



SSCT5V012L3

1-Line Bi-directional TVS Diode for ESD Protection

● Description

The SSCT5V012L3 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 SSCT5V012L3 complies with the IEC61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ 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 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

● Features

- ◇ 1620W Peak Pulse Current (8/20 μs)
- ◇ DFN1610-2L Package
- ◇ Working voltage:5.0V
- ◇ Low Leakage Current
- ◇ Low Junction capacitance
- ◇ Low clamping voltage
- ◇ RoHS Compliant
- ◇ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 120A (8/20 μs)

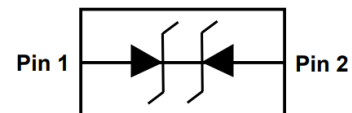
● Applications

- ◇ Mobile Phones
- ◇ Battery Protection
- ◇ Power Line Protection
- ◇ Vbat pin for Mobile Devices
- ◇ Hand Held Portable Applications

● PIN configuration



DFN1610-2L (Bottom View)



Circuit Diagram



Marking (Top View)

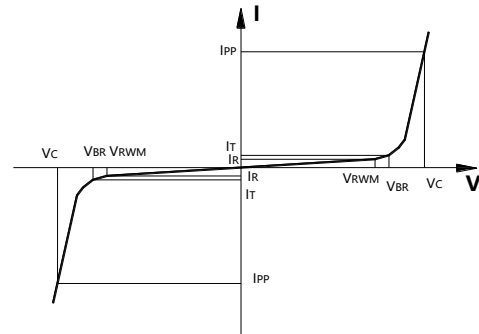
● Mechanical Characteristics

- ◇ Package: DFN1610-2L
- ◇ Lead Finish: Matte Tin
- ◇ Case Material: "Green" Molding Compound.
- ◇ UL Flammability Classification Rating 94V-0
- ◇ Moisture Sensitivity: Level 3 per J-STD-020



● **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 @ $T_A = 25^\circ C$**

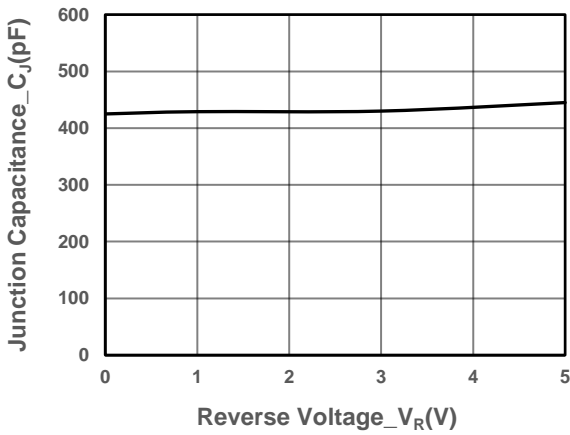
Parameter	Symbol	Value	Units
Peak Pulse Power (8/20 μs)	P_{PP}	1680	W
Peak Pulse Current (8/20 μs)	I_{PP}	120	A
ESD Rating per IEC61000-4-2:			
Contact	V_{ESD}	± 30	kV
Air		± 30	
Storage Temperature	T_{STG}	-55/+150	$^\circ C$
Operating Temperature	T_J	-55/+125	$^\circ C$

● **Electrical Characteristics @ $T_A=25^\circ C$**

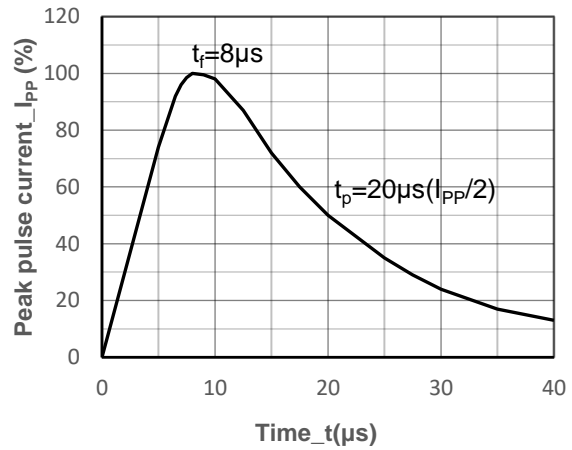
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	$I_T = 1mA$	6			V
Reverse Leakage Current	I_R	$V_{RWM} = 5V$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1A, t_P = 8/20\mu s$		7.5	9	V
Clamping Voltage	V_C	$I_{PP} = 50A, t_P = 8/20\mu s$		9	12	V
Clamping Voltage	V_C	$I_{PP} = 120A, t_P = 8/20\mu s$		12	14	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$		430	460	pF



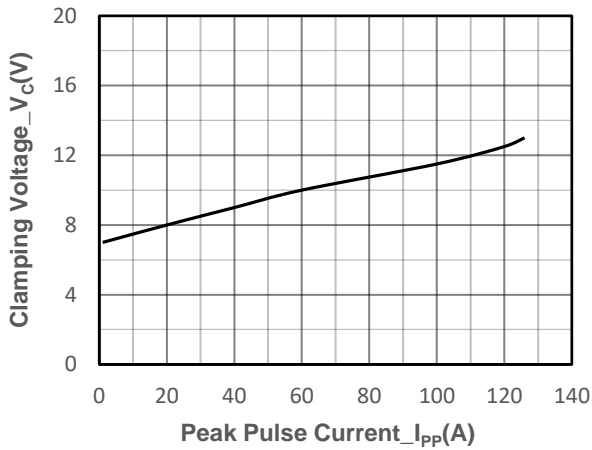
● Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



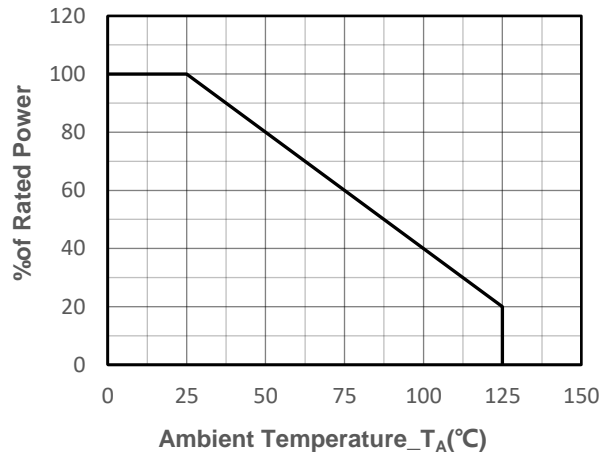
Junction Capacitance vs. Reverse Voltage



8/20 μs Pulse Waveform



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



● Package Information

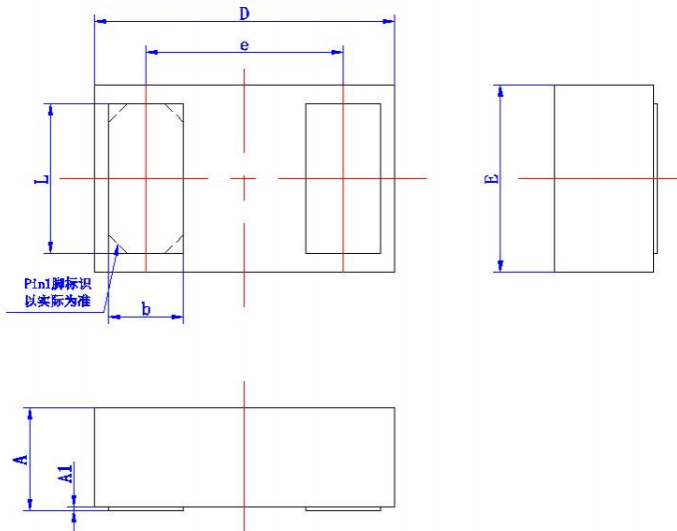
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT5V012L3	DFN1610-2L	3000	7 Inch

Mechanical Data

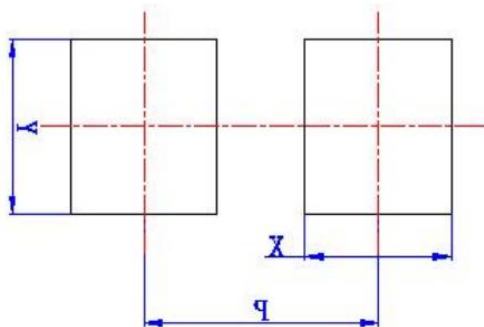
Case: DFN1610-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.50	0.65
A1	0.00	0.05
D	1.5	1.7
E	0.9	1.1
b	0.35	0.45
e	1.05TYP	
L	0.75	0.95

Suggested Land Pattern (Unit: mm)



DIM	Millimeters
	Type
X	0.62
Y	1.0
P	1.2



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