



# SSCT4V512N1

## SSCT4V512N1

1-Line Bi-directional TVS Diode

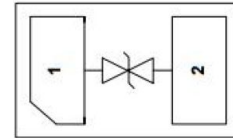
### ● Description

The SSCT4V512N1 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 data and power line. The SSCT4V512N1 complies with the IEC 61000-4-2 (ESD) with  $\pm 30$  KV air and  $\pm 30$  KV contact discharge. It is assembled into an ultra-small 1.0x0.6x0.5mm lead-free DFN package. The small size and high ESD surge protection make SSCT4V512N1 an ideal choice to protect cell phone, digital cameras, and many other portable applications.

### ● Features

- ◇ Ultra small package: 1.0x0.6x0.5mm
- ◇ Protects one data or power line
- ◇ Working voltage: 4.5V
- ◇ 2-pin leadless package
- ◇ Complies with following standards:
  - IEC61000-4-2(ESD)
    - Air discharge: $\pm 30$ KV
    - Contact discharge: $\pm 30$ KV
  - IEC61000-4-5(Lightning) 40A(8/20 $\mu$ s)
- ◇ RoHS Compliant

### ● PIN configuration



Top view



Marking

### ● Applications

- ◇ Cellular Handsets and Accessories
- ◇ Notebooks and Handhelds
- ◇ Portable Instrumentation
- ◇ Digital Cameras
- ◇ Peripherals
- ◇ Audio Players
- ◇ Keypads, Side Keys, USB, LCD Displays

### ● Mechanical Characteristics

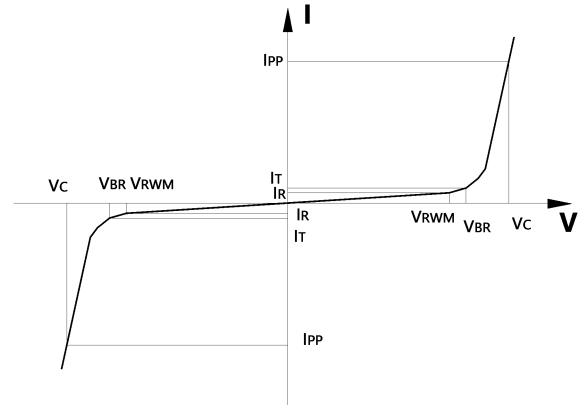
- ◇ Package: DFN1006-2 (1.0x0.6x0.5mm)
- ◇ Lead Finish: NiPdAu
- ◇ Case Material: "Green" Molding Compound.
- ◇ UL Flammability Classification Rating 94V-0
- ◇ Moisture Sensitivity: Level 3 per J-STD-020



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## ● 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 @ $I_{PP}$
$P_{PPP}$	Peak Pulse Power
$C$	Junction Capacitance



## ● Absolute maximum rating @ $T_A=25^{\circ}\text{C}$

Symbol	Parameter	Value	Units
$P_{PPP}$	Peak Pulse Power (8/20 $\mu\text{s}$ )	500	W
$I_{PP}$	Peak Pulse Current (8/20 $\mu\text{s}$ )	40	A
$V_{ESD}$	ESD Rating per IEC61000-4-2:Contact Air	$\pm 30$ $\pm 30$	KV
$T_{STG}$	Storage Temperature	-55/+150	$^{\circ}\text{C}$
$T_J$	Operating Temperature	-55/+125	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	$V_{RWM}$				4.5	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	4.8			V
Reverse Leakage Current	$I_R$	$V_{RWM} = 4.5\text{V}$			0.1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{A}$ , $t_P = 8/20\mu\text{s}$		6		V
Clamping Voltage	$V_C$	$I_{PP} = 40\text{A}$ , $t_P = 8/20\mu\text{s}$		8.5	12	V
Junction Capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$		105	125	pF



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

Figure 1: Peak Pulse Power Vs Pulse Time

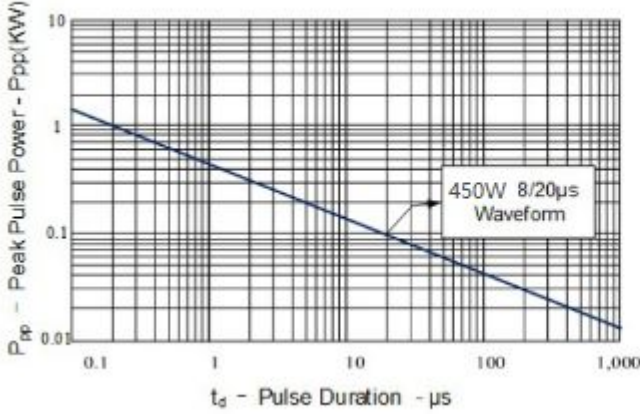


Figure 2: Power Derating Curve

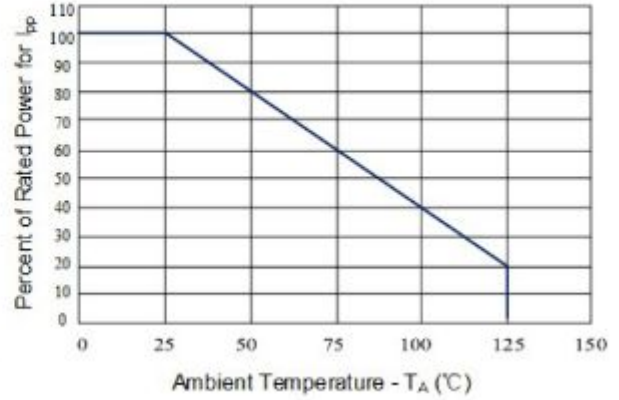


Figure 3: Clamping Voltage vs. Peak Pulse Current

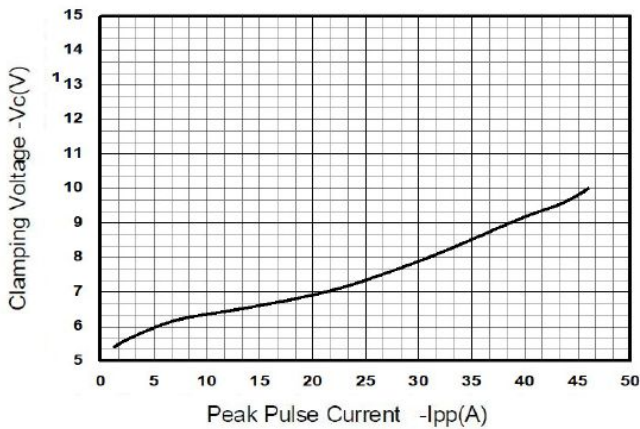


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

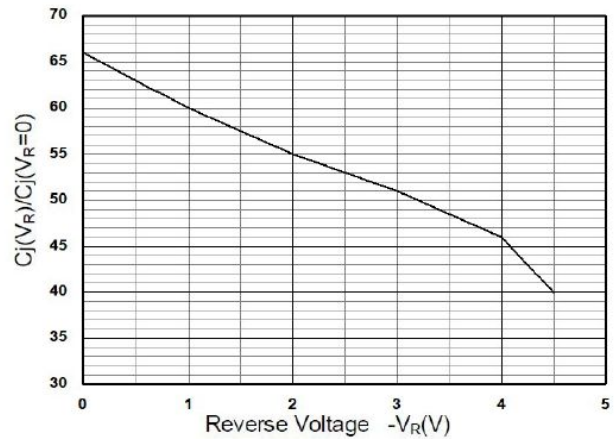


Figure 5: Pulse Waveform

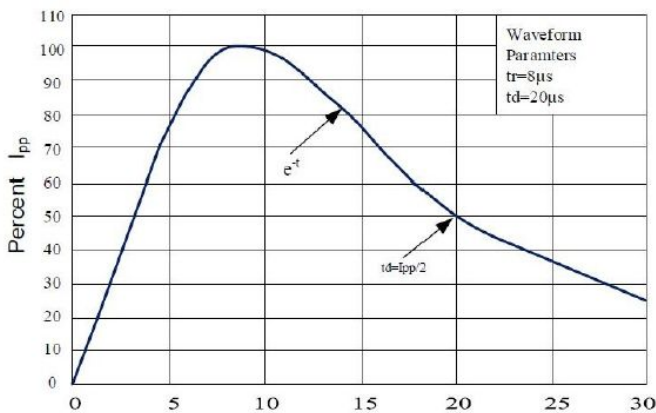
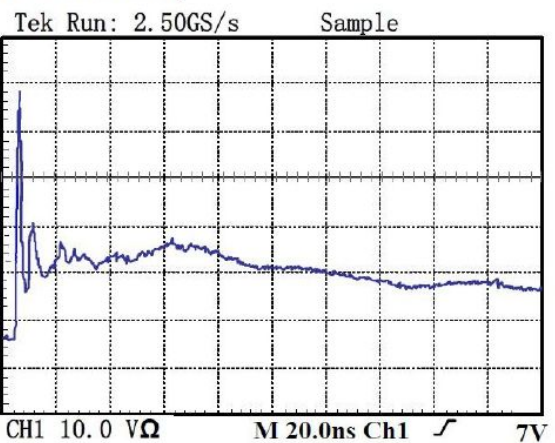


Figure 6: ESD Clamping( 8kV Contact per IEC 61000-4-2)





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- **Package Information**

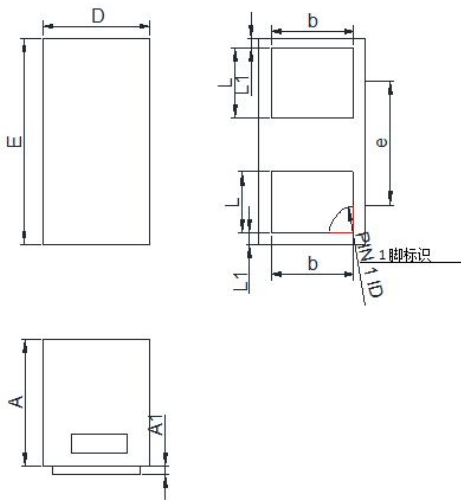
### Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT4V512N1	DFN1006-2L	10000	7 Inch

### Mechanical Data

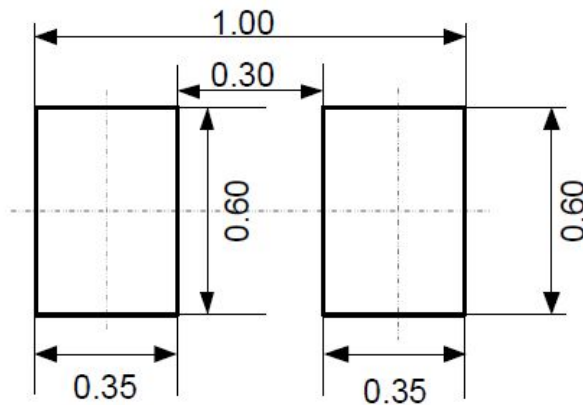
Case: DFN1006-2L

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	

### Suggested Land Pattern





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