



SSCE18V12N1

1-line Bidirectional Micro Packaged TVS Diodes for ESD Protection

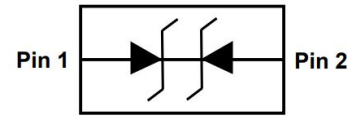
● Description

The SSCE18V12N1 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 SSCE18V12N1 complies with the IEC 61000-4-2 (ESD) with $\pm 25\text{kV}$ air and $\pm 25\text{kV}$ contact discharge.

● Feature

- ✧ 200W peak pulse power ($t_p = 8/20\mu\text{s}$)
- ✧ DFN1006-2L Package
- ✧ Working voltage: 18V
- ✧ Low clamping voltage
- ✧ Low capacitance
- ✧ Low leakage current
- ✧ RoHS compliant transient protection for high speed data lines to IEC61000-4-2(ESD) $\pm 25\text{kV}$ (air), $\pm 25\text{kV}$ (contact)

● PIN configuration



Top view



Marking

● Applications

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

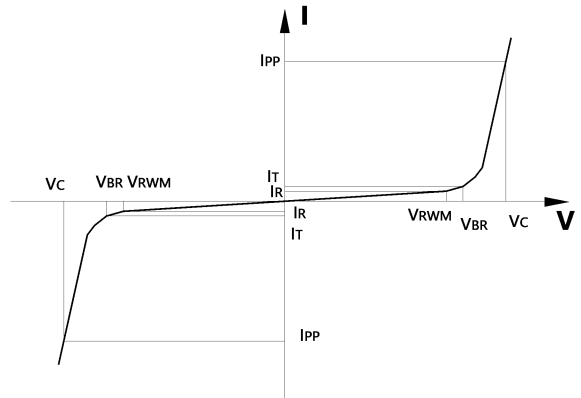
● Mechanical data

- ✧ Lead finish: 100% matte Sn(Tin)
- ✧ Mounting position: Any
- ✧ Qualified max reflow temperature: 260°C
- ✧ Device meets MSL 1 requirements
- ✧ Pure tin plating: $7 \sim 17 \mu\text{m}$
- ✧ Pin flatness: $\leq 3\text{mil}$



● 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 @TA=25°C

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20us)	P_{PP}	200	W
Peak Pulse Current (8/20us)	I_{PP}	5	A
ESD Rating per IEC61000-4-2:	Contact	25	KV
	Air	25	
Storage Temperature	T_{STG}	-55/+150	°C
Operating Temperature	T_J	-55/+125	°C

● Electrical Characteristics @TA=25°C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Peak Reverse Working Voltage	V_{RWM}				18	V
Breakdown Voltage	V_{BR}	$I_T = 1mA$	20			V
Reverse Leakage Current	I_R	$V_{RWM} = 18V$			0.5	μA
Clamping Voltage	V_C	$I_{PP} = 1A, t_p = 8/20us$			34	V
Clamping Voltage	V_C	$I_{PP} = 5A, t_p = 8/20us$		36	40	V
Dynamic Resistance ^{1,2}	R_{DYN}	TLP=0.2/100ns		0.52		Ω
ESD Clamping Voltage ¹	V_C	$I_{PP} = 4A,$ $t_p = 0.2/100ns$ (TLP)		31.5		V
ESD Clamping Voltage ¹	V_C	$I_{PP} = 4A,$ $t_p = 0.2/100ns$ (TLP)		37.5		V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$		12	16	pF

Notes: 1、TLP Setting: $t_p=100ns, t_r=0.2ns, ITLP$ and $VTLP$ sample window: $t_1=70ns$ to $t_2=90ns$.

2、Dynamic resistance calculated from $IPP=4A$ to $IPP=16A$ using “Best Fit”.



● Typical Performance Characteristics

Figure 1: Peak Pulse Power Vs Pulse Time

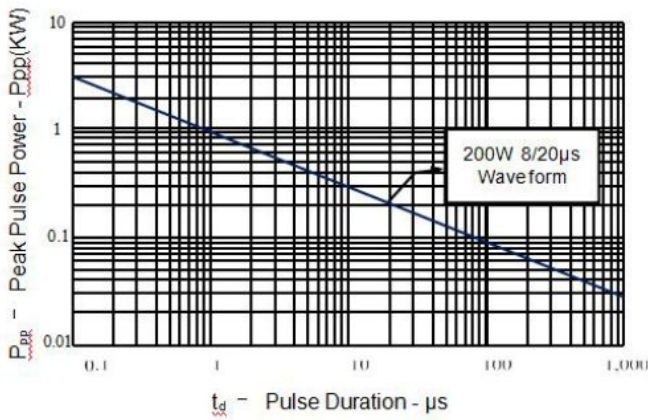


Figure 2: Power Derating Curve

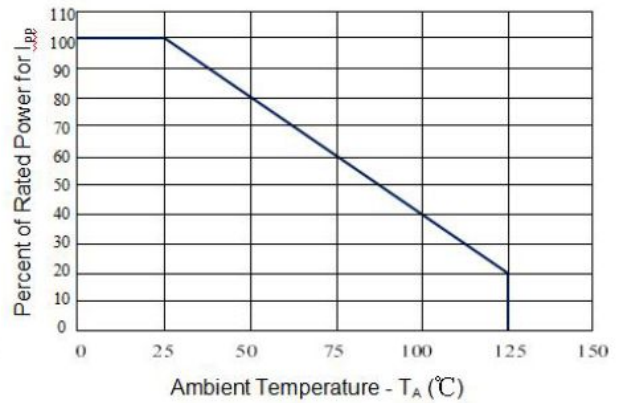


Figure 3: Clamping Voltage vs. Peak Pulse Current

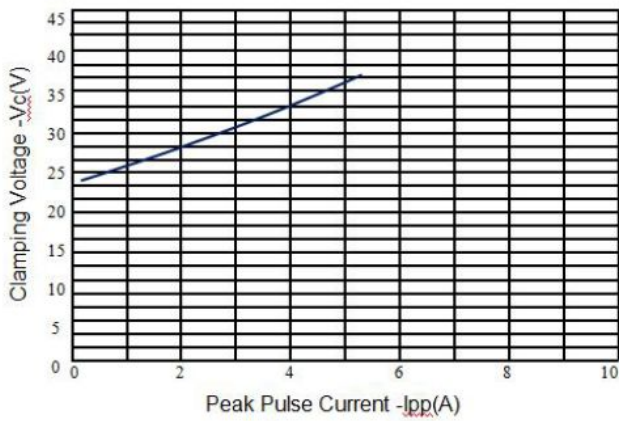


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

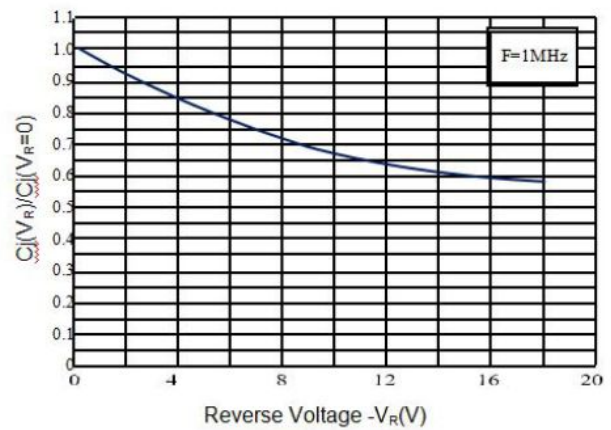


Figure 5: TLP Positive I-V Curve

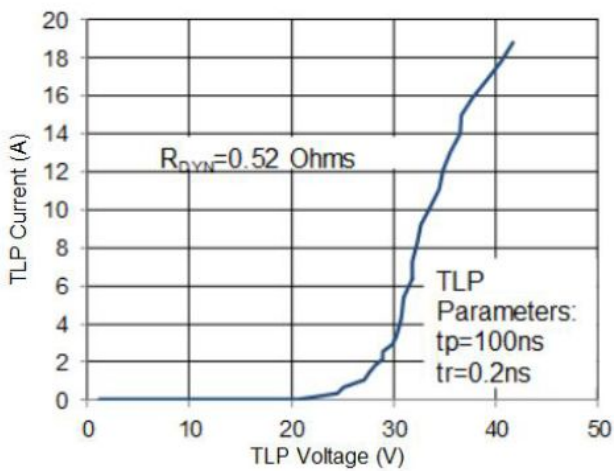
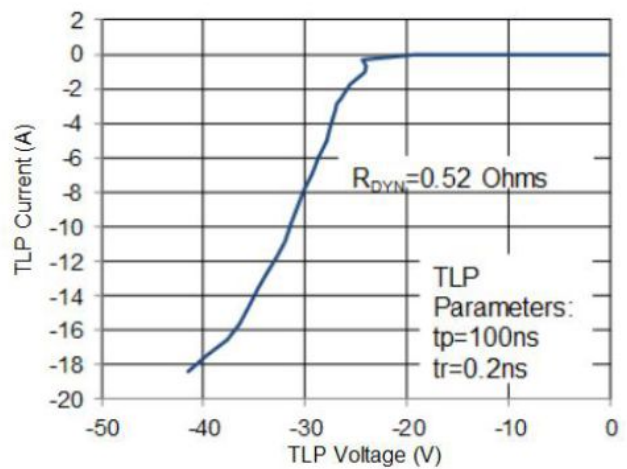


Figure 6: TLP Negative I-V Curve





- **Package Information**

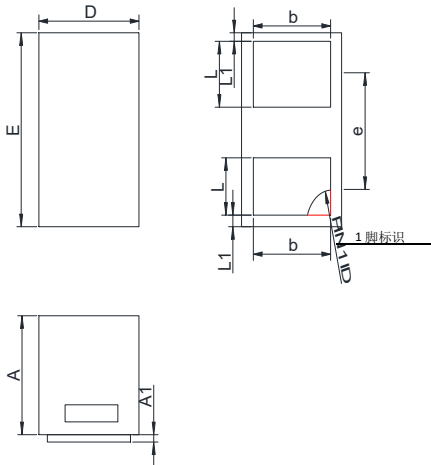
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE18V12N1	DFN1006-2L	10000	7 Inch

Mechanical Data

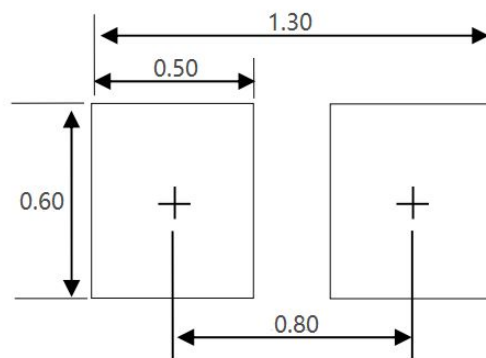
Case:DFN1006-2L

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	2021-11-08
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