



SSCE15VE42N1

1-line Bi-directional TVS Diode

● Description

The SSCE15VE42N1 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 high-speed data lines.

The SSCE15VE42N1 complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into an ultra-small $1.0 \times 0.6 \times 0.5\text{mm}$ lead-free DFN package. The small size, low capacitance and high ESD surge protection make SSCE15VE42N1 an ideal choice to protect cell phone, wireless systems, and communication equipment.

● Feature

- ✧ 660W peak pulse power ($t_p = 8/20\mu\text{s}$)
- ✧ DFN1006-2L Package
- ✧ Working voltage: 15V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ 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 (Lightning)22A (8/20 μs)

● PIN configuration



DFN1006-2L (Bottom View)



Marking

● Applications

- ✧ Cell Phone Handsets and Accessories
- ✧ Microprocessor based equipment
- ✧ Personal Digital Assistants (PDA's)
- ✧ Notebooks, Desktops, and Servers
- ✧ Portable Instrumentation
- ✧ Networking and Telecom
- ✧ Serial and Parallel Ports.
- ✧ Peripherals

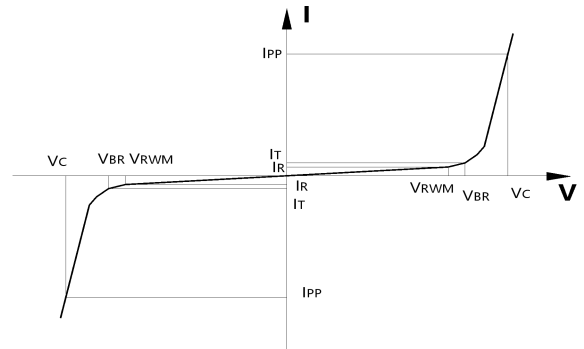
● Mechanical data

- ✧ Case Material: "Green" Molding Compound.
- ✧ UL Flammability Classification Rating 94V-0
- ✧ Qualified max reflow temperature: 260°C
- ✧ Device meets MSL 3 requirements
- ✧ 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
Cap	Junction Capacitance



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

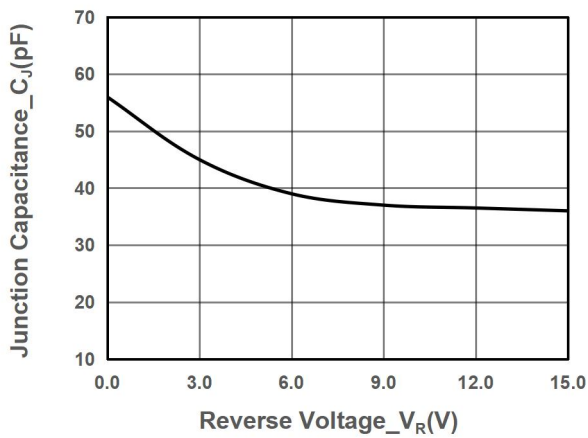
Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p=8/20\mu\text{s}$ waveform)	P_{PP}	660	W
Peak Pulse Current ($t_p=8/20\mu\text{s}$ waveform)	I_{PP}	22	A
ESD Rating per IEC61000-4-2:	Contact Air	30	kV
		30	
Operating Temperature Range	T_J	-55 ~ 125	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ 150	$^{\circ}\text{C}$

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

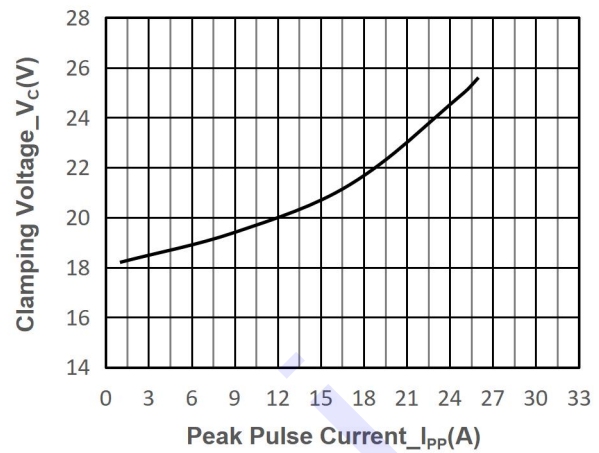
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				15	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	15.5		19	V
Reverse Leakage Current	I_R	$V_{RWM} = 15\text{V}$			1	μA
Clamping Voltage	V_C	$I_{PP} = 16\text{A}$ (8 x 20 μs pulse)		18		V
Clamping Voltage	V_C	$I_{PP} = 22\text{A}$ (8 x 20 μs pulse)		20	30	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$		56		pF



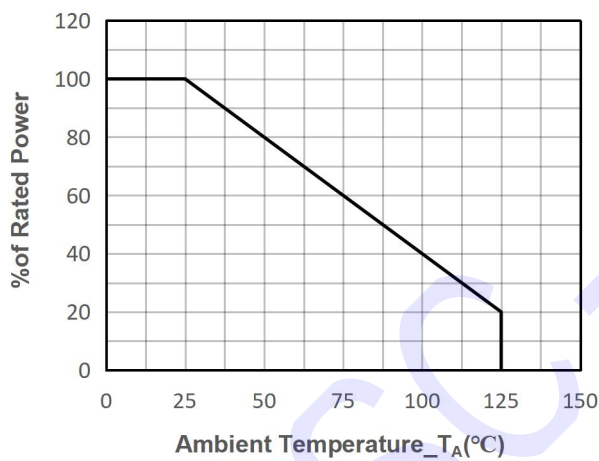
- Typical Performance Characteristics



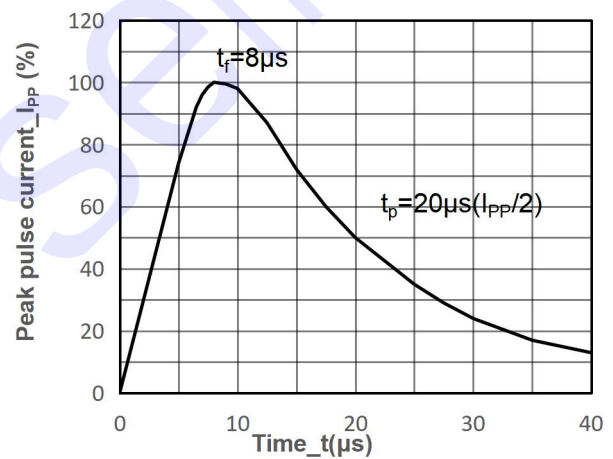
Junction Capacitance vs. Reverse



Clamping Voltage vs. Peak Pulse Current



Power derating vs. Ambient temperature



8/20μs Pulse Waveform



● Package Information

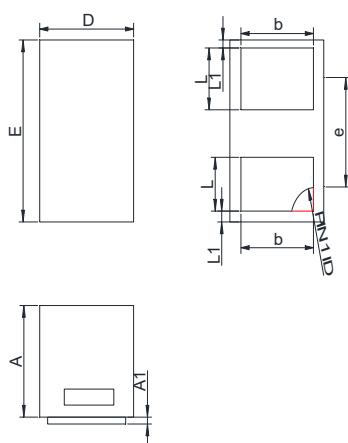
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE15VE42N1	DFN1006-2L	10000	7 Inch

Mechanical Data

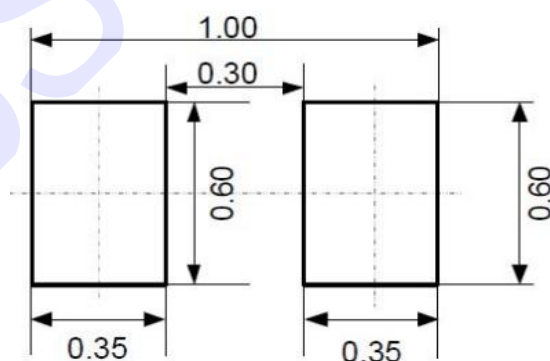
Case: DFN1006-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.43	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)





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