## *Transient Voltage Suppressors for ESD Protection*

## FEATURES:

- Small Body Outline Dimensions:
  0.039 x 0.024(1.0 mm x 0.60 mm)
- Low Body Height: 0.017 (0.43 mm) Max
- Stand−off Voltage: 3.3 V − 12 V
- Low Leakage
- Response Time is Typically < 1 ns
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- IEC61000−4−2 Level 4 ESD Protection
- We declare that the material of product compliance with RoHS requirements.

## Circuit Diagram & Pin Configuration:

**SOD-923**


PIN 1. CATHODE
2. ANODE

## DEVICE MARKING AND ORDERING INFORMATION

| Device | Marking | Shipping |
|---|---|---|
| TESDN121AD92 | H | 8000/Tape&Reel |

### MAXIMUM RATINGS

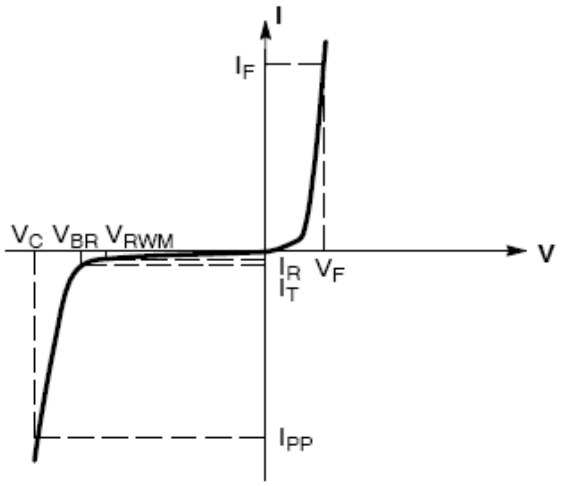
| Rating | Symbol | Value | Unit |
|---|---|---|---|
| IEC 61000-4-2 (ESD) Air<br>Contact discharge | | ±15<br>±8 | kV<br>kV |
| ESD Voltage Per Human Body Model | | 16 | kV |
| Total Power Dissipation on FR-5 Board (Note 1) @ $T_A$=25 | PD | 150 | Mw |
| Junction and Storage Temperature Range | TJ,TSTG | -55 to 150 | |
| Lead Solder Temperature – Maximum (10 Second Duration) | TL | 260 | |

Stresses exceeding Maximum Ratings may damage the device. Maximum Rating 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*0.75*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 | Max. Capacitance @$V_R$ = 0 and f = 1 MHz |




**Uni−Directional TVS**

ELECTRICAL CHARACTERISTICS ($T_A$=25 unless otherwise noted, VF=0.9V Max. @ IF=10Ma for all types)

| Device | $V_{RWM}$ (V) | $I_R$ (μA) @ $V_{RWM}$ | $V_{BR}$ (V) @ $I_T$ (Note 2) | $I_T$ (mA) | $I_{PP}$ (A) (Note 3) | $V_C$ (V) @ Max $I_{PP}$ (Note 3) | $P_{PK}$ (W) (8*20 μs) | C (pF) |
|---|---|---|---|---|---|---|---|---|
| | Max | Max | Min | | Max | Max | Typ | Typ |
| TESDN121AD92 | 12 | 1.0 | 13.5 | 1.0 | 5.9 | 23.7 | 140 | 30 |

Other voltage available upon request.

2. $V_{BR}$ is measured with a pulse test current IT at an ambient temperature of 25

3. Surge current waveform per Figure 3.

TYPICAL CHARACTERISTICS

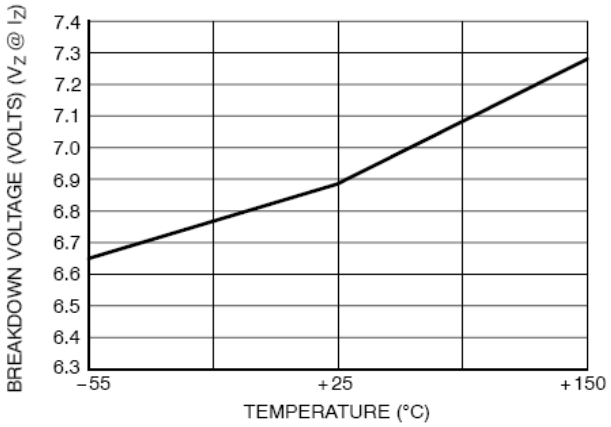



***Figure 1. Typical Breakdown Voltage versus Temperature***

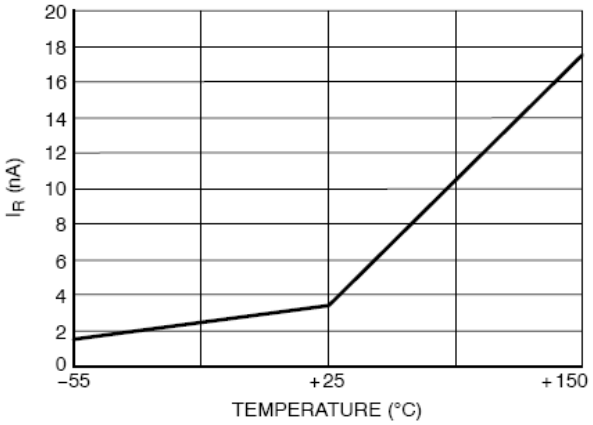



***Fig 2. Typical Leakage Current versus Temperature***

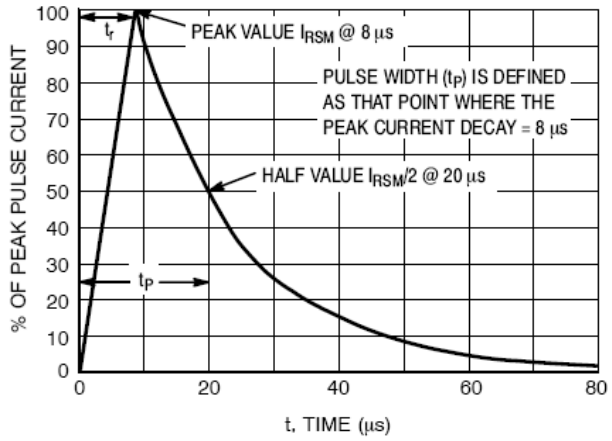
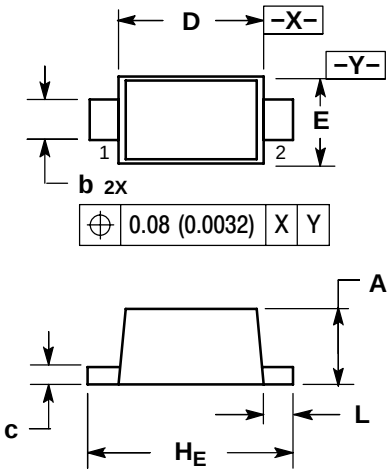



***Figure 3. 8*20 s Pulse Waveform***

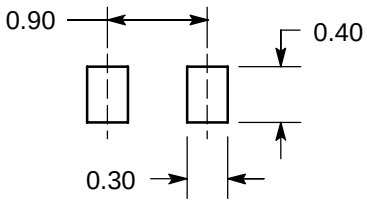
## SOD−923




NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.34 | 0.37 | 0.40 | 0.013 | 0.015 | 0.016 |
| b | 0.15 | 0.20 | 0.25 | 0.006 | 0.008 | 0.010 |
| c | 0.07 | 0.12 | 0.17 | 0.003 | 0.005 | 0.007 |
| D | 0.75 | 0.80 | 0.85 | 0.030 | 0.031 | 0.033 |
| E | 0.55 | 0.60 | 0.65 | 0.022 | 0.024 | 0.026 |
| $H_E$ | 0.95 | 1.00 | 1.05 | 0.037 | 0.039 | 0.041 |
| L | 0.05 | 0.10 | 0.15 | 0.002 | 0.004 | 0.006 |

### SOLDERING FOOTPRINT*




DIMENSIONS: MILLIMETERS

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