



SSCT12V12D3

1-line Bi-directional Micro Packaged TVS Diodes for ESD Protection

● Description

The SSCT12V12D3 is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

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

● Feature

- ✧ 360W peak pulse power ($t_P = 8/20\mu s$)
- ✧ SOD-523 Package
- ✧ Working voltage: 12V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ Response Time is <1 ns
- ✧ RoHS compliant
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30kV$
 - Contact discharge: $\pm 30kV$
 - IEC 61000-4-5 (Surge) 12A(8/20 μs)

● Applications

- ✧ Cell phone handsets and accessories
- ✧ Personal digital assistants (PDAs)
- ✧ Notebooks, desktops, and servers
- ✧ Digital Cameras and camcorders
- ✧ MP3 Players
- ✧ Digital TV and Set-top Boxes

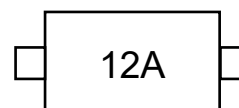
● PIN configuration



SOD-523



Circuit Diagram



Marking (Top View)

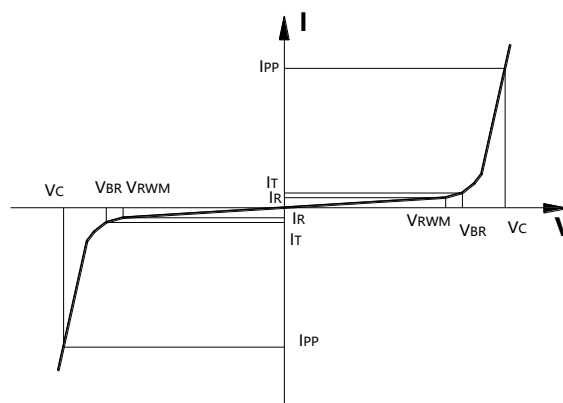
● Mechanical data

- ✧ Lead finish: 100% matte Sn (Tin)
- ✧ Mounting position: Any
- ✧ Qualified max reflow temperature: 260°C
- ✧ Device meets MSL 3 requirements
- ✧ Pure tin plating: 7 ~ 17 μm
- ✧ Pin flatness: $\leq 3mil$



● 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 ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

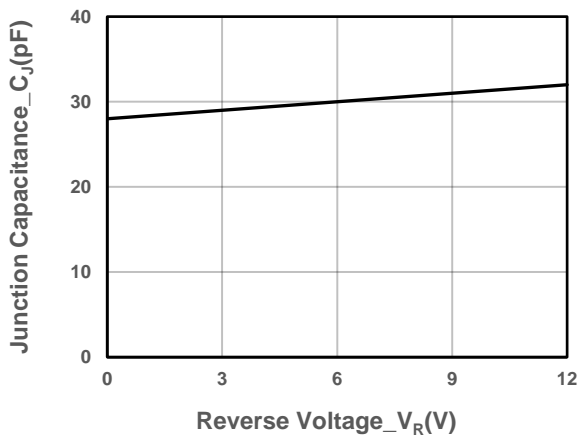
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	360	W
Peak Pulse Current (8/20 μs)	I_{PP}	12	A
ESD Rating per IEC61000-4-2: Contact Air	V_{ESD}	30 30	kV
Storage Temperature	T_{STG}	-55/+150	$^{\circ}\text{C}$
Operating Temperature	T_J	-55/+125	$^{\circ}\text{C}$

● Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

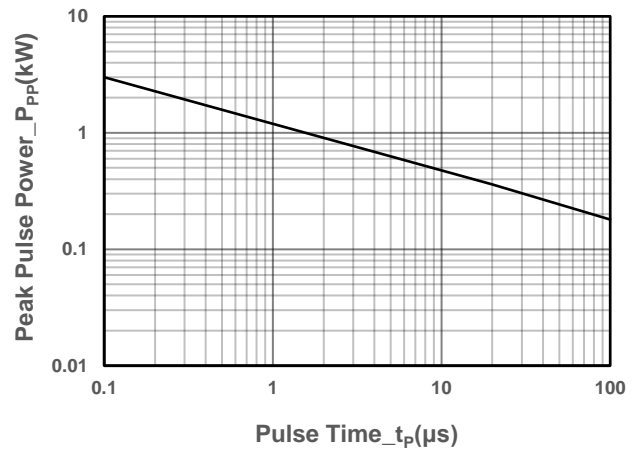
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				12	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	13.3		15.2	V
Reverse Leakage Current	I_R	$V_{RWM} = 12\text{V}$			0.1	μA
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$, $t_P = 8/20\mu\text{s}$			22	V
Clamping Voltage	V_C	$I_{PP} = 12\text{A}$, $t_P = 8/20\mu\text{s}$			30	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		30		pF



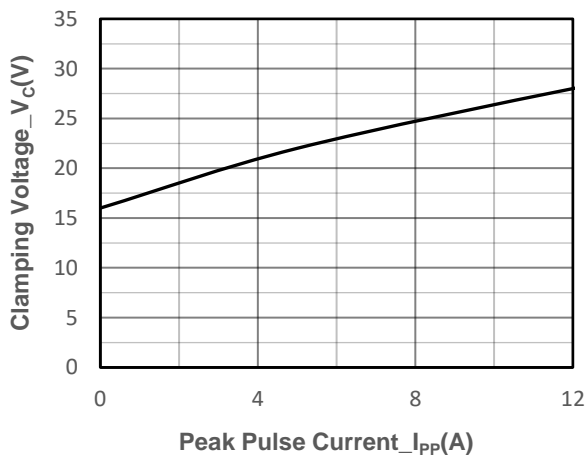
- Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)



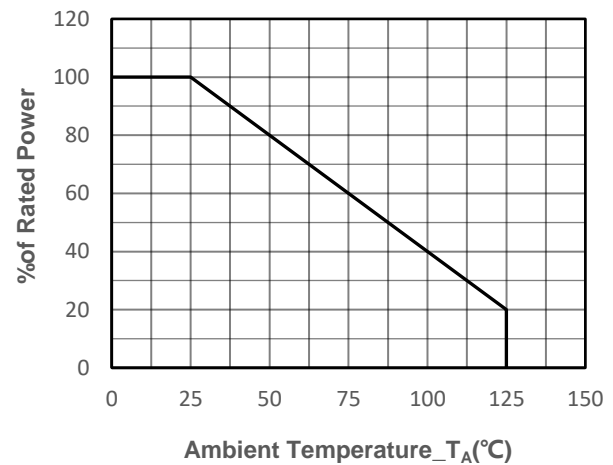
Junction Capacitance vs. Reverse Voltage



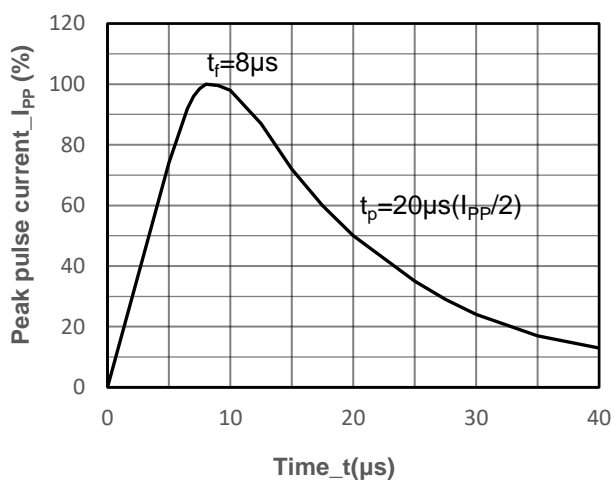
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



8/20 μs Pulse Waveform



● Package Information

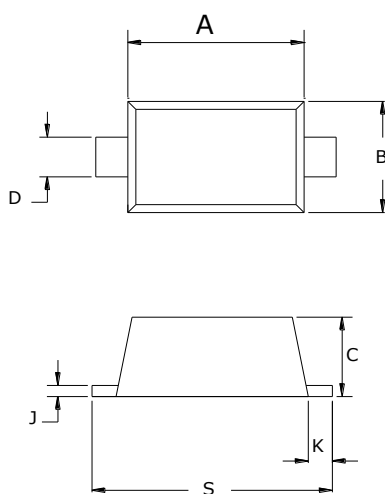
Ordering Information

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

Mechanical Data

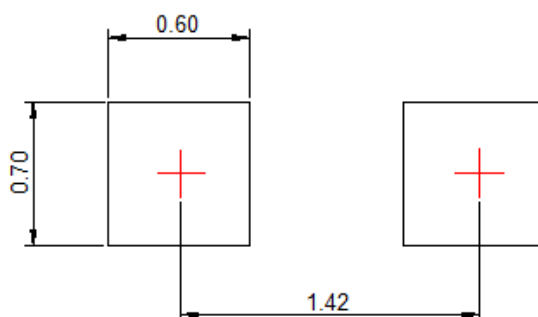
Case: SOD-523

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

Recommended Pad outline (Unit: mm)





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