



## SSCT24V21L2

High Power TVS Diode

### ● Description

The SSCT24V21L2 is a high power TVS, 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 lines. The SSCT24V21L2 complies with the IEC 610002 (ESD) standard with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into a 3pin DFN2020-3L package. The leads are finished with NiPdAu. Each device will protect one line. The combination of small size, and high surge capability makes them ideal for use in applications such as cellular phones, LCD displays, USB, and multimedia card interfaces.

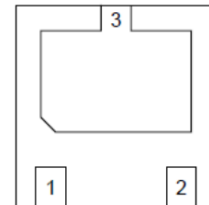
### ● Applications

- ◇ DVI & HDMI Port Protection
- ◇ Serial and Parallel Ports
- ◇ Projection TV
- ◇ Notebooks, Desktops, Server
- ◇ USB 1.1/2.0/3.0/3.1/OTG

### ● Features

- ◇ 6500W peak pulse power ( $T_P = 8/20\mu\text{s}$ )
- ◇ DFN2020-3L Package
- ◇ Working voltage: 24V
- ◇ Low clamping voltage
- ◇ Low leakage current
- ◇ 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) 140A (8/20 $\mu\text{s}$ )

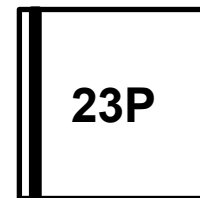
### ● PIN configuration



**DFN2020-3L**



**Circuit Diagram**



**Marking(Top View)**

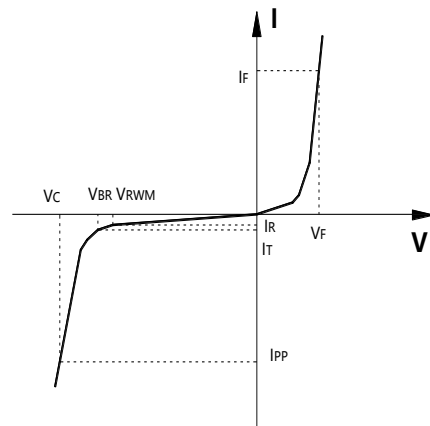
### ● Mechanical Characteristics

- ◇ 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 ~ 17  $\mu\text{m}$



## ● 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 @ $T_A=25^\circ\text{C}$

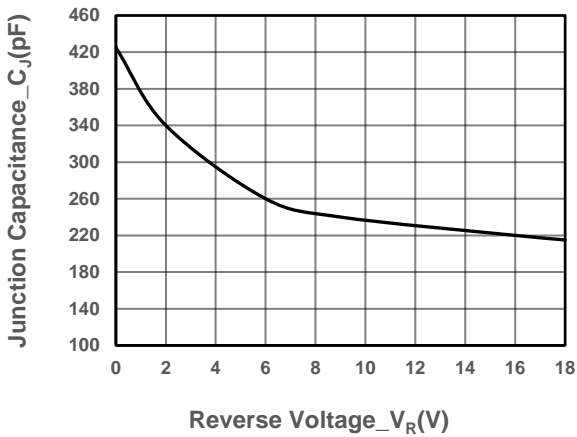
Parameter	Symbol	Value	Units
Peak Pulse Power (8/20 $\mu\text{s}$ )	$P_{PP}$	6500	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	$I_{PP}$	140	A
ESD Rating per IEC61000-4-2:	Contact	30	kV
	Air	30	
Storage Temperature	$T_{STG}$	-55/+150	$^\circ\text{C}$
Operating Temperature	$T_J$	-55/+125	$^\circ\text{C}$

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

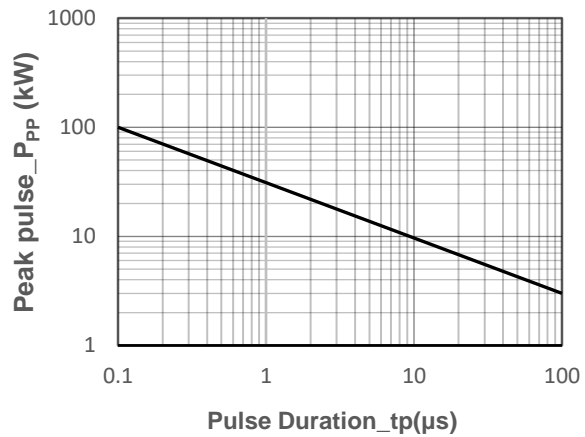
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	$V_{RWM}$	Any I/O to Ground		24		V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$ Any I/O to Ground	25			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 24\text{V}$			1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 50\text{A}$ , $t_P = 8/20\mu\text{s}$			34	V
Clamping Voltage	$V_C$	$I_{PP} = 140\text{A}$ , $t_P = 8/20\mu\text{s}$			50	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , any I/O pin to Ground		740		pF



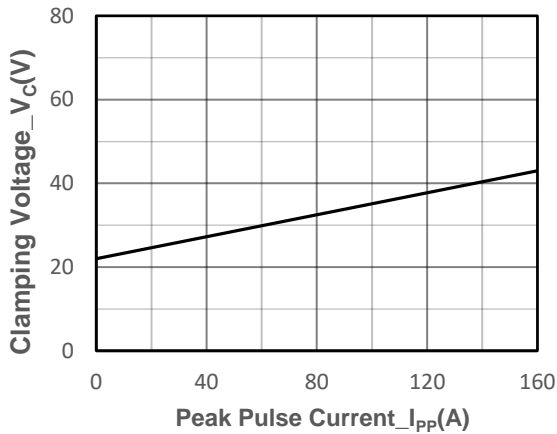
● **Typical Performance Characteristics**( $T_A=25^\circ\text{C}$  unless otherwise Specified)



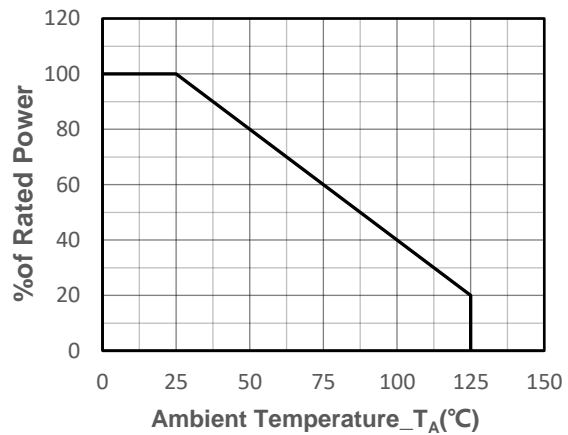
**Junction Capacitance vs. Reverse Voltage**



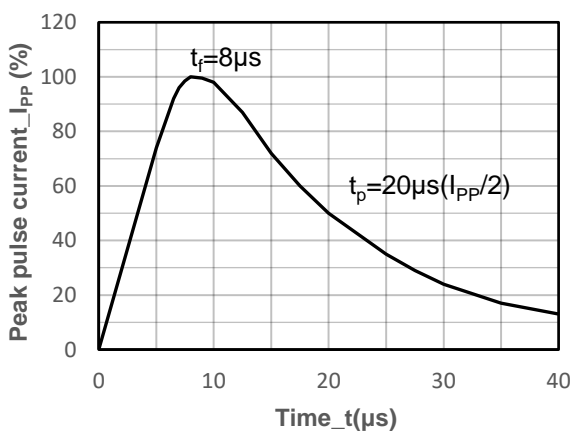
**Peak Pulse Power vs. Pulse Time**



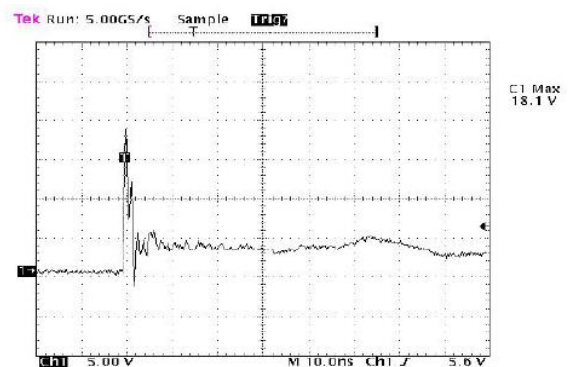
**Clamping Voltage vs. Peak Pulse Current**



**Power derating vs. Ambient temperature**



**8 x 20  $\mu\text{s}$  Pulse Waveform**



**Note: Data is taken with a 10x attenuator**

**ESD Clamping Voltage**

**8 kV Contact per IEC61000-4-2**



## ● Package Information

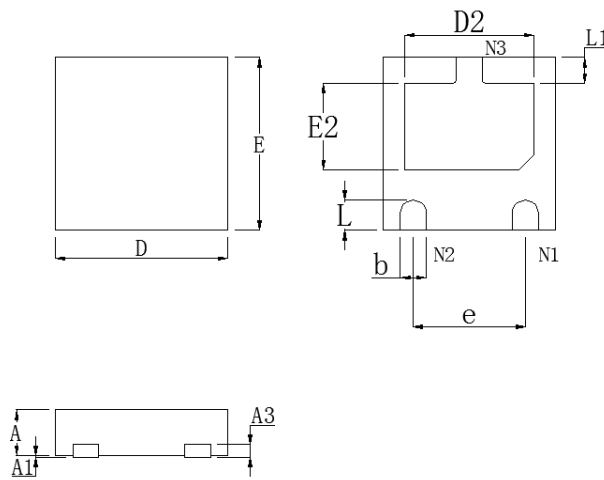
### Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT24V21L2	DFN2020-3L	3000	7 Inch

### Mechanical Data

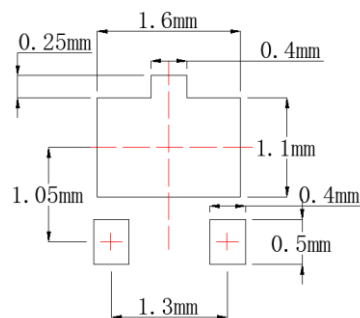
Case: DFN2020-3L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min	Nom	Max
A	0.55	0.60	0.65
A1	0.00	0.02	0.05
A3	0.10REF		
D	1.90		2.10
E	1.90		2.10
b	0.25		0.35
e	1.20		1.40
L	0.35		0.45
L1	0.20		0.30
D2	1.40		1.60
E2	0.95		1.15

### Recommended Pad outline (Unit:mm)





- **History Version**

V1.0	First edition	2021-02-23
V1.1	Update PIN configuration	2023-03-17

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