



SSCT12V31L2

High Power TVS Diode

● Description

The SSCT12V31L2 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 SSCT12V31L2 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.

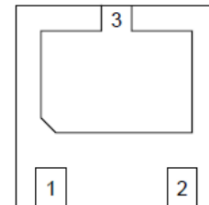
● Feature

- ✧ 8000W peak pulse power ($T_P = 8/20\mu\text{s}$)
- ✧ DFN2020-3L Package
- ✧ Working voltage: 12V
- ✧ Low clamping voltage
- ✧ Low leakage current
- ✧ 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) 200A (8/20 μs)

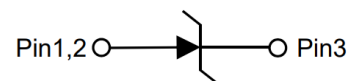
● Mechanical data

- ✧ Lead finish: 100% matte Sn (Tin)
- ✧ RoHS compliant
- ✧ Mounting position: Any
- ✧ Qualified max reflow temperature: 260°C
- ✧ Device meets MSL 3 requirements
- ✧ Pure tin plating: 7 ~ 17 μm

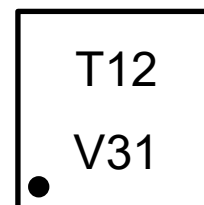
● PIN configuration



DFN2020-3L



Circuit Diagram



Marking (Top View)

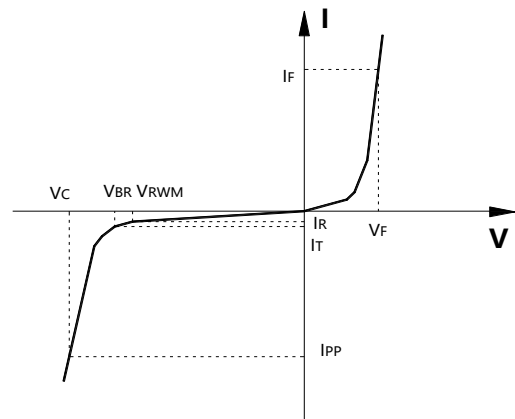
● Applications

- ✧ 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}	8000	W
Peak Pulse Current (8/20 μs)	I_{PP}	200	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	$^\circ\text{C}$

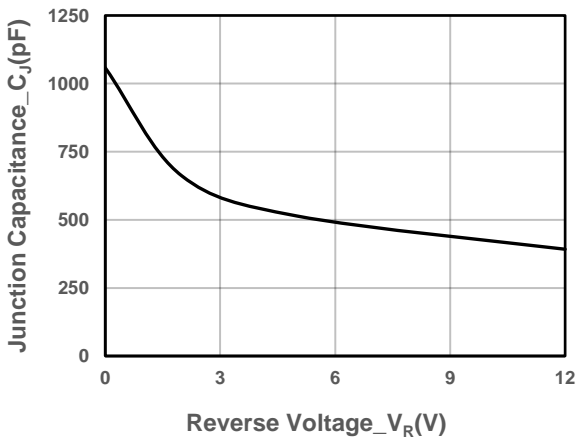
● **Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)**

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		16	V
Reverse Leakage Current	I_R	$V_{RWM} = 12\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP} = 100\text{A}$, $t_P = 8/20\mu\text{s}$		20		V
Clamping Voltage	V_C	$I_{PP} = 200\text{A}$, $t_P = 8/20\mu\text{s}$		28	40	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		980		pF

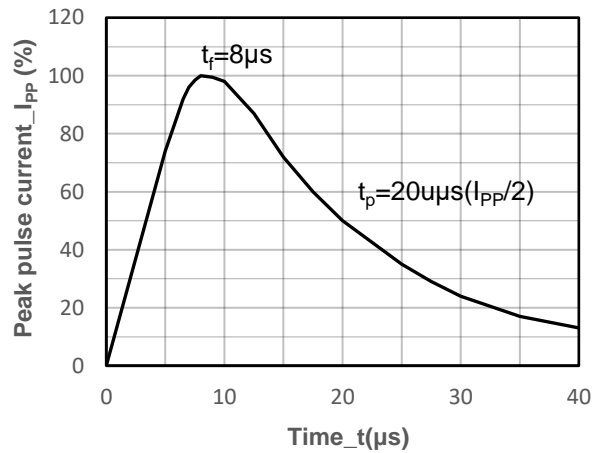


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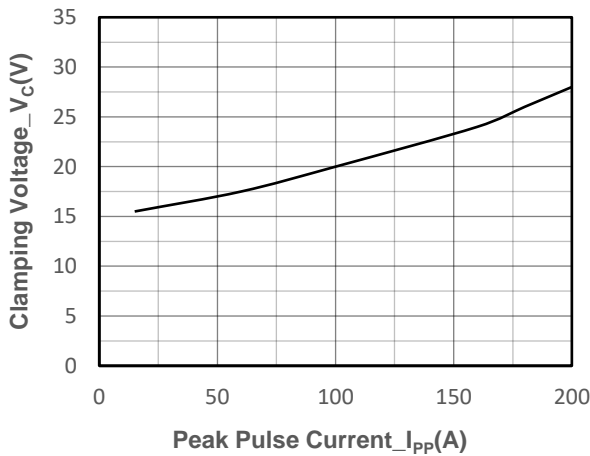
- Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



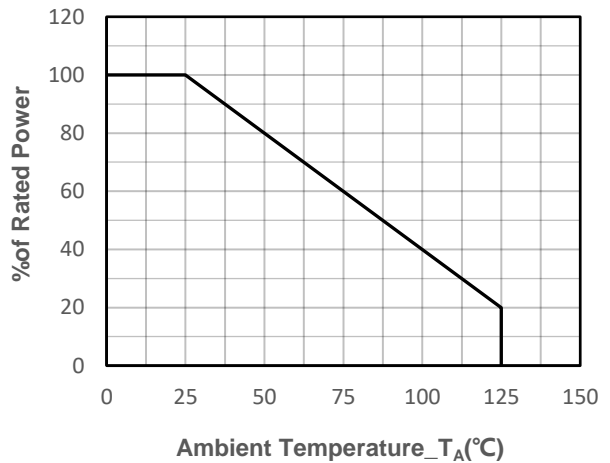
Junction Capacitance vs. Reverse Voltage



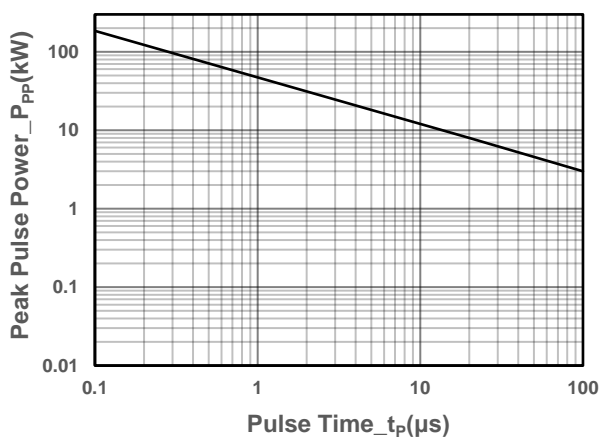
8/20 μs Pulse Waveform



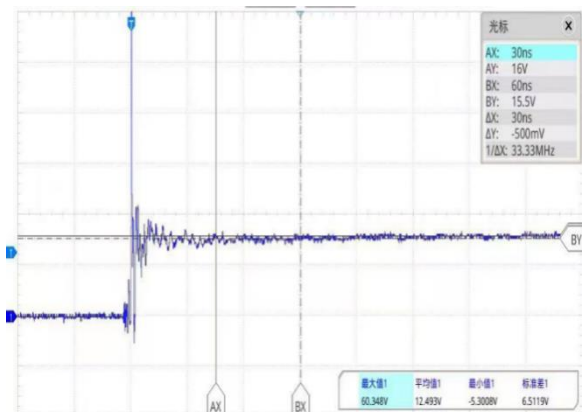
Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



Peak Pulse Power vs. Pulse Time



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



● Package Information

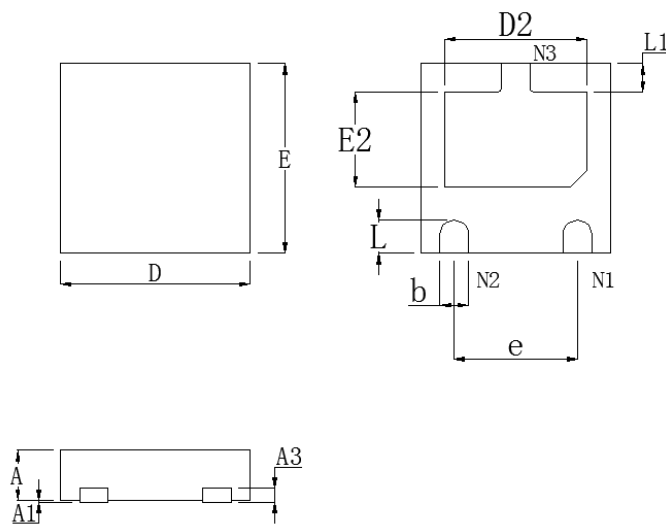
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT12V31L2	DFN2020-3L	3000	7 Inch

Mechanical Data

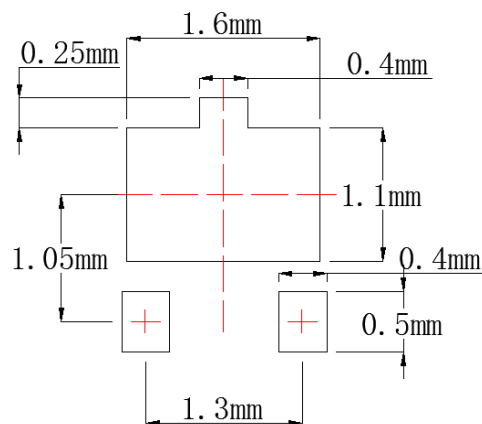
Case: DFN2020-3L

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





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