



SSCT4V511L2

High Power TVS Diode

● Description

The SSCT4V511L2 is a high power TVS, 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 lines. The SSCT4V511L2 complies with the IEC 610002 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a 3pin DFN2020-3L package. Each device will protect one line. The combination of small size, and high surge capability makes them ideal for use in applications such as cellular phones, LCD displays, USB, and multimedia card interfaces.

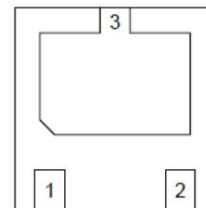
● Feature

- ✧ 5600W peak pulse power ($T_P = 8/20\mu\text{s}$)
- ✧ DFN2020-3L Package
- ✧ Working voltage: 4.5V
- ✧ Low clamping voltage
- ✧ Low leakage current
- ✧ RoHS compliant
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Surge) 280A (8/20 μs)

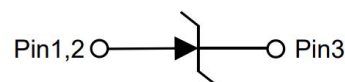
● Mechanical data

- ✧ Lead finish: 100% matte Sn (Tin)
- ✧ Mounting position: Any
- ✧ Qualified max reflow temperature: 260°C
- ✧ Device meets MSL 3 requirements
- ✧ Pure tin plating: 7 ~ 17 μm

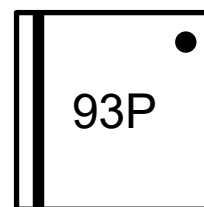
● PIN configuration



DFN2020-3L



Circuit Diagram



Marking (Top View)

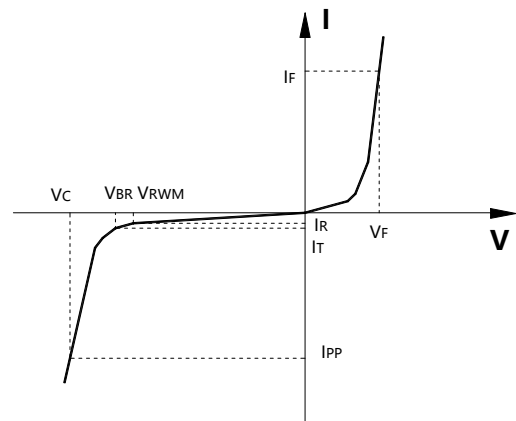
● Applications

- ✧ DIV & HDMI Port Protection
- ✧ Notebooks, desktops, and servers
- ✧ Projection TV
- ✧ USB 1.1/2.0/4.0/OTG



● 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 ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

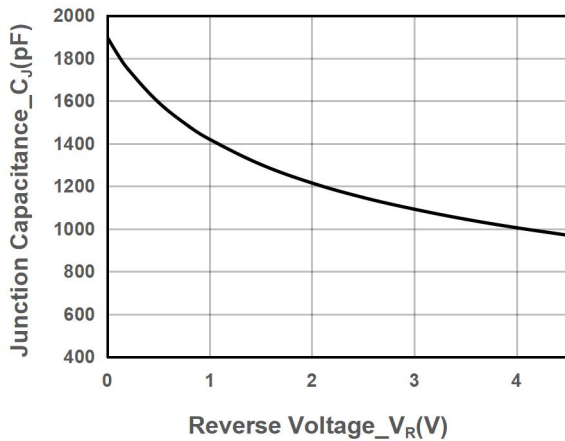
| Parameter | Symbol | Value | Unit |
|--|-----------|----------|--------------------|
| Peak Pulse Power (8/20 μs) | P_{PP} | 5600 | W |
| Peak Pulse Current (8/20 μs) | I_{PP} | 280 | A |
| ESD Rating per IEC61000-4-2: | | | |
| Contact | V_{ESD} | 30 | kV |
| Air | | 30 | |
| Storage Temperature | T_{STG} | -55/+150 | $^{\circ}\text{C}$ |
| Operating Temperature | T_J | -55/+125 | $^{\circ}\text{C}$ |

● Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

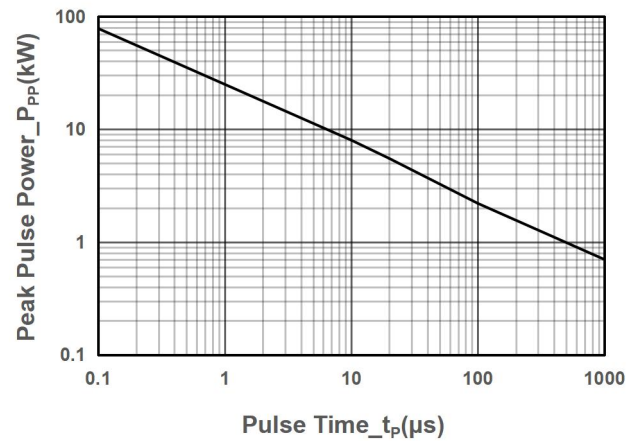
| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|------------------------------|-----------|--|------|------|------|---------------|
| Peak Reverse Working Voltage | V_{RWM} | | | | 4.5 | V |
| Breakdown Voltage | V_{BR} | $I_T = 1\text{mA}$ | 4.8 | | | V |
| Reverse Leakage Current | I_R | $V_{RWM} = 4.5\text{V}$ | | | 1.0 | μA |
| Clamping Voltage | V_C | $I_{PP} = 50\text{A}$, $t_P = 8/20\mu\text{s}$ | | | 10 | V |
| Clamping Voltage | V_C | $I_{PP} = 280\text{A}$, $t_P = 8/20\mu\text{s}$ | | 16 | 20 | V |
| Junction Capacitance | C_J | $V_R = 0\text{V}$, $f = 1\text{MHz}$ | | 1900 | | pF |



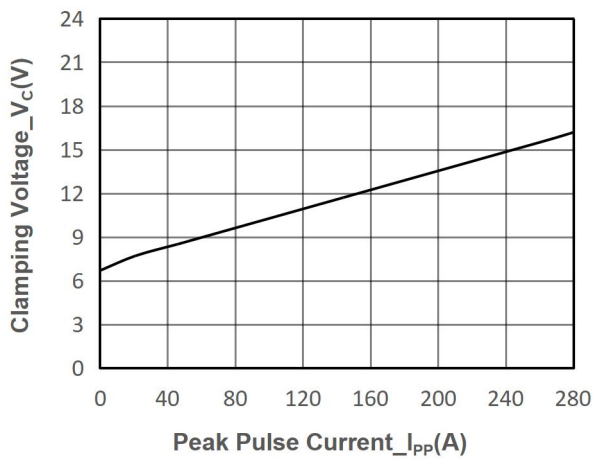
● Typical Performance Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)



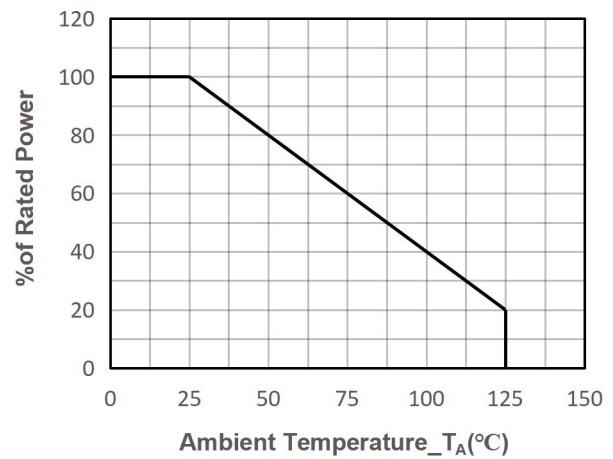
Junction Capacitance vs. Reverse Voltage



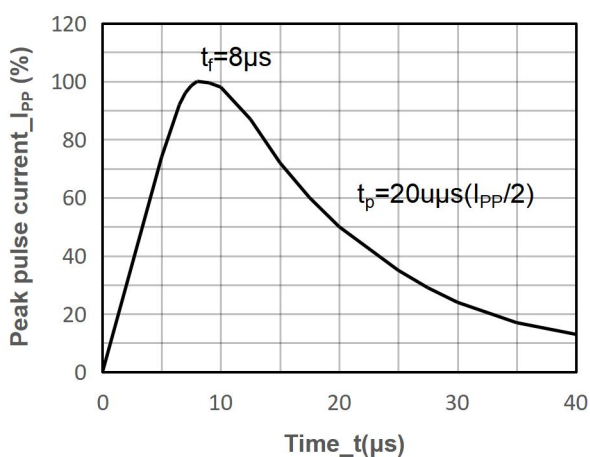
Peak Pulse Power vs. Pulse Time



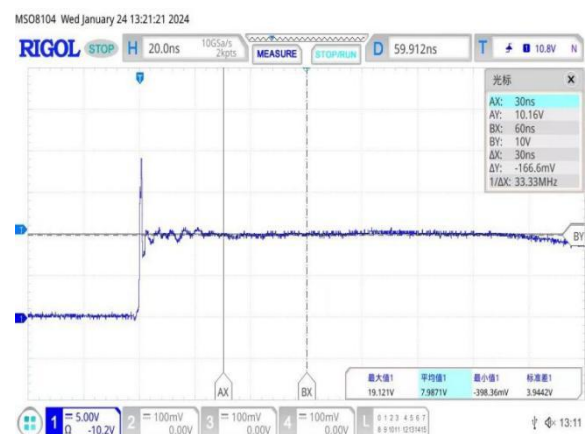
Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



8/20 μs Pulse Waveform



Note: Data is taken with a 10x attenuator
ESD Clamping Voltage 8kV contact per
EC61000-4-2



● Package Information

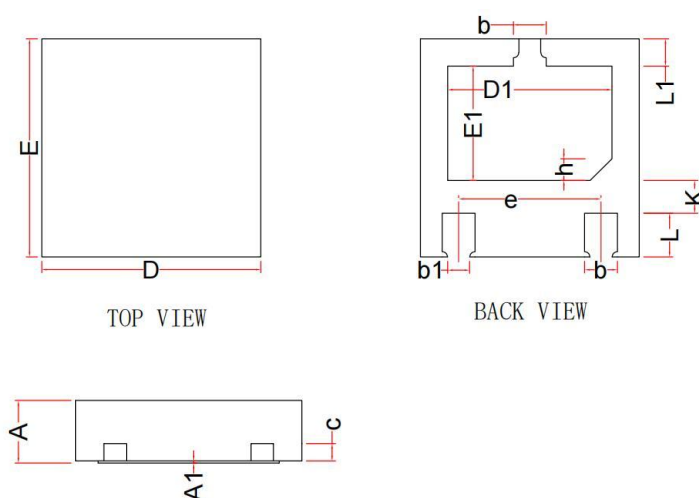
Ordering Information

| Device | Package | Qty per Reel | Reel Size |
|-------------|------------|--------------|-----------|
| SSCT4V511L2 | DFN2020-3L | 3000 | 7 Inch |

Mechanical Data

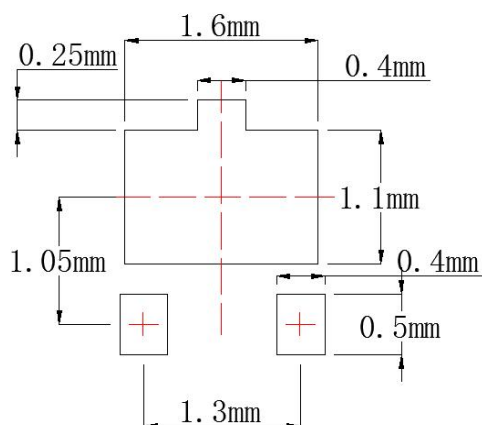
Case: DFN2020-3L

Case Material: Molded Plastic. UL Flammability



| DIM | Millimeters | | |
|-----|-------------|------|------|
| | Min. | Nom. | Max. |
| A | 0.40 | 0.55 | 0.60 |
| A1 | 0.00 | 0.02 | 0.05 |
| b | 0.25 | 0.30 | 0.35 |
| b1 | 0.2Ref | | |
| c | 0.2Ref | | |
| D | 1.90 | 2.00 | 2.10 |
| D1 | 1.35 | 1.50 | 1.60 |
| e | 1.30BSC | | |
| E | 1.90 | 2.00 | 2.10 |
| E1 | 0.95 | 1.05 | 1.15 |
| L | 0.30 | 0.40 | 0.45 |
| L1 | 0.20 | 0.25 | 0.35 |
| h | 0.2Ref | | |
| K | 0.20 | 0.30 | 0.40 |

Recommended Pad outline





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