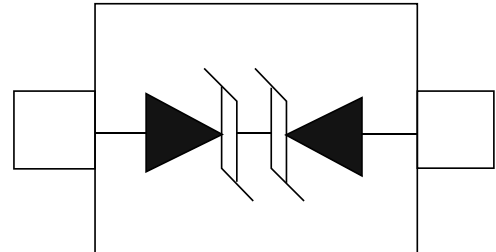


## Features

- Small Body Outline Dimensions:  
0.063" x 0.032" (1.6x0.8 mm)
- Low Body Height: 0.024" (0.6 mm) Nom
- 100 Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Protects one I/O or power line
- Replacement for MLV(0603)
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- Solid-state silicon-avalanche technology



SOD-523 (Top View)

## Applications

- Cellular Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebooks & Handhelds
- Portable Instrumentation
- Digital Cameras
- MP3 players

## IEC COMPATIBILITY(EN61000-4)

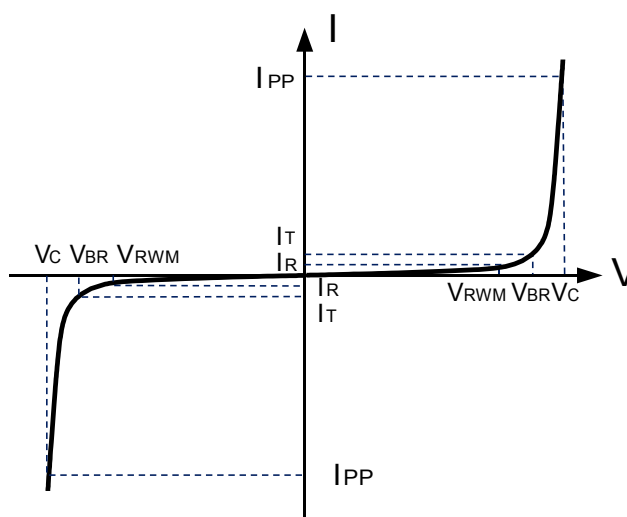
- IEC 61000-4-2 (ESD)  $\pm 15kV$  (air),  $\pm 8kV$  (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 5.5A (8/20 $\mu s$ )

## Absolute Maximum Rating

| Rating                                           | Symbol    | Value        | Units       |
|--------------------------------------------------|-----------|--------------|-------------|
| Peak Pulse Power ( $t_p = 8/20\mu s$ )           | $P_{PP}$  | 100          | Watts       |
| Maximum Peak Pulse Current ( $t_p = 8/20\mu s$ ) | $I_{PP}$  | 5.5          | A           |
| Operating Temperature                            | $T_J$     | -55 to + 125 | $^{\circ}C$ |
| Storage Temperature                              | $T_{STG}$ | -55 to +150  | $^{\circ}C$ |

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

| Symbol    | Parameter                                   |
|-----------|---------------------------------------------|
| $I_{PP}$  | Maximum Reverse Peak Pulse Current          |
| $V_C$     | Clamping Voltage @ $I_{PP}$                 |
| $V_{RWM}$ | Working Peak Reverse Voltage                |
| $I_R$     | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$  | Breakdown Voltage @ $I_T$                   |
| $I_T$     | Test Current                                |
| $I_F$     | Forward Current                             |
| $V_F$     | Forward Voltage @ $I_F$                     |



## Electrical Characteristics

### BSD5C051V

| Parameter                 | Symbol    | Conditions                      | Minimum | Typical | Maximum | Units   |
|---------------------------|-----------|---------------------------------|---------|---------|---------|---------|
| Reverse Stand-Off Voltage | $V_{RWM}$ |                                 |         |         | 5.0     | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T=1mA$                       | 6.0     |         |         | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=5V$ , $T=25^{\circ}C$  |         |         | 1       | $\mu A$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=5.5A$ , $t_p=8/20\mu s$ |         |         | 15.5    | V       |
| Junction Capacitance      | $C_j$     | $V_R = 0V$ , $f = 1MHz$         |         | 10      |         | pF      |

## Typical Characteristics

Figure 1: Peak Pulse Power Vs Pulse Time

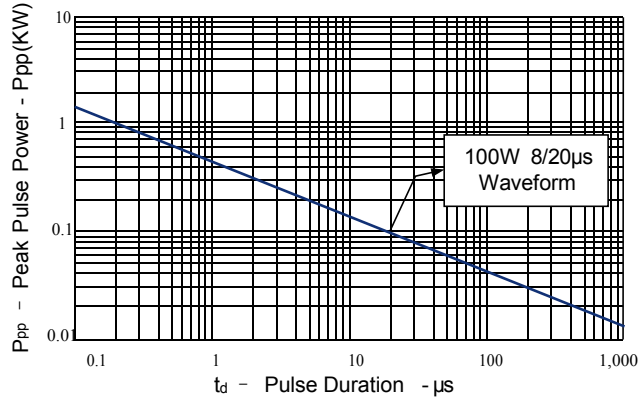


Figure 2: Power Derating Curve

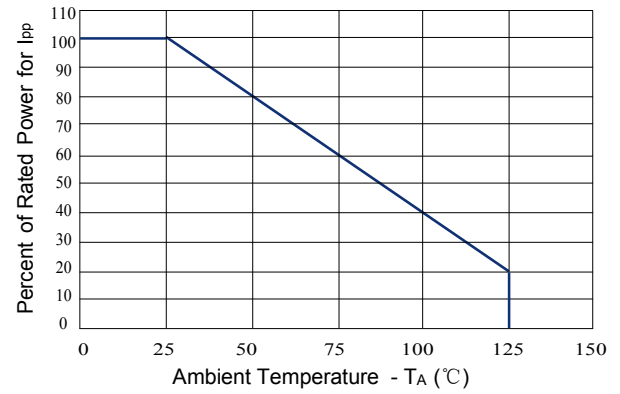


Figure 3: Clamping Voltage vs. Peak Pulse Current

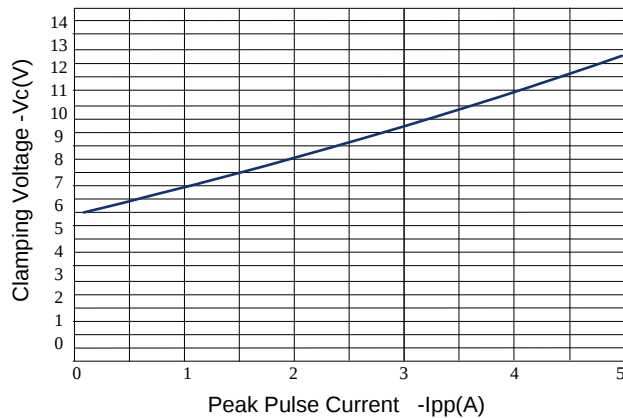


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

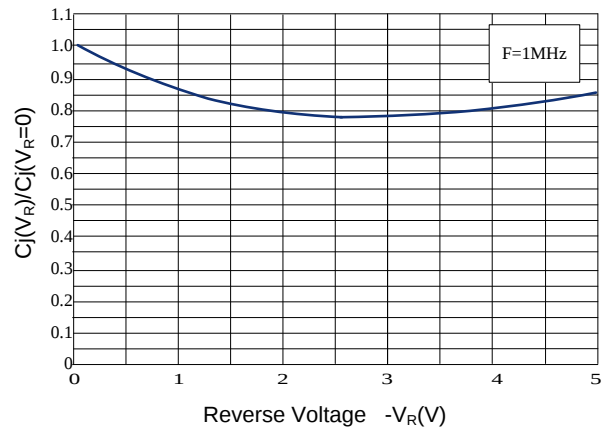


Figure 5: 8/20μs Pulse Waveform

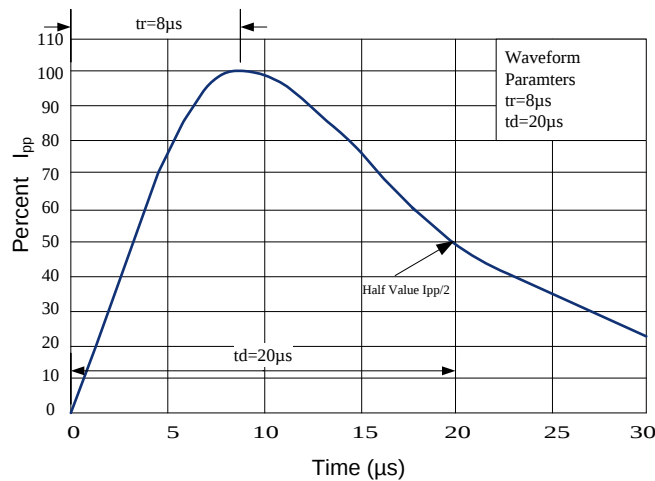
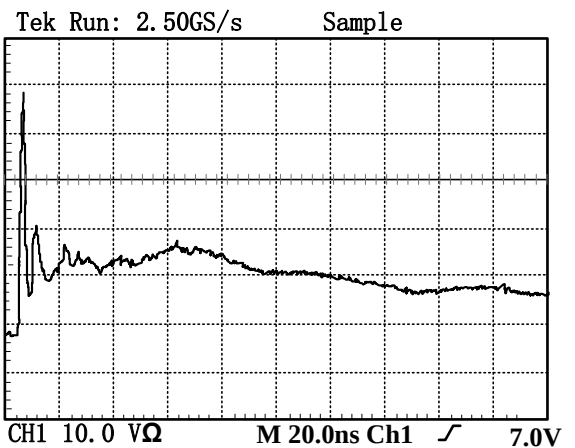
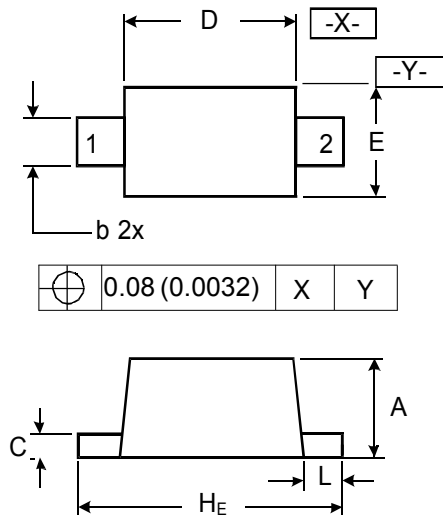


Figure 6: ESD Clamping( 8kV Contact per IEC 61000-4-2)



## Package outline dimensions

### SOD-523



**DIMENSIONS**

| SYMBOL         | MILLIMETER |      | INCHES |        |
|----------------|------------|------|--------|--------|
|                | MIN        | MAX  | MIN    | MAX    |
| A              | 0.50       | 0.70 | 0.020  | 0.028  |
| b              | 0.25       | 0.35 | 0.010  | 0.014  |
| C              | 0.07       | 0.20 | 0.0028 | 0.0079 |
| D              | 1.10       | 1.30 | 0.043  | 0.051  |
| E              | 0.70       | 0.90 | 0.028  | 0.035  |
| H <sub>E</sub> | 1.50       | 1.70 | 0.059  | 0.067  |
| L              | 0.15       | 0.25 | 0.006  | 0.010  |

## Marking



## Ordering information

| Order code    | Package | Base qty | Delivery mode |
|---------------|---------|----------|---------------|
| UMW BSD5C051V | SOD-523 | 3000     | Tape and reel |