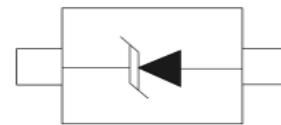


## Features

- 2000 Watts peak pulse power per line ( $t_p=8/20\mu s$ )
- Solid-state silicon-avalanche technology
- Protects one uni-directional I/O line
- Low clamping voltage
- Working voltages : 5V
- Low leakage current
- High surge capability
- RoHS compliant



SOD-323



PIN Configuration

## Applications

- Cell phone handsets and accessories
- Microprocessor based equipment
- Personal digital assistants (PDA's)
- Notebooks, desktops, and servers
- Portable instrumentation
- Power lines
- Peripherals

## IEC COMPATIBILITY (EN61000-4)

- IEC61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 110A (8/20 $\mu s$ )

## Mechanical Characteristics

- SOD-323 package
- Molding compound flammability rating : UL 94V-0
- Weight 5 milligrams (approximate)
- Quantity per reel : 3,000pcs
- Lead finish : lead free
- Marking code : 5H

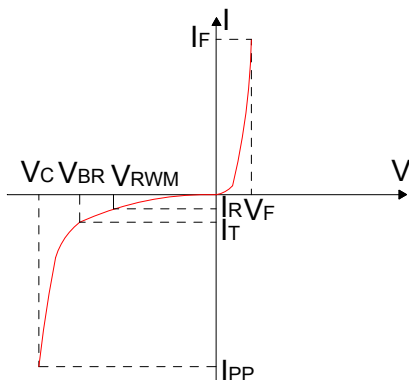
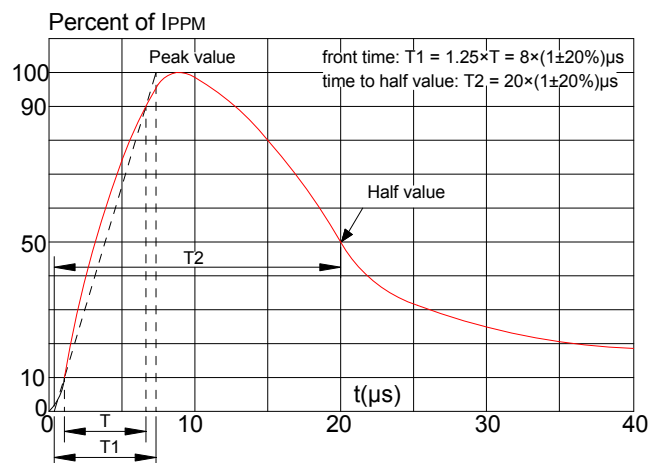
**Absolute Maximum Rating** ( $T_A=25^{\circ}\text{C}$ , RH=45%-75%, unless otherwise noted)

| Parameter   | Symbol    | Value         | Unit               |
|---|-----------|---------------|--------------------|
| Peak pulse power dissipation on 8/20 $\mu\text{s}$ waveform | $P_{PP}$  | 2000          | W                  |
| ESD per IEC 61000-4-2 (Air)                                 | $V_{ESD}$ | +/- 30        | kV                 |
| ESD per IEC 61000-4-2 (Contact)                             |           | +/- 30        |                    |
| Lead soldering temperature                                  | $T_L$     | 260 (10 sec.) | $^{\circ}\text{C}$ |
| Operating junction temperature range                        | $T_J$     | -55 to +125   | $^{\circ}\text{C}$ |
| Storage temperature range                                   | $T_{STG}$ | -55 to +150   | $^{\circ}\text{C}$ |

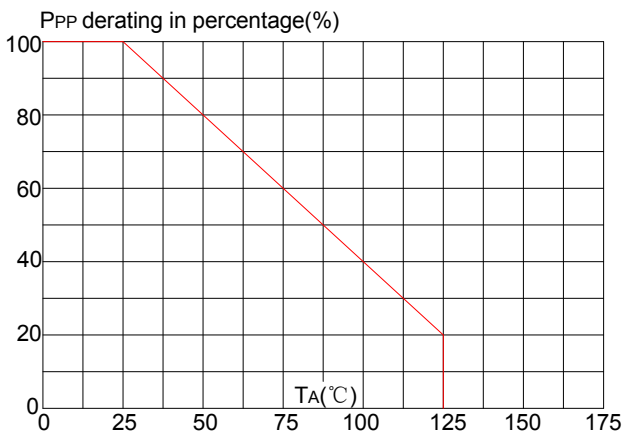
**Electrical Parameters** ( $T=25^{\circ}\text{C}$ )

| Parameter                 | Symbol    | Conditions                                       | Min | Typ | Max  | Unit          |
|---------------------------|-----------|--|-----|-----|------|---------------|
| Reverse working voltage   | $V_{RWM}$ |  |     |     | 5    | V             |
| Reverse breakdown voltage | $V_{BR}$  | $I_T = 1\text{mA}$                               | 6   | 7   | 8    | V             |
| Reverse leakage current   | $I_R$     | $V_{RWM} = 5\text{V}$                            |     |     | 1    | $\mu\text{A}$ |
| Clamping voltage          | $V_C$     | $I_{PP} = 50\text{A}$ , $t_p = 8/20\mu\text{s}$  |     | 11  | 13   | V             |
|                           |           | $I_{PP} = 110\text{A}$ , $t_p = 8/20\mu\text{s}$ |     | 14  | 17   | V             |
| Junction capacitance      | $C_J$     | $V_{RWM} = 0\text{V}$ , $f = 1\text{MHz}$        |     | 850 | 1050 | pF            |

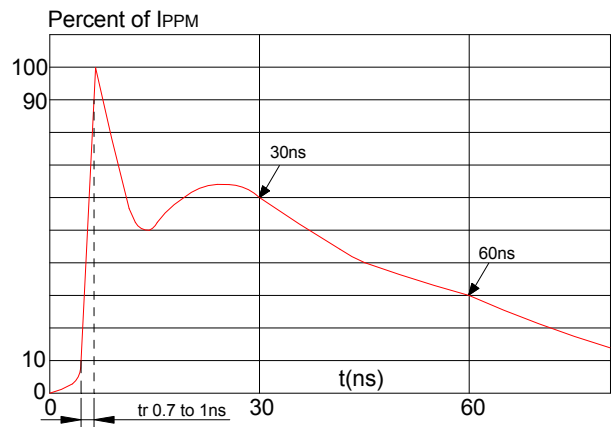
**RATINGS AND V-I CHARACTERISTICS CURVES** ( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

**FIG.1: V- I curve characteristics (Uni-directional)**

**FIG.2: Pulse waveform (8/20 $\mu\text{s}$ )**


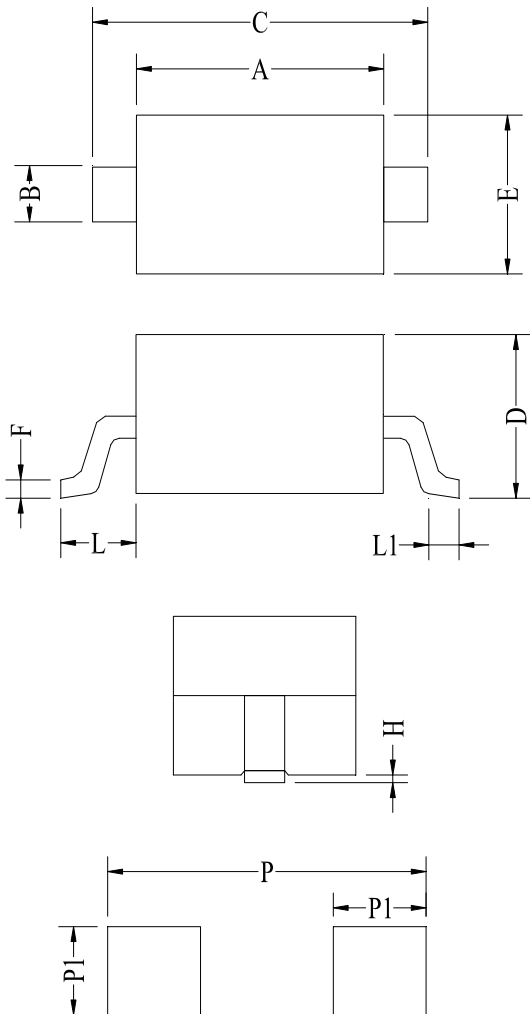
**FIG.3: Pulse derating curve**



**FIG.4: ESD clamping (30kV contact)**

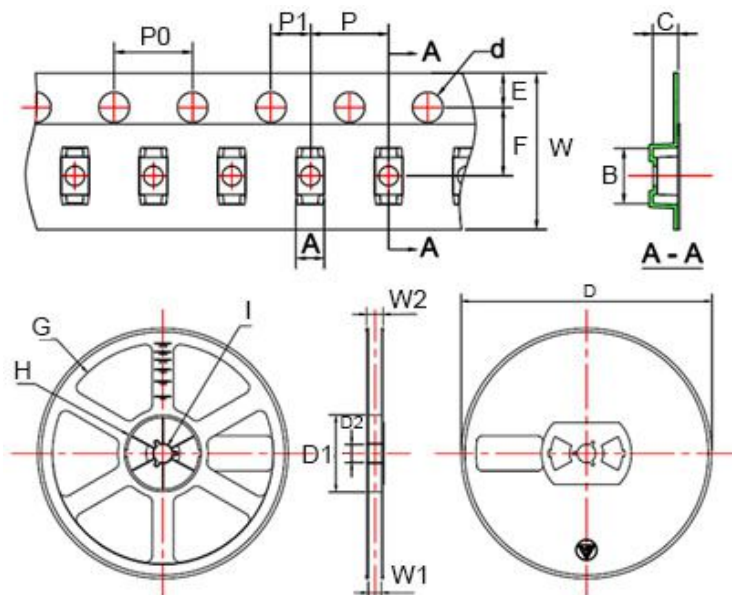


### PACKAGE MECHANICAL DATA

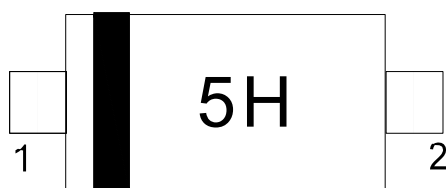


**Land Pattern**

| Symbol | Millimeter |      | Inches   |       |
|--------|------------|------|----------|-------|
|        | Min        | Max  | Min      | Max   |
| A      | 1.60       | 1.80 | 0.063    | 0.071 |
| B      | 0.25       | 0.35 | 0.010    | 0.014 |
| C      | 2.50       | 2.70 | 0.098    | 0.106 |
| D      | 0.00       | 1.00 | 0.000    | 0.039 |
| E      | 1.20       | 1.40 | 0.047    | 0.055 |
| F      | 0.08       | 0.15 | 0.003    | 0.006 |
| L      | 0.475REF   |      | 0.019REF |       |
| L1     | 0.25       | 0.40 | 0.010    | 0.016 |
| H      | 0.00       | 0.10 | 0.000    | 0.004 |
| P      | 3.00       |      | 0.118    |       |
| P1     | 0.80       |      | 0.031    |       |

**TAPE AND REEL INFORMATION**


| Symbol | Millimeters   | Inches             |
|--------|---------------|--------------------|
| A      | 1.46±0.05     | 0.057±0.002        |
| B      | 2.90±0.05     | 0.114±0.002        |
| C      | 1.25±0.05     | 0.049±0.002        |
| d      | ∅1.50±0.1     | ∅0.059±0.004       |
| E      | 1.75±0.1      | 0.069±0.004        |
| F      | 3.50±0.1      | 0.138±0.004        |
| P0     | 4.0±0.1       | 0.157±0.004        |
| P      | 4.0±0.1       | 0.157±0.004        |
| P1     | 2.0±0.1       | 0.079±0.004        |
| W      | 8.00+0.3/-0.1 | 0.315+0.012/-0.004 |
| D      | ∅178.0±2      | ∅7.008±0.079       |
| D1     | 54.40±1       | 2.142±0.039        |
| D2     | 13.0±1        | 0.512±0.039        |
| G      | R78.0±1       | R3.071±0.039       |
| H      | R25.60±1      | R1.008±0.039       |
| I      | R6.50±1       | R0.256±0.039       |
| W1     | 9.50±1        | 0.374±0.039        |
| W2     | 12.30±1       | 0.484±0.039        |

**Marking**

**Order Information**

| PN#       | Package | Reel Size | Quantity Per Reel |
|-----------|---------|-----------|-------------------|
| MSD3A051S | SOD-323 | 7 Inch    | 3,000 pcs         |

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