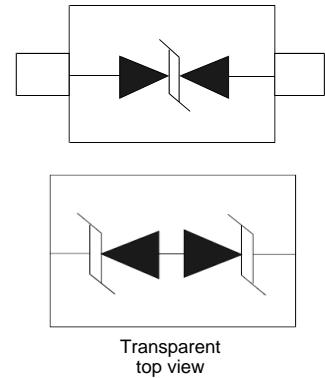


## Features

- Bidirectional ESD protection of one line
- Very low diode capacitance:  $C_d = 11 \text{ pF}$
- Max. peak pulse power:  $P_{PP} = 45 \text{ W}$
- Low clamping voltage:  $V_{CL} = 12.5 \text{ V}$
- Ultra low leakage current:  $I_{RM} < 1 \text{ nA}$
- ESD protection up to 30 kV
- IEC 61000-4-2; level 4 (ESD)
- IEC 61000-4-5 (surge);  $I_{PP} = 4.8 \text{ A}$
- AEC-Q101 qualified



## Applications

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Subscriber Identity Module (SIM) card protection
- Communication systems
- Portable electronics
- 10/100 Mbit/s Ethernet
- FireWire

## Mechanical Data

- SOD-882 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

## Quick reference data

### Quick reference data

$T_{amb} = 25 \text{ }^\circ\text{C}$  unless otherwise specified.

| Symbol    | Parameter                | Conditions                             | Min | Typ | Max | Unit |
|-----------|--------------------------|--|-----|-----|-----|------|
| $V_{RWM}$ | reverse standoff voltage |  | -   | -   | 5   | V    |
| $C_d$     | diode capacitance        | $f = 1 \text{ MHz}; V_R = 0 \text{ V}$ | -   | 11  | 13  | pF   |

## Ordering information

Ordering information

| Type number | Package |  |         |
|-------------|---------|--|---------|
|             | Name    | Description  | Version |
| PESD5V0V1BA | SC-76   | plastic surface-mounted package; 2 leads                                   | SOD323  |
| PESD5V0V1BB | SC-79   | plastic surface-mounted package; 2 leads                                   | SOD523  |
| PESD5V0V1BL | -       | leadless ultra small plastic package; 2 terminals; body 1.0 ? 0.6 ? 0.5 mm | SOD882  |

## Limiting values

Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

| Symbol           | Parameter          | Conditions               |     | Min | Max | Unit |
|------------------|--------------------|--------------------------|-----|-----|-----|------|
| <b>Per diode</b> |                    |                          |     |     |     |      |
| P <sub>PP</sub>  | peak pulse power   | t <sub>p</sub> = 8/20 ?s | [1] | -   | 45  | W    |
| I <sub>PP</sub>  | peak pulse current | t <sub>p</sub> = 8/20 ?s | [1] | -   | 4.8 | A    |

Limiting values ...continued

In accordance with the Absolute Maximum Rating System (IEC 60134).

| Symbol            | Parameter            | Conditions | Min | Max  | Unit |
|-------------------|----------------------|------------|-----|------|------|
| <b>Per device</b> |                      |            |     |      |      |
| T <sub>j</sub>    | junction temperature |            | -   | 150  | °C   |
| T <sub>amb</sub>  | ambient temperature  |            | -55 | +150 | °C   |
| T <sub>stg</sub>  | storage temperature  |            | -65 | +150 | °C   |

[1] Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC 61000-4-5.

## ESD maximum ratings

T<sub>amb</sub> = 25 °C unless otherwise specified.

| Symbol           | Parameter                       | Conditions                        |     | Min | Max | Unit |
|------------------|---------------------------------|-----------------------------------|-----|-----|-----|------|
| V <sub>ESD</sub> | electrostatic discharge voltage | IEC 61000-4-2 (contact discharge) | [1] | -   | 30  | kV   |
|                  |                                 | machine model                     |     | -   | 2   | kV   |
|                  |                                 | MIL-STD-883 (human body model)    |     | -   | 16  | kV   |

[1] Device stressed with ten non-repetitive ESD pulses.

## ESD standards compliance

| Standard                                 | Conditions                      |
|--|---------------------------------|
| IEC 61000-4-2; level 4 (ESD)             | > 15 kV (air); > 8 kV (contact) |
| MIL-STD-883; class 3B (human body model) | > 8 kV                          |

## Characteristics

### Characteristics

T<sub>amb</sub> = 25 °C unless otherwise specified.

| Symbol               | Parameter                | Conditions              |     | Min | Typ | Max  | Unit |
|----------------------|--------------------------|-------------------------|-----|-----|-----|------|------|
| V <sub>RWM</sub>     | reverse standoff voltage |                         |     | -   | -   | 5    | V    |
| I <sub>RM</sub>      | reverse leakage current  | V <sub>RWM</sub> = 5 V  |     | -   | < 1 | 10   | nA   |
| V <sub>BR</sub>      | breakdown voltage        | I <sub>R</sub> = 5 mA   |     | 5.8 | 6.8 | 7.8  | V    |
| C <sub>d</sub>       | diode capacitance        | f = 1 MHz;              |     | -   | 11  | 13   | pF   |
| V <sub>R</sub> = 0 V |                          |                         |     |     |     |      |      |
| V <sub>CL</sub>      | clamping voltage         | I <sub>PP</sub> = 4.8 A | [1] | -   | -   | 12.5 | V    |
| r <sub>dyn</sub>     | dynamic resistance       | I <sub>R</sub> = 10 A   | [2] | -   | 0.2 | -    | Ω    |
| r <sub>dif</sub>     | differential resistance  | I <sub>R</sub> = 5 mA   |     | -   | -   | 35   | Ω    |

[1] Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC 61000-4-5.

[2] Non-repetitive current pulse, Transmission Line Pulse (TLP) t<sub>p</sub> = 100 ns; square pulse; ANS/IESD STM5.1-2008.

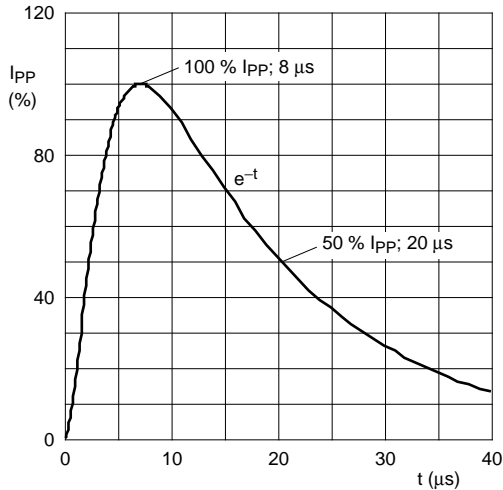


Fig 1. 8/20 μs pulse waveform according to IEC 61000-4-5

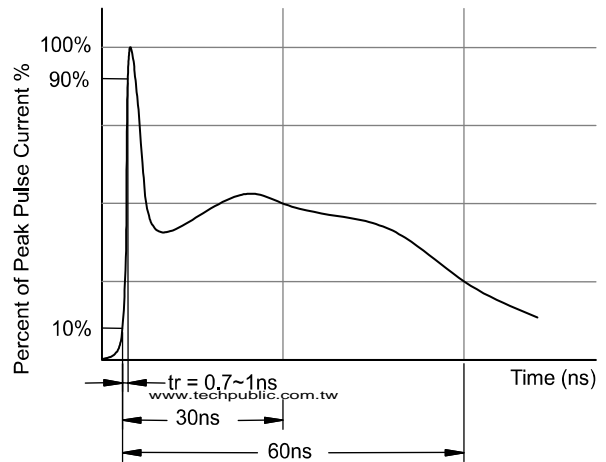


Fig 2. ESD pulse waveform according to IEC 61000-4-2

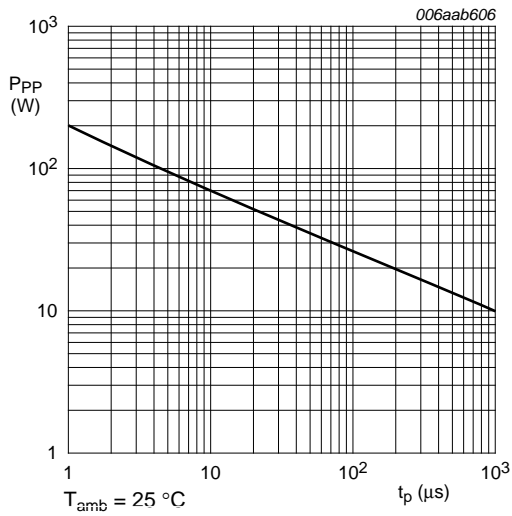


Fig 3. Peak pulse power as a function of exponential pulse duration; typical values

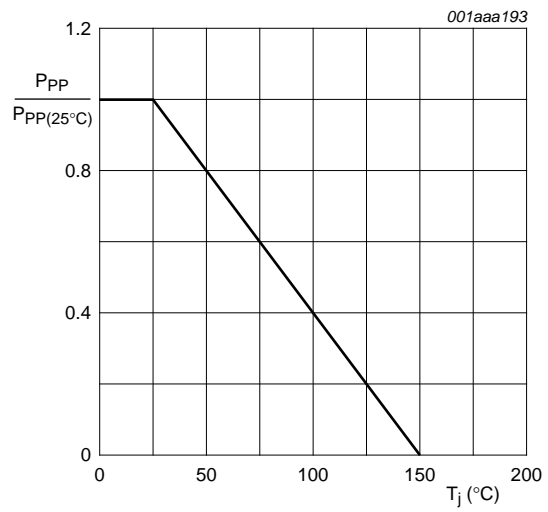


Fig 4. Relative variation of peak pulse power as a function of junction temperature; typical values

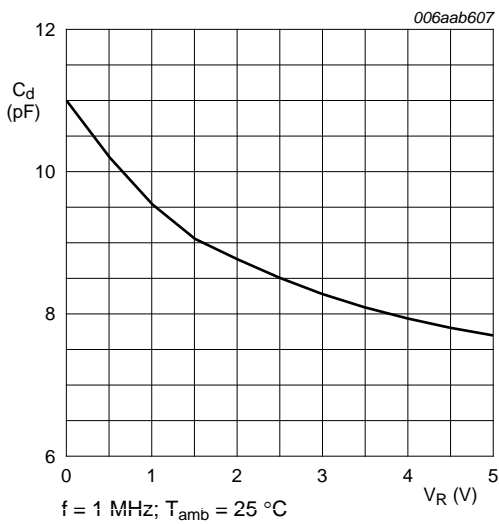


Fig 5. Diode capacitance as a function of reverse voltage; typical values

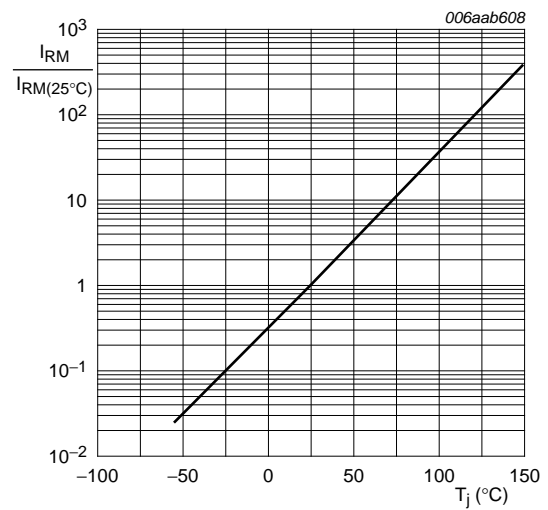
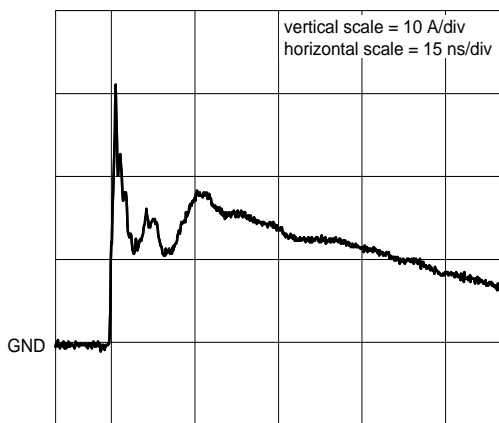
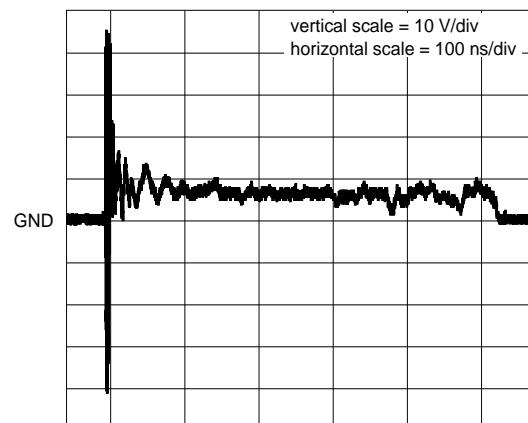


Fig 6. Relative variation of reverse leakage current as a function of junction temperature; typical values

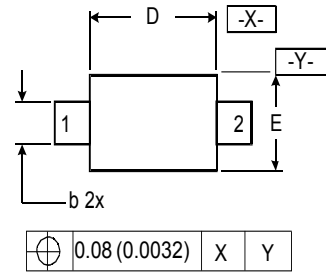


unclamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)

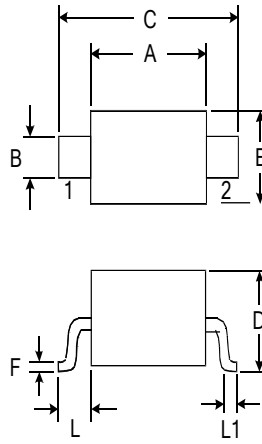


clamped +8 kV ESD pulse waveform (IEC 61000-4-2 network)

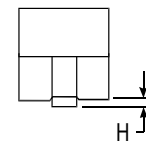
Outline Drawing – SOD-323/SOD-523/SOD-882



| 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  |

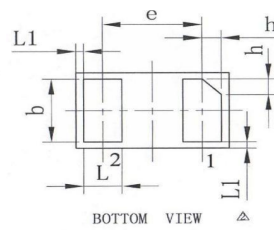
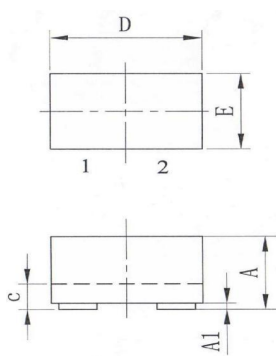


| DIMENSIONS |            |           |        |           |
|------------|------------|-----------|--------|-----------|
| SYMBOL     | MILLIMETER |           | INCHES |           |
|            | MIN        | MAX       | MIN    | MAX       |
| A          | 1.600      | 1.800     | 0.063  | 0.071     |
| B          | 0.250      | 0.350     | 0.010  | 0.014     |
| C          | 2.500      | 2.700     | 0.098  | 0.106     |
| D          |            | 1.000     |        | 0.039     |
| E          | 1.200      | 1.400     | 0.047  | 0.055     |
| F          | 0.080      | 0.150     | 0.003  | 0.006     |
| L          |            | 0.475 REF |        | 0.019 REF |
| L1         | 0.250      | 0.400     | 0.010  | 0.016     |
| H          | 0.000      | 0.100     | 0.000  | 0.004     |



SOD-523

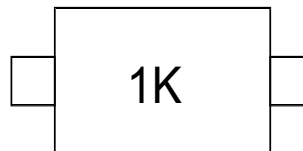
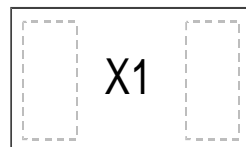
SOD-323



| SYMBOL    | MILLIMETER |      |      |
|-----------|------------|------|------|
|           | MIN        | NOM  | MAX  |
| A         | 0.45       | 0.50 | 0.55 |
| A1        | 0          | 0.02 | 0.05 |
| b         | 0.45       | 0.50 | 0.55 |
| c         | 0.12       | 0.15 | 0.18 |
| D         | 0.95       | 1.00 | 1.05 |
| e         | 0.65BSC    |      |      |
| E         | 0.55       | 0.60 | 0.65 |
| L         | 0.20       | 0.25 | 0.30 |
| L1        | 0.05REF    |      |      |
| h         | 0.07       | 0.12 | 0.17 |
| 载体尺寸 (mm) | 20*20      |      |      |

SOD-882

Marking



Ordering information

| Order code      | Marking codes | Package | Baseqty | Deliverymode  |
|-----------------|---------------|---------|---------|---------------|
| UMW PESD5V0V1BA | 1K            | SOD-323 | 10000   | Tape and reel |
| UMW PESD5V0V1BB | Z9            | SOD-523 | 10000   | Tape and reel |
| UMW PESD5V0V1BL | X1            | SOD-882 | 10000   | Tape and reel |

单击下面可查看定价，库存，交付和生命周期等信息

[>>UMW\(友台半导体\)](#)