SSCE24V32N1

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

Description

The SSCE24V32N1 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 SSCE24V32N1 has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with ±15kV air and ±10kV 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 SSCE24V32N1 an ideal choice to protect cell phone and high-power USB.

Feature

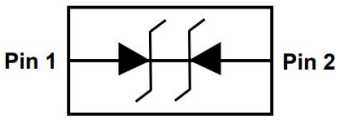
- 70W peak pulse power (t_P = 8/20μs)
- DFN1006-2L Package
- Working voltage: 24V
- Low clamping voltage
- Low capacitance
- Low leakage current
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±15kV
    - Contact discharge: ±10kV
  - IEC61000-4-5 (Lightning) 1.5A (8/20μs)
- RoHS compliant

Mechanical data

- Lead finish:100% matte Sn (Tin)
- Case Material: “Green” Molding Compound
- Qualified max reflow temperature:260℃
- Device meets MSL 3 requirements
- Pure tin plating: 7 ~ 17 um
- Pin flatness: ≤3mil

PIN configuration

DFN1006-2L (Bottom View)



Circuit Diagram

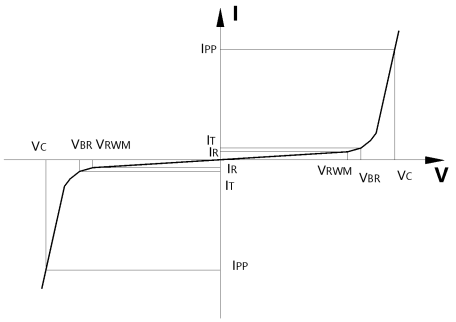
Marking

Applications

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

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℃

Parameter	Symbol	Value	Unit
Peak Pulse Power（8/20μs）	P_{PP}	70	W
Peak Pulse Current（8/20μs）	I_{PP}	1.5	A
ESD Rating per IEC61000-4-2： Contact Air	V_{ESD}	±10 ±15	kV
Storage Temperature	T_{STG}	-55/+150	℃
Operating Temperature	T_J	-55/+125	℃

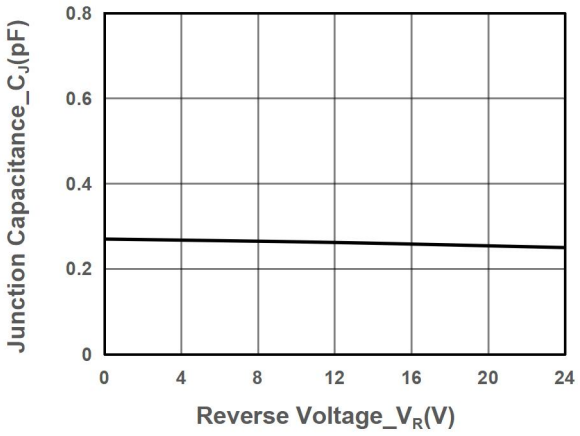
Electrical Characteristics @T_A=25℃

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				24	V
Breakdown Voltage	V_{BR}	I_T = 1mA	24.5			V
Reverse Leakage Current	I_R	V_{RWM} = 24V			0.2	μA
Clamping Voltage	V_C	I_{PP} = 1A, t_P = 8/20μs			40	V
Clamping Voltage	V_C	I_{PP} = 1.5A, t_P = 8/20μs			45	V
ESD Clamping Voltage(Note1)	V_{CL-ESD}	IEC 61000-4-2+ 8kV(I_{TLP}=16A),contact mode,T=25℃, pin1 to pin2,pin2 to pin1		60		V
Dynamic resistance	R_{DYN}			1.5		Ω
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		0.3	0.5	pF

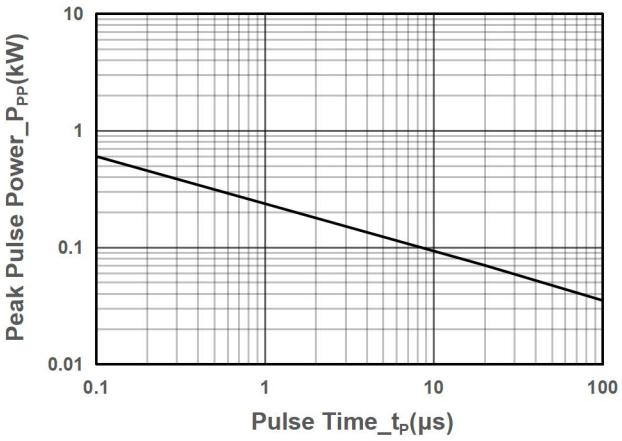
Note 1: ESD Clamping Voltage was measured by Transmission Line Pulsing (TLP) System.

TLP conditions：Z_0=50Ω， t_p= 100ns， t_r= 1ns.

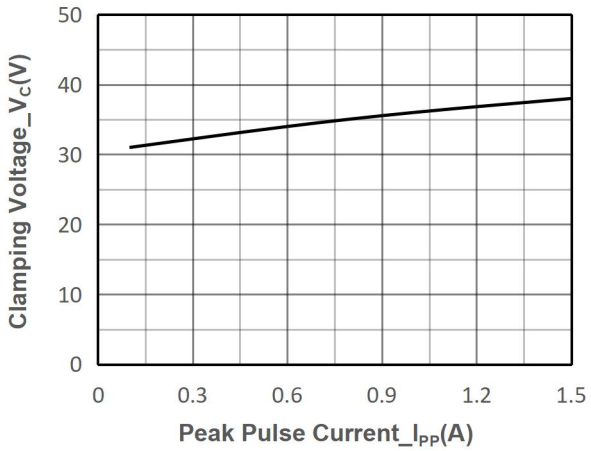
- **Typical Performance Characteristics**



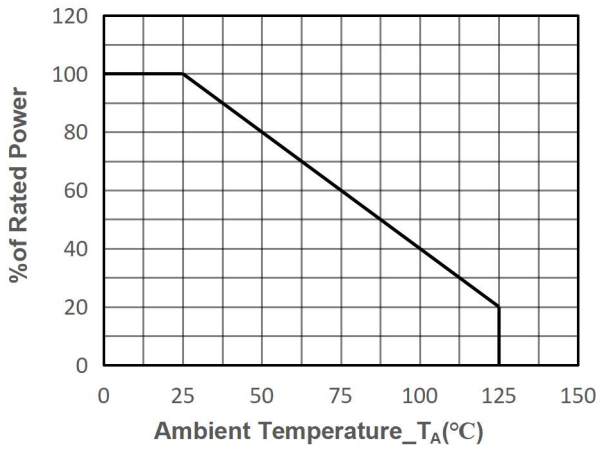
Junction Capacitance vs. Reverse Voltage



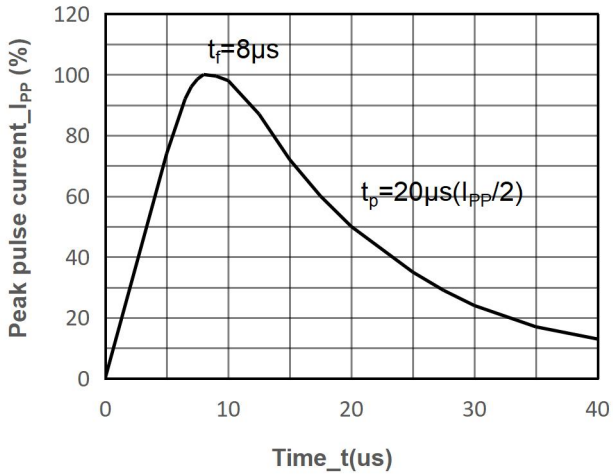
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



8/20μs Pulse Waveform

● Package Information

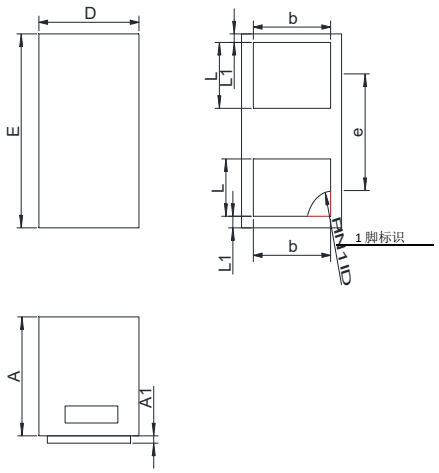
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE24V32N1	DFN1006-2L	10000	7 Inch

Mechanical Data

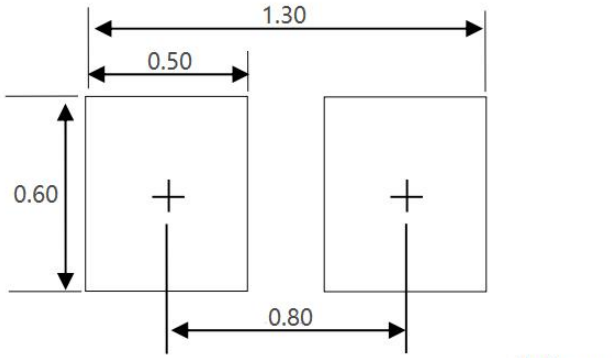
Case: DFN1006-2L

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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