SSCE5V021N7

Ultra Low Capacitance Array for ESD Protection

Description

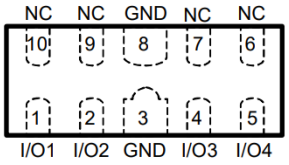
The SSCE5V021N7 is an ultra low capacitance TVS array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines.

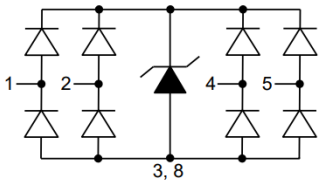
The SSCE5V021N7 has an ultra-low capacitance with a typical value at 0.3pF, and complies with the IEC 61000-4-2 (ESD) with ±25kV air and ±25kV contact discharge. It is assembled into a 10-pin 2.5x1.0x0.5mm lead-free DFN package. The flow through style package allows for easy PCB layout and matched trace lengths necessary to maintain consistent impedance between high speed differential lines such as USB 3.0 and HDMI. The small size, ultra-low capacitance and high ESD surge protection make SSCE5V021N7 an ideal choice to protect HDMI, MDDI, USB 3.0 and other high speed ports.

Feature

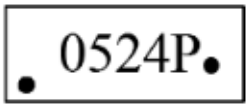
- 70W peak pulse power (t_P = 8/20μs)
- DFN2510-10L Package
- Working voltage: 5V
- Low clamping voltage
- Low capacitance
- RoHS compliant transient protection for high speed data lines to IEC61000-4-2(ESD)±25kV(air),±25kV(contact)

PIN configuration





Top view



Marking

Applications

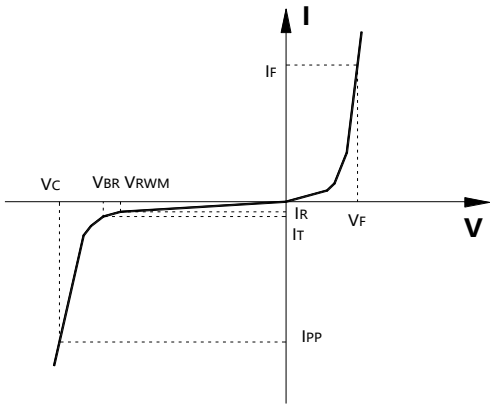
- DVI & HDMI Port Protection
- Serial and Parallel Ports
- Projection TV
- Notebooks, Desktops, Server
- USB 1.1/2.0/3.0/3.1/OTG
- HDMI 1.3, HDMI 1.4

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



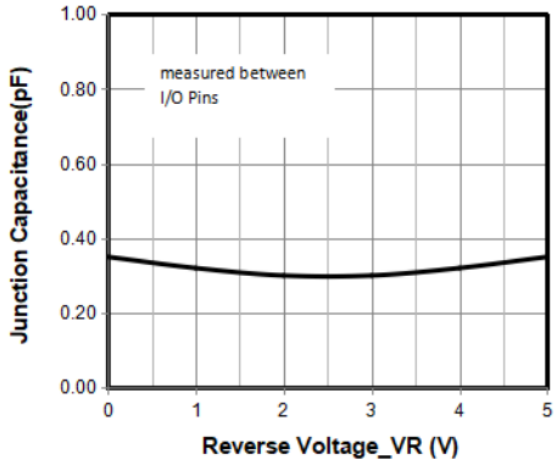
Absolute maximum rating @TA=25℃

Parameter	Symbol	Value	Unit
Peak Pulse Power（8/20μs）	P_{PP}	70	W
Peak Pulse Current（8/20μs）	I_{PP}	5	A
ESD Rating per IEC61000-4-2： Contact Air	V_{ESD}	25 25	KV
Storage Temperature	T_{STG}	-55/+150	℃
Operating Temperature	T_J	-55/+125	℃

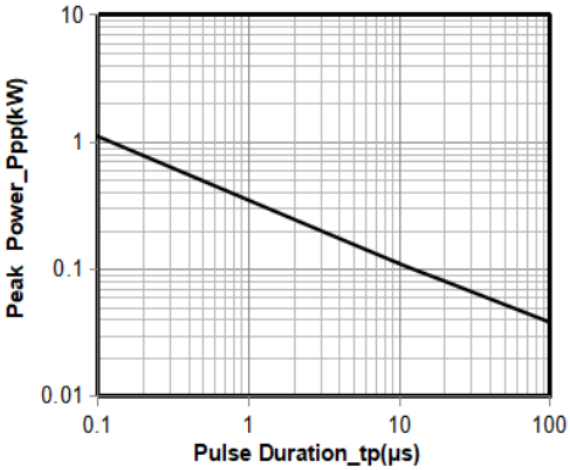
Electrical Characteristics @TA=25℃

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
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} =5.0V			1	μA
Diode Forward Voltage	V_F	I_F = 15mA		0.85	1.2	V
Clamping Voltage	V_C	I_{PP} =1A, tP = 8/20μs		9.5		V
Clamping Voltage	V_C	I_{PP}=5A, tP = 8/20μs			14	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz, between I/O pins		0.3	0.4	pF
		VR = 0V, f = 1MHz, any I/O pin to GND		0.6	0.8	pF

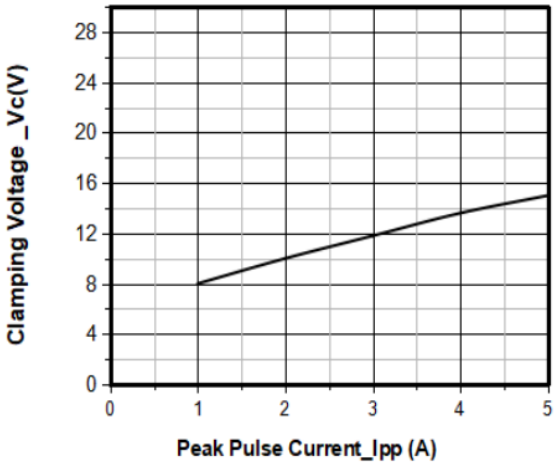
- **Typical Performance Characteristics**



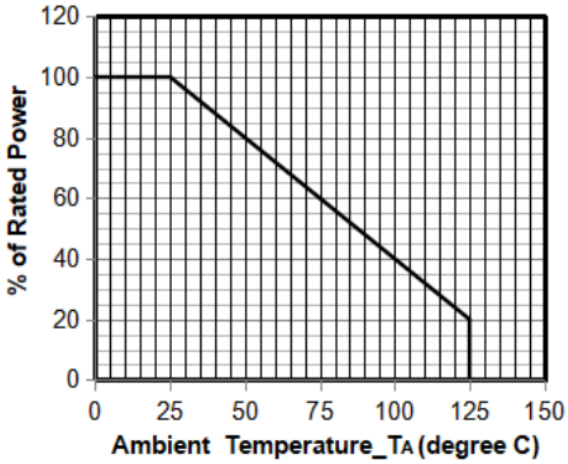
Junction Capacitance vs. Reverse Voltage



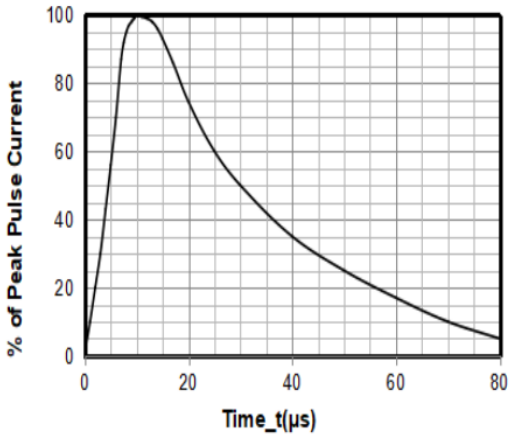
Peak Pulse Power vs. Pulse Time



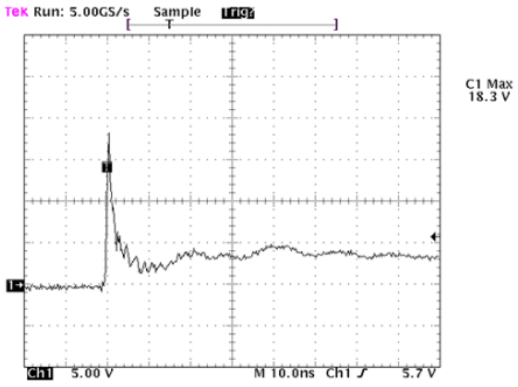
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



Note：Data is taken with a 10x attenuator

ESD Clamping Voltage

8 kV Contact per IEC61000−4−2

Package Information

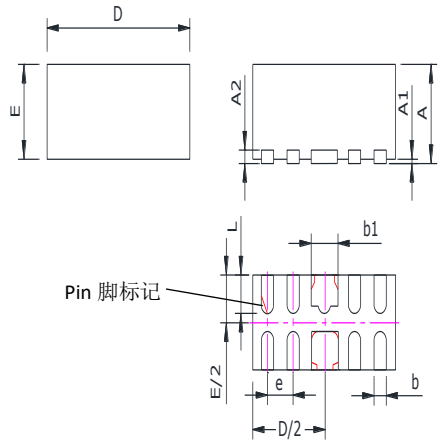
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE5V021N7	DFN2510-10L	3000	7 Inch

Mechanical Data

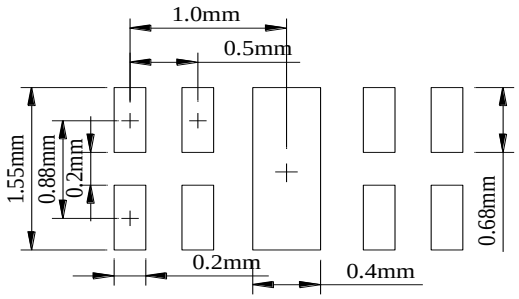
Case: DFN2510

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.45	0.65
A1	0.05REF	
A2	0.15REF	
b	0.15	0.25
b1	0.30	0.50
D	2.424	2.576
E	0.924	1.076
e	0.50REF	
L	0.30	0.45

Recommended Pad outline



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