



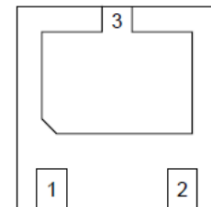
SSCT12V21L2

High Power TVS Diode

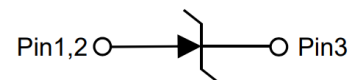
● Description

The SSCT12V21L2 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 SSCT12V21L2 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. 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, POS, and multimedia card interfaces.

● PIN configuration



DFN2020-3L



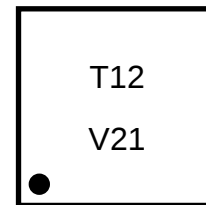
Circuit Diagram

● Feature

- ✧ 4800W peak pulse power ($T_P = 8/20\mu\text{s}$)
- ✧ DFN2020-3L Package
- ✧ Working voltage: 12V
- ✧ 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) 170A (8/20 μs)

● Mechanical data

- ✧ 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 μm



Marking (Top View)

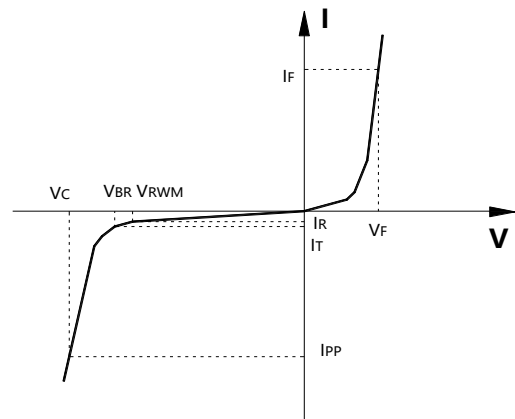
● Applications

- ✧ Power Management
- ✧ Industrial Application
- ✧ Power Supply Protection
- ✧ Cell phone handsets and accessories
- ✧ Personal digital assistants (PDA's)
- ✧ Notebooks, desktops, and servers
- ✧ Portable instrumentation
- ✧ Cordless phones
- ✧ Peripherals



● 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)

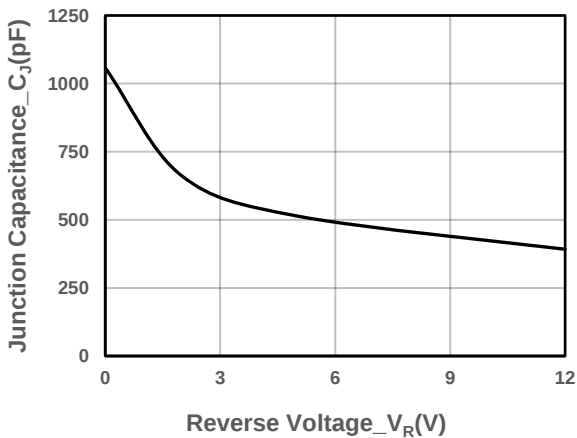
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	4800	W
Peak Pulse Current (8/20 μs)	I_{PP}	170	A
ESD Rating per IEC61000-4-2: Contact Air	V_{ESD}	30 30	kV
Storage Temperature	T_{STG}	-55/+150	$^{\circ}\text{C}$
Operating Temperature	T_J	-55/+125	$^{\circ}\text{C}$

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

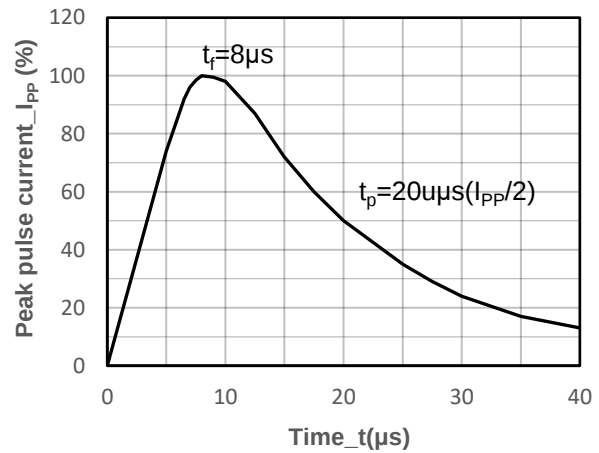
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				12	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	13.3		15.2	V
Reverse Leakage Current	I_R	$V_{RWM} = 12\text{V}$			0.1	μA
Clamping Voltage	V_C	$I_{PP} = 30\text{A}$, $t_P = 8/20\mu\text{s}$		16.2		V
Clamping Voltage	V_C	$I_{PP} = 170\text{A}$, $t_P = 8/20\mu\text{s}$		23	28	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		1000	1400	pF



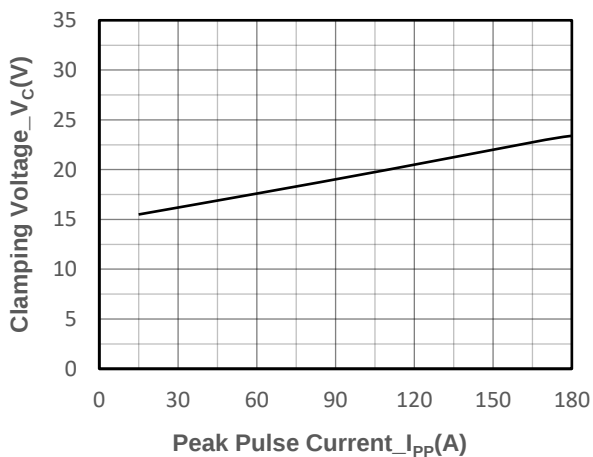
● Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)



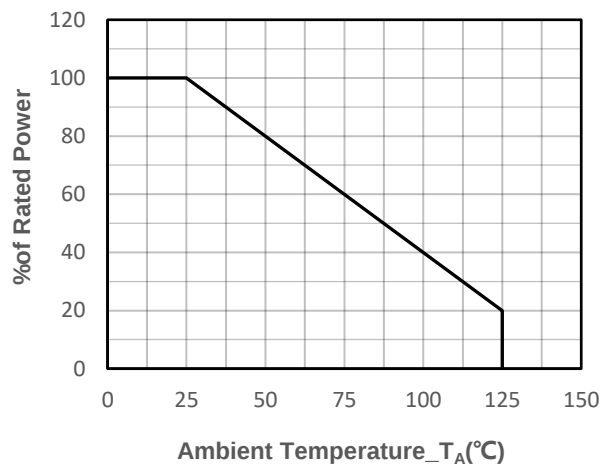
Junction Capacitance vs. Reverse Voltage



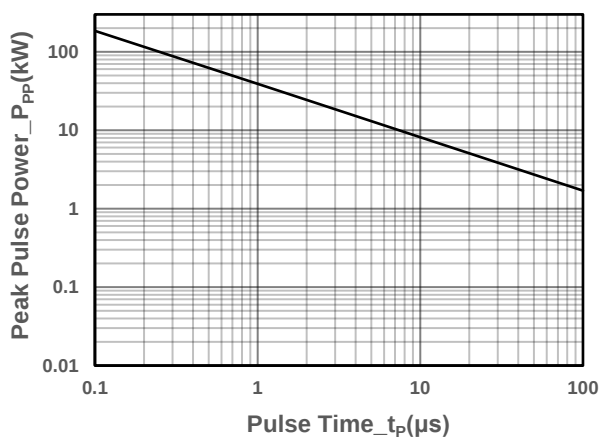
8/20 μs Pulse Waveform



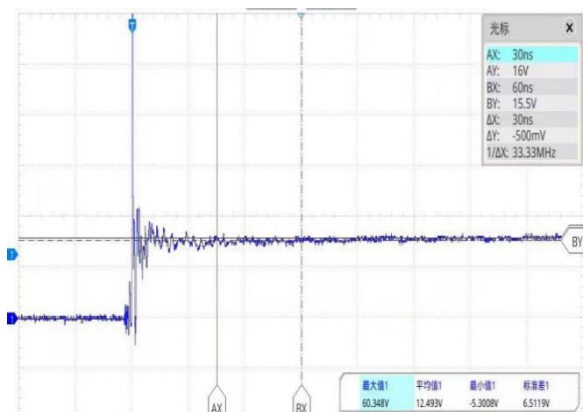
Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



Peak Pulse Power vs. Pulse Time



ESD clamping
(+8kV contact discharge per IEC61000-4-2)



● Package Information

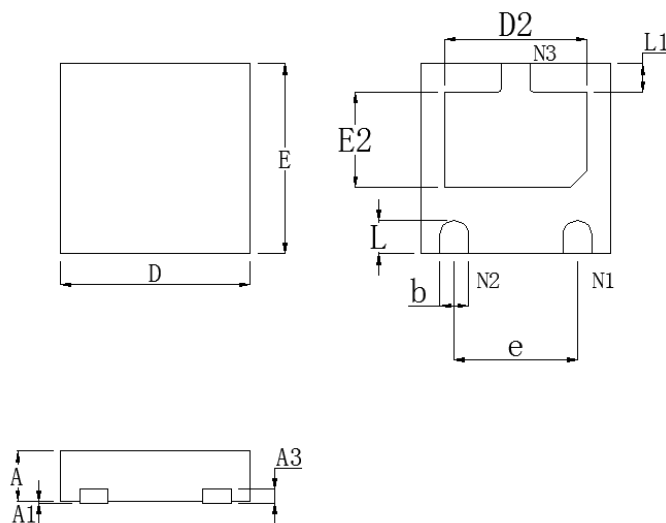
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT12V21L2	DFN2020-3L	3000	7 Inch

Mechanical Data

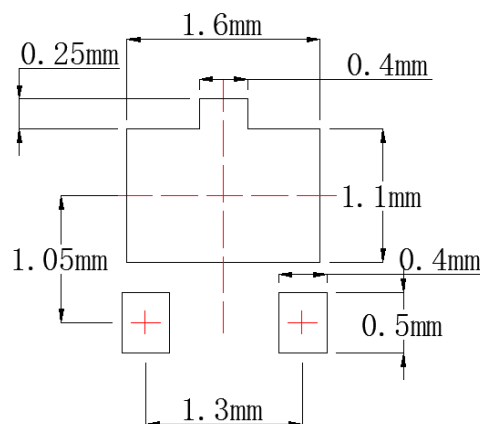
Case: DFN2020-3L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min.	Nom.	Max.
A	0.50	0.55	0.60
A1	0.00	-	0.05
A3	0.15 REF.		
D	1.95	2.00	2.05
E	1.95	2.00	2.05
b	0.25	0.30	0.35
L	0.30	0.35	0.40
L1	0.25	0.30	0.35
D2	1.35	1.50	1.60
E2	0.85	1.00	1.10
e	1.30 BSC		

Recommended Pad outline





DISCLAIMER

SSCSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. SSCSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.

OUR PRODUCT SPECIFICATIONS ARE ONLY VALID IF OBTAINED THROUGH THE COMPANY'S OFFICIAL WEBSITE, CRM SYSTEM, OR OUR SALES PERSONNEL CHANNELS. IF CHANGES OR SPECIAL VERSIONS ARE INVOLVED, THEY MUST BE STAMPED WITH A QUALITY SEAL AND MARKED WITH A SPECIAL VERSION NUMBER TO BE VALID.