



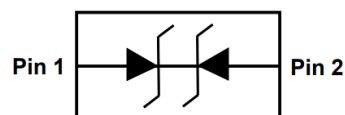
SSCT4V512N1

1-Line Bidirectional Micro Packaged TVS Diodes for ESD Protection

● 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 ± 30 kV air and ± 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.

● PIN configuration



Top view



Marking

● Feature

- ✧ 500W peak pulse power ($t_P = 8/20\mu s$)
- ✧ DFN1006-2L Package
- ✧ Working voltage: 4.5V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ± 30 kV
 - Contact discharge: ± 30 kV
 - IEC61000-4-5 (Lightning) 40A (8/20 μs)
- ✧ RoHS compliant

● Applications

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

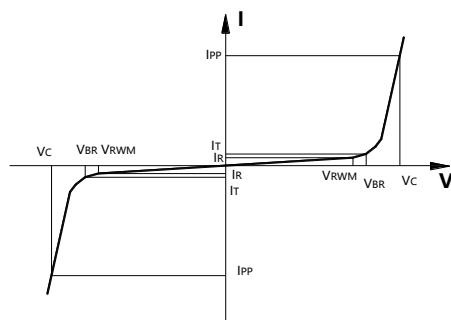
● Mechanical data

- ✧ Package: DFN1006-2L (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



● 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



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

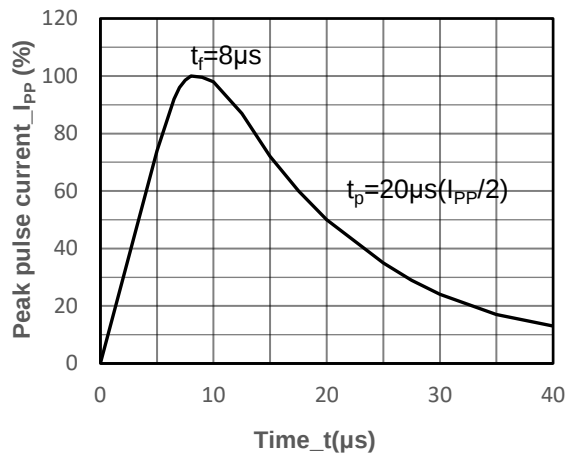
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P_{PP}	500	W
Peak Pulse Current (8/20 μs)	I_{PP}	40	A
ESD Rating per IEC61000-4-2: Contact Air	V_{ESD}	30 30	kV
Storage Temperature	T_{STG}	-55/+150	$^{\circ}\text{C}$
Operating Temperature	T_J	-55/+125	$^{\circ}\text{C}$

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

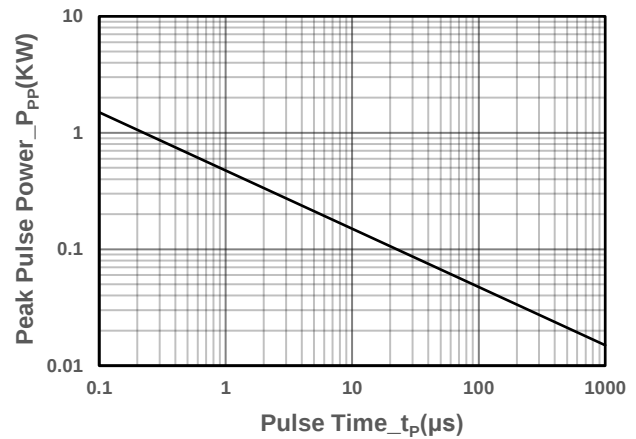
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				4.5	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	4.8		6.2	V
Reverse Leakage Current	I_R	$V_{RWM} = 4.5\text{V}$			0.1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$, $t_P = 8/20\mu\text{s}$		6		V
Clamping Voltage	V_C	$I_{PP} = 40\text{A}$, $t_P = 8/20\mu\text{s}$		8.5	12	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		105	125	pF



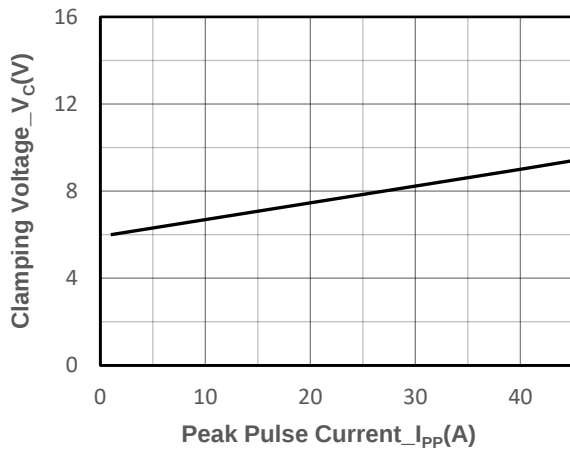
● Typical Performance Characteristics



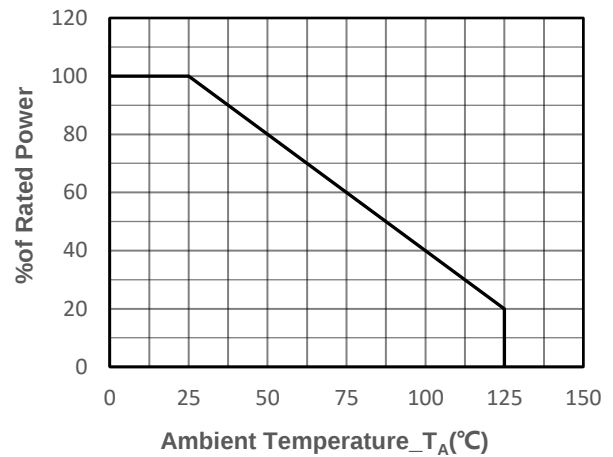
8/20 μ s Pulse Waveform



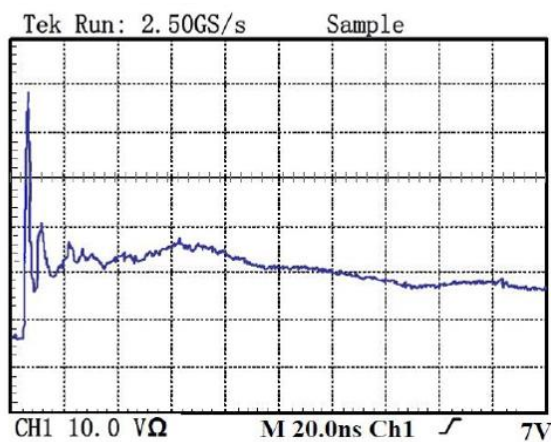
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



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



● Package Information

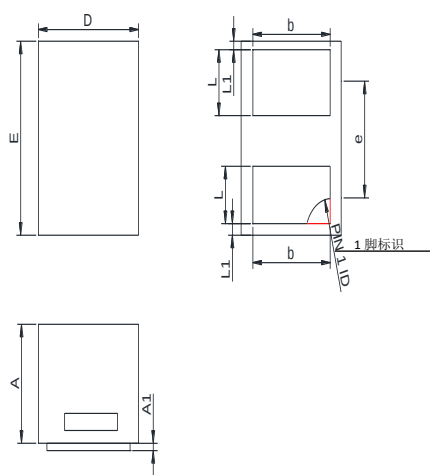
Ordering Information

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

Mechanical Data

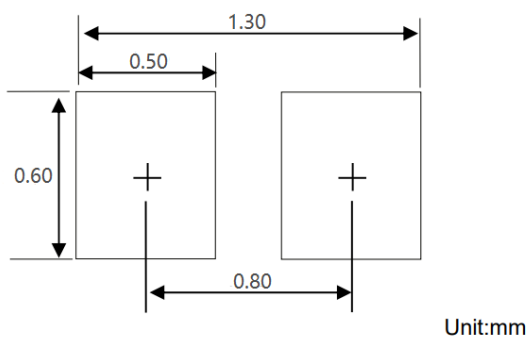
Case: DFN1006-2L

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	

Recommended Pad outline





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