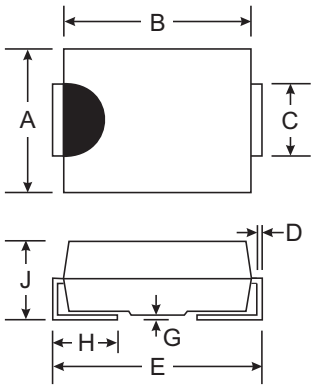
# SMAZ5V1 - SMAZ39

## 1.0W SURFACE MOUNT ZENER DIODE

## Features

- 1.0W Power Dissipation
- Ideally Suited for Automatic Assembly
- 5.1V - 39V Nominal Zener Voltage Range
- Standard $V_Z$ Tolerance is ± 5%
- **Lead Free Finish/RoHS Compliant (Note 2)**




| 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** | | |

## Mechanical Data

- Case: SMA
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208
- Marking: Marking & Date Code (See Page 2)
- Ordering Information: See Page 2
- Polarity: Cathode Notch or Cathode Band
- Weight: 0.064 grams (approximate)

## Maximum Ratings @$T_A$ = 25°C unless otherwise specified

| Characteristic | | Symbol | Value | Unit |
|---|---|---|---|---|
| Zener Current (see Table page 2) | | $I_{ZM}$ | Pd / $V_Z$ | mA |
| Forward Voltage | @$I_F$ = 200mA | $V_F$ | 1.2 | V |
| Power Dissipation<br>Derate Above 50°C (Note 1) | @$T_A$ = 50°C | $P_d$ | 1.0<br>8.0 | W<br>mW/°C |
| Typical Thermal Resistance - Junction to Terminal (Note 1) | | $R_{\theta JT}$ | 30 | °C/W |
| Typical Thermal Resistance - Junction to Ambient (Note 1) | | $R_{\theta JA}$ | 125 | °C/W |
| Operating and Storage Temperature Range | | $T_j$, $T_{STG}$ | -65 to +150 | °C |

## Electrical Characteristics @$T_A$ = 25°C unless otherwise noted

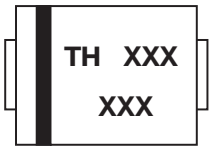
| Type Number (Note 4) | Marking Code | Zener Voltage Range (Note 3) | | | Test Current | Maximum Zener Impedance | | | Maximum Reverse Current | | $I_{ZM}$ Max (Note 1) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $V_Z$ @ $I_{ZT}$ | | | $I_{ZT}$ | $Z_{ZT}$ @ $I_{ZT}$ | $Z_{ZK}$ @ $I_{ZK}$ | | $I_R$ @ $V_R$ | | |
| | | Nom (V) | Min (V) | Max (V) | mA | Ω | Ω | mA | μA | V | mA |
| SMAZ5V1 | ZHK | 5.1 | 4.84 | 5.40 | 100 | 5.0 | 500 | 1.0 | 2.5 | 1.0 | 196 |
| SMAZ5V6 | ZHL | 5.60 | 5.32 | 5.88 | 100 | 2.0 | 250 | 2.0 | 5.0 | 2.0 | 179 |
| SMAZ6V2 | ZHN | 6.20 | 5.89 | 6.51 | 100 | 2.0 | 200 | 2.0 | 5.0 | 3.0 | 161 |
| SMAZ6V8 | ZHO | 6.80 | 6.46 | 7.14 | 100 | 2.0 | 200 | 1.0 | 5.0 | 4.0 | 147 |
| SMAZ7V5 | ZHQ | 7.50 | 7.13 | 7.88 | 100 | 2.0 | 450 | 1.0 | 5.0 | 5.0 | 133 |
| SMAZ8V2 | ZHR | 8.20 | 7.79 | 8.61 | 100 | 2.0 | 200 | 1.0 | 5.0 | 6.0 | 122 |
| SMAZ9V1 | ZHT | 9.10 | 8.65 | 9.56 | 50 | 4.0 | 200 | 1.0 | 5.0 | 7.0 | 110 |
| SMAZ10 | ZHU | 10.00 | 9.50 | 10.50 | 50 | 4.0 | 200 | 1.0 | 1.0 | 7.6 | 100 |
| SMAZ12 | ZHW | 12.00 | 11.40 | 12.60 | 50 | 7.0 | 150 | 1.0 | 1.0 | 9.1 | 83 |
| SMAZ15 | ZHZ | 15.00 | 14.25 | 15.75 | 50 | 10 | 150 | 1.0 | 1.0 | 11.4 | 67 |
| SMAZ16 | ZJA | 16.00 | 15.20 | 16.80 | 25 | 15 | 150 | 1.0 | 0.5 | 12.2 | 63 |
| SMAZ18 | ZJF | 18.00 | 17.10 | 18.90 | 25 | 15 | 150 | 1.0 | 0.5 | 13.7 | 56 |
| SMAZ20 | ZJG | 20.00 | 19.00 | 21.00 | 25 | 15 | 180 | 1.0 | 0.5 | 15.2 | 50 |
| SMAZ22 | ZJK | 22.00 | 20.90 | 23.10 | 25 | 15 | 180 | 1.0 | 0.5 | 16.7 | 45 |
| SMAZ24 | ZJL | 24.00 | 22.80 | 25.20 | 25 | 15 | 180 | 1.0 | 0.5 | 18.2 | 42 |
| SMAZ27 | ZJN | 27.00 | 25.65 | 28.35 | 25 | 15 | 200 | 1.0 | 0.5 | 20.5 | 37 |
| SMAZ30 | ZJQ | 30.00 | 28.50 | 31.50 | 25 | 15 | 250 | 1.0 | 0.5 | 22.8 | 33 |
| SMAZ33 | ZJR | 33.00 | 31.35 | 34.65 | 25 | 15 | 300 | 1.0 | 0.5 | 25.1 | 30 |
| SMAZ36 | ZJS | 36.00 | 34.20 | 37.80 | 10 | 40 | 350 | 1.0 | 0.5 | 27.4 | 28 |
| SMAZ39 | ZJT | 39.00 | 37.05 | 40.95 | 10 | 40 | 450 | 1.0 | 0.5 | 29.6 | 26 |

## Ordering Information (Note 4)

| Device* | Packaging | Shipping |
|---|---|---|
| SMAZx-13-F | SMA | 5000/Tape & Reel |

*x = Device Voltage, e.g., SMAZ5V1-13-F.

## Marking Information



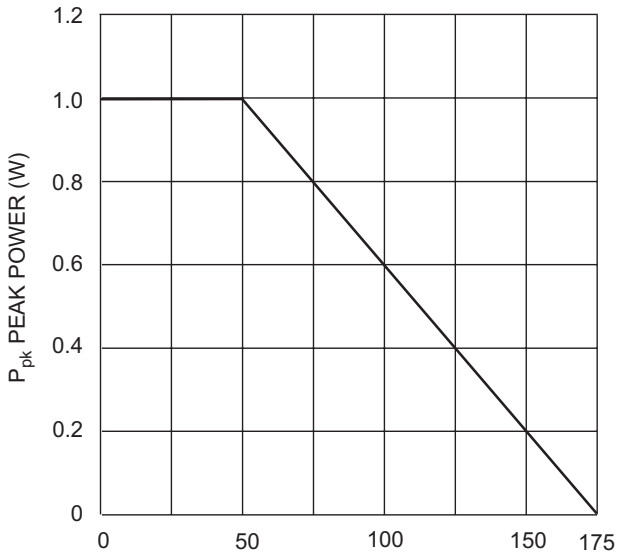



Fig. 1 Power Dissipation vs Ambient Temperature

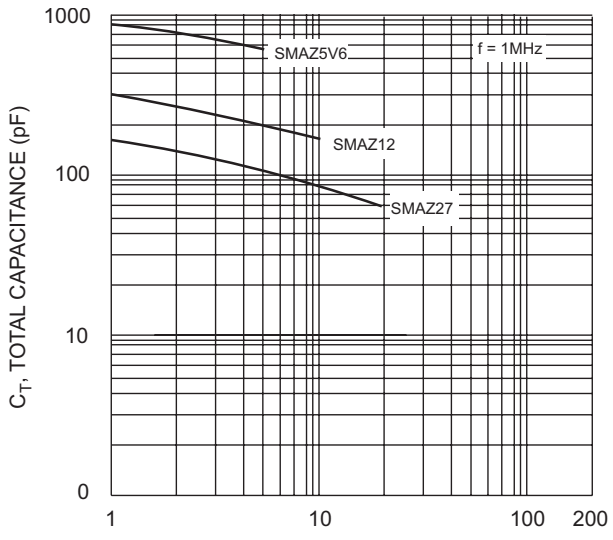



Fig. 2 Total Capacitance vs Reverse Voltage

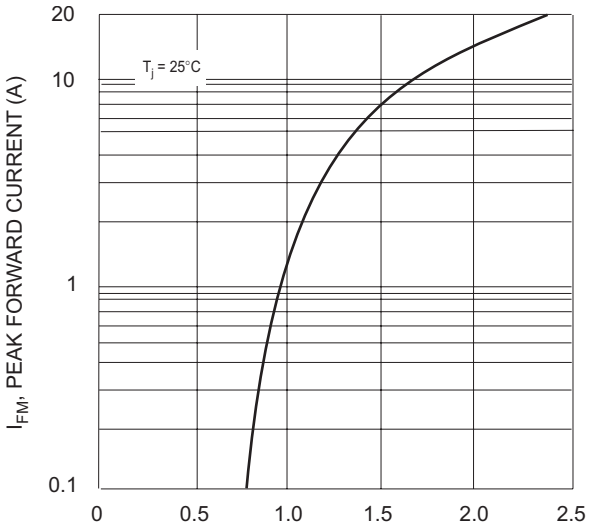



Fig. 3 Peak Forward Current vs Peak Forward Voltage

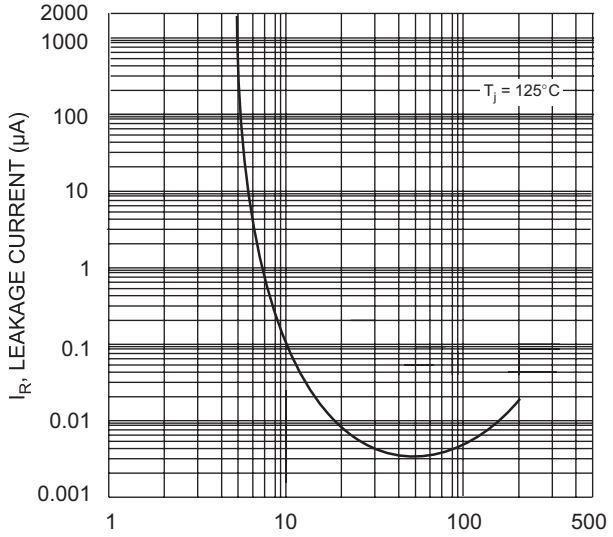



Fig. 4 Leakage Current vs Regulation Voltage

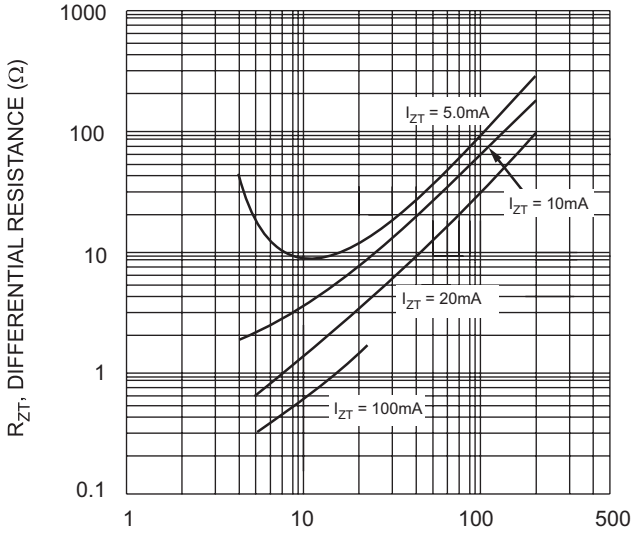



Fig. 5 Differential Resistance vs Regulation Voltage