



# SMAZ5V6 - SMAZ200

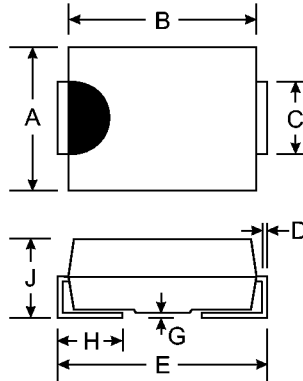
## 1.0W SURFACE MOUNT ZENER DIODE

### Features

- 2.0W Power Dissipation on Infinite Heat Sink
- High Surge Capability
- Ideally Suited for Automatic Assembly
- 5.6V - 200V Nominal Zener Voltage Range
- Standard  $V_Z$  Tolerance is  $\pm 5\%$
- Plastic Material: UL Flammability Classification Rating 94V-0

### Mechanical Data

- Case: SMA, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Marking: Marking Code (See Table on Page 2)
- Polarity: Cathode Notch or Cathode Band
- Weight: 0.064 grams (approx.)
- Mounting Position: Any



| SMA                  |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 2.29 | 2.92 |
| B                    | 4.00 | 4.60 |
| C                    | 1.27 | 1.63 |
| D                    | 0.15 | 0.31 |
| E                    | 4.80 | 5.59 |
| G                    | 0.10 | 0.20 |
| H                    | 0.76 | 1.52 |
| J                    | 2.01 | 2.62 |
| All Dimensions in mm |      |      |

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic  | Symbol          | Value       | Unit                      |
|---|-----------------|-------------|---------------------------|
| Zener Current (see Table page 2)                              | $I_Z$           | $P_d / V_Z$ | mA                        |
| Power Dissipation<br>Derate Above $50^\circ\text{C}$ (Note 1) | $P_d$           | 1.0<br>8.0  | W<br>mW/ $^\circ\text{C}$ |
| Typical Thermal Resistance - Junction to Lead (Note 1)        | $R_{\theta JL}$ | 30          | K/W                       |
| Typical Thermal Resistance - Junction to Ambient (Note 1)     | $R_{\theta JA}$ | 120         | K/W                       |
| Operating and Storage Temperature Range                       | $T_j, T_{STG}$  | -65 to +175 | $^\circ\text{C}$          |

- Notes:
1. Valid provided that device terminals are kept at ambient temperature.
  2. Tested with  $I_{ZT}$  current pulses. Pulse width  $\leq 50\text{ms}$ .

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise noted

| Type Number | Marking Code | Zener Voltage Range (Note 2)     |         |         | Test Current | Maximum Zener Impedance           |                                   |     | Maximum Reverse Current         |      | I <sub>ZSM</sub> Max (Note 1) |       | Typical Temperature Coefficient |
|-------------|--------------|----------------------------------|---------|---------|--------------|-----------------------------------|-----------------------------------|-----|---------------------------------|------|-------------------------------|-------|---------------------------------|
|             |              | V <sub>Z</sub> @ I <sub>ZT</sub> |         |         |              | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> |     | I <sub>R</sub> @ V <sub>R</sub> |      | 25°C                          | 125°C |                                 |
|             |              | Nom (V)                          | Min (V) | Max (V) | mA           |                                   | Ω                                 | Ω   | mA                              | μA   | V                             | A     | mA                              |
| SMAZ5V6     | ZHL          | 5.60                             | 5.32    | 5.88    | 100          | 2.0                               | 250                               | 2.0 | 5.0                             | 1.0  | 7.1                           | 330   | 0.025                           |
| SMAZ6V2     | ZHN          | 6.20                             | 5.89    | 6.51    | 100          | 2.0                               | 200                               | 2.0 | 5.0                             | 1.0  | 6.4                           | 300   | 0.032                           |
| SMAZ6V8     | ZHO          | 6.80                             | 6.46    | 7.14    | 100          | 2.0                               | 200                               | 1.0 | 5.0                             | 1.0  | 5.9                           | 275   | 0.040                           |
| SMAZ7V5     | ZHQ          | 7.50                             | 7.13    | 7.88    | 100          | 2.0                               | 450                               | 1.0 | 5.0                             | 2.0  | 5.4                           | 250   | 0.045                           |
| SMAZ8V2     | ZHR          | 8.20                             | 7.79    | 8.61    | 100          | 2.0                               | 200                               | 1.0 | 5.0                             | 3.5  | 4.9                           | 220   | 0.048                           |
| SMAZ9V1     | ZHT          | 9.10                             | 8.65    | 9.56    | 50           | 4.0                               | 200                               | 1.0 | 5.0                             | 3.5  | 4.4                           | 205   | 0.051                           |
| SMAZ10      | ZHU          | 10.00                            | 9.50    | 10.50   | 50           | 4.0                               | 200                               | 1.0 | 1.0                             | 8.3  | 3.6                           | 170   | 0.060                           |
| SMAZ12      | ZHW          | 12.00                            | 11.40   | 12.60   | 50           | 7.0                               | 150                               | 1.0 | 1.0                             | 9.1  | 3.3                           | 155   | 0.065                           |
| SMAZ15      | ZHZ          | 15.00                            | 14.25   | 15.75   | 50           | 10                                | 150                               | 1.0 | 1.0                             | 11.4 | 2.7                           | 130   | 0.070                           |
| SMAZ16      | ZJA          | 16.00                            | 15.20   | 16.80   | 25           | 15                                | 150                               | 1.0 | 0.5                             | 12.2 | 2.5                           | 115   | 0.070                           |
| SMAZ18      | ZJF          | 18.00                            | 17.10   | 18.90   | 25           | 15                                | 150                               | 1.0 | 0.5                             | 13.7 | 2.2                           | 105   | 0.075                           |
| SMAZ20      | ZJG          | 20.00                            | 19.00   | 21.00   | 25           | 15                                | 180                               | 1.0 | 0.5                             | 15.2 | 2.0                           | 94    | 0.075                           |
| SMAZ22      | ZJK          | 22.00                            | 20.90   | 23.10   | 25           | 15                                | 180                               | 1.0 | 0.5                             | 16.7 | 1.8                           | 86    | 0.080                           |
| SMAZ24      | ZJL          | 24.00                            | 22.80   | 25.20   | 25           | 15                                | 180                               | 1.0 | 0.5                             | 18.2 | 1.6                           | 78    | 0.080                           |
| SMAZ27      | ZJN          | 27.00                            | 25.65   | 28.35   | 25           | 15                                | 200                               | 1.0 | 0.5                             | 20.5 | 1.4                           | 69    | 0.085                           |
| SMAZ30      | ZJQ          | 30.00                            | 28.50   | 31.50   | 25           | 15                                | 250                               | 1.0 | 0.5                             | 22.8 | 1.1                           | 62    | 0.085                           |
| SMAZ33      | ZJR          | 33.00                            | 31.35   | 34.65   | 25           | 15                                | 300                               | 1.0 | 0.5                             | 25.1 | 1.0                           | 56    | 0.085                           |
| SMAZ36      | ZJS          | 36.00                            | 34.20   | 37.80   | 10           | 40                                | 350                               | 1.0 | 0.5                             | 27.4 | 0.9                           | 52    | 0.085                           |
| SMAZ39      | ZJT          | 39.00                            | 37.05   | 40.95   | 10           | 40                                | 450                               | 1.0 | 0.5                             | 29.6 | 1.0                           | 48    | 0.090                           |
| SMAZ47      | ZJV          | 47.00                            | 44.65   | 49.35   | 10           | 45                                | 600                               | 1.0 | 0.5                             | 35.7 | 0.7                           | 40    | 0.090                           |
| SMAZ68      | ZKM          | 68.00                            | 64.60   | 71.40   | 10           | 80                                | 1000                              | 1.0 | 0.5                             | 47.1 | 0.064                         | 30    | 0.090                           |
| SMAZ100     | ZKQ          | 100.00                           | 95.00   | 105.00  | 5.0          | 200                               | 2000                              | 1.0 | 0.5                             | 75   | 0.40                          | 18    | 0.090                           |
| SMAZ150     | ZKR          | 150.00                           | 142.50  | 157.50  | 5.0          | 300                               | 4000                              | 0.5 | 0.5                             | 114  | 0.15                          | 12.8  | 0.095                           |
| SMAZ200     | ZKW          | 200.00                           | 190.00  | 210.00  | 5.0          | 350                               | 6000                              | 0.5 | 0.5                             | 152  | 0.12                          | 9.4   | 0.095                           |

- Notes: 1. Valid provided that device terminals are kept at ambient temperature.  
2. Tested with I<sub>ZT</sub> current pulses. Pulse width ≤ 50ms.

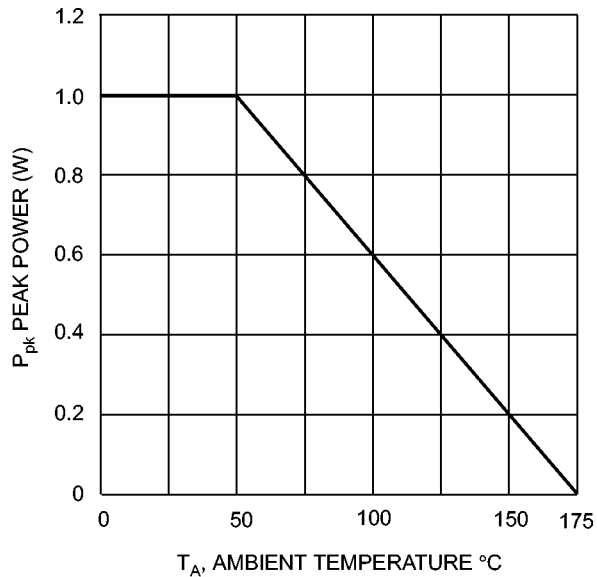


Fig. 1 Power Dissipation vs Ambient Temperature

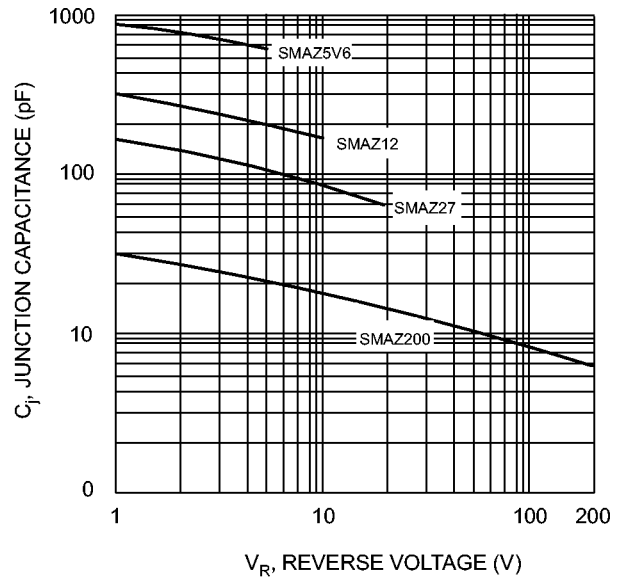


Fig. 2 Junction Capacitance vs Reverse Voltage

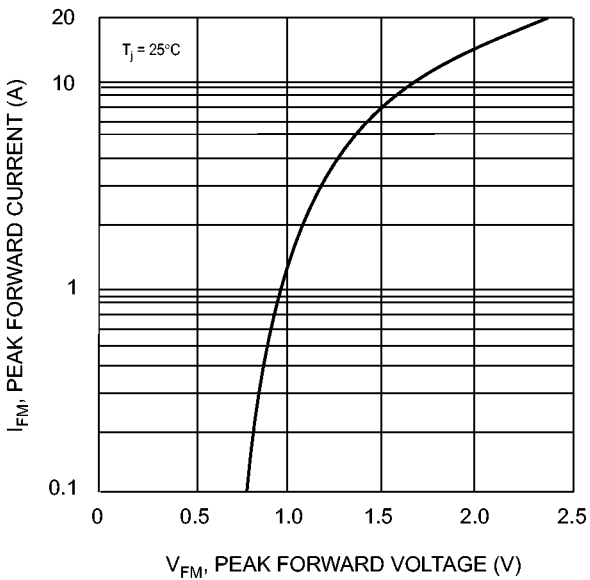


Fig. 3 Peak Forward Current vs Peak Forward Voltage

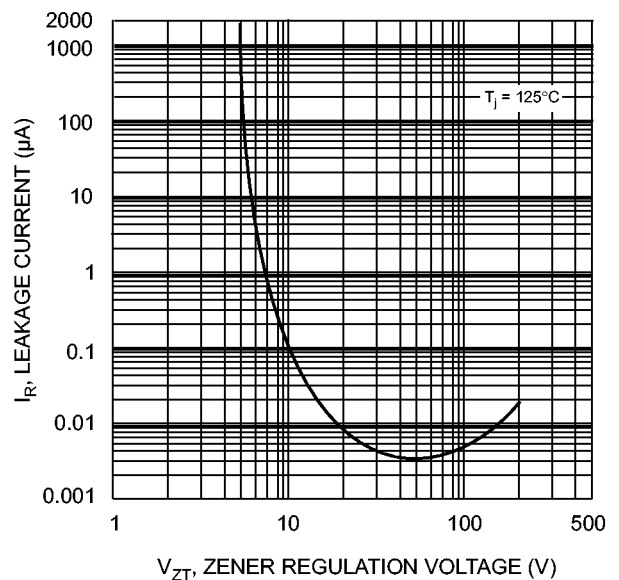


Fig. 4 Leakage Current vs Regulation Voltage

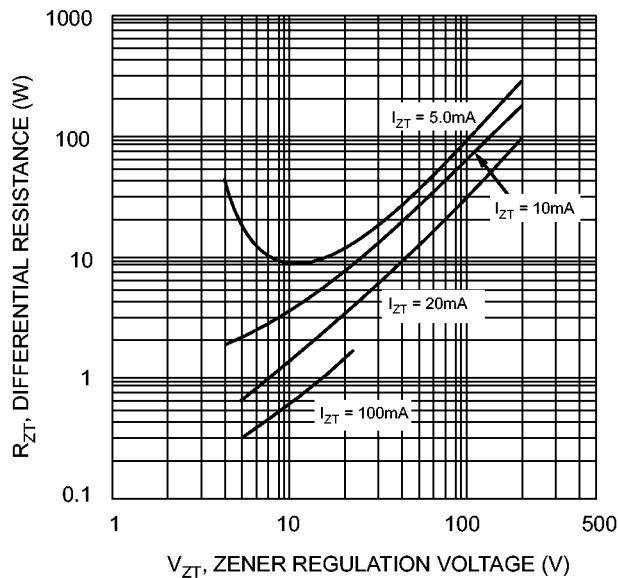


Fig. 5 Differential Resistance vs Regulation Voltage

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