



## 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.

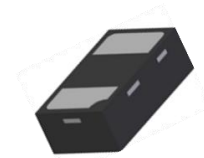
### ● Features

- ✧ 5000W peak pulse power ( $t_p = 8/20\mu\text{s}$ )
- ✧ DFN1610-2L Package
- ✧ Working voltage: 20V
- ✧ Response Time is Typically  $< 1\text{ns}$
- ✧ RoHS compliant
- ✧ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC 61000-4-5 (Surge) 100A (8/20 $\mu\text{s}$ )

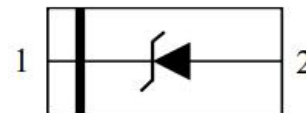
### ● Applications

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

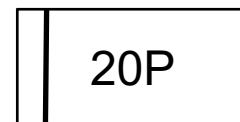
### ● PIN configuration



**DFN1610-2L(Bottom View)**



**Circuit diagram**



**Marking(Top view)**

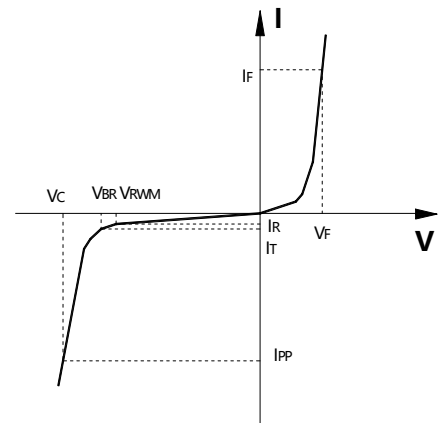
### ● Mechanical Characteristics

- ✧ Case Material: "Green" Molding Compound.
- ✧ Lead finish: 100% matte Sn(Tin)
- ✧ Mounting position: Any
- ✧ Qualified max reflow temperature:  $260^\circ\text{C}$
- ✧ Device meets MSL 3 requirements
- ✧ Pure tin plating:  $7 \sim 17 \mu\text{m}$
- ✧ 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 @ $T_A=25^{\circ}\text{C}$

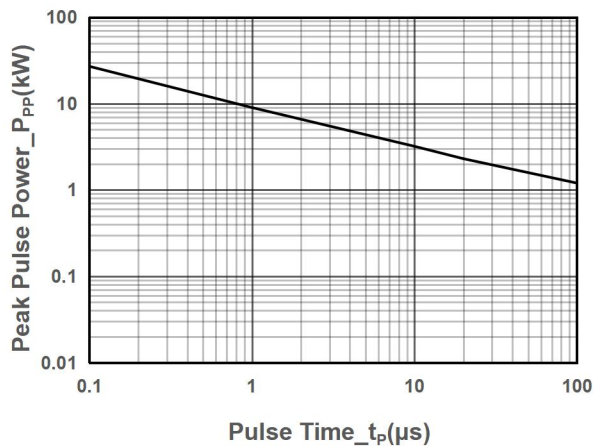
Parameter	Symbol	Value	Units
Peak Pulse Power (8/20us)	$P_{PP}$	5000	W
Peak Pulse Current (8/20us)	$I_{PP}$	100	A
ESD Rating per IEC61000-4-2: Contact Air	$V_{ESD}$	$\pm 30$ $\pm 30$	kV
Storage Temperature	$T_{STG}$	-55/+150	$^{\circ}\text{C}$
Operating Temperature	$T_J$	-55/+125	$^{\circ}\text{C}$

## ● Electrical Characteristics @ $T_A=25^{\circ}\text{C}$

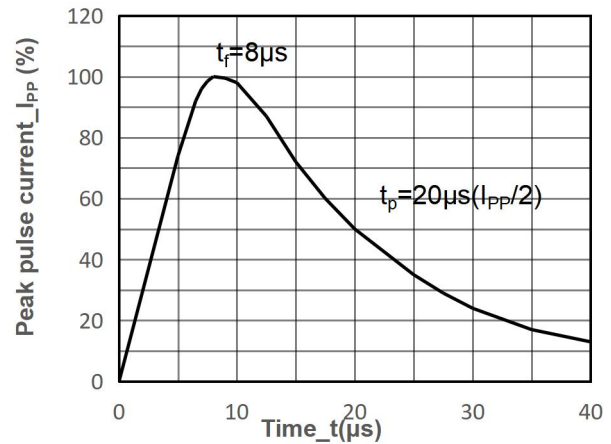
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				20	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	22			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 20\text{V}$			1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 50\text{A}$ , $t_P = 8/20\mu\text{s}$		26		V
Clamping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



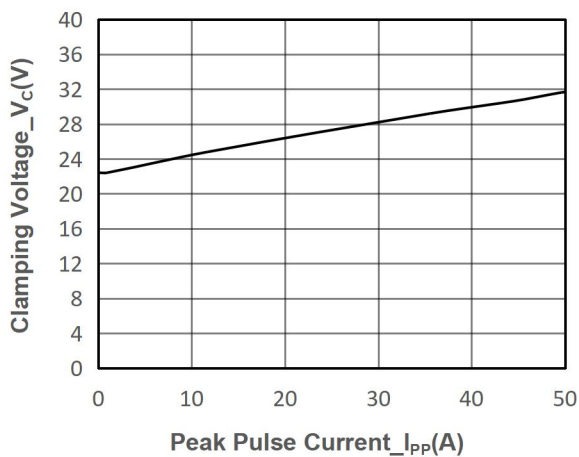
● **Typical Performance Characteristics (TA=25°C unless otherwise Specified)**



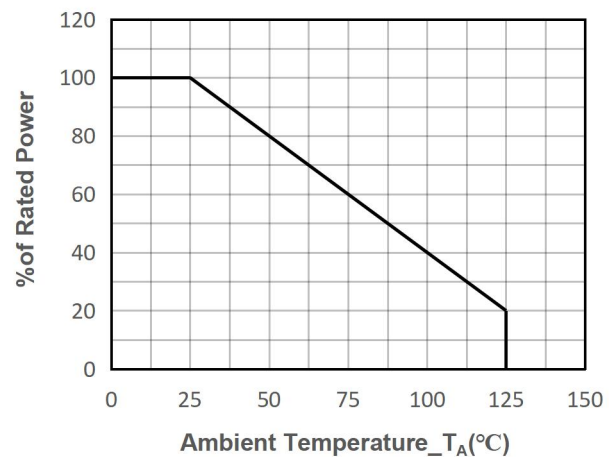
**Peak Pulse Power vs. Pulse Time**



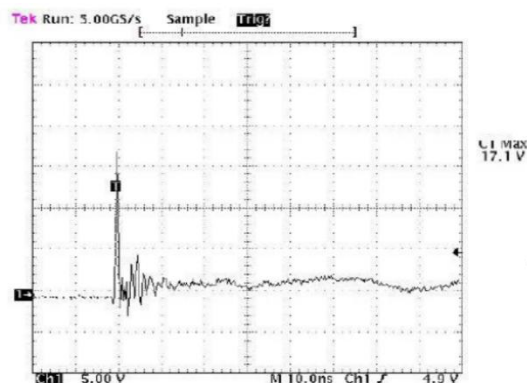
**8/20 $\mu$ s Pulse Waveform**



**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

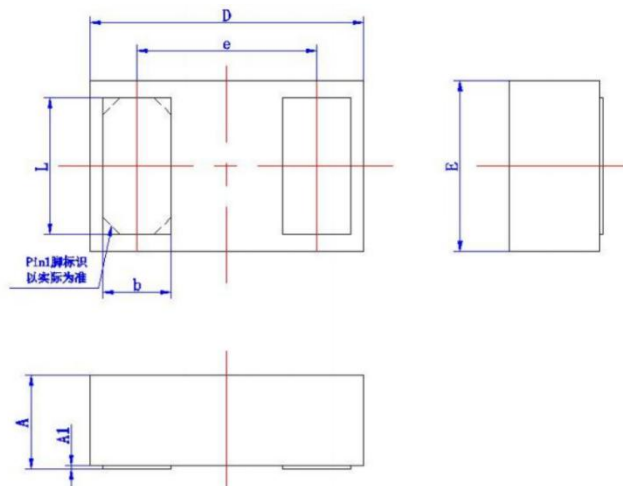
### Ordering Information

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

### Mechanical Data

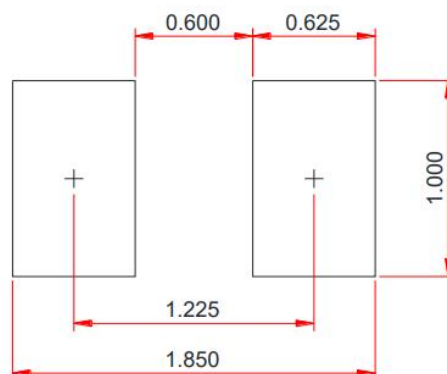
Case: DFN1610-2L

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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