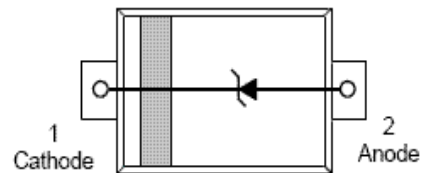

Transient Voltage Suppressors for ESD Protection

The ESD5ZxxT Series is designed to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium.

This series has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD(electrostatic discharge), and EFT (electrical fast transients).

Features

- Peak Power Dissipation – 200W (8 x 20 us Waveform)
- Replacement for MLV (0603)
- Protects power & I/O Port
- Low Clamping Voltage
- Low Leakage
- Response Time is < 1 ns
- Available in Multiple Voltages Ranging From 3.3V to 24V
- Device Meets MSL 1 Requirements
- Low Body Height: 1.68mm
- **Solid-state silicon avalanche technology**
- ROHS compliant
- WeiPan technology

**SOD-523****Main applications**

- Cellular handsets and accessories
- Portable instrumentation
- Peripherals
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV

Protection solution to meet

- IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

Transient Voltage Suppressors for ESD Protection

| Maximum ratings (Tamb=25°C Unless Otherwise Specified) | | | |
|---|------------------|---------------|-------|
| Parameter | Symbol | Value | Unit |
| Peak Pulse Power (tp=8/20µs waveform) | P _{PPP} | 200 | Watts |
| ESD Rating per IEC61000-4-2: | Contact | 8 | KV |
| | Air | 15 | |
| Lead Soldering Temperature | T _L | 260 (10 sec.) | °C |
| Operating Temperature Range | T _I | -55 ~ 150 | °C |
| Storage Temperature Range | T _{STG} | -55 ~ 150 | °C |
| Lead Solder Temperature – Maximum (10 Second Duration) | T _L | 260 | °C |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

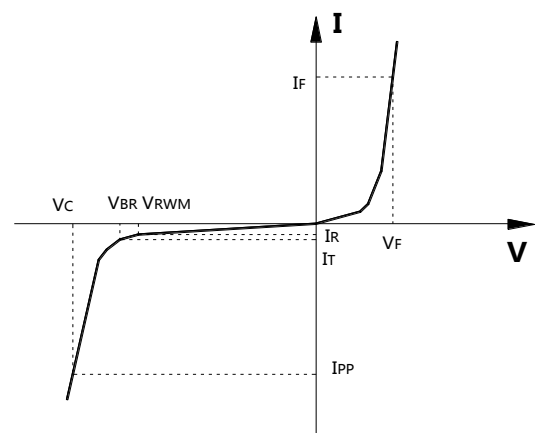
*Other voltages may be available upon request.

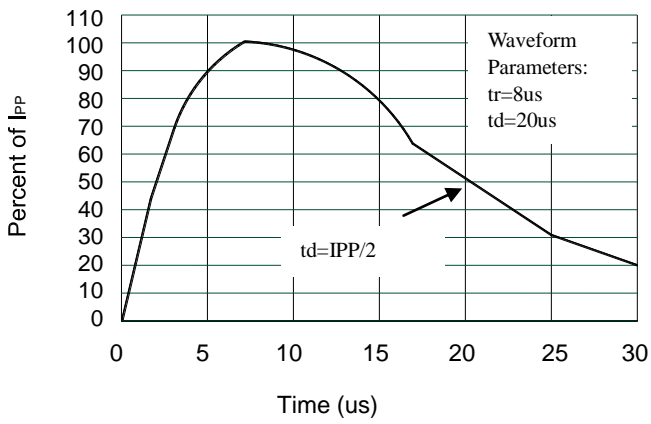
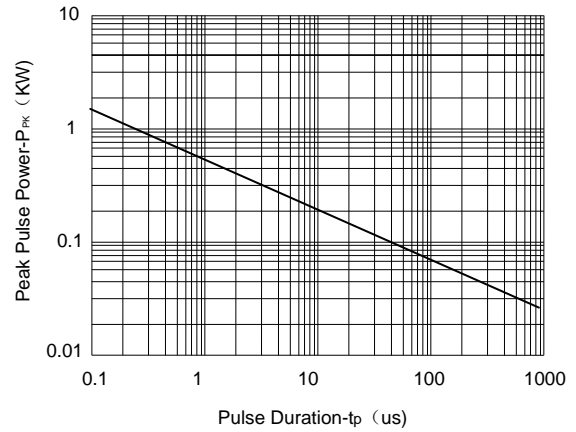
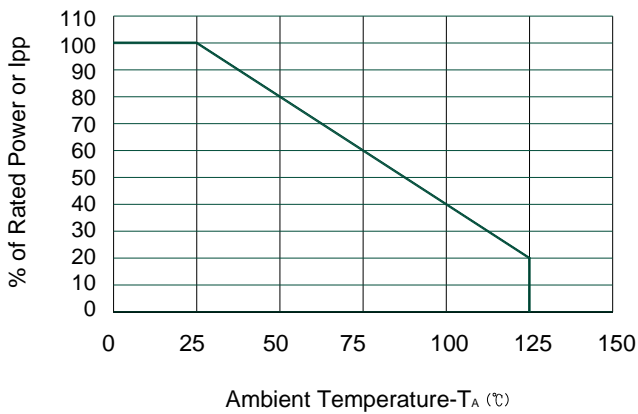
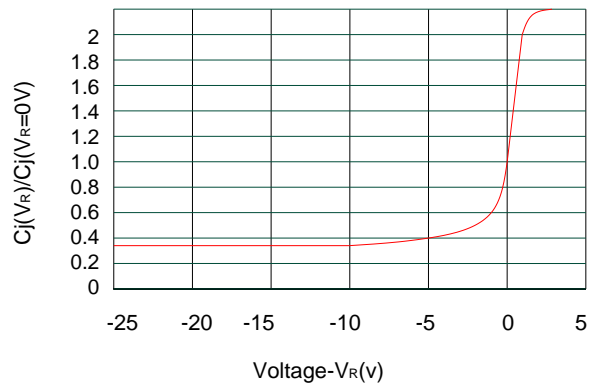
1. Non-repetitive current pulse, per Figure 1.

| Electrical characteristics (Tamb=25°C Unless Otherwise Specified) | | | | | | |
|---|------------------|-----------------------------------|------------------------|----------------|-------------|------------------------------------|
| Device | V _{RWM} | I _R @ V _{RWM} | V _{BR} @ 1 mA | V _C | Capacitance | |
| | (V) | | (µA) | (Volts) | @ 5 A | @ V _R = 0 V, 1 MHz (pF) |
| | | | Min | (V) | Typ | Max |
| ESD5Z3.3T | 3.3 | 1 | 5.0 | 8.40 | 105 | 115 |
| ESD5Z5.0T | 5.0 | 1 | 6.2 | 11.6 | 80 | 90 |
| ESD5Z7.0T | 7.0 | 1 | 7.5 | 13.5 | 65 | 75 |
| ESD5Z12T | 12 | 1 | 13.5 | 25.0 | 55 | 65 |
| ESD5Z24T | 24 | 1 | 26.7 | 43.0 | 30 | 45 |

Junction capacitance is measured in VR=0V, F=1MHz

| Symbol | Parameter |
|------------------|-------------------------------------|
| V _{RWM} | Working Peak Reverse Voltage |
| V _{BR} | Breakdown Voltage @ I _T |
| V _C | Clamping Voltage @ I _{PP} |
| I _T | Test Current |
| I _{RM} | Leakage current at V _{RWM} |
| I _{PP} | Peak pulse current |
| C _O | Off-state Capacitance |
| C _J | Junction Capacitance |

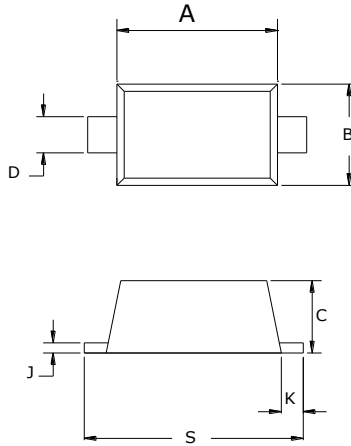


Typical electrical characterist applications

Pulse Waveform

Non-Repetitive Peak Pulse Power vs. Pulse Time

Power Derating Curve

Junction Capacitance vs. Reverse Voltage

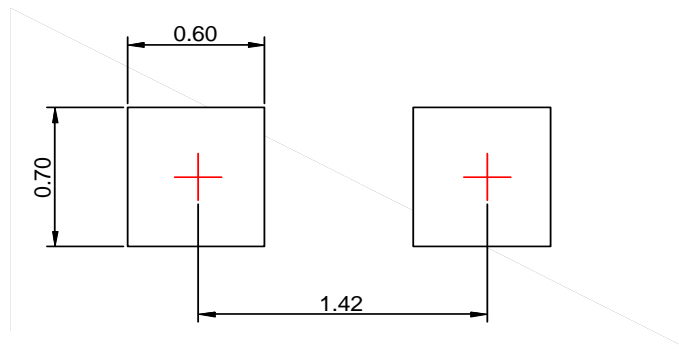
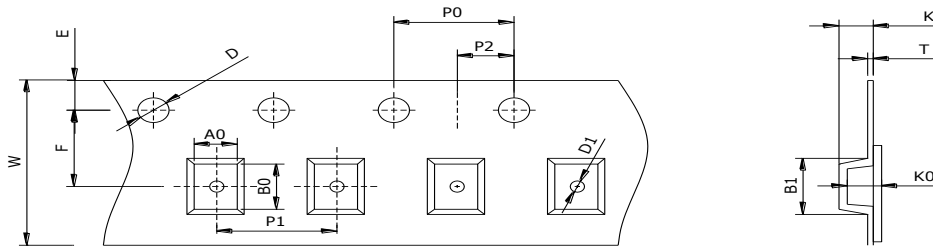
Package Information
SOD-523
Mechanical Data

Case: SOD-523

Case Material: Molded Plastic. UL Flammability



| Dim | Millimeters | | Inches | |
|-----|-------------|------|--------|-------|
| | Min | Max | Min | Max |
| A | 1.10 | 1.30 | 0.043 | 0.051 |
| B | 0.75 | 0.85 | 0.03 | 0.033 |
| C | 0.51 | 0.70 | 0.02 | 0.028 |
| D | 0.25 | 0.35 | 0.01 | 0.014 |
| J | 0.08 | 0.15 | 0.003 | 0.006 |
| K | 0.15 | 0.25 | 0.006 | 0.010 |
| S | 1.50 | 1.70 | 0.059 | 0.067 |

Recommended Pad outline

SOD-523 Reel Dim


| Package | Chip Size | Pocket Size B0×A0×K0(mm) | Tape Width | Reel Diameter | Quantity Per Reel | P0 | P1 |
|---------|----------------|-----------------------------|---------------|---------------|-------------------|-----|-----|
| SOD-523 | 1.70×0.80×0.70 | 1.90×0.90×0.80 | 8mm | 178mm(7") | 3000 | 4mm | 4mm |
| D0 | D1 | E | F | K | T | W | |
| 1.5mm | 1.0mm | 1.75mm | 3.5mm | 0.75mm | 0.2mm | 8mm | |