



SSCT4V512D2

1-line Bidirectional Micro Packaged TVS Protector

● Description

The SSCT4V512D2 is designed with SSC technology to protect voltage sensitive components from Surge. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to surge.

It 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).

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.

● Feature

- ✧ 3500W peak pulse power ($t_P = 8/20\mu s$)
- ✧ SOD-323 Package
- ✧ Working voltage: 4.5V
- ✧ Low clamping voltage
- ✧ Low leakage current
- ✧ Response Time is < 1 ns
- ✧ RoHS compliant
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ± 30 kV
 - Contact discharge: ± 30 kV
 - IEC61000-4-5 (Surge) 180A (8/20us)

● PIN configuration



SOD-323



Circuit Diagram



Marking (Top View)

● Applications

- ✧ Power supply protection
- ✧ Power management
- ✧ Cellular handsets and accessories
- ✧ Portable instrumentation
- ✧ Notebooks, Desktops, Servers
- ✧ Projection TV

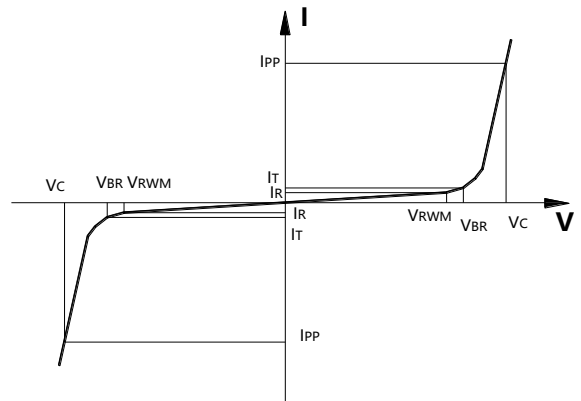
● Mechanical data

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



● **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)**

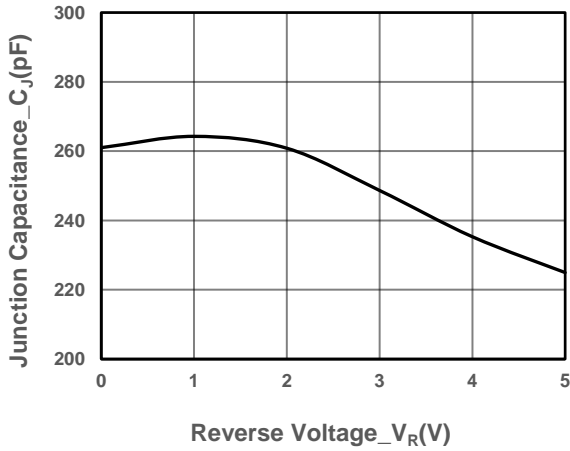
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	3500	W
Peak Pulse Current (8/20 μs)	I_{PP}	180	A
ESD Rating per IEC61000-4-2:	Contact	30	kV
	Air	30	
Storage Temperature	T_{STG}	-55/+150	$^\circ\text{C}$
Operating Temperature	T_J	-55/+125	$^\circ\text{C}$

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

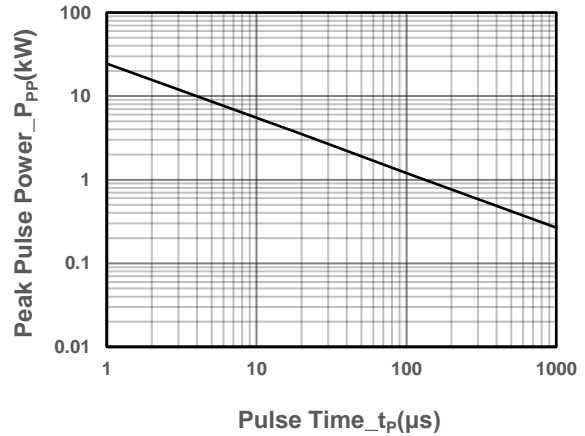
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				4.5	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	4.6		6.9	V
Reverse Leakage Current	I_R	$V_{RWM} = 4.5\text{V}$			1.0	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_P = 8/20\mu\text{s}$		8		V
Clamping Voltage	V_C	$I_{PP} = 180\text{A}, t_P = 8/20\mu\text{s}$		16	20	V
Junction Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		260		pF



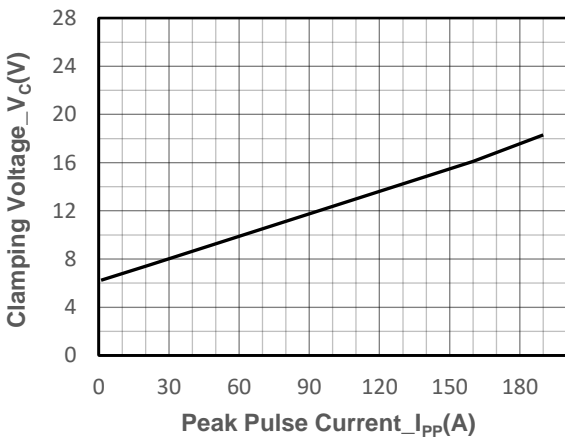
● Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)



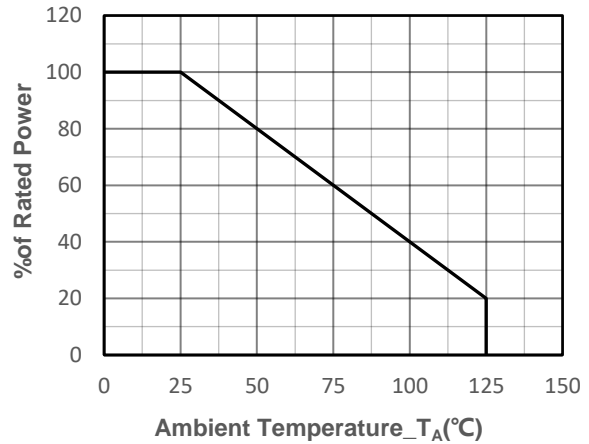
Junction Capacitance vs. Reverse Voltage



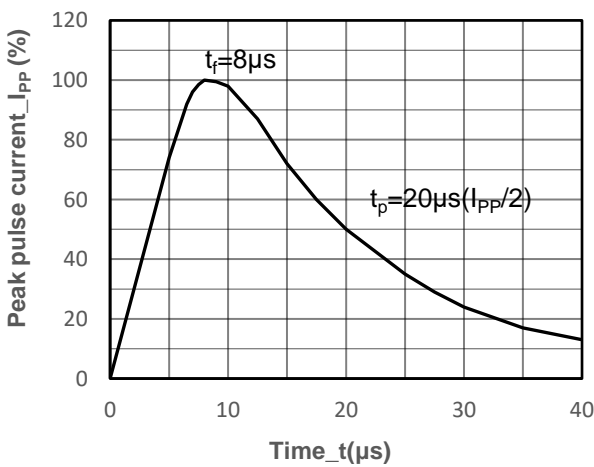
Peak Pulse Power vs. Pulse Time



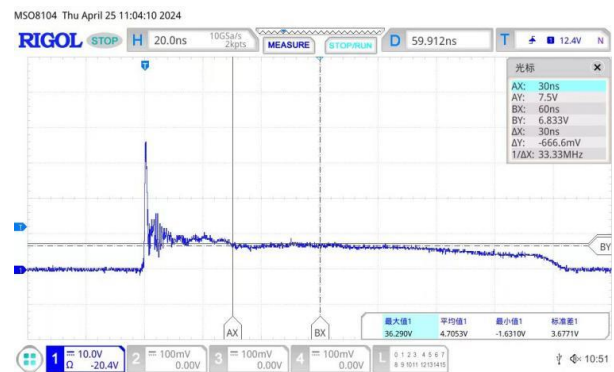
Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient Temperature



8/20 μs Pulse Waveform



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



● Package Information

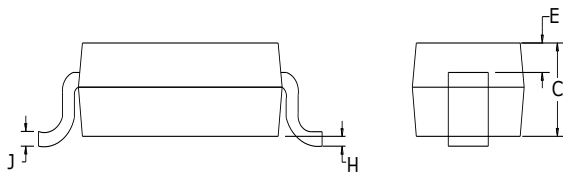
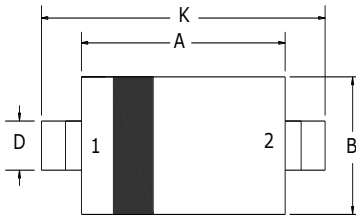
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT4V512D2	SOD-323	3000	7 Inch

Mechanical Data

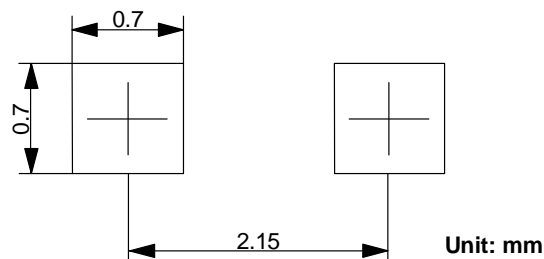
Case: SOD-323

Case Material: Molded Plastic. UL Flammability



Dim	Millimeters	
	Min	Max
A	1.60	1.80
B	1.2	1.40
C	0.80	0.90
D	0.25	0.35
E	0.15REF	
H	0	0.10
J	0.08	0.15
K	2.50	2.70

Recommended Pad outline





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