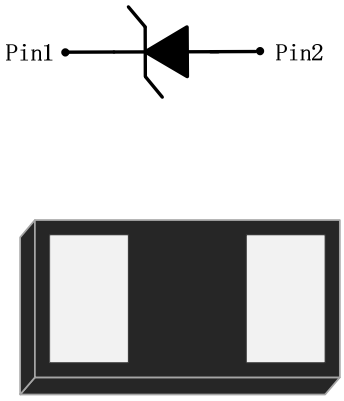
1-Line, Uni-directional, Low Capacitance Transient Voltage Suppressor



DFN1006-2L

Features

- Stand-off voltage: 3.3V Max
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV (contact)
  IEC61000-4-5(surge): 18A (8/20μs)
- Low capacitance: CJ = 2.5pF typ
- Ultra-low leakage current
- Low clamping voltage:
  V_{CL} = 3.1V typ. @ IPP = 16A (TLP)
- RoHS Compliant

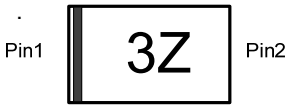
Applications

- USB 2.0
- HDMI 1.3, HDMI 1.4
- SATA and eSATA interface
- DVI
- IEEE 1394
- Portable Electronics and Notebooks

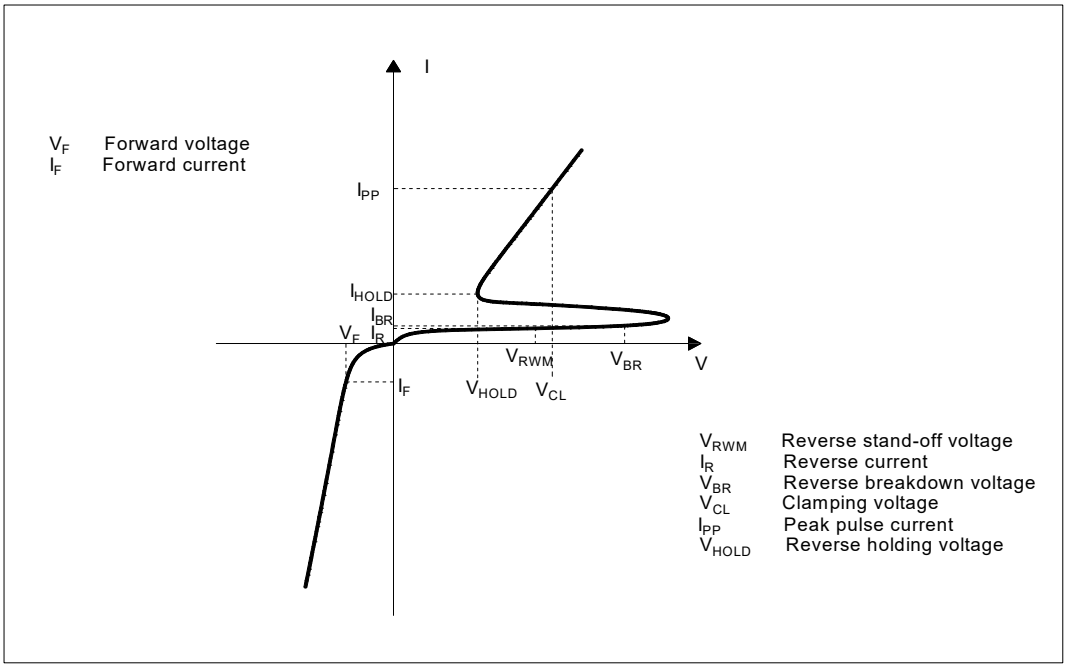
Caution:
This Device is designed for signal line protection only. Not intended to be used under bias, not for application with a power line.

Mechanical Data

- Package: DFN1006-2L
- Case Material: “Green” Molding Compound
- Moisture Sensitivity: Level 3 per J-STD-020
- Marking Information: See Below



■Definitions of electrical characteristics



■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power (t_p = 8/20μs)	P_{pk}	90	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	18	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T_J	-55~125	ºC
Storage temperature	T_{STG}	-55~150	ºC

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				3.3
Reverse leakage current	I_R	nA	V_{RWM} = 3.3V			50
Reverse breakdown voltage	V_{BR}	V	I_T =1mA	8.5		
Reverse holding voltage	V_{HOLD}	V	I_{HOLD} = 50mA,	1.8		
Clamping voltage 1)	V_{CL}	V	I_{PP} = 16A, t_p = 100ns		4.2	
Dynamic resistance 1)	R_{DYN}	Ω			0.06	
Clamping voltage 2)	V_{CL}	V	V_{ESD} = 8kV		5	
Clamping voltage 3)	V_{CL}	V	I_{PP} = 1A, t_p = 8/20μs		2.3	3.0
		V	I_{PP} = 18A, t_p = 8/20μs		3.6	5.0
Junction capacitance	C_J	pF	V_R = 1.5V, f = 1MHz		2.5	2.8

Notes:
(1). TLP parameter: Z_0 = 50Ω, t_p = 100ns, t_r = 2ns, averaging window from 60ns to 80ns. R_{DYN} is calculated from 4A to 16A.
(2). Contact discharge mode, according to IEC61000-4-2.
(3). Non-repetitive current pulse, according to IEC61000-4-5.

■Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD3V3LA	F1	Approximate 0.9	10000	100000	400000	7” reel

■ Characteristics (Typical)

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

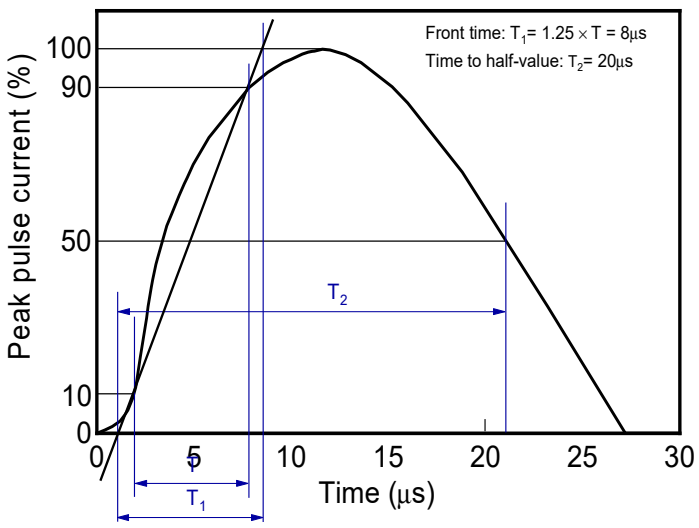


Fig.2 Contact discharge current waveform per IEC61000-4-2

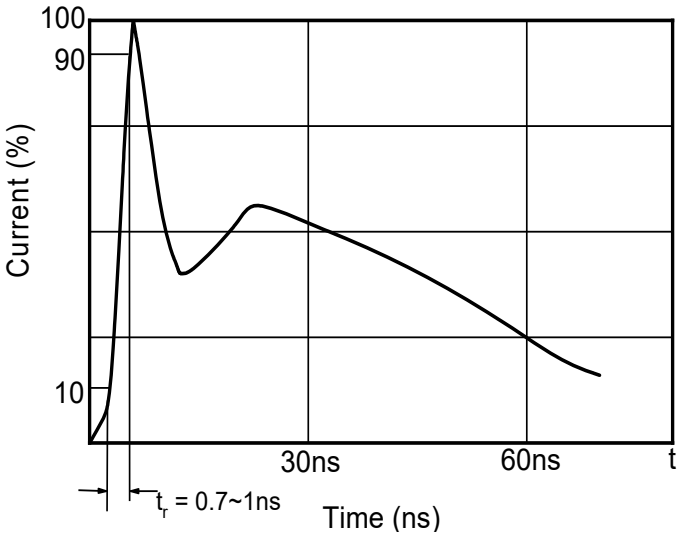


Fig.3 Clamping voltage vs. Peak pulse current

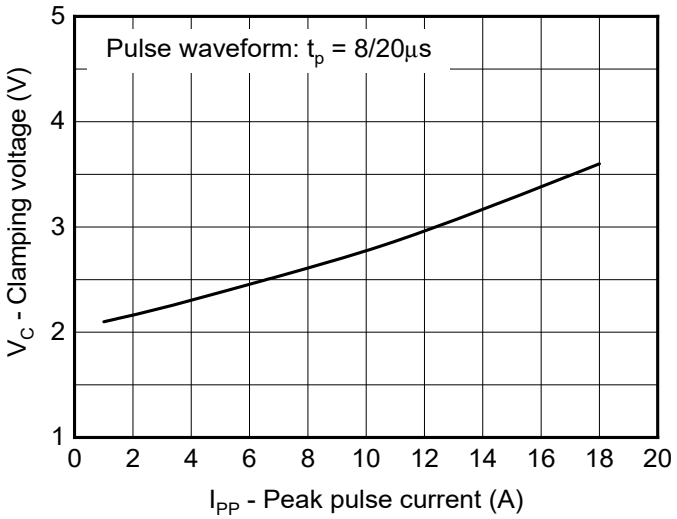


Fig.4 Capacitance vs. Reverse voltage

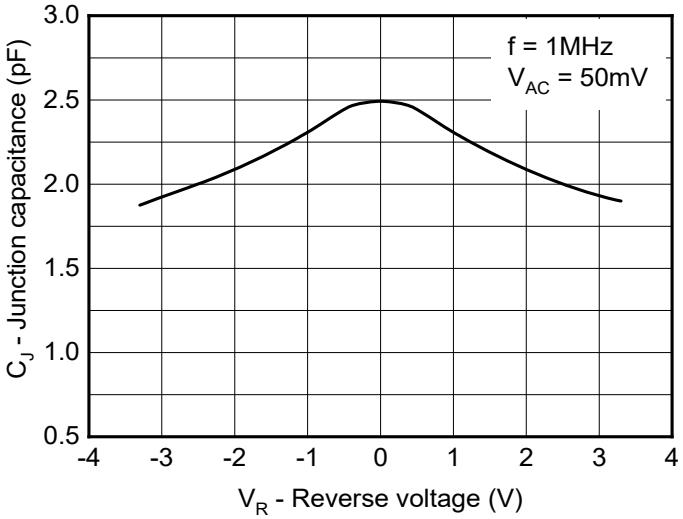


Fig.5 Non-repetitive peak pulse power vs. Pulse time

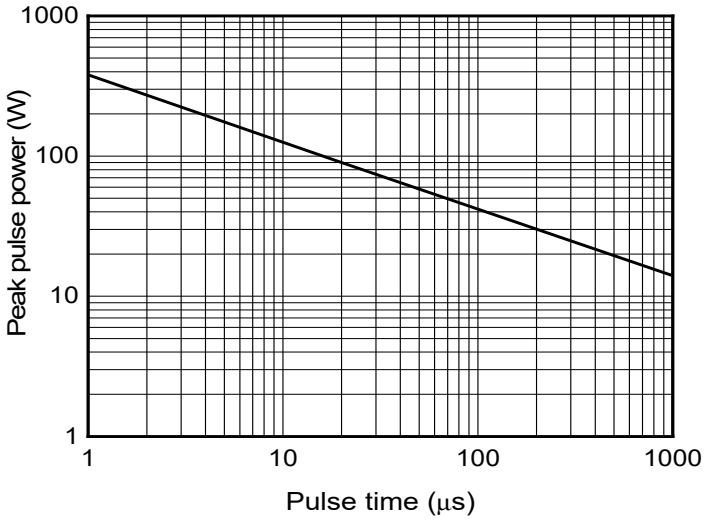


Fig.6 Power derating vs. Ambient temperature

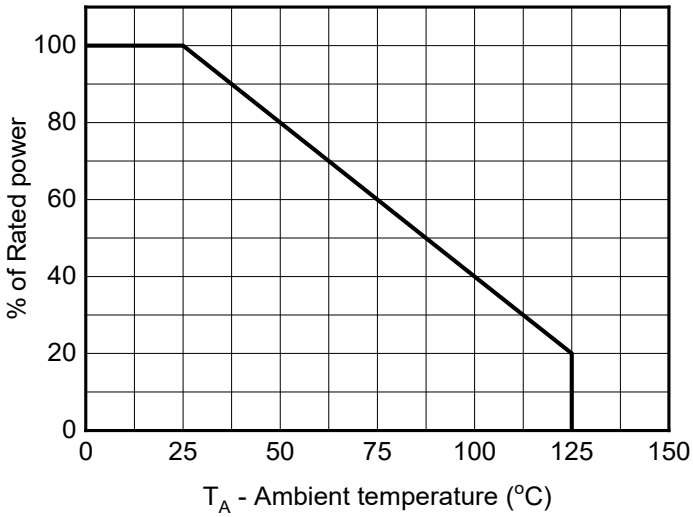


Fig.7 ESD clamping
(+8kV contact discharge per IEC61000-4-2)

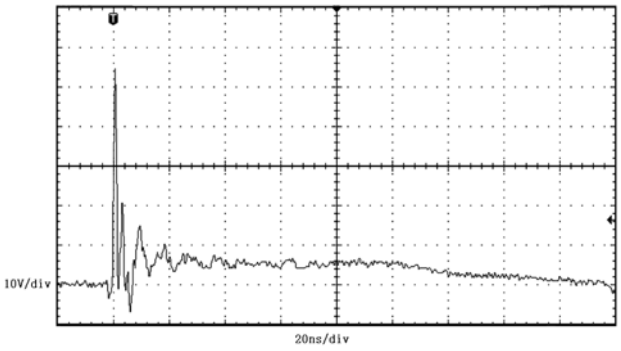


Fig.8 ESD clamping
(-8kV contact discharge per IEC61000-4-2)

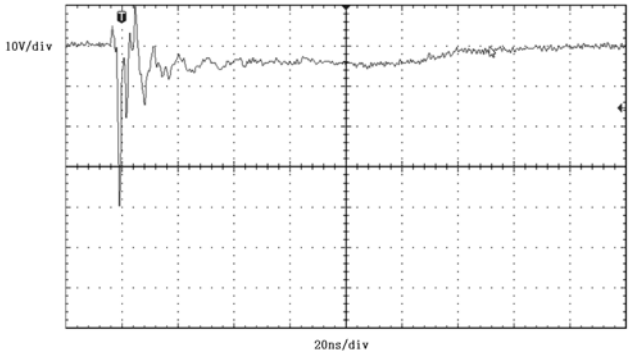
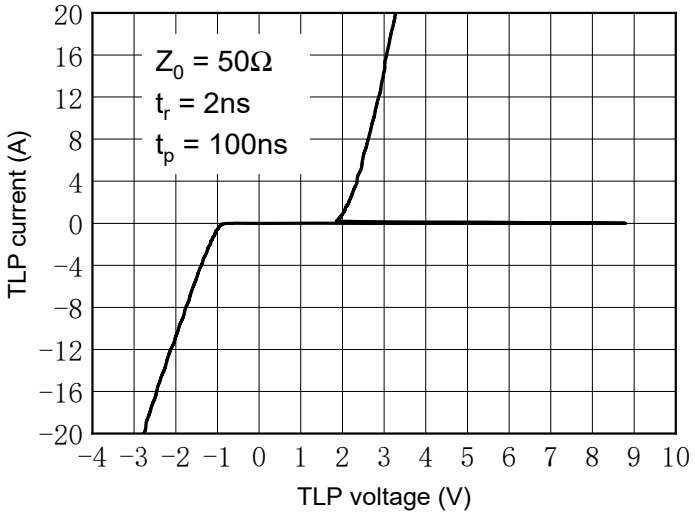
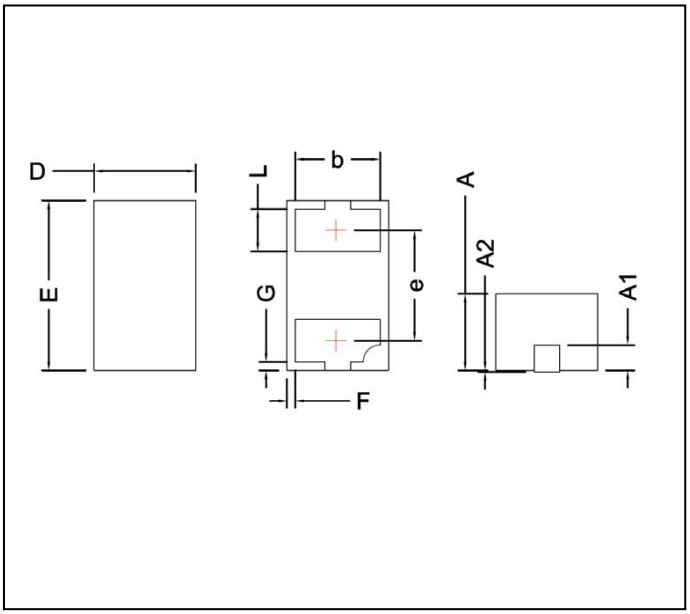


Fig.9 TLP Measurement

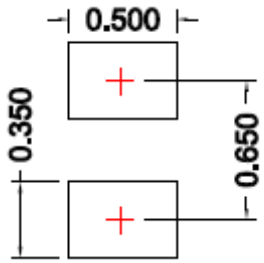


■ Outline Dimensions



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
D	0.50	0.60	0.70
E	0.90	1.00	1.10
A	0.35	0.45	0.55
A1		0.15 BSC	
A2			0.10
F	0.005		
G	0.005		
L	0.15	0.25	0.35
b	0.41	0.50	0.59
e		0.65 BSC	

■ Recommended PCB Layout



Unit:mm

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

Notice

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