



# 1SMA5926 - 1SMA5956

## 1.5 Watts Surface Mount Silicon Zener Diodes

### SMA/DO-214AC

### Features

- ✧ UL Recognized File # E-326243
- ✧ For surface mounted applications in order to optimize board space
- ✧ Low profile package
- ✧ Built-in strain relief
- ✧ Glass passivated junction
- ✧ Low inductance
- ✧ Typical IR less than 0.5uA above 11V
- ✧ High temperature soldering guaranteed: 260°C / 10 seconds at terminals
- ✧ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode

### Mechanical Data

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

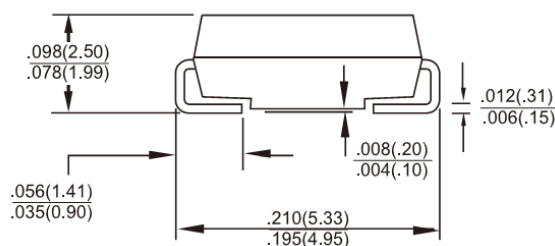
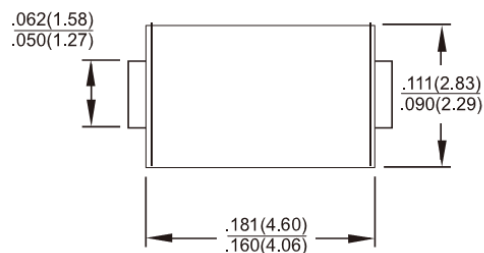
### Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

| Type Number                                                                                               | Symbol         | Value       | Unit           |
|-----------------------------------------------------------------------------------------------------------|----------------|-------------|----------------|
| DC Power Dissipation at TL=75°C, measure at Zero Lead Length (Note 1) Derate above 75°C                   | $P_D$          | 1.5<br>20   | Watts<br>mW/°C |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)(Note 2) | $I_{FSM}$      | 10          | Amps           |
| Operating and Storage Temperature Range                                                                   | $T_J, T_{STG}$ | -55 to +150 | °C             |

Note 1: Mounted on Cu-Pad size 5mm x 5mm x 1.6mm on PCB

Note 2: Measure on 8.3ms Single half Sine-Wave of equivalent square wave, duty cycle= 4 pulse per minute maximum



### Dimensions in inches and (millimeters)

#### Marking Diagram



- 9XXA = Specific Device Code
- G = Green Compound
- Y = Year
- WW = Work Week

# ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

| Device<br>(Note 1) | Device<br>Marking<br>Code | Nominal Zener Voltage |                   |        | Test<br>Current | Zener Impedance                  |                                  |      | Leakage Current |       | Maximum DC<br>Zener Current |
|--------------------|---------------------------|-----------------------|-------------------|--------|-----------------|----------------------------------|----------------------------------|------|-----------------|-------|-----------------------------|
|                    |                           | Vz@Iz                 |                   |        | I <sub>ZT</sub> | Z <sub>ZT</sub> @I <sub>ZT</sub> | Z <sub>ZK</sub> @I <sub>ZK</sub> |      | IR@VR           |       | I <sub>ZM</sub>             |
|                    |                           | V                     |                   |        | mA              | Ω                                | Ω                                | mA   | μA              | V     | mA(DC)                      |
|                    |                           | Min.                  | Nom.<br>(Notes 2) | Max.   |                 |                                  |                                  |      |                 |       |                             |
| 1SMA5926           | 926A                      | 10.45                 | 11                | 11.55  | 34.1            | 5.5                              | 550                              | 0.25 | 0.5             | 8.4   | 136                         |
| 1SMA5927           | 927A                      | 11.40                 | 12                | 12.60  | 31.2            | 6.5                              | 550                              | 0.25 | 0.5             | 9.1   | 125                         |
| 1SMA5928           | 928A                      | 12.35                 | 13                | 13.65  | 28.8            | 7.0                              | 550                              | 0.25 | 0.5             | 9.9   | 115                         |
| 1SMA5929           | 929A                      | 14.25                 | 15                | 15.75  | 25.0            | 9.0                              | 600                              | 0.25 | 0.5             | 11.4  | 100                         |
| 1SMA5930           | 930A                      | 15.20                 | 16                | 16.80  | 23.4            | 10.0                             | 600                              | 0.25 | 0.5             | 12.2  | 94                          |
| 1SMA5931           | 931A                      | 17.10                 | 18                | 18.90  | 20.8            | 12.0                             | 650                              | 0.25 | 0.5             | 13.7  | 83                          |
| 1SMA5932           | 932A                      | 19.00                 | 20                | 21.00  | 18.7            | 14.0                             | 650                              | 0.25 | 0.5             | 15.2  | 75                          |
| 1SMA5933           | 933A                      | 20.90                 | 22                | 23.10  | 17.0            | 17.5                             | 650                              | 0.25 | 0.5             | 16.7  | 68                          |
| 1SMA5934           | 934A                      | 22.80                 | 24                | 25.20  | 15.6            | 19.0                             | 700                              | 0.25 | 0.5             | 18.2  | 63                          |
| 1SMA5935           | 935A                      | 25.65                 | 27                | 28.35  | 13.9            | 23.0                             | 700                              | 0.25 | 0.5             | 20.6  | 56                          |
| 1SMA5936           | 936A                      | 28.50                 | 30                | 31.50  | 12.5            | 26.0                             | 750                              | 0.25 | 0.5             | 22.8  | 50                          |
| 1SMA5937           | 937A                      | 31.35                 | 33                | 34.65  | 11.4            | 33.0                             | 800                              | 0.25 | 0.5             | 25.1  | 45                          |
| 1SMA5938           | 938A                      | 34.20                 | 36                | 37.80  | 10.4            | 38.0                             | 850                              | 0.25 | 0.5             | 27.4  | 42                          |
| 1SMA5939           | 939A                      | 37.05                 | 39                | 40.95  | 9.6             | 45.0                             | 900                              | 0.25 | 0.5             | 29.7  | 38                          |
| 1SMA5940           | 940A                      | 40.85                 | 43                | 45.15  | 8.7             | 53.0                             | 950                              | 0.25 | 0.5             | 32.7  | 35                          |
| 1SMA5941           | 941A                      | 44.65                 | 47                | 49.35  | 8.0             | 67.0                             | 1000                             | 0.25 | 0.5             | 35.8  | 32                          |
| 1SMA5942           | 942A                      | 48.45                 | 51                | 53.55  | 7.3             | 70.0                             | 1100                             | 0.25 | 0.5             | 38.8  | 29                          |
| 1SMA5943           | 943A                      | 53.20                 | 56                | 58.80  | 6.7             | 86.0                             | 1300                             | 0.25 | 0.5             | 42.6  | 27                          |
| 1SMA5944           | 944A                      | 58.90                 | 62                | 65.10  | 6.0             | 100.0                            | 1500                             | 0.25 | 0.5             | 47.1  | 24                          |
| 1SMA5945           | 945A                      | 64.60                 | 68                | 71.40  | 5.5             | 120.0                            | 1700                             | 0.25 | 0.5             | 51.7  | 22                          |
| 1SMA5946           | 946A                      | 71.25                 | 75                | 78.75  | 5.0             | 140.0                            | 2000                             | 0.25 | 0.5             | 56.0  | 20                          |
| 1SMA5947           | 947A                      | 77.90                 | 82                | 86.10  | 4.6             | 160.0                            | 2500                             | 0.25 | 0.5             | 62.2  | 18                          |
| 1SMA5948           | 948A                      | 86.45                 | 91                | 95.55  | 4.1             | 200.0                            | 3000                             | 0.25 | 0.5             | 69.2  | 16                          |
| 1SMA5949           | 949A                      | 95.00                 | 100               | 105.00 | 3.7             | 250.0                            | 3100                             | 0.25 | 0.5             | 76.0  | 15                          |
| 1SMA5950           | 950A                      | 104.50                | 110               | 115.50 | 3.4             | 300.0                            | 4000                             | 0.25 | 0.5             | 83.6  | 13                          |
| 1SMA5951           | 951A                      | 114.00                | 120               | 126.00 | 3.1             | 360.0                            | 4500                             | 0.25 | 0.5             | 91.2  | 12                          |
| 1SMA5952           | 952A                      | 123.50                | 130               | 136.50 | 2.9             | 450.0                            | 5000                             | 0.25 | 0.5             | 98.8  | 11                          |
| 1SMA5953           | 953A                      | 142.50                | 150               | 157.50 | 2.5             | 600.0                            | 6000                             | 0.25 | 0.5             | 114.0 | 10                          |
| 1SMA5954           | 954A                      | 152.00                | 160               | 168.00 | 2.3             | 700.0                            | 6500                             | 0.25 | 0.5             | 121.6 | 9                           |
| 1SMA5955           | 955A                      | 171.00                | 180               | 189.00 | 2.1             | 900.0                            | 7000                             | 0.25 | 0.5             | 136.8 | 8                           |
| 1SMA5956           | 956A                      | 190.00                | 200               | 210.00 | 1.9             | 1200.0                           | 8000                             | 0.25 | 0.5             | 152.0 | 7                           |

## Notes:

1. Tolerance and Voltage Regulation Designation. The type number listed indicates a tolerance of ±5%
2. Vz limits are to be guaranteed at thermal equilibrium

## RATINGS AND CHARACTERISTIC CURVES (1SMA5926 THRU 1SMA5956)

FIG. 1 STEADY STATE POWER DERATING

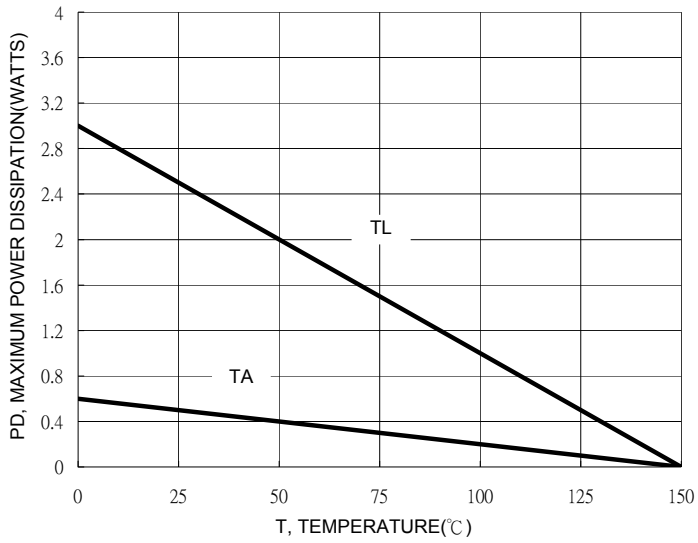


FIG. 2  $V_z = 12$  THRU 68 VOLTS

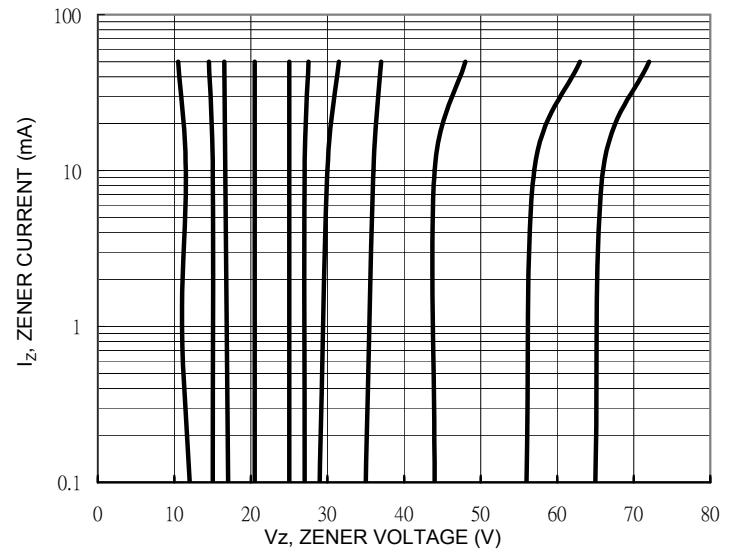


FIG.3 ZENER VOLTAGE 12 TO 68 VOLTS

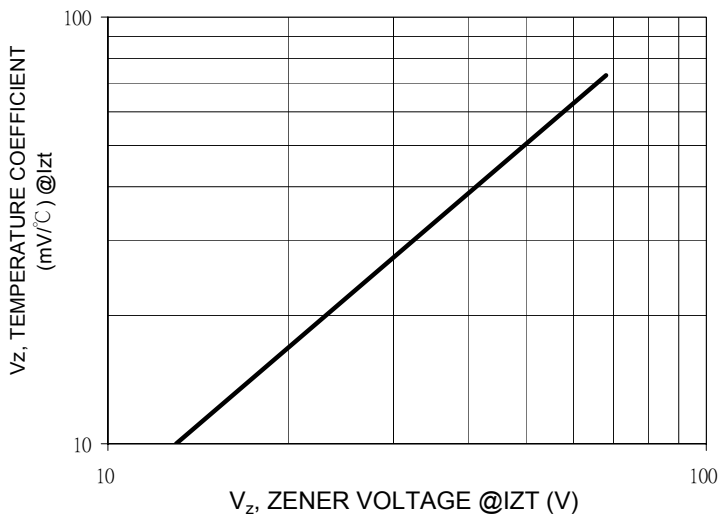
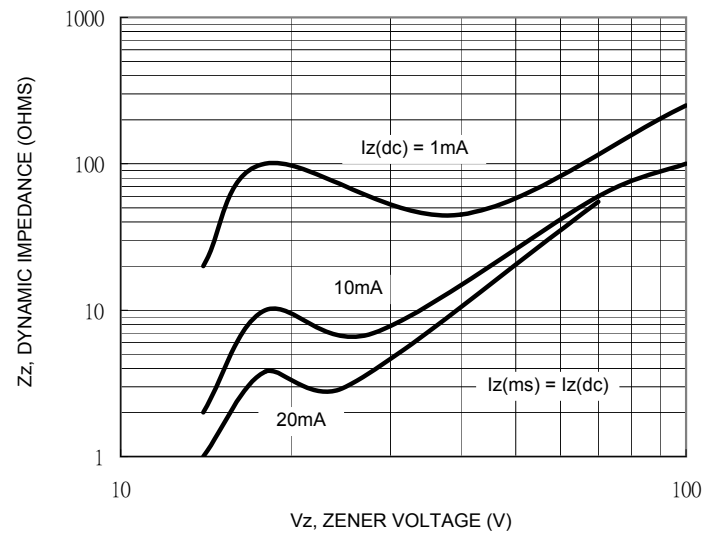


FIG. 4 EFFECT OF ZENER VOLTAGE



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FIG.5 CAPACITANCE CURVE

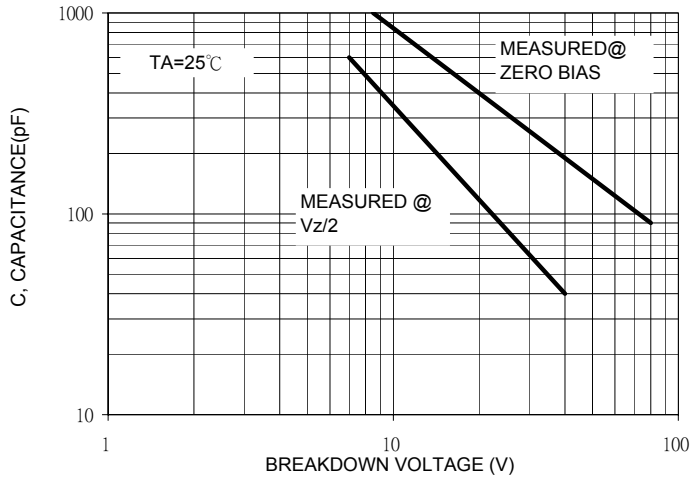


FIG. 6 TYPICAL PULSE RATING CURVE

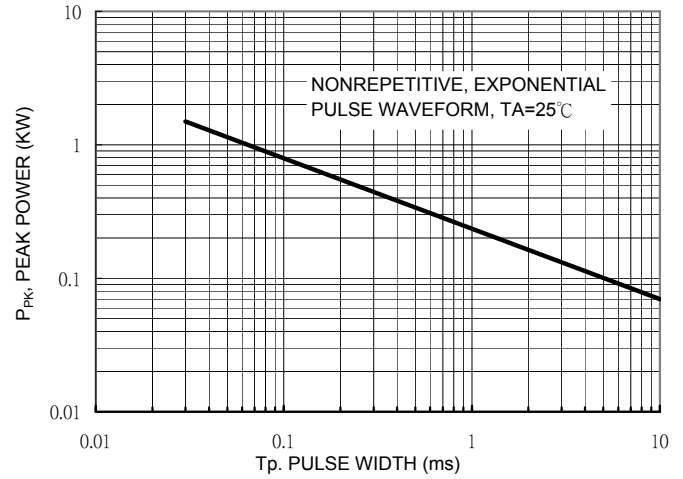


FIG. 7 PULSE WAVEFORM

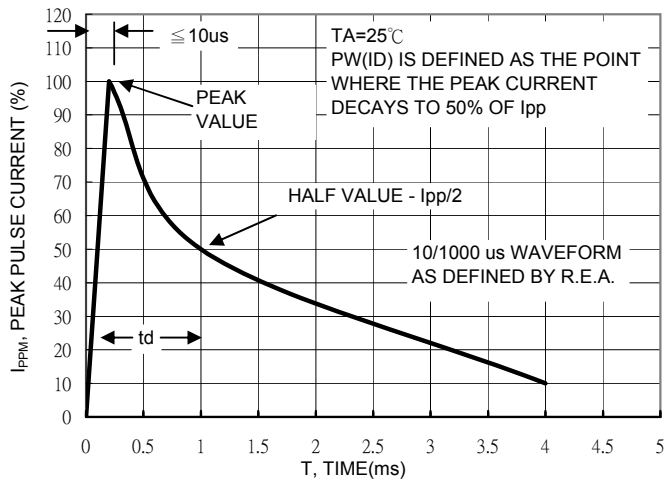


FIG. 8 PULSE WAVEFORM

