



SSCE5V021N7

Ultra Low Capacitance Array for ESD Protection

● Description

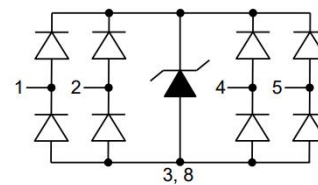
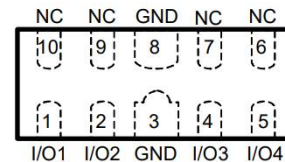
The SSCE5V021N7 is an ultra low capacitance TVS array, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines.

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.

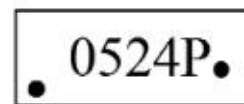
● Feature

- ✧ 70W peak pulse power ($t_p = 8/20\mu s$)
- ✧ 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

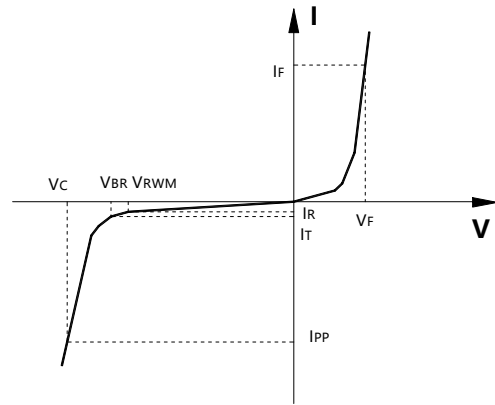
● Mechanical data

- ✧ Lead finish:100% matte Sn(Tin)
- ✧ Mounting position: Any
- ✧ Qualified max reflow temperature:260°C
- ✧ Device meets MSL 1 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°C

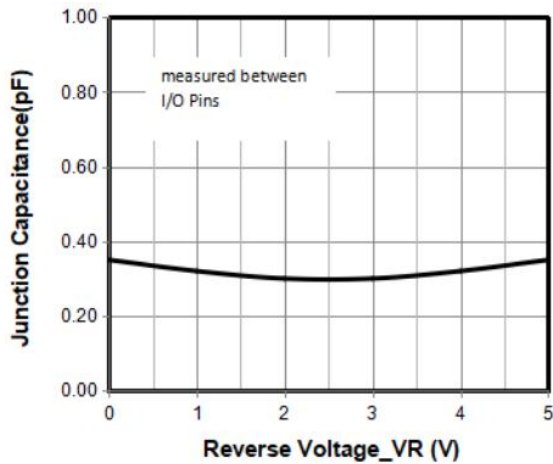
| Parameter | Symbol | Value | Unit |
|------------------------------|-----------|----------|------|
| Peak Pulse Power (8/20μs) | P_{PP} | 70 | W |
| Peak Pulse Current (8/20μs) | I_{PP} | 5 | A |
| ESD Rating per IEC61000-4-2: | Contact | 25 | KV |
| | | Air | |
| Storage Temperature | T_{STG} | -55/+150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

● Electrical Characteristics @TA=25°C

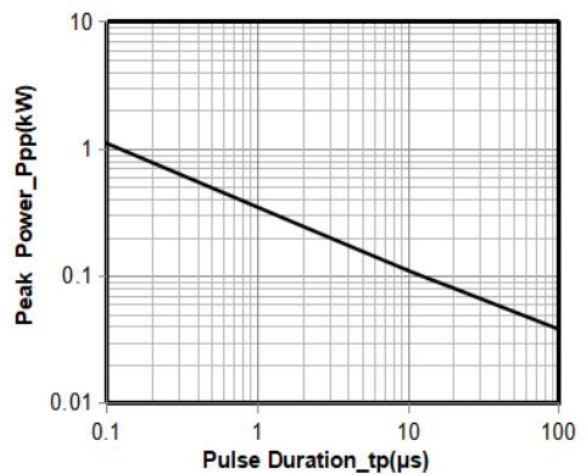
| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|------------------------------|-----------|---|------|------|------|------|
| Peak Reverse Working Voltage | V_{RWM} | Any I/O to GND | | | 5 | V |
| Breakdown Voltage | V_{BR} | $I_T = 1mA$ Any I/O to GND | 6 | | | V |
| Reverse Leakage 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 |
| | | $V_R = 0V, f = 1MHz,$ any I/O pin to GND | | 0.6 | 0.8 | pF |



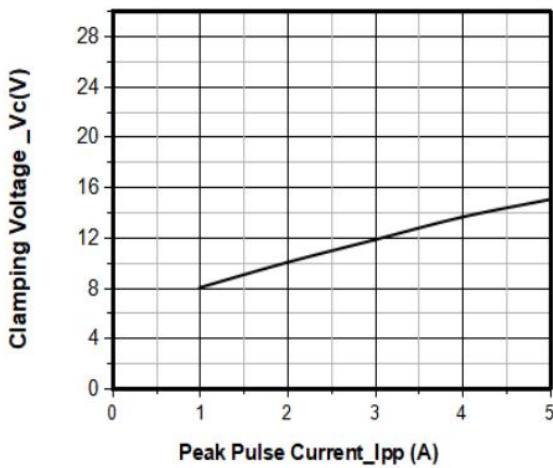
● Typical Performance Characteristics



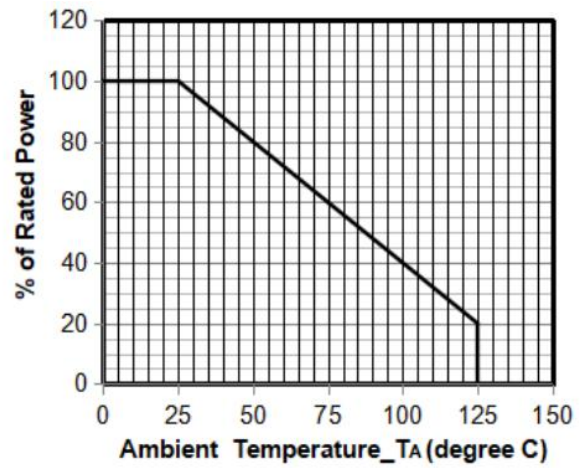
Junction Capacitance vs. Reverse Voltage



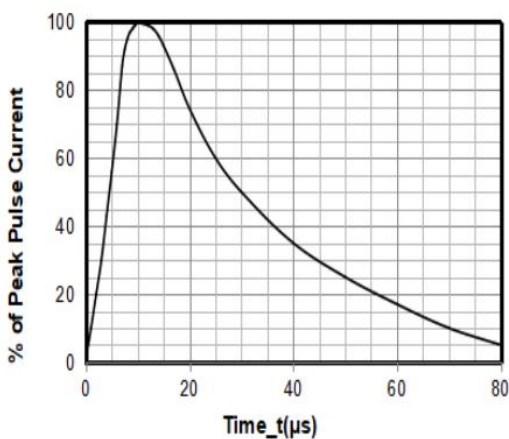
Peak Pulse Power vs. Pulse Time



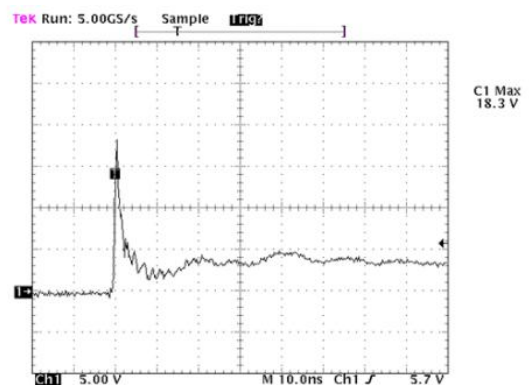
Clamping Voltage vs. Peak Pulse Current



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

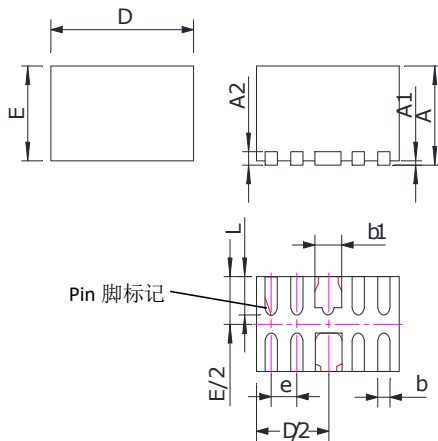
Ordering Information

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

Mechanical Data

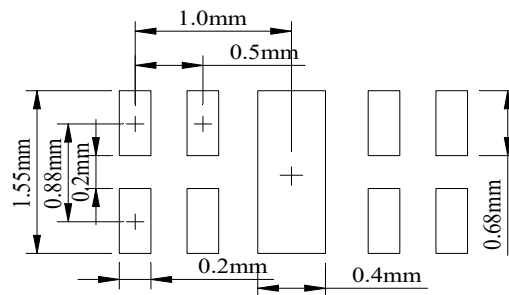
Case:DFN2510

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





- **History Version**

| | | |
|------|---|------------|
| V1.0 | Product datasheet | 2021-08-02 |
| V1.1 | 1.Add marking Icon 2. Update typical performance characteristics | 2022-04-26 |

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