



SSCT12V12D3

1-Line Uni-directional TVS Diode

● Description

The SSCT12V12D3 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The SSCT12V12D3 complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge.

● Features

- ◇ Protects one I/O or Power Line
- ◇ SOD-523 Package
- ◇ Working voltage: 12V
- ◇ Low Leakage Current
- ◇ Small Body Outline Dimensions
- ◇ Response Time is Typically $< 1\text{ns}$
- ◇ Complies with following standards:
 - IEC61000-4-2(ESD) $\pm 30\text{KV}$ (contact),
 $\pm 30\text{KV}$ (air)
 - IEC61000-4-5(Lightning) 15A(8/20 μs)

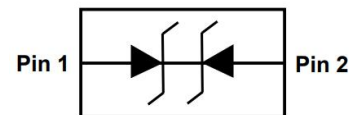
● Mechanical Characteristics

- ◇ Package: SOD-523
- ◇ Case Material: "Green" Molding Compound.
- ◇ UL Flammability Classification Rating 94V-0
- ◇ Moisture Sensitivity: Level 3 per J-STD-020
- ◇ Terminal Connections: See Diagram Below
- ◇ Marking Information: See Below

● PIN configuration



SOD-523



Top view



Marking

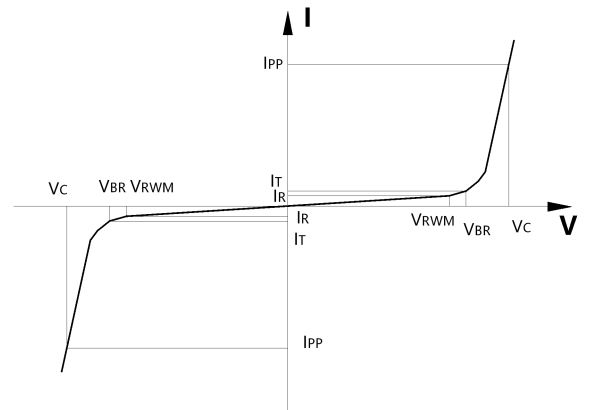
● Applications

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



● Electronic Parameter

| Symbol | Parameter |
|-----------|-------------------------------------|
| V_{RWM} | Peak Reverse Working Voltage |
| I_R | Reverse Leakage Current @ V_{RWM} |
| V_{BR} | Breakdown Voltage @ I_T |
| I_T | Test Current |
| I_{PP} | Maximum Reverse Peak Pulse Current |
| V_C | Clamping Voltage @ I_{PP} |
| P_{PP} | Peak Pulse Power |
| C_J | Junction Capacitance |



● Absolute maximum rating @TA=25°C

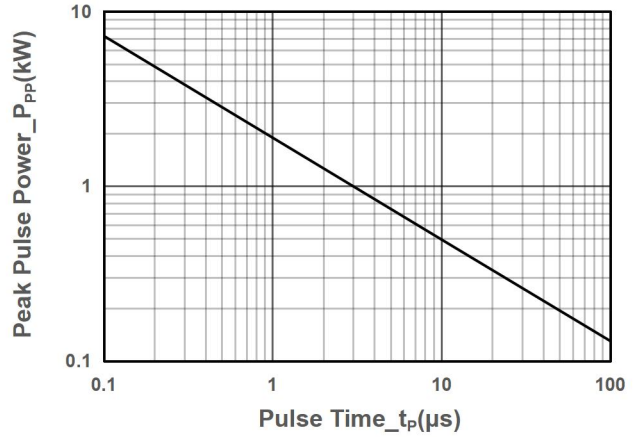
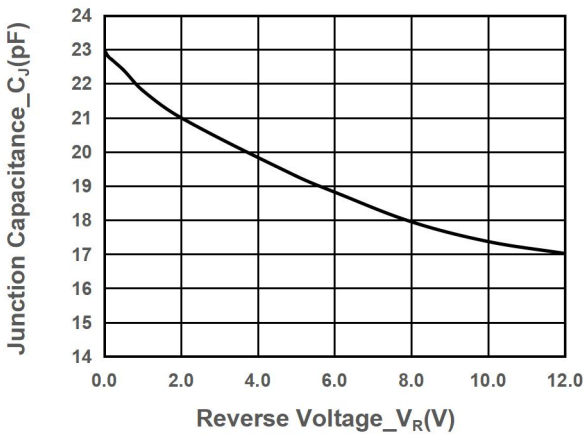
| Parameter | Symbol | Value | Units |
|------------------------------|-----------|----------|-------|
| Peak Pulse Power (8/20μs) | P_{PP} | 350 | W |
| Peak Pulse Current (8/20μs) | I_{PP} | 16 | A |
| ESD Rating per IEC61000-4-2: | | | |
| Contact | V_{ESD} | ±30 | kV |
| Air | | ±30 | |
| Storage Temperature | T_{STG} | -55/+150 | °C |

● Electrical Characteristics @TA=25°C

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|------------------------------|-----------|---------------------------------|------|------|------|-------|
| Peak Reverse Working Voltage | V_{RWM} | | | | 12 | V |
| Breakdown Voltage | V_{BR} | $I_T = 1mA$ | 13.3 | | 15.2 | V |
| Reverse Leakage Current | I_R | $V_{RWM} = 12V$ | | | 0.2 | μA |
| Clamping Voltage | V_C | $I_{PP} = 1A, t_P = 8/20\mu s$ | | | 16 | V |
| Clamping Voltage | V_C | $I_{PP} = 16A, t_P = 8/20\mu s$ | | 18 | 22 | V |
| Junction Capacitance | C_J | $V_R = 0V, f = 1MHz,$ | | 23 | | pF |

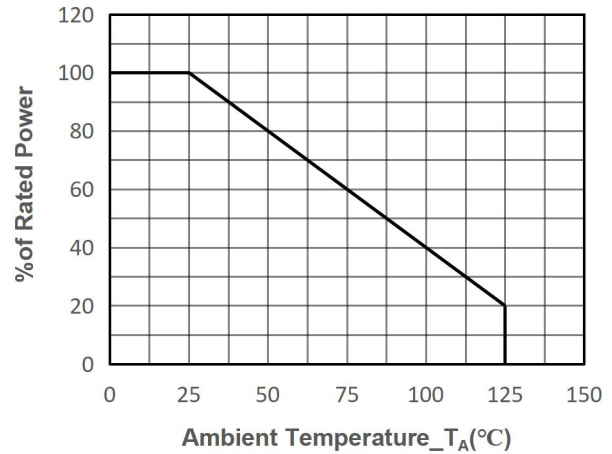
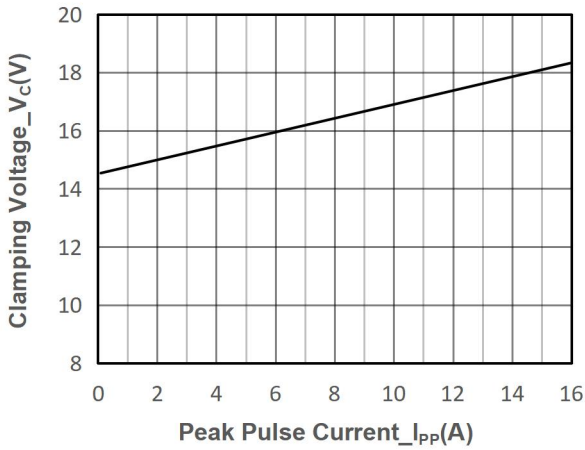


● Typical Performance Characteristics (TA=25°C unless otherwise Specified)



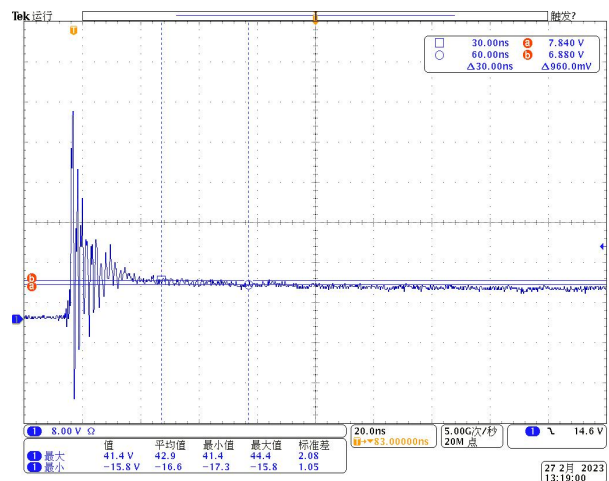
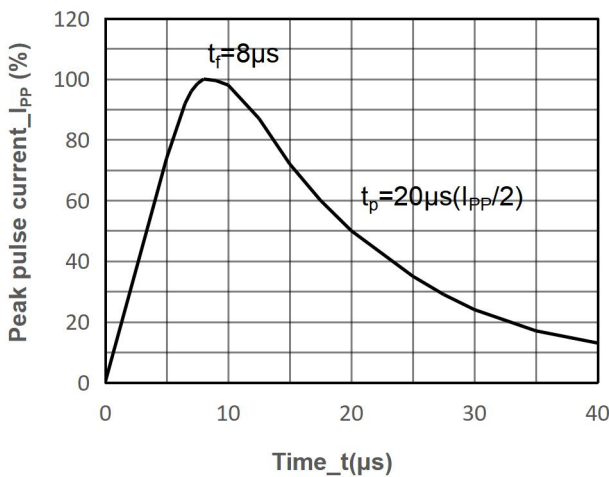
Junction Capacitance vs. Reverse Voltage

Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current

Power derating vs. Ambient temperature



8/20 μ s Pulse Waveform

Note: Data is taken with a 10x attenuator ESD Clamping Voltage 8kV contact per IEC61000-4-2



- **Package Information**

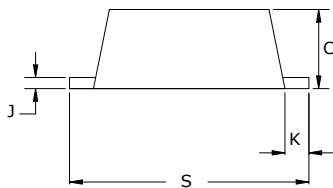
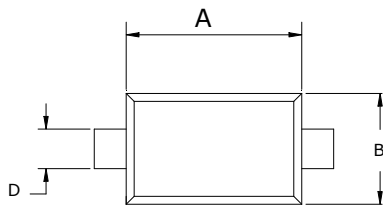
Ordering Information

| Device | Package | Qty per Reel | Reel Size |
|-------------|---------|--------------|-----------|
| SSCT12V12D3 | SOD-523 | 3000 | 7 Inch |

Mechanical Data

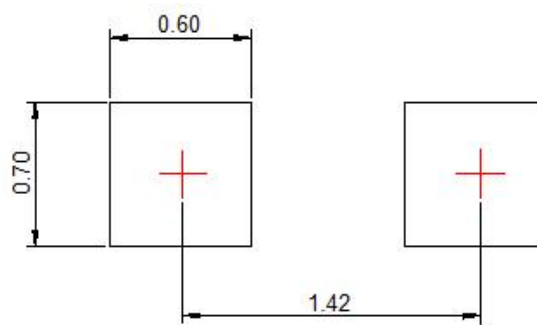
Case: SOD-523

Case Material: Molded Plastic. UL Flammability



| DIM | Millimeters | |
|-----|-------------|------|
| | Min | Max |
| A | 1.10 | 1.30 |
| B | 0.75 | 0.85 |
| C | 0.51 | 0.70 |
| D | 0.25 | 0.35 |
| J | 0.08 | 0.15 |
| K | 0.15 | 0.25 |
| S | 1.50 | 1.70 |

Suggested Land Pattern (Unit:mm)





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