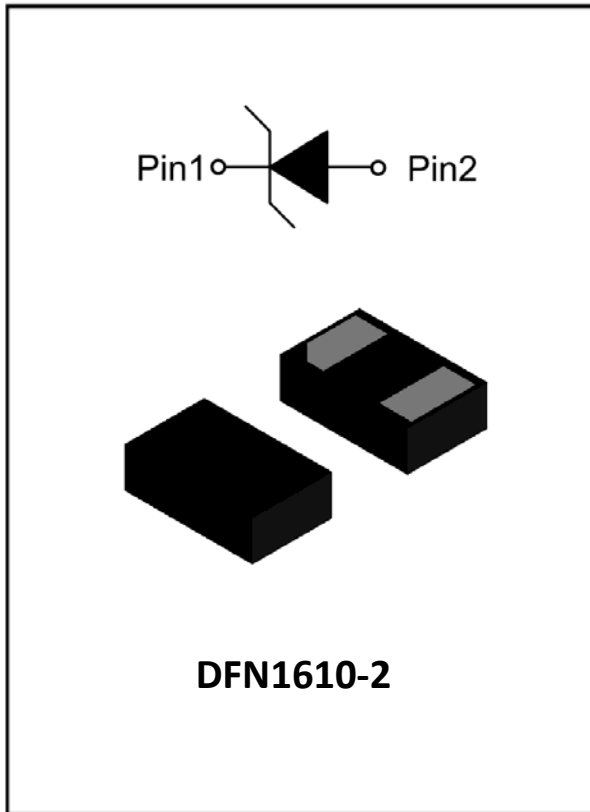


1-Line , Uni-directional , Transient Voltage Suppressor



Features

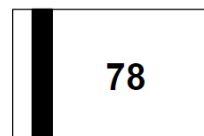
- Ultra small package
- Stand-off voltage: 20V
- Transient protection for each line according to
IEC61000-4-2(ESD): $\pm 30\text{kV}$ (contact/air)
IEC61000-4-5(surge): 30A (8/20 μs)
- Low clamping voltage
- RoHS Compliant

Applications

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

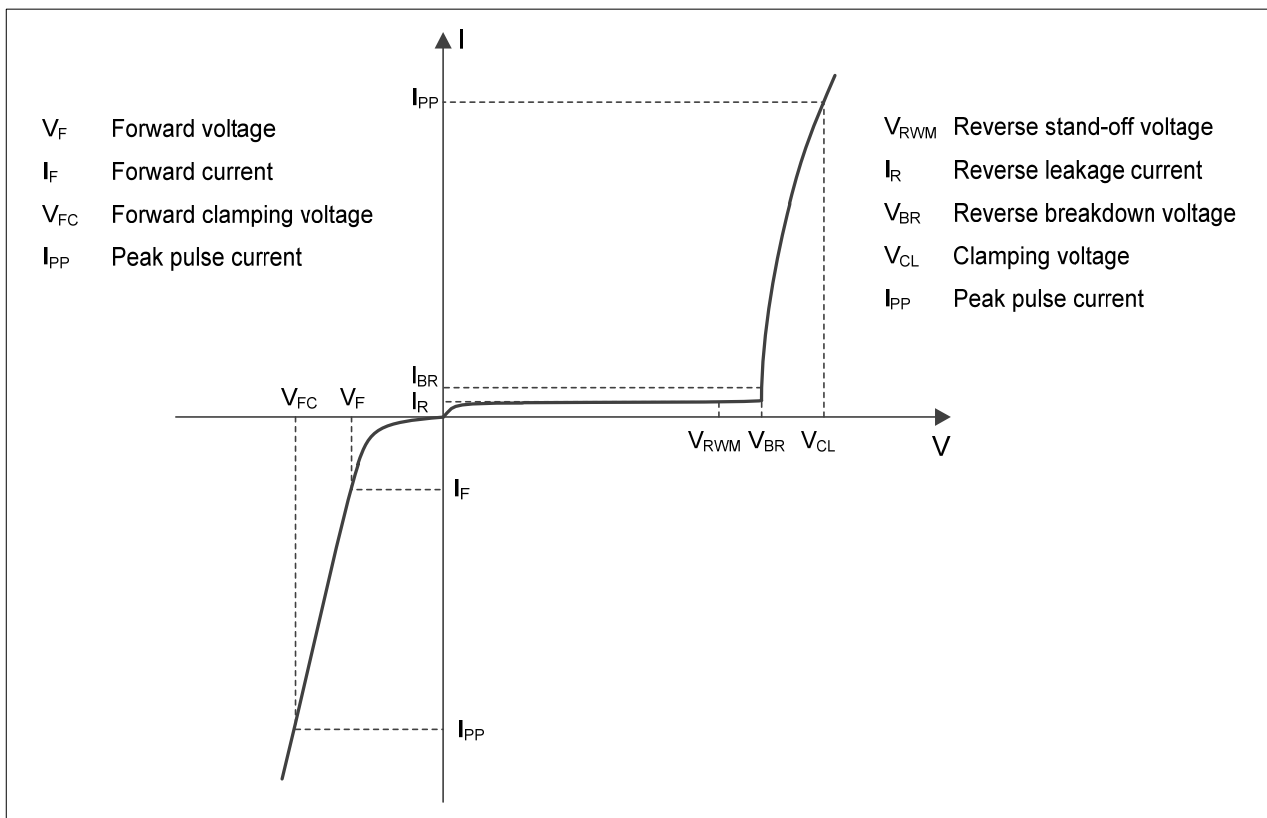
Mechanical Characteristics

- Package: DFN1610-2L
- Case Material: "Green" Molding Compound.
- Marking Information: See Below



78 = Device Marking Code
Bar denotes Cathode

■Definitions of electrical characteristics





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

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	1000	W
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	30	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	kV
ESD according to IEC61000-4-2 contact discharge		± 30	
Operating Temperature Range	T_J	-55~125	°C
Storage Temperature Range	T_{STG}	-55~150	°C

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

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				20
Reverse leakage current	I_R	μA	$V_{RWM} = 18V$			1
Reverse breakdown voltage	V_{BR}	V	$I_{BR} = 1mA$	21		
Forward voltage	V_F	V	$I_F = 10mA$			1.2
Clamping voltage	V_{CL}	V	$I_{PP} = 1A, t_p = 8/20\mu s$			24
Clamping voltage	V_{CL}	V	$I_{PP} = 30A, t_p = 8/20\mu s$			33
Junction capacitance	C_J	pF	$V_R = 0V, f = 1MHz$		200	

■Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD20VP6	F1	Approximate 2.7	3000	30000	120000	7" reel



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■ Typical Performance Characteristics ($T_a=25^\circ\text{C}$ unless otherwise Specified)

Fig.1 8/20 μs waveform per IEC61000-4-5

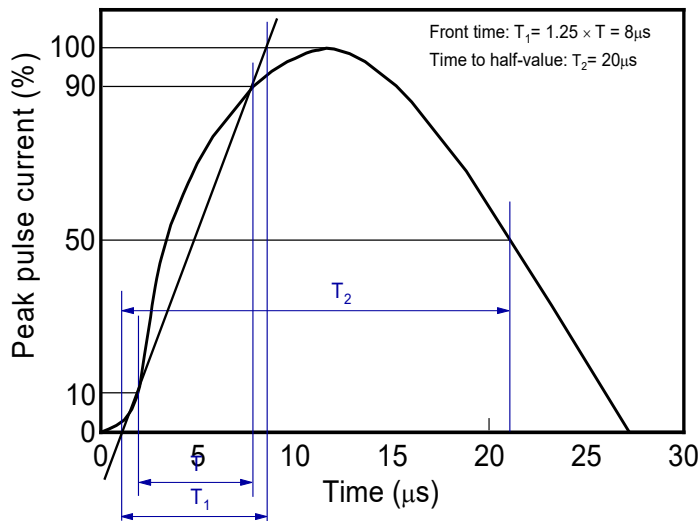


Fig.2 Contact discharge current waveform per IEC61000-4-2

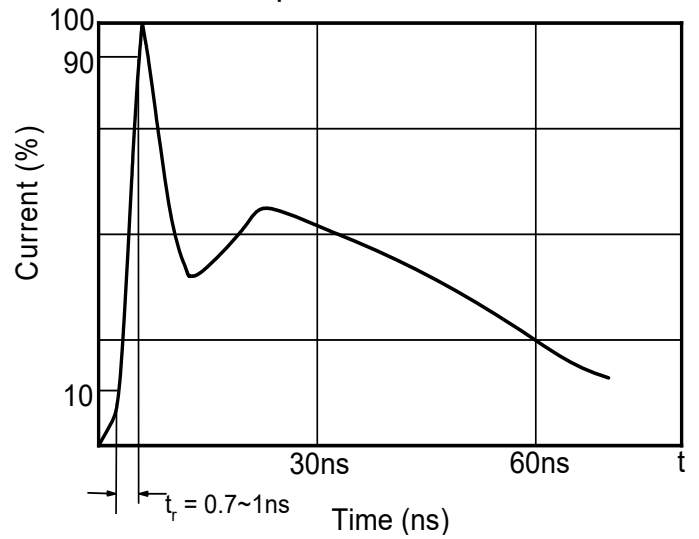


Fig.3 Clamping voltage vs. Peak pulse current

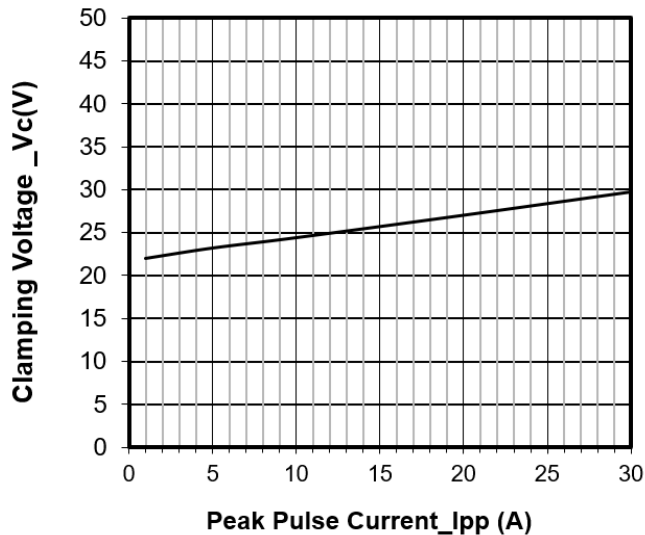


Fig.4 Capacitance vs. Reverse voltage

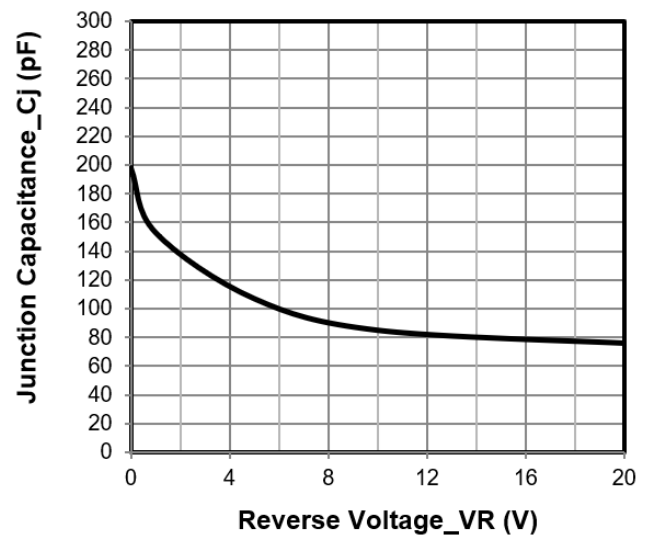


Fig.5 Non-repetitive peak pulse power vs. Pulse time

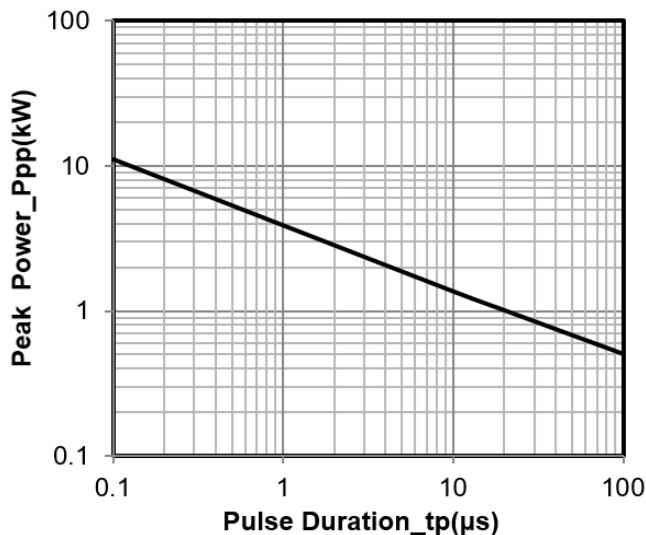


Fig.6 Power derating vs. Ambient temperature

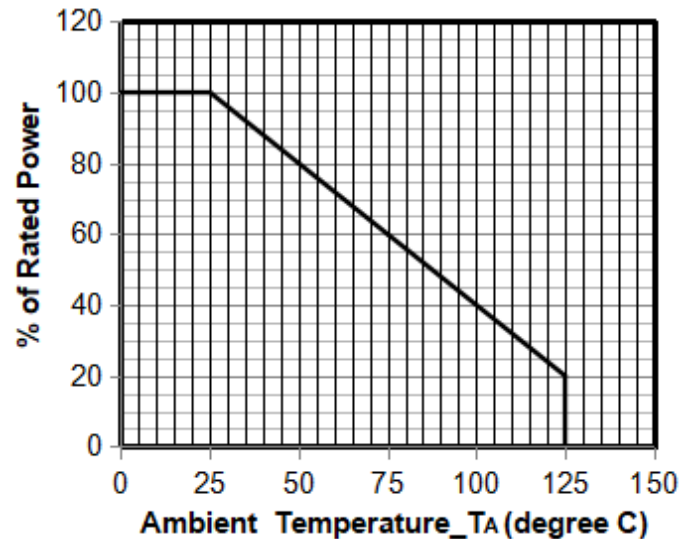
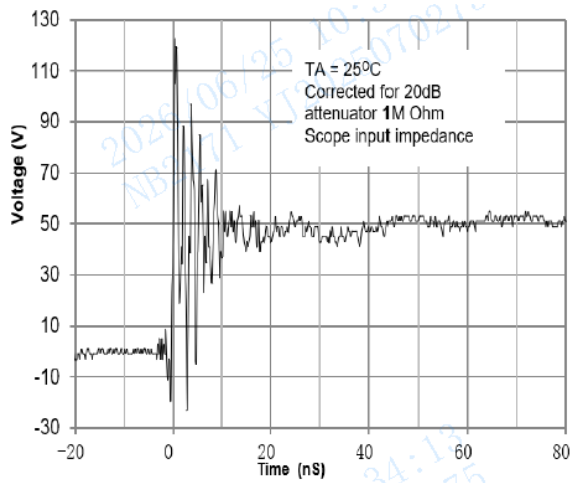




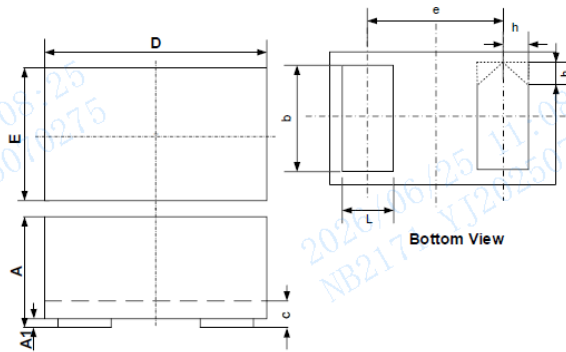
Fig.7 ESD clamping
(8kV contact discharge per IEC 61000-4-2)





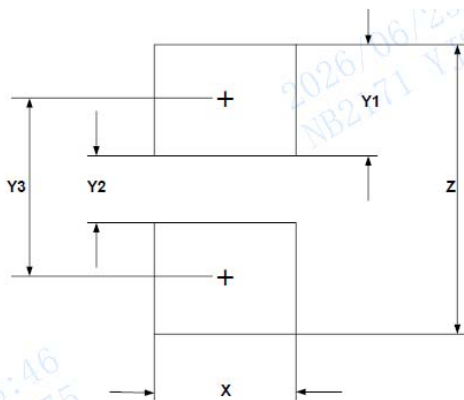
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■Outline Dimensions



SYM	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

■Recommend land pattern (Unit:mm)



SYM	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

Notes:

This recommended land pattern is for reference purposes only. Please consult your manufacturing group to ensure your PCB design guidelines are met.



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