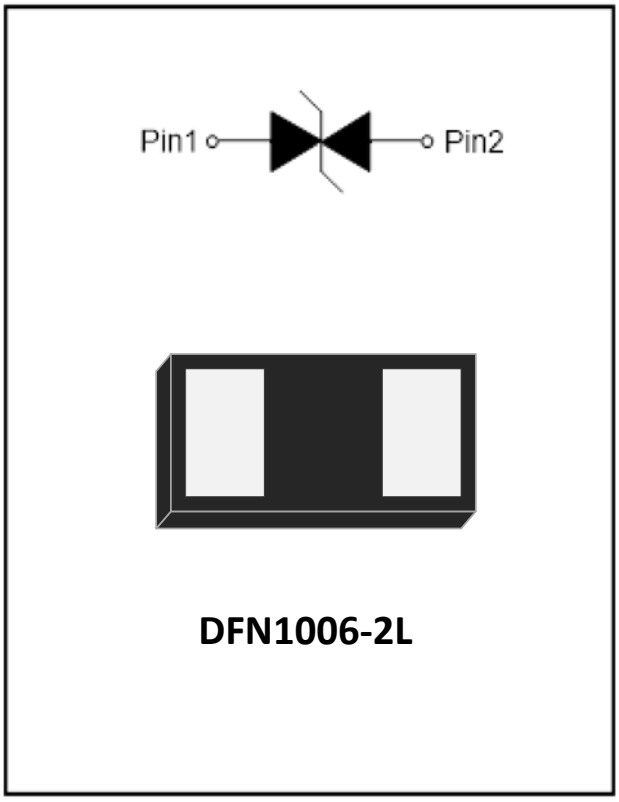
1-Line, Bi-directional, Transient Voltage Suppressor



DFN1006-2L

Features

- Stand-off voltage: ±5V Max
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV (contact)
  IEC61000-4-4 (EFT): 40A (5/50ns)
  IEC61000-4-5(surge): 11A (8/20μs)
- Low leakage current
- Ultra-low capacitance: CJ = 20pF typ
- Low clamping voltage:

VCL =9.0V typ. @ IPP = 16A (TLP)

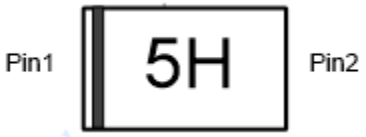
- RoHS Compliant

Applications

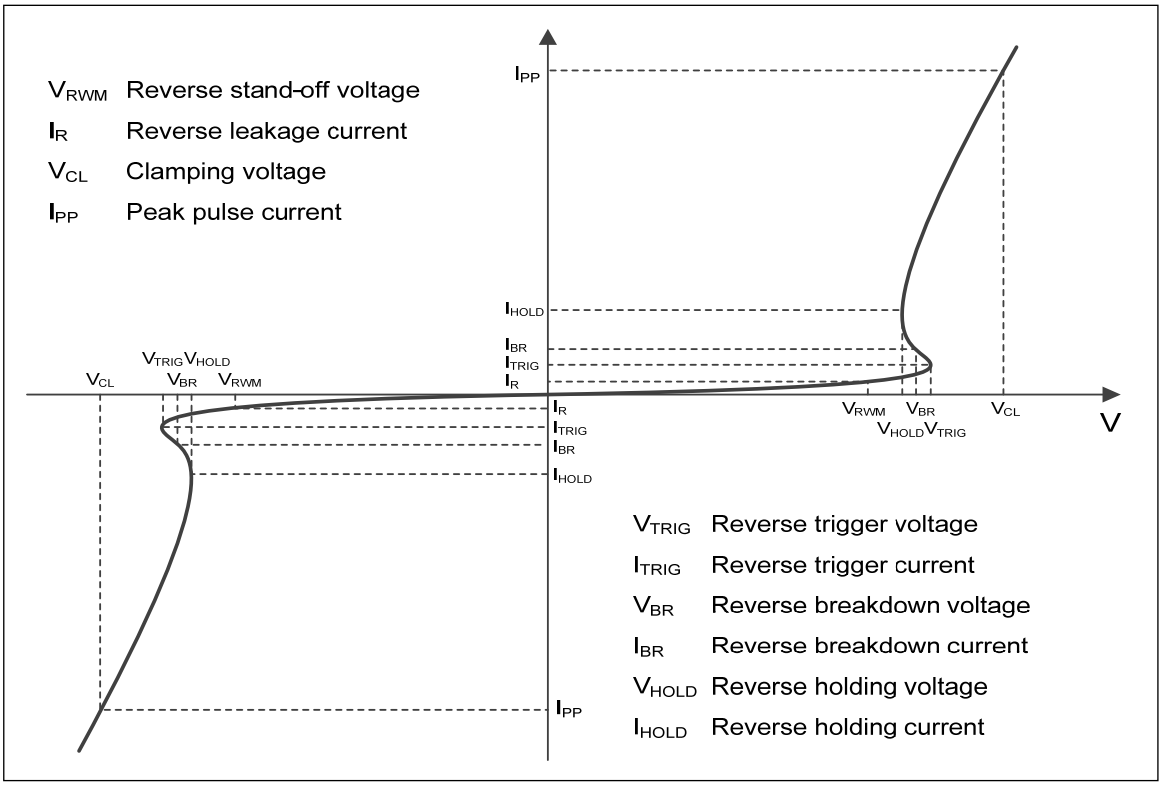
- Cellular Handsets
- Tablets
- Laptops
- Other portable devices
- Network communication devices

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}	132	W
Peak pulse current (t_p = 8/20μs)	I_{PP}	11	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	°C
Storage temperature	T_{STG}	-55~150	°C

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

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V				±5
Reverse leakage current	I_R	uA	V_{RWM} = 5V			0.1
Reverse breakdown voltage	V_{BR}	V	I_{BR} = 1mA	5.5	6	
Reverse holding voltage	V_{HOLD}	V	I_{HOLD} = 50mA	5.5	6	
Clamping voltage 1)	V_{CL}	V	I_{PP} = 16A, t_p = 0.2/100ns(TLP)		9	
Dynamic resistance 1)	R_{DYN}	Ω			0.2	
Clamping voltage 2)	V_{CL}	V	V_{ESD} = 8kV		8.5	
Clamping voltage 1)	V_{CL}	V	I_{PP} = 1A, t_p = 8/20μs		6.5	
		V	I_{PP} = 11A, t_p = 8/20μs		10.2	
Junction capacitance	C_J	pF	V_R = 0V, f = 1MHz		20	25
Junction capacitance	C_J	pF	V_R = 2.5V, f = 1MHz		16	20

Notes:
(1). Non-repetitive current pulse, according to IEC61000-4-5.

Notes:

1) TLP parameter: Z0 = 50Ω, tp = 100ns, tr = 2ns, averaging window from 60ns to 80ns. RDYN 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
ESD5V0LBA4	F1	Approximate 0.9	10000	100000	400000	7” reel

■ Characteristics (Typical)

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

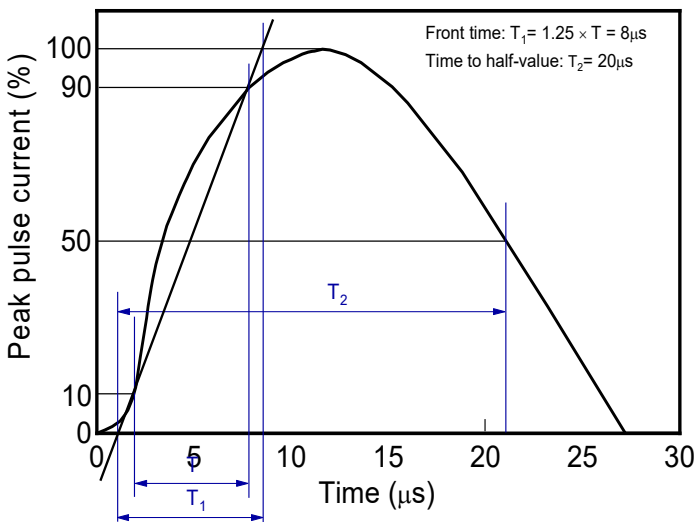


Fig.2 Contact discharge current waveform per IEC61000-4-2

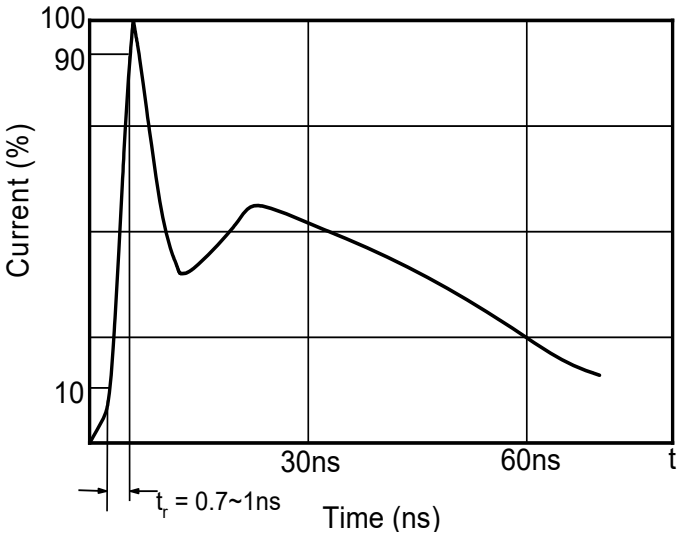


Fig.3 Clamping voltage vs. Peak pulse current

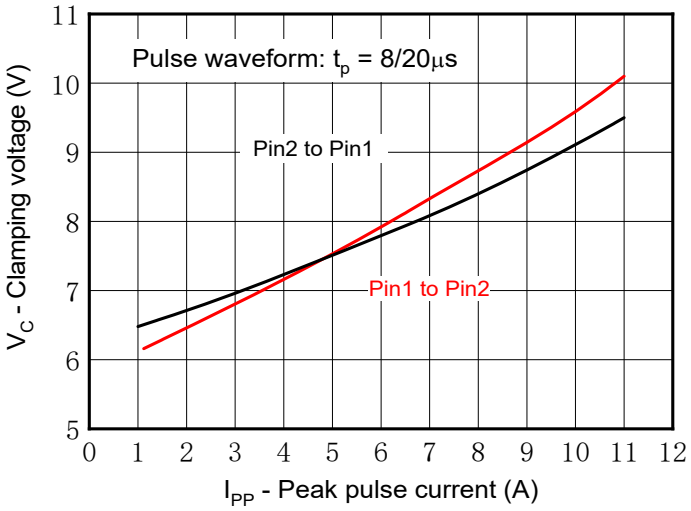


Fig.4 Capacitance vs. Reverse voltage

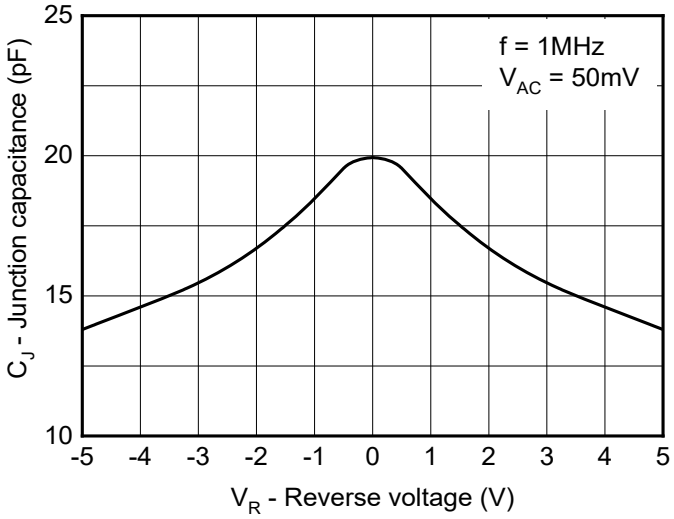


Fig.5 Non-repetitive peak pulse power vs. Pulse time

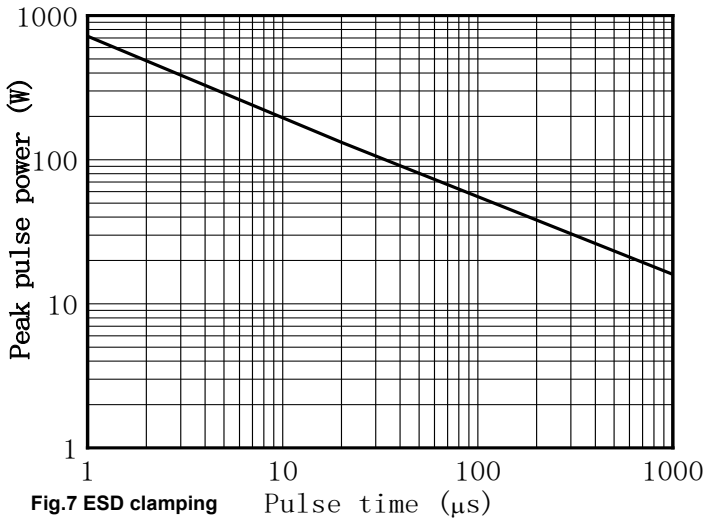


Fig.6 Power derating vs. Ambient temperature

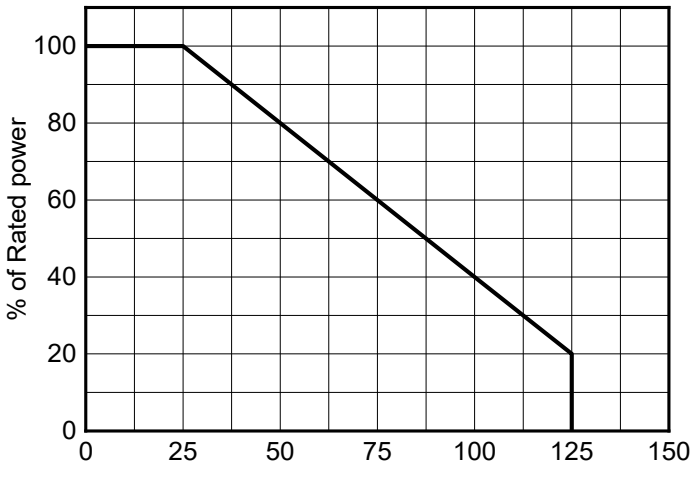
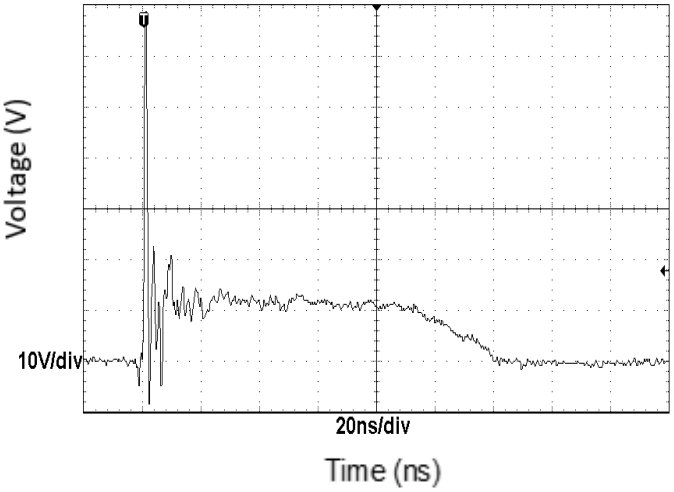
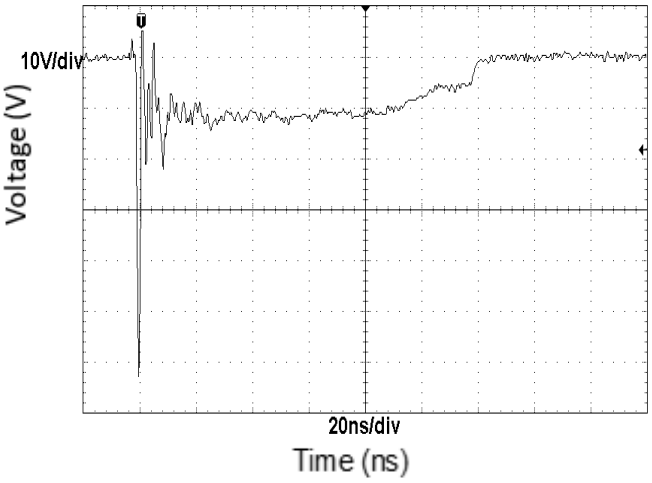


Fig.7 ESD clamping

Fig.8 ESD clamping

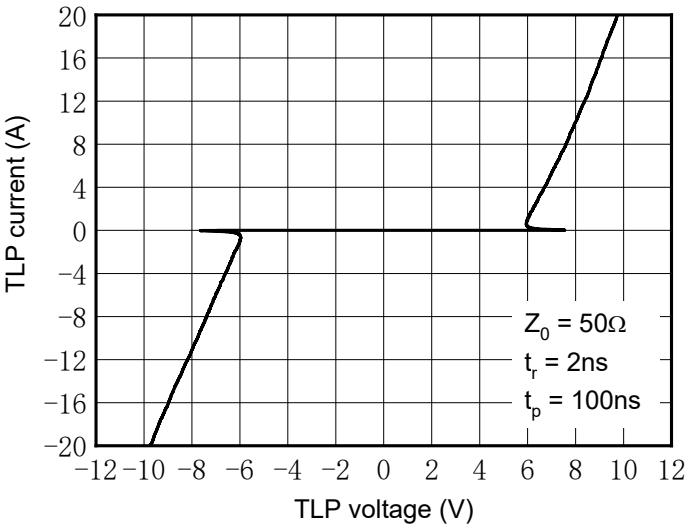


(+8kV contact discharge per IEC61000-4-2)

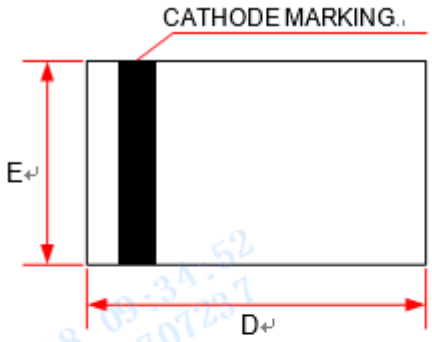


(-8kV contact discharge per IEC61000-4-2)

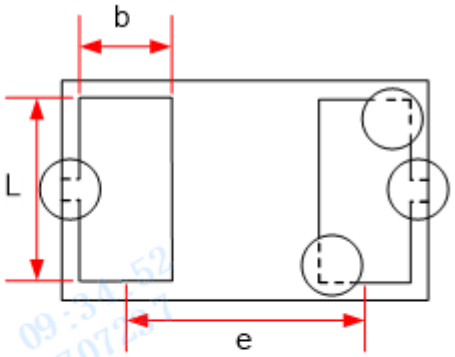
Fig.9 TLP Measurment



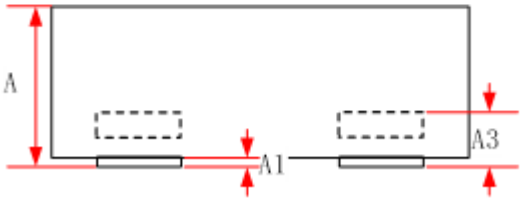
■ Outline Dimensions



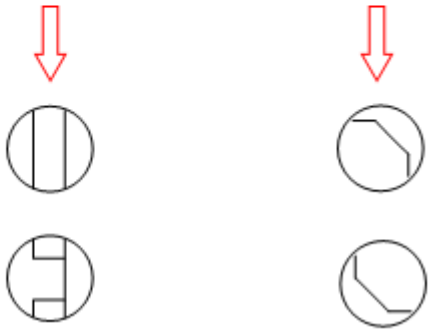
Top View



Bottom View

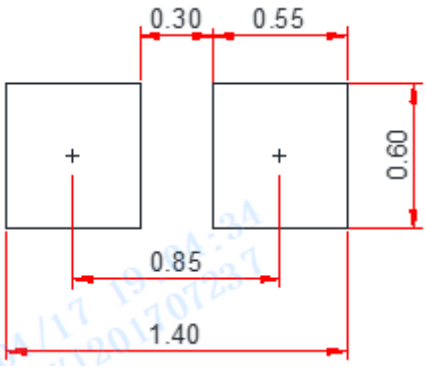


Side View



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.340	0.450	0.530
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



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

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise. Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in STARSEA's terms and conditions of sale for such products, STARSEA assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of STARSEA products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.