SSCT4V512L3

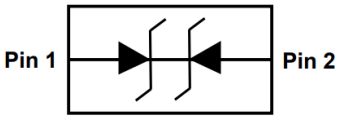
1-line Bidirectional Micro Packaged TVS Diode

Description

The SSCT4V512L3 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 SSCT4V512L3 complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV contact discharge. It is assembled into an ultra-small 1.6x1.0x0.5mm lead-free DFN package.

The small size and high ESD surge protection make SSCT4V512L3 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

PIN configuration



Top view

Marking

Feature

- 2500W peak pulse power (t_P = 8/20us)
- DFN1610-2L Package
- Working voltage: 4.5V
- Low clamping voltage
- Low capacitance
- Low leakage current
- RoHS compliant
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  - IEC61000-4-5 (Surge) 180A (8/20us)

Applications

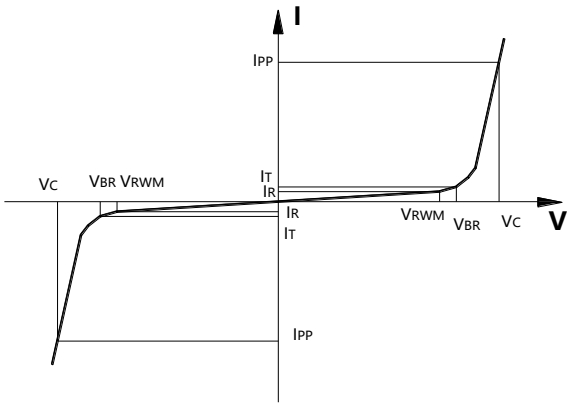
- Mobile Phones
- Battery Protection
- Power Line Protection
- VBAT pin for Mobile Devices
- Hand Held Portable Applications
- Notebooks, Desktops, Servers
- Digital Cameras

Mechanical data

- Lead finish:100% matte Sn (Tin)
- Mounting position: Any
- Qualified max reflow temperature:260℃
- Device meets MSL 3 requirements
- Pure tin plating: 7 ~ 17 um
  Pin flatness: ≤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



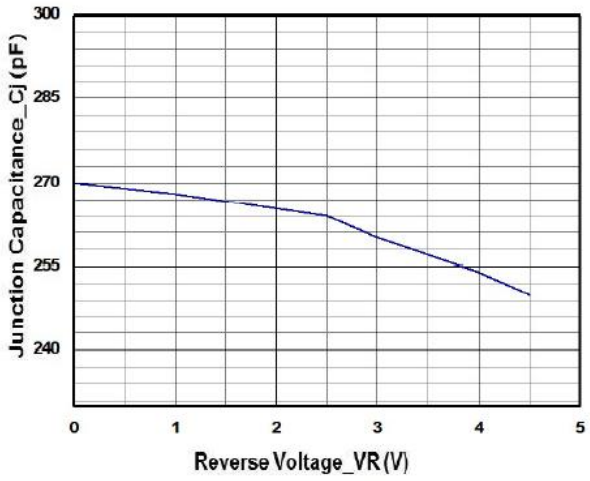
Absolute maximum rating @TA=25℃

Parameter		Symbol	Value	Unit
Peak Pulse Power（8/20us）		P_{PP}	2500	W
Peak Pulse Current（8/20us）		I_{PP}	180	A
ESD Rating per IEC61000-4-2：	Contact Air	V_{ESD}	30 30	KV
Storage Temperature		T_{STG}	-55/+150	℃
Operating Temperature		T_J	-55/+125	℃

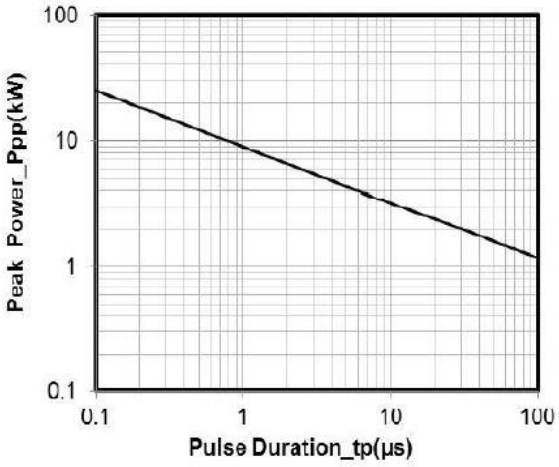
Electrical Characteristics @TA=25℃

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				4.5	V
Breakdown Voltage	V_{BR}	I_T = 1mA	4.8			V
Reverse Leakage Current	I_R	V_{RWM} =4.5V			0.2	μA
Clamping Voltage	V_C	I_{PP} = 20A, t_P = 8/20us			7	V
Clamping Voltage	V_C	I_{PP}=180A, t_P = 8/20us			12.8	V
Junction Capacitance	C_J	V_R=0V, f = 1MHz		250		pF

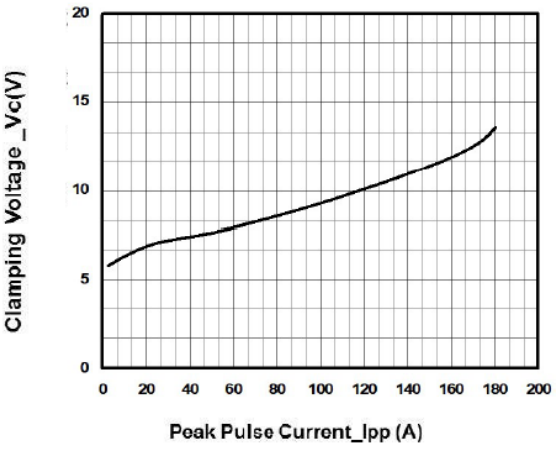
Typical Performance Characteristics



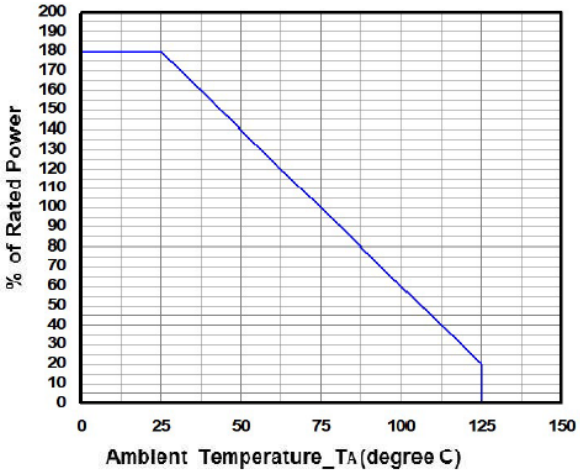
Junction Capacitance vs. Reverse Voltage



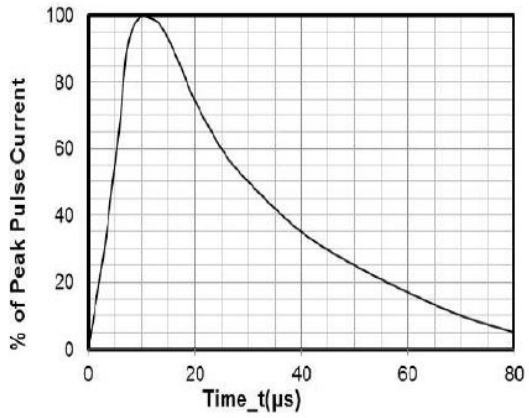
Peak Pulse Power vs. Pulse Time



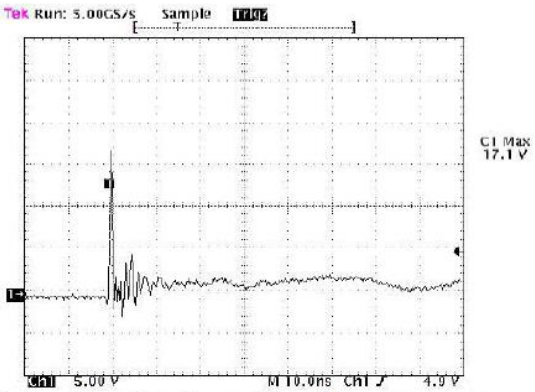
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



Note：Data is taken with a 10x attenuator

ESD Clamping Voltage

+8 kV Contact per IEC61000-4-2

- **Package Information**

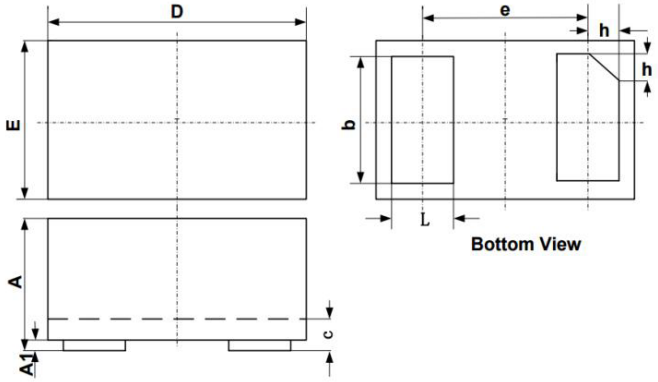
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT4V512L3	DFN1610-2L	3000	7 Inch

Mechanical Data

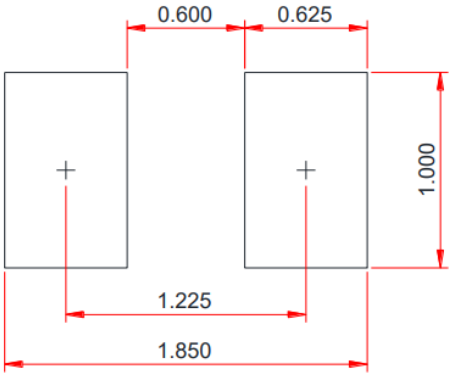
Case: DFN1610-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min.	typ.	Max.
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
b	0.75	0.80	0.85
c	0.10	0.15	0.20
D	1.55	1.60	1.65
e	1.10 BSC		
E	0.95	1.00	1.05
L	0.35	0.40	0.45
h	0.15	0.20	0.25

Recommended Pad outline (Unit: mm)



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