SSCE5V042N1

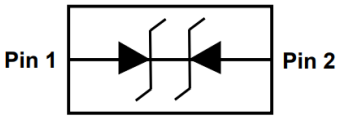
1-line Bidirectional Micro Packaged TVS Diodes for ESD Protection

Description

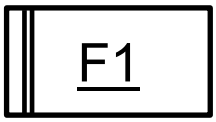
The SSCE5V042N1 is designed with Punch-Through process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. The small size and high ESD surge protection make SSCE5V042N1 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications. It gives designer the flexibility to protect one bi-directional line in applications where arrays are not practical.

PIN configuration

DFN1006-2L (Bottom View)



Circuit Diagram



Marking

Feature

- 100W peak pulse power (t_P = 8/20μs)
- DFN1006-2L Package
- Working voltage: 5V
- Low clamping voltage
- Low capacitance
- Low leakage current
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±25kV
    Contact discharge: ±25kV
  - IEC61000-4-5 (Lightning) 8A (8/20μs)

Applications

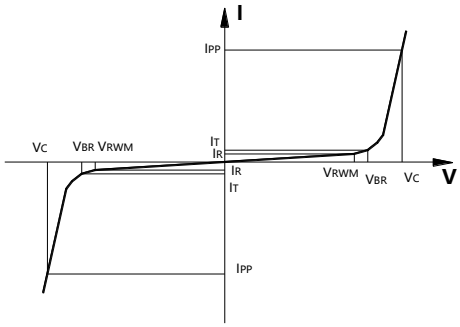
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

Mechanical data

- Package: DFN1006-2L(1.0×0.6×0.5mm)
- Lead finish: 100% matte Sn (Tin)
- Device meets MSL 3 requirements
- Case Material: “Green” Molding Compound
- RoHS Compliant
- Pure tin plating:7~17um
- Pin flatness：≤3mil

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



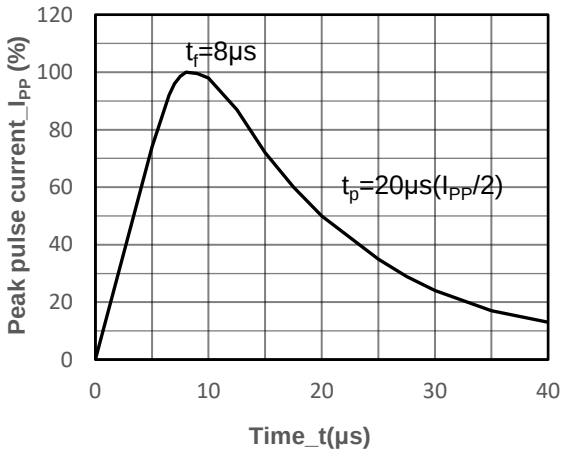
Absolute maximum rating @T_A=25℃

Parameter	Symbol	Value	Unit
Peak Pulse Power（8/20μs）	P_{PP}	100	W
Peak Pulse Current（8/20μs）	I_{PP}	8	A
ESD Rating per IEC61000-4-2： Contact Air	V_{ESD}	±25 ±25	kV
Storage Temperature	T_{STG}	-55/+150	℃
Operating Temperature	T_J	-55/+125	℃

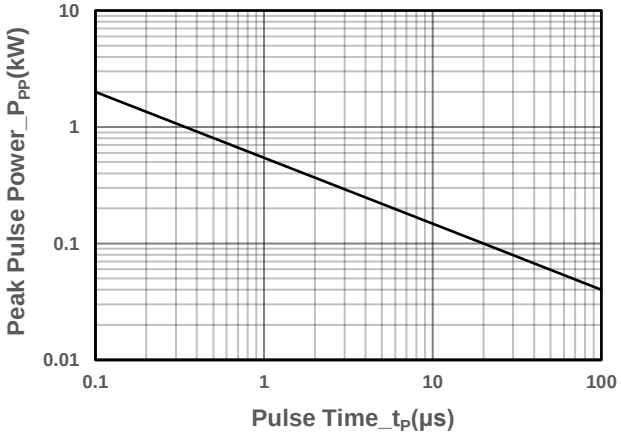
Electrical Characteristics @T_A=25℃

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				5	V
Breakdown Voltage	V_{BR}	I_T = 1mA	5.6			V
Reverse Leakage Current	I_R	V_{RWM} = 5V			1	μA
Clamping Voltage	V_C	I_{PP} = 1A, t_P = 8/20μs			8	V
Clamping Voltage	V_C	I_{PP} = 8A, t_P = 8/20μs		10	13	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		15	20	pF

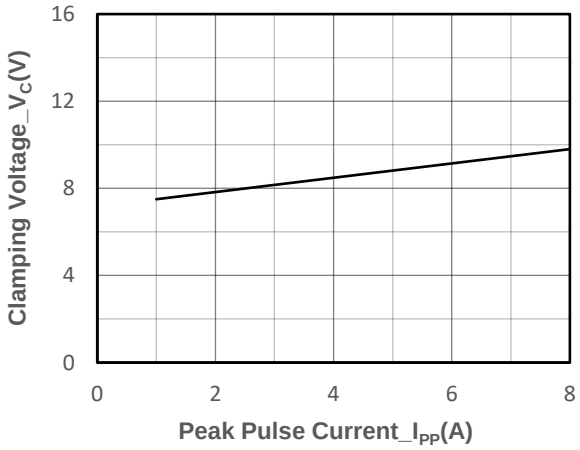
Typical Performance Characteristics



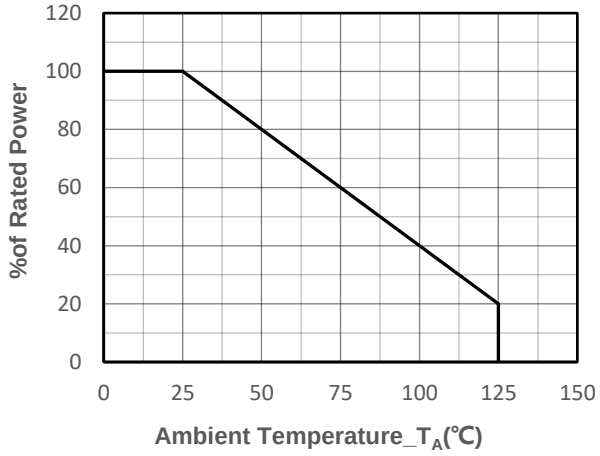
8/20μs Pulse Waveform



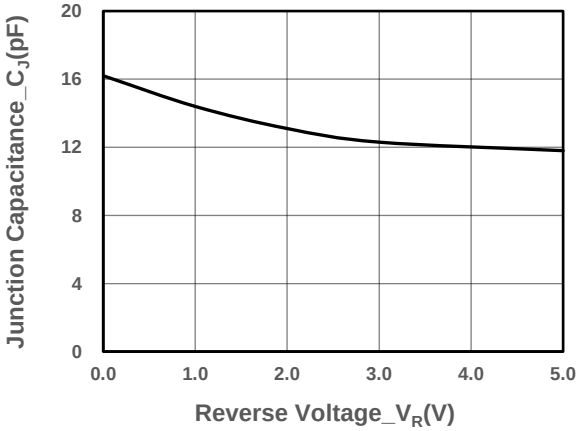
Peak Pulse Power vs. Pulse Time



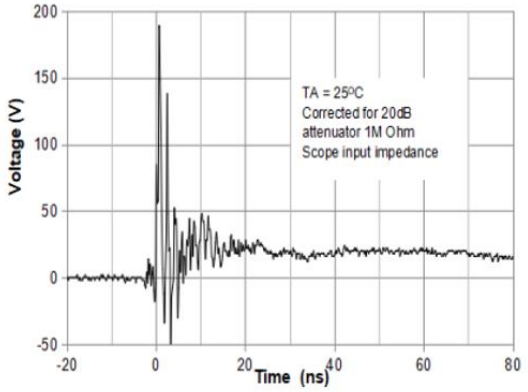
Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



Junction Capacitance vs. Reverse Voltage



Note: Data is taken with a 10x attenuator
ESD Clamping Voltage
8kV Contact per IEC61000-4-2

Package Information

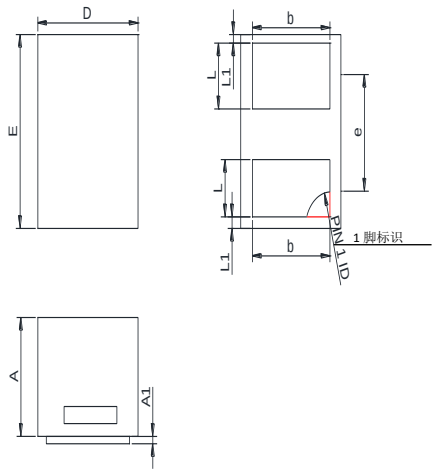
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE5V042N1	DFN1006-2L	10000	7 Inch

Mechanical Data

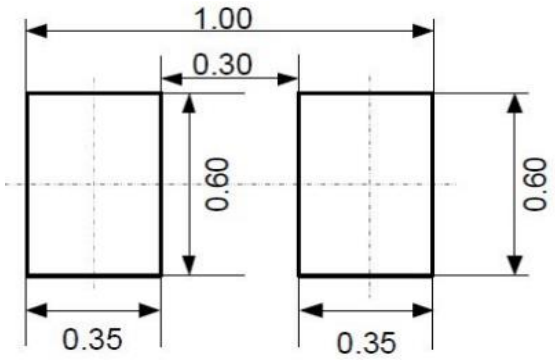
Case: DFN1006-2L

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)



- **History Version**

V1.0	First edition	2019-06-08
V2.0	Modify package size	2020-05-10
V3.0	Modify the company logo	2020-07-15
V3.1	Modify the product VC value and marking	2021-05-12
V3.2	Modify typical performance characteristics	2022-05-08
V3.3	Modify description and applications	2023-07-11

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