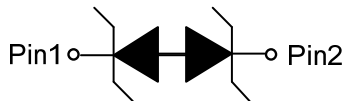


1-Line, Bi-directional, Ultra-low Capacitance Transient Voltage Suppressor



DFN1006-2L

Features

- Stand-off voltage: 5.5V Max
- Transient protection for each line according to
IEC61000-4-2(ESD): $\pm 20\text{kV}$ (contact)
IEC61000-4-5(surge): 3.5A (8/20 μs)
- Ultra-low leakage current
- Ultra low clamping voltage
- Low clamping voltage:
 $V_{CL} = 20\text{V typ. @ IPP} = 16\text{A (TLP)}$
- Compliant

Applications

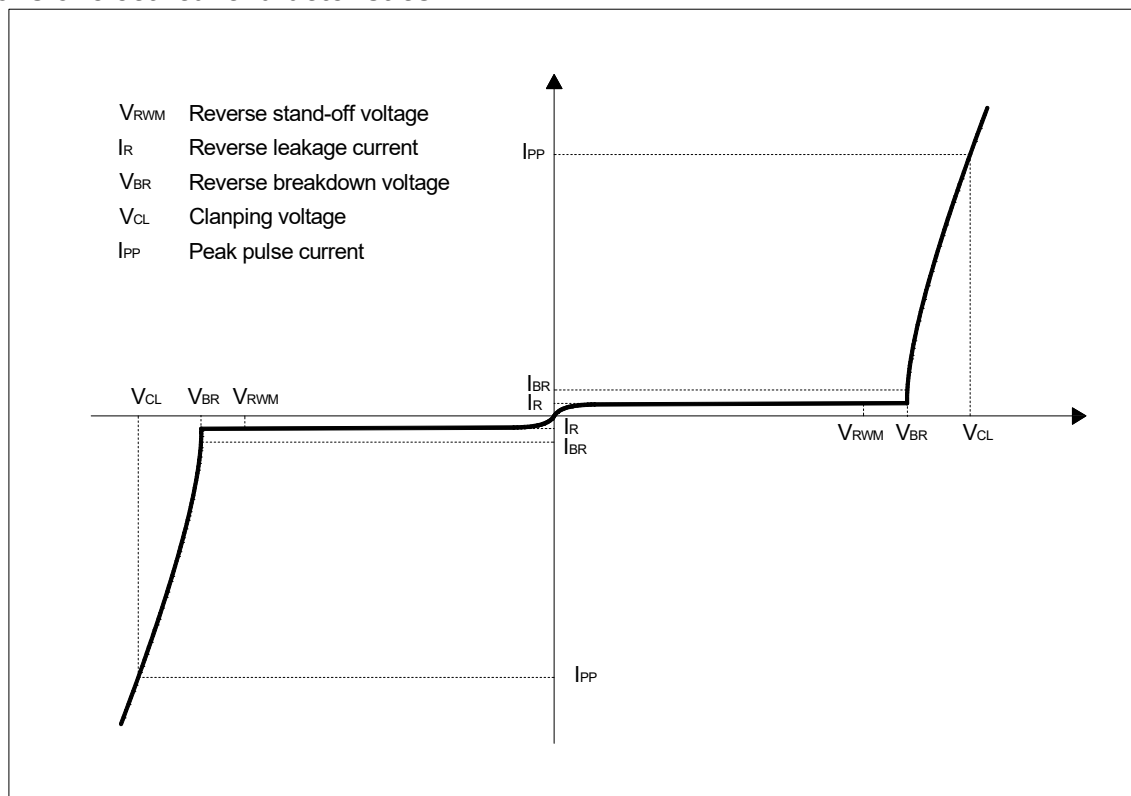
- USB 2.0 and USB 3.0
- HDMI 1.3, HDMI 1.4 and HDMI 2.0
- SATA and eSATA interface
- DVI
- IEEE 1394
- Portable Electronics and Notebooks

Mechanical Data

- Package: DFN1006-2L
- Case Material: "Green" Molding Compound
- Marking Information: See Below



■ Definitions of electrical characteristics



Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	56	W
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	3.5	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 20	kV
ESD according to IEC61000-4-2 contact discharge		± 20	
Junction temperature	T_J	125	$^{\circ}C$
Storage temperature	T_{STG}	-55~150	$^{\circ}C$

Electrical Characteristics ($T_a = 25^{\circ}C$ Unless otherwise specified)

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				5
Reverse leakage current	I_R	nA	$V_{RWM} = 5V$			50
Reverse breakdown voltage	V_{BR}	V	$I_{BR} = 1mA$	7	8	9
Clamping voltage ¹⁾	V_{CL}	V	$I_{PP} = 16A, t_p = 100ns$		20	
Dynamic resistance ¹⁾	R_{DYN}	Ω			0.6	
Clamping voltage ²⁾	V_{CL}	V	$V_{ESD} = 8kV$		20	
Clamping voltage ³⁾	V_{CL}	V	$I_{PP} = 1A, t_p = 8/20\mu s$		10.5	12
		V	$I_{PP} = 3.5A, t_p = 8/20\mu s$		14.5	16
Junction capacitance	C_J	pF	$V_R = 0V, f = 1MHz$		0.3	0.5

Notes:

- (1). TLP parameter: $Z_0 = 50\Omega$, $t_p = 100ns$, $t_r = 2ns$, 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)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESDSL5V5LBS1	F1	Approximate 0.9	10000	100000	400000	7" reel

■ Characteristics (Typical)

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

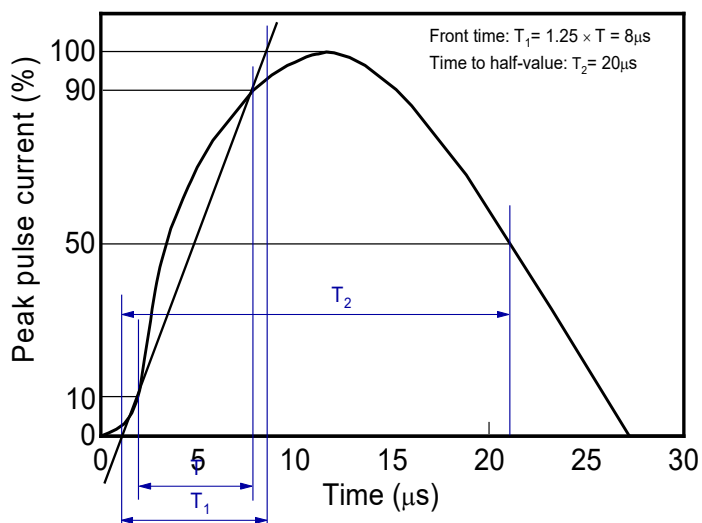


Fig.2 Contact discharge current waveform per IEC61000-4-2

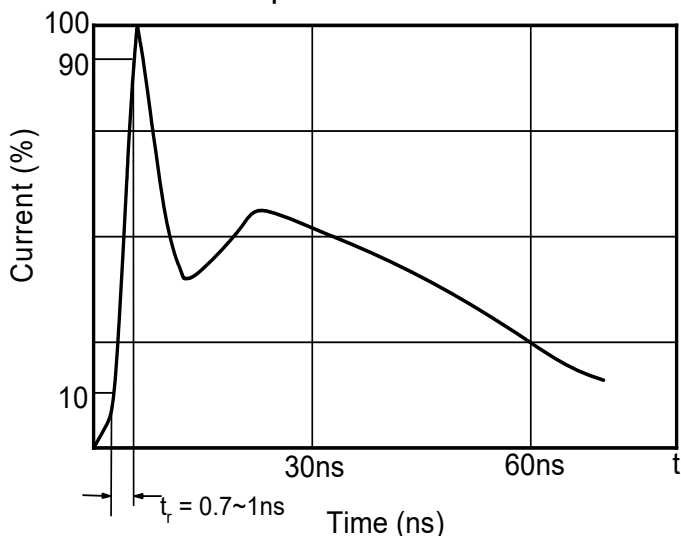


Fig.3 Clamping voltage vs. Peak pulse current

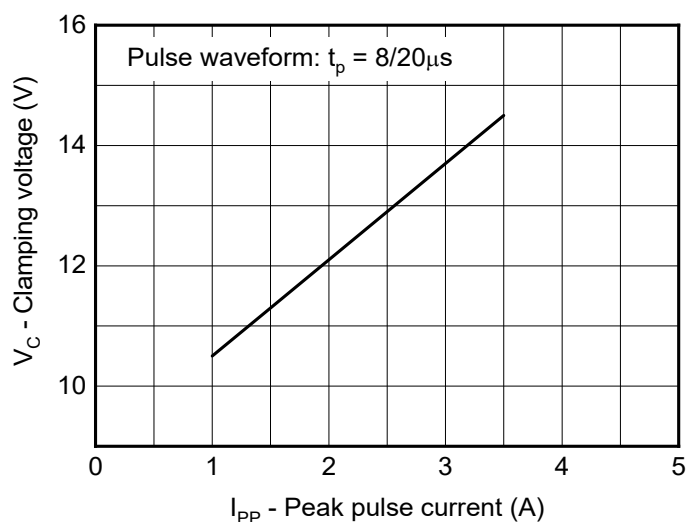


Fig.4 Capacitance vs. Reverse voltage

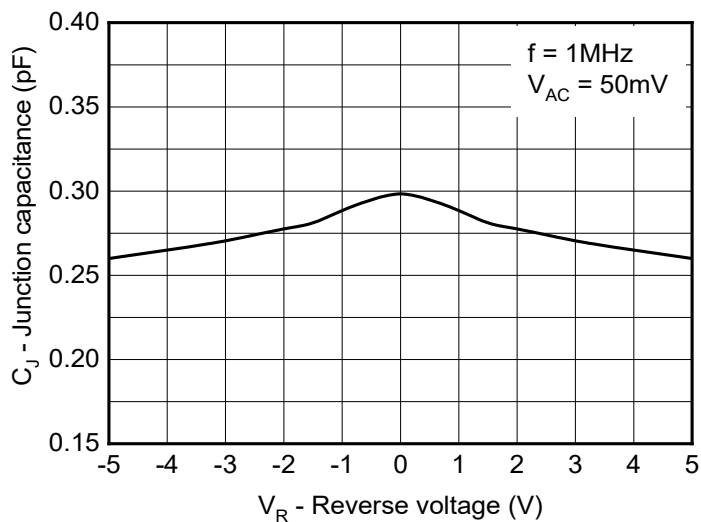


Fig.5 Non-repetitive peak pulse power vs. Pulse time

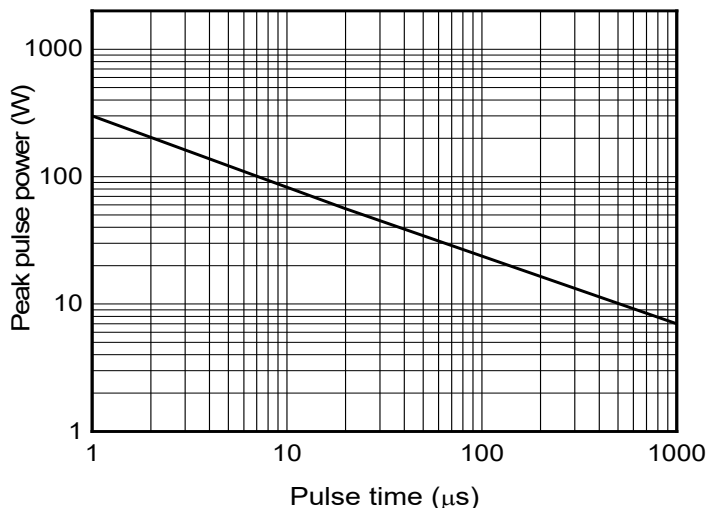


Fig.6 Power derating vs. Ambient temperature

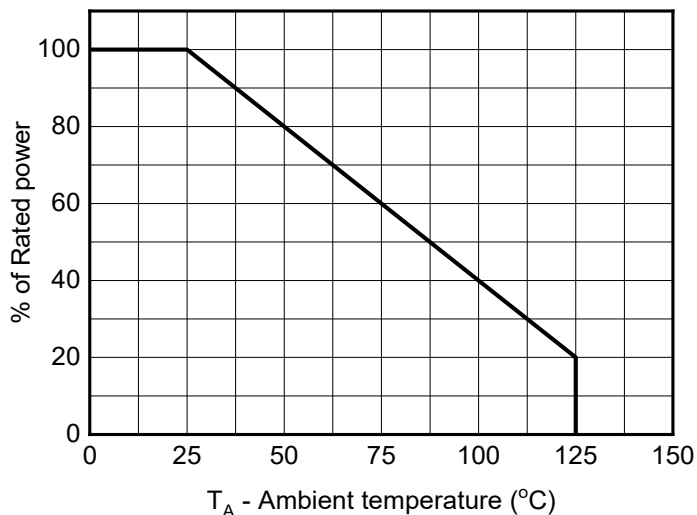


Fig.7 ESD clamping
(+8kV contact discharge per IEC61000-4-2)

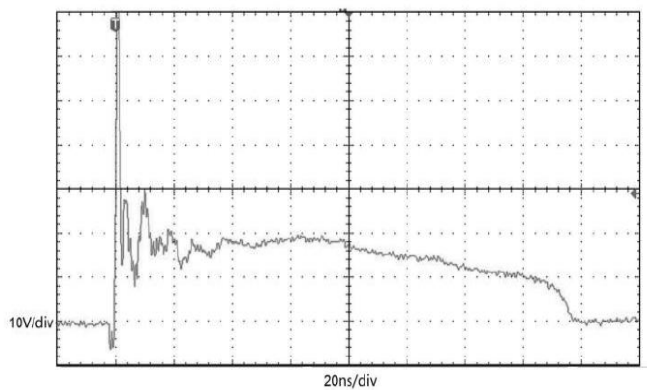


Fig.8 ESD clamping
(-8kV contact discharge per IEC61000-4-2)

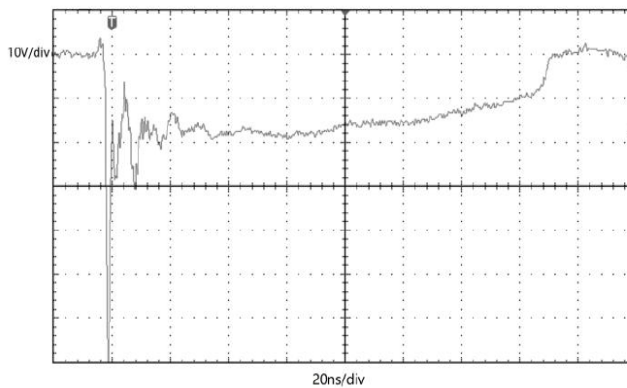
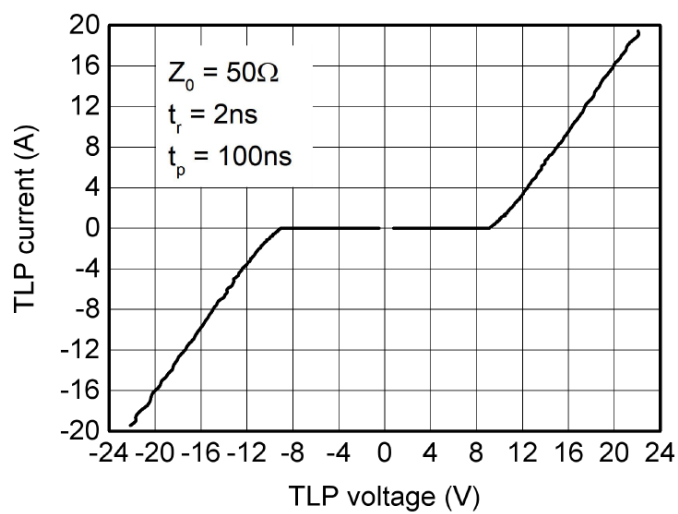
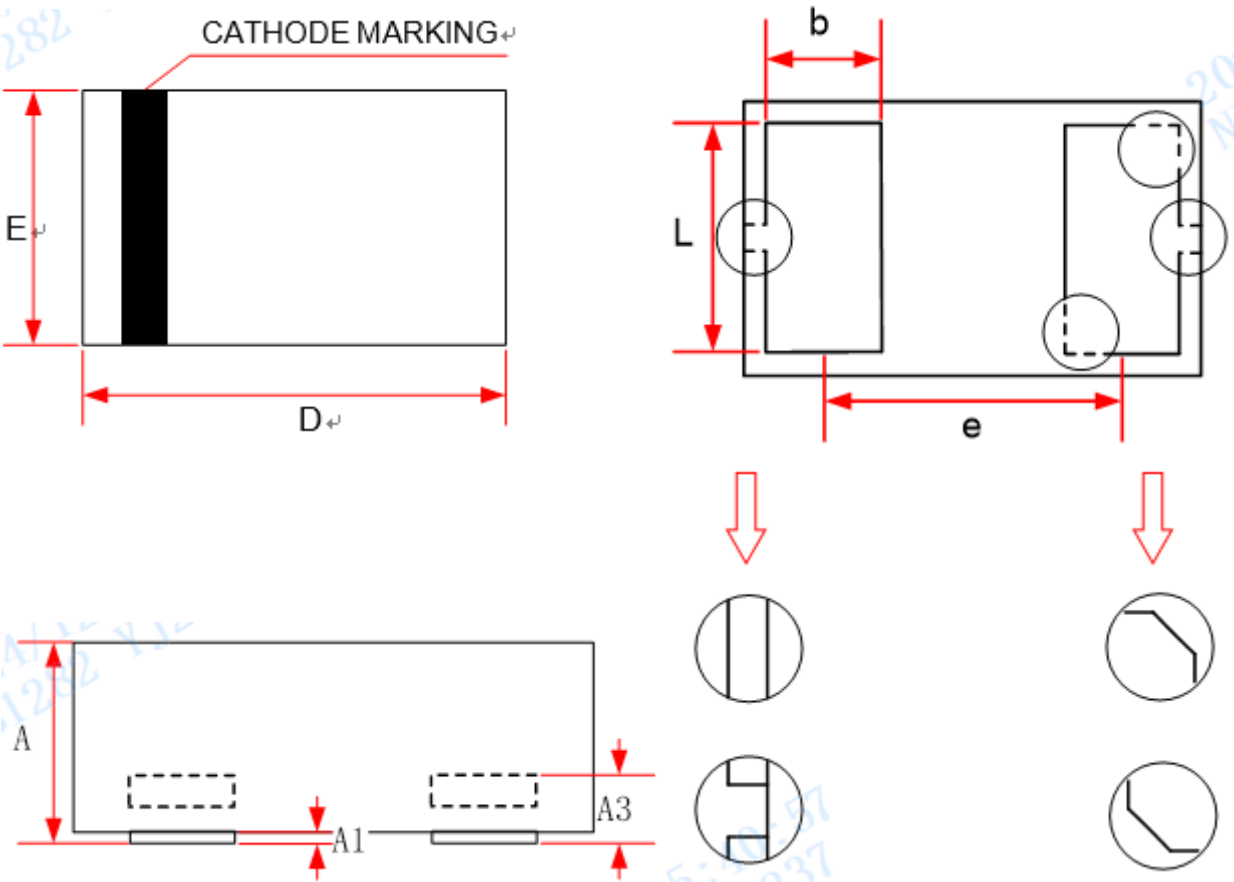


Fig.9 TLP Measurement

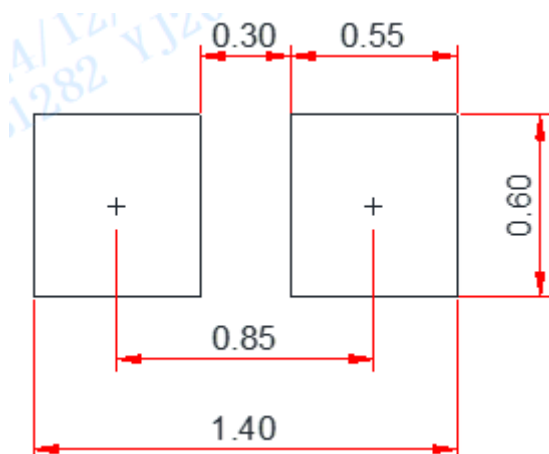


■ Outline Dimensions



Symbol ↴	Dimensions in Millimeters ↴		
	Min. ↴	Typ. ↴	Max. ↴
A ↴	0.340 ↴	- ↴	0.550 ↴
A1 ↴	0.000 ↴	0.020 ↴	0.050 ↴
A3 ↴	0.125 Ref. ↴		
D ↴	0.950 ↴	1.000 ↴	1.080 ↴
E ↴	0.550 ↴	0.600 ↴	0.680 ↴
b ↴	0.200 ↴	0.250 ↴	0.300 ↴
L ↴	0.450 ↴	0.500 ↴	0.550 ↴
e ↴	0.650 BSC ↴		

■ Recommended PCB Layout



Notes:

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

Unit:mm

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