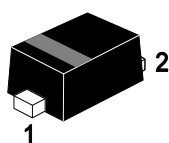


Transient Voltage Suppressors for ESD Protection

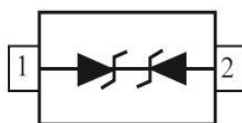
FEATURES:

- Ultra Low Capacitance 0.5 pF
- Low Clamping Voltage
- Small Body Outline Dimensions:
0.047" x 0.032" (1.20 mm x 0.80 mm)
- Low Body Height: 0.016" (0.4 mm)
- Stand-off Voltage: 5 V
- Low Leakage
- Response Time is Typically < 1.0 ns
- IEC61000-4-2 Level 4 ESD Protection
- This is a Pb-Free Device

Circuit Diagram & Pin Configuration:



SOD-523



DEVICE MARKING AND ORDERING INFORMATION

| Device | Marking | Shipping |
|--------------|---------|----------------|
| TESDL051BD52 | L5 | 3000/Tape&Reel |

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|-----------|----------------------|------------------|
| IEC 61000-4-2 (ESD) Contact Air | | ± 10 ± 15 | kV |
| Total Power Dissipation on FR-5 Board (Note 1) @ $T_A = 25^\circ\text{C}$ | P_D | 200 | mW |
| Peak Pulse Power ($t_p = 8/20\mu\text{s}$) | P_{PP} | 100 | W |
| Storage Temperature Range | T_{stg} | -55 to $+150$ | $^\circ\text{C}$ |
| Junction Temperature Range | T_J | -55 to $+125$ | $^\circ\text{C}$ |
| Lead Solder Temperature – Maximum (10 Second Duration) | T_L | 260 | $^\circ\text{C}$ |

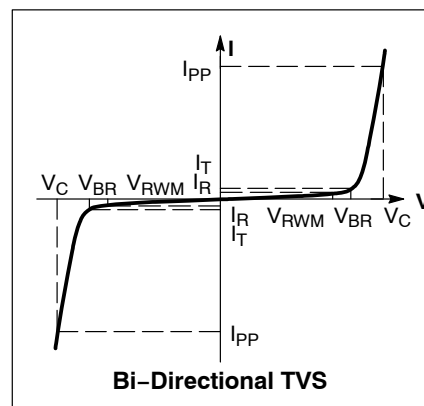
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-5 = 1.0 x 0.75 x 0.62 in.

ELECTRICAL CHARACTERISTICS

(T_A = 25°C unless otherwise noted)

| Symbol | Parameter |
|------------------|--|
| I _{PP} | Maximum Reverse Peak Pulse Current |
| V _C | Clamping Voltage @ I _{PP} |
| V _{RWM} | Working Peak Reverse Voltage |
| I _R | Maximum Reverse Leakage Current @ V _{RWM} |
| V _{BR} | Breakdown Voltage @ I _T |
| I _T | Test Current |
| I _F | Forward Current |
| V _F | Forward Voltage @ I _F |
| P _{pk} | Peak Power Dissipation |
| C | Capacitance @ V _R = 0 and f = 1.0 MHz |



ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

| Device | V _{RWM} (V) | I _R (μA) @ V _{RWM} | V _{BR} (V) @ I _T (Note 2) | I _T | C (pF) | | V _C (V) @ I _{PP} = 1 A (Note 3) | V _C |
|--------------|----------------------|---|--|----------------|--------|-----|---|------------------------------|
| | Max | Max | Min | mA | Typ | Max | Max | Per IEC61000-4-2 (Note 4) |
| TESDL051BD52 | 5.0 | 1.0 | 5.4 | 1.0 | 0.5 | 0.9 | 12.9 | Figures 1 and 2 See Below |

2. V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C.

3. Surge current waveform per Figure 5.

4. For test procedure see Figures 3 and 4.

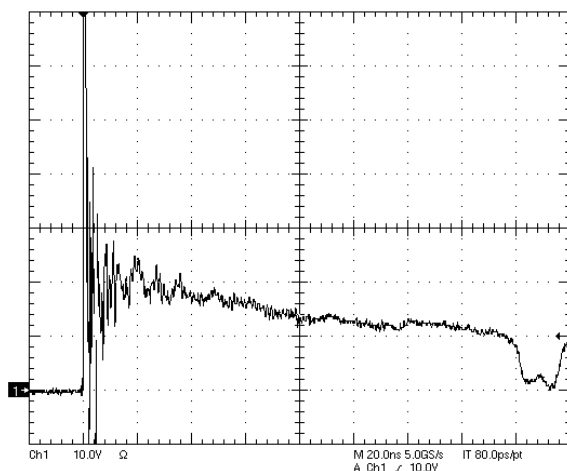


Figure 1. ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000-4-2

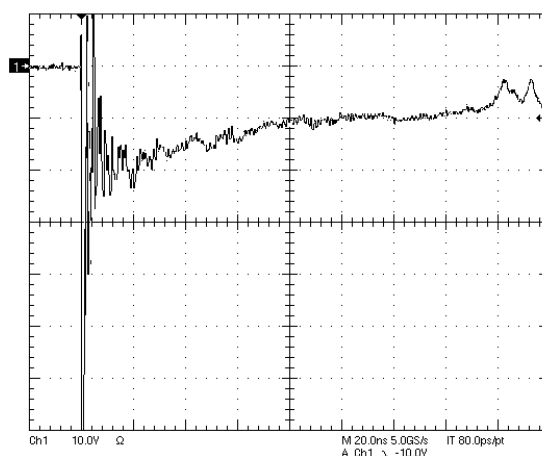


Figure 2. ESD Clamping Voltage Screenshot
Negative 8 kV Contact per IEC61000-4-2

IEC 61000-4-2 Spec.

| Level | Test Voltage (kV) | First Peak Current (A) | Current at 30 ns (A) | Current at 60 ns (A) |
|-------|-------------------|------------------------|----------------------|----------------------|
| 1 | 2 | 7.5 | 4 | 2 |
| 2 | 4 | 15 | 8 | 4 |
| 3 | 6 | 22.5 | 12 | 6 |
| 4 | 8 | 30 | 16 | 8 |

IEC61000-4-2 Waveform

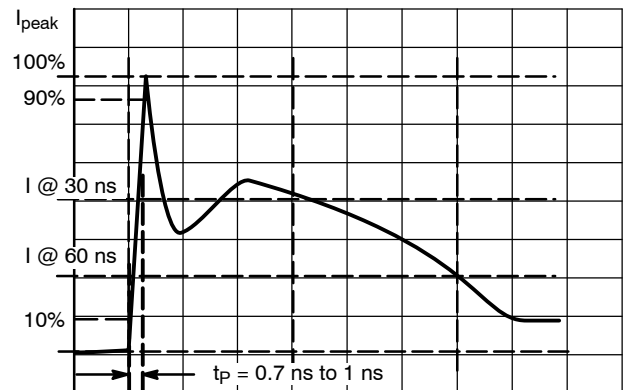


Figure 3. IEC61000-4-2 Spec

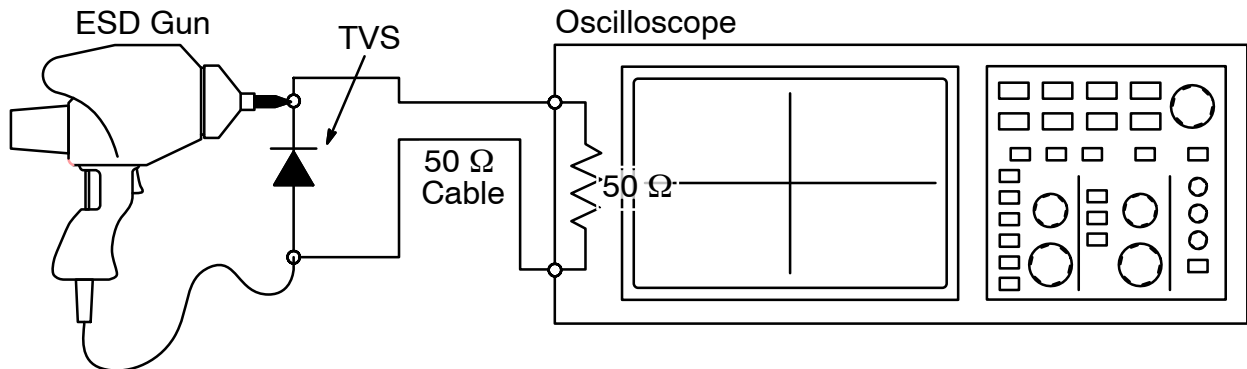


Figure 4. Diagram of ESD Test Setup

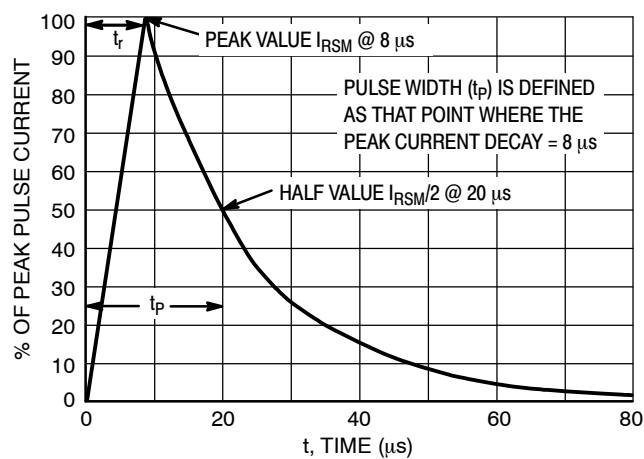
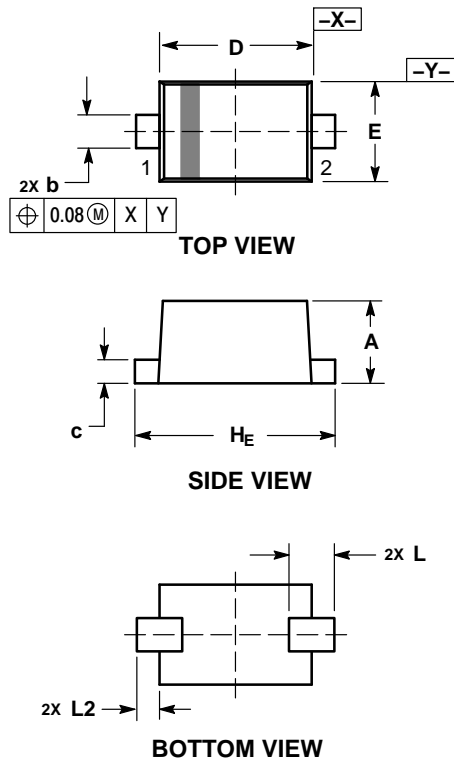


Figure 5. 8 X 20 μs Pulse Waveform

PACKAGE DIMENSIONS

SOD-523

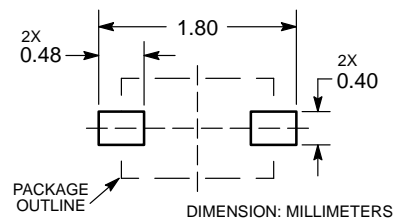


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
 4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

| DIM | MILLIMETERS | | |
|----------------|-------------|------|------|
| | MIN | NOM | MAX |
| A | 0.50 | 0.60 | 0.70 |
| b | 0.25 | 0.30 | 0.35 |
| c | 0.07 | 0.14 | 0.20 |
| D | 1.10 | 1.20 | 1.30 |
| E | 0.70 | 0.80 | 0.90 |
| H _E | 1.50 | 1.60 | 1.70 |
| L | 0.30 REF | | |
| L2 | 0.15 | 0.20 | 0.25 |

- STYLE 1:
- PIN 1: CATHODE (POLARITY BAND)
 - ANODE

RECOMMENDED SOLDERING FOOTPRINT*



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