

# SD08X

## 1. Protection Solution To Meet

- IEC61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 23A (8/20 $\mu\text{s}$ )

## 2. Features

- Low clamping voltage
- Working voltage: 5.0V
- Low leakage current
- RoHS compliant

## 3. Main Application

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

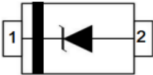
## 4. Mechanical Characteristics

- SOD-523 package
- Molding compound flammability rating: UL 94V-0
- Weight 0.5 milligrams (approximate)
- Lead finish: lead free

## 5. Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter                       | Symbol                   | Value           | Unit             |
|---------------------------------|--------------------------|-----------------|------------------|
| ESD per IEC 61000-4-2 (Contact) | $V_{\text{ESD-Contact}}$ | $\pm 30$        | KV               |
| ESD per IEC 61000-4-2 (Air)     | $V_{\text{ESD-Air}}$     | $\pm 30$        | KV               |
| Peak Pulse Power(8/20us)        | $P_{\text{pp}}$          | 414             | W                |
| Operating Temperature           | $T_{\text{OPT}}$         | $-55 \sim +150$ | $^\circ\text{C}$ |
| Storage Temperature Range       | $T_{\text{stg}}$         | $-55 \sim +150$ | $^\circ\text{C}$ |

## 6. Pinning information

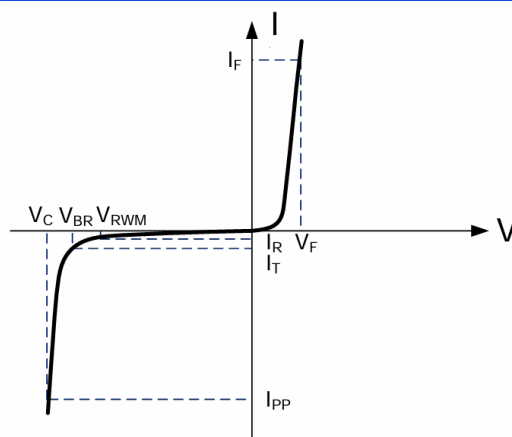
| Pin | Description | Simplified outline                                                                | Equivalent Circuit                                                                | Marking | Package |
|-----|-------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------|---------|
| 2   | Uni         |  |  | 08X     | SOD-523 |

## 7. Electrical Characteristics (T<sub>amb</sub>=25°C)

| Parameter               | Symbols          | Condition                                     | Min | Typ | Max | Unit |
|-------------------------|------------------|-----------------------------------------------|-----|-----|-----|------|
| Reverse Working Voltage | V <sub>RWM</sub> |                                               |     |     | 8   | V    |
| Breakdown Voltage       | V <sub>BR</sub>  | I <sub>T</sub> =1mA                           | 8.5 |     |     | V    |
| Reverse Leakage Current | I <sub>R</sub>   | V <sub>RWM</sub> =8V                          |     |     | 1   | uA   |
| Clamping Voltage        | V <sub>C</sub>   | I <sub>pp</sub> =1A , t <sub>p</sub> =8/20us  |     |     | 12  | V    |
|                         |                  | I <sub>pp</sub> =23A , t <sub>p</sub> =8/20us |     |     | 18  | V    |
| Junction Capacitance    | C <sub>J</sub>   | V <sub>R</sub> =0V , f=1MHz                   |     | 150 |     | pF   |

## 8. Electrical Parameters

| Symbol           | Parameter                                        |
|------------------|--------------------------------------------------|
| I <sub>PP</sub>  | Maximum Reverse Peak Pulse Current               |
| V <sub>C</sub>   | Clamping Voltage @I <sub>PP</sub>                |
| V <sub>RWM</sub> | Working Peak Reverse Voltage                     |
| I <sub>R</sub>   | Maximum Reverse Leakage Current@V <sub>RWM</sub> |
| I <sub>T</sub>   | Test Current                                     |
| V <sub>BR</sub>  | Breakdown Voltage @I <sub>T</sub>                |
| V <sub>F</sub>   | Forward Voltage                                  |
| I <sub>F</sub>   | Forward Test Current                             |



## 9. Typical Characteristics

Fig.1 8/20us Waveform Per iec6100-4-5

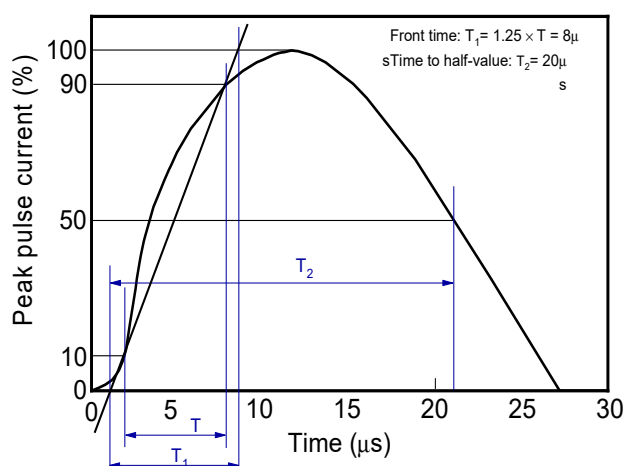


Fig.2 Contact Discharge Current Waveform per IEC61000-4-2

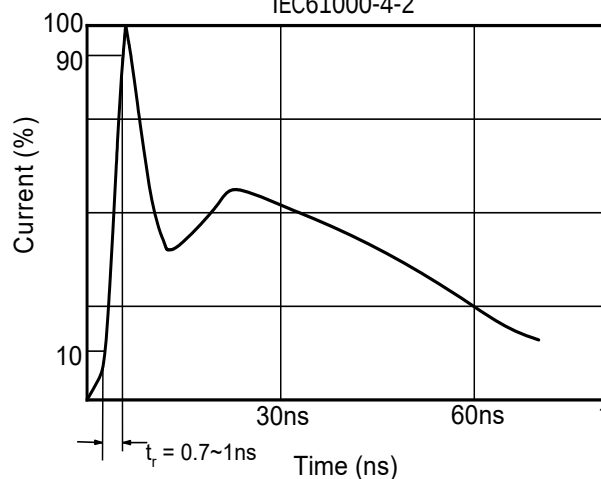
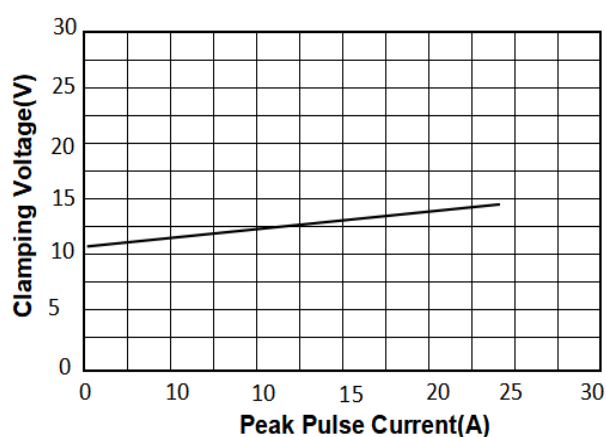


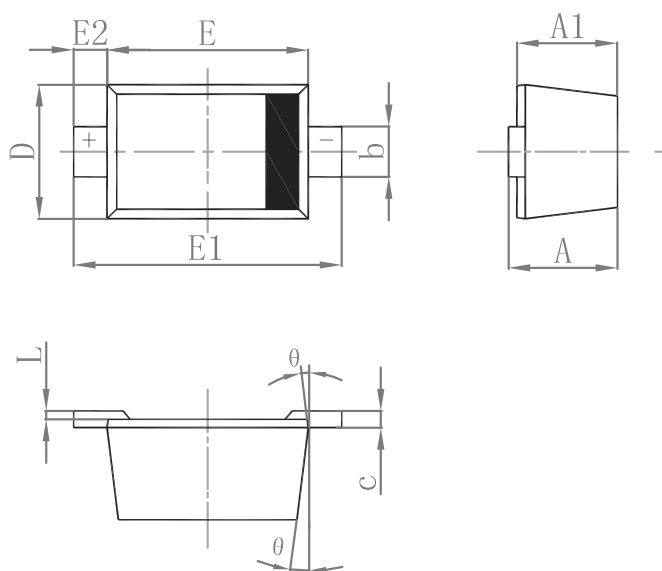
Fig.3 Clamping Voltage Vs Peak Pulse Current



The curve above is for reference only.

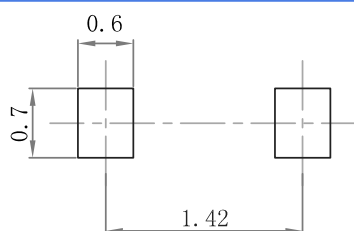
## 10. Outline Drawing

SOD-523 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.510                     | 0.770 | 0.020                | 0.031 |
| A1     | 0.500                     | 0.770 | 0.020                | 0.031 |
| b      | 0.250                     | 0.400 | 0.010                | 0.016 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 0.700                     | 1.000 | 0.028                | 0.040 |
| E      | 1.100                     | 1.300 | 0.043                | 0.051 |
| E1     | 1.500                     | 1.700 | 0.059                | 0.067 |
| E2     | 0.150                     | 0.250 | 0.006                | 0.010 |
| L      | 0.000                     | 0.070 | 0.000                | 0.003 |
| K      | 0°                        | 8°    | 0°                   | 8°    |

## 11. Suggested Pad Layout



Note:

1. Controlling dimension: in/millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

## 12. PACKAGE SPECIFICATIONS

| Package | Reel Size | Reel DIA.<br>(mm) | Q'TY/Reel<br>(pcs) | Box Size<br>(mm) | QTY/Box<br>(pcs) | Carton Size<br>(mm) | Q'TY/Carton<br>(pcs) |
|---------|-----------|-------------------|--------------------|------------------|------------------|---------------------|----------------------|
| SOD-523 | 7"        | 178               | 5000               | 190×190×190      | 75000            | 400×400×220         | 300,000              |

### **13.Important Notice and Disclaimer**

Microdiode Electronics (Shenzhen) reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design,purchase or use.

Microdiode Electronics (Shenzhen) makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does Microdiode Electronics (Shenzhen) assume any liability for application assistance or customer product design. Microdiode Electronics (Shenzhen) does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of Microdiode Electronics (Shenzhen).

Microdiode Electronics (Shenzhen) products are not authorized for use as critical components in life support devices or systems without express written approval of Microdiode Electronics (Shenzhen).