

EVVOSEMI[®]

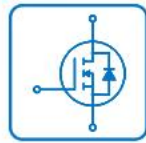
THINK CHANGE DO



ESD



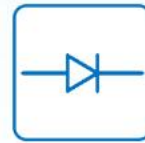
TVS



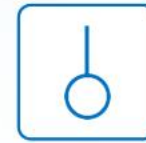
MOS



LDO



Diode



Sensor



DC-DC

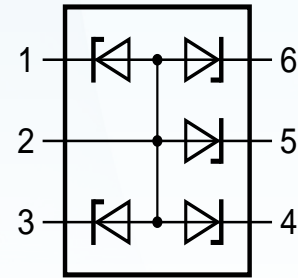
Product Specification

| | | |
|--------------|-------------|-----------------|
| ▶ Domestic | Part Number | PESDxxxL5UF/V/Y |
| ▶ Overseas | Part Number | PESDxxxL5UF/V/Y |
| ▶ Equivalent | Part Number | PESDxxxL5UF/V/Y |

EV is the abbreviation of name EVVO

Description

Low capacitance unidirectional fivefold ElectroStatic Discharge (ESD) protection diode arrays in small Surface-Mounted Device (SMD) plastic packages designed to protect up to five unidirectional signal lines from the damage caused by ESD and other transients.



Features

- ESD protection of up to five lines
- Low diode capacitance
- Max. peak pulse power: $P_{PP} = 25\text{ W}$
- Low clamping voltage: $V_{CL} = 12\text{ V}$
- Ultra low leakage current: $I_{RM} = 5\text{ nA}$
- ESD protection up to 20 kV
- IEC 61000-4-2; level 4 (ESD)
- IEC 61000-4-5 (surge); $I_{PP} = 2.5\text{ A}$

Applications

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

Quick reference data

Quick reference data

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|------------------|---|---|--------------------------------------|-----|-----|------|----|
| Per diode | | | | | | | |
| V_{RWM} | reverse standoff voltage | | | | | | |
| | PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY | | - | - | 3.3 | V | |
| | PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY | | - | - | 5.0 | V | |
| | C_d | diode capacitance | $f = 1\text{ MHz}; V_R = 0\text{ V}$ | | | | |
| | | PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY | | - | 22 | 28 | pF |
| | | PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY | | - | 16 | 19 | pF |

Limiting values

Limiting values

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

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|-------------------|----------------------|--------------------------|--------|-----|------|------|
| Per diode | | | | | | |
| P _{PP} | peak pulse power | t _p = 8/20 μs | [1][2] | - | 25 | W |
| I _{PP} | peak pulse current | t _p = 8/20 μs | [1][2] | - | 2.5 | A |
| Per device | | | | | | |
| T _j | junction temperature | | | - | 150 | °C |
| T _{amb} | ambient temperature | | | -65 | +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, 3, 4, 5 or 6 to pin 2.

ESD maximum ratings

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

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|------------------|---------------------------------|--------------------------------------|--------|-----|-----|------|
| Per diode | | | | | | |
| V _{ESD} | electrostatic discharge voltage | IEC 61000-4-2 (contact discharge) | [1][2] | - | 20 | kV |
| | | MIL-STD-883 (human body model) | | - | 10 | kV |

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

[2] Measured from pin 1, 3, 4, 5 or 6 to pin 2.

ESD standards compliance

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

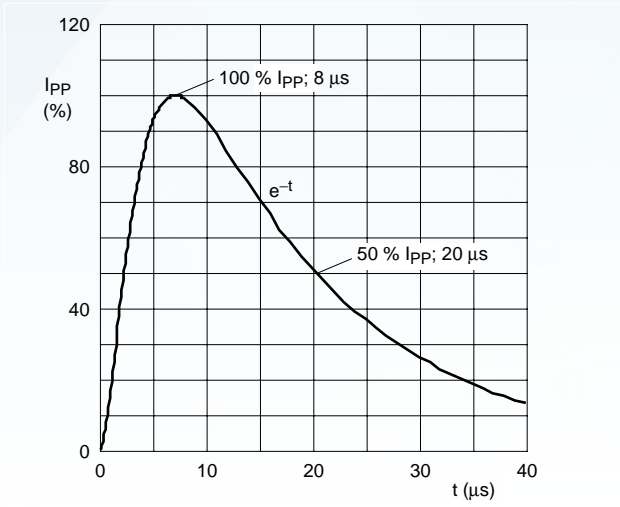


Fig 1. 8/20 μs pulse waveform according to IEC 61000-4-5

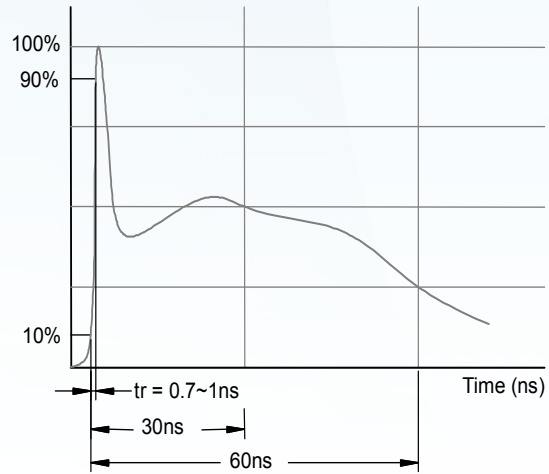


Fig 2. ESD pulse waveform according to IEC 61000-4-2

Characteristics

Characteristics

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|------------------|---|--------------------------|-----|-----|-----|------|
| Per diode | | | | | | |
| V _{RWM} | reverse standoff voltage | | | | | |
| | PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY | | - | - | 3.3 | V |
| | PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY | | - | - | 5.0 | V |
| I _{RM} | reverse leakage current | | | | | |
| | PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY | V _{RWM} = 3.3 V | - | 75 | 300 | nA |
| | PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY | V _{RWM} = 5.0 V | - | 5 | 25 | nA |
| V _{BR} | breakdown voltage | I _R = 1 mA | | | | |
| | PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY | | 5.3 | 5.6 | 5.9 | V |
| | PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY | | 6.4 | 6.8 | 7.2 | V |

Characteristics ...continued

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

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit |
|------------------|---|------------------------------------|--------|-----|-----|------|
| C _d | diode capacitance | f = 1 MHz; V _R = 0 V | | | | |
| | PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY | | - | 22 | 28 | pF |
| | PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY | | - | 16 | 19 | pF |
| V _{CL} | clamping voltage | | [1][2] | | | |
| | PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY | I _{PP} = 1 A | - | - | 10 | V |
| | PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY | I _{PP} = 2.5 A | - | - | 12 | V |
| | PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY | I _{PP} = 1 A | - | - | 10 | V |
| | PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY | I _{PP} = 2.5 A | - | - | 12 | V |
| r _{dif} | differential resistance | I _R = 1 mA | | | | |
| | PESD3V3L5UF PESD3V3L5UV PESD3V3L5UY | | - | - | 200 | Ω |
| | PESD5V0L5UF PESD5V0L5UV PESD5V0L5UY | | - | - | 100 | Ω |

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

[2] Measured from pin 1, 3, 4, 5 or 6 to pin 2.

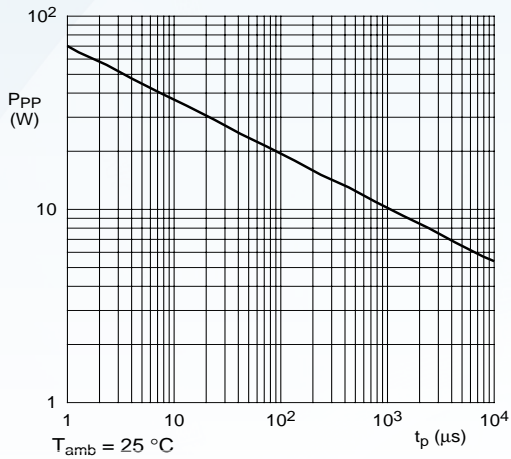


Fig 3. Peak pulse power as a function of exponential pulse duration; typical values

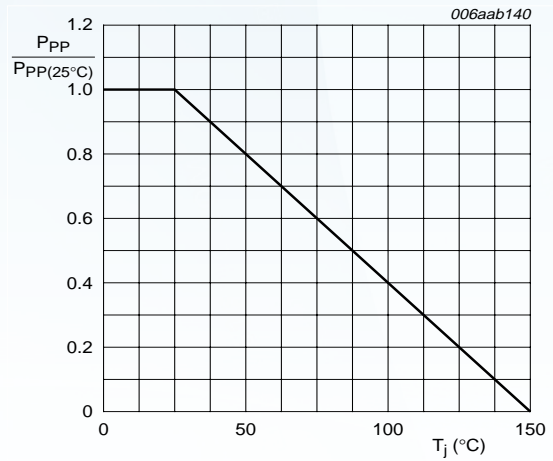
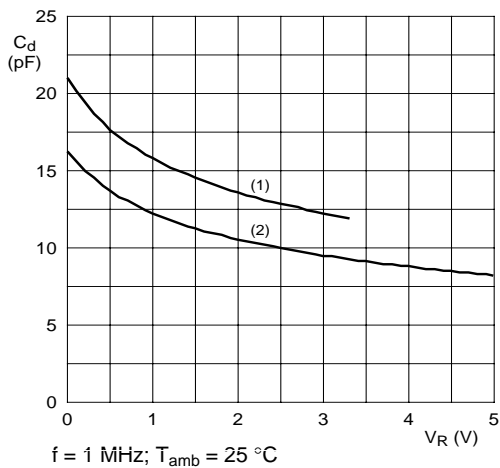


Fig 4. Relative variation of peak pulse power as a function of junction temperature; typical values



$f = 1 \text{ MHz}; T_{amb} = 25 \text{ }^\circ\text{C}$
 (1) PESD3V3L5UF; PESD3V3L5UV; PESD3V3L5UY
 (2) PESD5V0L5UF; PESD5V0L5UV; PESD5V0L5UY

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

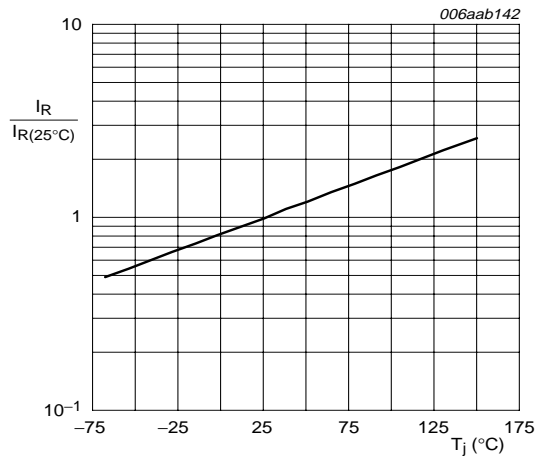


Fig 6. Relative variation of reverse current as a function of junction temperature; typical values

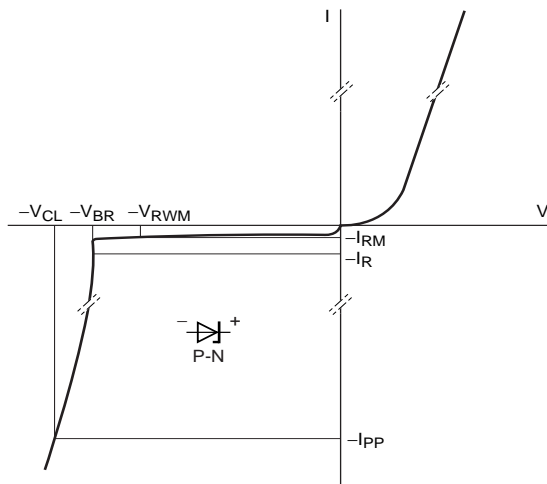
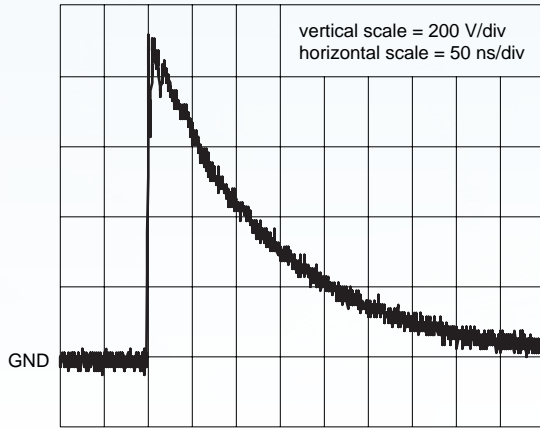
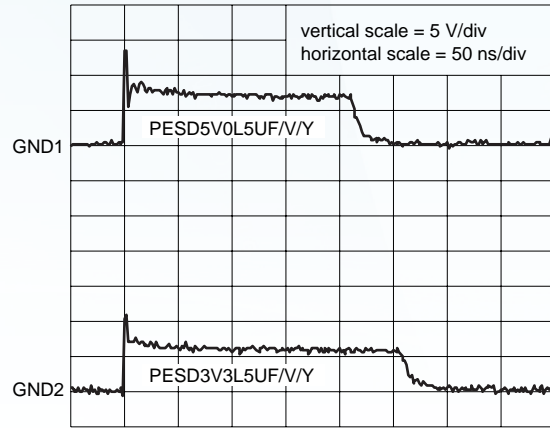


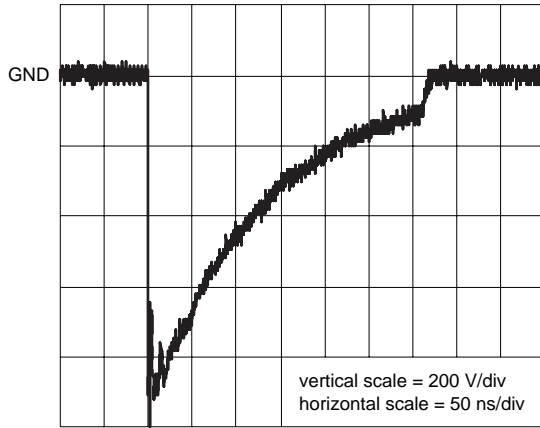
Fig 7. V-I characteristics for a unidirectional ESD protection diode



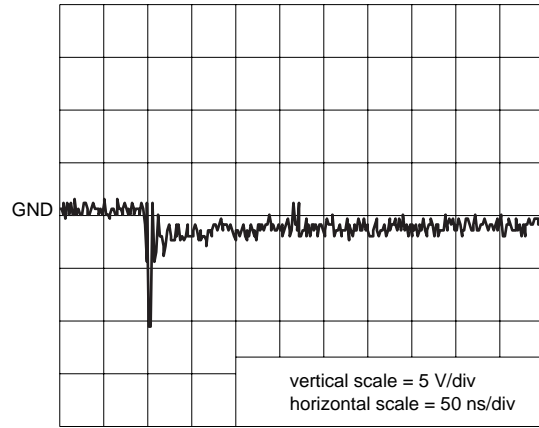
unclamped +1 kV ESD voltage waveform
(IEC 61000-4-2 network)



clamped +1 kV ESD voltage waveform
(IEC 61000-4-2 network)



unclamped -1 kV ESD voltage waveform
(IEC 61000-4-2 network)

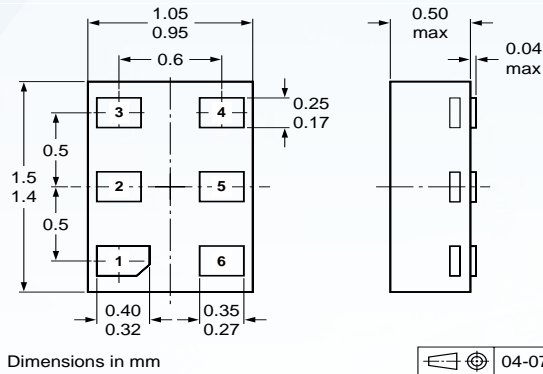


clamped -1 kV ESD voltage waveform
(IEC 61000-4-2 network)

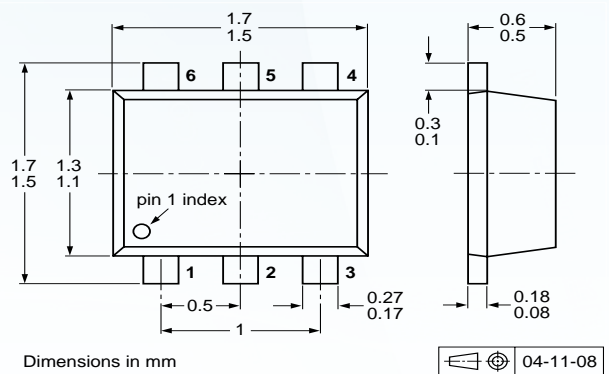
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Fig 8. ESD clamping test setup and waveforms

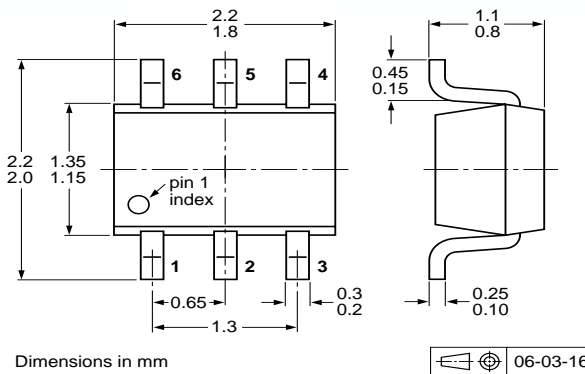
SOT-886/SOT-666/SOT-363 PACKAGE OUTLINE DIMENSIONS



PESDxL5UF (SOT886)

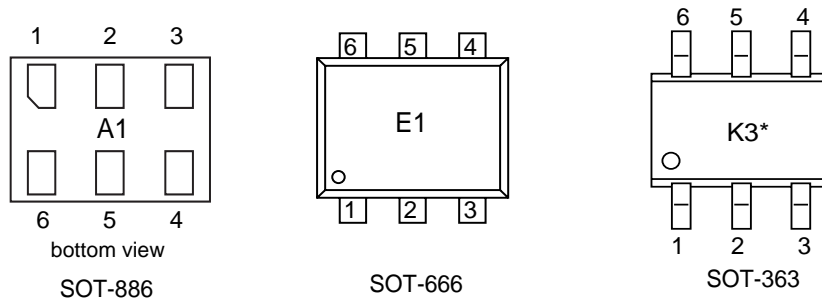


PESDxL5UV (SOT666)



PESDxL5UY (SOT363/SC-88)

Marking



1.*代表周期

Ordering information

| Order code | Marking code | Package | Baseqty | Deliverymode |
|-------------|--------------|---------|---------|---------------|
| PESD3V3L5UF | A1 | SOT-886 | 5000 | Tape and reel |
| PESD5V0L5UF | A2 | SOT-886 | 5000 | Tape and reel |
| PESD3V3L5UV | E1 | SOT-666 | 4000 | Tape and reel |
| PESD5V0L5UV | E2 | SOT-666 | 4000 | Tape and reel |
| PESD3V3L5UY | K3* | SOT-363 | 3000 | Tape and reel |
| PESD5V0L5UY | K4* | SOT-363 | 3000 | Tape and reel |

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