

### 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) 8A (8/20  $\mu\text{s}$ )
- RoHS Compliant

### Dimensions SOD-523



### 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-523
- Lead Finish: Lead Free
- UL Flammability Classification Rating 94V-0
- Quantity Per Reel: 3,000 pcs
- Reel Size: 7 inch
- Device Marking: 5B

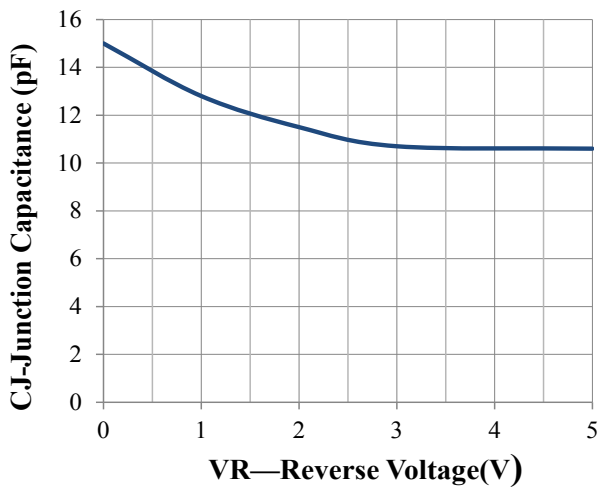
### Absolute Maximum Ratings (T<sub>amb</sub>=25°C unless otherwise specified)

| Parameter                              | Symbol           | Value       | Unit |
|--|------------------|-------------|------|
| Peak Pulse Power (8/20 $\mu\text{s}$ ) | P <sub>pp</sub>  | 100         | 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 +125 | °C   |
| Storage Temperature Range              | T <sub>STJ</sub> | -55 to +150 | °C   |

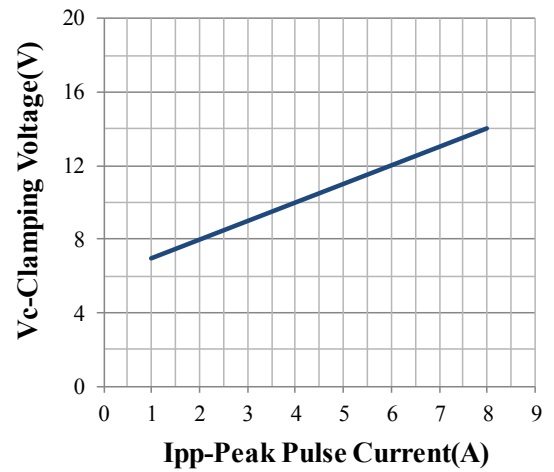
## Electrical Characteristics (TA=25°C unless otherwise specified)

| Parameter               | Symbol    | Test Condition                                    | Min | Typ | Max | Unit          |
|-------------------------|-----------|---|-----|-----|-----|---------------|
| Reverse Working Voltage | $V_{RWM}$ |   |     |     | 5   | V             |
| Breakdown Voltage       | $V_{BR}$  | $I_T = 1\text{mA}$                                | 5.5 |     |     | V             |
| Reverse Leakage Current | $I_R$     | $V_{RWM} = 5\text{V}$                             |     |     | 1   | $\mu\text{A}$ |
| Clamping Voltage        | $V_C$     | $I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse) |     |     | 9   | V             |
| Clamping Voltage        | $V_C$     | $I_{PP} = 8\text{A}$ (8 x 20 $\mu\text{s}$ pulse) |     |     | 12  | V             |
| Junction Capacitance    | $C_J$     | $V_R = 0\text{V}$ , $f = 1\text{MHz}$             |     | 15  |     | pF            |

Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise Specified)



Junction Capacitance vs. Reverse Voltage



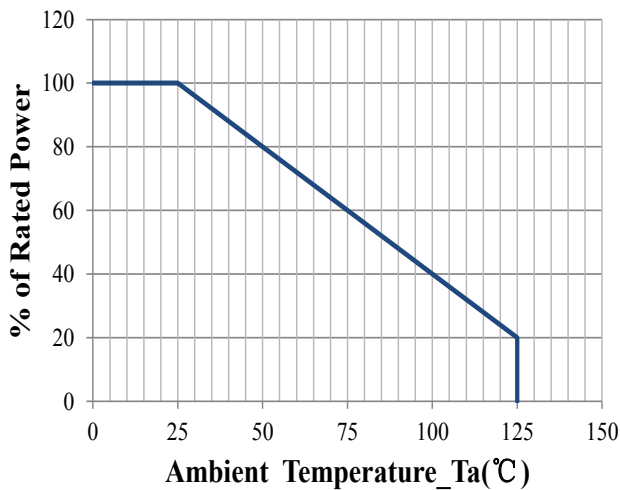
Clamping Voltage vs. Peak Pulse Current



Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve



8 X 20us Pulse Waveform

## SOD-523 Package Outline & Dimensions



| DIMENSIONS       |        |      |      |      |      |
|------------------|--------|------|------|------|------|
| DIM <sup>N</sup> | INCHES |      | MM   |      | NOTE |
|                  | . MIN  | MAX  | MIN  | MAX  |      |
| A                | .043   | .051 | 1.10 | 1.30 | —    |
| B                | .028   | .035 | 0.70 | 0.90 | —    |
| C                | .059   | .067 | 1.50 | 1.70 | —    |
| D                | .020   | .028 | 0.50 | 0.70 | —    |
| E                | .010   | .014 | 0.25 | 0.35 | —    |
| F                | .004   | .008 | 0.10 | 0.20 | —    |
| G                | .020   | .028 | 0.50 | 0.70 | —    |

## Suggested Land Pattern



| DIMENSIONS       |        |      |     |      |      |
|------------------|--------|------|-----|------|------|
| DIM <sup>N</sup> | INCHES |      | MM  |      | NOTE |
|                  | MIN    | MAX  | MIN | MAX  |      |
| C                | —      | .067 | —   | 1.70 | REF  |
| G                | —      | .043 | —   | 1.10 | —    |
| X                | —      | .031 | —   | 0.80 | REF  |
| Y                | —      | .024 | —   | 0.60 | —    |
| Z                | —      | .091 | —   | 2.30 | —    |

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