



# 1SMA5926 THRU 1SMA5945

## Surface Mount Silicon Zener Diode



Voltage Range  
11 to 68 Volts  
1.5 Watts Peak Power

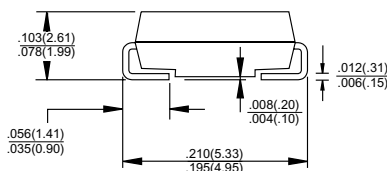
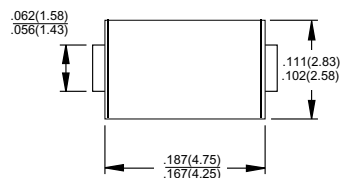
### Features

- ✧ For surface mounted applications in order to optimize board space
- ✧ Low profile package
- ✧ Built-in strain relief
- ✧ Glass passivated junction
- ✧ Low inductance
- ✧ Typical  $I_R$  less than  $0.5 \mu A$  above 11V
- ✧ High temperature soldering guaranteed:  
260°C / 10 seconds at terminals
- ✧ Plastic package has Underwriters Laboratory  
Flammability Classification 94V-0

### Mechanical Data

- ✧ Case: Molded plastic over passivated junction
- ✧ Terminals: Solder plated, solderable per  
MIL-STD-750, Method 2026
- ✧ Polarity: Color Band denotes positive end (cathode)
- ✧ Standard packaging: 12mm tape (EIA-481)
- ✧ Weight: 0.002 ounces, 0.064 gram

### SMA/DO-214AC



Dimensions in inches and (millimeters)

### Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

| Type Number                                                                                                          | Symbol         | Value        | Units                    |
|----------------------------------------------------------------------------------------------------------------------|----------------|--------------|--------------------------|
| DC Power Dissipation at $T_L=75^{\circ}C$ ,<br>measure at Zero Lead Length (Note 1)<br>Derate above $75^{\circ}C$    | $P_D$          | 1.5<br>20    | Watts<br>mW/ $^{\circ}C$ |
| Peak Forward Surge Current, 8.3 ms Single Half<br>Sine-wave Superimposed on Rated Load<br>(JEDEC method) (Note 1, 2) | $I_{FSM}$      | 10.0         | Amps                     |
| Operating and Storage Temperature Range                                                                              | $T_J, T_{STG}$ | -55 to + 150 | $^{\circ}C$              |

Notes: 1. Mounted on  $5.0mm^2$  (0.013mm thick) land areas.

2. Measured on 8.3ms Single Half Sine-wave or Equivalent Square Wave,  
Duty Cycle=4 Pulses Per Minute Maximum.

## ELECTRICAL CHARACTERISTICS

(TA=25°C unless otherwise noted) VF=1.5V max, IF=200mA for all types.

| Device<br>(Note 1) | Device<br>Marking<br>Code | Nominal<br>Zener Voltage<br>Vz @ Izt<br>Voltage<br>(Notes 2) | Test<br>Current<br>IZT<br>mA | Zener Impedance |           |      | Leakage Current |       | Maximum<br>DC Zener<br>Current<br>IZM<br>mA (dc) |
|--------------------|---------------------------|--------------------------------------------------------------|------------------------------|-----------------|-----------|------|-----------------|-------|--------------------------------------------------|
|                    |                           |                                                              |                              | ZZT @ IZT       | ZZK @ IZK |      | IR @ VR         |       |                                                  |
|                    |                           |                                                              |                              | Ohms            | Ohms      | mA   | uA              | Volts |                                                  |
| 1SMA5926           | 926A                      | 11                                                           | 34.1                         | 5.5             | 550       | 0.25 | 0.5             | 8.4   | 136                                              |
| 1SMA5927           | 927A                      | 12                                                           | 31.2                         | 6.5             | 550       | 0.25 | 0.5             | 9.1   | 125                                              |
| 1SMA5928           | 928A                      | 13                                                           | 28.8                         | 7.0             | 550       | 0.25 | 0.5             | 9.9   | 115                                              |
| 1SMA5929           | 929A                      | 15                                                           | 25.0                         | 9.0             | 600       | 0.25 | 0.5             | 11.4  | 100                                              |
| 1SMA5930           | 930A                      | 16                                                           | 23.4                         | 10.0            | 600       | 0.25 | 0.5             | 12.2  | 94                                               |
| 1SMA5931           | 931A                      | 18                                                           | 20.8                         | 12              | 650       | 0.25 | 0.5             | 13.7  | 83                                               |
| 1SMA5932           | 932A                      | 20                                                           | 18.7                         | 14              | 650       | 0.25 | 0.5             | 15.2  | 75                                               |
| 1SMA5933           | 933A                      | 22                                                           | 17.0                         | 17.5            | 650       | 0.25 | 0.5             | 16.7  | 68                                               |
| 1SMA5934           | 934A                      | 24                                                           | 15.6                         | 19              | 700       | 0.25 | 0.5             | 18.2  | 63                                               |
| 1SMA5935           | 935A                      | 27                                                           | 13.9                         | 23              | 700       | 0.25 | 0.5             | 20.6  | 56                                               |
| 1SMA5936           | 936A                      | 30                                                           | 12.5                         | 26              | 750       | 0.25 | 0.5             | 22.8  | 50                                               |
| 1SMA5937           | 937A                      | 33                                                           | 11.4                         | 33              | 800       | 0.25 | 0.5             | 25.1  | 45                                               |
| 1SMA5938           | 938A                      | 36                                                           | 10.4                         | 38              | 850       | 0.25 | 0.5             | 27.4  | 42                                               |
| 1SMA5939           | 939A                      | 39                                                           | 9.6                          | 45              | 900       | 0.25 | 0.5             | 29.7  | 38                                               |
| 1SMA5940           | 940A                      | 43                                                           | 8.7                          | 53              | 950       | 0.25 | 0.5             | 32.7  | 35                                               |
| 1SMA5941           | 941A                      | 47                                                           | 8.0                          | 67              | 1000      | 0.25 | 0.5             | 35.8  | 32                                               |
| 1SMA5942           | 942A                      | 51                                                           | 7.3                          | 70              | 1100      | 0.25 | 0.5             | 38.8  | 29                                               |
| 1SMA5943           | 943A                      | 56                                                           | 6.7                          | 86              | 1300      | 0.25 | 0.5             | 42.6  | 27                                               |
| 1SMA5944           | 944A                      | 62                                                           | 6.0                          | 100             | 1500      | 0.25 | 0.5             | 47.1  | 24                                               |
| 1SMA5945           | 945A                      | 68                                                           | 5.5                          | 120.0           | 1700      | 0.25 | 0.5             | 51.7  | 22                                               |

Notes: 1: Tolerance and Voltage Regulation Designation - the type number listed indicates a tolerance of  $\pm 5\%$ .

2: VZ limits are to be guaranteed at thermal equilibrium.

## RATINGS AND CHARACTERISTIC CURVES ( 1SMA5926 THRU 1SMA5945)

FIG.1- STEADY STATE POWER DERATING

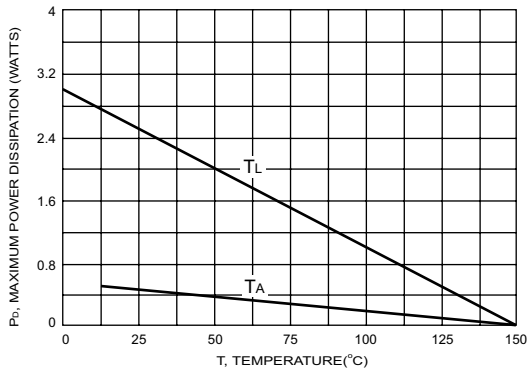


FIG.2-  $V_Z = 12$  THRU 68 VOLTS

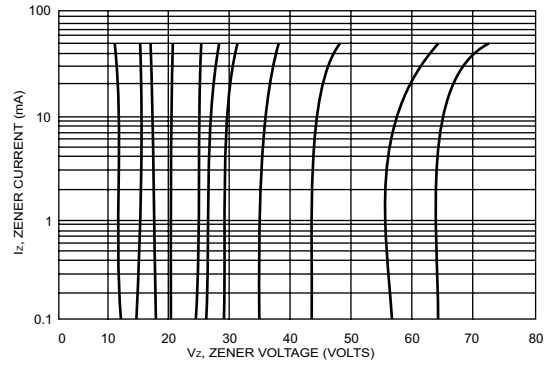


FIG.3- ZENER VOLTAGE - 14 TO 68 VOLTS

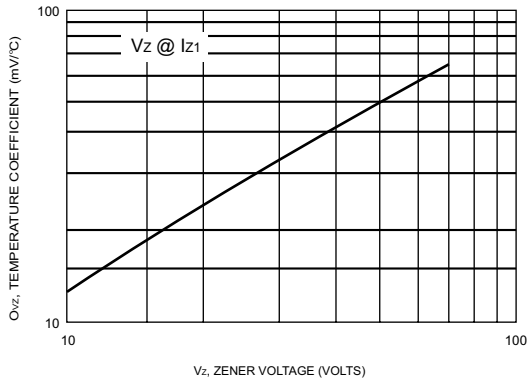
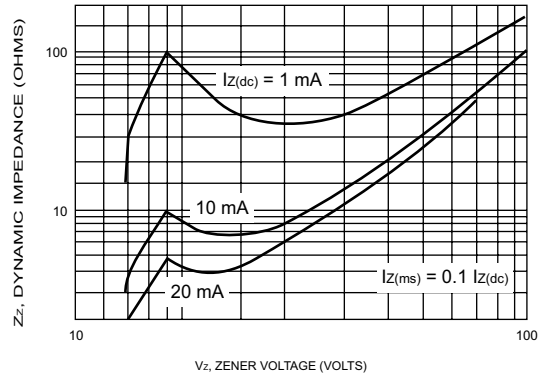


FIG.4- EFFECT OF ZENER VOLTAGE



# RATINGS AND CHARACTERISTIC CURVES ( 1SMA5926 THRU 1SMA5945)

FIG.5- CAPACITANCE CURVE

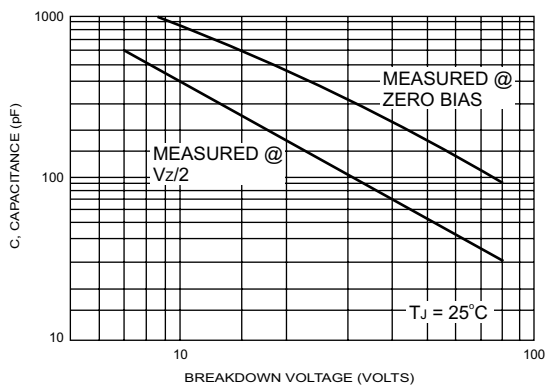


FIG.6- TYPICAL PULSE RATING CURVE

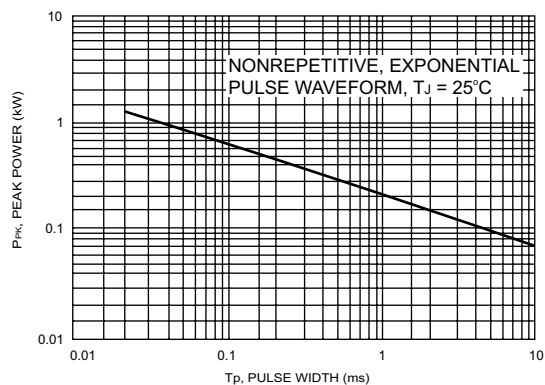


FIG.7- PULSE WAVEFORM

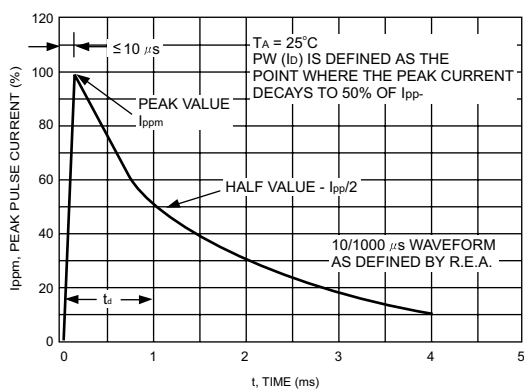


FIG.8- PULSE WAVEFORM

