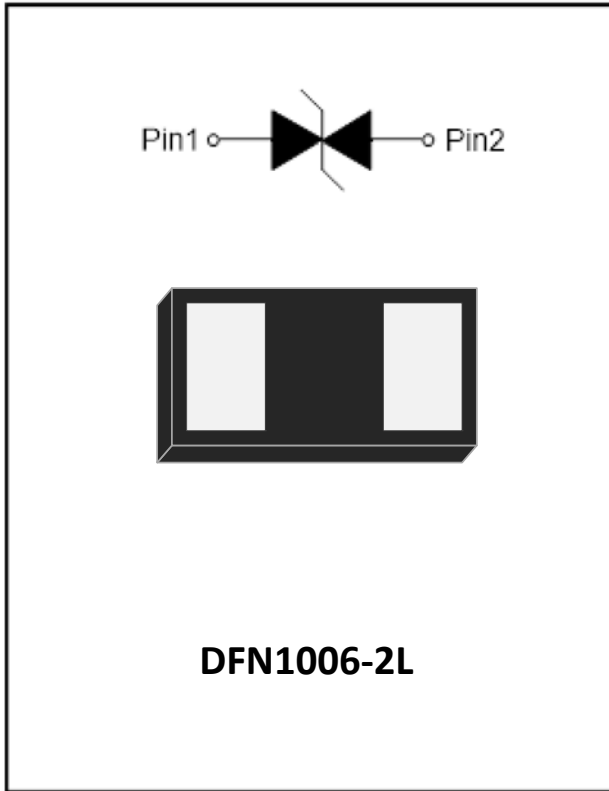


## 1-Line, Bi-directional, Transient Voltage Suppressor



### Features

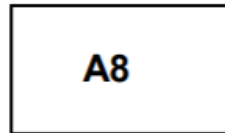
- Stand-off voltage: 4.8V Max
- Transient protection for each line according to  
IEC61000-4-2(ESD):  $\pm 30\text{kV}$  (contact)  
IEC61000-4-5(surge): 100A (8/20 $\mu\text{s}$ )
- Low leakage current
- Low clamping voltage
- Low clamping voltage:
- RoHS Compliant

### Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players
- Keypads, Side Keys, LCD Displays

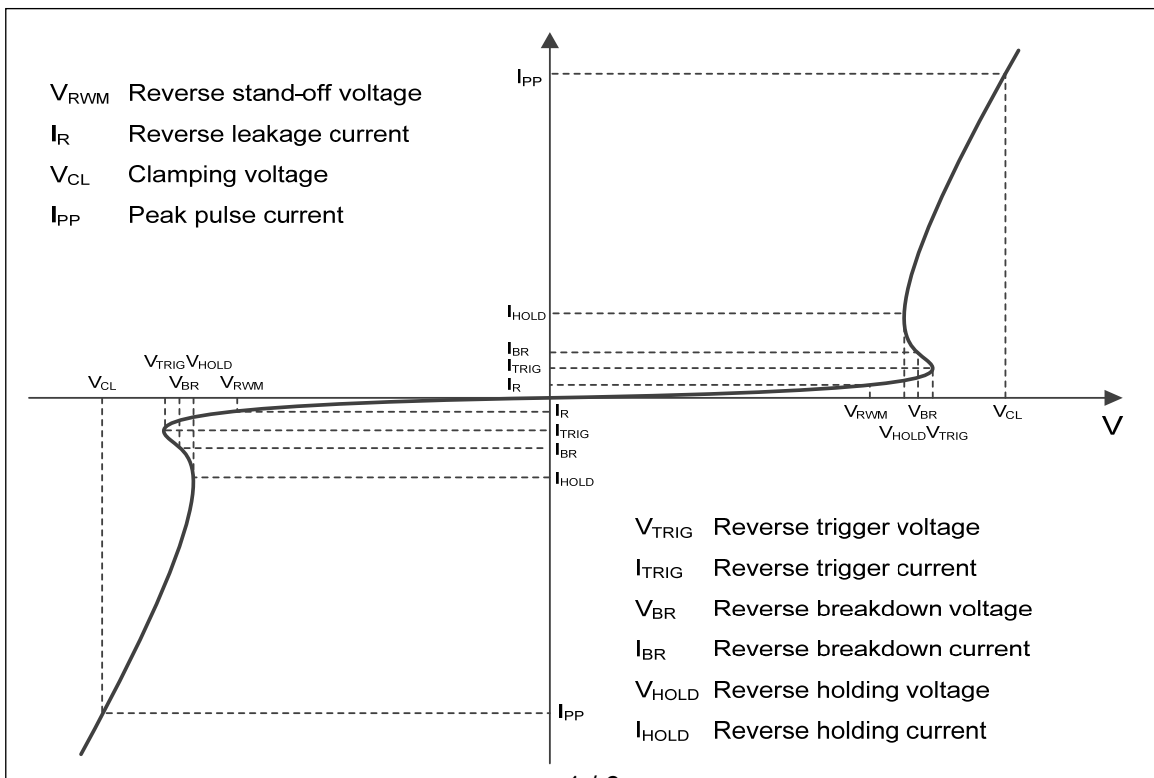
### Mechanical Data

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



A8 = Device Marking Code

### ■Definitions of electrical characteristics





# ESD4V5LBA4

## ■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ( $t_p = 8/20\mu s$ )	$P_{pk}$	1600	W
Peak pulse current ( $t_p = 8/20\mu s$ )	$I_{pp}$	100	A
ESD according to IEC61000-4-2 air discharge	$V_{ESD}$	$\pm 30$	kV
ESD according to IEC61000-4-2 contact discharge		$\pm 30$	
Junction temperature	$T_J$	-55~125	$^{\circ}C$
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				4.8
Reverse leakage current	$I_R$	$\mu A$	$V_{RWM} = 5V$			0.5
Reverse breakdown voltage	$V_{BR}$	V	$I_{BR} = 1mA$	5		7
Clamping voltage <sup>1)</sup>	$V_{CL}$	V	$I_{pp} = 4A, t_p = 0.2/100ns(TLP)$		6.3	
Clamping voltage <sup>1)</sup>	$V_{CL}$	V	$I_{pp} = 16A, t_p = 0.2/100ns(TLP)$		7.4	
Dynamic resistance <sup>1)</sup>	$R_{DYN}$	$\Omega$	$t_p = 0.2/100ns(TLP)$		0.09	
Clamping voltage <sup>1)</sup>	$V_{CL}$	V	$I_{pp} = 1A, t_p = 8/20\mu s$			6
		V	$I_{pp} = 100A, t_p = 8/20\mu s$			16
Junction capacitance	$C_J$	pF	$V_R = 0V, f = 1MHz$		200	

Notes:

(1). 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
ESD4V5LBA4	F1	Approximate 0.9	10000	100000	400000	7" reel



# ESD4V5LBA4

## ■ Characteristics (Typical)

Fig.1 8/20 $\mu$ s waveform per IEC61000-4-5

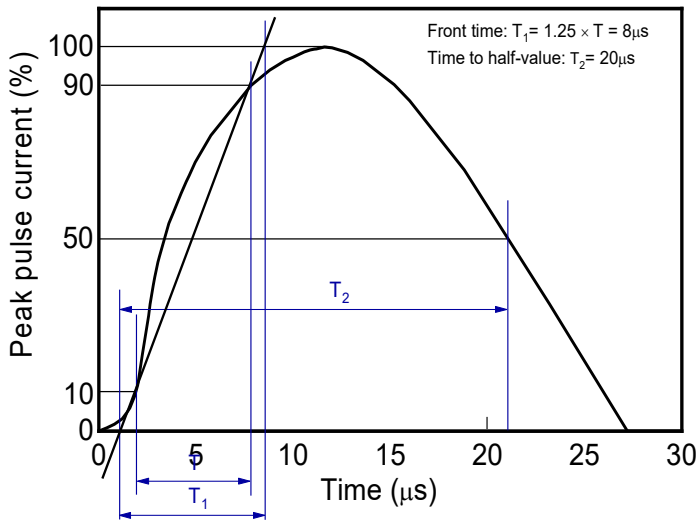


Fig.2 Contact discharge current waveform per IEC61000-4-2

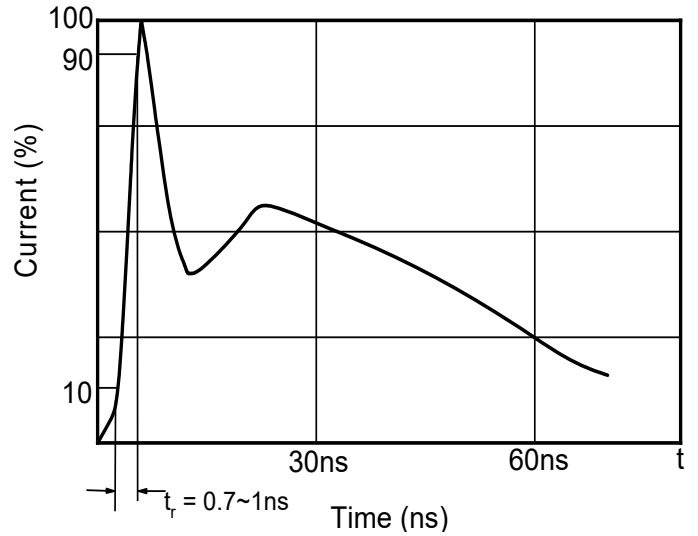


Fig.3 Clamping voltage vs. Peak pulse current

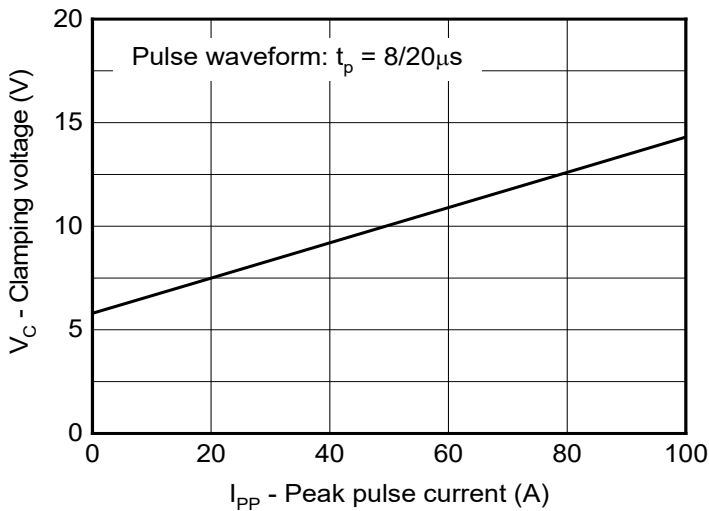


Fig.4 Capacitance vs. Reverse voltage

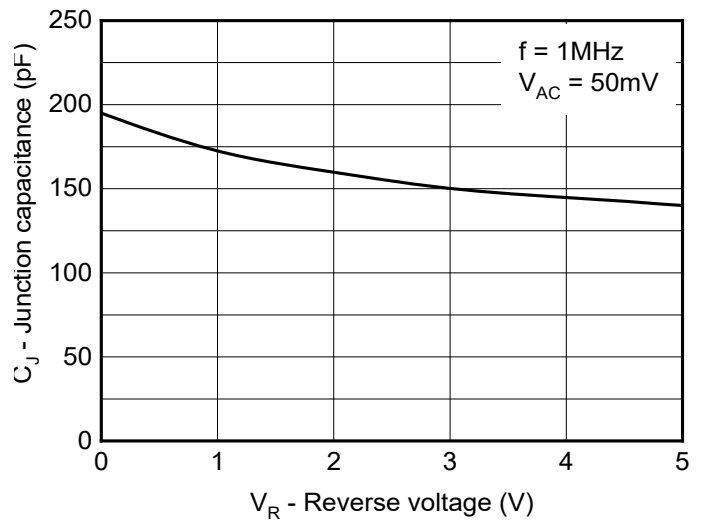


Fig.5 Non-repetitive peak pulse power vs. Pulse time

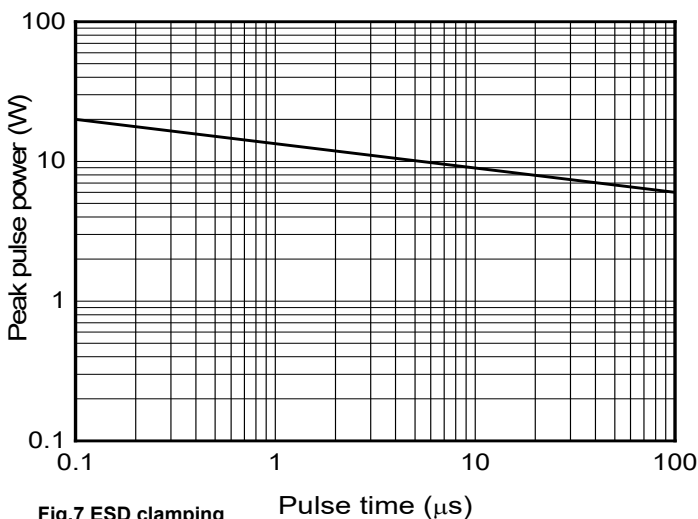
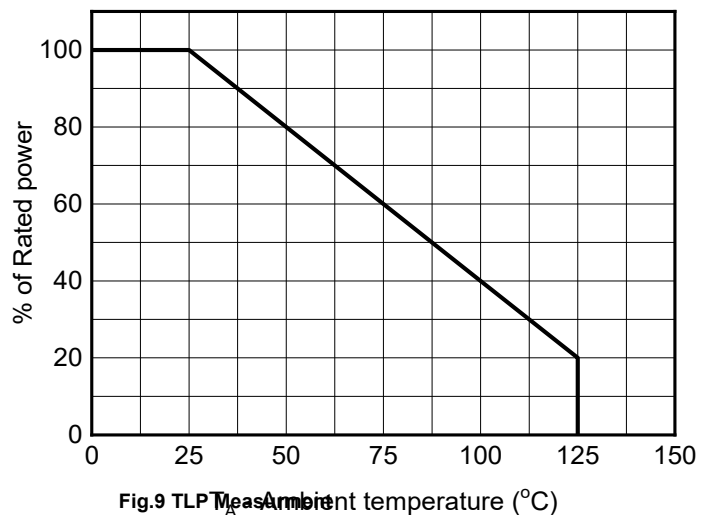
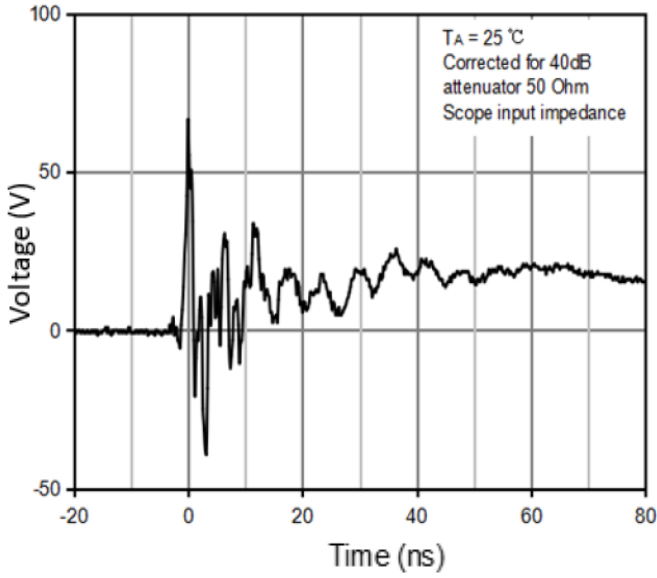


Fig.6 Power derating vs. Ambient temperature

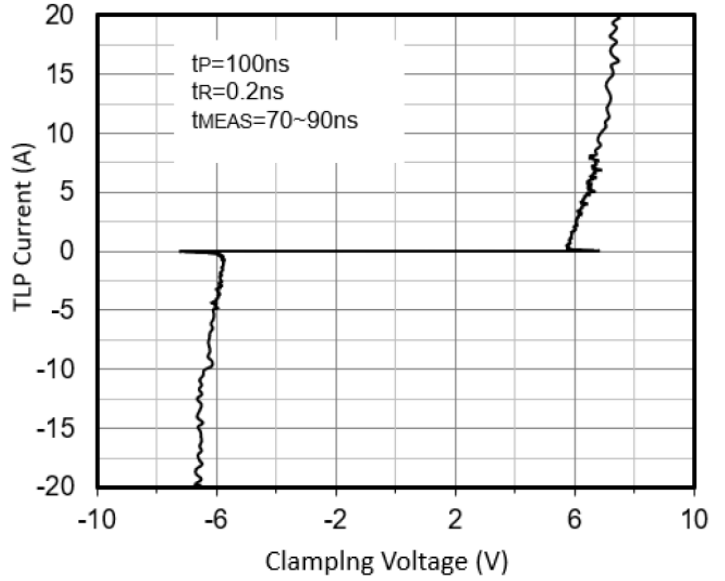




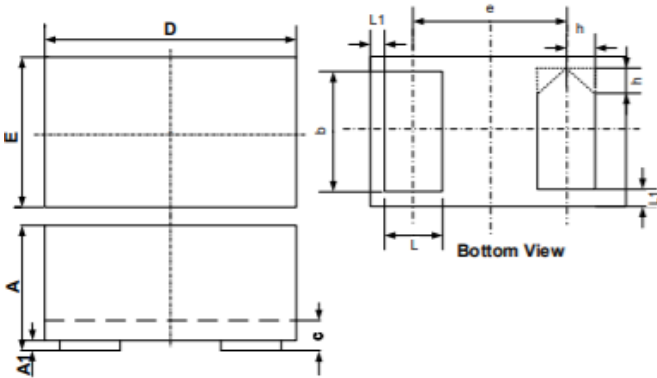
# ESD4V5LBA4



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



## ■ Outline Dimensions

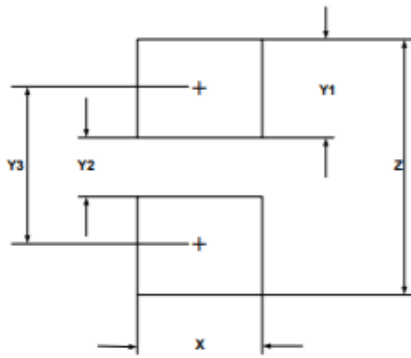


SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.40	-	0.55	0.016	-	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.45	0.50	0.55	0.018	0.020	0.022
c	0.12	0.15	0.18	0.005	0.006	0.007
D	0.95	1.00	1.05	0.037	0.039	0.041
e	0.65 BSC			0.026 BSC		
E	0.55	0.60	0.65	0.022	0.024	0.026
L	0.20	0.25	0.30	0.008	0.010	0.012
L1	0.05REF			0.002REF		
h	0.07	0.12	0.17	0.003	0.005	0.007



## ESD4V5LBA4

### ■ Recommended PCB Layout



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.60	0.024
Y1	0.50	0.020
Y2	0.30	0.012
Y3	0.80	0.032
Z	1.30	0.052

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



## ESD4V5LBA4

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