



## SSCE5V011N7

Ultra Low Capacitance Array for ESD Protection

### ● Description

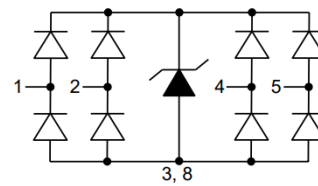
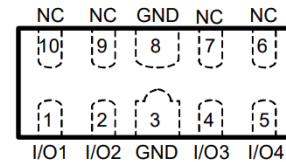
The SSCE5V011N7 provides a typical line to line capacitance of 0.2pF between I/O pins and low insertion loss up to 3GHz providing greater signal integrity making it ideally suited for HDMI applications, such as Digital TVS, DVD players, Computing, set-top boxes and MDDI applications in mobile computing 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).

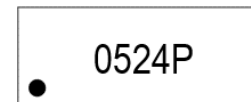
### ● Feature

- ◇ 45W peak pulse power ( $t_P = 8/20\mu s$ )
- ◇ DFN2510-10L Package
- ◇ Working voltage: 5V
- ◇ Low clamping voltage
- ◇ Low capacitance
- ◇ Low leakage current
- ◇ RoHS compliant
- ◇ Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 25kV$
    - Contact discharge:  $\pm 25kV$

### ● 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 and HDMI 2.0

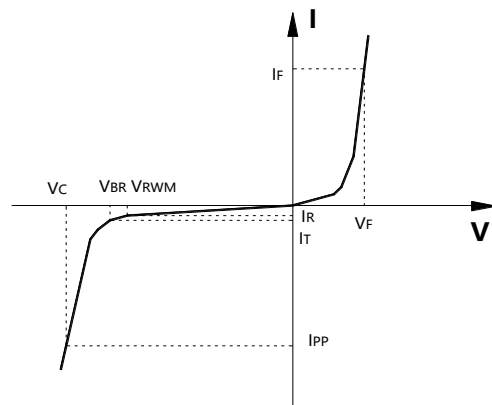
### ● Mechanical data

- ◇ Lead finish: 100% matte Sn(Tin)
- ◇ Mounting position: Any
- ◇ Qualified max reflow temperature: 260°C
- ◇ Device meets MSL 1 requirements
- ◇ Pure tin plating: 7 ~ 17  $\mu m$
- ◇ Pin flatness:  $\leq 3mil$



## ● 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 @ $T_A=25^\circ\text{C}$

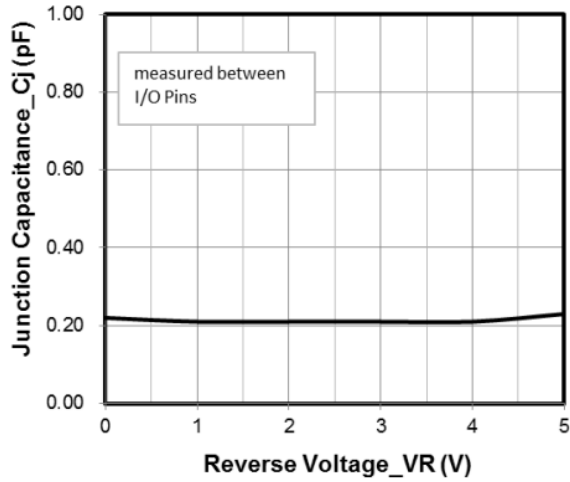
Parameter	Symbol	Value	Units
Peak Pulse Power ( $t_P = 8/20\mu\text{s}$ )	$P_{PP}$	45	W
ESD Rating per IEC61000-4-2:	Contact	25	kV
	Air	25	
Storage Temperature	$T_{STG}$	-55/+150	$^\circ\text{C}$
Operating Temperature	$T_J$	-55/+125	$^\circ\text{C}$

## ● Electrical Characteristics @ $T_A=25^\circ\text{C}$

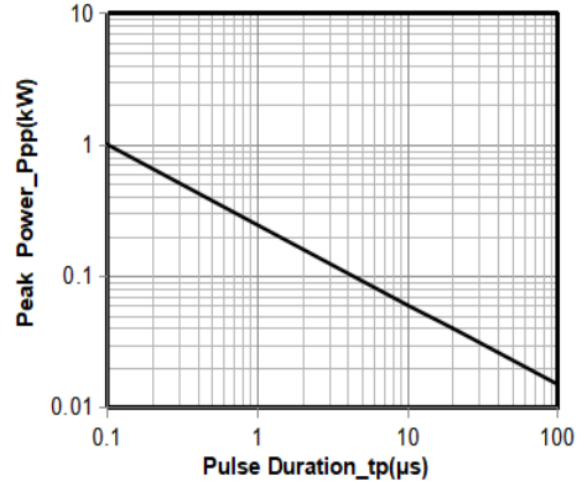
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$	Any I/O to GND			5	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$ , Any I/O to GND	6			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5\text{V}$			100	nA
Diode Forward Voltage	$V_F$	$I_F = 15\text{mA}$		0.85	1.2	V
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ , $t_P = 8/20\mu\text{s}$		8.7		V
Clamping Voltage	$V_C$	$I_{PP} = 3.4\text{A}$ , $t_P = 8/20\mu\text{s}$		11.7	13	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , between I/O pins		0.2	0.3	pF
		$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , any I/O pin to GND		0.3	0.5	pF



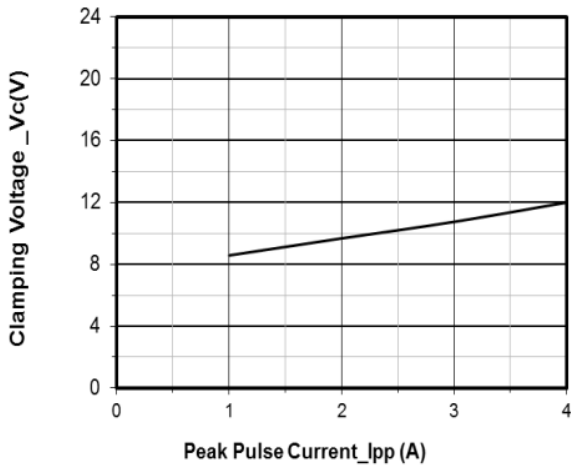
## ● Typical Performance Characteristics



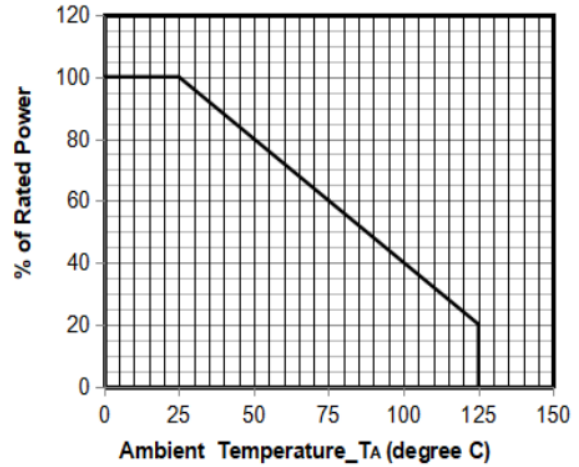
Junction Capacitance vs. Reverse Voltage



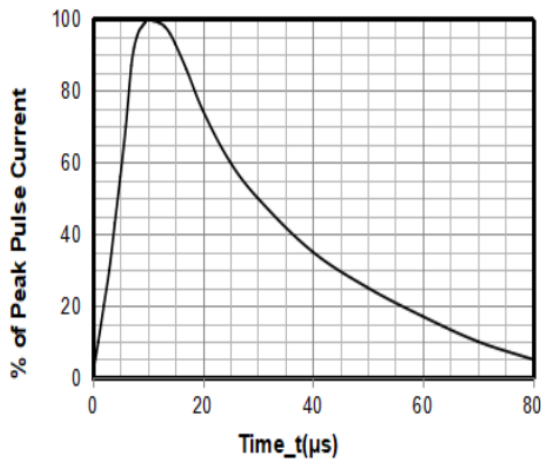
Peak Pulse Power vs. Pulse Time



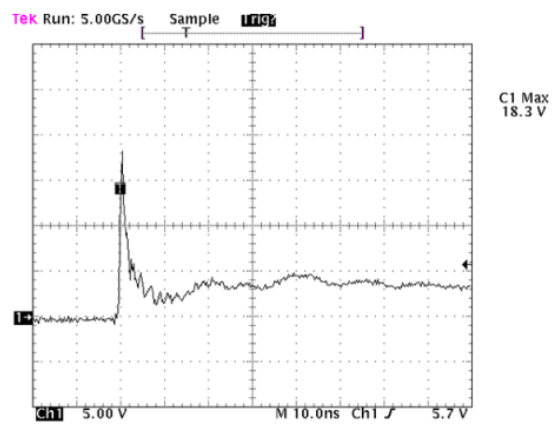
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



Note: Data is taken with a 10x attenuator  
Contact discharge current waveform  
per IEC61000-4-2



## ● Package Information

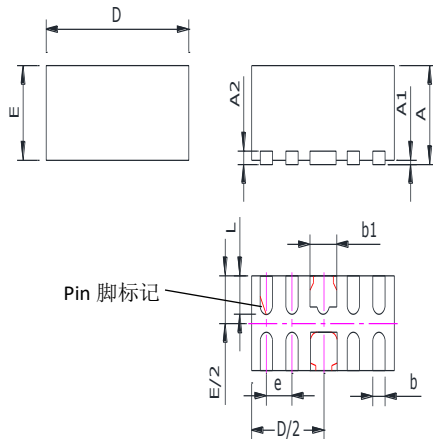
### Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE5V011N7	DFN2510-10L	3000	7 Inch

### Mechanical Data

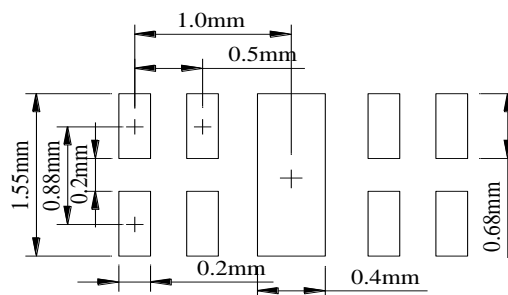
Case: DFN2510-10L

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





- **History Version**

V3.0	Product datasheet	2020-07-21
V3.1	1.Add marking Icon 2.Update typical performance characteristics	2022-04-26
V3.2	Update Reverse Leakage Current	2023-04-17

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