SSCT12V12L3

1-Line Bi-directional low Capacitance TVS Diode

Description

The SSCT12V12L3 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 SSCT12V12L3 complies with the IEC61000-4-2 (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 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

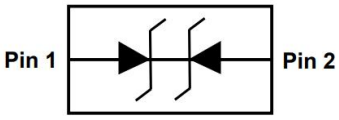
- 1600W peak pulse power (t_P = 8/20μs)
- DFN1610-2L Package
- Working voltage:12V
- Low Leakage Current
- Low clamping voltage
- Response Time is Typically<1ns
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC61000-4-5(Lightning)35A(8/20μs)

Applications

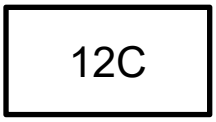
- Hand Held Portable Applications
- Mobile Phones
- Battery Protection
- Power line Protection

PIN configuration

DFN1610-2L (Bottom View)



Circuit Diagram



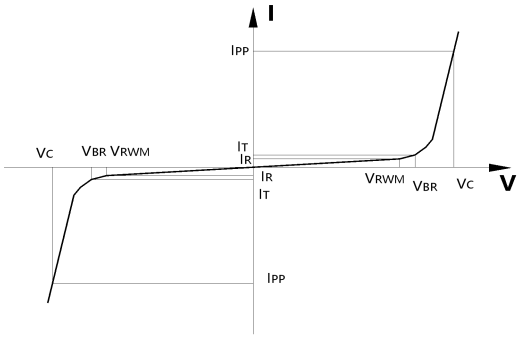
Marking (Top View)

Mechanical Characteristics

- Package: DFN1610-2L(1.0×0.6×0.5mm)
- Lead finish: 100% matte Sn (Tin)
- Device meets MSL 3 requirements
- Case Material: “Green” Molding Compound.
- RoHS Compliant

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



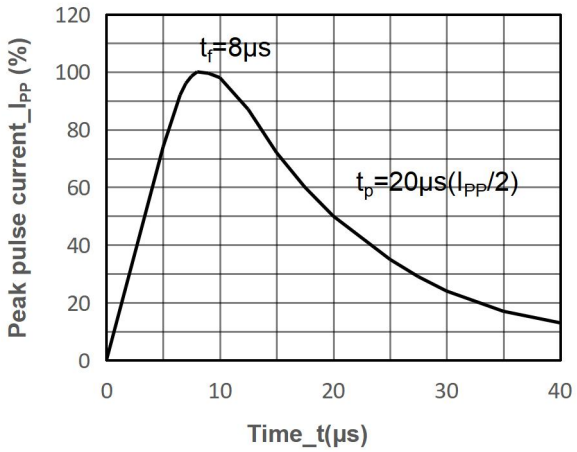
Absolute maximum rating (T_A=25℃ unless otherwise noted)

Parameter		Symbol	Value	Units
Peak Pulse Power（8/20μs）		P_{PP}	1600	W
Peak Pulse Current（8/20μs）		I_{PP}	40	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	℃

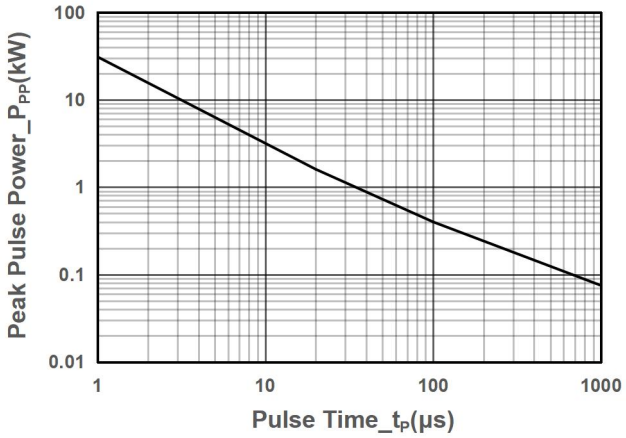
Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}				12	V
Breakdown Voltage	V_{BR}	I_T = 1mA	13.3		16.5	V
Reverse Leakage Current	I_R	V_{RWM} = 12V			0.1	μA
Clamping Voltage	V_C	I_{PP} = 15A, t_P = 8/20μs			25	V
Clamping Voltage	V_C	I_{PP} =40A, t_P = 8/20μs			40	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		45		pF

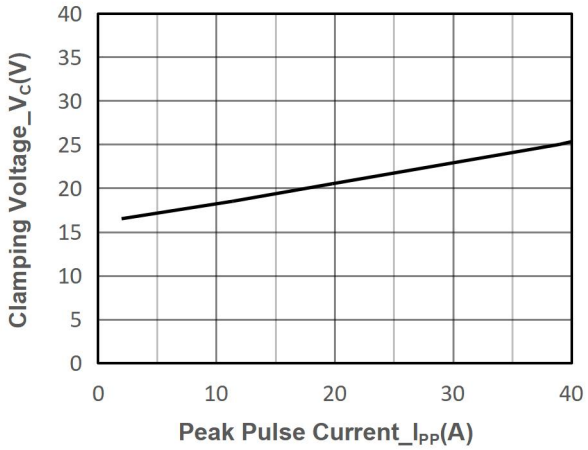
- **Typical Performance Characteristics (T_A=25℃ unless otherwise noted)**



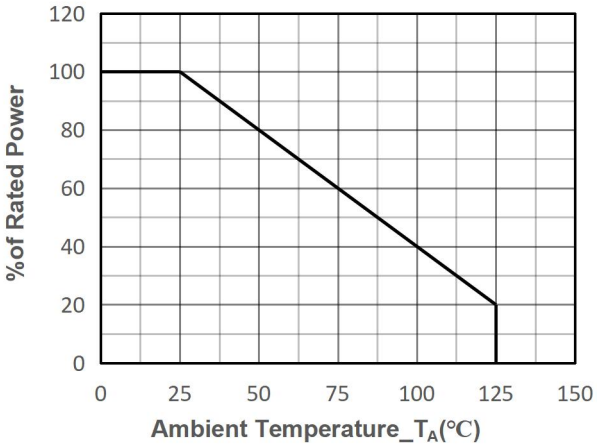
8/20μs Pulse Waveform



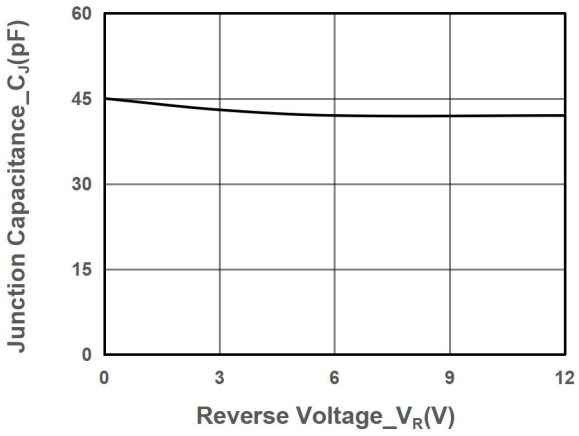
Peak Pulse Power vs. Pulse Time



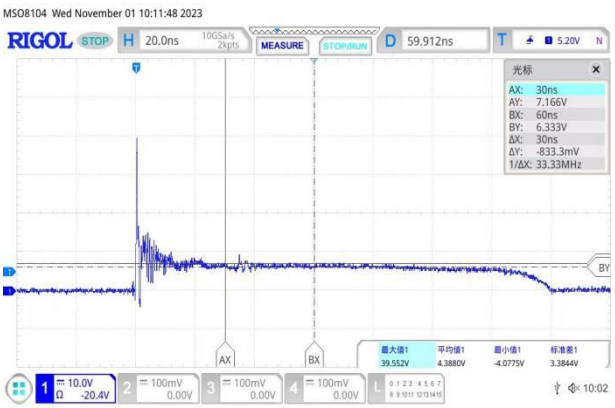
Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



Junction Capacitance vs. Reverse Voltage



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

Package Information

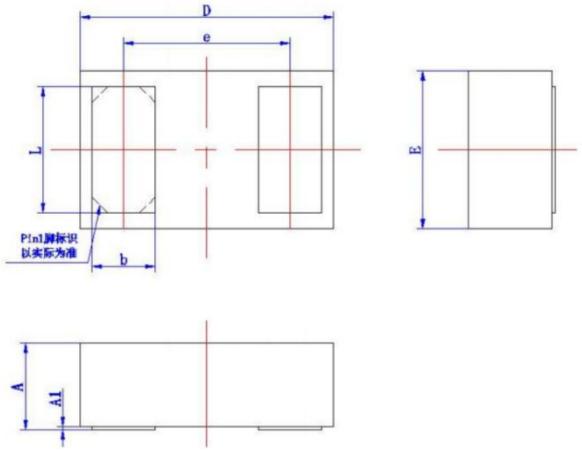
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT12V12L3	DFN1610-2L	3000	7 Inch

Mechanical Data

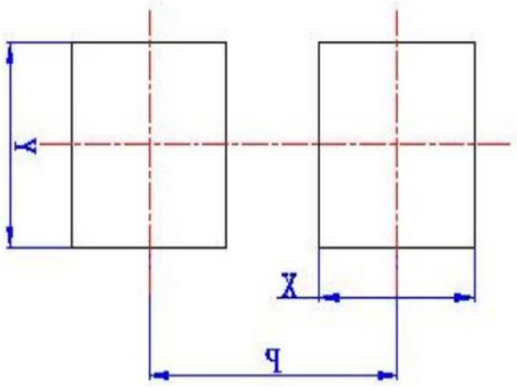
Case: DFN1610-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min	Nom	Max
A	0.45	-	0.65
A1	0	-	0.05
b	0.35		0.45
D	1.55	-	1.65
E	0.9	-	1.10
e	1.1BSC		
L	0.75	-	0.95

Recommended Pad outline (Unit: mm)



DIM	Millimeters
	Type
X	0.62
Y	1.0
P	1.2

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