

**Features**

- For Sensitive ESD Protection
- Excellent Clamping Capability
- Low Leakage
- Fast Response, Response Time Less than 1ns
- 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 +150°C
- Storage Temperature Range: -55°C to +150°C

| MCC Part Number | Device Marking |
|-----------------|----------------|
| ESD12VD9        | C              |

|                           |                 |                |
|---------------------------|-----------------|----------------|
| IEC61000-4-2(ESD)         | Air Contact     | ±30KV<br>±30KV |
| JESD22-A114-B(ESD)        | Human Body      | 16KV           |
| Peak Pulse Power (8/20us) | P <sub>PK</sub> | 100W           |

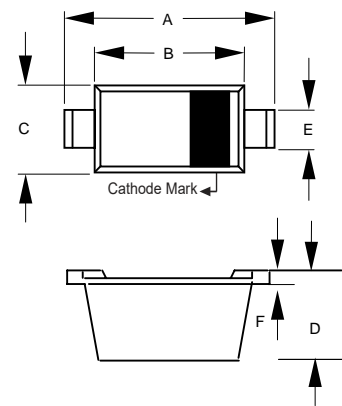
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

**Internal Structure**



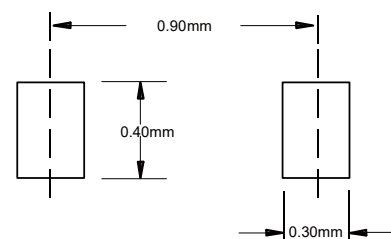
**ESD Protection Device**

**SOD-923**



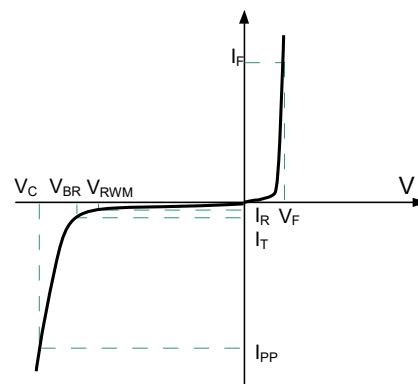
| DIM | DIMENSIONS |       |      |      | NOTE |
|-----|------------|-------|------|------|------|
|     | INCHES     |       | MM   |      |      |
|     | MIN        | MAX   | MIN  | MAX  |      |
| A   | 0.037      | 0.041 | 0.95 | 1.05 |      |
| B   | 0.030      | 0.033 | 0.75 | 0.85 |      |
| C   | 0.022      | 0.026 | 0.55 | 0.65 |      |
| D   | 0.014      | 0.017 | 0.36 | 0.43 |      |
| E   | 0.006      | 0.010 | 0.15 | 0.25 |      |
| F   | 0.003      | 0.007 | 0.07 | 0.17 |      |

**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   | $V_{RWM}$ |  |      |      | 12   | V             |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T = 1\text{mA}$                             | 13.5 |      |      | V             |
| Reverse Leakage Current   | $I_R$     | $V_{RWM} = 12\text{V}$                         |      |      | 1    | $\mu\text{A}$ |
| Forward Voltage           | $V_F$     | $I_F = 10\text{mA}$                            |      | 0.8  |      | V             |
| Clamping Voltage          | $V_C$     | $I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$ |      |      | 18.4 | V             |
| Junction Capacitance      | $C_J$     | $V_R = 2.5\text{V}$ , $f = 1\text{MHz}$        |      | 15   |      | pF            |

**Curve Characteristics**

Fig. 1 - 8 X 20µs Pulse Waveform

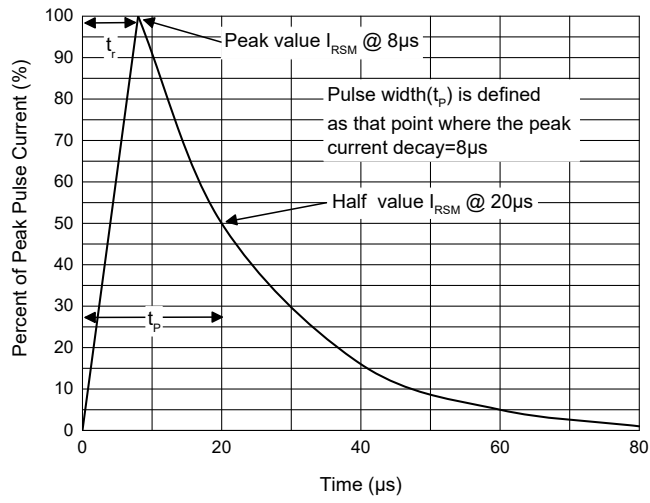
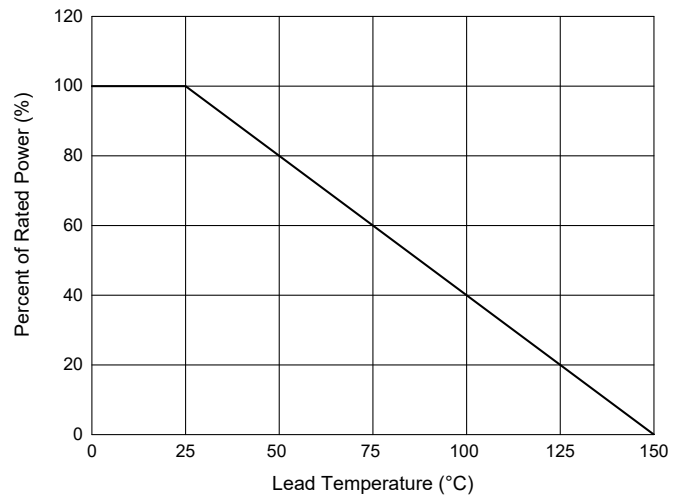


Fig. 2 - Pulse Derating Curve



## Ordering Information

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 8Kpcs/Reel |

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