SSCE3V321N7

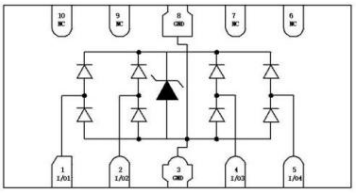
Ultra Low Capacitance Array for ESD Protection

Description

The SSCE3V321N7 provides a typical line to line capacitance of 0.3pF between I/O pins and low insertion loss up to 3.0GHz providing greater signal integrity making it ideally suited for HDMI applications, such as Digital TVs, DVD players, Computing, set-top boxes and MDDI applications in mobile computing devices.

It has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD(electrostatic discharge), CDE(Cable Discharge Events),and EFT (electrical fast transients).

PIN configuration



Top view

Marking

Feature

- 70W peak pulse power (t_P = 8/20μs)
- DFN2510-10L Package
- Working voltage: 3.3V
- Low clamping voltage
- Low capacitance
- RoHS compliant transient protection for high-speed data
- Complies with following standards:
  -IEC61000-4-2(ESD) ±20kV(air),
  -IEC61000-4-2(ESD) ±15kV(contact)

Applications

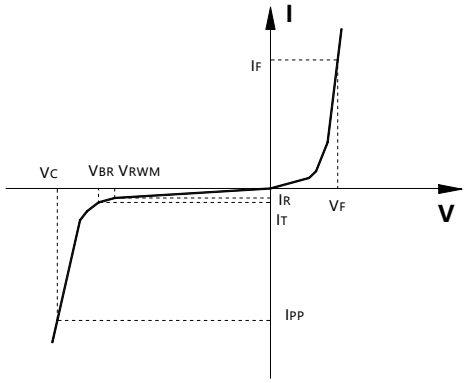
- DVI & HDMI Port Protection
- Serial and Parallel Ports
- Projection TV
- Notebooks, Desktops, Server
- USB 1.1/2.0/3.0/3.1/OTG

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

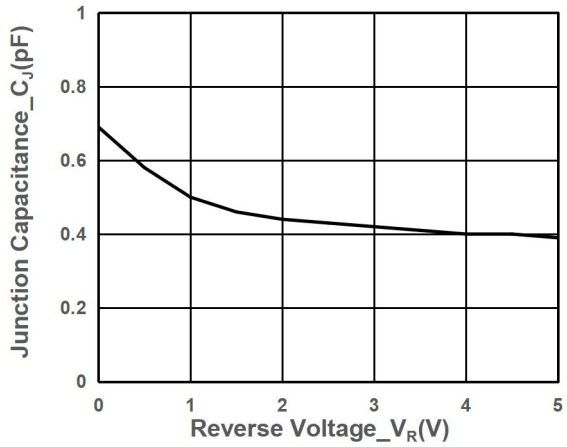
Electrical Characteristics @T_A=25℃

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}	Any I/O to GND			3.3	V
Breakdown Voltage	V_{BR}	I_T = 1mA Any I/O to GND	4.7		8.2	V
Reverse Leakage Current	I_R	V_{RWM} =3.3V			1	μA
Clamping Voltage	V_C	I_{PP} =1A, t_P = 8/20μs			7	V
Clamping Voltage	V_C	I_{PP}=8A, t_P = 8/20μs			10	V
ESD Clamping Voltage(Note1)	V_{CL-ESD}	IEC 61000-4-2+ 8kV(I_{TLP}=16A),contact mode,T=25℃,any I/O pin to GND		8.5		V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz, between I/O pins		0.3	0.4	pF
		V_R = 0V, f = 1MHz, any I/O pin to GND		0.45	0.8	pF

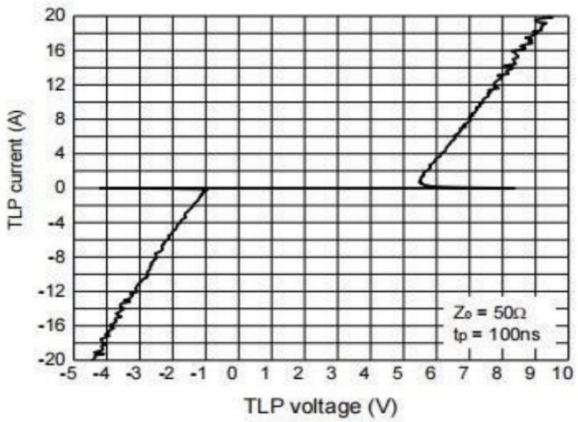
Note 1: ESD Clamping Voltage was measured by Transmission Line Pulsing (TLP) System.

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

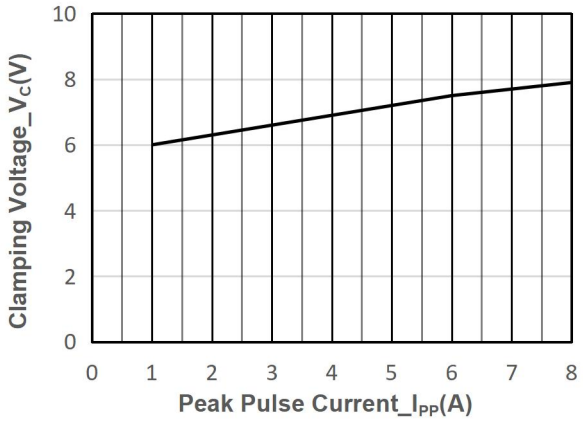
● Typical Performance Characteristics



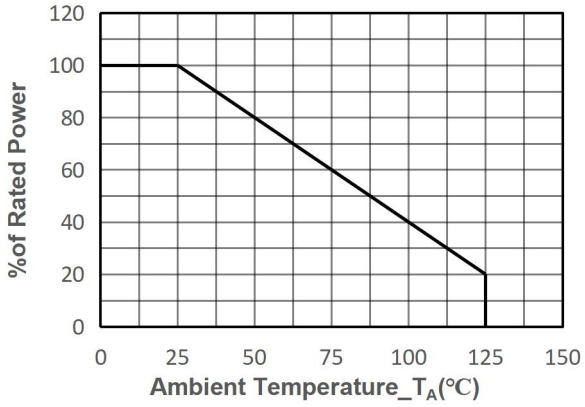
Junction Capacitance vs. Reverse Voltage



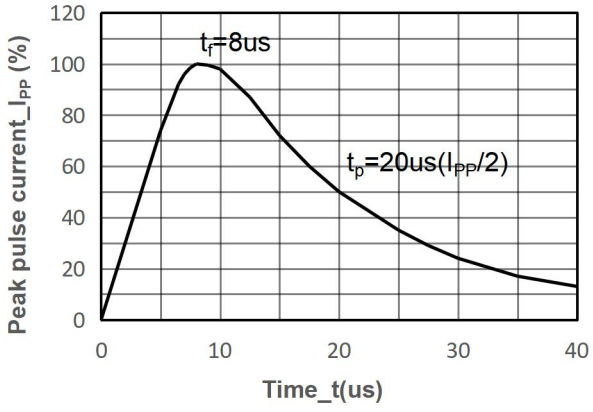
TLP IV Curve



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



8/20us Pulse Waveform

● Package Information

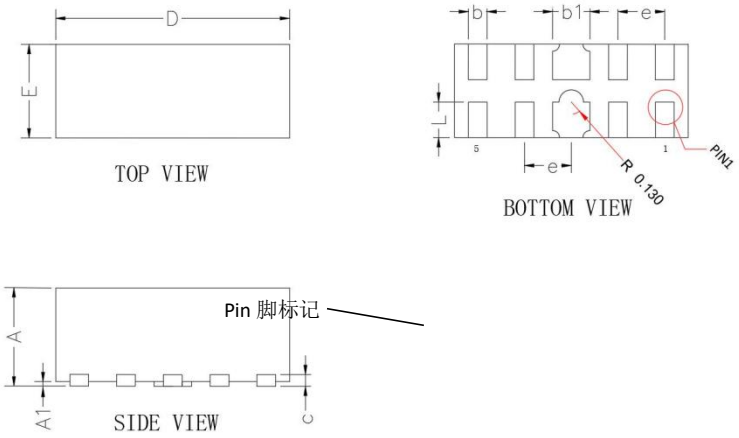
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE3V321N7	DFN2510-10L	3000	7 Inch

Mechanical Data

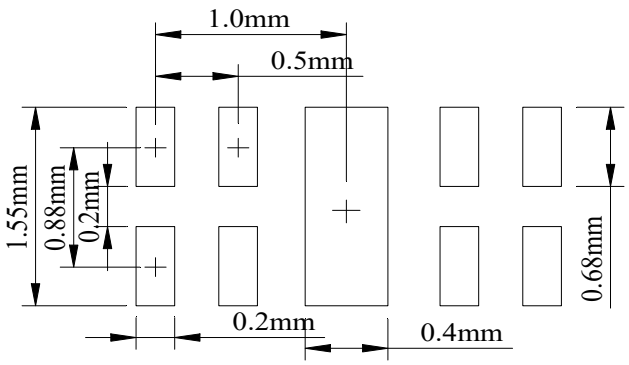
Case: DFN2510-10L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.45	0.60
A1	0.05REF	
b	0.15	0.25
b1	0.30	0.50
C	0.15REF	
D	2.40	2.60
E	0.90	1.10
e	0.50BSC	
L	0.30	0.45

Recommended Pad outline



DISCLAIMER

SSCSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. SSCSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.

OUR PRODUCT SPECIFICATIONS ARE ONLY VALID IF OBTAINED THROUGH THE COMPANY'S OFFICIAL WEBSITE, CRM SYSTEM, OR OUR SALES PERSONNEL CHANNELS. IF CHANGES OR SPECIAL VERSIONS ARE INVOLVED, THEY MUST BE STAMPED WITH A QUALITY SEAL AND MARKED WITH A SPECIAL VERSION NUMBER TO BE VALID.