



SSCE30V32N1

Ultra-low Capacitance Bidirectional Micro Packaged TVS Diodes for ESD Protection

● Description

The SSCE30V32N1 is a bi-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 high-speed data lines. The SSCE30V32N1 has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 20\text{kV}$ air and $\pm 20\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package.

The small size, ultra-low capacitance and high ESD surge protection make SSCE30V32N1 an ideal choice to protect cell phone and high-power USB.

● Feature

- ✧ 55W peak pulse power ($t_P = 8/20\mu\text{s}$)
- ✧ DFN1006-2L Package
- ✧ Working voltage: 30V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 20\text{kV}$
 - Contact discharge: $\pm 20\text{kV}$
 - IEC61000-4-5 (Lightning) 1A (8/20 μs)
- ✧ RoHS compliant

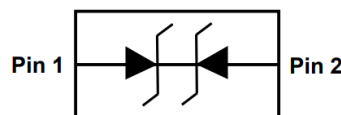
● Mechanical data

- ✧ Lead finish: 100% matte Sn (Tin)
- ✧ Case Material: "Green" Molding Compound
- ✧ Qualified max reflow temperature: 260°C
- ✧ Device meets MSL 3 requirements
- ✧ Pure tin plating: 7 ~ 17 μm
- ✧ Pin flatness: $\leq 3\text{mil}$

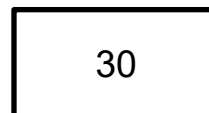
● PIN configuration



DFN1006-2L (Bottom View)



Circuit Diagram



Marking

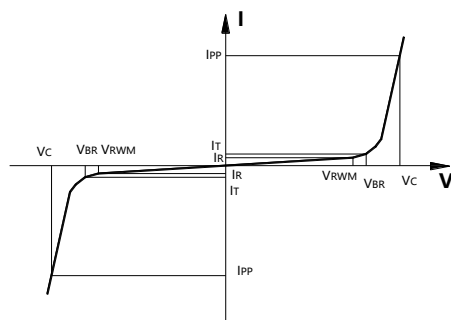
● Applications

- ✧ DVI & HDMI Port Protection
- ✧ USB 3.0 and USB 4.0
- ✧ SATA and eSATA
- ✧ Serial and Parallel Ports
- ✧ Projection TV
- ✧ Notebooks, Desktops, Servers



● 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



● Absolute maximum rating ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

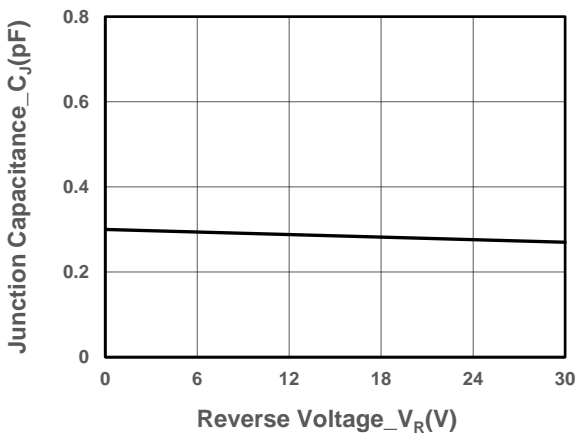
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	55	W
Peak Pulse Current (8/20 μs)	I_{PP}	1	A
ESD Rating per IEC61000-4-2:	V_{ESD}	20	kV
Contact		20	
Air			
Storage Temperature	T_{STG}	-55/+150	$^{\circ}\text{C}$
Operating Temperature	T_J	-55/+125	$^{\circ}\text{C}$

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

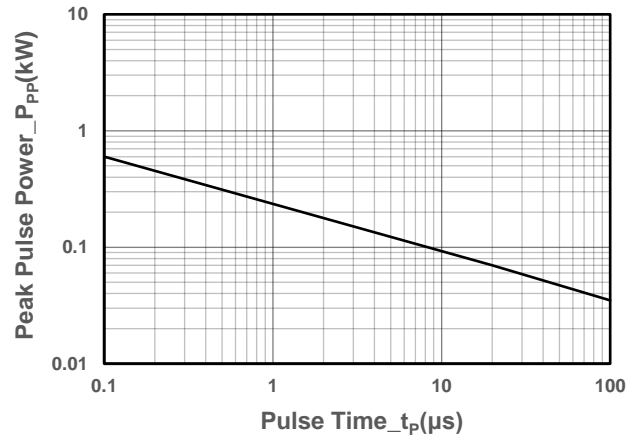
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				30	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	31			V
Reverse Leakage Current	I_R	$V_{RWM} = 30\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$, $t_P = 8/20\mu\text{s}$			55	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		0.3	0.5	pF



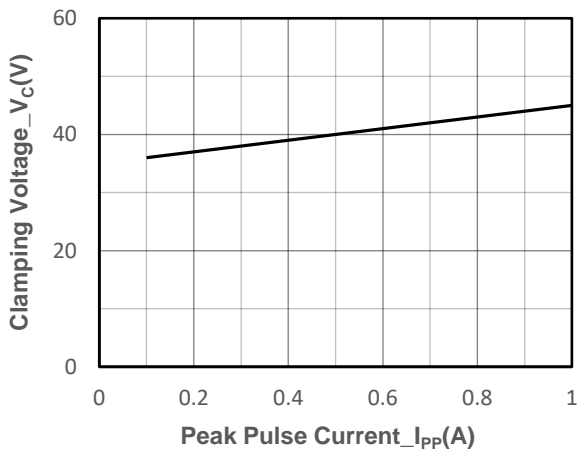
- Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)



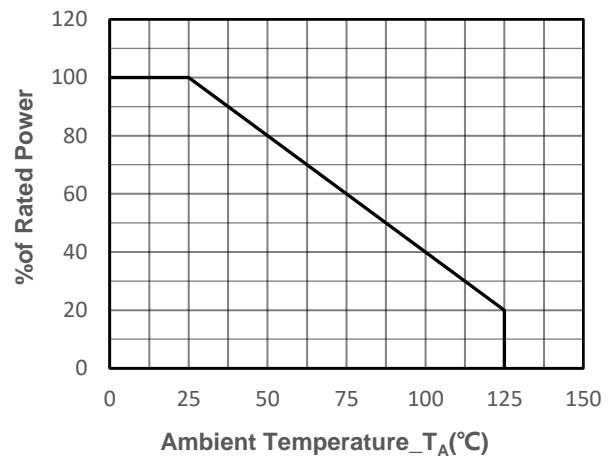
Junction Capacitance vs. Reverse Voltage



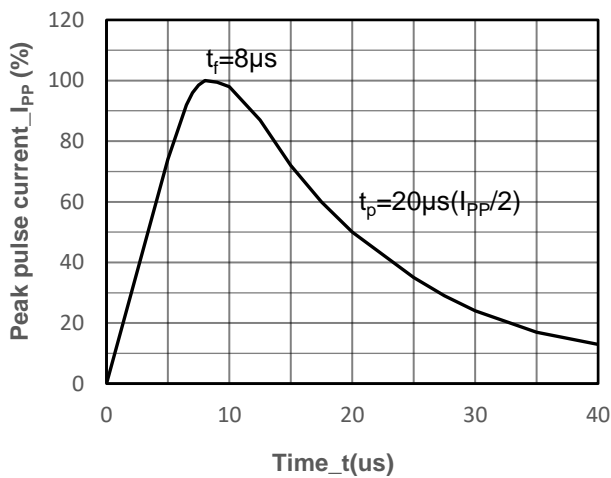
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



8/20 μs Pulse Waveform



● Package Information

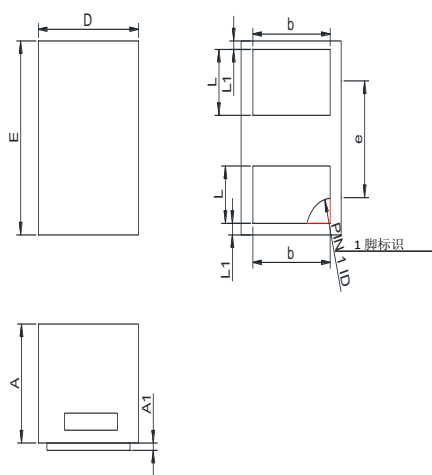
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE30V32N1	DFN1006-2L	10000	7 Inch

Mechanical Data

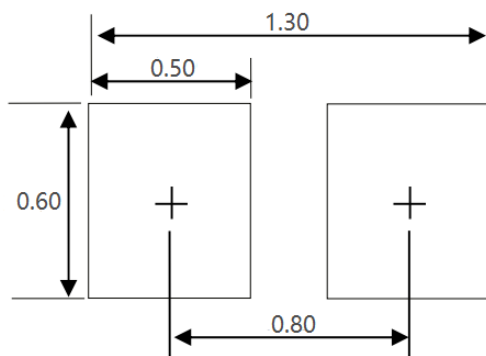
Case: DFN1006-2L

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	0.60
e	0.65TYP	
L	0.2	0.3
L1	0.05REF	

Recommended Pad outline



Unit:mm



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