



SSCE5V031N1

1-Line Uni-directional low Capacitance TVS Diode

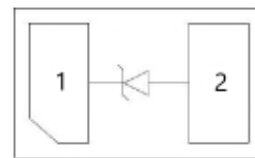
● Description

The SSCE5V031N1 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 SSCE5V031N1 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.

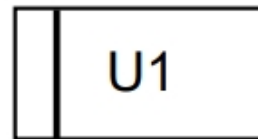
● Feature

- ✧ Ultra small package: 1.0x0.6x0.5mm
- ✧ Protects one data or power line
- ✧ Working voltage: 5V
- ✧ Low clamping voltage
- ✧ 2-pin leadless package
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity testAir discharge: $\pm 20\text{kV}$
Contact discharge: $\pm 15\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 4A (8/20us)
- ✧ RoHS Compliant

● PIN configuration



Top view



Marking

● Applications

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

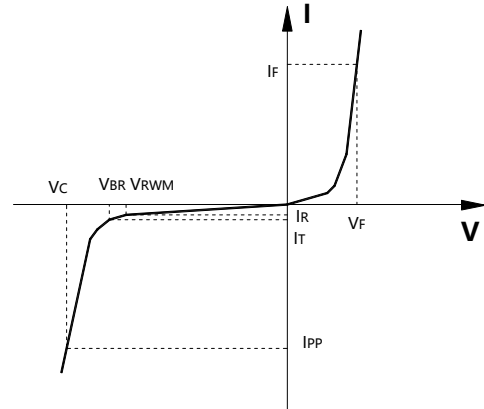
● Mechanical data

- ✧ Package: DFN1006-2 (1.0×0.6×0.5mm)
- ✧ Lead Finish: NiPdAu
- ✧ Case Material: “Green” Molding Compound.
- ✧ UL Flammability Classification Rating 94V-0
- ✧ Moisture Sensitivity: Level 3 per J-STD-020
- ✧ Terminal Connections: See Diagram Below
- ✧ Marking Information: See Below



● 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	Junction Capacitance



● Absolute maximum rating @TA=25°C

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (8/20 μ S)	64	W
I_{PP}	Peak Pulse Current (8/20 μ S)	4	A
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	± 20 ± 15	KV
T_{STG}	Storage Temperature	-55/+150	°C
T_J	Operating Temperature	-55/+125	°C

● Electrical Characteristics @TA=25°C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6			V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$,		0.03	0.2	μA
Forward Voltage	V_F	$I_F = 15\text{mA}$			1.2	V
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$, $t_P = 8/20\mu\text{s}$			10	V
Clamping Voltage	V_C	$I_{PP} = 4\text{A}$, $t_P = 8/20\mu\text{s}$			16	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		0.4		pF



● Typical Performance Characteristics

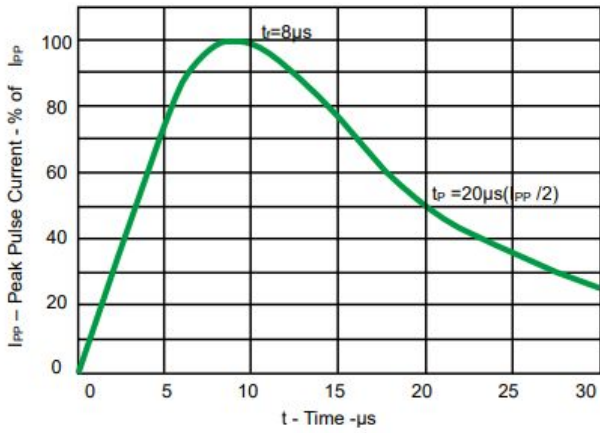


Fig 1. Pulse Waveform

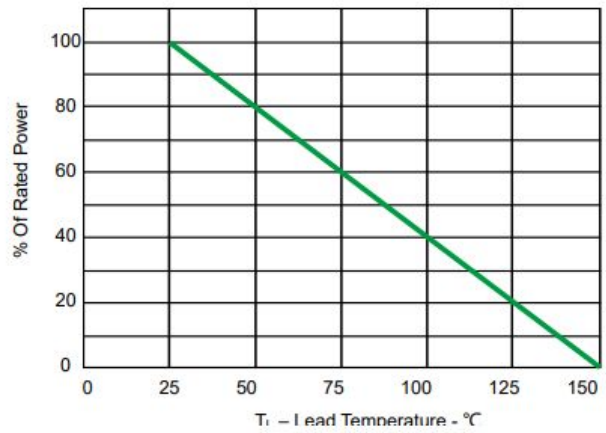


Fig 2. Power Derating Curve

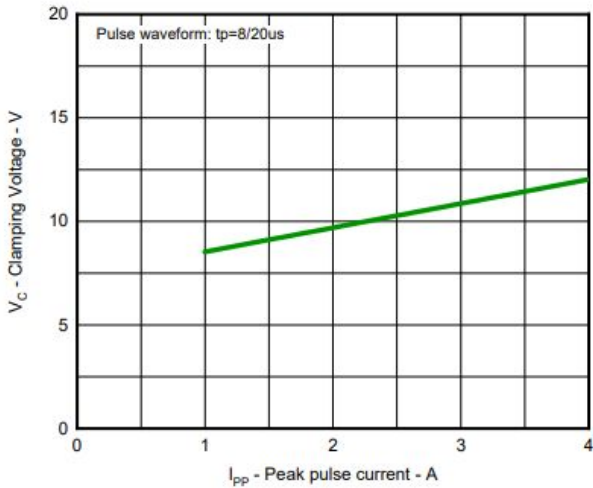


Fig 3. Clamping voltage vs. Peak pulse current

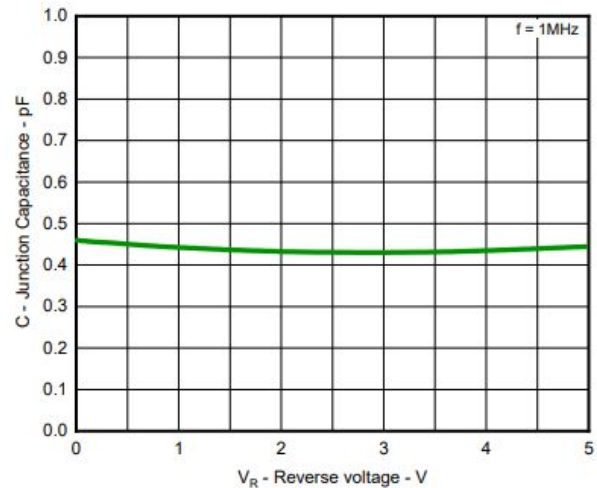


Fig 4. Capacitance vs. Reverse voltage

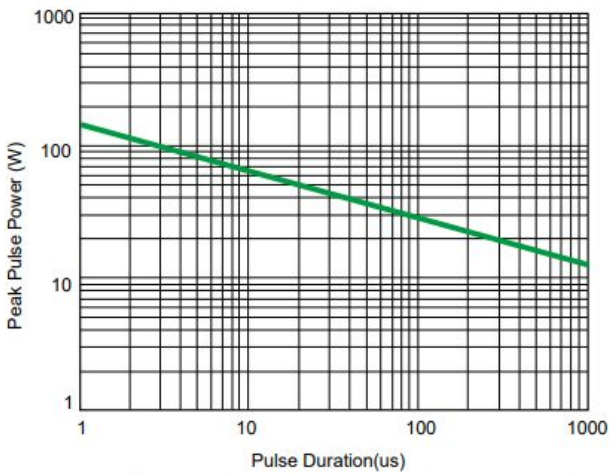


Fig 5. Non Repetitive Peak Pulse Power vs. Pulse time

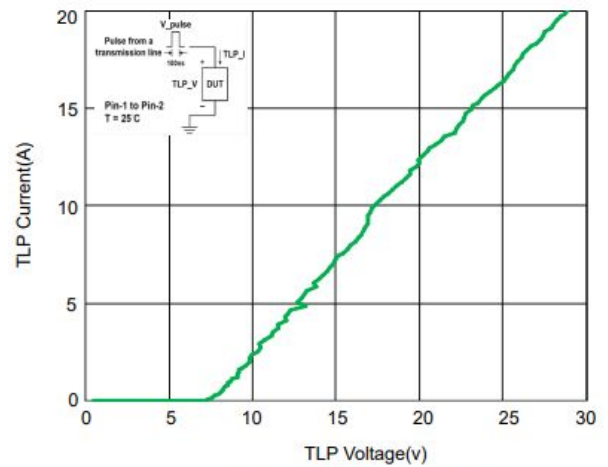


Fig 6. TLP Measurement



- **Package Information**

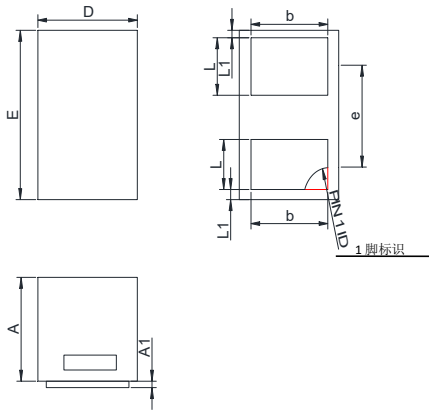
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE5V031N1	DFN1006-2L	10000	7 Inch

Mechanical Data

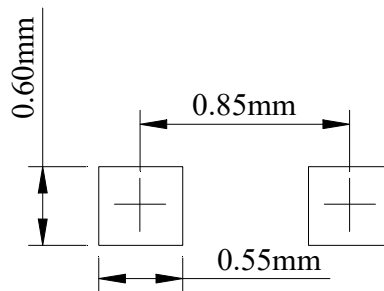
Case:DFN1006-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.45	0.55
A1	0.00	0.05
D	0.55	0.65
E	0.95	1.05
b	0.45	0.55
e	0.65TYP	
L	0.20	0.30
L1	0.05REF	

Recommended Pad outline





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