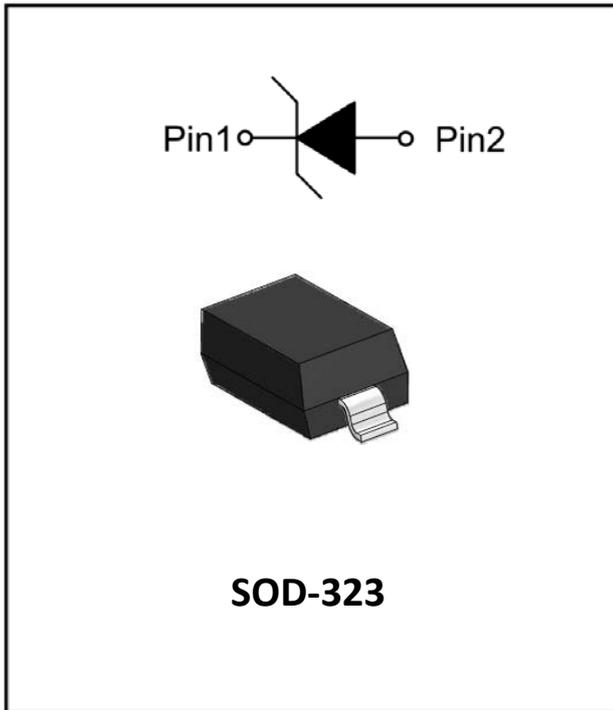


1- Line, Uni-directional, Transient Voltage Suppressor



Features

- Stand-off voltage: 18V Max
- Transient protection for each line according to
IEC61000-4-2(ESD): $\pm 30\text{kV}$ (contact)
IEC61000-4-5(surge): 8A (8/20 μs)
- Low leakage current:
- Ultra low clamping voltage
- RoHS Compliant

Applications

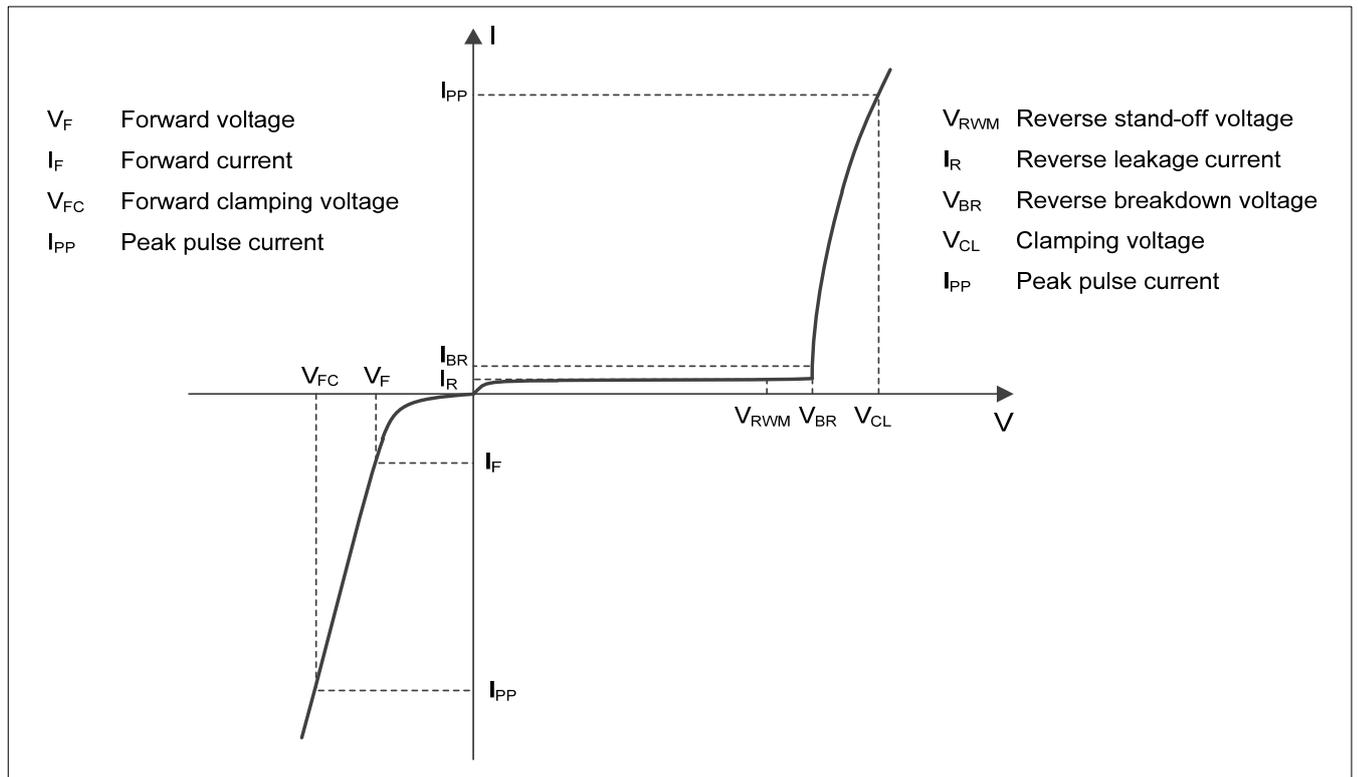
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players

Mechanical Data

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020
- Marking Information: See Below



■Definitions of electrical characteristics





ESD18VD3

■Maximum Ratings

| PARAMETER | SYMBOL | LIMITS | UNIT |
|---|-----------|----------|-------------|
| Peak pulse power ($t_p = 8/20\mu s$) | P_{pk} | 300 | W |
| Peak pulse current ($t_p = 8/20\mu s$) | I_{PP} | 8 | A |
| ESD according to IEC61000-4-2 air discharge | V_{ESD} | ± 30 | KV |
| ESD according to IEC61000-4-2 contact discharge | | ± 30 | |
| Junction temperature | T_J | -55~125 | $^{\circ}C$ |
| Storage temperature | T_{STG} | -55~150 | $^{\circ}C$ |

■Electrical Characteristics ($T_a=25^{\circ}C$ Unless otherwise specified)

| PARAMETER | Symbol | UNIT | Conditions | Min | Typ | Max |
|----------------------------------|-----------|----------|--------------------------------|------|------|-----|
| Reverse maximum working voltage | V_{RWM} | V | | | | 18 |
| Reverse leakage current | I_R | μA | $V_{RWM} = 18V$ | | | 0.5 |
| Reverse breakdown voltage | V_{BR} | V | $I_{BR} = 1mA$ | 19.8 | | |
| Clamping voltage ¹⁾ | V_{CL} | V | $I_{PP} = 16A, t_p = 100ns$ | | 26 | |
| Dynamic resistance ¹⁾ | R_{DYN} | Ω | | | 0.35 | |
| Clamping voltage ²⁾ | V_{CL} | V | $I_{PP} = 1A, t_p = 8/20\mu s$ | | 23 | 27 |
| | | V | $I_{PP} = 8A, t_p = 8/20\mu s$ | | 32 | 38 |
| Junction capacitance | C_J | pF | $V_R = 0V, f = 1MHz$ | | 39 | 55 |

Notes:

(1). TLP parameter: $Z_0 = 50\Omega, t_p = 100ns, t_r = 2ns$, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.

(2). Non-repetitive current pulse, according to IEC61000-4-5.

■Ordering Information (Example)

| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(mg) | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|-----------------|----------------------|-------------------------|----------------------------|---------------|
| ESD18VD3 | F2 | Approximate 4 | 3000 | 30000 | 120000 | 7 reel |



■ Characteristics (Typical)

Fig.1 8/20 μ s waveform per IEC61000-4-5

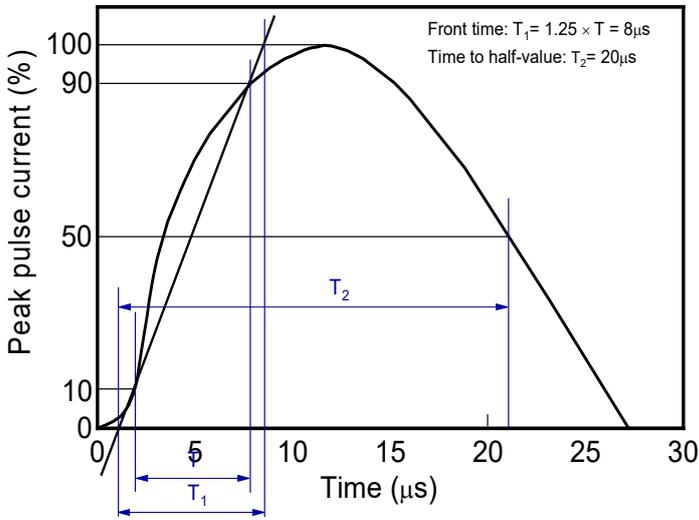


Fig.2 Contact discharge current waveform per IEC61000-4-2

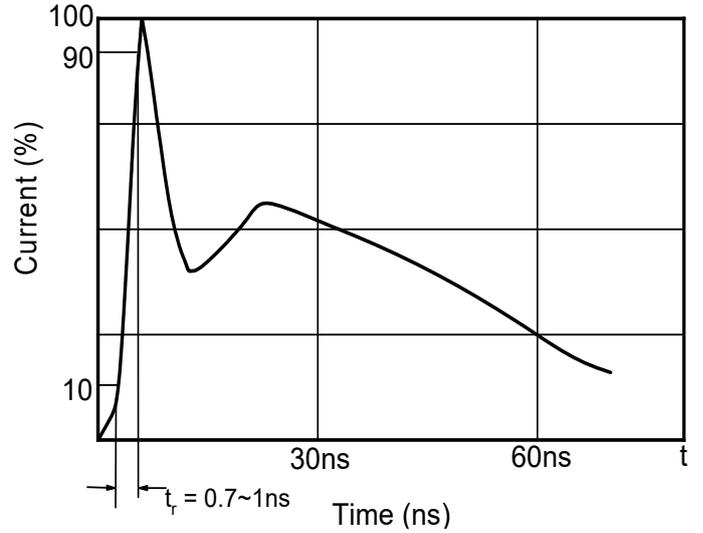


Fig.3 Clamping voltage vs. Peak pulse current

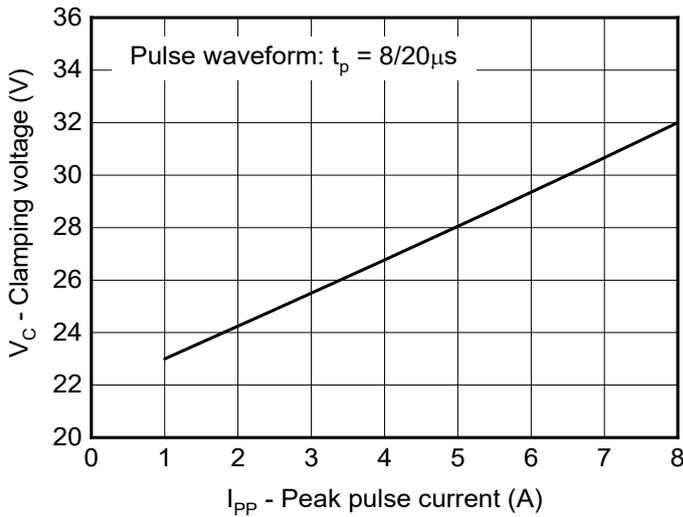


Fig.4 Capacitance vs. Reverse voltage

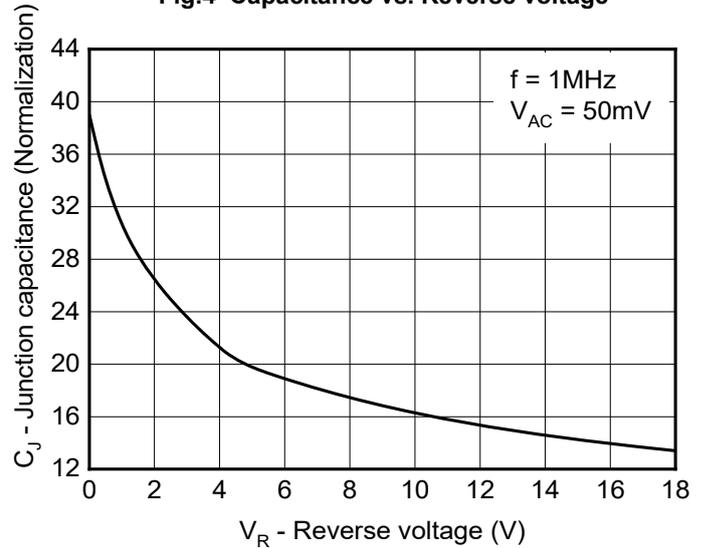


Fig.5 Non-repetitive peak pulse power vs. Pulse time

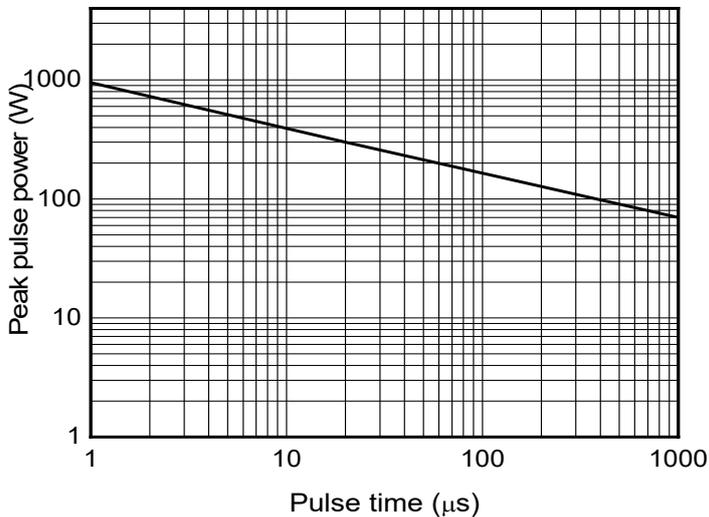


Fig.6 Power derating vs. Ambient temperature

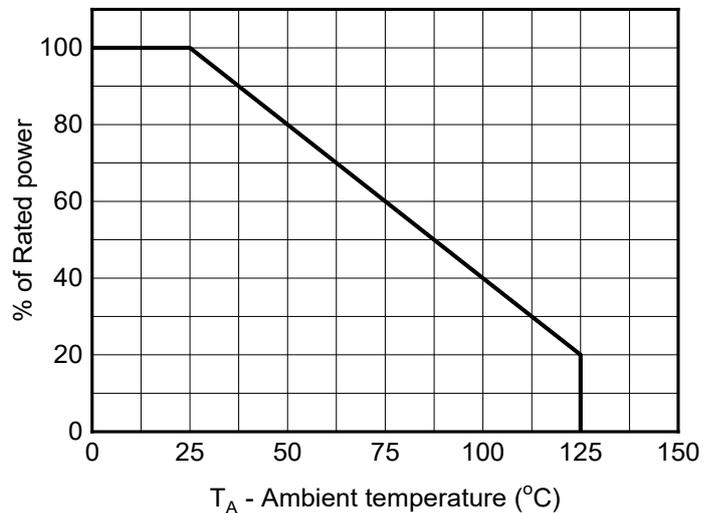
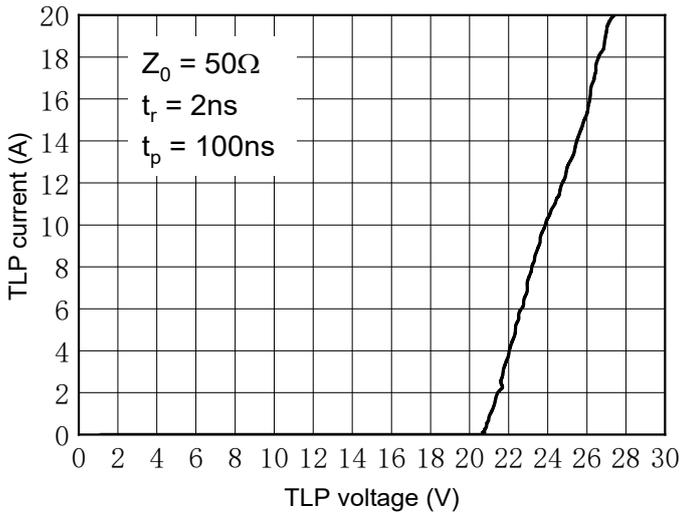
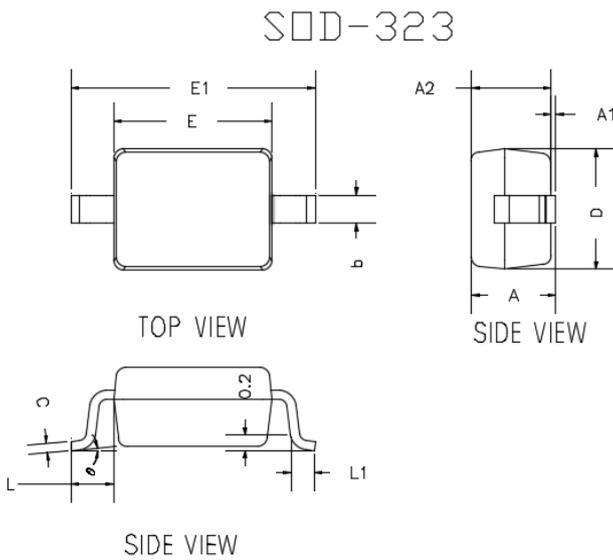


Fig.7 TLP Measurement

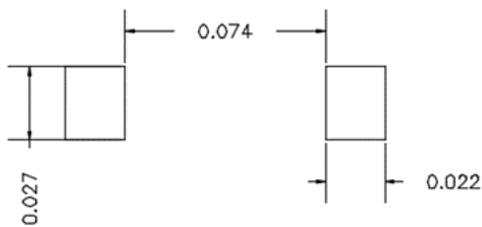


■ Outline Dimensions



| DIMENSIONS | | | | |
|------------|-----------|--------|----------|--------|
| DIM | INCHES | | MM | |
| | MIN | MAX | MIN | MAX |
| A | --- | 0.0393 | --- | 1.0000 |
| A1 | 0.0000 | 0.0039 | 0.0000 | 0.1000 |
| A2 | 0.0314 | 0.0354 | 0.8000 | 0.9000 |
| b | 0.0098 | 0.0157 | 0.2500 | 0.4000 |
| c | 0.0031 | 0.0059 | 0.0800 | 0.1500 |
| D | 0.0472 | 0.0551 | 1.2000 | 1.4000 |
| E | 0.0629 | 0.0709 | 1.6000 | 1.8000 |
| E1 | 0.0984 | 0.1063 | 2.5000 | 2.7000 |
| L | 0.0187TYP | | 0.475TYP | |
| L1 | 0.0098 | 0.0157 | 0.250 | 0.400 |
| e | 0° | 8° | 0° | 8° |

■ Soldering Footprint



UNIT: inch
SUGGESTED SOLDER PAD LAYOUT



ESD18VD3

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