



## SSCE5V032N1

Ultra-low Capacitance Bidirectional Micro Packaged TVS Diodes for ESD Protection

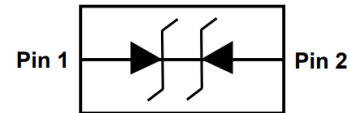
### ● Description

The SSCE5V032N1 is a bi-directional TVS diode, 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 SSCE5V032N1 has an ultra-low capacitance with a typical value at 0.2pF, and complies with the IEC 61000-4-2 (ESD) with  $\pm 20\text{kV}$  air and  $\pm 20\text{kV}$  contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package..Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, USB 3.0 super speed, VGA, DVI, HDMI,SDI and other high speed line applications.

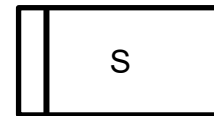
### ● Feature

- ✧ 100W peak pulse power ( $t_P = 8/20\mu\text{s}$ )
- ✧ DFN1006-2L Package
- ✧ Working voltage: 5V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ RoHS compliant transient protection for high speed data lines to IEC61000-4-2(ESD) $\pm 20\text{kV}$ (air), $\pm 20\text{kV}$ (contact)

### ● PIN configuration



**Top view**



**Marking**

### ● Applications

- ✧ DVI & HDMI Port Protection
- ✧ USB 2.0 and USB 3.0
- ✧ SATA and eSATA
- ✧ Serial and Parallel Ports
- ✧ Projection TV
- ✧ Notebooks, Desktops, Servers

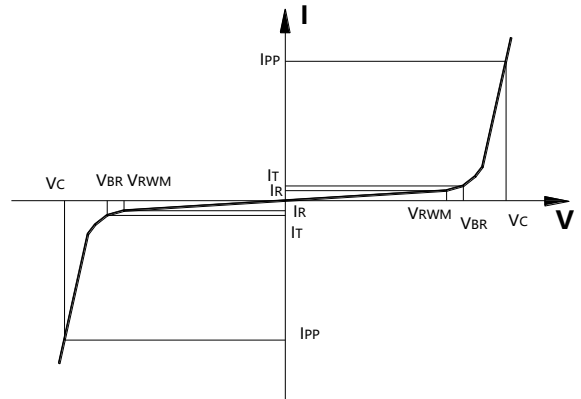
### ● Mechanical data

- ✧ 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  $\mu\text{m}$
- ✧ 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

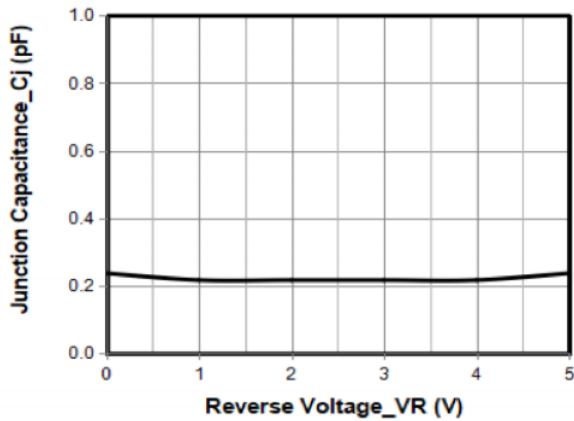
| Parameter                    | Symbol    | Value    | Unit |
|------------------------------|-----------|----------|------|
| Peak Pulse Power (8/20μs)    | $P_{PP}$  | 100      | W    |
| Peak Pulse Current (8/20μs)  | $I_{PP}$  | 4        | A    |
| ESD Rating per IEC61000-4-2: | Contact   | 20 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

## ● Electrical Characteristics @TA=25°C

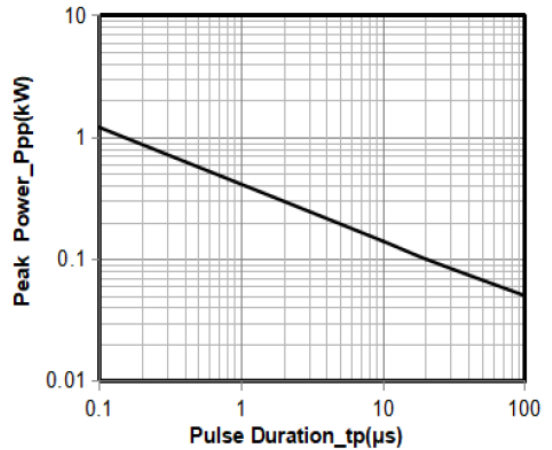
| Parameter                    | Symbol    | Conditions                     | Min. | Typ. | Max. | Unit |
|------------------------------|-----------|--------------------------------|------|------|------|------|
| Peak Reverse Working Voltage | $V_{RWM}$ |                                |      |      | 5    | V    |
| Breakdown Voltage            | $V_{BR}$  | $I_T = 1mA$                    | 6    |      | 9    | V    |
| Reverse Leakage Current      | $I_R$     | $V_{RWM} = 5V$                 |      |      | 1    | μA   |
| Clamping Voltage             | $V_C$     | $I_{PP} = 1A, t_P = 8/20\mu s$ |      | 12   |      | V    |
| Clamping Voltage             | $V_C$     | $I_{PP} = 4A, t_P = 8/20\mu s$ |      |      | 25   | V    |
| Junction Capacitance         | $C_J$     | $V_R = 0V, f = 1MHz$           |      | 0.2  | 0.4  | pF   |



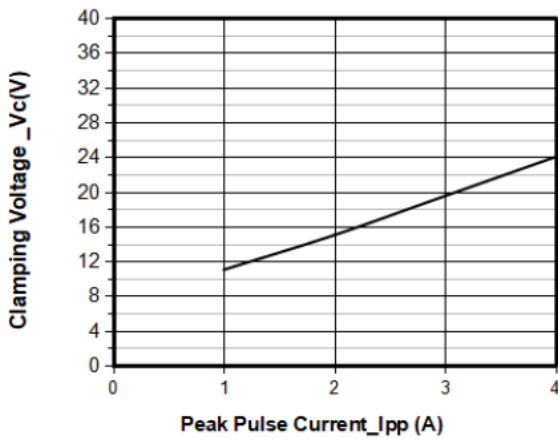
● Typical Performance Characteristics



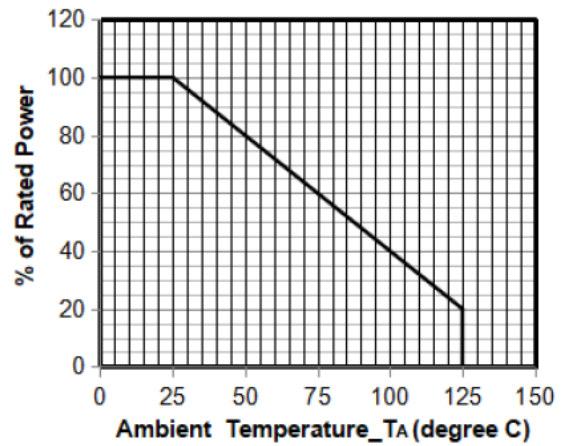
Junction Capacitance vs. Reverse Voltage



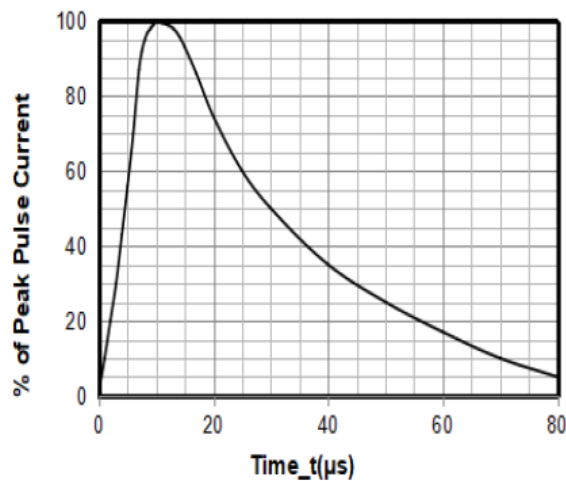
Peak Pulse Power vs. Pulse Time



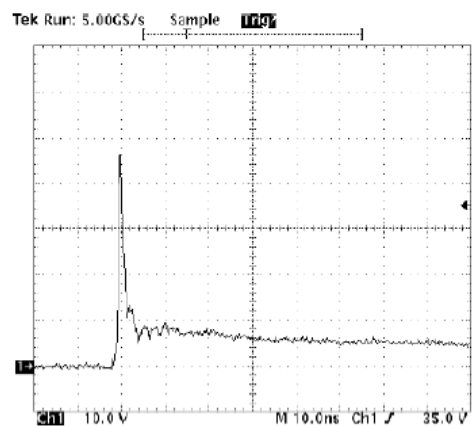
Clamping Voltage vs. Peak Pulse Current



Power Derating 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

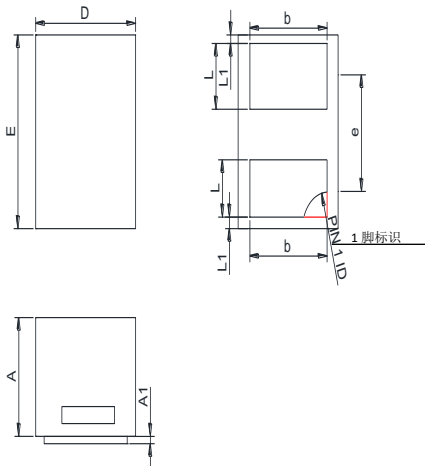
### Ordering Information

| Device      | Package    | Qty per Reel | Reel Size |
|-------------|------------|--------------|-----------|
| SSCE5V032N1 | DFN1006-2L | 10000        | 7 Inch    |

### Mechanical Data

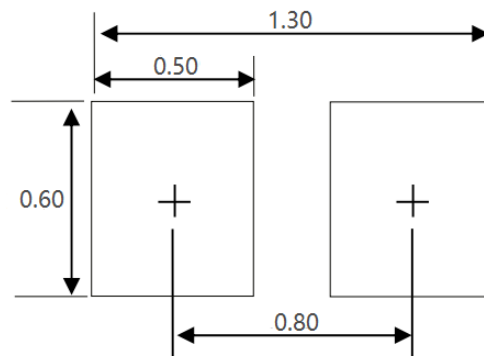
Case:DFN1006-2L

Case Material: Molded Plastic. UL Flammability



| DIM | Millimeters |      |
|-----|-------------|------|
|     | Min         | Max  |
| A   | 0.45        | 0.55 |
| A1  | 0.00        | 0.05 |
| D   | 0.55        | 0.65 |
| E   | 0.95        | 1.05 |
| b   | 0.45        | 0.60 |
| e   | 0.65TYP     |      |
| L   | 0.2         | 0.3  |
| L1  | 0.05REF     |      |

### Recommended Pad outline



Unit:mm



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