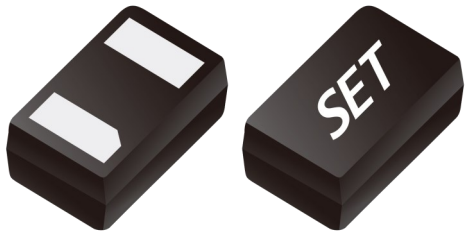
ESD Protection Diodes

ESD and Transient Voltage Protection

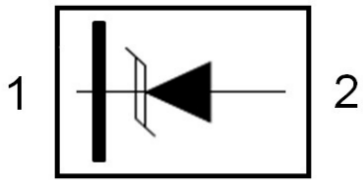
SD1265F16G1 DFN1610-2L



Description

The SD1265F16G1 is a transient voltage suppressor designed to protect power interfaces. It is suitable to replace multiple discrete components in portable electronics. The SD1265F16G1 is specifically designed to protect power lines. The SD1265F16G1 is available in DFN1610-2L package. Standard products are Pb-free and Halogen-free.

Pinout and Functional Block Diagram



Features

- IEC61000-4-2 (ESD) ± 30 kV (Air), ± 30 kV (Contact)
- IEC61000-4-5 (Lighting) 65 A (8 / 20 μs)
- 2275 Watts Peak Pulse Power (tp=8 / 20 μs)
- Protects One Vcc with One Directional
- Low Leakage Current
- Low Clamping Voltage
- Ultra-small Package (1.6 mm x 1.0 mm x 0.5 mm)
- Flammability Rating: UL 94 V-0
- Halogen Free and RoHS Compliant

Applications

- Power management
- Power supply protection

Order Information

Type	Package	Marking	Size (mm)	Delivery Form	Delivery Quantity
SD1265F16G1	DFN 1610-2L	MT	1.6 x 1.0 x 0.5	7” T&R	3000 PCS

Limiting Values

(T_A = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Min	Max	Unit
V_{ESD}	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	30	kV
		IEC 61000-4-2; Air Discharge	-	30	kV
P_{PP}	Peak Pulse Power (8 / 20 μs)	t_P=8 / 20 μs	-	2275	W
T_A	Operating Temperature Range	-	-40	125	℃
T_{stg}	Storage Temperature Range	-	-55	150	℃

Electrical Characteristics

(T_A = 25 °C, unless otherwise specified)

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V_{RWM}	Reverse Working Voltage	T_A = 25 °C	-	-	12.0	V
V_{BR}	Breakdown Voltage	I_R = 1 mA; T_A = 25 °C	12.7	-	-	V
I_R	Reverse Leakage Current	V_{RWM} = 12 V; T_A = 25 °C	-	-	0.1	μA
V_C	Clamping Voltage	I_{PP}=25 A, t_P=8 / 20 μs	-	-	25	V
		I_{PP}=65 A, t_P=8 / 20 μs	-	-	35	V
C_J	Junction Capacitance	V_R = 0 V, f = 1 MHz	-	-	510	pF

Performance Curve for Reference

(T_A=25 °C unless otherwise noted)

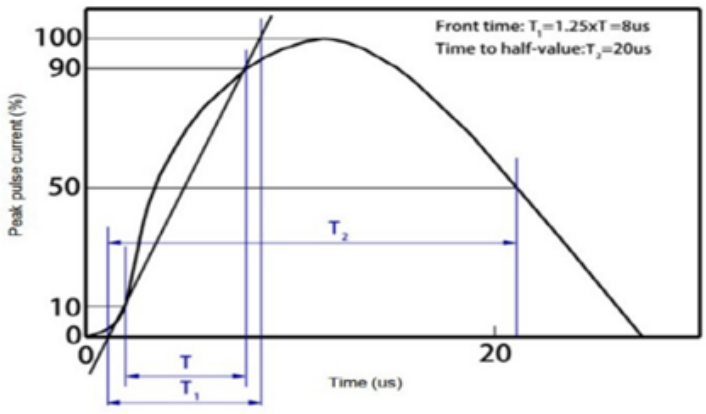


FIGURE 1

8 / 20 μs Waveform Per IEC61000-4-5

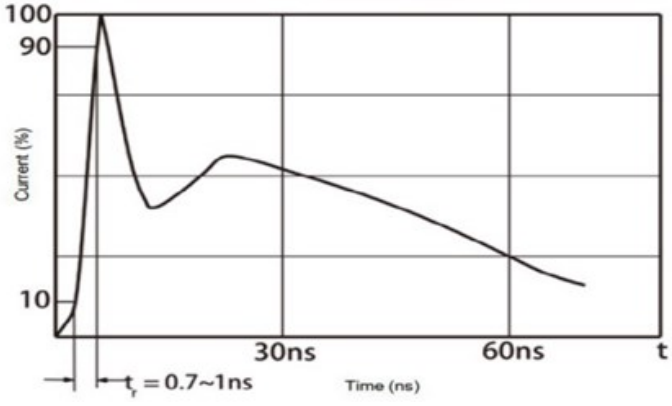


FIGURE 2

Contact Discharge Current Waveform Per IEC 61000-4-2

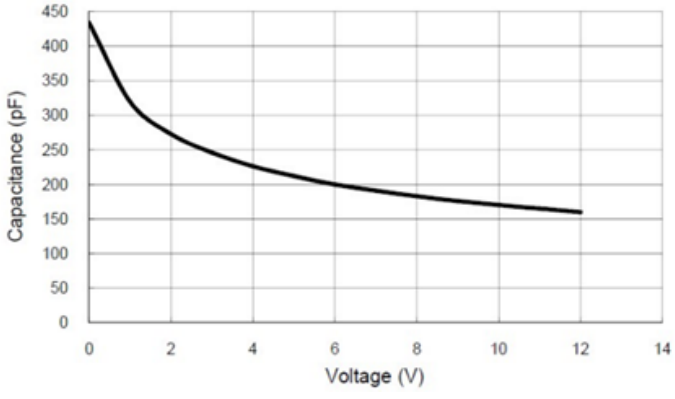


FIGURE 3

Voltage VS.Capacitance

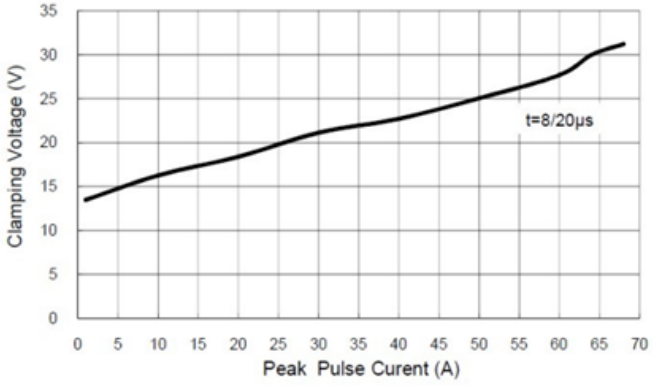
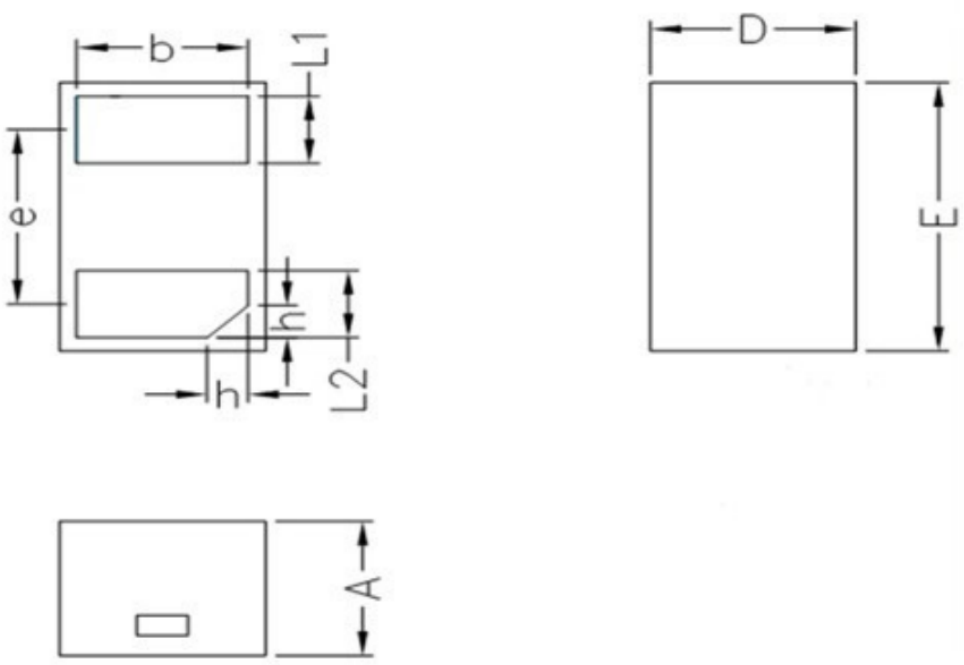


FIGURE 4

Clamping Voltage VS. Peak Pulse Current

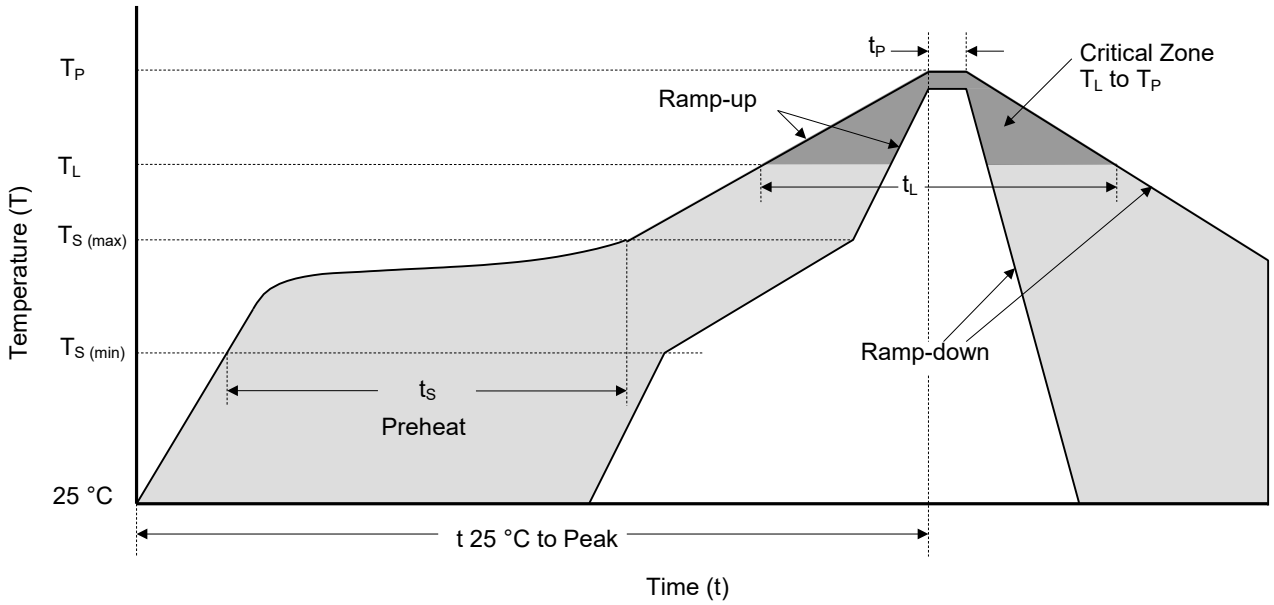
Package Dimensions



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
D	0.95	1.05	0.037	0.041
E	1.55	1.65	0.061	0.065
L1	0.35	0.45	0.014	0.018
L2	0.35	0.45	0.014	0.018
b	0.75	0.85	0.030	0.033
e	1.09 BSC		0.043 BSC	
A	0.45	0.55	0.018	0.022
h	0.15	0.25	0.006	0.010

ESD TVS

Soldering Parameters



Reflowing Condition

Reflow Soldering Parameters		Lead-Free Assembly
Pre-heat	Temperature Min ($T_{S\ (min)}$)	150 °C
	Temperature Max ($T_{S\ (max)}$)	200 °C
	Time (min to max) (t_s)	60 ~ 120 seconds
Average Ramp Up Rate (Liquidus Temp (TL) to Peak		3 °C / second max.
T_S (max) to T_L Ramp-up Rate		3 °C / second max.
Reflow	Temperature (T_L) (Liquidus)	217 °C
	Time (min to max) (t_L)	60 ~ 150 seconds
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time of within 5 °C of Actual Peak Temperature (t_P)		20 ~ 40 seconds
Ramp-down Rate		6 °C / second max.
Time from 25 °C to Peak Temperature		8 Minutes max.
Do Not Exceed		260 °C

ESD TVS

ATTENTION

ESD TVS

Usage

1. TVS must be operated in the specified ambient temp.
2. Do not clean the TVS with strong polar solvent such as ketone, esters, benzene and halogenated hydrocarbon, to avoid damaging the encapsulating layer.
3. Please do not apply severe vibration, shock or pressure to TVS, to avoid element cracking.

Replacement

1. If TVS is visually damaged, please replace it.
2. TVS is a non-repairable product. For safety sake, please use equivalent TVS for replacement.

Storage

1. Storage Temp. Range: (-55 to 150) °C.
2. Do not store the TVS at the high temp., high humidity or corrosive gas environment, to avoid influencing the solder- ability of the lead wires. The product shall be used up within 1 year after receiving the goods.

Environmental Conditions

1. TVS should not be exposed to the open air, nor direct sunshine.
2. TVS should avoid rain, water vapor or other condition of high temp. and high humidity.
3. TVS should avoid sand dust, salt mist, or other harmful gases.

Max. Typical Capacitance of TVS

1. The typical capacitance of TVS is listed in the specifications. Designers may refer to it when designing TVS in High frequency circuit.

Installation Mechanical Stress

1. Do not knock TVS when installing, to avoid mechanical damage.
2. Please do not apply severe vibration, shock or pressure to TVS, to avoid surface resin or element cracking.