



SSCT7V012L3

1-Line Bi-directional low Capacitance TVS Diode

● Description

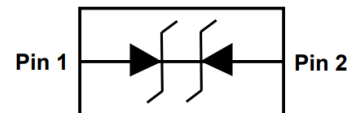
The SSCT7V012L3 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line.

The SSCT7V012L3 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 $1.6 \times 1.0 \times 0.5\text{mm}$ 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.

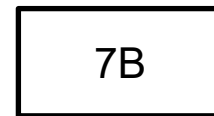
● PIN configuration



DFN1610-2L (Bottom View)



Circuit Diagram



Marking (Top View)

● Features

- ✧ 2400W peak pulse power ($t_P = 8/20\mu\text{s}$)
- ✧ DFN1610-2L Package
- ✧ Working voltage: 7V
- ✧ Low Leakage Current
- ✧ Low clamping voltage
- ✧ Response Time is Typically $< 1\text{ns}$
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC 61000-4-5 (Lightning) 150A (8/20 μs)

● Applications

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

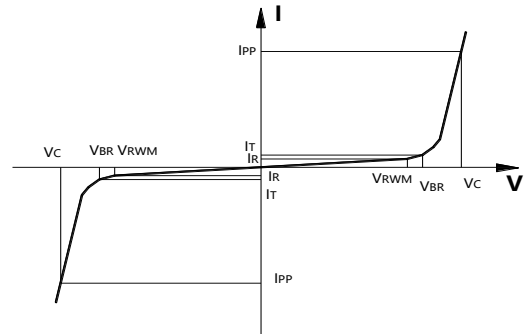
● Mechanical Characteristics

- ✧ Package: DFN1610-2L ($1.0 \times 0.6 \times 0.5\text{mm}$)
- ✧ 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 ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

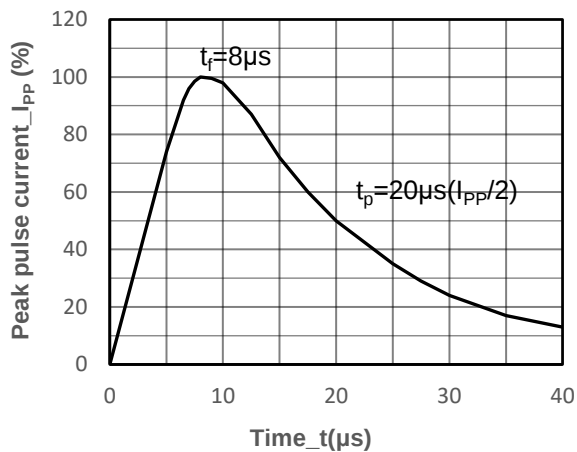
Parameter	Symbol	Value	Units
Peak Pulse Power (8/20 μs)	P_{PP}	2400	W
Peak Pulse Current (8/20 μs)	I_{PP}	150	A
ESD Rating per IEC61000-4-2: Contact Air	V_{ESD}	± 30 ± 30	kV
Storage Temperature	T_{STG}	-55/+150	$^{\circ}\text{C}$
Operating Temperature	T_J	-55/+125	$^{\circ}\text{C}$

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

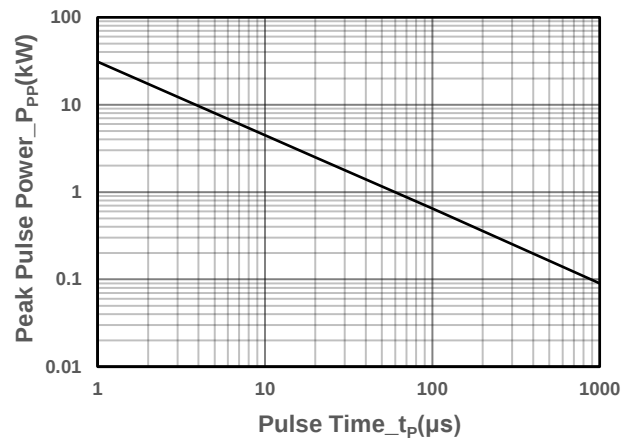
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}				7	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	7.5		9.5	V
Reverse Leakage Current	I_R	$V_{RWM} = 7\text{V}$			0.1	μA
Clamping Voltage	V_C	$I_{PP} = 50\text{A}$, $t_P = 8/20\mu\text{s}$		9.5	12	V
Clamping Voltage	V_C	$I_{PP} = 150\text{A}$, $t_P = 8/20\mu\text{s}$		11	16	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		340		pF



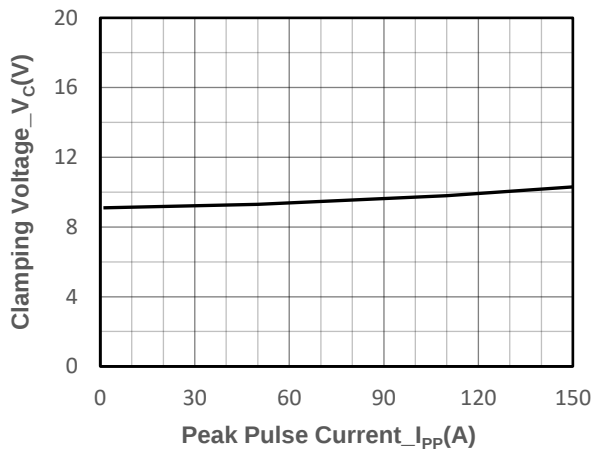
● Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)



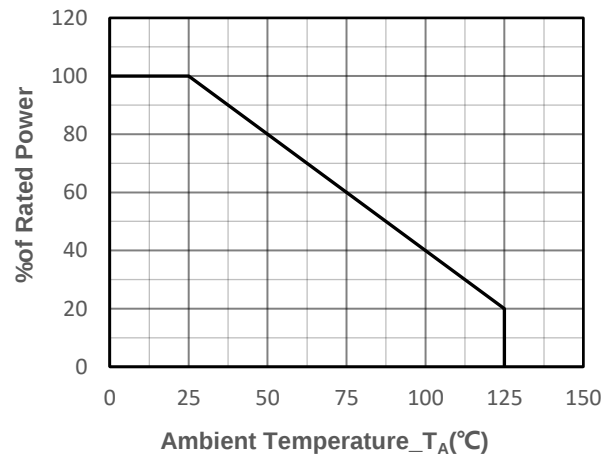
8/20 μs Pulse Waveform



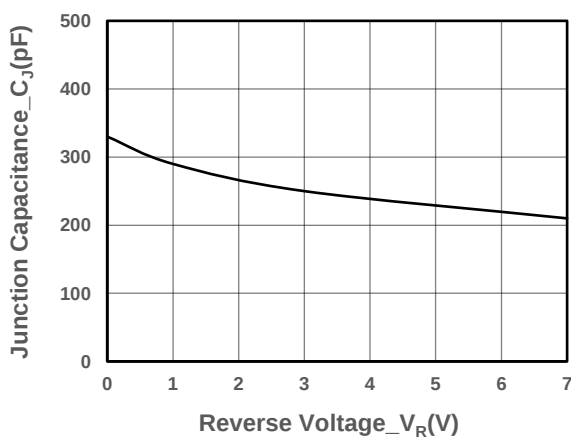
Peak Pulse Power vs. Pulse Time



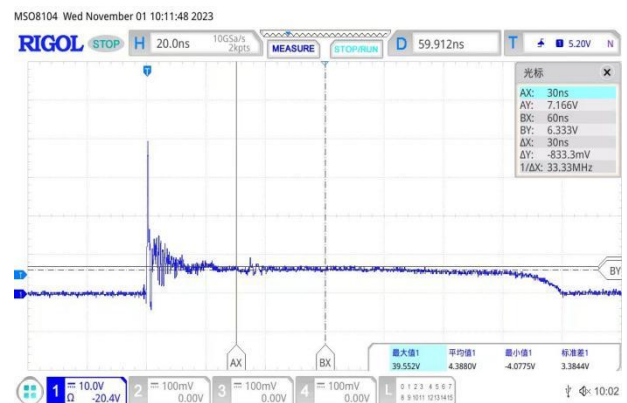
Clamping Voltage vs. Peak Pulse Current



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

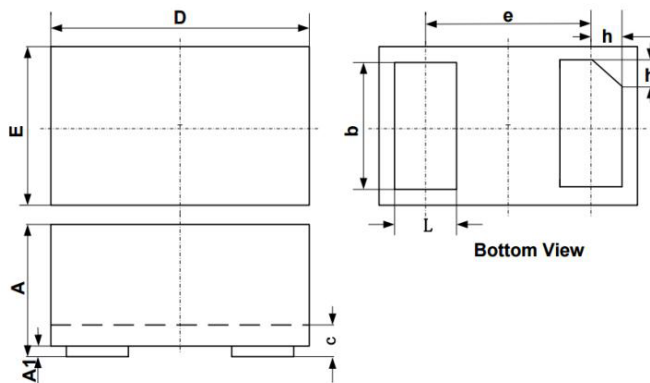
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT7V012L3	DFN1610-2L	3000	7 Inch

Mechanical Data

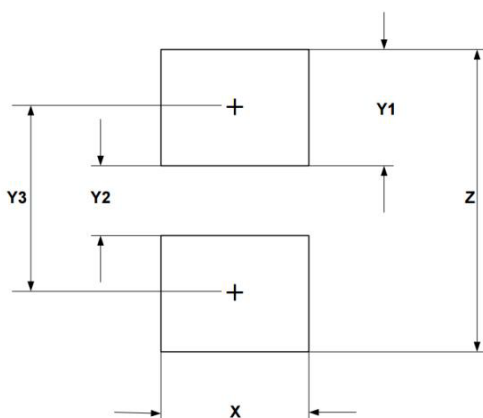
Case: DFN1610-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.45	0.55
A1	0.00	0.05
b	0.75	0.85
c	0.10	0.2
D	1.55	1.65
E	0.95	1.05
e	1.10BSC	
L	0.35	0.45
H	0.15	0.25

Suggested Land Pattern (Unit: mm)



DIM	Millimeters
	Type
X	1.00
Y1	0.62
Y2	0.60
Y3	1.22
Z	1.85



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