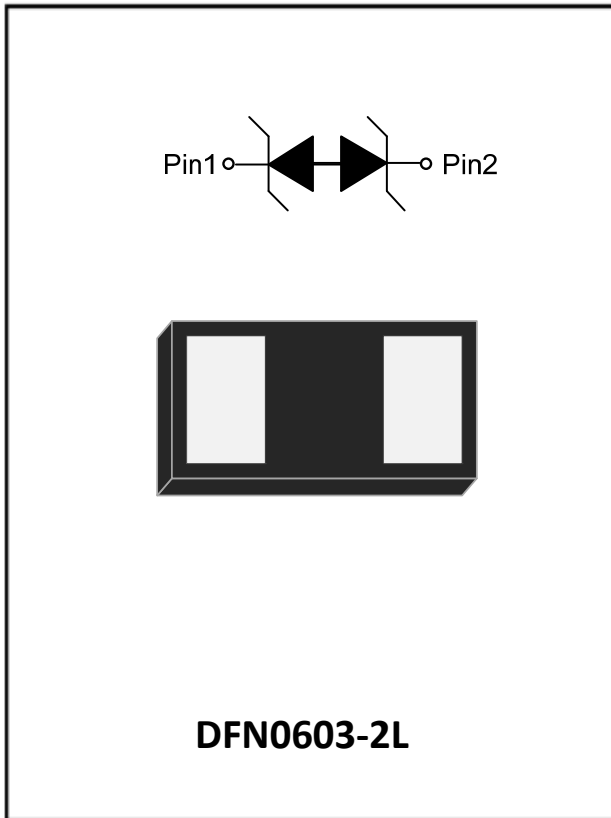


1-Line, Bi-directional, Transient Voltage Suppressor



Features

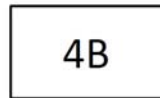
- Stand-off voltage: 24V Max
- Transient protection for each line according to
IEC61000-4-2(ESD): $\pm 30\text{kV}$ (contact)
IEC61000-4-5(surge): 5A (8/20 μs)
- Low leakage current
- Low clamping voltage
- Low clamping voltage:
 $V_{CL} = 30\text{V typ. @ IPP} = 16\text{A (TLP)}$
- RoHS Compliant

Applications

- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- Audio Players

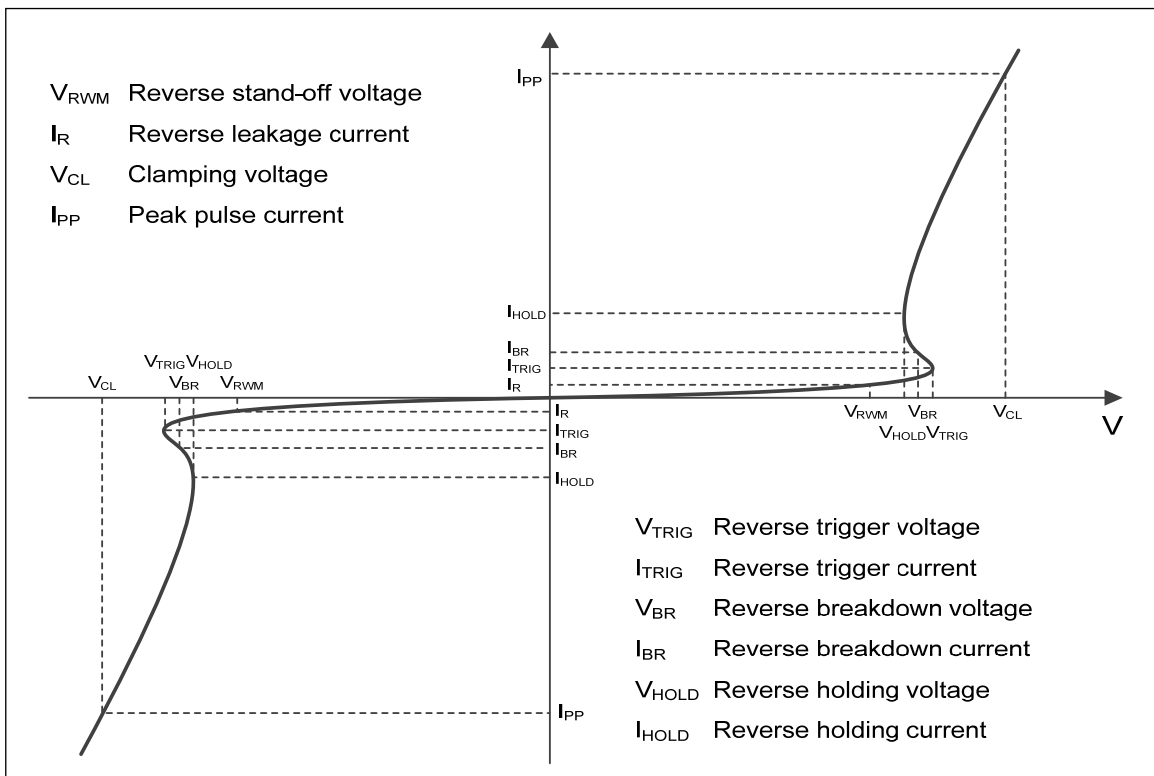
Mechanical Data

- Package: DFN0603-2L
- Case Material: "Green" Molding Compound
- Moisture Sensitivity: Level 3 per J-STD-020
- Marking Information: See Below



4B = Device Marking Code

■ Definitions of electrical characteristics





HESD24VLB

■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	180	W
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	5	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	$^{\circ}C$
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				24
Reverse leakage current	I_R	nA	$V_{RWM} = 24V$			200
Reverse breakdown voltage	V_{BR}	V	$I_{BR} = 1mA$	27		
Clamping voltage ¹⁾	V_{CL}	V	$I_{PP} = 16A, t_p = 100ns$		30	
Dynamic resistance ¹⁾	R_{DYN}	Ω			0.3	
Clamping voltage ²⁾	V_{CL}	V	$V_{ESD} = 8kV$		35	
Clamping voltage ³⁾	V_{CL}	V	$I_{PP} = 1A, t_p = 8/20\mu s$			32
		V	$I_{PP} = 5A, t_p = 8/20\mu s$			36
Junction capacitance	C_J	pF	$V_R = 0V, f = 1MHz$		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
HESD24VLB	F1	Approximate 0.9	10000	100000	400000	7" reel



■ Characteristics (Typical)

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

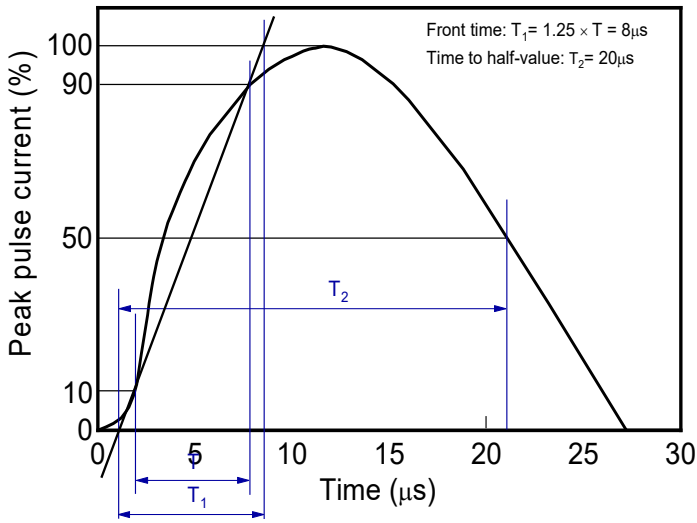


Fig.2 Contact discharge current waveform per IEC61000-4-2

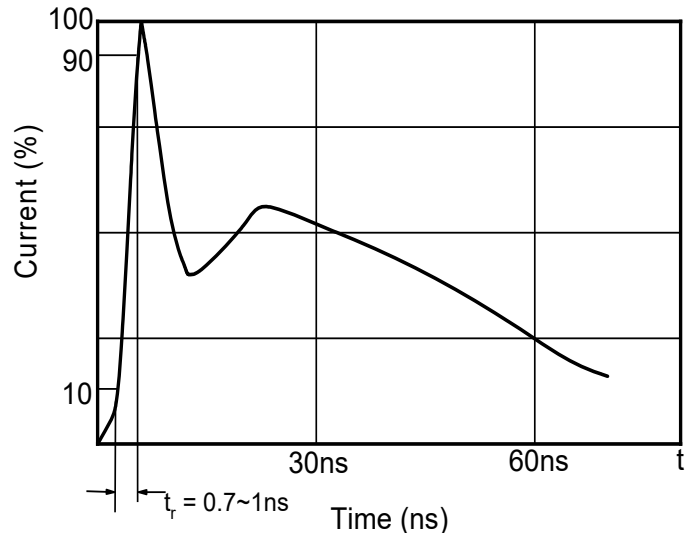


Fig.3 Clamping voltage vs. Peak pulse current

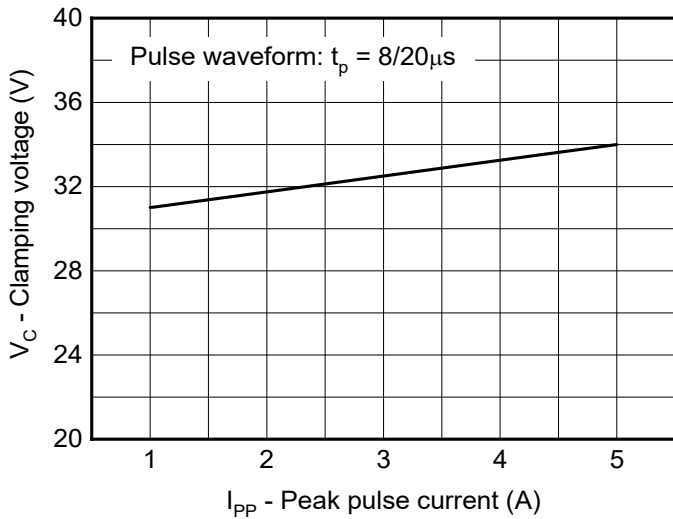


Fig.4 Capacitance vs. Reverse voltage

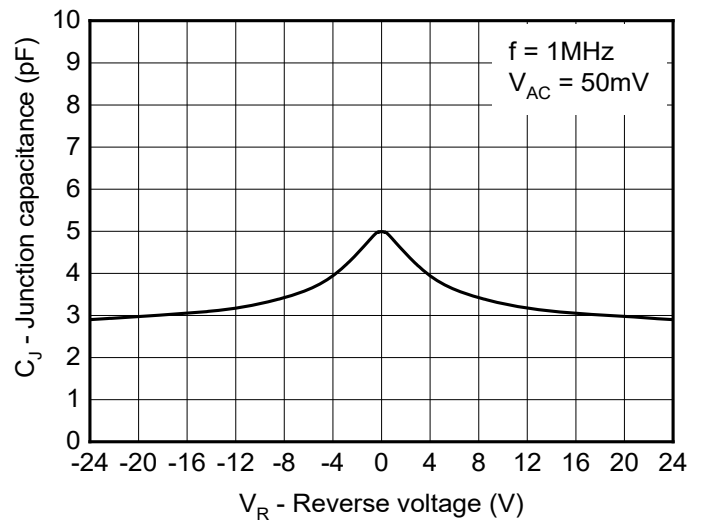


Fig.5 Non-repetitive peak pulse power vs. Pulse time

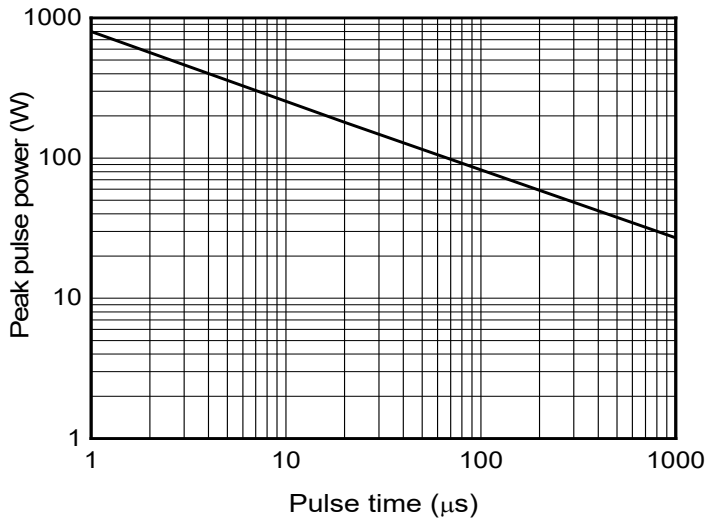


Fig.6 Power derating vs. Ambient temperature



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

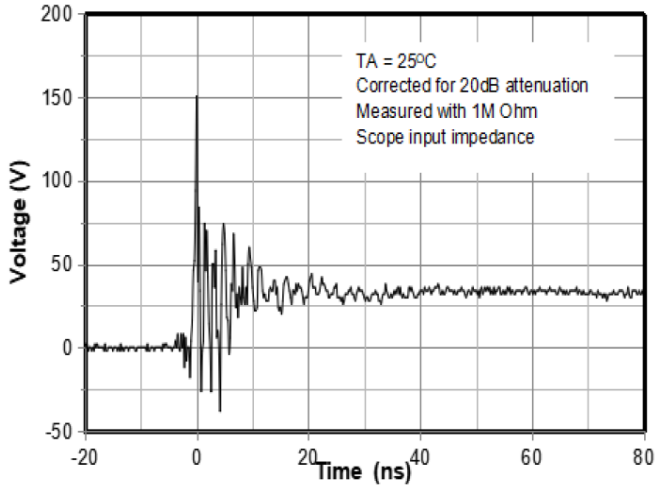
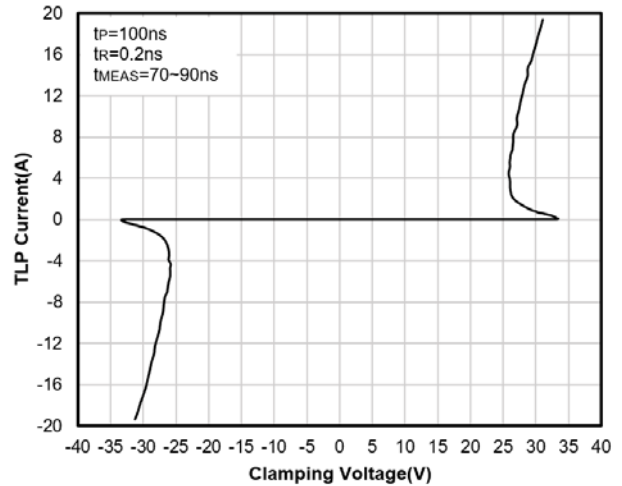
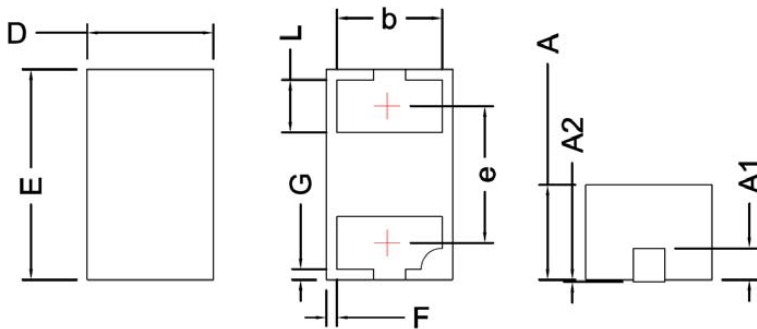


Fig.8 TLP Measurement

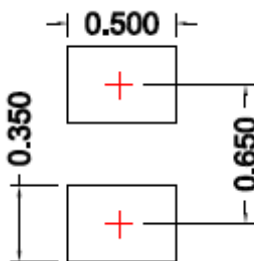


■ Outline Dimensions



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



HESD24VLB

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