

### Features

- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 25A (8/20  $\mu\text{s}$ )
- RoHS Compliant

### Dimensions SOD-323



### Applications

- USB 2.0 power and data line
- Set-top box and digital TV
- Digital video interface (DVI)
- Notebook Computers
- SIM Ports
- 10/100 Ethernet

### Pin Configuration



### Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Lead Free
- UL Flammability Classification Rating 94V-0
- Quantity Per Reel: 3,000 pcs
- Reel Size: 7 inch
- Device Marking: 3M

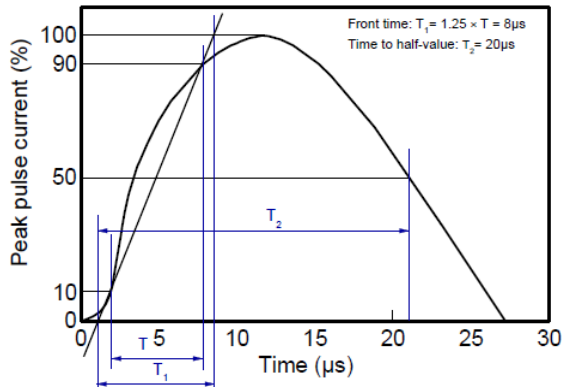
### Absolute Maximum Ratings (T<sub>amb</sub>=25°C unless otherwise specified)

| Parameter                              | Symbol           | Value       | Unit |
|--|------------------|-------------|------|
| Peak Pulse Power (8/20 $\mu\text{s}$ ) | P <sub>pp</sub>  | 315         | W    |
| ESD per IEC 61000-4-2 (Air)            | V <sub>ESD</sub> | $\pm 30$    | Kv   |
| ESD per IEC 61000-4-2 (Contact)        |                  | $\pm 30$    |      |
| Operating Temperature Range            | T <sub>J</sub>   | -55 to +150 | °C   |
| Storage Temperature Range              | T <sub>STJ</sub> | -55 to +150 | °C   |

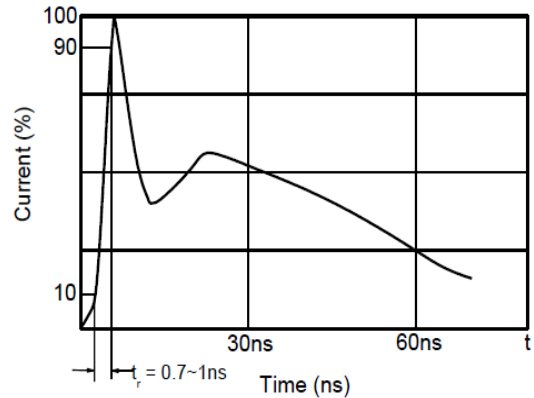
## Electrical Characteristics (TA=25°C unless otherwise specified)

| Parameter               | Symbol    | Test Condition                        | Min | Typ | Max | Unit    |
|-------------------------|-----------|---------------------------------------|-----|-----|-----|---------|
| Reverse Working Voltage | $V_{RWM}$ |                                       |     | 5   | 6   | V       |
| Breakdown Voltage       | $V_{BR}$  | $I_T = 1mA$                           | 6.5 |     | 8   | V       |
| Reverse Leakage Current | $I_R$     | $V_{RWM} = 5V$                        |     |     | 0.1 | $\mu A$ |
| Clamping Voltage        | $V_C$     | $I_{PP} = 5A$ (8 x 20 $\mu s$ pulse)  |     |     | 9.5 | V       |
| Clamping Voltage        | $V_C$     | $I_{PP} = 25A$ (8 x 20 $\mu s$ pulse) |     |     | 13  | V       |
| Junction Capacitance    | $C_J$     | $V_R = 0V, f = 1MHz$                  |     |     | 110 | pF      |

## Characteristic Curves



8/20 $\mu s$  waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2

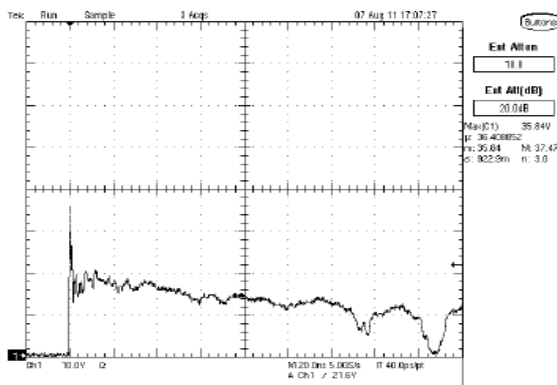


Fig1. ESD Clamping Voltage Screenshot Positive 8 kV Contact per IEC61000-4-2

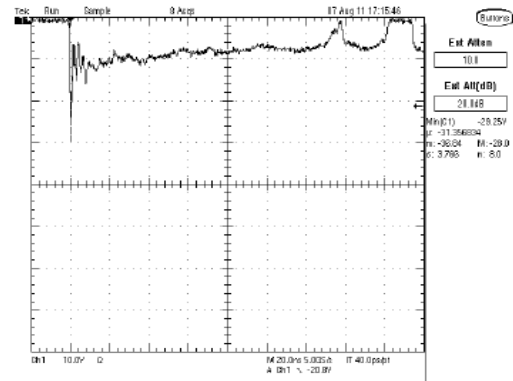


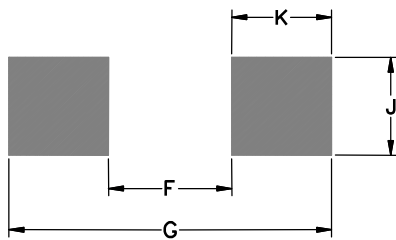
Fig2. ESD Clamping Voltage Screenshot Negative 8 kV Contact per IEC61000-4-2

## SOD-323 Package Outline & Dimensions



| Symbol               | Millimeters |      |       | Inches    |       |       |
|----------------------|-------------|------|-------|-----------|-------|-------|
|                      | Min.        | Nom. | Max.  | Min.      | Nom.  | Max.  |
| <b>A</b>             | 0.80        | 0.90 | 1.15  | 0.031     | 0.035 | 0.045 |
| <b>A1</b>            | 0.001       | 0.05 | 0.15  | 0.004     | 0.002 | 0.006 |
| <b>A3</b>            | 0.15 REF    |      |       | 0.006 REF |       |       |
| <b>b</b>             | 0.25        | 0.32 | 0.45  | 0.010     | 0.012 | 0.018 |
| <b>C</b>             | 0.100       | 0.12 | 0.150 | 0.004     | 0.005 | 0.006 |
| <b>D</b>             | 1.60        | 1.70 | 1.95  | 0.063     | 0.066 | 0.077 |
| <b>E</b>             | 1.10        | 1.25 | 1.50  | 0.043     | 0.049 | 0.059 |
| <b>L</b>             | 0.08        |      |       | 0.003     |       |       |
| <b>H<sub>E</sub></b> | 2.65        | 2.85 | 3.10  | 0.104     | 0.112 | 0.122 |

### Soldering Footprint



| Symbol   | Millimeters | Inches |
|----------|-------------|--------|
| <b>F</b> | 1.60        | 0.063  |
| <b>G</b> | 3.20        | 0.125  |
| <b>J</b> | 0.60        | 0.024  |
| <b>K</b> | 0.80        | 0.031  |

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