

**Features**

- For Sensitive ESD Protection
- Low Clamping Voltage
- Low Leakage
- Protects One Power or I/O Port
- 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**

- Operating Junction Temperature Range: -55°C to +125°C
- Storage Temperature Range: -55°C to +150°C

| MCC Part Number | Device Marking |
|-----------------|----------------|
| SD05            | 305            |

|                            |                 |                |
|----------------------------|-----------------|----------------|
| IEC61000-4-2(ESD)          | Air Contact     | ±30KV<br>±30KV |
| Peak Pulse Current(8/20µs) | I <sub>PP</sub> | 40A            |
| Peak Pulse Power (8/20us)  | P <sub>PK</sub> | 500W           |

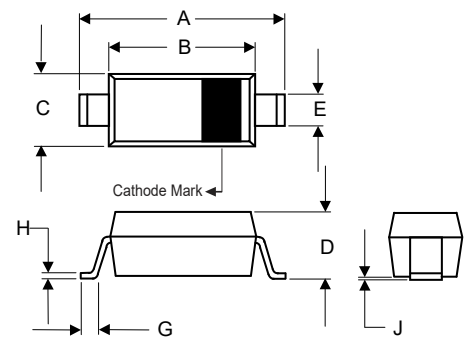
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Internal Structure**



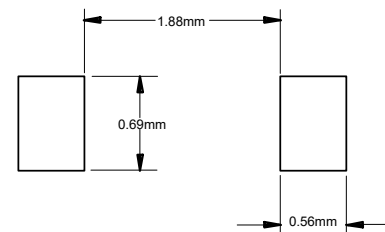
**ESD Protection Device**

**SOD-323**



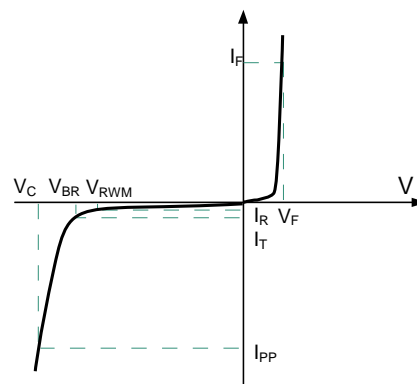
| DIM | DIMENSIONS |       |      |      | NOTE |
|-----|------------|-------|------|------|------|
|     | INCHES     |       | MM   |      |      |
|     | MIN        | MAX   | MIN  | MAX  |      |
| A   | 0.090      | 0.107 | 2.30 | 2.70 |      |
| B   | 0.063      | 0.071 | 1.60 | 1.80 |      |
| C   | 0.045      | 0.053 | 1.15 | 1.35 |      |
| D   | 0.031      | 0.045 | 0.80 | 1.15 |      |
| E   | 0.010      | 0.016 | 0.25 | 0.40 |      |
| G   | 0.004      | 0.018 | 0.10 | 0.45 |      |
| H   | 0.004      | 0.010 | 0.10 | 0.25 |      |
| J   | ----       | 0.006 | ---- | 0.15 |      |

**Suggested Solder Pad Layout**



**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Symbol    | Parameter                           |
|-----------|-------------------------------------|
| $V_{RWM}$ | Peak Reverse Working Voltage        |
| $I_R$     | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$  | Breakdown Voltage @ $I_T$           |
| $I_T$     | Test Current                        |
| $I_{PP}$  | Maximum Reverse Peak Pulse Current  |
| $V_C$     | Clamping Voltage @ $I_{PP}$         |
| $P_{PP}$  | Peak Pulse Power                    |
| $C_J$     | Junction Capacitance                |
| $I_F$     | Forward Current                     |
| $V_F$     | Forward Voltage @ $I_F$             |



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

| Parameter                 | Symbol    | Conditions                                      | Min. | Typ. | Max. | Units         |
|---------------------------|-----------|---|------|------|------|---------------|
| Reverse Working Voltage   | $V_{RWM}$ |   |      |      | 5    | V             |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T = 1\text{mA}$                              | 6    |      |      | V             |
| Reverse Leakage Current   | $I_R$     | $V_{RWM} = 5\text{V}$                           |      |      | 1    | $\mu\text{A}$ |
| Forward Voltage           | $V_F$     | $I_F = 10\text{mA}$                             |      | 0.8  | 1.2  | V             |
| Clamping Voltage          | $V_C$     | $I_{PP} = 5\text{A}$ , $t_p = 8/20\mu\text{s}$  |      |      | 9.5  | V             |
| Clamping Voltage          | $V_C$     | $I_{PP} = 40\text{A}$ , $t_p = 8/20\mu\text{s}$ |      |      | 12.5 | V             |
| Junction Capacitance      | $C_J$     | $V_R = 0\text{V}$ , $f = 1\text{MHz}$           |      |      | 350  | pF            |

## Curve Characteristics

Fig. 1 - 8 X 20µs Pulse Waveform

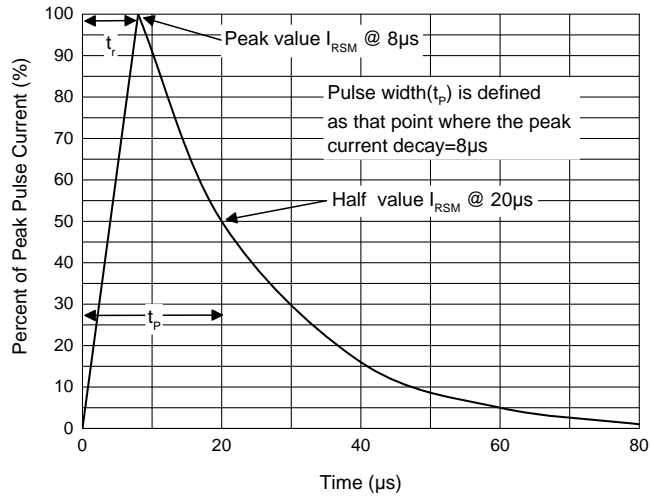
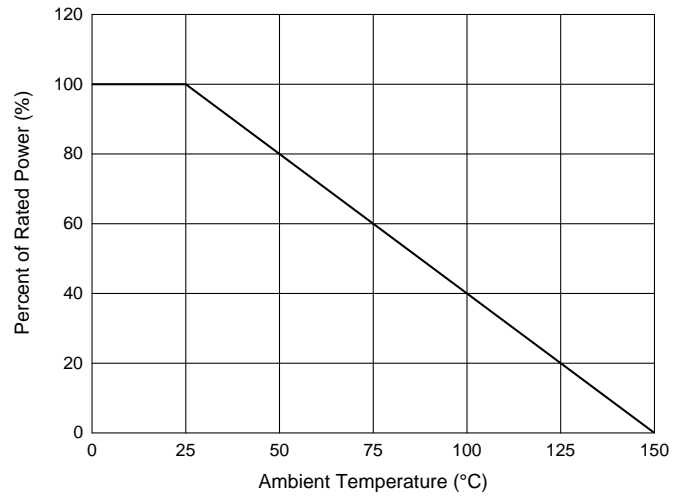


Fig. 2 - Pulse Derating Curve



## Ordering Information

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

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