



## SSCT20V21N1

1-Line Uni-directional TVS Diode

### ● Description

The SSCT20V21N1 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 SSCT20V21N1 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 1.0X0.6mm 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

- ✧ 1000W peak pulse power ( $t_P = 8/20\mu\text{s}$ )
- ✧ DFN1006-2L Package
- ✧ Working voltage: 20V
- ✧ Low Leakage Current
- ✧ Low capacitance
- ✧ Low clamping voltage
- ✧ Response Time is Typically  $< 1\text{ns}$
- ✧ Complies with following standards:
  - IEC61000-4-2(ESD)  $\pm 30\text{kV}$ (contact),  
 $\pm 30\text{kV}$ (air)
  - IEC61000-4-5(Lightning) 30A(8/20 $\mu\text{s}$ )

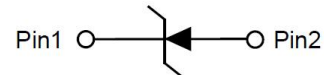
### ● Mechanical Characteristics

- ✧ Package: DFN1006-2L
- ✧ Case Material: "Green" Molding Compound.
- ✧ UL Flammability Classification Rating 94V-0
- ✧ Moisture Sensitivity: Level 3 per J-STD-020

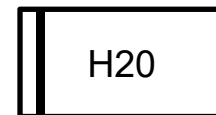
### ● PIN configuration



**DFN1006-2L (Bottom View)**



**Circuit Diagram**



**Marking (Top View)**

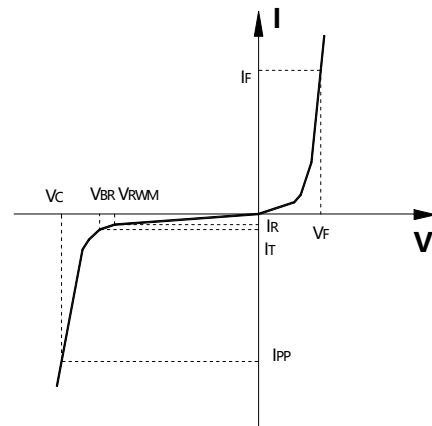
### ● Applications

- ✧ Cellular Handsets and Accessories
- ✧ Personal Digital Assistants
- ✧ Notebooks and Handhelds
- ✧ Portable Instrumentation
- ✧ Digital Cameras
- ✧ Peripherals
- ✧ Audio Players
- ✧ Keypads, Side Keys, LCD Displays



## ● 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 @ $T_A=25^{\circ}\text{C}$

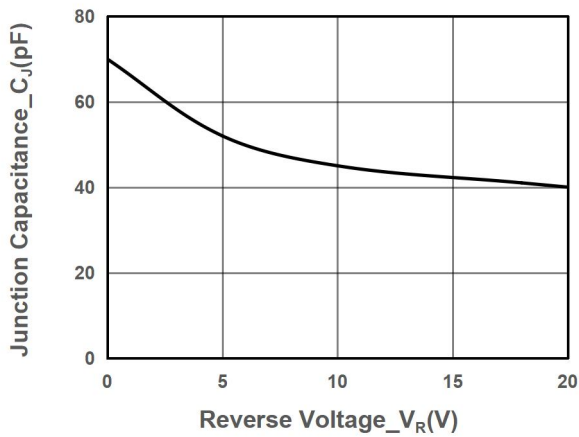
Parameter	Symbol	Value	Units
Peak Pulse Power (8/20 $\mu\text{s}$ )	$P_{PP}$	1000	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	$I_{PP}$	30	A
ESD Rating per IEC61000-4-2: Contact Air	$V_{ESD}$	$\pm 30$ $\pm 30$	kV
Storage Temperature	$T_{STG}$	-55/+150	$^{\circ}\text{C}$
Operating Temperature	$T_J$	-55/+125	$^{\circ}\text{C}$

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

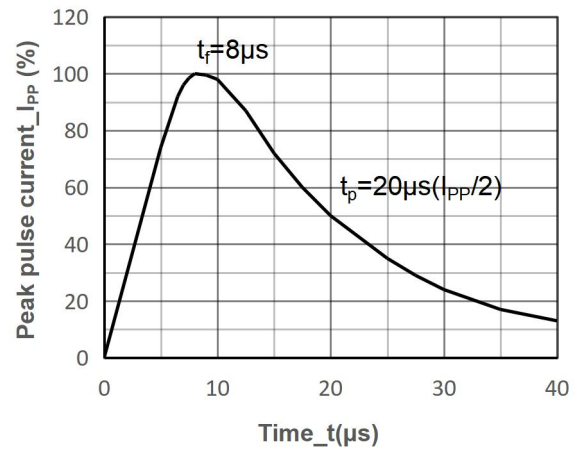
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				20	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	21			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 20\text{V}$			1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ , $t_P = 8/20\mu\text{s}$		23		V
Clamping Voltage	$V_C$	$I_{PP} = 30\text{A}$ , $t_P = 8/20\mu\text{s}$		28	34	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		70		pF



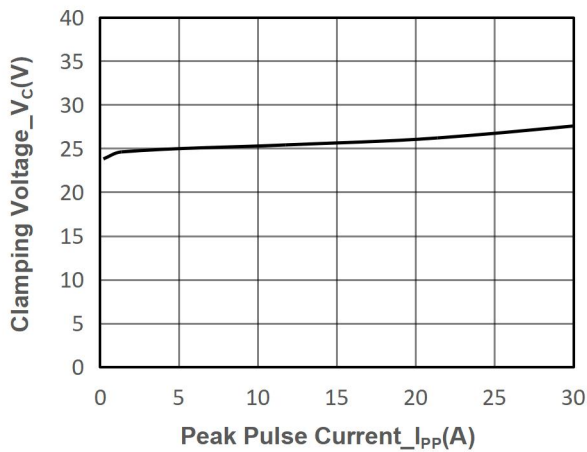
- Typical Performance Characteristics( $T_A=25^{\circ}\text{C}$  unless otherwise Specified)



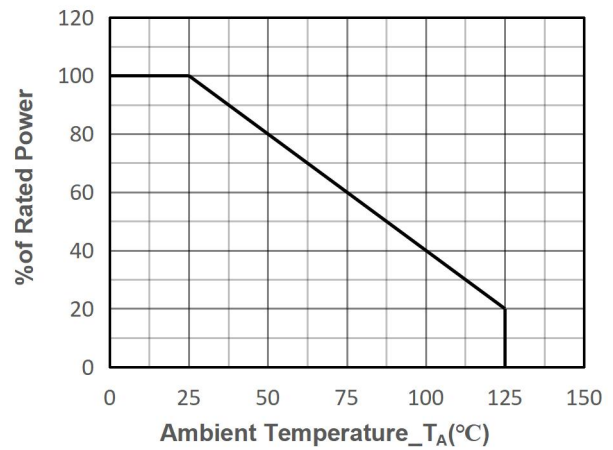
Junction Capacitance vs. Reverse Voltage



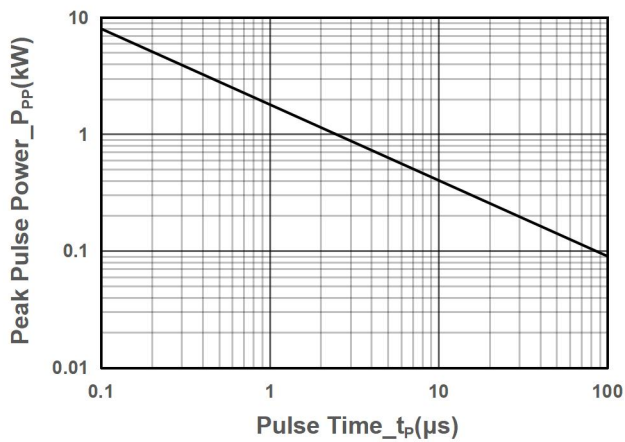
8/20 $\mu\text{s}$  Pulse Waveform



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



Peak Pulse Power vs. Pulse Time



## ● Package Information

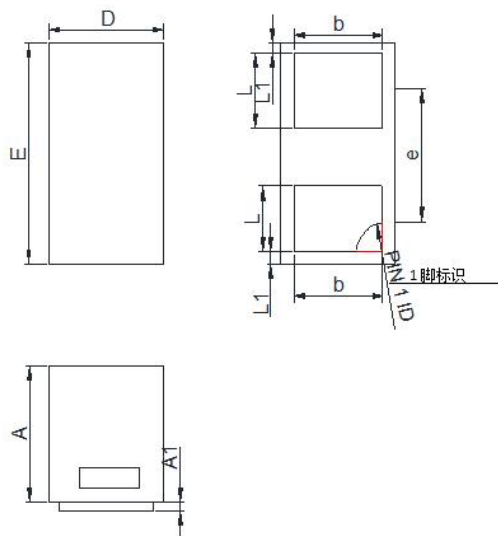
### Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT20V21N1	DFN1006-2L	10000	7 Inch

### Mechanical Data

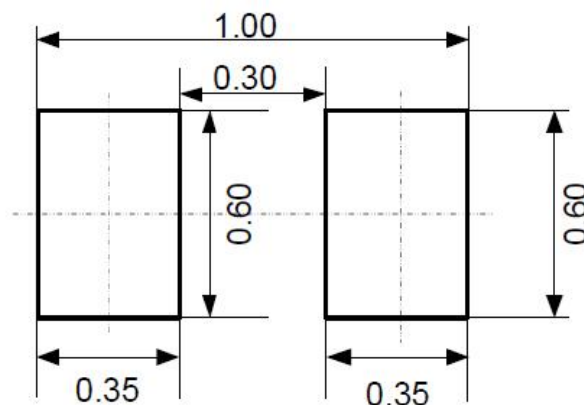
Case: DFN1006-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.43	0.55
A1	0.00	0.05
D	0.55	0.65
E	0.95	1.05
b	0.45	0.60
e	0.65TYP	
L	0.2	0.3
L1	0.05REF	

### Suggested Land Pattern (Unit: mm)





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