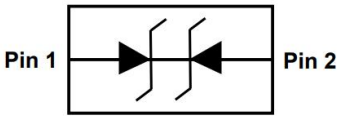
SSCE5V0N2L1

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

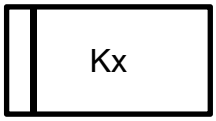
Description

The SSCE5V0N2L1 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 SSCE5V0N2L1 has an ultra-low capacitance with a typical value at 0.09pF, and complies with the IEC 61000-4-2 (ESD) with ±25kV air and ±20kV contact discharge. It is assembled into an ultra-small 0.6x0.3x0.28mm 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 super speed, VGA, DVI, HDMI,SDI and other high speed line applications.

PIN configuration



Top view



Marking

x: Periodic code

Feature

- 60W peak pulse power (t_P = 8/20μs)
- DFN0603-2L Package
- Working voltage: 5V
- Low clamping voltage
- Low capacitance
- Low leakage current
- RoHS compliant transient protection for high speed data lines to IEC61000-4-2(ESD)±25kV(air),±20kV(contact)

Applications

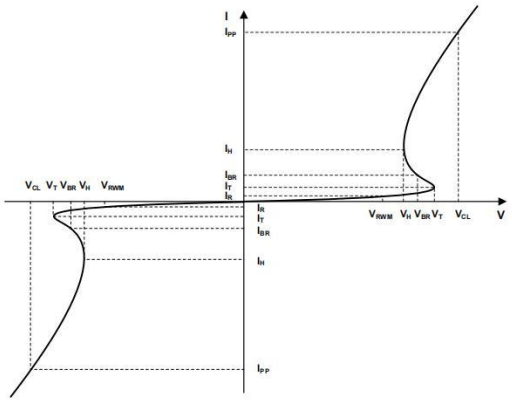
- DVI & HDMI Port Protection
- USB 2.0 and USB 3.0
- SATA and eSATA
- Serial and Parallel Ports
- Projection TV
- Notebooks, Desktops, Servers

Mechanical data

- Lead finish:100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature:260℃
- Device meets MSL 3 requirements
- Pure tin plating: 7 ~ 17 um
- Pin flatness:≤3mil

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



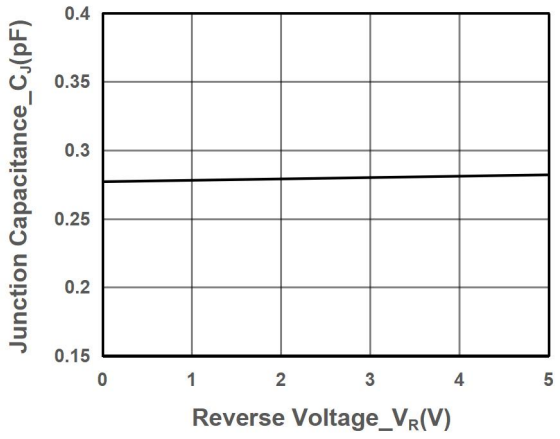
Absolute maximum rating @T_A=25℃

Parameter	Symbol	Value	Unit
Peak Pulse Power（8/20μs）	P_{PP}	60	W
Peak Pulse Current（8/20μs）	I_{PP}	5	A
ESD Rating per IEC61000-4-2： Contact Air	V_{ESD}	20 25	kV
Storage Temperature	T_{STG}	-55/+150	℃
Operating Temperature	T_J	-55/+125	℃

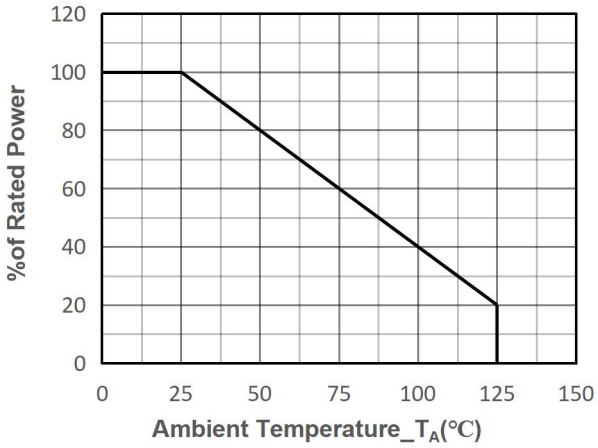
Electrical Characteristics @T_A=25℃

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	I_T = 1mA	6		10	V
Reverse Leakage Current	I_R	V_{RWM} =5V			0.1	μA
Clamping Voltage	V_C	I_{PP} = 1A, t_P = 8/20μs		5.8	8	V
Clamping Voltage	V_C	I_{PP}=5A, t_P = 8/20μs		8	12	V
Junction Capacitance	C_J	V_R=0V, f = 1MHz		0.09	0.125	pF

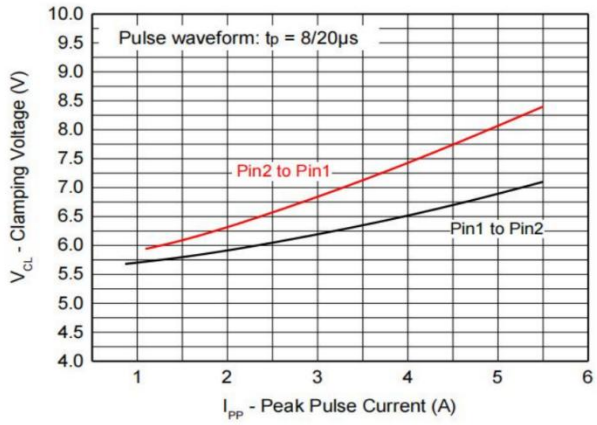
● Typical Performance Characteristics



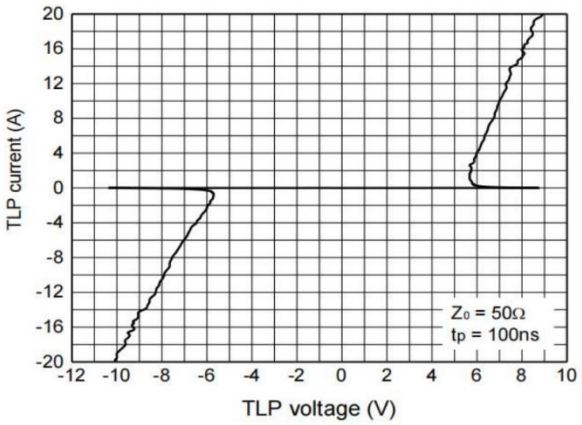
Junction Capacitance vs. Reverse Voltage



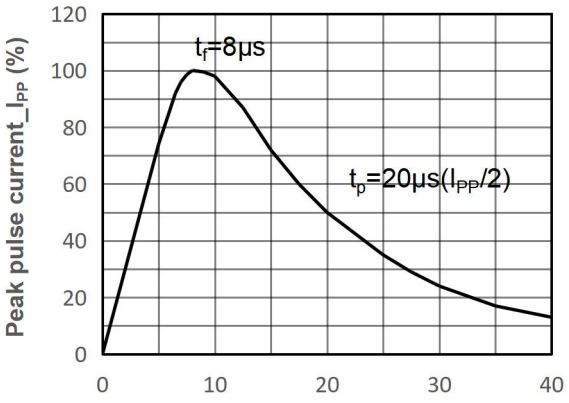
Power derating vs. Ambient temperature



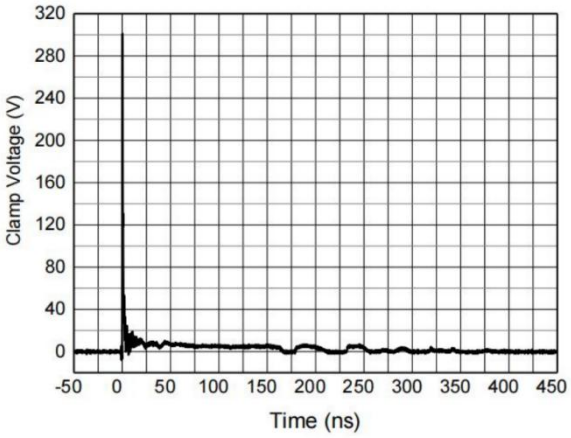
Clamping Voltage vs. Peak Pulse Current



TLP IV Curve



8/20μs Pulse Waveform



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

● Package Information

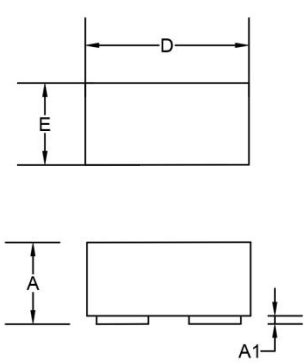
Ordering Information

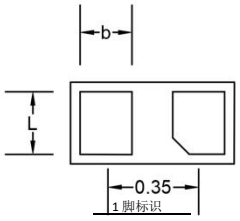
Device	Package	Qty per Reel	Reel Size
SSCE5V0N2L1	DFN0603-2L	15000	7 Inch

Mechanical Data

Case:DFN0603-2L

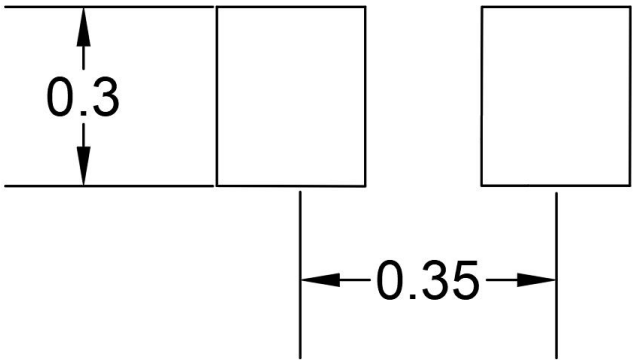
Case Material: Molded Plastic. UL Flammability





DIM	Millimeters		
	Min	Nom	Max
A	0.23	0.30	0.35
A1	0.00	0.03	0.05
b	0.115	0.19	0.25
D	0.55	0.60	0.67
E	0.250	0.30	0.37
L	0.18	0.23	0.30
e	0.35Ref		

Recommended Pad outline (Unit: mm)



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