

TM

# SMAZ5V1 THRU SMAZ39

## Features

- 1.0W Power Dissipation
- High Surge Capability
- Ideally Suited for Automatic Assembly
- Standard  $V_Z$  Tolerance is +/- 5%
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Case Material : Molded Plastic. UL Flammability Classification Rating 94V-0 and MSL rating 1

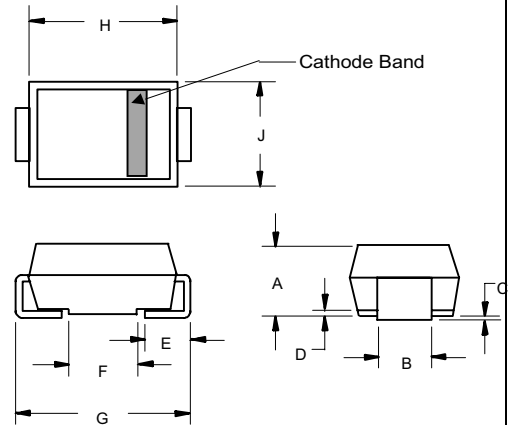
## Maximum Ratings

- Storage Temperature Range ( $T_{STG}$ ): -65°C to +150°C
- Operating Temperature Range ( $T_J$ ): -65°C to +150°C

|  | Symbol     | Value     | Units              |
|--|------------|-----------|--------------------|
| Zener Current                              | $I_{ZM}$   | $P_d/V_Z$ | mA                 |
| Power Dissipation @ $T_A=50^\circ\text{C}$ | $P_{tot}$  | 1000      | mW                 |
| Forward Voltage @ $I_F = 200\text{mA}$     | $V_F$      | 1.2       | V                  |
| Junction to Terminal                       | $R_{thJT}$ | 30        | $^\circ\text{C/W}$ |
| Thermal resistance                         | $R_{thJA}$ | 125       | $^\circ\text{C/W}$ |

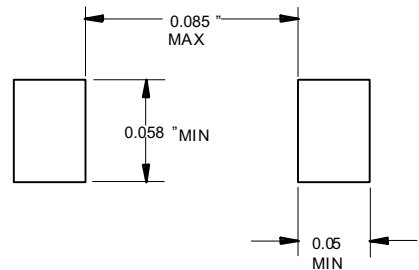
## 1 Watt Zener Diode 5.1V - 39V Volts

### DO-214AC (SMAJ)(LEAD FRAME)



| DIM | INCHES |      | MM   |      | NOTE |
|-----|--------|------|------|------|------|
|     | MIN    | MAX  | MIN  | MAX  |      |
| A   | .079   | .096 | 2.00 | 2.44 |      |
| B   | .050   | .064 | 1.27 | 1.63 |      |
| C   | .002   | .008 | .05  | .20  |      |
| D   | ---    | .02  | ---  | .51  |      |
| E   | .030   | .060 | .76  | 1.52 |      |
| F   | .065   | .091 | 1.65 | 2.32 |      |
| G   | .189   | .220 | 4.80 | 5.59 |      |
| H   | .157   | .181 | 4.00 | 4.60 |      |
| J   | .090   | .115 | 2.25 | 2.92 |      |

### SUGGESTED SOLDER PAD LAYOUT



Note: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.

# SMAZ5V1 - SMAZ39

TM

## Electrical Characteristics @ 25°C Unless Otherwise Specified

| Part Number | Zener Voltage<br>$V_Z$<br>Voltages |       |       | Maximum Zener<br>Impedance<br>$Z_{ZT}$ (OHMS) |      | Maximum Zener<br>Impedance<br>$Z_{ZK}$ (OHMS) |     | Reverse<br>Current<br>$I_R$ (Max) @ $V_R$ |      | $I_{ZM}$ Max<br>(Note 1) | Marking |
|-------------|------------------------------------|-------|-------|---|------|---|-----|---|------|--------------------------|---------|
|             | Nom                                | Min   | Max   | $I_{ZT}$ (mA)                                 | Max  | $I_{ZK}$ (mA)                                 | Max | $\mu$ A                                   | V    | mA                       |         |
| SMAZ5V1     | 5.10                               | 4.84  | 5.40  | 100   | 5.0  | 1.0   | 500 | 2.5                                       | 1.0  | 196                      | Z5V1    |
| SMAZ5V6     | 5.60                               | 5.32  | 5.88  | 100   | 2.0  | 2.0   | 250 | 5.0                                       | 2.0  | 179                      | Z5V6    |
| SMAZ6V2     | 6.20                               | 5.89  | 6.51  | 100   | 2.0  | 2.0   | 200 | 5.0                                       | 3.0  | 161                      | Z6V2    |
| SMAZ6V8     | 6.80                               | 6.46  | 7.14  | 100   | 2.0  | 1.0   | 200 | 5.0                                       | 4.0  | 147                      | Z6V8    |
| SMAZ7V5     | 7.50                               | 7.13  | 7.88  | 100   | 2.0  | 1.0   | 450 | 5.0                                       | 5.0  | 133                      | Z7V5    |
| SMAZ8V2     | 8.20                               | 7.79  | 8.61  | 100   | 2.0  | 1.0   | 200 | 5.0                                       | 6.0  | 122                      | Z8V2    |
| SMAZ9V1     | 9.10                               | 8.65  | 9.56  | 50  | 4.0  | 1.0   | 200 | 5.0                                       | 7.0  | 110                      | Z9V1    |
| SMAZ10      | 10.00                              | 9.50  | 10.50 | 50  | 4.0  | 1.0   | 200 | 1.0                                       | 7.6  | 100                      | Z10     |
| SMAZ12      | 12.00                              | 11.40 | 12.60 | 50  | 7.0  | 1.0   | 150 | 1.0                                       | 9.1  | 83                       | Z12     |
| SMAZ15      | 15.00                              | 14.25 | 15.75 | 50  | 10.0 | 1.0   | 150 | 1.0                                       | 11.4 | 67                       | Z15     |
| SMAZ16      | 16.00                              | 15.20 | 16.80 | 25  | 15.0 | 1.0   | 150 | 0.5                                       | 12.2 | 63                       | Z16     |
| SMAZ18      | 18.00                              | 17.10 | 18.90 | 25  | 15.0 | 1.0   | 150 | 0.5                                       | 13.7 | 56                       | Z18     |
| SMAZ20      | 20.00                              | 19.00 | 21.00 | 25  | 15.0 | 1.0   | 180 | 0.5                                       | 15.2 | 50                       | Z20     |
| SMAZ22      | 22.00                              | 20.90 | 23.10 | 25  | 15.0 | 1.0   | 180 | 0.5                                       | 16.7 | 45                       | Z22     |
| SMAZ24      | 24.00                              | 22.80 | 25.20 | 25  | 15.0 | 1.0   | 180 | 0.5                                       | 18.2 | 42                       | Z24     |
| SMAZ27      | 27.00                              | 25.65 | 28.35 | 25  | 15.0 | 1.0   | 200 | 0.5                                       | 20.5 | 37                       | Z27     |
| SMAZ30      | 30.00                              | 28.50 | 31.50 | 25  | 15.0 | 1.0   | 250 | 0.5                                       | 22.8 | 33                       | Z30     |
| SMAZ33      | 33.00                              | 31.35 | 34.65 | 25  | 15.0 | 1.0   | 300 | 0.5                                       | 25.1 | 30                       | Z33     |
| SMAZ36      | 36.00                              | 34.20 | 37.80 | 10  | 40.0 | 1.0   | 350 | 0.5                                       | 27.4 | 28                       | Z36     |
| SMAZ39      | 39.00                              | 37.05 | 40.95 | 10  | 40.0 | 1.0   | 450 | 0.5                                       | 29.6 | 26                       | Z39     |

Notes1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch

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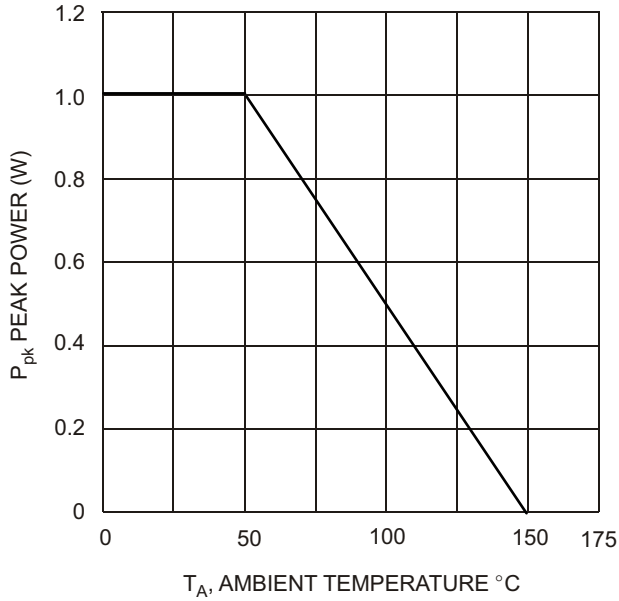


Fig. 1 Power Dissipation vs Ambient Temperature

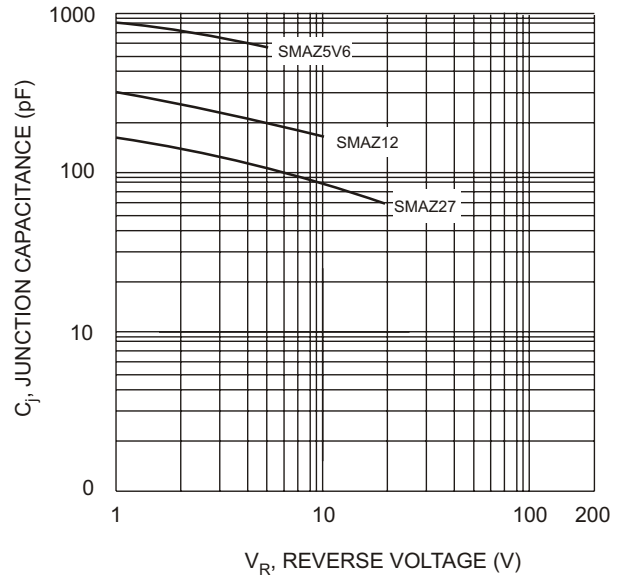


Fig. 2 Junction Capacitance vs Reverse Voltage

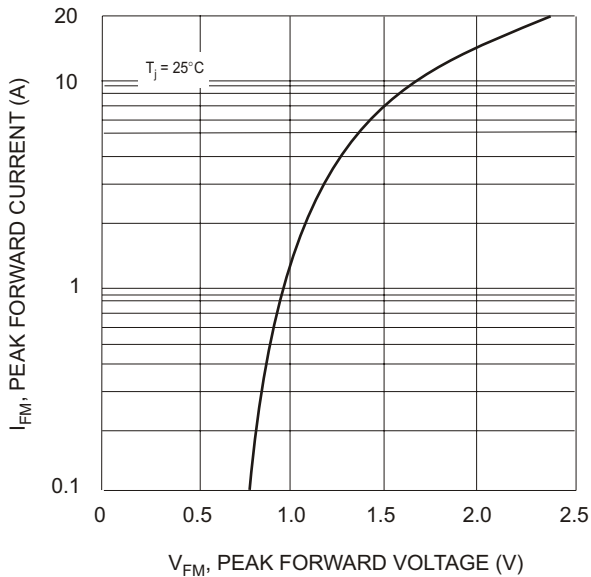


Fig. 3 Peak Forward Current vs Peak Forward Voltage

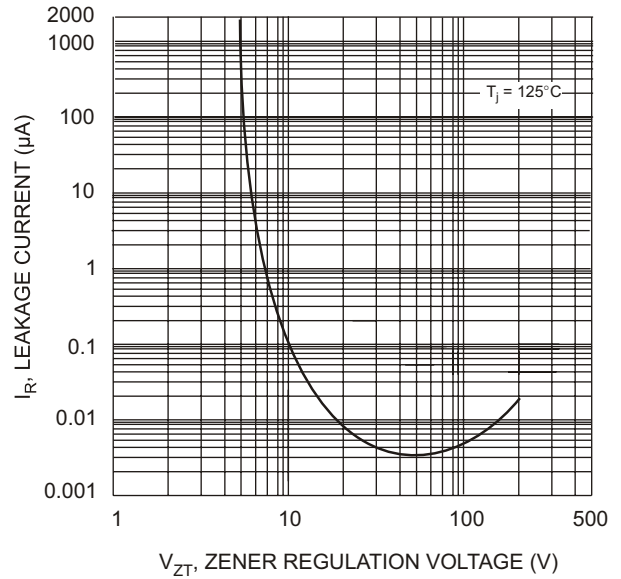


Fig. 4 Leakage Current vs Regulation Voltage

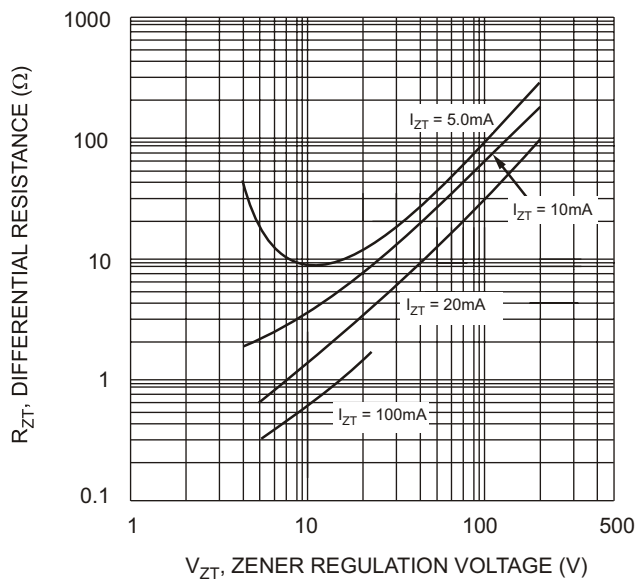


Fig. 5 Differential Resistance vs Regulation Voltage

## Ordering Information

| Device           | Packing                |
|------------------|------------------------|
| (Part Number)-TP | Tape&Reel;7.5Kpcs/Reel |