

SSCE12V12L1

Bi-directional 12V Low Capacitance ESD Protector

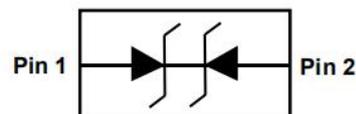
● Description

The SSCE12V12L1 protects sensitive semiconductor components from damage or upset due to electrostatic discharge (ESD) and other voltage induced transient events. They feature large cross-sectional area junctions for conducting high transient currents, offer desirable electrical characteristics for board level protection, such as fast response time, low operating voltage. It gives designer the flexibility to protect one unidirectional line in applications where arrays are not practical.

● Feature

- ◇ DFN0603-2L package
- ◇ Replacement for MLV(0201)
- ◇ Bidirectional configurations
- ◇ Response time is typically < 1 ns
- ◇ Low clamping voltage
- ◇ RoHS compliant
- ◇ Transient protection for data lines to
IEC 61000-4-2(ESD) $\pm 30\text{KV}$ (air), $\pm 30\text{KV}$ (contact);
IEC 61000-4-4 (EFT) 40A (5/50ns)

● PIN configuration



● Applications

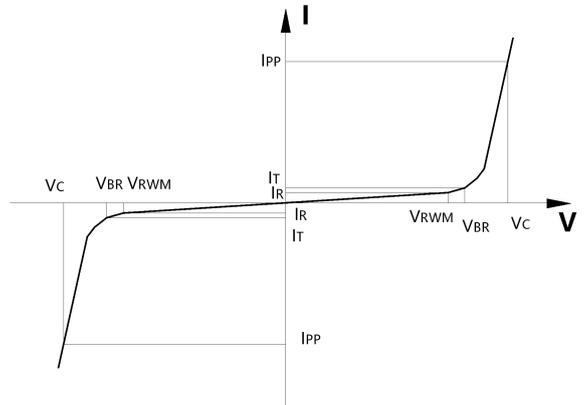
- ◇ Cellular phones
- ◇ Portable devices
- ◇ Digital cameras
- ◇ Power supplies

● 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 ~ 17 μm
- ◇ 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
I_F	Forward Current
V_F	Forward Voltage @ I_F



● Absolute maximum rating @TA=25°C

Symbol	Parameter	Value	Units
P_{PP}	Peak Pulse Power (8/20 μ S)	60	W
I_{PP}	Peak Pulse Current (8/20 μ S)	3	A
T_{STG}	Storage Temperature	-55/+150	°C
T_J	Operating Temperature	-55/+150	°C

● Electrical Characteristics @TA=25°C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}				12	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	13	15		V
Reverse Leakage Current	I_R	$V_{RWM} = 12\text{V}, T = 25^\circ\text{C}$			1	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, T_P = 8/20\mu\text{s}$		16	18	V
		$I_{PP} = 3\text{A}, T_P = 8/20\mu\text{s}$		20	23	V
Junction Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$	6	8	10	pF

- **Typical Performance Characteristics**

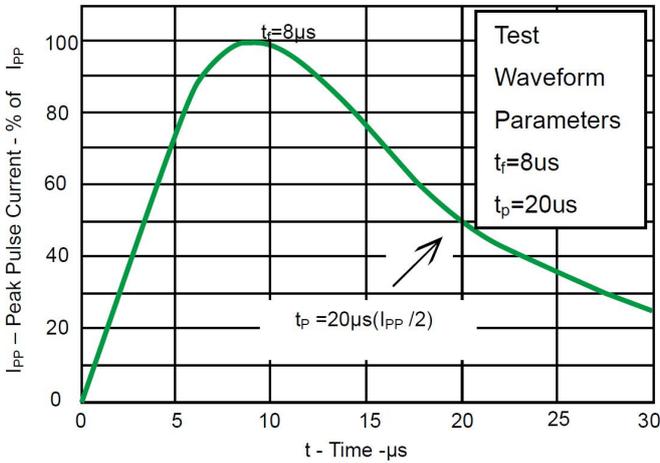


Fig 1. Pulse Waveform

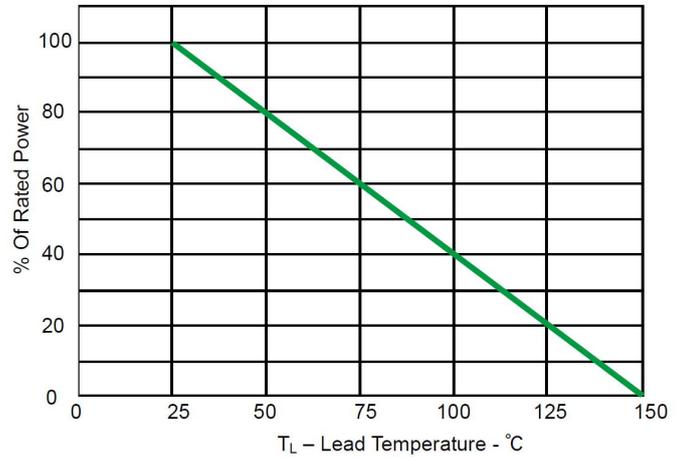


Fig 2. Power Derating Curve

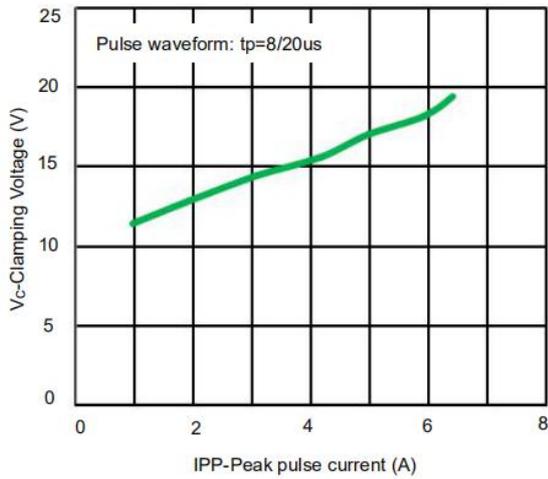


Fig 3. Clamping voltage vs. Peak pulse current

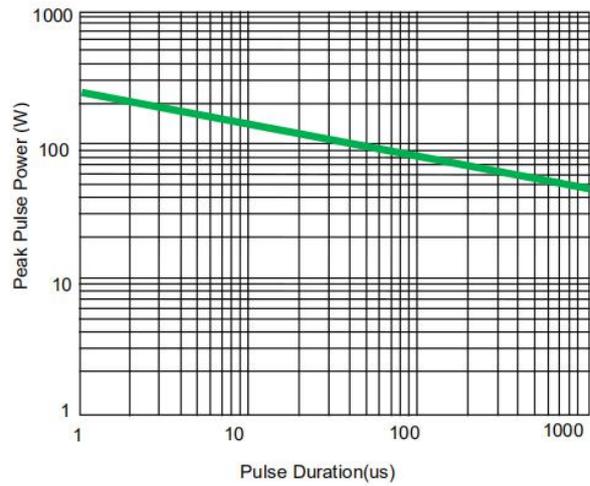


Fig 4. Non-Repetitive Peak Pulse Power vs. Pulse time

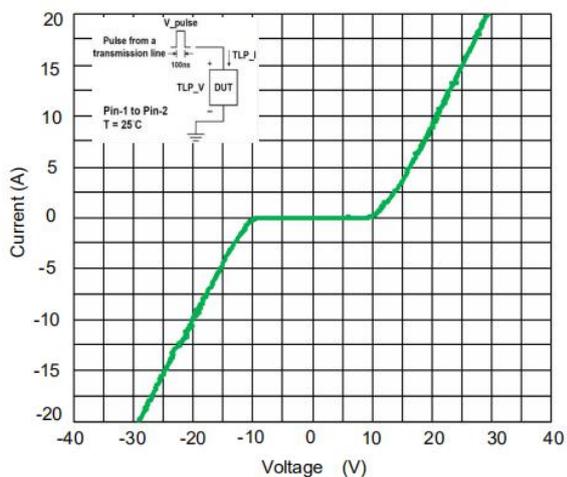


Fig 5. TLP Measurement

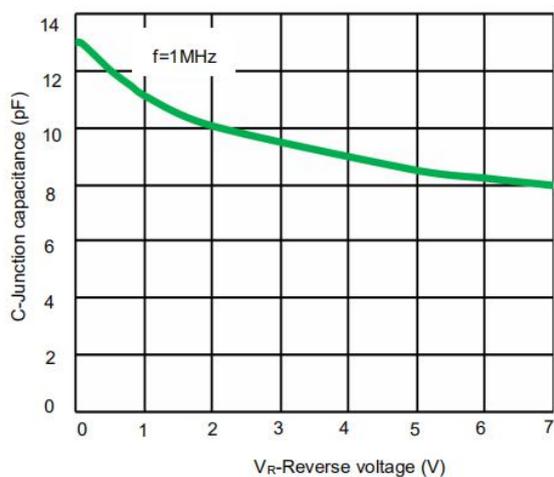


Fig 6. Capacitance vs. Reverse voltage

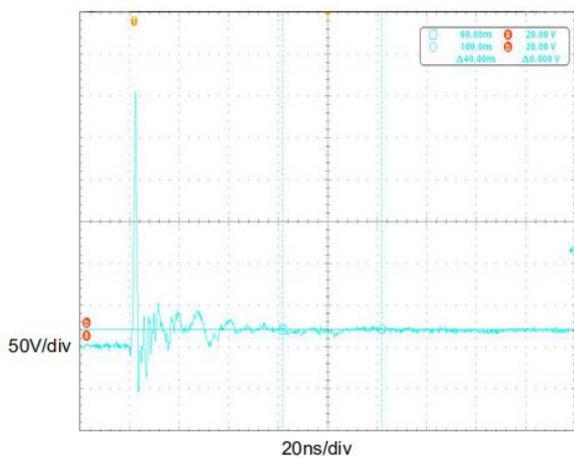


Fig 7. ESD clamping voltage (IEC61000-4-2 +8KV contact)

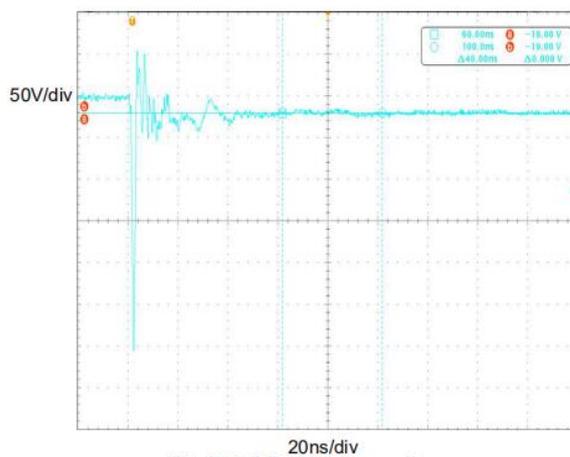


Fig 8. ESD clamping voltage (IEC61000-4-2-8KV contact)

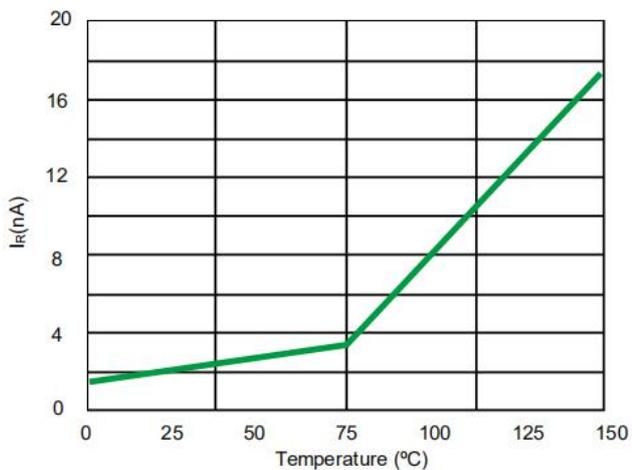
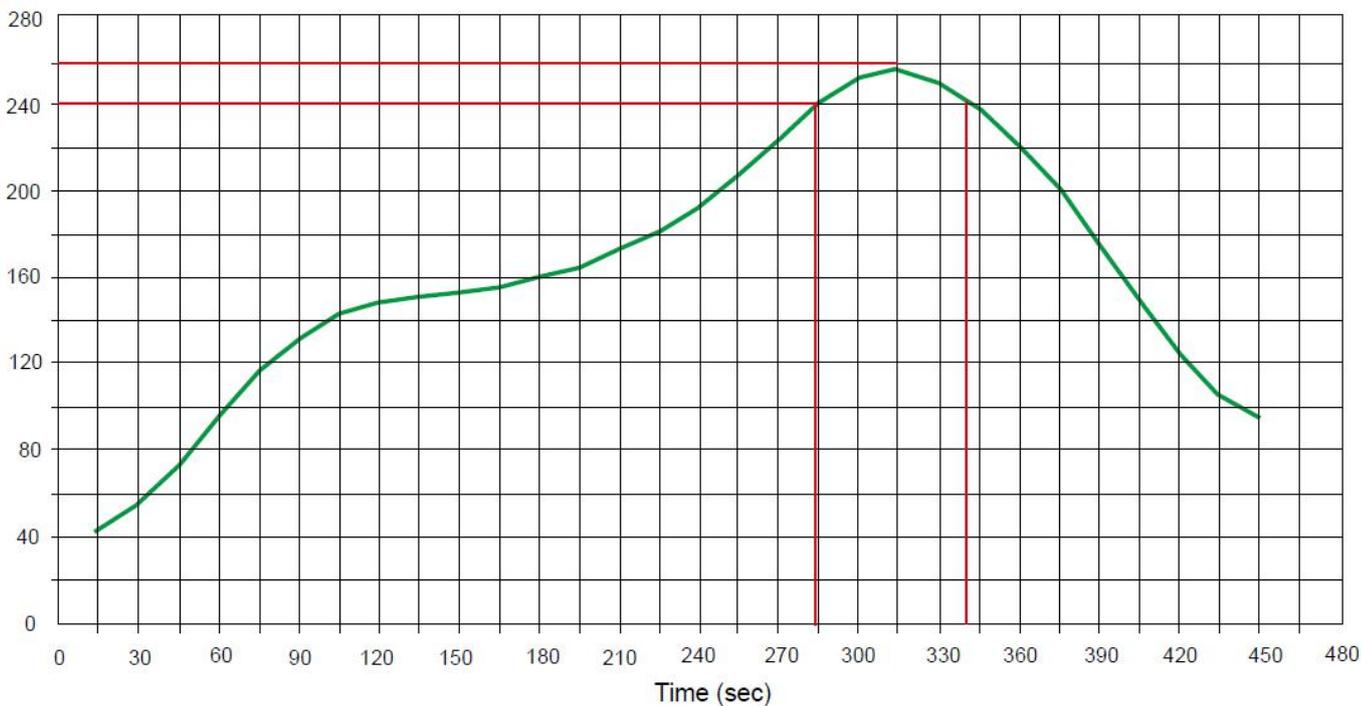


Fig 9. Typical Leakage Current vs. Temperature

- **Solder Reflow Recommendation**

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



● **Package Information**

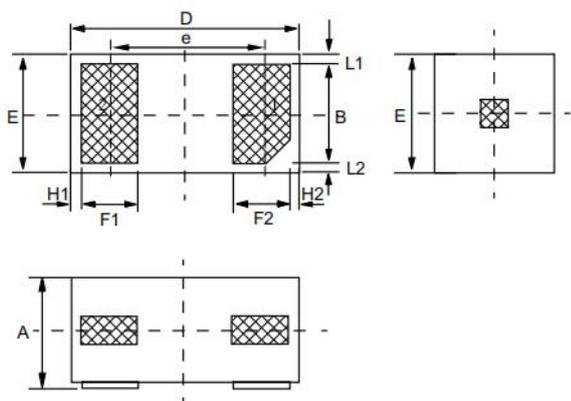
Ordering Information

Device	Package	Qty per Reel	Reel Size
SSCE12V12L1	DFN0603-2L(Pb-Free)	10000/Tape&Reel	7"

Mechanical Data

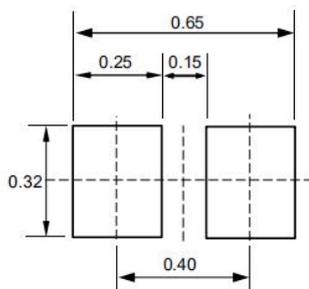
Case:DFN0603-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
	Min	Typ	Max
A	0.270	0.300	0.340
B	0.200	0.250	0.300
D	0.550	0.600	0.650
E	0.250	0.300	0.350
e	-	0.350	-
F1	0.130	0.180	0.230
F2	0.130	0.180	0.230
L1	0.015	0.030	0.045
L2	0.015	0.030	0.045
H1	0.030	0.045	0.060
H2	0.030	0.045	0.060

Recommended Pad outline



Suggested PCB Layout



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