SSCE5V0C2N1

1-Line Bi-directional low Capacitance TVS Diode

Description

The SSCE5V0C2N1 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 SSCE5V0C2N1 has an ultra-low capacitance with a typical value at 0.15 pF, and complies with the IEC 61000-4-2 (ESD) with ±20kV air and ±15kV contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package.

Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, USB 3.0 and USB 4.0 super speed, VGA, DVI, HDMI, SDI and other high speed line applications.

Features

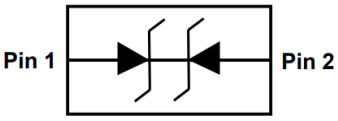
- 40W peak pulse power (t_P = 8/20μs)
- DFN1006-2L Package
- Working voltage:5V
- Low Leakage Current
- Low capacitance
- Low clamping voltage
- Response Time is Typically<1ns
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±20kV
    - Contact discharge: ±15kV
  - IEC61000-4-5(Lightning)2.5A(8/20μs)

Mechanical Characteristics

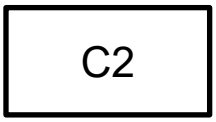
- Package: DFN1006-2L (1.0×0.6×0.5mm)
- Lead finish: 100% matte Sn (Tin)
- Device meets MSL 3 requirements
- Case Material: “Green” Molding Compound. RoHS Compliant

PIN configuration

DFN1006-2L (Bottom View)



Circuit Diagram



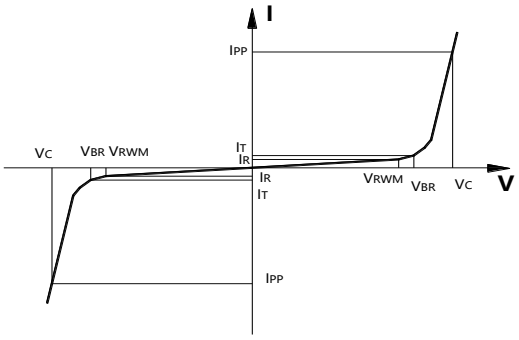
Marking (Top View)

Applications

- DVI & HDMI Port Protection
- USB 2.0, USB 3.0 and USB 4.0
- SATA and eSATA
- Serial and Parallel Ports
- Projection TV
- Notebooks, Desktops, Servers
- Digital cameras

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



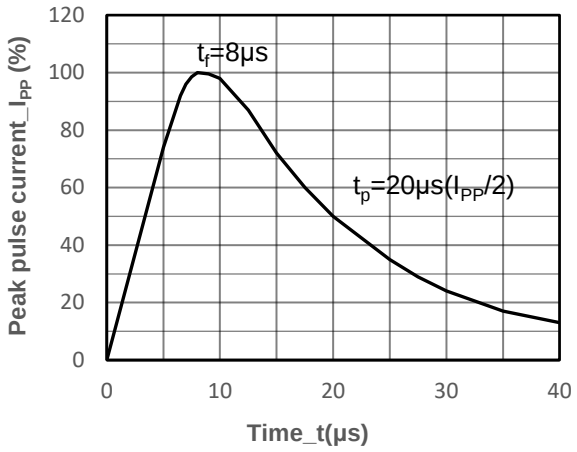
Absolute maximum rating (T_A=25℃ unless otherwise noted)

Parameter		Symbol	Value	Units
Peak Pulse Power（8/20μs）		P_{PP}	40	W
Peak Pulse Current（8/20μs）		I_{PP}	2.5	A
ESD Rating per IEC61000-4-2:	Contact	V_{ESD}	±15	kV
	Air		±20	
Storage Temperature		T_{STG}	-55/+150	℃
Operating Temperature		T_J	-55/+125	℃

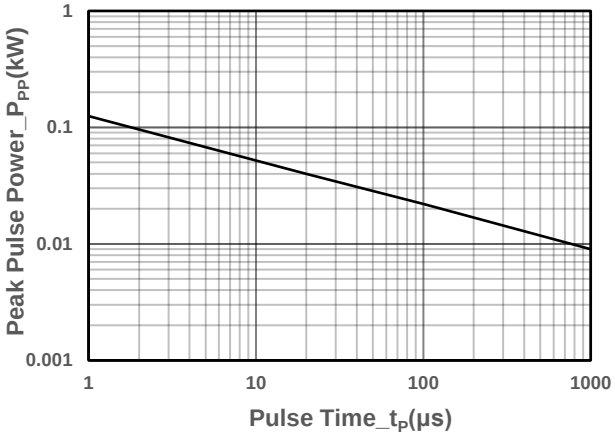
Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	I_T = 1mA	6		9	V
Reverse Leakage Current	I_R	V_{RWM} = 5V			0.1	μA
Clamping Voltage	V_C	I_{PP} = 1A, t_P = 8/20μs		10	12	V
Clamping Voltage	V_C	I_{PP} = 2.5A, t_P = 8/20μs		13	16	V
Dynamic resistance	R_{DYN}			0.26		Ω
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		0.15	0.18	pF

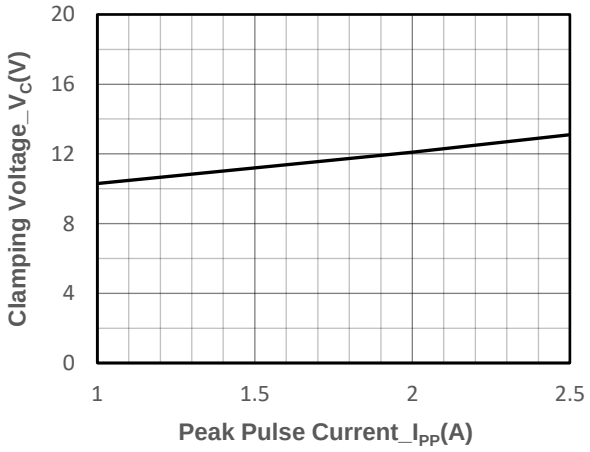
- **Typical Performance Characteristics (T_A=25℃ unless otherwise noted)**



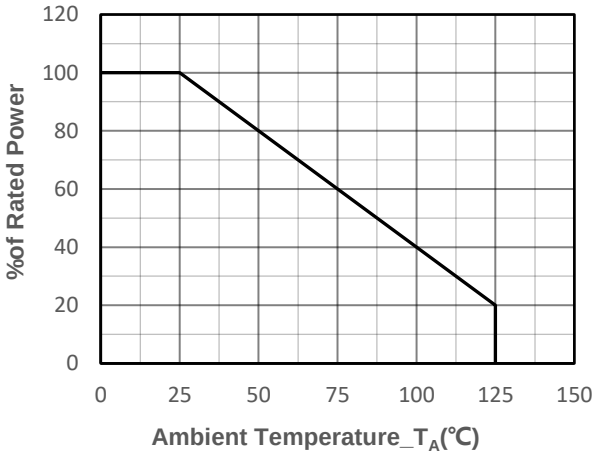
8/20μs Pulse Waveform



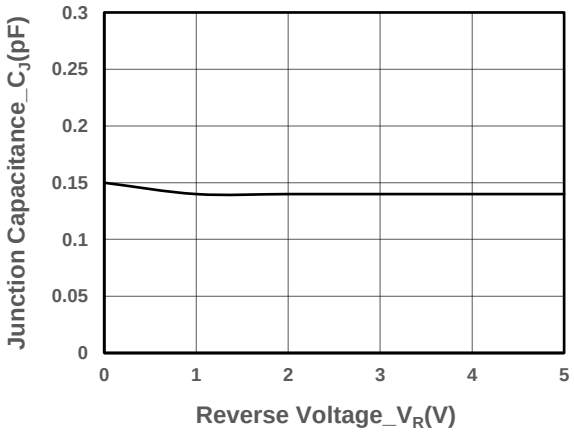
Peak Pulse Power vs. Pulse Time



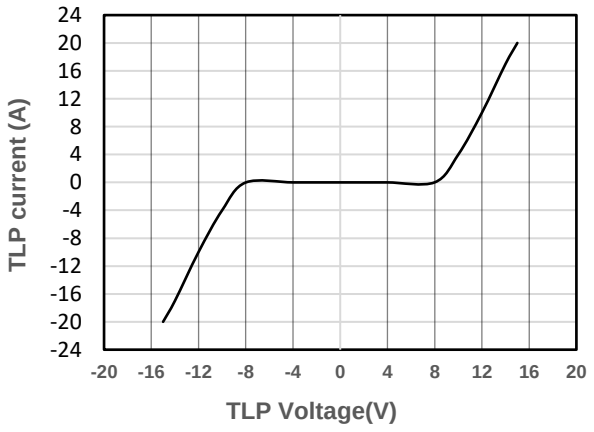
Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature

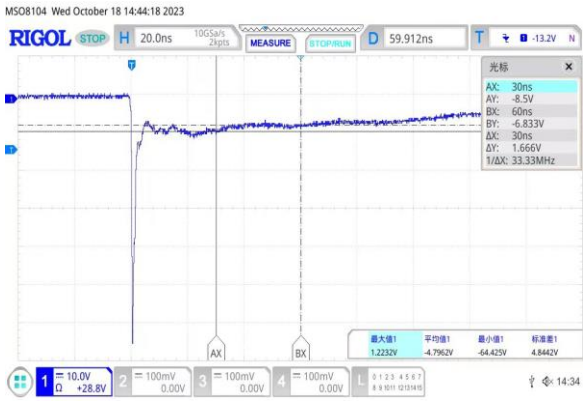


Junction Capacitance vs. Reverse Voltage

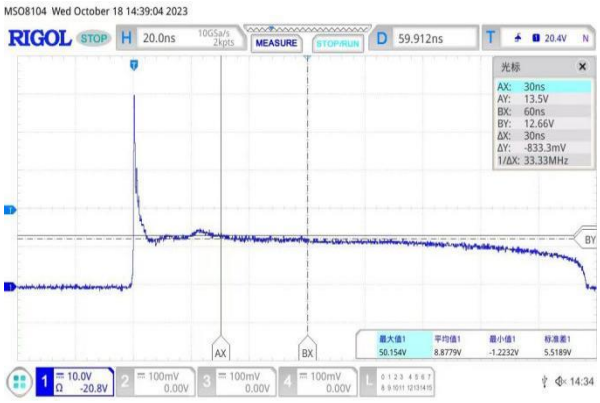


TLP Measurement

- **Typical Performance Characteristics (TA=25℃ unless otherwise noted)**



Note: Data is taken with a 10x attenuator ESD Clamping Voltage -8kV contact per IEC61000-4-2



Note: Data is taken with a 10x attenuator ESD Clamping Voltage 8kV contact per IEC61000-4-2

Package Information

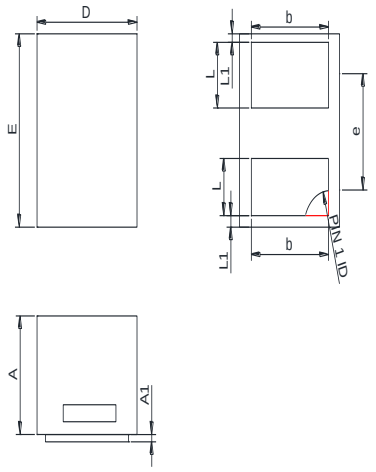
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE5V0C2N1	DFN1006-2L	10000	7 Inch

Mechanical Data

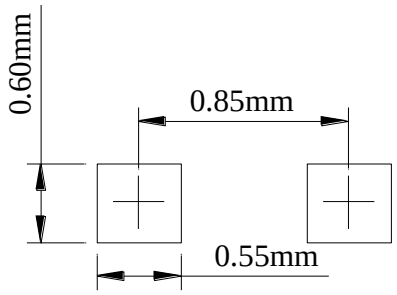
Case: DFN1006-2L

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	

Suggested Land Pattern



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