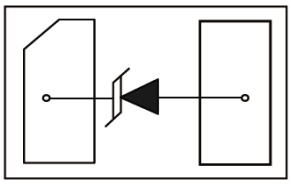
High power transient voltage suppressor

Features

- IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC 61000-4-5 (Lightning) 125A (8/20μs)
- IEC 61000-4-4 (EFT) 80A (5/50ns)
- Unidirectional diode
- Operating voltage: 5V
- Low clamping voltage
- Low leakage current

DFN1610-2L (Bottom View)



Circuit Diagram

Applications

- Mobile Phones
- Battery Protection
- Power Line Protection
- Vbat pin for Mobile Devices
- Hand Held Portable Applications

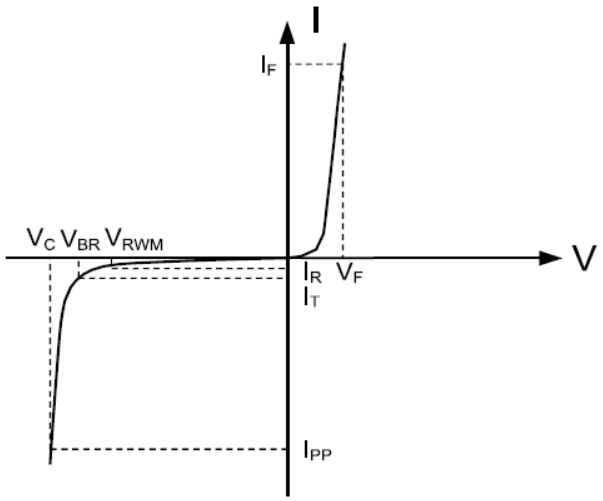
Mechanical Characteristics

- Case: DFN1610-2L, molded plastic.
- Epoxy: UL 94V-0 rate flame retardant.
- Terminals: solderable per MIL-STD-750, method 2026.
- RoHS Compliant

Absolute Maximum Ratings (T_A = 25℃ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp = 8/20μs)	P_{PP}	1800	W
Peak Pulse Current (tp = 8/20μs)	I_{PP}	125	A
ESD per IEC 61000−4−2 (Air)	V_{ESD}	±30	KV
ESD per IEC 61000−4−2 (Contact)		±30	KV
Operating Temperature Range	T_J	-55 to + 125	℃
Storage Temperature Range	T_{STG}	-55 to + 150	℃

Electrical Parameters (T_A = 25℃)	
Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Standoff Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical Characteristics (T_A = 25℃ Unless otherwise noted)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
Reverse Standoff Voltage	V_{RWM}				5.0	V
Reverse breakdown Voltage	V_{BR}	I_T = 1mA	6.0			V
Reverse leakage current	I_R	V_{RWM} = 5V			1.0	μA
Forward Voltage	V_F	I_F = 10mA		1.0	1.2	V
Clamping Voltage	V_C	I_{PP} = 10A,tp =8/20μs			9.0	V
Clamping Voltage	V_C	I_{PP} = 125A,tp =8/20μs			15	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz			800	pF

Typical Performance Characteristics (T_A = 25℃ Unless otherwise noted)

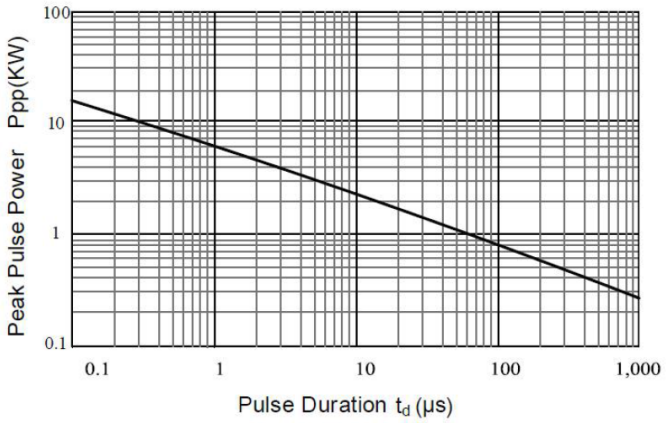


Fig 1. Peak Pulse Power vs. Pulse Time

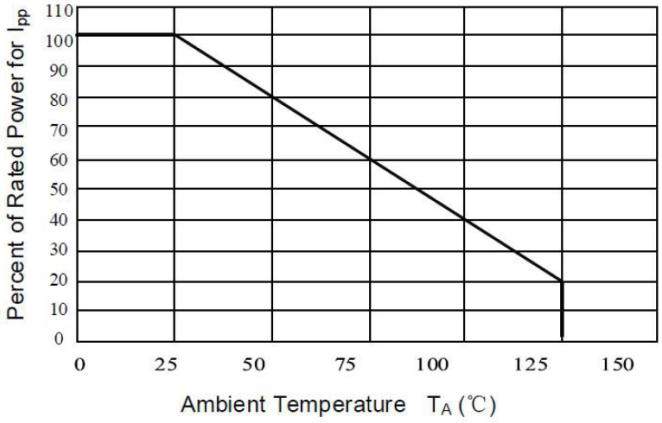


Fig 2. Power Derating Curve

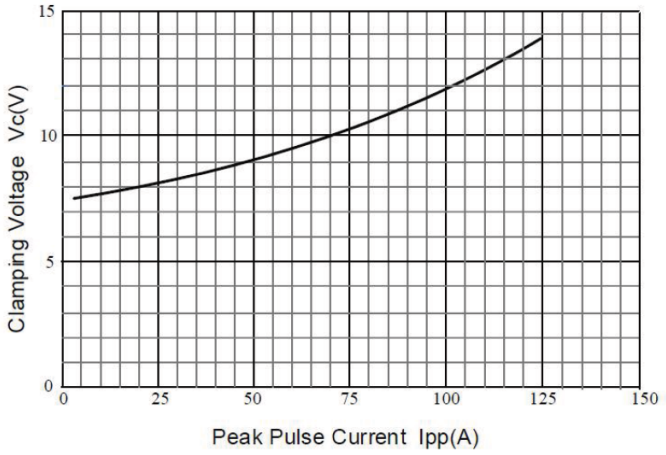


Fig 3. Clamping Voltage vs. Peak Pulse Current

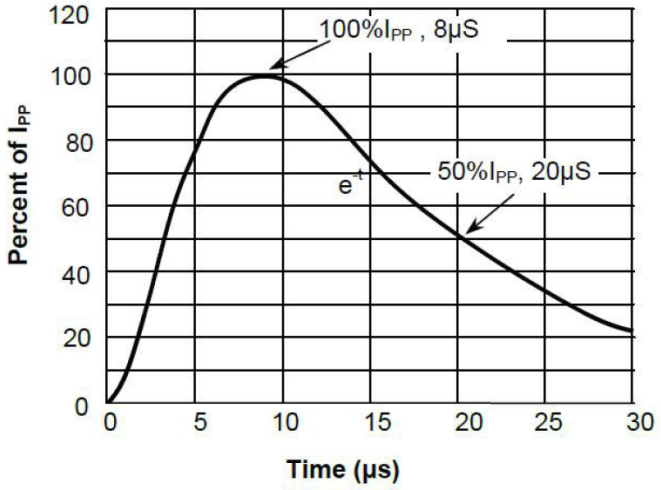
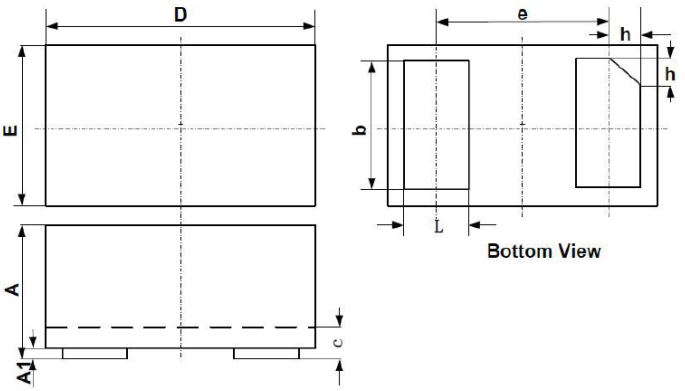


Fig 4. 8 X 20μs Pulse Waveform

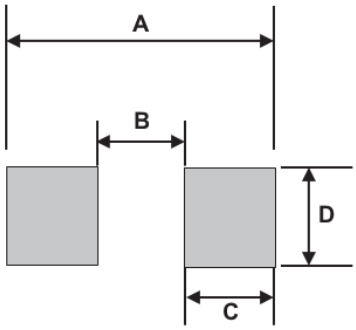
DFN1610-2L Package Outline Drawing

Symbol	DIMENSIONS					
	MILLIMETERS			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	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
h	0.15	0.20	0.25	0.006	0.008	0.010



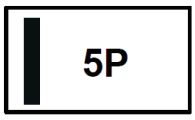
Suggested PAD Layout

Symbol	DFN1610-2L	
	(mm)	(inch)
A	1.85	0.074
B	0.60	0.024
C	0.62	0.025
D	1.00	0.040



Marking Code

Part Number	Marking Code
STCDF050UH	5P



Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCDF050UH	DFN1610-2L	3,000	7	Tape and reel