

SSCT20V21L3

1-Line Uni-directional TVS Diode

● Description

The SSCT20V21L3 is an uni-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 SSCT20V21L3 complies with the IEC 61000-4-2 (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 SSCT20V21L3 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

● Features

- ◊ 5000W peak pulse power ($t_P = 8/20\mu\text{s}$)
- ◊ DFN1610-2L Package
- ◊ Working voltage:20V
- ◊ Response Time is Typically<1ns
- ◊ 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 (Surge)100A (8/20 μs)

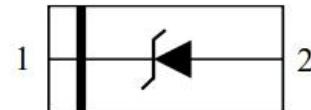
● Applications

- ◊ Cellular Handsets and Accessories
- ◊ Personal Digital Assistants
- ◊ Notebooks and Handhelds
- ◊ Portable Instrumentation
- ◊ Digital Cameras
- ◊ Peripherals
- ◊ Audio Players
- ◊ Industrial Equipment

● PIN configuration



DFN1610-2L(Bottom View)



Circuit diagram



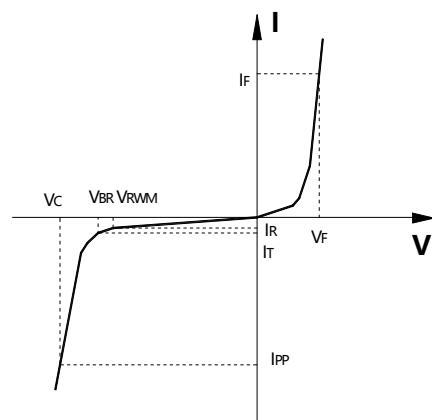
Marking(Top view)

● Mechanical Characteristics

- ◊ Case Material: "Green" Molding Compound.
- ◊ Lead finish:100% matte Sn(Tin)
- ◊ Mounting position: Any
- ◊ Qualified max reflow temperature:260°C
- ◊ Device meets MSL 3 requirements
- ◊ Pure tin plating: 7 ~ 17 um
- ◊ Pin flatness: $\leq 3\text{mi}$

- **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



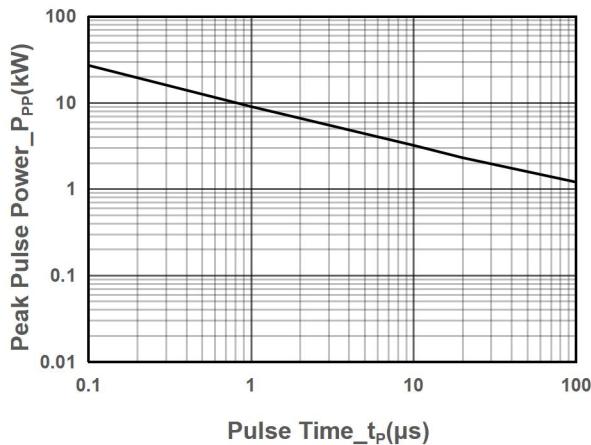
- **Absolute maximum rating @ $T_A=25^\circ C$**

Parameter	Symbol	Value	Units
Peak Pulse Power (8/20us)	P_{PP}	5000	W
Peak Pulse Current (8/20us)	I_{PP}	100	A
ESD Rating per IEC61000-4-2: Contact Air	V_{ESD}	± 30 ± 30	kV
Storage Temperature	T_{STG}	-55/+150	°C
Operating Temperature	T_J	-55/+125	°C

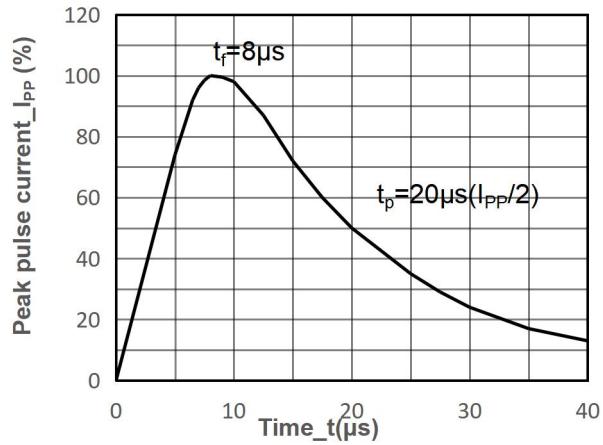
- **Electrical Characteristics @ $T_A=25^\circ C$**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}				20	V
Breakdown Voltage	V_{BR}	$I_T = 1mA$	22			V
Reverse Leakage Current	I_R	$V_{RWM} = 20V$			1	μA
Clamping Voltage	V_C	$I_{PP} = 50A, t_P = 8/20μs$		26		V
Clamping Voltage	V_C	$I_{PP} = 100A, t_P = 8/20μs$		29	50	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$		230		pF

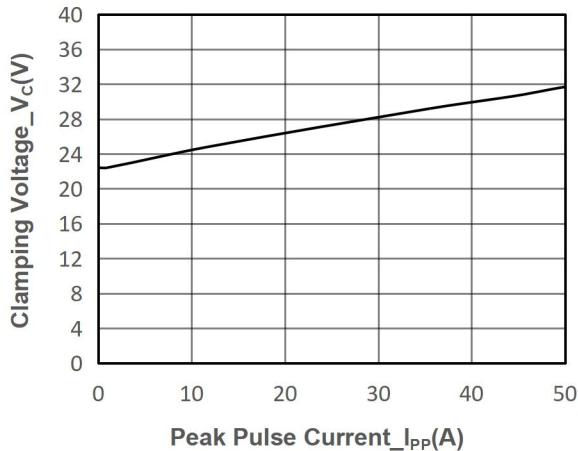
- **Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



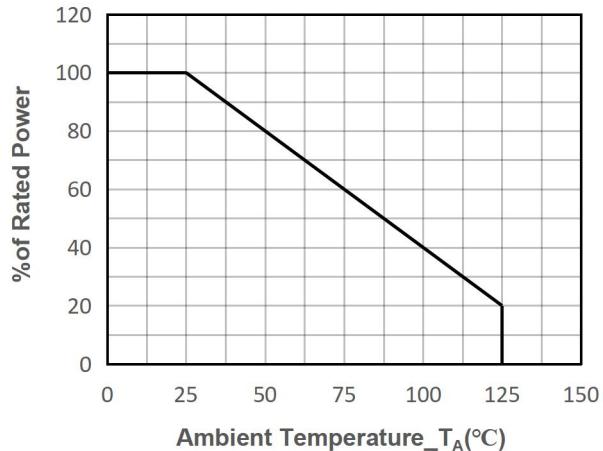
Peak Pulse Power vs. Pulse Time



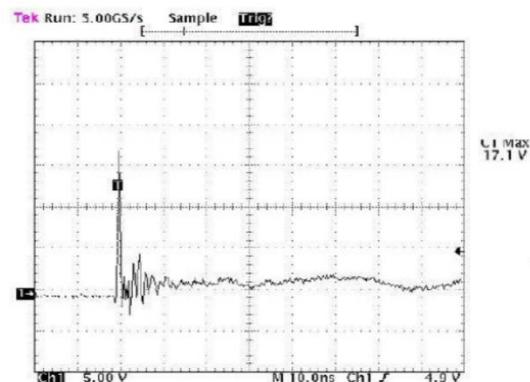
8/20 μ s Pulse Waveform



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



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

- **Package Information**

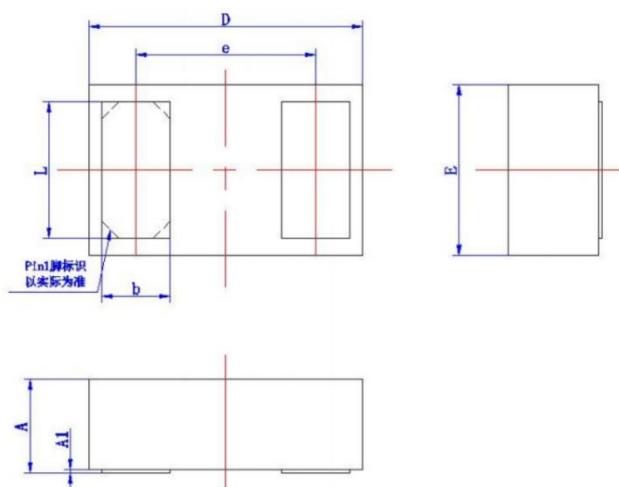
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT20V21L3	DFN1610-2L	3000	7 Inch

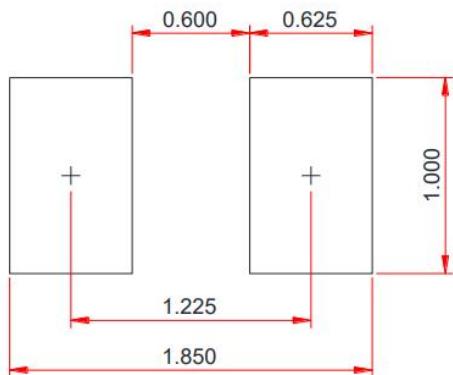
Mechanical Data

Case: DFN1610-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min.	Max.
A	0.45	0.65
A1	0.00	0.05
b	0.35	0.45
D	1.55	1.65
e	1.1BSC	
E	0.9	1.10
L	0.75	0.95

Recommended Pad outline (Unit: mm)


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