

## Features

- AEC-Q101 Qualified
- Low Leakage
- Ultra Low Clamping Voltage
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings

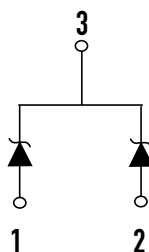
|                                      |                  |                 |
|--------------------------------------|------------------|-----------------|
| IEC61000-4-2(ESD)                    | Air              | ±30KV           |
|                                      | Contact          | ±30KV           |
| Peak Pulse Power (8/20μs)            | P <sub>PK</sub>  | 350W            |
| Peak Pulse Current (8/20μs)(Note 2)  | I <sub>PP</sub>  | 5A              |
| Operating Junction Temperature Range | T <sub>J</sub>   | -55°C to +150°C |
| Storage Temperature Range            | T <sub>STG</sub> | -55°C to +150°C |

Note:

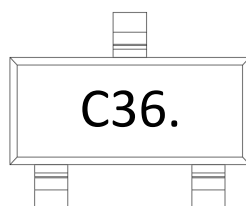
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

2. Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.

## Internal Structure

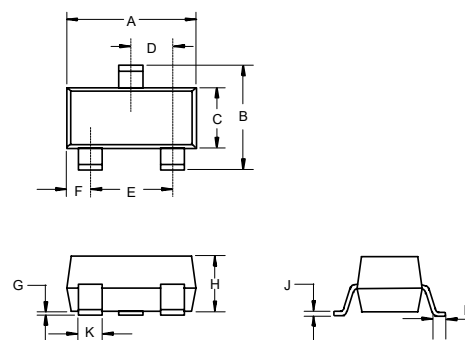


## Marking Code



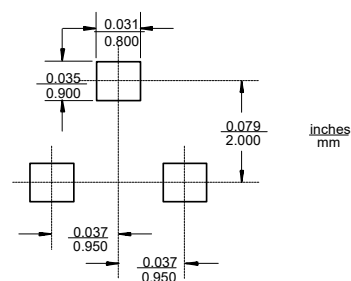
# ESD Protection Device

## SOT-23

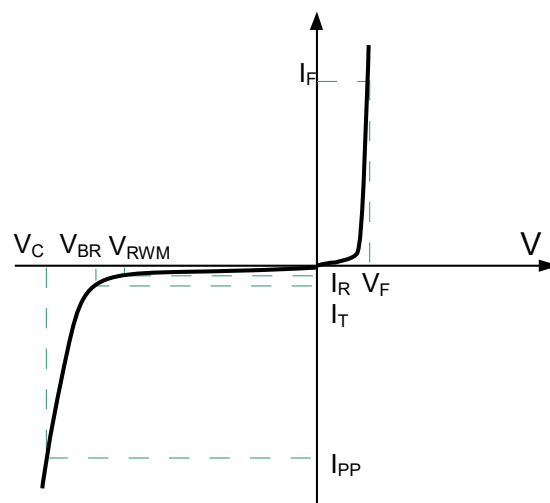


| DIMENSIONS |        |       |      |      |      |
|------------|--------|-------|------|------|------|
| DIM        | INCHES |       | MM   |      | NOTE |
|            | MIN    | MAX   | MIN  | MAX  |      |
| A          | 0.110  | 0.120 | 2.80 | 3.04 |      |
| B          | 0.083  | 0.104 | 2.10 | 2.64 |      |
| C          | 0.047  | 0.055 | 1.20 | 1.40 |      |
| D          | 0.034  | 0.041 | 0.85 | 1.05 |      |
| E          | 0.067  | 0.083 | 1.70 | 2.10 |      |
| F          | 0.018  | 0.024 | 0.45 | 0.60 |      |
| G          | 0.0004 | 0.006 | 0.01 | 0.15 |      |
| H          | 0.035  | 0.043 | 0.90 | 1.10 |      |
| J          | 0.003  | 0.007 | 0.08 | 0.18 |      |
| K          | 0.012  | 0.020 | 0.30 | 0.51 |      |
| L          | 0.007  | 0.020 | 0.20 | 0.50 |      |

## Suggested Solder Pad Layout



| Symbol | Parameter                          |
|--------|------------------------------------|
| VRWM   | Peak Reverse Working Voltage       |
| IR     | Reverse Leakage Current @ VRWM     |
| VBR    | Breakdown Voltage @ IT             |
| IT     | Test Current                       |
| IPP    | Maximum Reverse Peak Pulse Current |
| VC     | Clamping Voltage @ IPP             |
| PPP    | Peak Pulse Power                   |
| CJ     | Junction Capacitance               |
| IF     | Forward Current                    |
| VF     | Forward Voltage @ IF               |



### Electrical Characteristics @ 25°C (Unless Otherwise Specified)

| Parameter                                 | Symbol    | Conditions                                     | Min. | Typ. | Max. | Units         |
|---|-----------|--|------|------|------|---------------|
| Reverse Working Voltage                   | $V_{RWM}$ |  |      |      | 36   | V             |
| Reverse Breakdown Voltage                 | $V_{BR}$  | $I_T = 1\text{mA}$                             | 40   |      | 44.5 | V             |
| Reverse Leakage Current                   | $I_R$     | $V_{RWM} = 36\text{V}$                         |      |      | 1.0  | $\mu\text{A}$ |
| Forward Voltage                           | $V_F$     | $I_F = 10\text{mA}$                            |      |      | 1.1  | V             |
| Clamping Voltage <sup>Note1 Note3</sup>   | $V_C$     | $I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$ |      |      | 55   | V             |
| Clamping Voltage <sup>Note1 Note3</sup>   | $V_C$     | $I_{PP} = 5\text{A}$ , $t_p = 8/20\mu\text{s}$ |      |      | 75   | V             |
| Dynamic Resistance <sup>Note2 Note3</sup> | $R_{DYN}$ | TLP, $t_p = 100\text{ns}$                      |      | 0.8  |      | $\Omega$      |
| Junction Capacitance                      | $C_J$     | $V_R = 0\text{V}$ , $f = 1\text{MHz}$          |      | 24   | 35   | pF            |

Note:

1. Non-repetitive current pulse, according to IEC61000-4-5.

2. TLP parameter:  $Z_0 = 50\Omega$ ,  $t_p = 100\text{ns}$ ,  $t_r = 2\text{ns}$ , averaging window from 60ns to 80ns.  $R_{DYN}$  is calculated from 4A to 16A.

3. Measured from Pin3 to Pin1 or Pin3 to Pin2.

## Curve Characteristics

Fig. 1 - 8 X 20 $\mu$ s Pulse Waveform

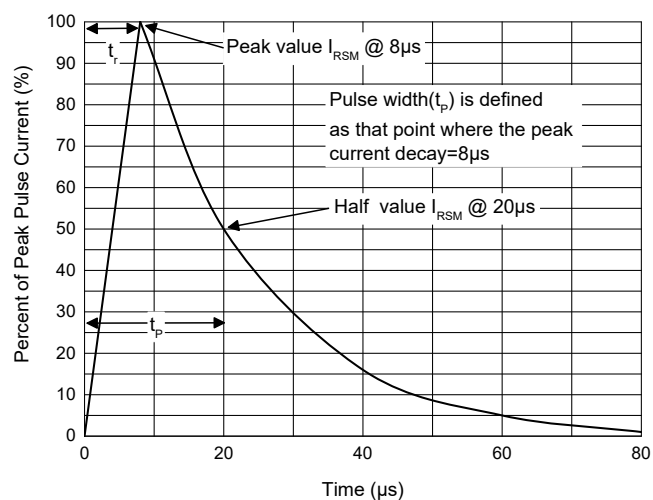


Fig. 2 - Non-Repetitive Peak Pulse Power

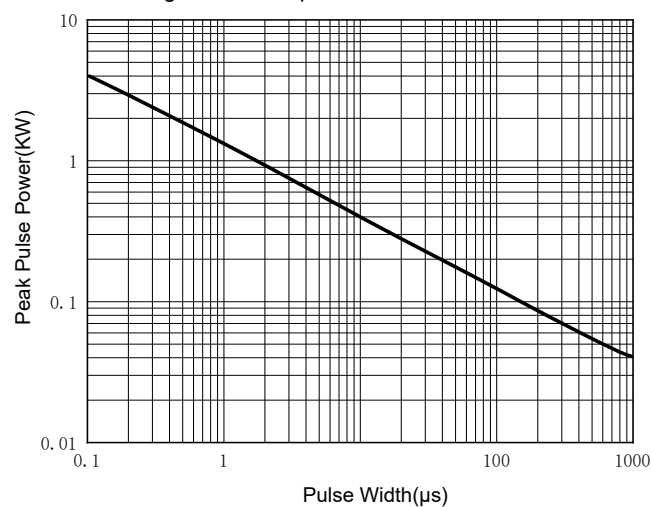


Fig. 3 - Capacitance Characteristics

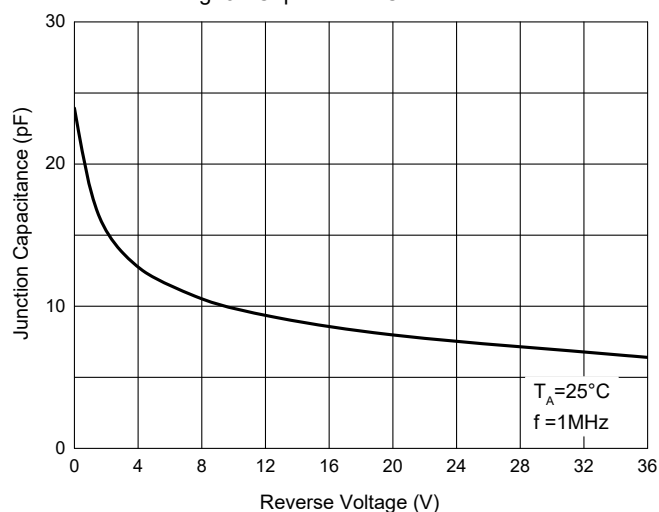


Fig. 4 - Clamping Voltage Characteristics

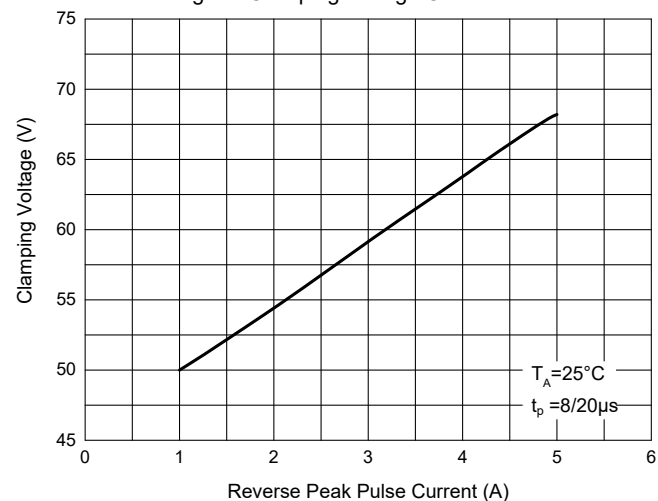


Fig. 5 - TLP Measurement

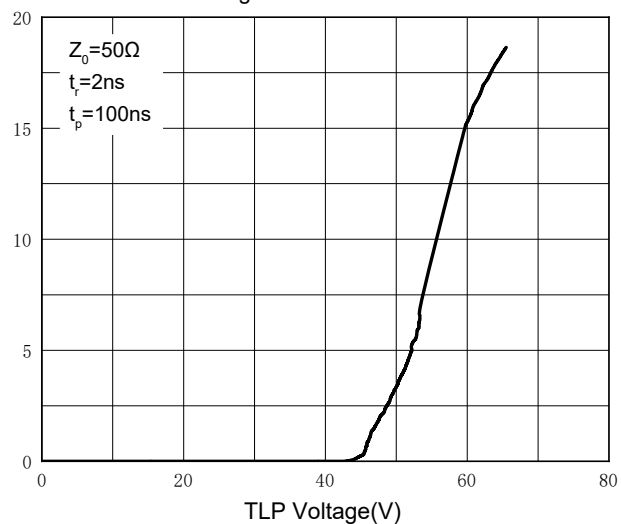
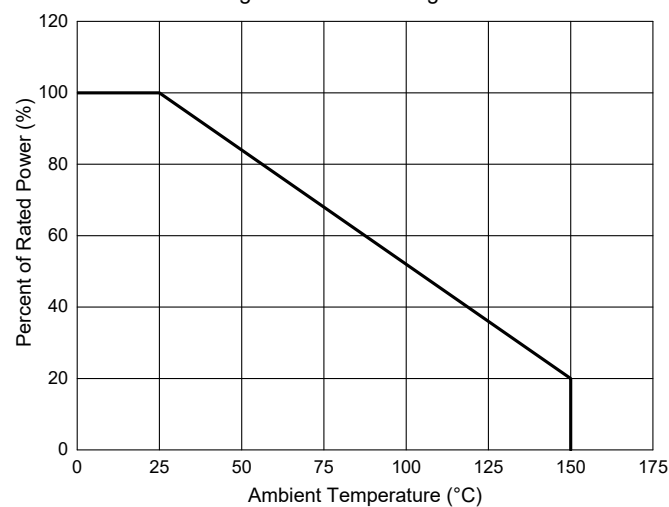


Fig. 6 - Pulse Derating Curve



## Ordering Information

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

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