

#### Description

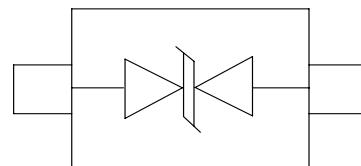
The PESD1LIN is designed for asymmetrical (15V to -24V) protection in multi-point data transmission application, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The PESD1LIN complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make PESD1LIN an ideal choice to protect one data line of the Local information Network (LIN) in an automotive



#### Features

- 160W peak pulse power ( $8/20\mu\text{s}$ )
- Low Channel input capacitance
- Ultra low leakage: nA level
- Low clamping voltage
- Protects one data line of the LIN
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
  - Air discharge:  $\pm 30\text{kV}$
  - Contact discharge:  $\pm 30\text{kV}$
- RoHS Compliant

SOD-323



Circuit diagram



AM= Device code

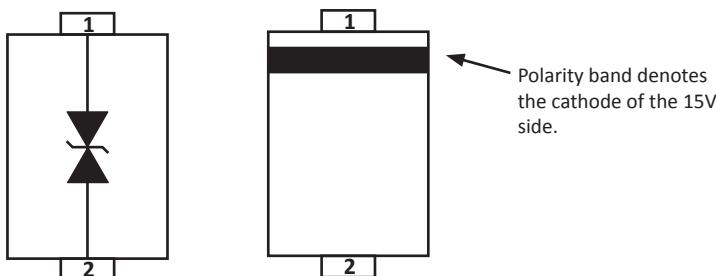
Marking (Top View)

#### Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

#### Applications

- LIN Bus Protection



#### Ordering Information

| Part Number | Packaging        | Reel Size |
|-------------|------------------|-----------|
| PESD1LIN    | 3000/Tape & Reel | 7 inch    |

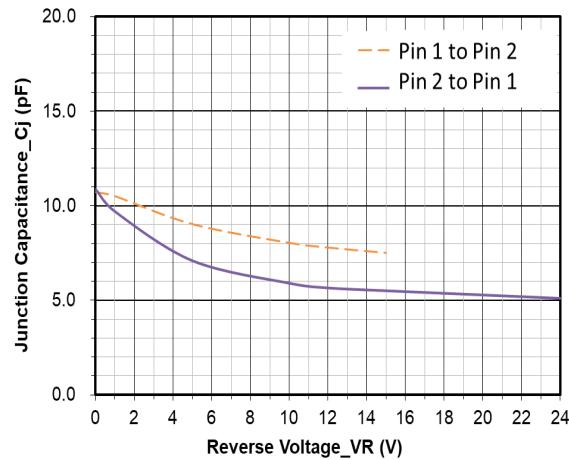
**Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$  unless otherwise specified)**

| Parameter  | Symbol           | Value       | Unit |
|--|------------------|-------------|------|
| Peak Pulse Power (8/20μs)                        | Ppk              | 160         | W    |
| Peak Pulse Current (tp = 8/20μs), Pin 1 to Pin 2 | Ipp              | 5           | A    |
| Peak Pulse Current (tp = 8/20μs), Pin 2 to Pin 1 |                  | 3           |      |
| ESD per IEC 61000-4-2 (Air)                      | VESD             | ±30         | kV   |
| ESD per IEC 61000-4-2 (Contact)                  |                  | ±30         |      |
| Operating Temperature Range                      | T <sub>J</sub>   | -40 to +85  | °C   |
| Storage Temperature Range                        | T <sub>stg</sub> | -55 to +150 | °C   |

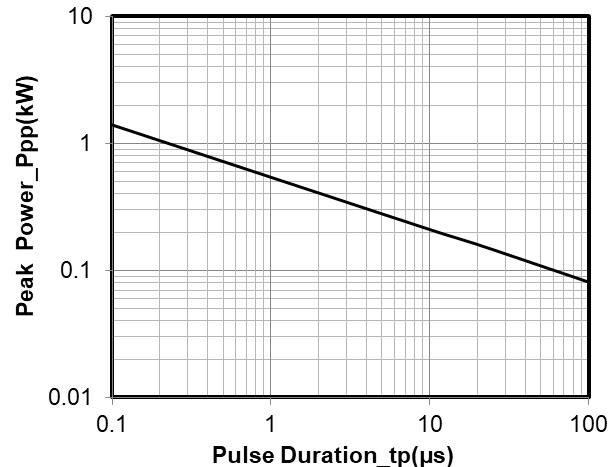
**Electrical Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise specified)**

|                         |                  | Pin 1 to 2<br>(15V TVS) |     |     | Pin 2 to 1<br>(24V TVS) |     |     |      |  |
|-------------------------|------------------|-------------------------|-----|-----|-------------------------|-----|-----|------|--|
| Parameter               | Symbol           | Min                     | Typ | Max | Min                     | Typ | Max | Unit | Test Condition                               |
| Reverse Working Voltage | V <sub>RWM</sub> |                         |     | 15  |                         |     | 24  | V    |  |
| Breakdown Voltage       | V <sub>BR</sub>  | 17.1                    |     |     | 25.4                    |     |     | V    | I <sub>T</sub> = 1mA                         |
| Reverse Leakage Current | I <sub>R</sub>   |                         |     | 50  |                         |     | 50  | nA   | V <sub>R</sub> = V <sub>RWM</sub>            |
| Clamping Voltage        | V <sub>C</sub>   |                         |     | 25  |                         |     | 35  | V    | I <sub>PP</sub> = 1A (8 x 20μs pulse)        |
| Clamping Voltage        | V <sub>C</sub>   |                         |     |     |                         |     | 50  | V    | I <sub>PP</sub> = 3A (8 x 20μs pulse)        |
| Clamping Voltage        | V <sub>C</sub>   |                         |     | 35  |                         |     |     | V    | I <sub>PP</sub> = 5A (8 x 20μs pulse)        |
| Junction Capacitance    | C <sub>J</sub>   |                         |     | 13  |                         |     | 13  | pF   | V <sub>R</sub> = 0V, f = 1MHz                |
| Junction Capacitance    | C <sub>J</sub>   |                         |     | 10  |                         |     | 8   | pF   | V <sub>R</sub> = V <sub>RWM</sub> , f = 1MHz |

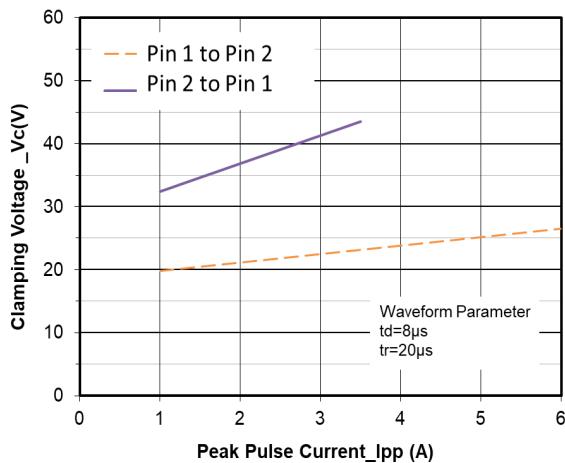
### Typical Performance Characteristics (TA=25°C unless otherwise Specified)



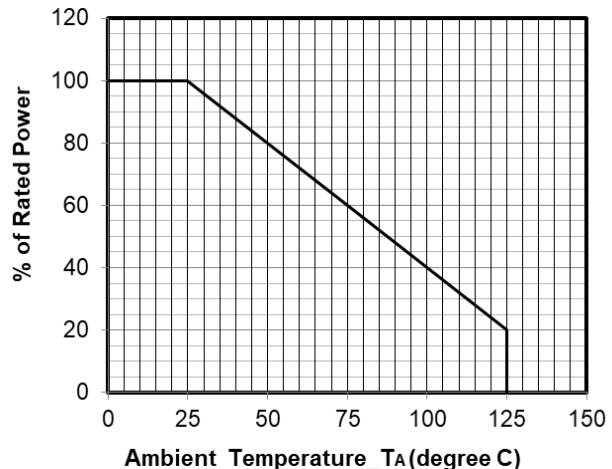
Junction Capacitance vs. Reverse Voltage



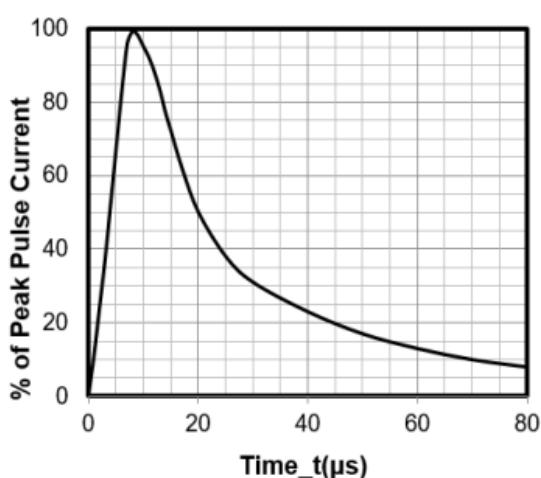
Peak Pulse Power vs. Pulse Time



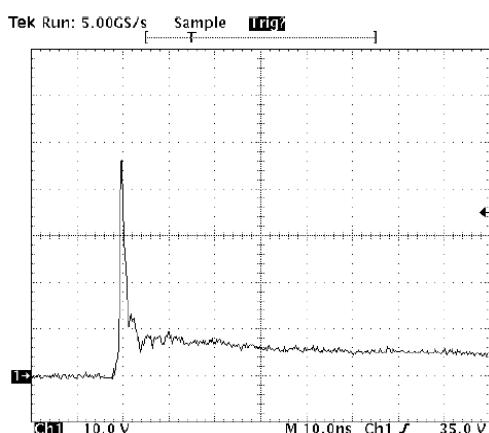
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20 $\mu$ s Pulse Waveform



Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

8 kV Contact per IEC61000-4-2