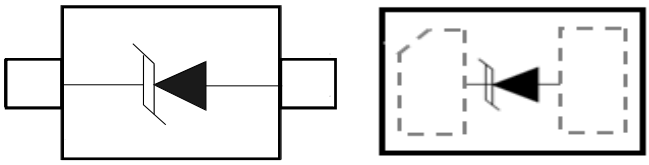
## Features

- Unidirectional ESD protection of one line
- Low diode capacitance: $C_d$ = 25 pF
- Low clamping voltage: $V_{CL}$ = 12 V
- Very low leakage current: $I_{RM}$ = 10 nA
- ESD protection up to 26 kV
- IEC 61000-4-2; level 4 (ESD)
- AEC-Q101 qualified



## Applications

- Computers and peripherals
- Audio and video equipment
- Cellular handsets and accessories
- Communication systems
- Subscriber Identity Module (SIM) card protection
- Portable electronics
- FireWire
- High-speed data lines

## Mechanical Characteristics

- SOD-882 package
- Molding compoun dflammability rating: UL94 V-0
- Marking:MarkingC ode
- Packaging:Tape and Reel per EIA4 81
- RoHS/WEEE Compliant

## Quick reference data

$T_{amb}$ = 25 °C unless otherwise specified.

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{RWM}$ | reverse standoff voltage | | - | - | 5.0 | V |
| $C_d$ | diode capacitance | f = 1 MHz; $V_R$ = 0 V | - | 25 | 30 | pF |

## Limiting values

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

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| $P_{PP}$ | peak pulse power | $t_p$ = 8/20 µs | [1][2] | - | 42 | W |
| $I_{PP}$ | peak pulse current | $t_p$ = 8/20 µs | [1][2] | - | 3.5 | A |
| $T_j$ | junction temperature | | | - | 150 | °C |
| $T_{amb}$ | ambient temperature | | | –55 | +150 | °C |
| $T_{stg}$ | storage temperature | | | –65 | +150 | °C |

[1] Non-repetitive current pulse 8/20 µs exponential decay waveform according to IEC 61000-4-5.
[2] Measured from pin 1 to pin 2.

### ESD maximum ratings

$T_{amb}$ = 25 °C unless otherwise specified.

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| $V_{ESD}$ | electrostatic discharge voltage | IEC 61000-4-2 (contact discharge) | [1] | - | 26 | kV |
| | | machine model | | - | 400 | V |
| | | MIL-STD-883 (human body model) | | - | 10 | 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 3 (human body model) | > 4 kV |

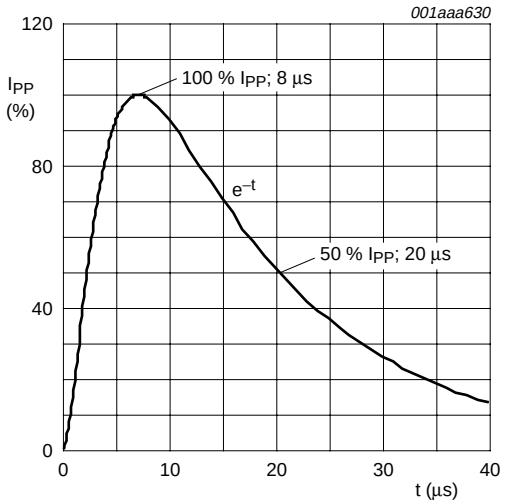



**Fig 1. 8/20 µs pulse waveform according to IEC 61000-4-5**

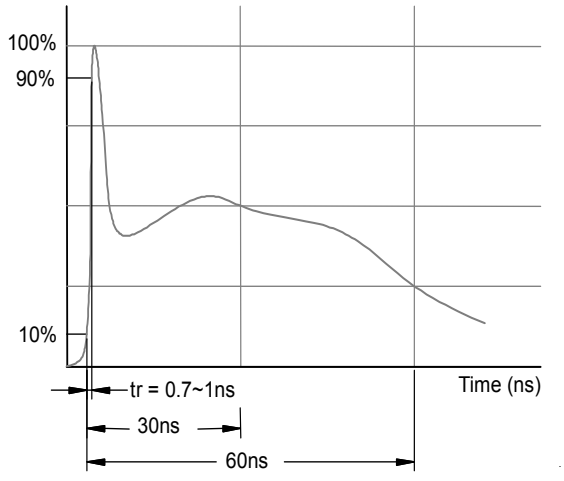



**Fig 2. ESD pulse waveform according to IEC 61000-4-2**

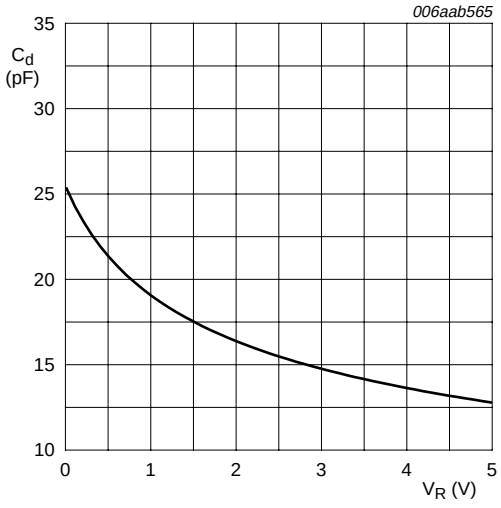
## Characteristics

$T_{amb}$ = 25 °C unless otherwise specified.

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| $V_{RWM}$ | reverse standoff voltage | | | - | - | 5.0 | V |
| $I_{RM}$ | reverse leakage current | $V_{RWM}$ = 5.0 V | | - | 10 | 100 | nA |
| $V_{BR}$ | breakdown voltage | $I_R$ = 5 mA | | 6.4 | 6.8 | 7.2 | V |
| $C_d$ | diode capacitance | f = 1 MHz; $V_R$ = 0 V | | - | 25 | 30 | pF |
| $V_{CL}$ | clamping voltage | | [1][2] | | | | |
| | | $I_{PP}$ = 1 A | | - | - | 9 | V |
| | | $I_{PP}$ = 3.5 A | | - | - | 12 | V |
| $r_{dif}$ | differential resistance | $I_R$ = 5 mA | | - | - | 30 | Ω |
| $V_F$ | forward voltage | $I_F$ = 200 mA | | - | - | 1.2 | V |

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

[2] Measured from pin 1 to pin 2.




f = 1 MHz; $T_{amb}$ = 25 °C

**Fig 3. Diode capacitance as a function of reverse voltage; typical values**

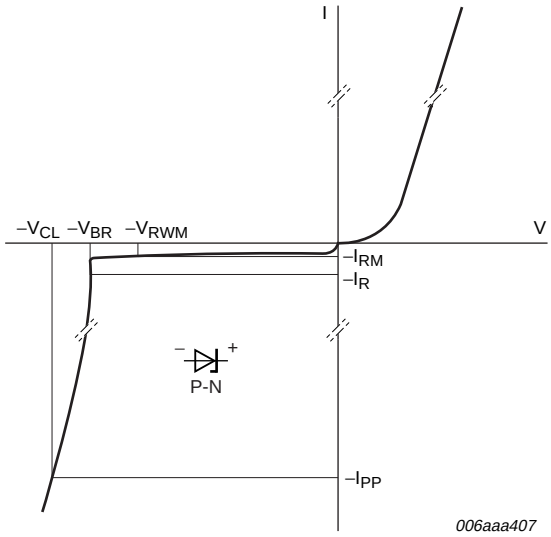



**Fig 4. V-I characteristics for a unidirectional ESD protection diode**

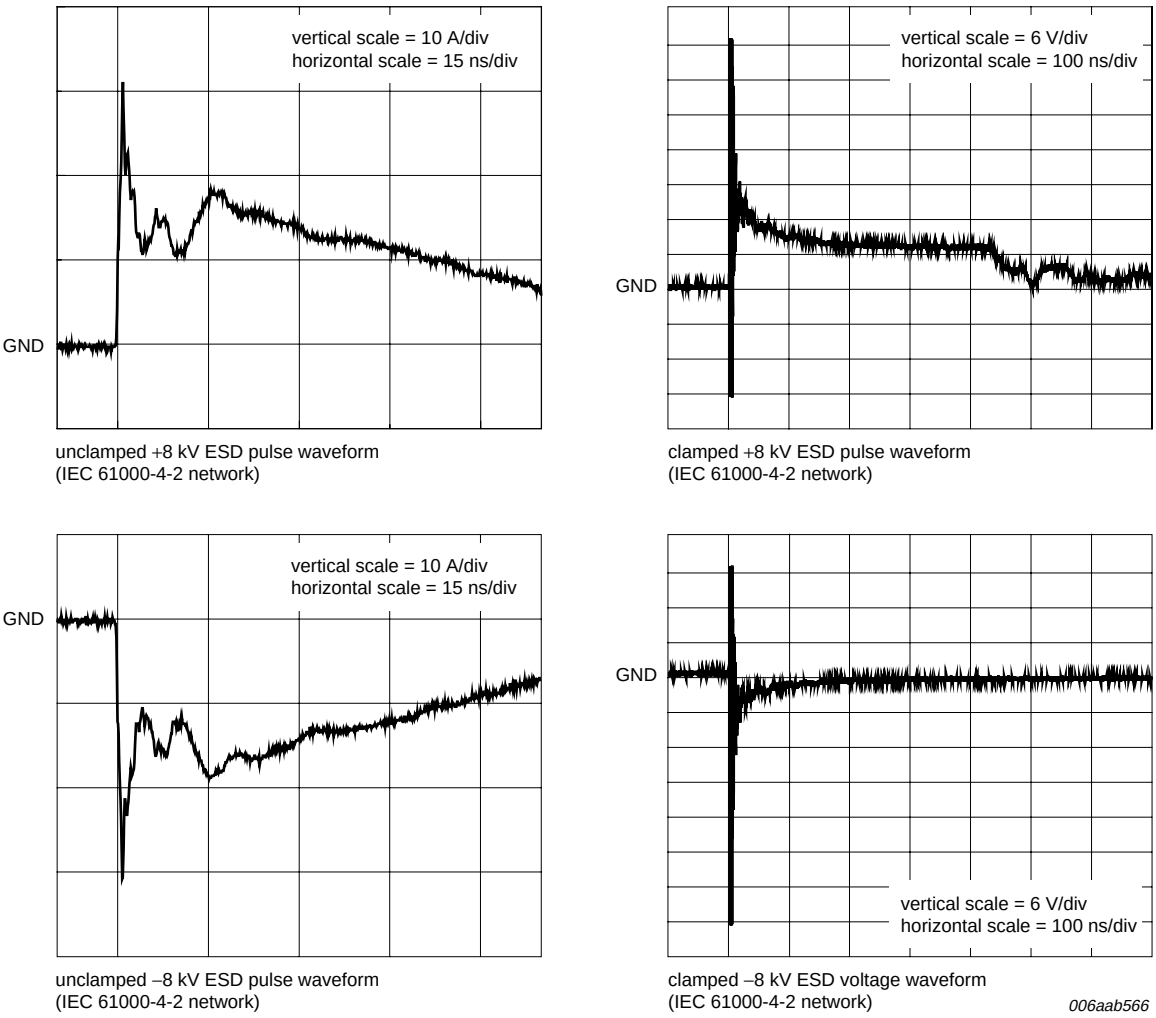
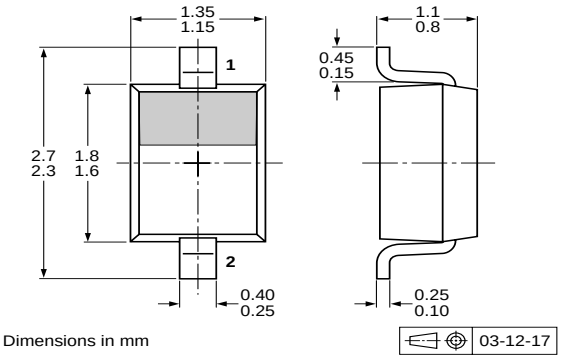
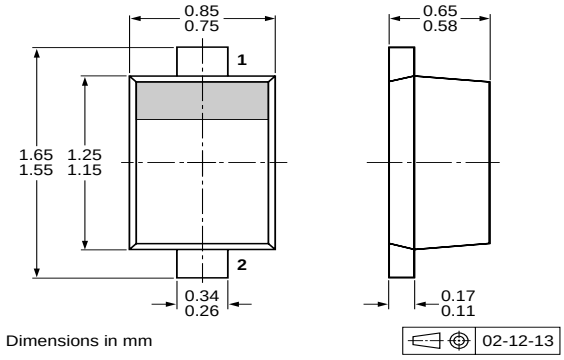



**Fig 5. ESD clamping test setup and waveforms**

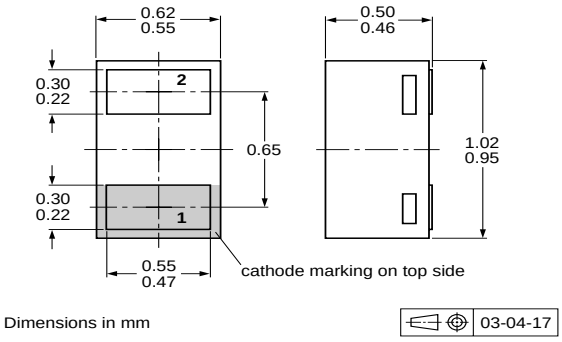
## SOD-323/SOD-523/SOD-882 PACKAGE OUTLINE DIMENSIONS




PESD5V0L1UA (SOD323)

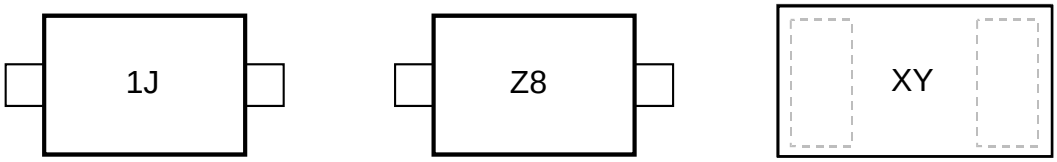



PESD5V0L1UB (SOD523)




PESD5V0L1UL (SOD882)

## Marking




## Ordering information

| Order code | Marking code | Package | Baseqty | Deliverymode |
|---|---|---|---|---|
| UMW PESD5V0L1UA | 1J | SOD-323 | 3000 | Tape and reel |
| UMW PESD5V0L1UB | Z8 | SOD-523 | 3000 | Tape and reel |
| UMW PESD5V0L1UL | XY | SOD-882 | 10000 | Tape and reel |