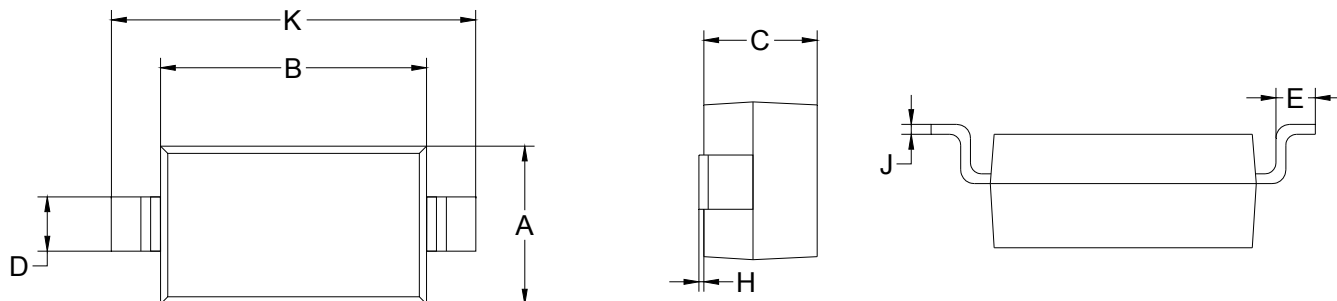


Figure 9. Zener Voltage vs. Zener Current  
(12V to 43V)

## Package Outline Dimensions (SOD-123)



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.400                     | 1.750 | 0.055                | 0.069 |
| B      | 2.500                     | 2.850 | 0.098                | 0.112 |
| C      | 1.150 TYP                 |       | 0.045 TYP            |       |
| D      | 0.550 TYP                 |       | 0.022 TYP            |       |
| E      | 0.200                     | 0.450 | 0.008                | 0.018 |
| H      | 0.000                     | 0.100 | 0.000                | 0.004 |
| J      | 0.100 TYP                 |       | 0.004 TYP            |       |
| K      | 3.500                     | 3.850 | 0.138                | 0.152 |

## Recommended Pad Layout

