DFN1610-2L Plastic-Encapsulate ESD Protection Diodes

Features

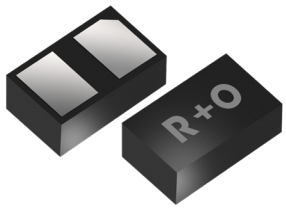
- Low leakage current
- DFN1610-2L surface mount package
- IEC 61000-4-2 (ESD Air): ±30kV
- IEC 61000-4-2 (ESD Contact): ±30kV
- IEC 61000-4-5 (Lightning 8/20μs): 185A

Reverse Working Voltage
4.5V Max.
High capacitance
650pF(Max.)

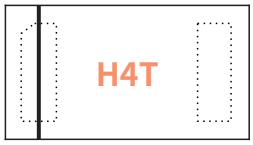
Applications

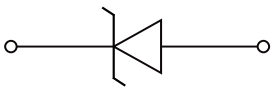
- Mobile Phone, Digital cameras
- Battery Protection
- Power Line Protection
- Vbat pin for Mobile Devices
- Hand Held Portable Applications

DFN1610-2L



Function Diagram



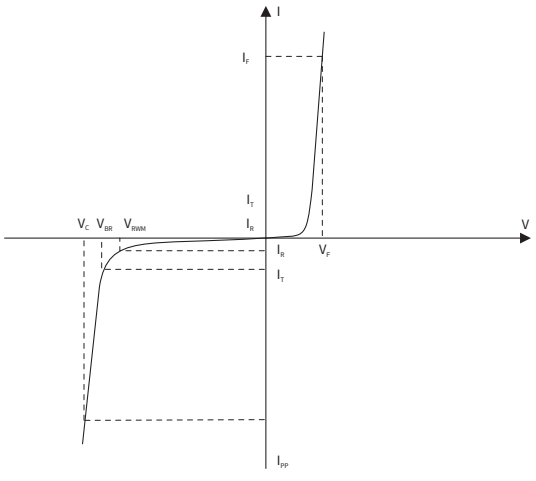


Maximum Ratings (Ta=25°C Unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{ESD}	Electrostatic Discharge Voltage	ESD per IEC 61000-4-2(Air)	±30	KV
		ESD per IEC 61000-4-2(Contact)	±30	KV
P_{PP}	Peak Pulse Power	tp = 8/20 μs	2775	W
I_{PP}	Rated Peak Pulse Current	tp = 8/20 μs	185	A
T_J	Operating JunctionTemperature Range	—	-55 to +125	°C
T_{STG}	Storage Temperature Range	—	-55 to +150	°C

Electrical Parameter

SYMBOL	PARAMETER
V_C	Clamping Voltage @ I_{PP}
V_{BR}	Breakdown Voltage @ I_T
I_{PP}	Peak Pulse Current
I_T	Test Current
I_R	Reverse Leakage Current @ VRWM
V_{RWM}	Peak Reverse Working Voltage
P_{PP}	Peak Pulse Power Dissipation
C_J	Junction Capacitance @ V_R=0V,f=1MHz
I_F	Forward Current
V_F	Forward Voltage @I_F



Electrical Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	CONDITION	Min	Typ	Max	UNIT
Peak Reverse Working Voltage	V_{RWM}	T_a=25°C	—	—	4.5	V
Breakdown Voltage	V_{BR}	I_R=1mA,T_a=25°C	4.8	—	7	V
Reverse Leakage Current	I_R	V_R=4.5V,T_a=25°C	—	—	0.2	μA
Clamping Voltage	V_C	I_{PP}=1A, t_p=8/20μs	—	—	7	V
		I_{PP}=185A,t_p=8/20μs	—	—	15	
Junction Capacitance	C_J	V_R=0V,f=1MHz	—	—	650	pF

Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

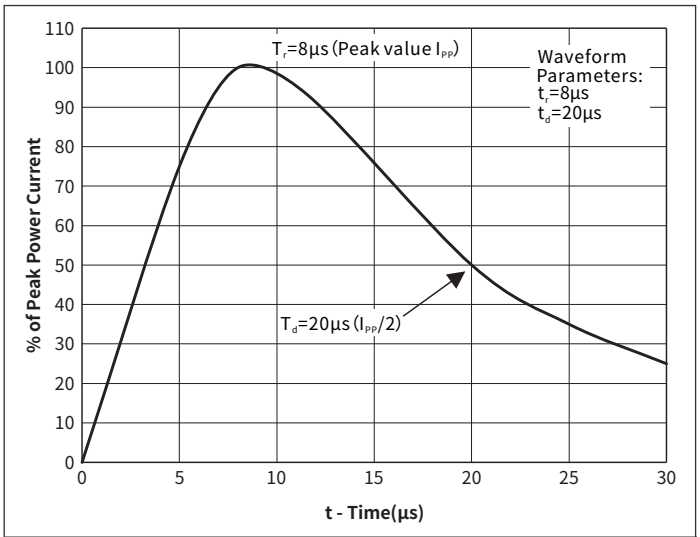


Fig.1 Pulse Waveform

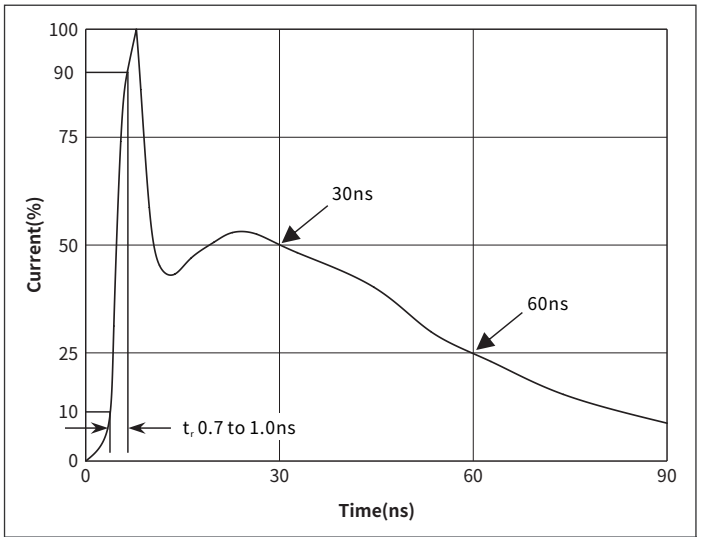


Fig.2 Pulse Waveform-ESD(IEC61000-4-2)

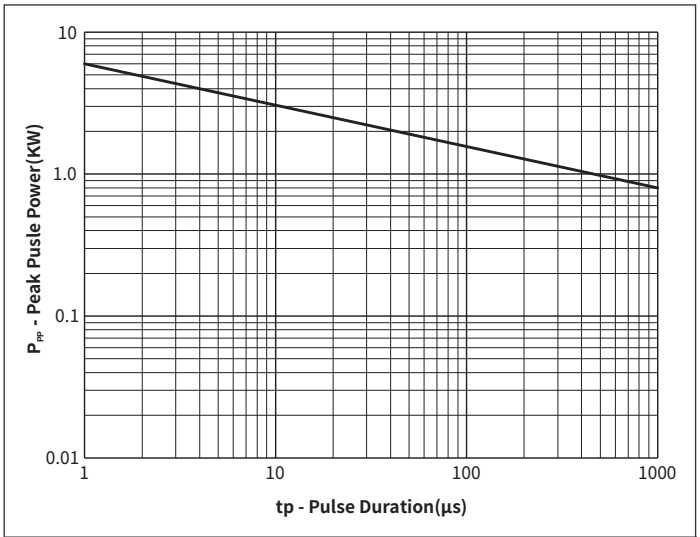


Fig.3 Peak Pulse Power vs. Pulse Time

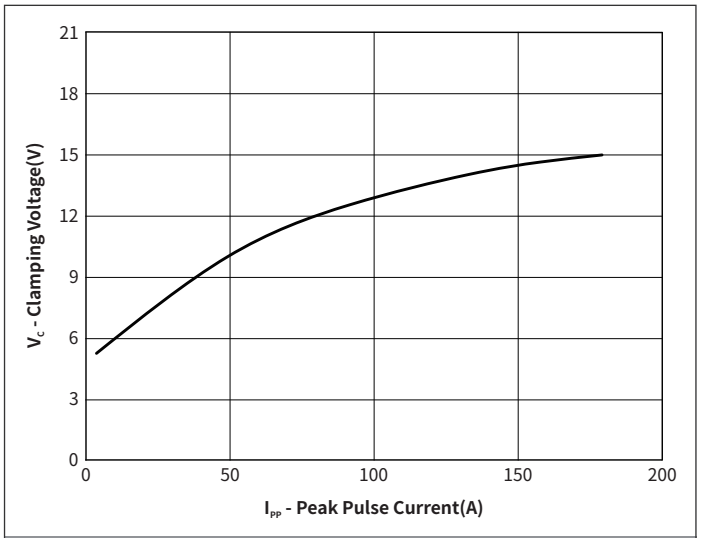
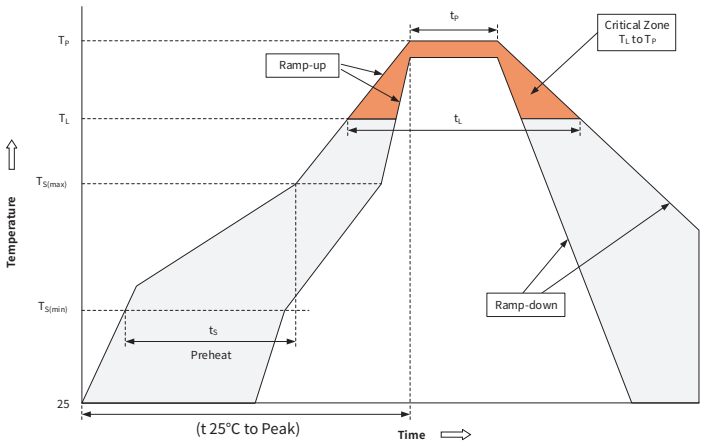


Fig.4 Clamping Voltage vs. Peak Pulse Current

Ordering Information

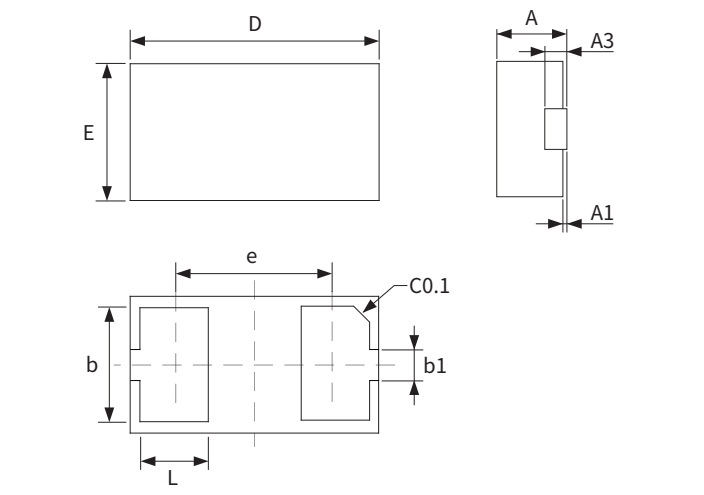
PREFERED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
H4V5H16U	DFN1610-2L	1.575×0.975×0.485	7''REEL	3000

Recommended Soldering Conditions



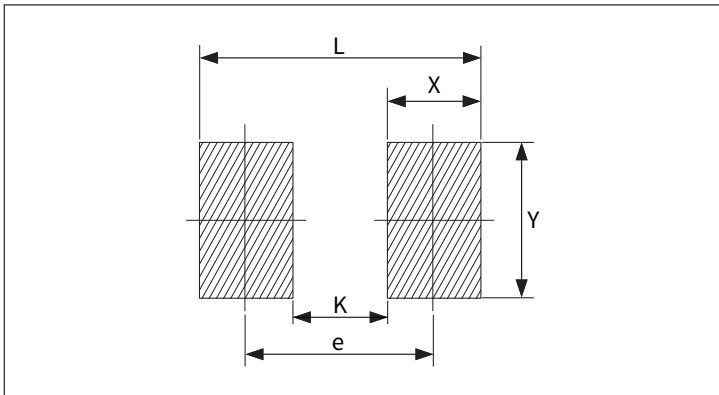
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ($T_{S(min)}$)	+150°C
	Temperature Max($T_{S(max)}$)	+200°C
	Time (Min to Max) (t_S)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C /sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C /sec. Max
Reflow	Temperature(T_L)(Liquid us)	+217°C
	Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		20-40secs
Ramp-down Rate		6°C /sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

Package Outline Dimensions (DFN1610-2L)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.46	0.56	0.018	0.022
A1	0.01	0.05	0.001	0.003
b	0.75	0.85	0.030	0.033
b1	0.25	0.35	0.010	0.014
D	1.55	1.65	0.061	0.065
E	0.95	1.05	0.037	0.041
e	1.10BSC		0.043 BSC	
L	0.35	0.45	0.014	0.018
A3	0.127REF		0.005REF	

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
X	0.57	0.67	0.024	0.028
Y	0.95	1.05	0.039	0.043
L	1.79	1.89	0.072	0.076
e	1.17	1.27	0.048	0.052
K	0.55	0.65	0.024	0.028