# SMZ1-SMZ200

Surface mount Silicon-Zener Diodes

## $V_Z$ : 1 - 200 Volts
## $P_D$ : 2 Watts

**MELF**

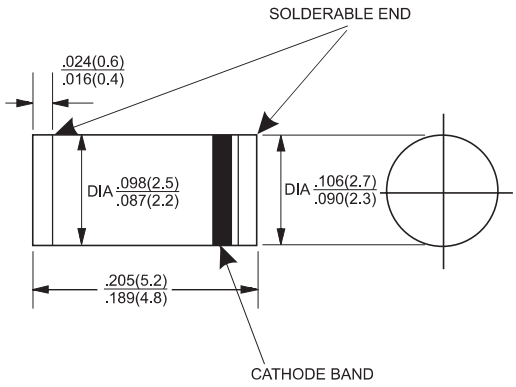


## Features

- ✧ Complete Voltage Range 1 to 200 Volts
- ✧ High peak reverse power dissipation
- ✧ High reliability
- ✧ Low leakage current
- ✧ Pb / RoHS Free

## Mechanical Data

- ✧ Case : MELF Molded plastic
- ✧ Epoxy : UL94V-O rate flame retardant
- ✧ Lead : Lead formed for Surface mount
- ✧ Polarity : Color band denotes cathode end
- ✧ Mounting position : Any
- ✧ Weight : 0.1296 grams




**Dimensions in inches and (millimeters)**

## MAXIMUM RATINGS

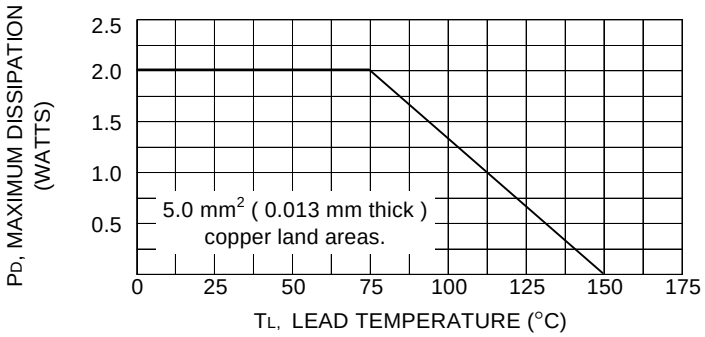
Rating at 25 °C ambient temperature unless otherwise specified

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| DC Power Dissipation at $T_L$ = 75 °C (Note1) | $P_D$ | 2.0 | W |
| Maximum Forward Voltage at $I_F$ = 200 mA | $V_F$ | 1.2 | V |
| Junction Temperature Range | $T_J$ | - 50 to + 150 | °C |
| Storage Temperature Range | Ts | - 50 to + 175 | °C |

**Note :**

(1) $T_L$ = Lead temperature at 5.0 $mm^2$ ( 0.013 mm thick ) copper land areas.

**Fig. 1 POWER TEMPERATURE DERATING CURVE**



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## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| Type | Zener voltage [2] $I_Z = I_{Ztest}$ $V_{zmin}$ [V] | $V_{zmax}$ | Test cur. $I_{ztest}$ [mA] | Dyn. resistance $I_{ztest}$ / 1 kHz $r_{zj}$ [Ω] | Temp. Coeffiz. of Z-voltage $\alpha_{VZ}$ [$10^{-4}$ /°C] | Reverse volt. $I_R$ = 1 µA $V_R$ [V] | Z-current [1] $T_A$ = 50°C $I_{Zmax}$ [mA] |
|---|---|---|---|---|---|---|---|
| SMZ 1 [3] | 0.71 | 0.82 | 100 | 0.5 (<1) | –26…–16 | – | 1000 |
| SMZ 3.9 | 3.7 | 4.1 | 100 | 4 (<7) | –7…+2 | – | 488 |
| SMZ 4.3 | 4.0 | 4.6 | 100 | 4 (<7) | –7…+3 | – | 435 |
| SMZ 4.7 | 4.4 | 5.0 | 100 | 4 (<7) | –7…+4 | – | 400 |
| SMZ 5.1 | 4.8 | 5.4 | 100 | 2 (<5) | –6…+5 | – | 370 |
| SMZ 5.6 | 5.2 | 6.0 | 100 | 1 (<3) | –3…+5 | > 1.5 | 333 |
| SMZ 6.2 | 5.8 | 6.6 | 100 | 1 (<2) | –1…+6 | > 1.5 | 303 |
| SMZ 6.8 | 6.4 | 7.2 | 100 | 1 (<2) | 0…+7 | > 2 | 278 |
| SMZ 7.5 | 7.0 | 7.9 | 100 | 1 (<2) | 0…+7 | > 2 | 253 |
| SMZ 8.2 | 7.7 | 8.7 | 100 | 1 (<2) | +3…+8 | > 3.5 | 230 |
| SMZ 9.1 | 8.5 | 9.6 | 50 | 2 (<4) | +3…+8 | > 3.5 | 208 |
| SMZ 10 | 9.4 | 10.6 | 50 | 2 (<4) | +5…+9 | > 5 | 189 |
| SMZ 11 | 10.4 | 11.6 | 50 | 4 (<7) | +5…+10 | > 5 | 172 |
| SMZ 12 | 11.4 | 12.7 | 50 | 4 (<7) | +5…+10 | > 7 | 157 |
| SMZ 13 | 12.4 | 14.1 | 50 | 5 (<10) | +5…+10 | > 7 | 142 |
| SMZ 15 | 13.8 | 15.6 | 50 | 5 (<10) | +5…+10 | > 10 | 128 |
| SMZ 16 | 15.3 | 17.1 | 25 | 6 (<15) | +6…+11 | > 10 | 117 |
| SMZ 18 | 16.8 | 19.1 | 25 | 6 (<15) | +6…+11 | > 10 | 105 |
| SMZ 20 | 18.8 | 21.2 | 25 | 6 (<15) | +6…+11 | > 10 | 94 |
| SMZ 22 | 20.8 | 23.3 | 25 | 6 (<15) | +6…+11 | > 12 | 86 |
| SMZ 24 | 22.8 | 25.6 | 25 | 7 (<15) | +6…+11 | > 12 | 78 |
| SMZ 27 | 25.1 | 28.9 | 25 | 7 (<15) | +6…+11 | > 14 | 69 |
| SMZ 30 | 28 | 32 | 25 | 8 (<15) | +6…+11 | > 14 | 63 |
| SMZ 33 | 31 | 35 | 25 | 8 (<15) | +6…+11 | > 17 | 57 |
| SMZ 36 | 34 | 38 | 10 | 16 (<40) | +6…+11 | > 17 | 53 |
| SMZ 39 | 37 | 41 | 10 | 20 (<40) | +6…+11 | > 20 | 49 |
| SMZ 43 | 40 | 46 | 10 | 24 (<45) | +7…+12 | > 20 | 43 |
| SMZ 47 | 44 | 50 | 10 | 24 (<45) | +7…+12 | > 24 | 40 |
| SMZ 51 | 48 | 54 | 10 | 25 (<60) | +7…+12 | > 24 | 37 |
| SMZ 56 | 52 | 60 | 10 | 25 (<60) | +7…+12 | > 28 | 33 |
| SMZ 62 | 58 | 66 | 10 | 25 (<80) | +8…+13 | > 28 | 30 |
| SMZ 68 | 64 | 72 | 10 | 25 (<80) | +8…+13 | > 34 | 28 |
| SMZ 75 | 70 | 79 | 10 | 30 (<100) | +8…+13 | > 34 | 25 |
| SMZ 82 | 77 | 88 | 10 | 30 (<100) | +8…+13 | > 41 | 23 |
| SMZ 91 | 85 | 96 | 5 | 40 (<200) | +9…+13 | > 41 | 21 |
| SMZ 100 | 94 | 106 | 5 | 60 (<200) | +9…+13 | > 50 | 19 |
| SMZ 110 | 104 | 116 | 5 | 80 (<250) | +9…+13 | > 50 | 17 |
| SMZ 120 | 114 | 127 | 5 | 80 (<250) | +9…+13 | > 60 | 16 |
| SMZ 130 | 124 | 141 | 5 | 90 (<300) | +9…+13 | > 60 | 14 |
| SMZ 150 | 138 | 156 | 5 | 100 (<300) | +9…+13 | > 75 | 13 |
| SMZ 160 | 153 | 171 | 5 | 110 (<350) | +9…+13 | > 75 | 12 |
| SMZ 180 | 168 | 191 | 5 | 120 (<350) | +9…+13 | > 90 | 10 |
| SMZ 200 | 188 | 212 | 5 | 150 (<350) | +9…+13 | > 90 | 9 |