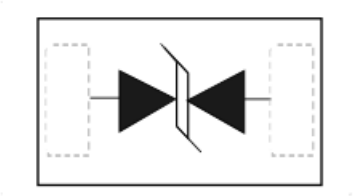
## Features

- Bidirectional ESD protection of one line
- Femtofarad capacitance: $C_d$ = 400 fF
- Low ESD clamping voltage: 30 V at 30 ns and ± 8 kV
- Very low leakage current: $I_{RM}$ < 1 nA
- ESD protection up to 10 kV
- IEC 61000-4-2; level 4 (ESD)
- AEC-Q101 qualified



## Applications

- 10/100/1000 Mbit/s Ethernet
- FireWire
- High-speed data lines
- Subscriber Identity Module (SIM) card protection
- Cellular handsets and accessories
- Portable electronics
- Communication systems
- Computers and peripherals
- Audio and video equipment
- Antenna protection

## Mechanical Data

- SOD-882 package
- Flammability Rating: UL 94V-0
- Packaging: Tape and Reel
- High temperature soldering guaranted:260℃/10s

## Quick reference data

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Per device** | | | | | | |
| $V_{RWM}$ | reverse standoff voltage | | - | - | 5.5 | V |
| $C_d$ | diode capacitance | f = 1 MHz; $V_R$ = 0 V | - | 0.4 | 0.55 | pF |

## Limiting values

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

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| **Per device** | | | | | | |
| $I_{PP}$ | peak pulse current | $t_p$ = 8/20 μs | [1] | - | 2.5 | A |
| $T_j$ | junction temperature | | | - | 125 | °C |
| $T_{amb}$ | ambient temperature | | | −40 | +125 | °C |
| $T_{stg}$ | storage temperature | | | −55 | +125 | °C |

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

## ESD maximum ratings

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

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| **Per device** | | | | | | |
| $V_{ESD}$ | electrostatic discharge voltage | IEC 61000-4-2 (contact discharge) | [1] | - | 10 | kV |
| | | MIL-STD-883 (human body model) | | - | 10 | kV |

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

## ESD standards compliance

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

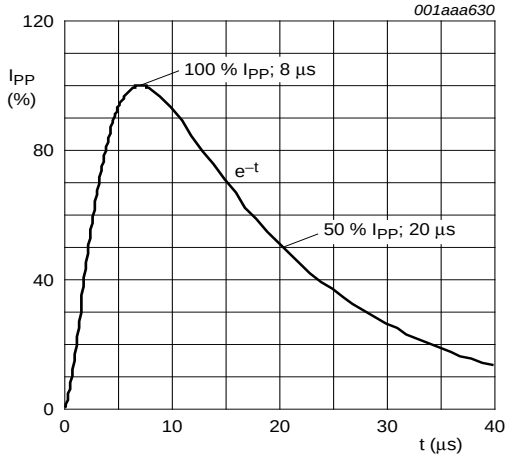



**Fig 1. 8/20 μs pulse waveform according to IEC 61000-4-5**

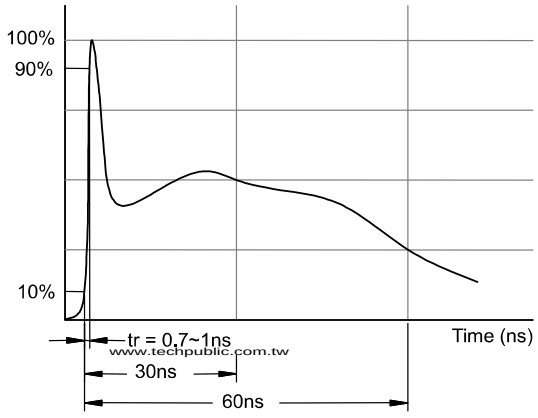


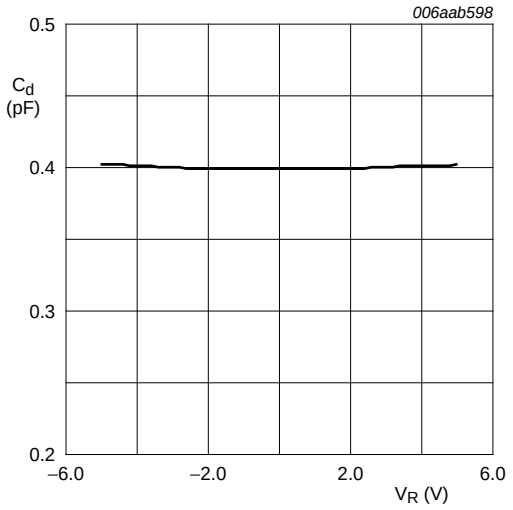

**Fig 2. ESD pulse waveform according to IEC 61000-4-2**

## Characteristics

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

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| **Per device** | | | | | | | |
| $V_{RWM}$ | reverse standoff voltage | | | - | - | 5.5 | V |
| $I_{RM}$ | reverse leakage current | $V_{RWM}$ = 5 V | | - | 1 | 100 | nA |
| $V_{BR}$ | breakdown voltage | $I_R$ = 1 mA | | 6 | 8 | 10 | V |
| $C_d$ | diode capacitance | f = 1 MHz; $V_R$ = 0 V | | - | 0.4 | 0.55 | pF |
| $V_{CL}$ | clamping voltage | | [1] | | | | |
| | | $I_{PP}$ = 1 A | | - | - | 11 | V |
| | | $I_{PP}$ = 2.5 A | | - | - | 15 | V |
| $r_{dif}$ | differential resistance | $I_R$ = 20 mA | | - | - | 30 | Ω |

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




f = 1 MHz; $T_{amb}$ = 25 °C

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

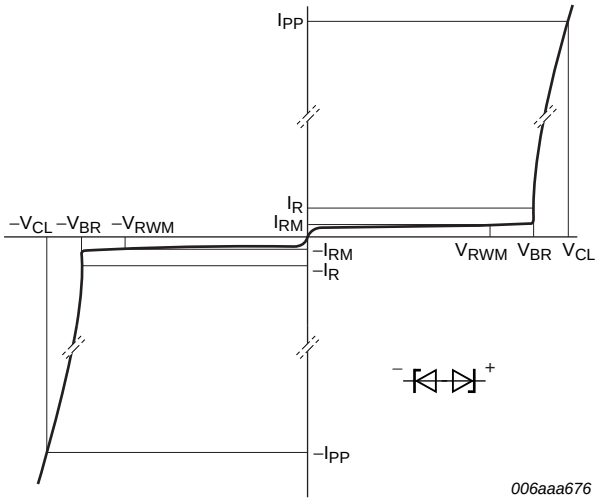
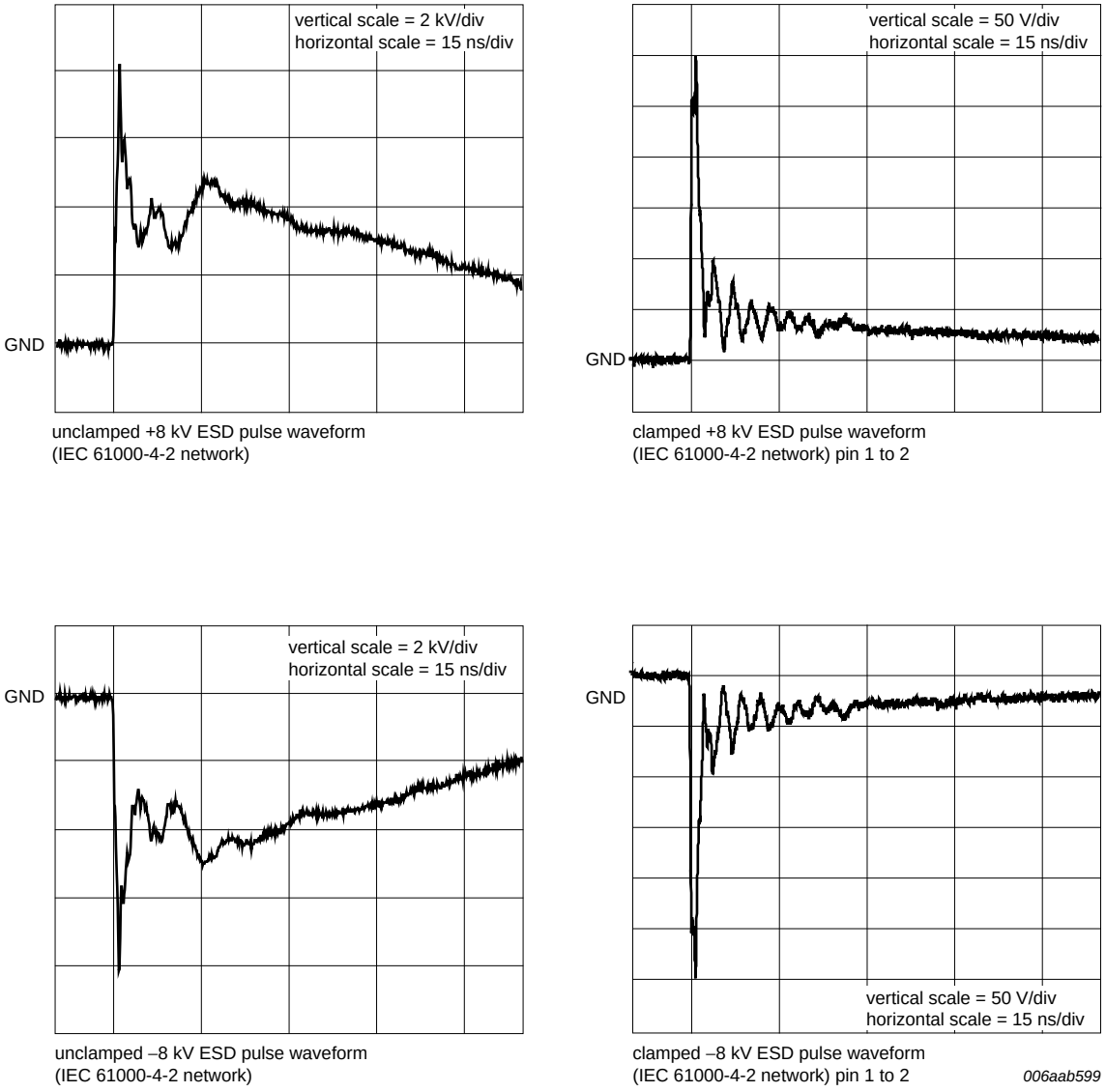



**Fig 4. V-I characteristics for a bidirectional ESD protection diode**




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

clamped +8 kV ESD pulse waveform (IEC 61000-4-2 network) pin 1 to 2

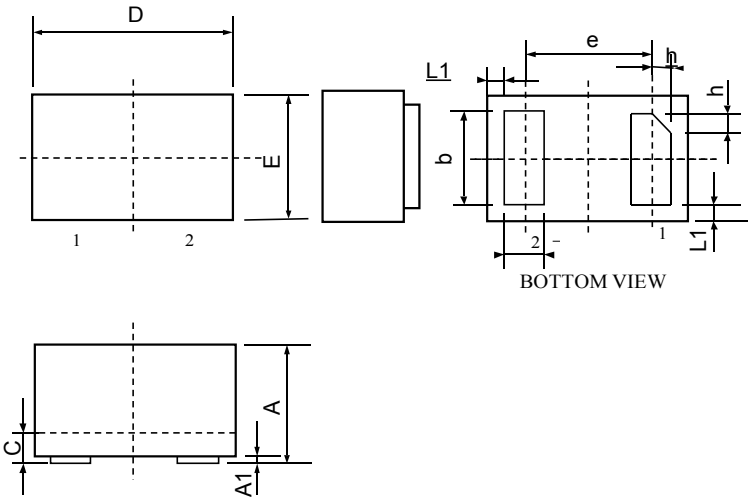
unclamped −8 kV ESD pulse waveform (IEC 61000-4-2 network)

clamped −8 kV ESD pulse waveform (IEC 61000-4-2 network) pin 1 to 2

*006aab599*

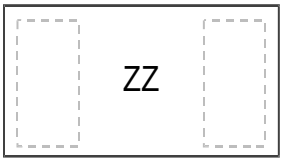
**Fig 5. ESD clamping test setup and waveforms**

## Outline Drawing – SOD-882




| SYMBOL | MILIMETER | | |
|---|---|---|---|
| | 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 |

## Marking




## Ordering information

| Order code | Package | Baseqt | Deliverymode |
|---|---|---|---|
| PESD5V0F1BL | SOD-882 | 10000 | Tapeandreel |