



1SMB5914~1SMB5949

SURFACE MOUNT SILICON ZENER DIODE

VOLTAGE 3.6 to 100 Volts **POWER** 1.5 Watts

SMB/DO-214AA Unit: inch (mm)

FEATURES

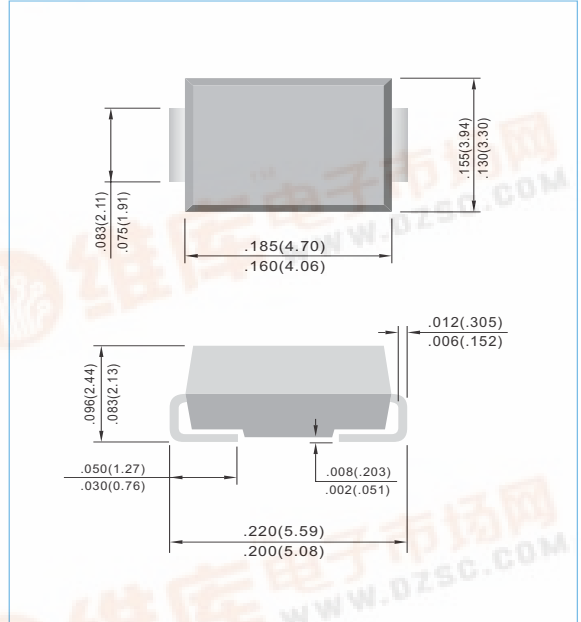
- For surface mounted applications in order to optimize board space.
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Typical I_R less than 1.0 μ A above 12V
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- High temperature soldering : 260°C /10 seconds at terminals
- Pb free product are available : 99% Sn above can meet RoHS environment substance request

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



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | Value | Units |
|--|----------------|-------------|------------------|
| DC Power Dissipation on $T_L=75^\circ\text{C}$, Measure at Zero Lead Length Derate above 75°C (NOTE 1) | P_D | 1.5 | Watts |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

NOTES:

1. Mounted on 5.0mm² (.013mm thick) land areas.



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| Part Number | Vz @ IzT | | | Maximum Zener Impedance | | | | Leakage Current | | Marking Code |
|-------------|----------|--------|--------|-------------------------|-------|-----------|------|-----------------|-------|--------------|
| | Nom. V | Min. V | Max. V | ZzT @ IzT | | Zzk @ Izk | | IR | VR | |
| | | | | Ω | mA | Ω | mA | μA | V | |
| 1SMB5914 | 3.6 | 3.42 | 3.78 | 9 | 104.2 | 500 | 1.00 | 75.00 | 1.00 | 914B |
| 1SMB5915 | 3.9 | 3.71 | 4.10 | 8 | 96.1 | 500 | 1.00 | 25.00 | 1.00 | 915B |
| 1SMB5916 | 4.3 | 4.09 | 4.52 | 6 | 87.2 | 500 | 1.00 | 5.00 | 1.00 | 916B |
| 1SMB5917 | 4.7 | 4.47 | 4.94 | 5 | 79.8 | 500 | 1.00 | 5.00 | 1.50 | 917B |
| 1SMB5918 | 5.1 | 4.85 | 5.36 | 4 | 73.5 | 350 | 1.00 | 5.00 | 2.0 | 918B |
| 1SMB5919 | 5.6 | 5.32 | 5.88 | 2 | 66.9 | 250 | 1.00 | 5.00 | 3.00 | 919B |
| 1SMB5920 | 6.2 | 5.89 | 6.51 | 2 | 60.5 | 200 | 1.00 | 5.00 | 4.00 | 920B |
| 1SMB5921 | 6.8 | 6.46 | 7.14 | 3 | 55.1 | 200 | 1.00 | 5.00 | 5.20 | 921B |
| 1SMB5922 | 7.5 | 7.13 | 7.88 | 3 | 50.0 | 400 | 0.50 | 5.00 | 6.00 | 922B |
| 1SMB5923 | 8.2 | 7.79 | 8.61 | 4 | 45.7 | 400 | 0.50 | 5.00 | 6.50 | 923B |
| 1SMB5924 | 9.1 | 8.65 | 9.56 | 4 | 41.2 | 500 | 0.50 | 5.00 | 7.00 | 924B |
| 1SMB5925 | 10 | 9.50 | 10.50 | 5 | 37.5 | 500 | 0.25 | 5.00 | 8.00 | 925B |
| 1SMB5926 | 11 | 10.45 | 11.55 | 6 | 34.1 | 550 | 0.25 | 1.00 | 8.40 | 926B |
| 1SMB5927 | 12 | 11.40 | 12.60 | 7 | 31.2 | 550 | 0.25 | 1.00 | 9.10 | 927B |
| 1SMB5928 | 13 | 12.35 | 13.65 | 7 | 28.8 | 550 | 0.25 | 1.00 | 9.90 | 928B |
| 1SMB5929 | 15 | 14.25 | 15.75 | 9 | 25.0 | 600 | 0.25 | 1.00 | 11.40 | 929B |
| 1SMB5930 | 16 | 15.20 | 16.80 | 10 | 23.4 | 600 | 0.25 | 1.00 | 12.20 | 930B |
| 1SMB5931 | 18 | 17.10 | 18.90 | 12 | 20.8 | 650 | 0.25 | 1.00 | 13.70 | 931B |
| 1SMB5932 | 20 | 19.00 | 21.00 | 14 | 18.7 | 650 | 0.25 | 1.00 | 15.20 | 932B |
| 1SMB5933 | 22 | 20.90 | 23.10 | 18 | 17.0 | 650 | 0.25 | 1.00 | 16.70 | 933B |
| 1SMB5934 | 24 | 22.80 | 25.20 | 19 | 15.6 | 700 | 0.25 | 1.00 | 18.20 | 934B |
| 1SMB5935 | 27 | 25.65 | 28.35 | 23 | 13.9 | 700 | 0.25 | 1.00 | 20.60 | 935B |
| 1SMB5936 | 30 | 28.50 | 31.50 | 26 | 12.5 | 750 | 0.25 | 1.00 | 22.80 | 936B |
| 1SMB5937 | 33 | 31.35 | 34.65 | 33 | 11.4 | 800 | 0.25 | 1.00 | 25.10 | 937B |
| 1SMB5938 | 36 | 34.20 | 37.80 | 38 | 10.4 | 850 | 0.25 | 1.00 | 27.40 | 938B |
| 1SMB5939 | 39 | 37.05 | 40.95 | 45 | 9.6 | 900 | 0.25 | 1.00 | 29.70 | 939B |
| 1SMB5940 | 43 | 40.85 | 45.15 | 53 | 8.7 | 950 | 0.25 | 1.00 | 32.70 | 940B |
| 1SMB5941 | 47 | 44.65 | 49.35 | 67 | 8.0 | 1000 | 0.25 | 1.00 | 35.80 | 941B |
| 1SMB5942 | 51 | 48.45 | 53.55 | 70 | 7.3 | 1100 | 0.25 | 1.00 | 38.80 | 942B |
| 1SMB5943 | 56 | 53.20 | 58.80 | 86 | 6.7 | 1300 | 0.25 | 1.00 | 42.60 | 943B |
| 1SMB5944 | 62 | 58.90 | 65.10 | 100 | 6.0 | 1500 | 0.25 | 1.00 | 47.10 | 944B |
| 1SMB5945 | 68 | 64.60 | 71.40 | 120 | 5.5 | 1700 | 0.25 | 1.00 | 51.70 | 945B |
| 1SMB5946 | 75 | 71.25 | 78.75 | 140 | 5.0 | 2000 | 0.25 | 1.00 | 56.00 | 946B |
| 1SMB5947 | 82 | 77.90 | 86.10 | 160 | 4.6 | 2500 | 0.25 | 1.00 | 62.20 | 947B |
| 1SMB5948 | 91 | 86.45 | 95.55 | 200 | 4.1 | 3000 | 0.25 | 1.00 | 69.20 | 948B |
| 1SMB5949 | 100 | 95.00 | 105.00 | 250 | 3.7 | 3100 | 0.25 | 1.00 | 76.00 | 949B |



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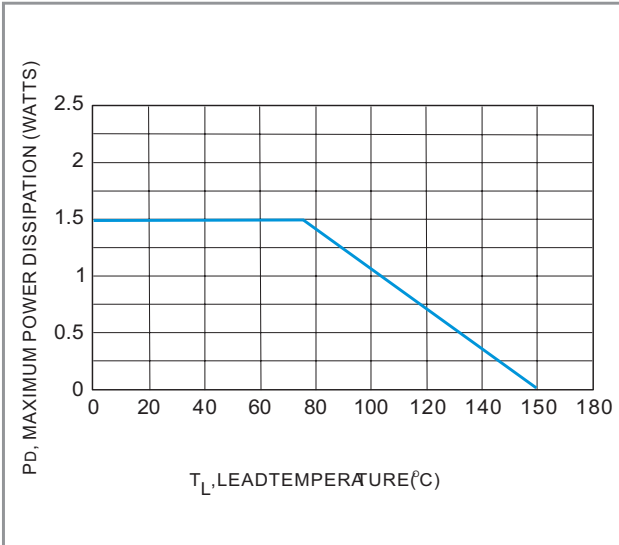


Fig. 1 Steady State Power Derating

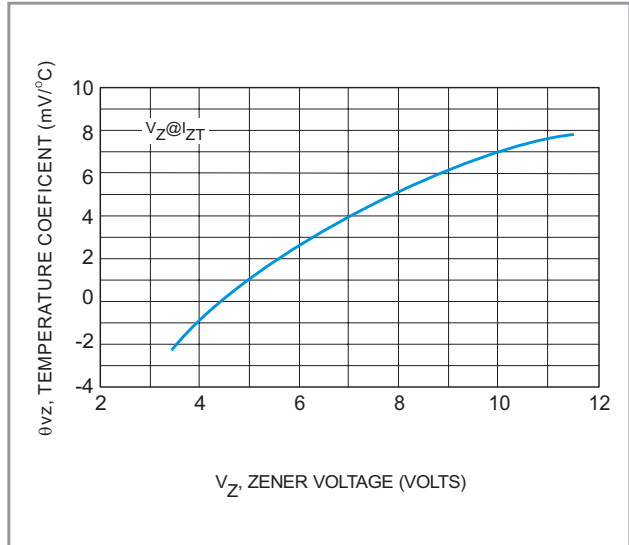


Fig. 2 Zener Voltage - to 12 volts

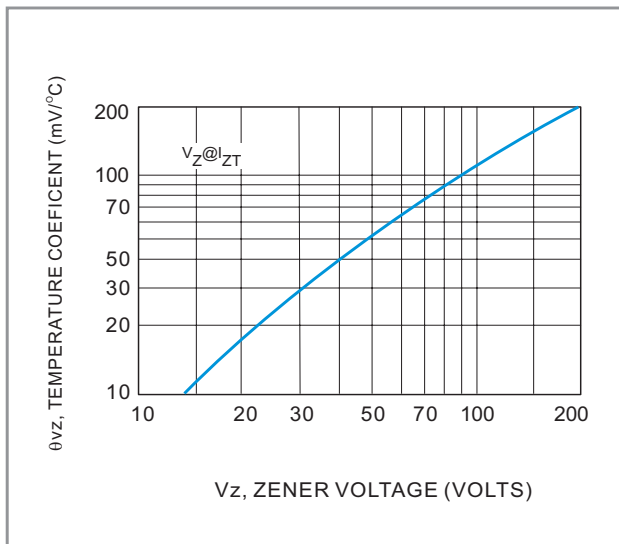


Fig. 3 Zener Voltage - 14 to 200 Volts

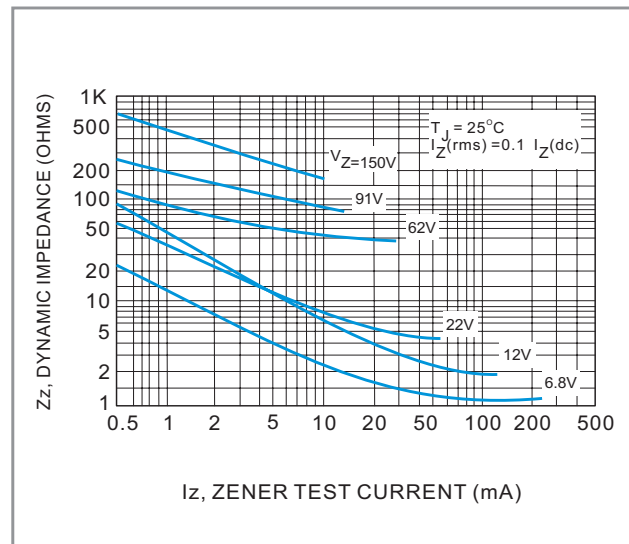


Fig. 4 Effect of Zener Current

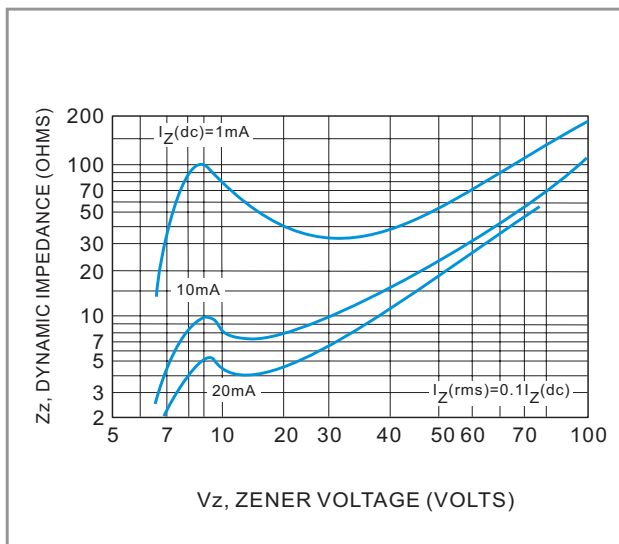


Fig. 5 Effect of Zener Voltage

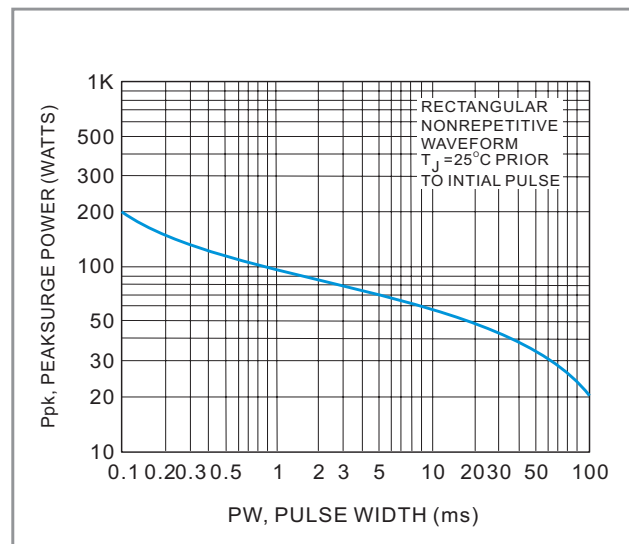
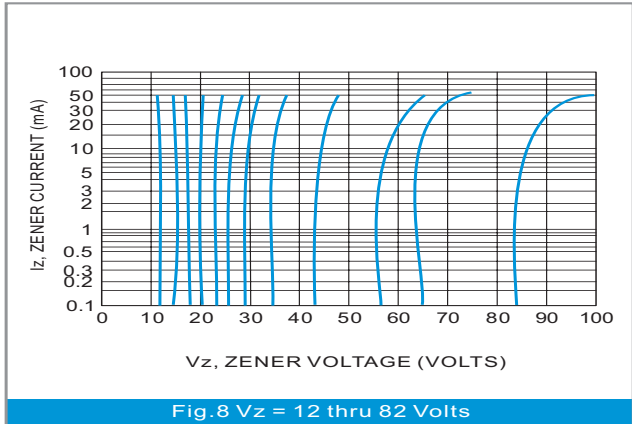
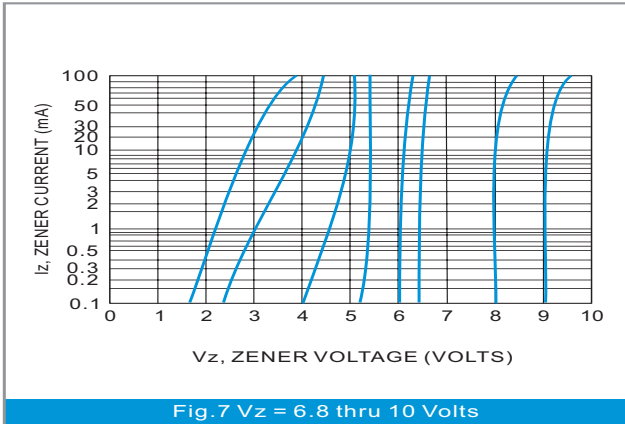


Fig. 6 Maximum Surge Power



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NOTE 3. ZENER VOLTAGE (V_z) MEASUREMENT

Nominal zener voltage is measured with the device function in thermal equilibrium with ambient temperature at 25°C

NOTE 4. ZENER IMPEDANCE (Z_z) DERIVATION

Z_{zt} and Z_{zk} are measured by dividing the ac voltage drop across the device by the ac current applied. The specified limits are for $I_z(ac) = 0.1 I_z, (dc)$ with the ac frequency = 60Hz