



Micro Commercial Components



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## SMAZ5V1 THRU SMAZ39

### Features

- Halogen free available upon request by adding suffix "-HF"
- 1.0W Power Dissipation
- High Surge Capability
- Ideally Suited for Automatic Assembly
- Standard  $V_Z$  Tolerance is  $\pm 5\%$
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

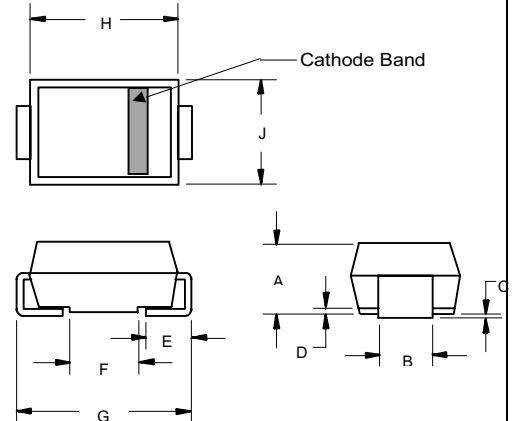
### Maximum Ratings

- Storage Temperature Range ( $T_{STG}$ ):  $-65^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- Operating Temperature Range ( $T_J$ ):  $-65^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$

|                                                   | Symbol     | Value     | Units                |
|---------------------------------------------------|------------|-----------|----------------------|
| Zener Current                                     | $I_{ZM}$   | $P_d/V_Z$ | mA                   |
| Power Dissipation<br>@ $T_A = 50^{\circ}\text{C}$ | $P_{tot}$  | 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                                | $R_{thJA}$ | 100       | $^{\circ}\text{C/W}$ |

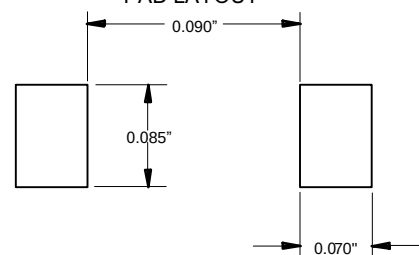
## 1 Watt Zener Diode 5.1V - 39V Volts

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



| DIMENSIONS |        |      |      |      |      |
|------------|--------|------|------|------|------|
| 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.

**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

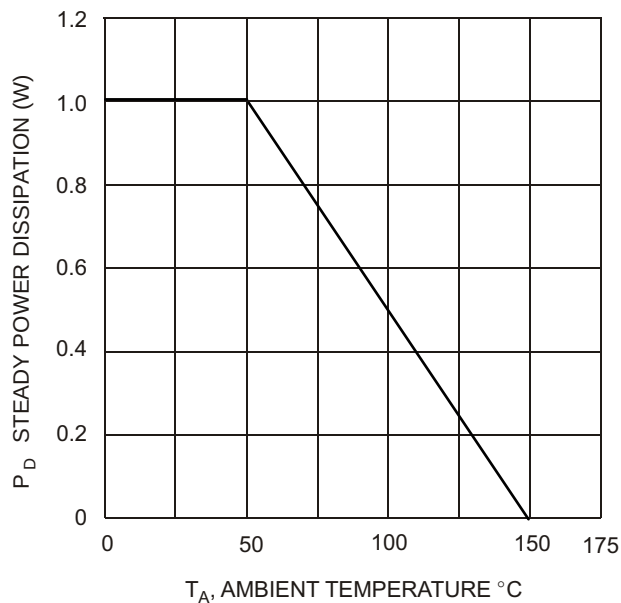


Fig. 1 Power Dissipation vs Ambient Temperature

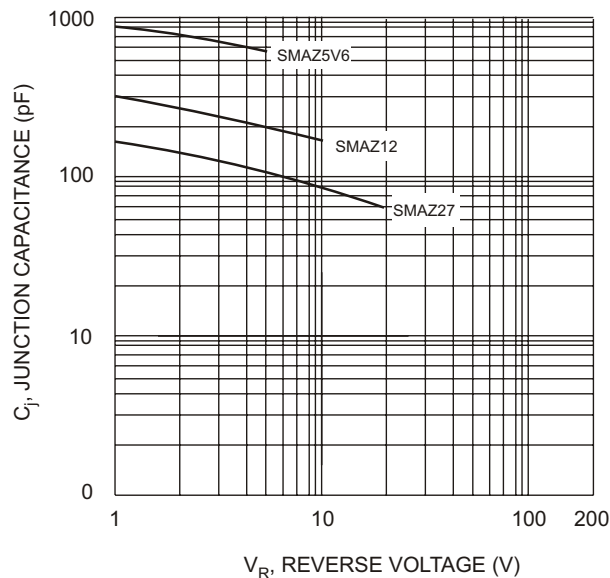


Fig. 2 Junction Capacitance vs Reverse Voltage

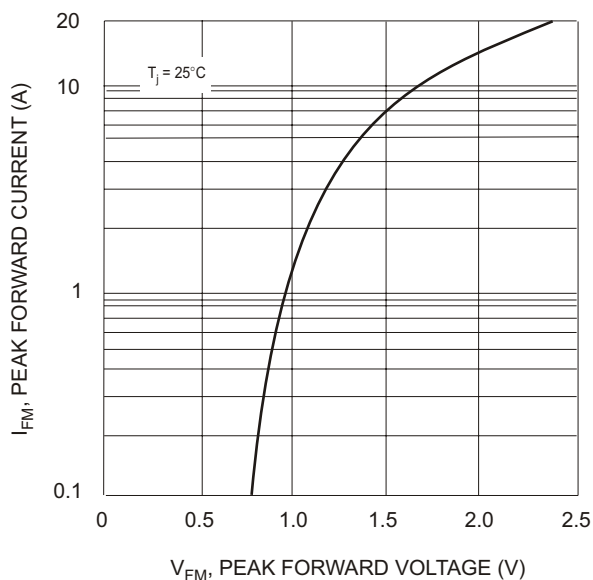


Fig. 3 Peak Forward Current vs Peak Forward Voltage

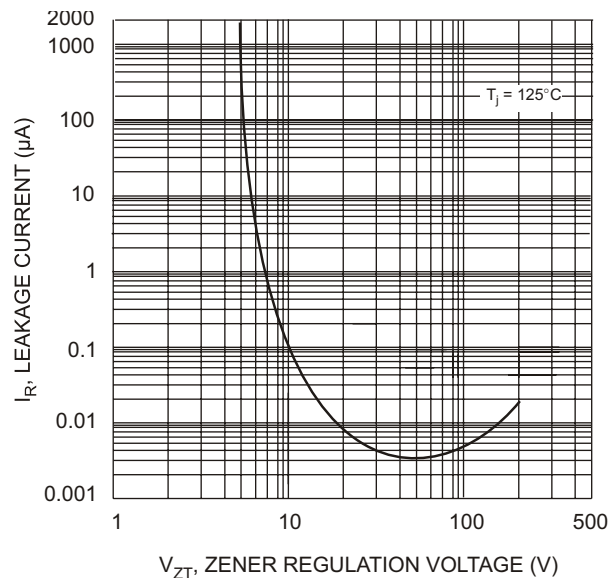


Fig. 4 Leakage Current vs Regulation Voltage

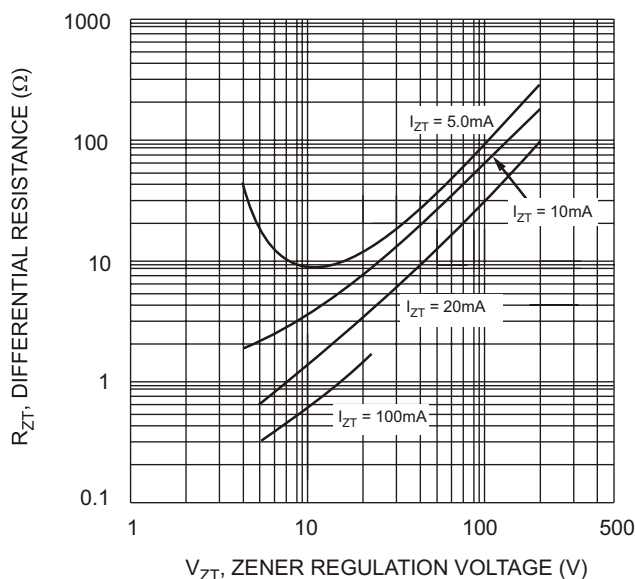


Fig. 5 Differential Resistance vs Regulation Voltage

## Ordering Information :

| Device         | Packing                 |
|----------------|-------------------------|
| Part Number-TP | Tape&Reel: 7.5Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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