

SMAG Plastic-Encapsulate Diodes

SMA2Z SERIES Zener Diodes

Features

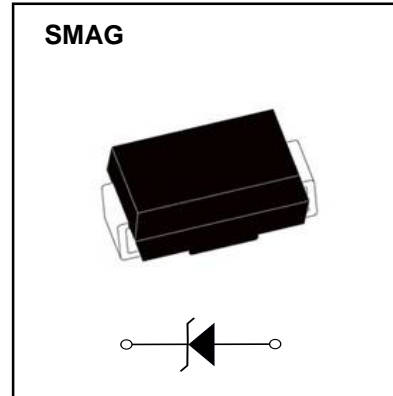
- P_{tot} 2W
- V_Z 3.3V- 200V
- The marking bar indicates the cathode

Applications

- Stabilizing Voltage

Marking

- SMA2ZXXA
XX : From 13 To 56



Limiting Values(Absolute Maximum Rating)

| Item | Symbol | Unit | Conditions | Max |
|--|----------------|------------------|------------------------|-------------|
| Power dissipation | P_d | W | $T_L=75^\circ\text{C}$ | 2 |
| Zener current | I_Z | mA | | P_V / V_Z |
| Operation Junction and Storage Temperature Range | T_J, T_{stg} | $^\circ\text{C}$ | | -55 ~ +150 |

Electrical Characteristics ($T_a=25^\circ\text{C}$ Unless otherwise specified)

| Item | Symbol | Unit | Conditions | Max |
|--------------------|-----------------|--------------------|-----------------------------|-----|
| Thermal resistance | $R_{\theta JA}$ | $^\circ\text{C/W}$ | Between junction to ambient | 75 |
| | $R_{\theta JL}$ | $^\circ\text{C/W}$ | Between junction to lead | 30 |
| Forward voltage | V_F | V | $I_F=200\text{mA}$ | 1.2 |

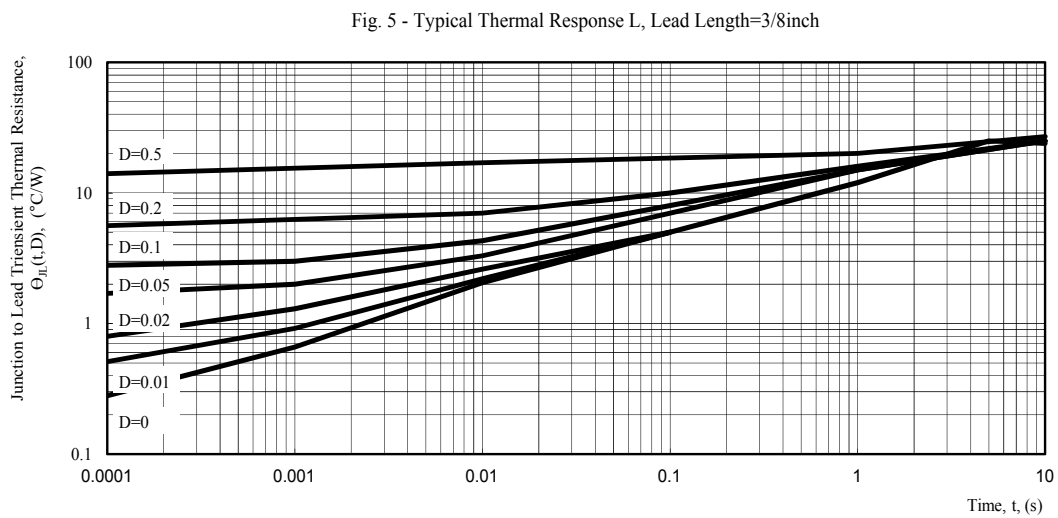
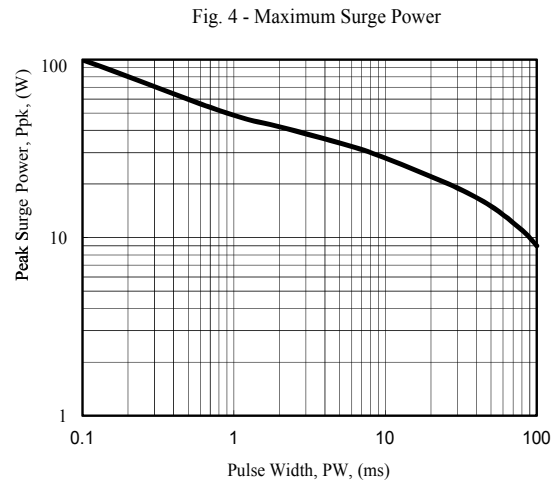
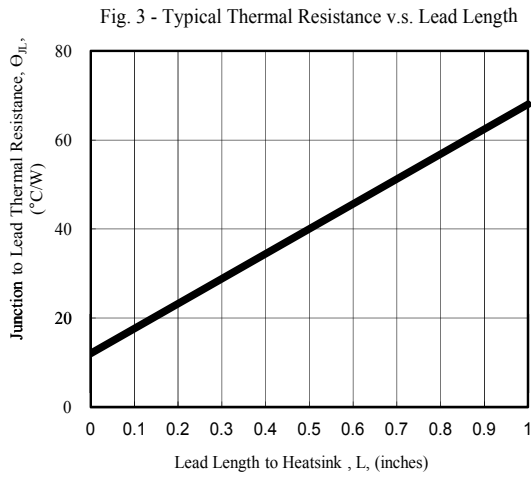
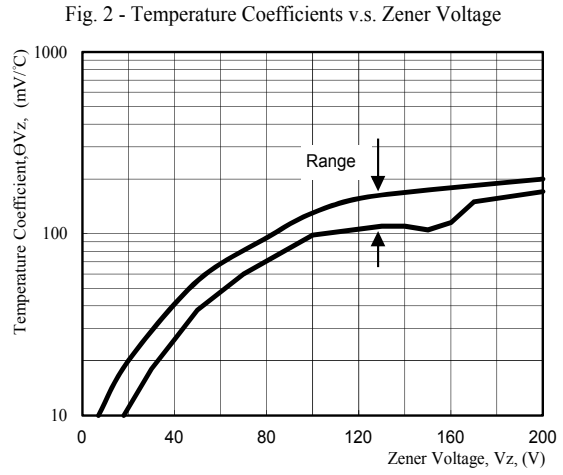
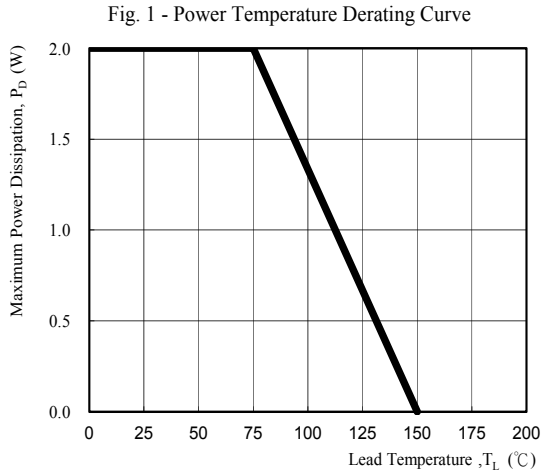
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

| Part Number | Nominal Zener Voltage @ I_T | | | I_{ZT} (mA) | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum DC Zener Current |
|-------------|-------------------------------|----------------|----------------|---------------|--------------------------------------|--------------------------------------|---------------|---------------------------------|-----------|--------------------------|
| | V_Z AVE. (V) | V_Z MIN. (V) | V_Z MAX. (V) | | z_{zt} max.(Ω) @ I_{zt} | z_{ZK} MAX.(Ω) @ I_{ZK} | I_{ZK} (mA) | I_r (μ A)@ V_R | V_R (V) | |
| SMA2Z3.3A | 3.3 | 3.14 | 3.47 | 145.0 | 8.0 | 400 | 1.00 | 100 | 1.0 | 548.0 |
| SMA2Z3.6A | 3.6 | 3.42 | 3.78 | 139.0 | 5.0 | 400 | 1.00 | 100 | 1.0 | 502.0 |
| SMA2Z3.9A | 3.9 | 3.71 | 4.10 | 128.0 | 5.0 | 400 | 1.00 | 50 | 1.0 | 464.0 |
| SMA2Z4.3A | 4.3 | 4.09 | 4.52 | 116.0 | 4.5 | 400 | 1.00 | 50 | 1.0 | 421.0 |
| SMA2Z4.7A | 4.7 | 4.47 | 4.94 | 106.0 | 4.5 | 550 | 1.00 | 10 | 1.0 | 385.0 |
| SMA2Z5.1A | 5.1 | 4.85 | 5.36 | 98.0 | 3.5 | 600 | 1.00 | 10 | 1.0 | 354.0 |
| SMA2Z5.6A | 5.6 | 5.32 | 5.88 | 89.5 | 2.5 | 500 | 1.00 | 10 | 2.0 | 323.0 |
| SMA2Z6.2A | 6.2 | 5.89 | 6.51 | 80.5 | 1.5 | 700 | 1.00 | 10 | 3.0 | 292.0 |
| SMA2Z6.8A | 6.8 | 6.46 | 7.14 | 73.5 | 2.0 | 700 | 1.00 | 10 | 4.0 | 266.0 |
| SMA2Z7.5A | 7.5 | 7.13 | 7.88 | 66.5 | 2.0 | 700 | 0.50 | 10 | 5.0 | 242.0 |
| SMA2Z8.2A | 8.2 | 7.79 | 8.61 | 61.0 | 2.3 | 700 | 0.50 | 10 | 6.0 | 220.0 |
| SMA2Z9.1A | 9.1 | 8.65 | 9.56 | 55.0 | 2.5 | 700 | 0.50 | 10 | 7.0 | 200.0 |
| SMA2Z10A | 10.0 | 9.50 | 10.50 | 50.0 | 3.5 | 700 | 0.25 | 10 | 7.6 | 182.0 |
| SMA2Z11A | 11.0 | 10.45 | 11.55 | 45.5 | 4.0 | 700 | 0.25 | 1.0 | 8.4 | 166.0 |
| SMA2Z12A | 12.0 | 11.40 | 12.60 | 41.5 | 4.5 | 700 | 0.25 | 1.0 | 9.1 | 152.0 |
| SMA2Z13A | 13.0 | 12.35 | 13.65 | 38.5 | 5.0 | 700 | 0.25 | 0.5 | 9.9 | 138.0 |
| SMA2Z14A | 14.0 | 13.30 | 14.70 | 35.7 | 5.5 | 700 | 0.25 | 0.5 | 10.6 | 130.0 |
| SMA2Z15A | 15.0 | 14.25 | 15.75 | 33.4 | 7.0 | 700 | 0.25 | 0.5 | 11.4 | 122.0 |
| SMA2Z16A | 16.0 | 15.20 | 16.80 | 31.2 | 8.0 | 700 | 0.25 | 0.5 | 12.2 | 114.0 |
| SMA2Z17A | 17.0 | 16.15 | 17.85 | 29.4 | 9.0 | 750 | 0.25 | 0.5 | 13.0 | 107.0 |
| SMA2Z18A | 18.0 | 17.10 | 18.90 | 27.8 | 10.0 | 750 | 0.25 | 0.5 | 13.7 | 100.0 |
| SMA2Z19A | 19.0 | 18.05 | 19.95 | 26.3 | 11.0 | 750 | 0.25 | 0.5 | 14.4 | 95.0 |
| SMA2Z20A | 20.0 | 19.00 | 21.00 | 25.0 | 11.0 | 750 | 0.25 | 0.5 | 15.2 | 90.0 |
| SMA2Z22A | 22.0 | 20.90 | 23.10 | 22.8 | 12.0 | 750 | 0.25 | 0.5 | 16.7 | 82.0 |
| SMA2Z24A | 24.0 | 22.80 | 25.20 | 20.8 | 13.0 | 750 | 0.25 | 0.5 | 18.2 | 76.0 |
| SMA2Z27A | 27.0 | 25.65 | 28.35 | 18.5 | 18.0 | 750 | 0.25 | 0.5 | 20.6 | 68.0 |
| SMA2Z30A | 30.0 | 28.50 | 31.50 | 16.6 | 20.0 | 1000 | 0.25 | 0.5 | 22.5 | 60.0 |
| SMA2Z33A | 33.0 | 31.35 | 34.65 | 15.1 | 23.0 | 1000 | 0.25 | 0.5 | 25.1 | 55.0 |
| SMA2Z36A | 36.0 | 34.20 | 37.80 | 13.9 | 25.0 | 1000 | 0.25 | 0.5 | 27.4 | 50.0 |
| SMA2Z39A | 39.0 | 37.05 | 40.95 | 12.8 | 30.0 | 1000 | 0.25 | 0.5 | 29.7 | 47.0 |
| SMA2Z43A | 43.0 | 40.85 | 45.15 | 11.6 | 35.0 | 1500 | 0.25 | 0.5 | 32.7 | 43.0 |
| SMA2Z47A | 47.0 | 44.65 | 49.35 | 10.6 | 40.0 | 1500 | 0.25 | 0.5 | 35.8 | 39.0 |
| SMA2Z51A | 51.0 | 48.45 | 53.55 | 9.8 | 48.0 | 1500 | 0.25 | 0.5 | 38.8 | 36.0 |
| SMA2Z56A | 56.0 | 53.20 | 58.80 | 9.0 | 55.0 | 2000 | 0.25 | 0.5 | 42.6 | 32.0 |
| SMA2Z62A | 62.0 | 58.90 | 65.10 | 8.1 | 60.0 | 2000 | 0.25 | 0.5 | 47.1 | 29.0 |
| SMA2Z68A | 68.0 | 64.60 | 71.40 | 7.4 | 75.0 | 2000 | 0.25 | 0.5 | 51.7 | 27.0 |
| SMA2Z75A | 75.0 | 71.25 | 78.75 | 6.7 | 90.0 | 2000 | 0.25 | 0.5 | 56.0 | 24.0 |
| SMA2Z82A | 82.0 | 77.90 | 86.10 | 6.1 | 100.0 | 3000 | 0.25 | 0.5 | 62.2 | 22.0 |
| SMA2Z91A | 91.0 | 86.45 | 95.55 | 5.5 | 125.0 | 3000 | 0.25 | 0.5 | 69.2 | 20.0 |
| SMA2Z100A | 100.0 | 95.00 | 105.00 | 5.0 | 175.0 | 3000 | 0.25 | 0.5 | 76.0 | 18.0 |
| SMA2Z110A | 110.0 | 104.50 | 115.50 | 4.5 | 250.0 | 4000 | 0.25 | 0.5 | 83.6 | 17.0 |
| SMA2Z120A | 120.0 | 114.00 | 126.00 | 4.2 | 325.0 | 4500 | 0.25 | 0.5 | 91.2 | 15.0 |
| SMA2Z130A | 130.0 | 123.50 | 136.50 | 3.8 | 400.0 | 5000 | 0.25 | 0.5 | 98.8 | 14.0 |
| SMA2Z140A | 140.0 | 133.00 | 147.00 | 3.6 | 500.0 | 5500 | 0.25 | 0.5 | 106.4 | 13.0 |
| SMA2Z150A | 150.0 | 142.50 | 157.50 | 3.3 | 575.0 | 6000 | 0.25 | 0.5 | 114.0 | 12.0 |
| SMA2Z160A | 160.0 | 152.00 | 168.00 | 3.1 | 650.0 | 6500 | 0.25 | 0.5 | 121.6 | 11.0 |
| SMA2Z170A | 170.0 | 161.50 | 178.50 | 2.9 | 675.0 | 7000 | 0.25 | 0.5 | 130.4 | 11.0 |
| SMA2Z180A | 180.0 | 171.00 | 189.00 | 2.8 | 725.0 | 7000 | 0.25 | 0.5 | 136.8 | 10.0 |
| SMA2Z190A | 190.0 | 180.50 | 199.50 | 2.6 | 825.0 | 8000 | 0.25 | 0.5 | 144.8 | 10.0 |
| SMA2Z200A | 200.0 | 190.00 | 210.00 | 2.5 | 1900.0 | 9990 | 0.25 | 0.5 | 152.0 | 9.0 |

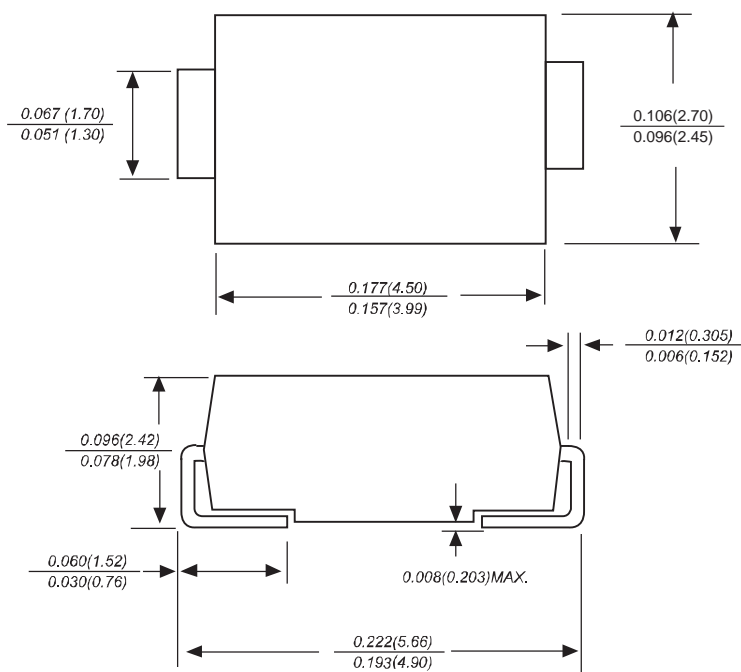
Notes :

- (1) The type number listed have a standard tolerance on the nominal zener voltage of $\pm 5\%$
- (2) The reverse surge current is a non-repetitive, 8.3ms pulse width square wave or equivalent sine-wave superimposed on I_{ZT} per method.

Typical Characteristics

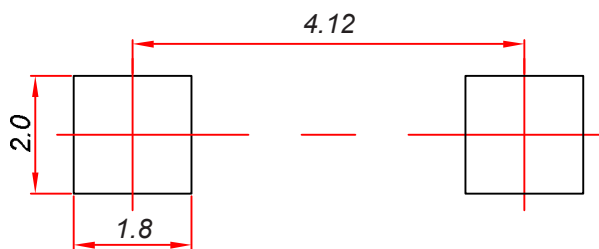


SMAG Package Outline Dimensions



Dimensions in inches and (millimeters)

SMAG Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

Reel Taping Specifications For Surface Mount Devices- SMAG

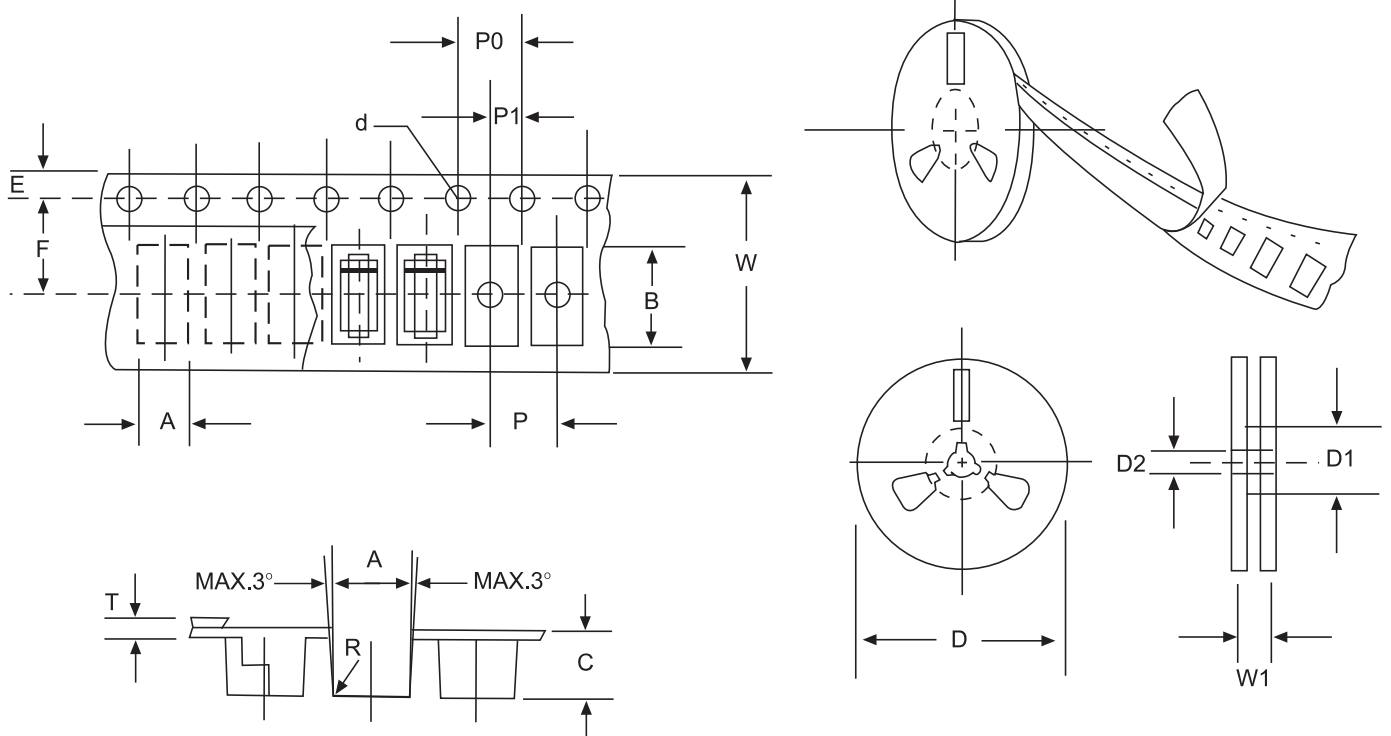


FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

| ITEM | SYMBOL | SMAG mm(inch) |
|------------------------|--------|--------------------------|
| Carrier width | A | 2.79±0.1(0.110±0.004) |
| Carrier length | B | 5.33±0.1(0.210±0.004) |
| Carrier depth | C | 2.36±0.1(0.093±0.004) |
| Sprocket hole | d | 1.55±0.05(0.061±0.002) |
| Reel outside diameter | D | 279±2.0 (11± 0.079) |
| Reel inner diameter | D1 | 75 ±1.0 (2.95 ±0.039) |
| Feed hole diameter | D2 | 13±0.5(0.512±0.020) |
| Sprocket hole position | E | 1.75±0.1(0.069±0.004) |
| Punch hole position | F | 5.5±0.05(0.217±0.002) |
| Punch hole pitch | P | 4.0±0.1(0.157±0.004) |
| Sprocket hole pitch | P0 | 4.0±0.1(0.157±0.004) |
| Embossment center | P1 | 2.0±0.1(0.079±0.004) |
| Totall tape thickness | T | 0.28±0.02(0.011 ±0.0008) |
| Tape width | W | 12.0±0.2(0.472±0.008) |
| Reel width | W1 | 16.8±2.0(0.661±0.079) |

NOTE: Devices are packed in accordance with EIA standard RS-481-A and specification given above.