SSCT12V32N1

1-Line Bi-directional TVS Diodes for ESD Protection

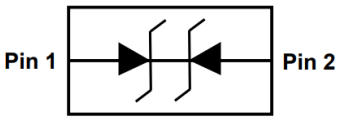
Description

The SSCT12V32N1 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 SSCT12V32N1 complies with the IEC 61000-4-2 (ESD) standard with ±30kV air and ± 30kV 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 SSCT12V32N1 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

PIN configuration

DFN1006-2L (Bottom View)



Circuit Diagram

Feature

- 1260W peak pulse power (t_P = 8/20μs)
- DFN1006-2L Package
- Working voltage: 12V
- Low clamping voltage
- Low capacitance
- Low leakage current
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC61000-4-5 (Lightning) 35A (8/20μs)
- RoHS compliant

Marking

Mechanical data

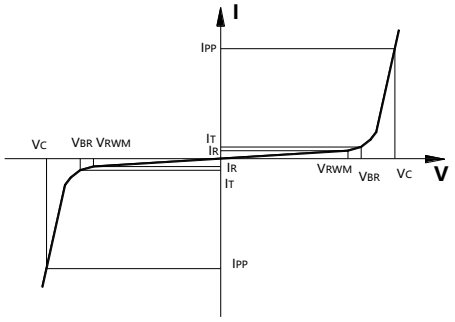
- Lead finish:100% matte Sn (Tin)
- Case Material: “Green” Molding Compound
- Qualified max reflow temperature:260℃
- Device meets MSL 3 requirements
- Pure tin plating: 7 ~ 17 um
- Pin flatness: ≤3mil

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals, Audio Players, Industrial Equipment

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



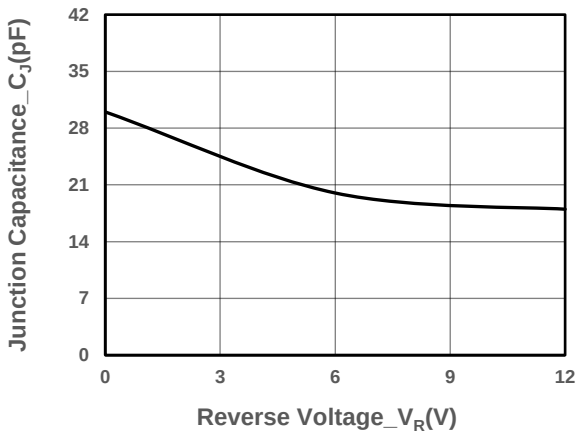
Absolute maximum rating @T_A=25℃

Parameter	Symbol	Value	Unit
Peak Pulse Power（8/20μs）	P_{PP}	1260	W
Peak Pulse Current（8/20μs）	I_{PP}	35	A
ESD Rating per IEC61000-4-2： Contact Air	V_{ESD}	30 30	kV
Storage Temperature	T_{STG}	-55/+150	℃
Operating Temperature	T_J	-55/+125	℃

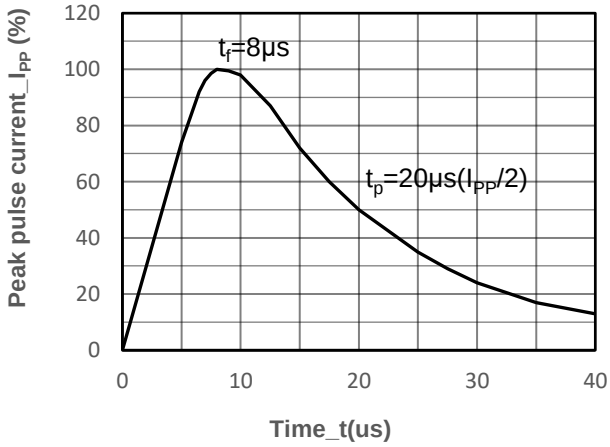
Electrical Characteristics @T_A=25℃

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				12	V
Breakdown Voltage	V_{BR}	I_T = 1mA	13.3		16.5	V
Reverse Leakage Current	I_R	V_{RWM} = 12V			0.2	μA
Clamping Voltage	V_C	I_{PP} = 1A, t_P = 8/20μs			15.5	V
Clamping Voltage	V_C	I_{PP} = 15A, t_P = 8/20μs			25	V
Clamping Voltage	V_C	I_{PP} = 35A, t_P = 8/20μs			36	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		30	40	pF

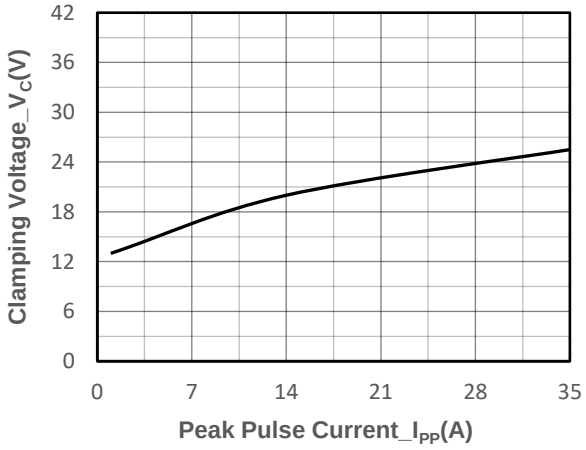
Typical Performance Characteristics



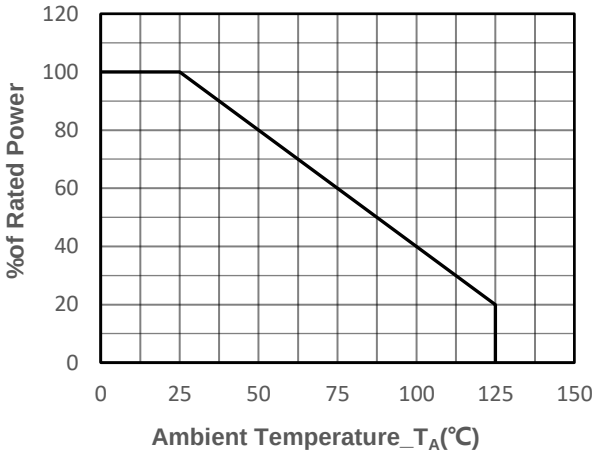
Junction Capacitance vs. Reverse Voltage



8/20μs Pulse Waveform



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature

● Package Information

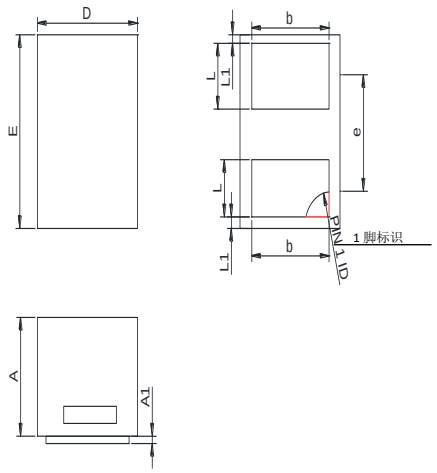
✧ Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCT12V32N1	DFN1006-2L	10000	7 Inch

✧ Mechanical Data

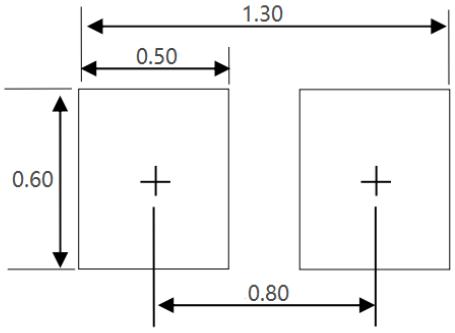
Case: DFN1006-2L

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

DISCLAIMER

AFSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. AFSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G,. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.