



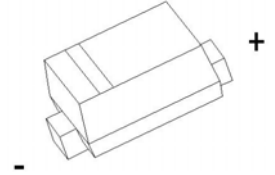
ESD7Z7.0 Plastic-Encapsulate Diodes

Uni-direction ESD Protection Diode

DESCRIPTION

Designed to protect voltage sensitive electronic components from ESD and other transients. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD.

The combination of small size, high level of ESD protection makes them a flexible solution for applications such as HDMI, Display Port TM, and MDDI interfaces. It is designed to replace multiplayer varistors (MLV) in consumer equipments applications such as mobile phone, notebook, PAD, STB, LCD TV etc.



SOD-723

FEATURES

- Uni-directional ESD protection of one line
- Reverse stand-off voltage: 7V
- Low reverse clamping voltage
- Low leakage current
- Excellent package: 1.00mm × 0.60mm × 0.55mm
- Fast response time
- JESD22-A114-B ESD Rating of class 3B per human body model
- IEC 61000-4-2 Level 4 ESD protection

APPLICATIONS

- Computers and peripherals
- Audio and video equipment
- 10/100/1000 Mbit/s Ethernet
- Cellular handsets and accessories
- Portable electronics
- FireWire
- Other electronics equipments communication systems

MARKING : EE



MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|--|---------------------------|------------|--------------------|
| IEC 61000-4-2 ESD Voltage | Air Model | ± 25 | kV |
| | Contact Model | ± 25 | |
| | JESD22-A114-B ESD Voltage | ± 16 | |
| | Per Human Body Model | ± 16 | |
| ESD Voltage | Machine Model | ± 0.4 | |
| Peak Pulse Power | $P_{PP}^{(2)}$ | 150 | W |
| Peak Pulse Current | $I_{PP}^{(2)}$ | 10 | A |
| Lead Solder Temperature – Maximum (10 Second Duration) | T_L | 260 | $^{\circ}\text{C}$ |
| Operation Junction and Storage Temperature Range | T_J, T_{stg} | -55 ~ +150 | $^{\circ}\text{C}$ |

(1).Device stressed with ten non-repetitive ESD pulses.

(2).Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5.

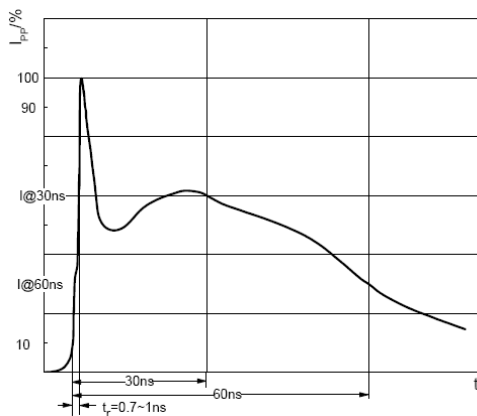
ESD standards compliance

IEC61000-4-2 Standard

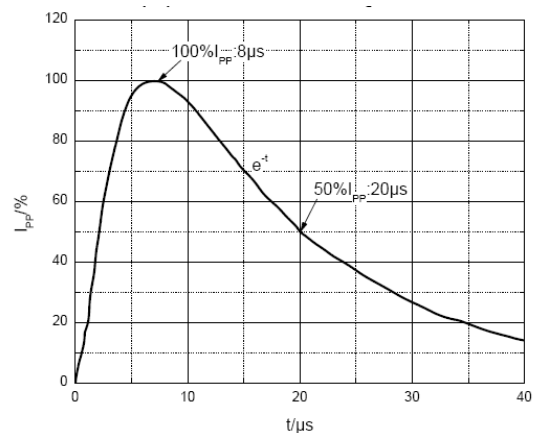
| Contact Discharge | | Air Discharge | |
|-------------------|-----------------|---------------|-----------------|
| Level | Test Voltage kV | Level | Test Voltage kV |
| 1 | 2 | 1 | 2 |
| 2 | 4 | 2 | 4 |
| 3 | 6 | 3 | 8 |
| 4 | 8 | 4 | 15 |

JESD22-A114-B Standard

| ESD Class | Human Body Discharge V |
|-----------|------------------------|
| 0 | 0~249 |
| 1A | 250~499 |
| 1B | 500~999 |
| 1C | 1000~1999 |
| 2 | 2000~3999 |
| 3A | 4000~7999 |
| 3B | 8000~15999 |



ESD pulse waveform according to IEC61000-4-2

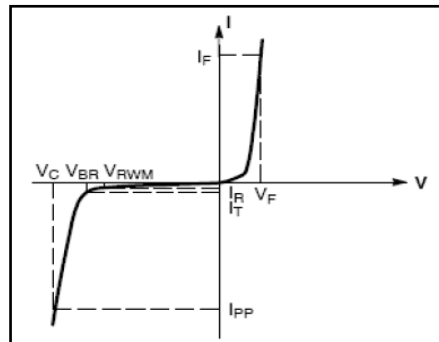


8/20 μs pulse waveform according to IEC 61000-4-5



ELECTRICAL PARAMETER

| Symbol | Parameter |
|-----------|-------------------------------------|
| V_C | Clamping Voltage @ I_{PP} |
| I_{PP} | Peak Pulse Current |
| V_{BR} | Breakdown Voltage @ I_T |
| I_T | Test Current |
| I_R | Reverse Leakage Current @ V_{RWM} |
| V_{RWM} | Reverse Standoff Voltage |
| V_F | Forward Voltage @ I_F |
| I_F | Forward Current |



V-I characteristics for a uni-directional TVS

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}C$ unless otherwise specified)

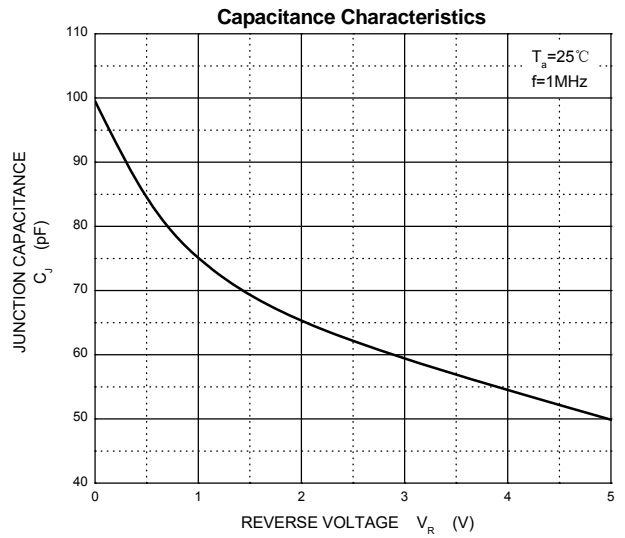
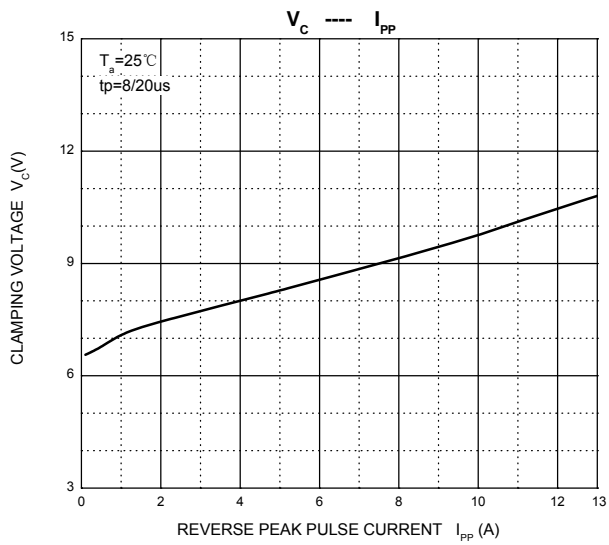
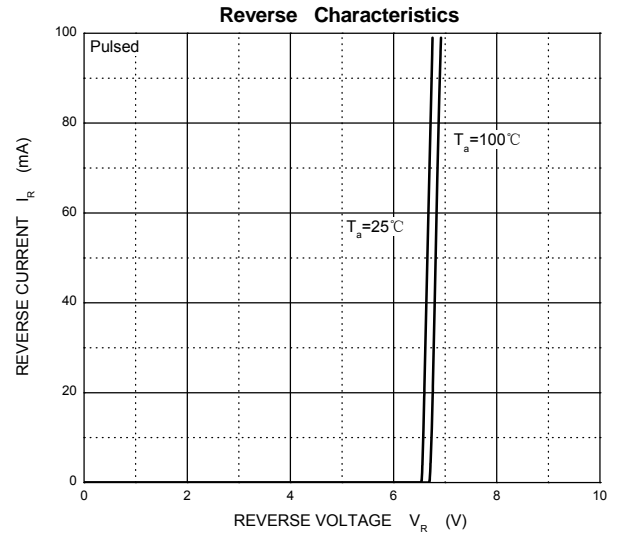
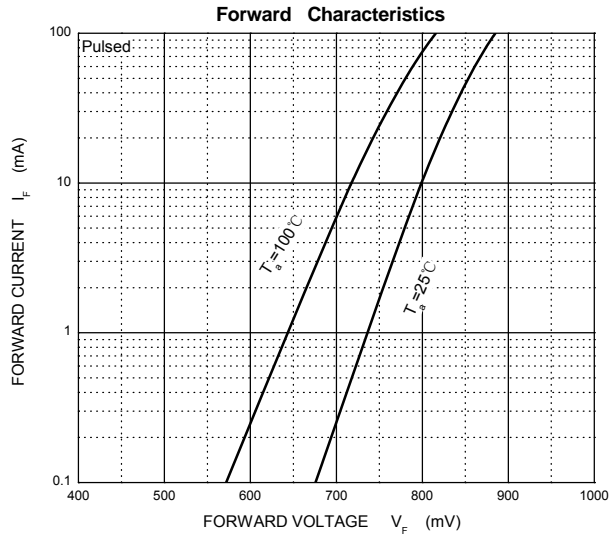
| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---------------------------|-----------------|------------------|-----|-----|------|---------|
| Reverse stand off voltage | $V_{RWM}^{(1)}$ | | | | 7.0 | V |
| Reverse leakage current | I_R | $V_{RWM}=7.0V$ | | | 1 | μA |
| Breakdown voltage | $V_{(BR)}$ | $I_T=1mA$ | 7.5 | | 8.7 | V |
| Clamping voltage | $V_C^{(2)}$ | $I_{PP}=10A$ | | | 15.1 | V |
| Forward voltage | V_F | $I_F=10mA$ | | | 0.9 | V |
| Junction capacitance | C_J | $V_R=0V, f=1MHz$ | | 70 | | pF |

(1). Other voltages available upon request.

(2). Non-repetitive current pulse 8/20 μs exponential decay waveform according to IEC61000-4-5

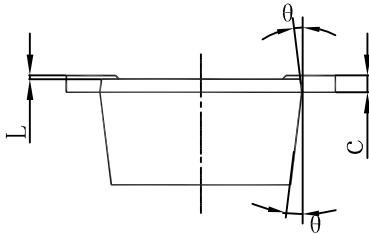
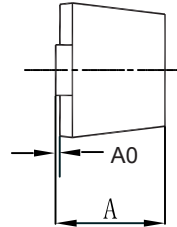
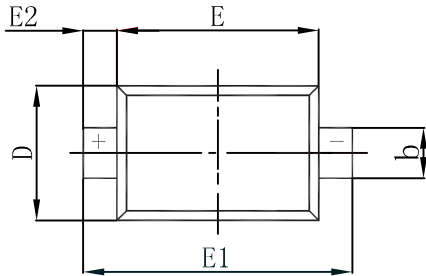


TYPICAL CHARACTERISTICS



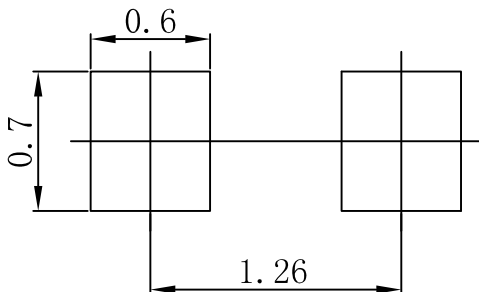


SOD-723 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.450 | 0.550 | 0.018 | 0.022 |
| A0 | 0.000 | 0.020 | 0.000 | 0.008 |
| b | 0.250 | 0.350 | 0.010 | 0.014 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 0.550 | 0.650 | 0.022 | 0.026 |
| E | 0.900 | 1.100 | 0.035 | 0.043 |
| E1 | 1.300 | 1.500 | 0.051 | 0.059 |
| E2 | 0.200 REF | | 0.008 REF | |
| L | 0.010 | 0.070 | 0.001 | 0.003 |
| θ | 7° REF | | 7° REF | |

SOD-723 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.