



SSCE15V32N1

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

● Description

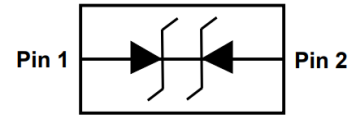
The SSCE15V32N1 is a bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The SSCE15V32N1 has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 20\text{kV}$ air and $\pm 15\text{kV}$ 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 SSCE15V32N1 an ideal choice to protect cell phone and high-power USB.

● Feature

- ✧ 90W peak pulse power ($t_P = 8/20\mu\text{s}$)
- ✧ DFN1006-2L Package
- ✧ Working voltage: 15V
- ✧ 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: $\pm 15\text{kV}$
 - IEC61000-4-5 (Lightning) 2.5A (8/20 μs)
- ✧ RoHS compliant

● PIN configuration



Top view



Marking

● Applications

- ✧ DVI & HDMI Port Protection
- ✧ USB 2.0 and USB 3.0
- ✧ SATA and eSATA
- ✧ Serial and Parallel Ports
- ✧ Projection TV
- ✧ Notebooks, Desktops, Servers

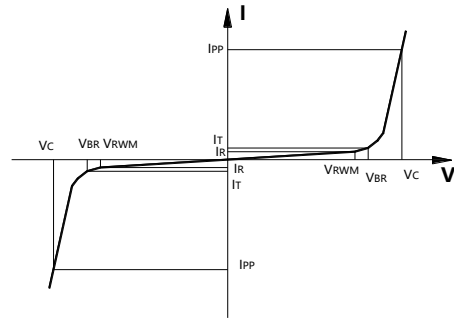
● Mechanical data

- ✧ 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: $\leq 3\text{mil}$



● 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 @TA=25°C

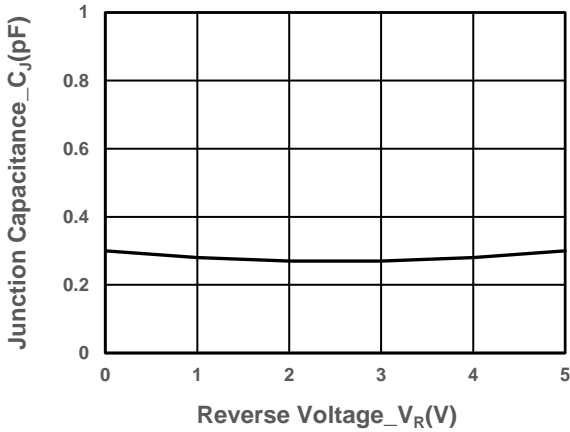
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P_{PP}	90	W
Peak Pulse Current (8/20μs)	I_{PP}	2.5	A
ESD Rating per IEC61000-4-2:	Contact	15	KV
	Air	20	
Storage Temperature	T_{STG}	-55/+150	°C
Operating Temperature	T_J	-55/+125	°C

● Electrical Characteristics @TA=25°C

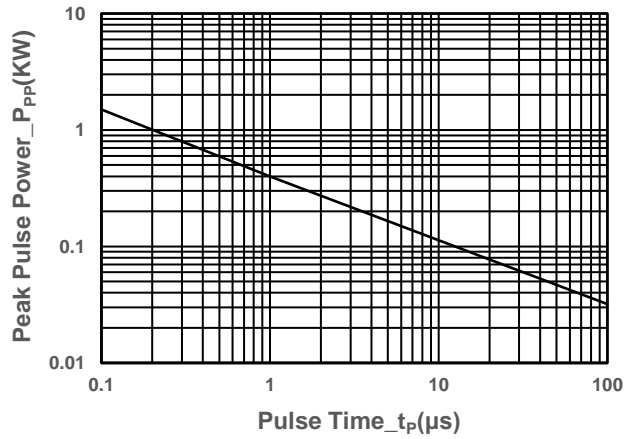
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				15	V
Breakdown Voltage	V_{BR}	$I_T = 1mA$	16.7			V
Reverse Leakage Current	I_R	$V_{RWM} = 15V$			1	μA
Clamping Voltage	V_C	$I_{PP} = 1A, t_P = 8/20μs$			26	V
Clamping Voltage	V_C	$I_{PP} = 2.5A, t_P = 8/20μs$			35	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$		0.3	0.5	pF



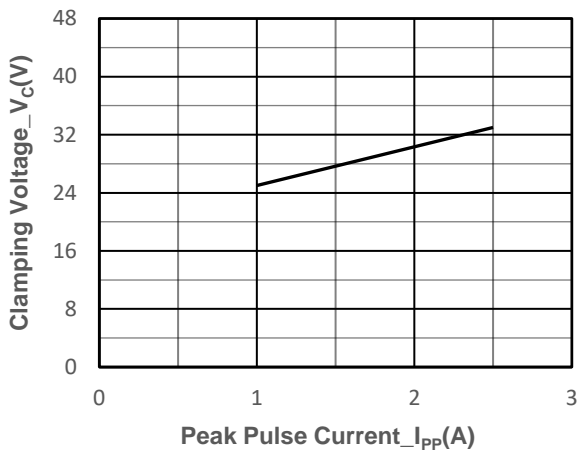
● Typical Performance Characteristics



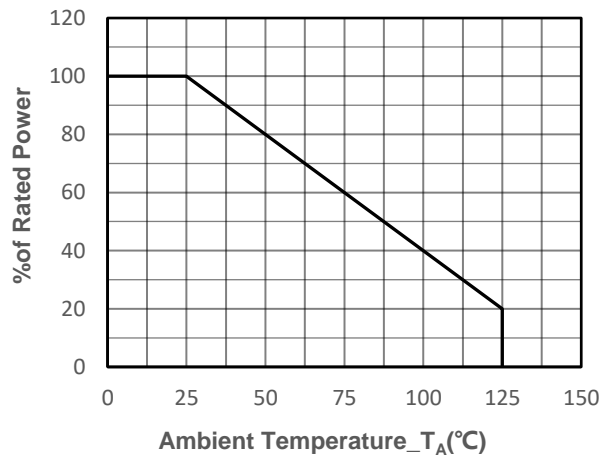
Junction Capacitance vs. Reverse Voltage



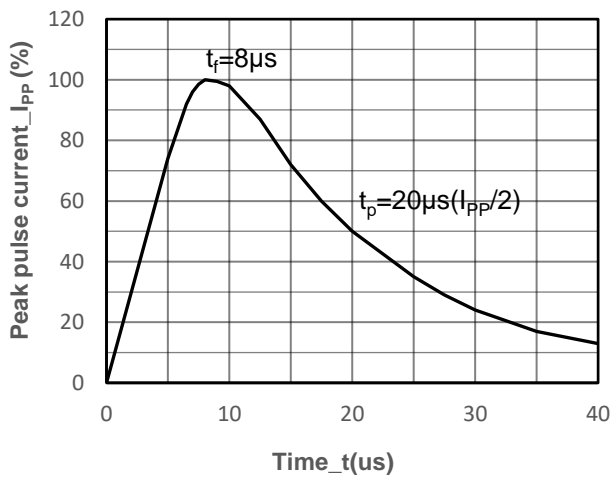
Peak Pulse Power vs. Pulse Time



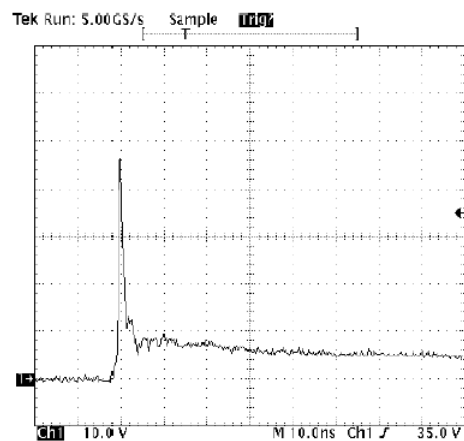
Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



8/20 μ s Pulse Waveform



Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

8 kV Contact per IEC61000-4-2



● Package Information

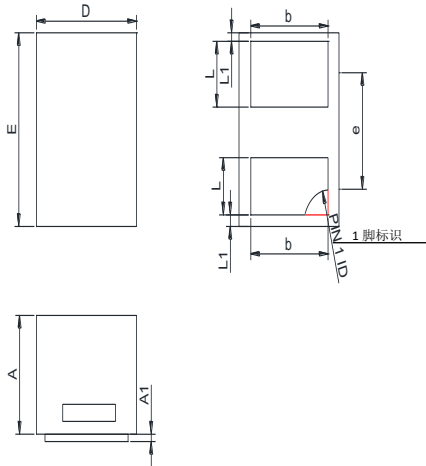
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE15V32N1	DFN1006-2L	10000	7 Inch

Mechanical Data

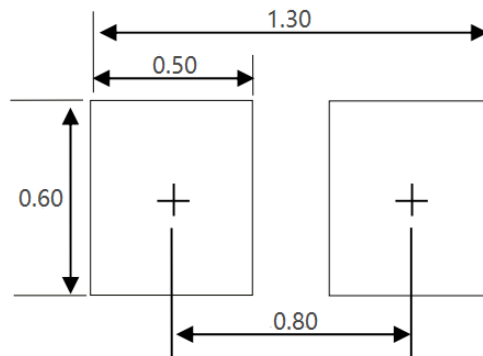
Case:DFN1006-2L

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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