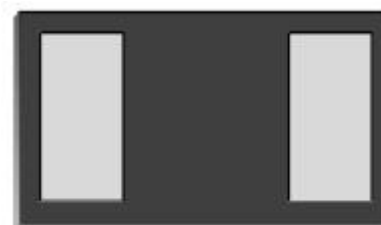


SE12N9P11GJ

Feature

- ◆ Ultra small package: 1.6x1.0x0.5mm
- ◆ Protects one data or power line
- ◆ Working Voltage: 12V
- ◆ Low clamping voltage
- ◆ 2-pin leadless package
- ◆ 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) 75A (8/20 μs)
- ◆ RoHS Compliant

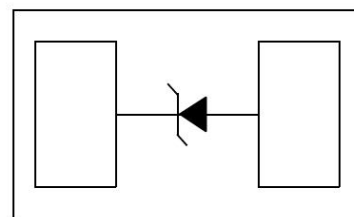
DFN1610-2L



Applications

- ◆ Mobile Phones and Accessories
- ◆ Battery Protection
- ◆ USB Power line
- ◆ Power Line Protection
- ◆ Hand Held Portable Applications

Pin Configuration



Mechanical Characteristics

- ◆ Package: DFN1610-2L
- ◆ Case Material: "Green" Molding Compound.
- ◆ Moisture Sensitivity: Level 1 per J-STD-020
- ◆ Packaging: 3000 PCS / Tape & Reel
- ◆ Reel Size: 7 inch

Absolute Maximum Ratings (TA=25°C unless otherwise specified)

Parameter	Symbol	Value	Units
Peak Pulse Current (8/20 μs)	I_{PP}	75	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 30 ± 30	KV
Operating Temperature Range	T_{OP}	-40 to +125	°C
Storage Temperature Range	T_{STG}	-40 to +125	°C

SE12N9P11GJ

Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Working Voltage	V_{RWM}	--	--	--	12	V
Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	12.6	--	--	V
Reverse Leakage Current	I_R	$V_{RWM}=12\text{V}$	--	--	0.1	μA
Clamping Voltage	V_C	$I_{PP}=1\text{A}$ (8 x 20 μs pulse)	--	--	18	V
Clamping Voltage	V_C	$I_{PP}=75\text{A}$ (8 x 20 μs pulse)	--	--	25	V
Junction Capacitance	C_J	$V_R=0\text{V}$, $f=1\text{MHz}$	--	--	500	pF

Ratings and V-I Curve Characteristics Curves ($T_A=25^\circ\text{C}$, unless otherwise noted)

Fig1. Peak Pulse Power vs. Pulse Time

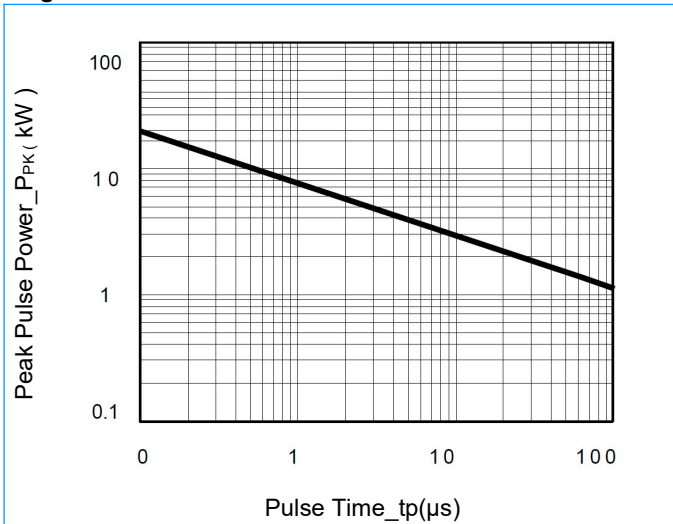


Fig2. Power Derating Curve

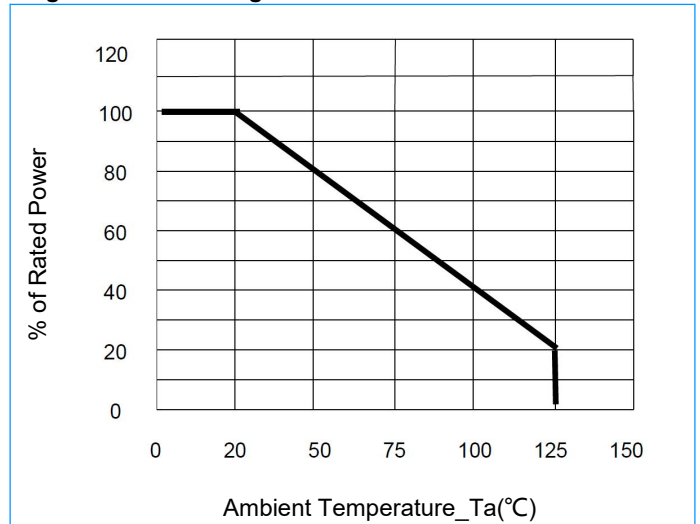
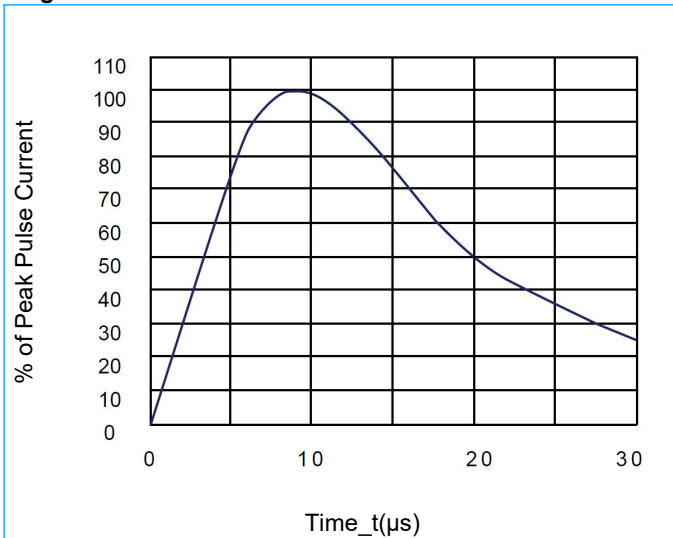
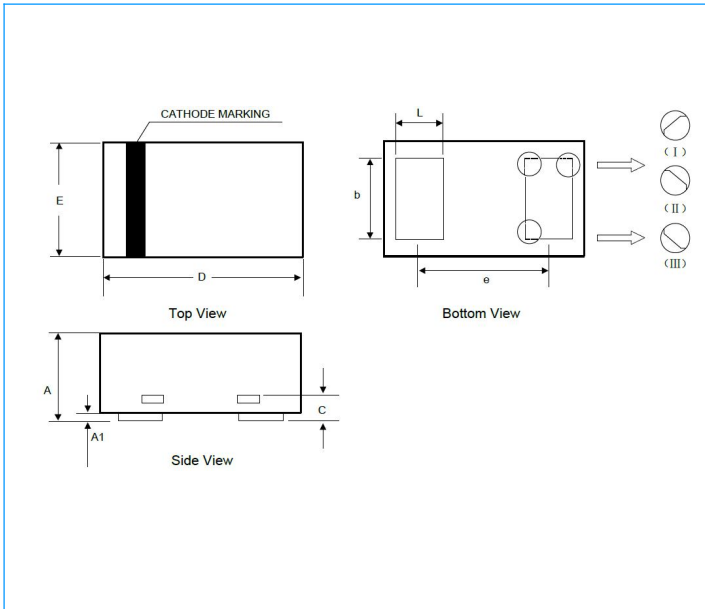
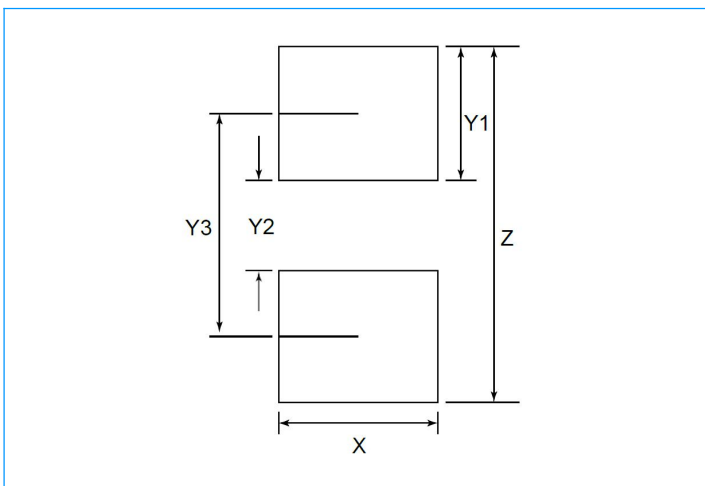


Fig3. 8/20 μs Pulse Waveform



SE12N9P11GJ
DFN1610-2L Package Outline Drawing


Symbol	Millimeters			Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	--	0.02	0.05	--	0.001	0.002
b	0.75	0.80	0.85	0.030	0.032	0.034
c	0.10	0.15	0.20	0.004	0.006	0.008
D	1.55	1.60	1.65	0.062	0.064	0.066
e	1.10 BSC			0.044 BSC		
E	0.95	1.00	1.05	0.038	0.040	0.042
L	0.35	0.40	0.45	0.014	0.016	0.018

Suggested Land Pattern


Symbol	Dimensions	
	Millimeters	Inches
X	1.00	0.040
Y1	0.62	0.025
Y2	0.60	0.024
Y3	1.22	0.049
Z	1.85	0.074