



SSCE5V011L5

6-Line Ultra Low Capacitance Array for ESD Protection

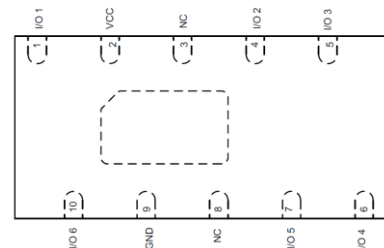
● Description

The SSCE5V011L5 is an ultra low capacitance TVS array, 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 SSCE5V011L5 has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) standard with $\pm 25\text{kV}$ air and $\pm 20\text{kV}$ contact discharge. It is assembled into a 10-pin 4.1x2.0x0.55mm lead-free DFN package. The flow through style package allows for easy PCB layout and matched trace lengths necessary to maintain consistent impedance between high speed differential lines. The small size, ultra-low capacitance and high ESD surge protection make SSCE5V011L5 a ideal choice to protect HDMI 1.4, USB 3.0 and other high speed ports.

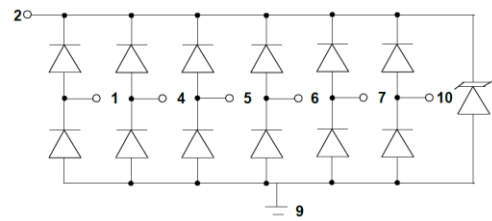
● Feature

- ✧ 100W peak pulse power ($t_P = 8/20\mu\text{s}$)
- ✧ DFN4120-10L Package
- ✧ Working voltage: 5V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ RoHS compliant
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 25\text{kV}$
 - Contact discharge: $\pm 20\text{kV}$
 - IEC61000-4-5 (Lightning) 4A (8/20 μs)

● PIN configuration



DFN4120-10L(Bottom View)



Circuit diagram

● Applications

- ✧ USB 3.0
- ✧ HDMI 1.4
- ✧ High-Speed Data Lines
- ✧ SATA and eSATA
- ✧ DVI
- ✧ IEEE 1394
- ✧ PCI Express

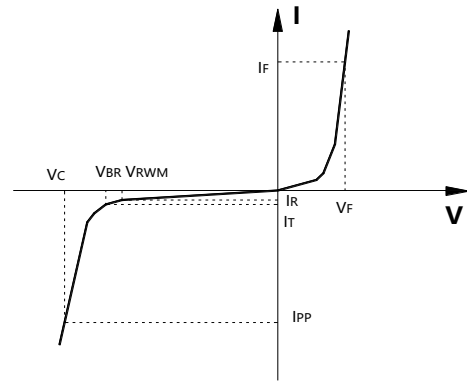
● Mechanical data

- ✧ Lead finish:100% matte Sn(Tin)
- ✧ Mounting position: Any
- ✧ Qualified max reflow temperature:260 $^{\circ}\text{C}$
- ✧ 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
C_J	Junction Capacitance



● Absolute maximum rating @TA=25°C

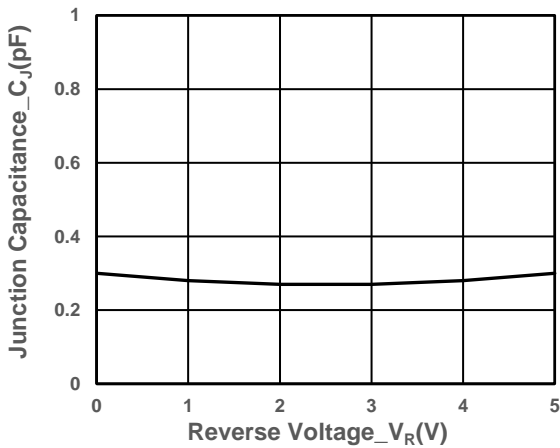
Parameter	Symbol	Value	Units
Peak Pulse Power (8/20μs)	P_{PP}	100	W
Peak Pulse Current (8/20μs)	I_{PP}	4	A
ESD Rating per IEC61000-4-2:	Contact	20	kV
	Air	25	
Storage Temperature	T_{STG}	-55/+150	°C
Operating Temperature	T_J	-55/+125	°C

● Electrical Characteristics @TA=25°C

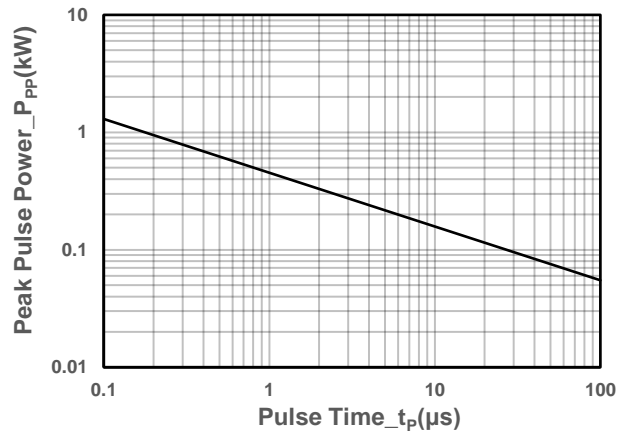
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}	Any I/O to GND			5	V
Breakdown Voltage	V_{BR}	$I_T = 1mA$ Any I/O to GND	6			V
Reverse Leakage Current	I_R	$V_{RWM} = 5V$			0.5	μA
Clamping Voltage	V_C	$I_{PP} = 1A, t_P = 8/20μs$			12	V
Clamping Voltage	V_C	$I_{PP} = 4A, t_P = 8/20μs$			25	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz,$ any I/O pin to GND		0.3	0.4	pF



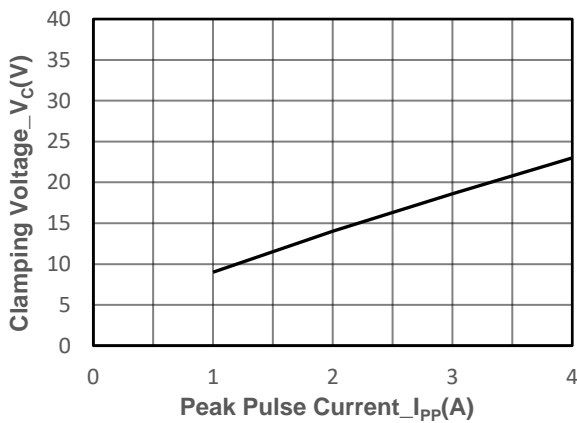
● Typical Performance Characteristics



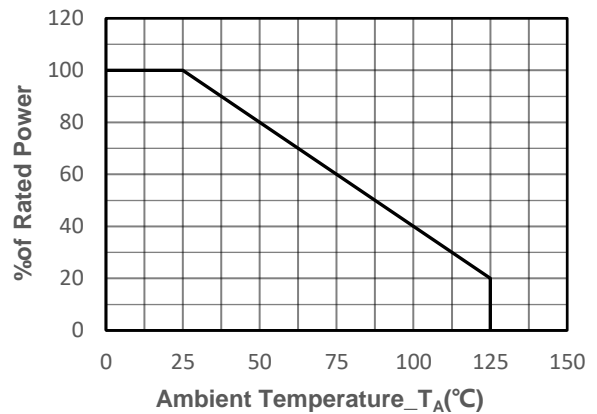
Junction Capacitance vs. Reverse Voltage



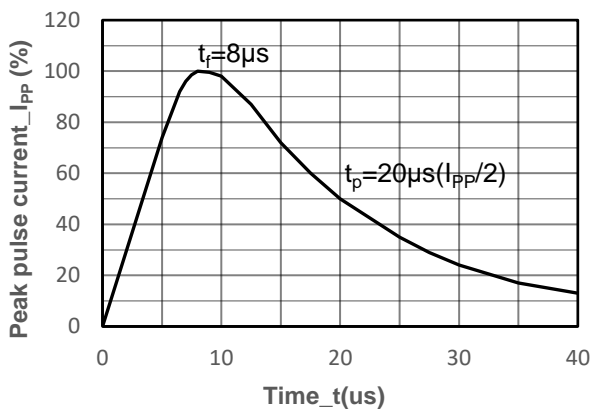
Peak Pulse Power vs. Pulse Time



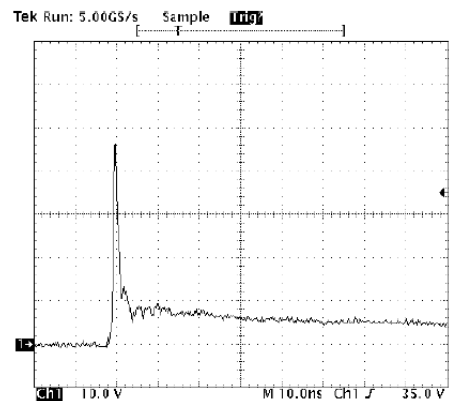
Clamping Voltage vs. Peak Pulse Current



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

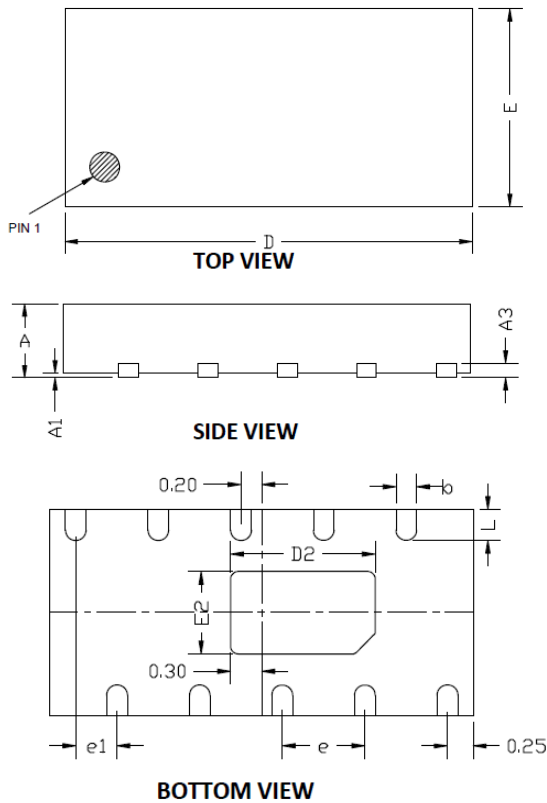
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE5V011L5	DFN4120-10L	3000	7 Inch

Mechanical Data

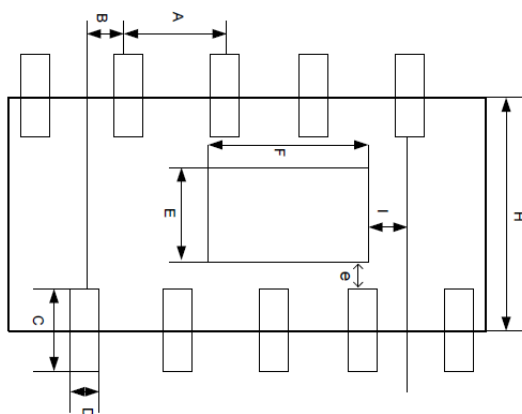
Case:DFN4120-10L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min	Nom	Max
A	0.50	0.55	0.60
A1	0.00		0.05
A3	0.15REF		
D	4.05	4.10	4.15
E	1.95	2.00	2.05
D2	1.25	1.40	1.50
E2	0.65	0.80	0.90
b	0.15	0.20	0.25
L	0.20	0.30	0.40
e1	0.40BSC		
e	0.80BSC		

Recommended Pad outline



DIM	Millimeters
A	0.800
B	0.400
C	0.600
D	0.200
E	0.800
F	1.400
H	2.000
I	0.300
e	0.200



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