

# 1SMB5926 THRU 1SMB5956

## SURFACE MOUNT SILICON ZENER DIODE

VOLTAGE - 11 TO 200 Volts      Power - 1.5 Watts

### 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 1  $\mu$ A above 11V
- High temperature soldering :  
260  $^{\circ}$ C/10 seconds at terminals
- Plastic package has Underwriters Laboratory  
Flammability Classification 94V-O

### MECHANICAL DATA

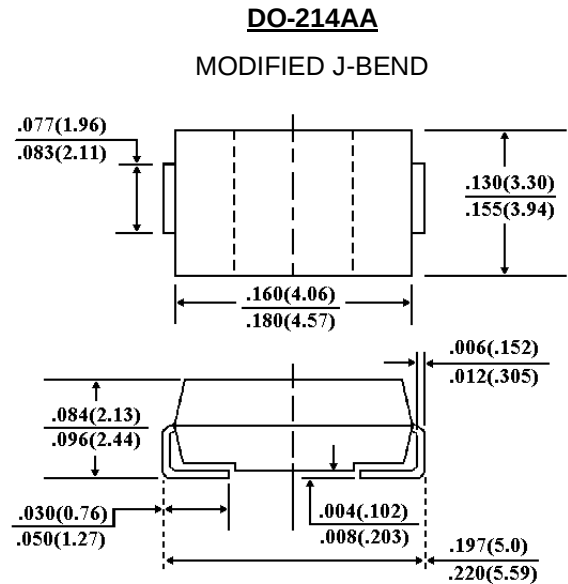
Case: JEDEC DO-214AA Molded plastic over passivated junction

Terminals: Solder plated, solderable per MIL-STD-750, method 2026

Polarity: Color band denotes positive end (cathode)

Standard Packaging: 12mm tape (EIA-481)

Weight: 0.003 ounce, 0.093 gram



Dimensions in inches and (millimeters)

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25  $^{\circ}$ C ambient temperature unless otherwise specified.

|                                                                                                                               | SYMBOL         | VALUE       | UNITS                     |
|-------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|---------------------------|
| DC Power Dissipation @ $T_L=75^{\circ}\text{C}$ , Measure at Zero Lead Length(Note 1, Fig. 1)<br>Derate above 75 $^{\circ}$ C | $P_D$          | 1.5<br>15   | Watts<br>mW/ $^{\circ}$ C |
| Peak forward Surge Current 8.3ms single half sine-wave superimposed on rated load(JEDEC Method) (Note 1,2)                    | $I_{FSM}$      | 10          | Amps                      |
| Operating Junction and Storage Temperature Range                                                                              | $T_J, T_{STG}$ | -55 to +150 | $^{\circ}$ C              |

#### NOTES:

1. Mounted on 5.0mm<sup>2</sup>(.013mm thick) land areas.
2. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.
3. ZENER VOLTAGE ( $V_Z$ ) MEASUREMENT Nominal zener voltage is measured with the device function in thermal equilibrium with ambient temperature at 25  $^{\circ}$ C.
4. ZENER IMPEDANCE ( $Z_Z$ ) DERIVATION  $Z_{ZT}$  and  $Z_{ZK}$  are measured by dividing the ac voltage drop across the device by the current applied. The specified limits are for  $I_{Z(ac)} = 0.1 I_Z$ , (dc) with the ac frequency = 60Hz.

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ELECTRICAL CHARACTERISTICS ( $T_L=30\text{ }^{\circ}\text{C}$  unless otherwise noted) ( $V_F=1.5\text{Volts Max @ } I_F=200\text{mA dc}$  for all types.)

| Device   | Nominal Zener Voltage $V_Z$ @ $I_{ZT}$ volts (Note 1.) | Test current $I_{ZT}$ mA | Maximum Zener Impedance (Note 2.) |                          |             | Max reverse Leakage Current |             | Maximum DC Zener Current $I_{ZM}$ mA dc | Device Marking Code |
|----------|--------------------------------------------------------|--------------------------|-----------------------------------|--------------------------|-------------|-----------------------------|-------------|-----------------------------------------|---------------------|
|          |                                                        |                          | $Z_{ZT}$ @ $I_{ZT}$ Ohms          | $Z_{ZK}$ @ $I_{ZK}$ Ohms | $I_{ZK}$ mA | $I_R$ $\mu\text{A}$         | $V_R$ Volts |                                         |                     |
| 1SMB5926 | 11                                                     | 34.1                     | 5.5                               | 550                      | 0.25        | 1                           | 8.4         | 136                                     | 926B                |
| 1SMB5927 | 12                                                     | 31.2                     | 6.5                               | 550                      | 0.25        | 1                           | 9.1         | 125                                     | 927B                |
| 1SMB5928 | 13                                                     | 28.8                     | 7                                 | 550                      | 0.25        | 1                           | 9.9         | 115                                     | 928B                |
| 1SMB5929 | 15                                                     | 25                       | 9                                 | 600                      | 0.25        | 1                           | 11.4        | 100                                     | 929B                |
| 1SMB5930 | 16                                                     | 23.4                     | 10                                | 600                      | 0.25        | 1                           | 12.2        | 93                                      | 930B                |
| 1SMB5931 | 18                                                     | 20.8                     | 12                                | 650                      | 0.25        | 1                           | 13.7        | 83                                      | 931B                |
| 1SMB5932 | 20                                                     | 18.7                     | 14                                | 650                      | 0.25        | 1                           | 15.2        | 75                                      | 932B                |
| 1SMB5933 | 22                                                     | 17                       | 17.5                              | 650                      | 0.25        | 1                           | 16.7        | 68                                      | 933B                |
| 1SMB5934 | 24                                                     | 15.6                     | 19                                | 700                      | 0.25        | 1                           | 18.2        | 62                                      | 934B                |
| 1SMB5935 | 27                                                     | 13.9                     | 23                                | 700                      | 0.25        | 1                           | 20.6        | 55                                      | 935B                |
| 1SMB5936 | 30                                                     | 12.5                     | 26                                | 750                      | 0.25        | 1                           | 22.8        | 50                                      | 936B                |
| 1SMB5937 | 33                                                     | 11.4                     | 33                                | 800                      | 0.25        | 1                           | 25.1        | 45                                      | 937B                |
| 1SMB5938 | 36                                                     | 10.4                     | 38                                | 850                      | 0.25        | 1                           | 27.4        | 41                                      | 938B                |
| 1SMB5939 | 39                                                     | 9.6                      | 45                                | 900                      | 0.25        | 1                           | 29.7        | 38                                      | 939B                |
| 1SMB5940 | 43                                                     | 8.7                      | 53                                | 950                      | 0.25        | 1                           | 32.7        | 34                                      | 940B                |
| 1SMB5941 | 47                                                     | 8                        | 67                                | 1000                     | 0.25        | 1                           | 35.8        | 31                                      | 941B                |
| 1SMB5942 | 51                                                     | 7.3                      | 70                                | 1100                     | 0.25        | 1                           | 38.8        | 29                                      | 942B                |
| 1SMB5943 | 56                                                     | 6.7                      | 86                                | 1300                     | 0.25        | 1                           | 42.6        | 26                                      | 943B                |
| 1SMB5944 | 62                                                     | 6                        | 100                               | 1500                     | 0.25        | 1                           | 47.1        | 24                                      | 944B                |
| 1SMB5945 | 68                                                     | 5.5                      | 120                               | 1700                     | 0.25        | 1                           | 51.7        | 22                                      | 945B                |
| 1SMB5946 | 75                                                     | 5                        | 140                               | 2000                     | 0.25        | 1                           | 56          | 20                                      | 946B                |
| 1SMB5947 | 82                                                     | 4.6                      | 160                               | 2500                     | 0.25        | 1                           | 62.2        | 18                                      | 947B                |
| 1SMB5948 | 91                                                     | 4.1                      | 200                               | 3000                     | 0.25        | 1                           | 69.2        | 16                                      | 948B                |
| 1SMB5949 | 100                                                    | 3.7                      | 250                               | 3100                     | 0.25        | 1                           | 76          | 15                                      | 949B                |
| 1SMB5950 | 110                                                    | 3.4                      | 300                               | 4000                     | 0.25        | 1                           | 83.6        | 13                                      | 950B                |
| 1SMB5951 | 120                                                    | 3.1                      | 380                               | 4500                     | 0.25        | 1                           | 91.2        | 12                                      | 951B                |
| 1SMB5952 | 130                                                    | 2.9                      | 450                               | 5000                     | 0.25        | 1                           | 98.8        | 11                                      | 952B                |
| 1SMB5953 | 150                                                    | 2.5                      | 600                               | 6000                     | 0.25        | 1                           | 114         | 10                                      | 953B                |
| 1SMB5954 | 160                                                    | 2.3                      | 700                               | 6500                     | 0.25        | 1                           | 121.6       | 9                                       | 954B                |
| 1SMB5955 | 180                                                    | 2.1                      | 900                               | 7000                     | 0.25        | 1                           | 136.8       | 8                                       | 955B                |
| 1SMB5956 | 200                                                    | 1.9                      | 1200                              | 8000                     | 0.25        | 1                           | 152         | 7                                       | 956B                |

\* TOLERANCE AND VOLTAGE DESIGNATION Tolerance designation - The type numbers listed indicate a tolerance of  $\pm 5\%$

## RATING AND CHARACTERISTICS CURVES

### 1N5926B THRU 1N5956B

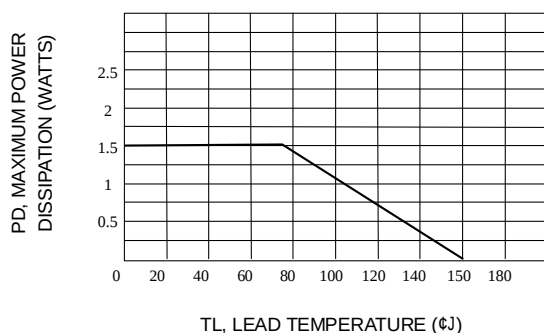


Fig. 1-STEADY STATE POWER DERATING

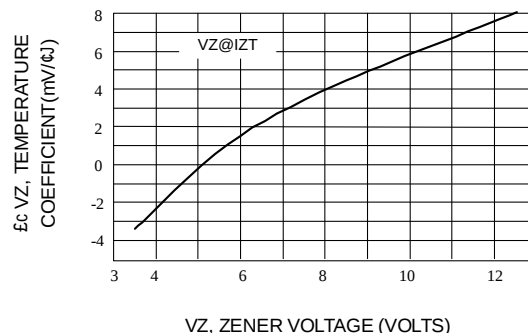


Fig. 2-ZENER VOLTAGE-TO 12 VOLTS

RATING AND CHARACTERISTICS CURVES  
1N5926B THRU 1N5956B

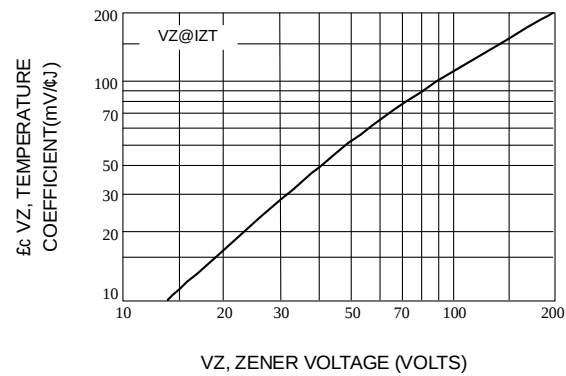


Fig. 3-ZENER VOLTAGE-10 TO 200 VOLTS

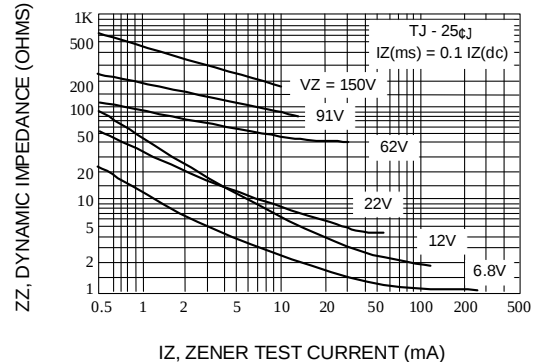


Fig. 4-EFFECT OF ZENER CURRENT

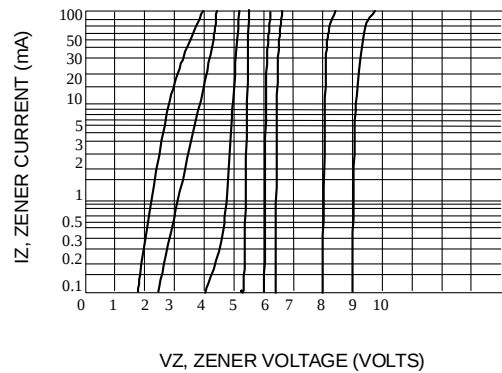
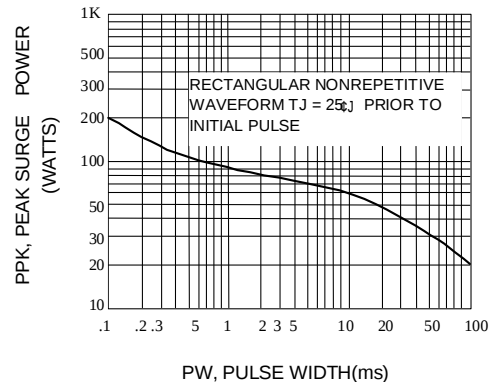
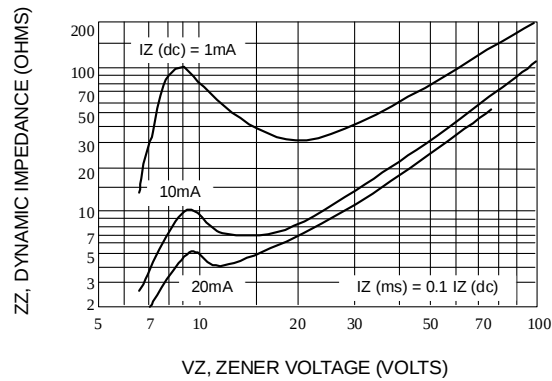


Fig. 7-VZ = 6.8 THRU 10 VOLTS

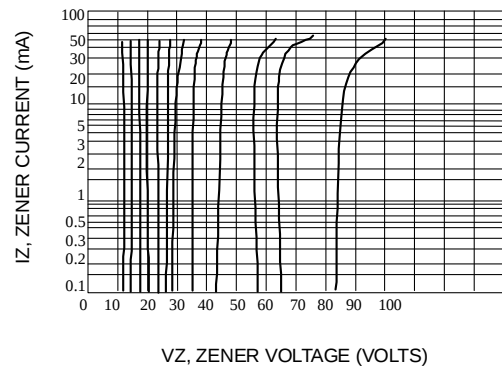


Fig. 8-VZ = 12 THRU 82 VOLTS