

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



DFN0603-2L

Features

- Stand-off voltage: $\pm 3.3\text{V}$ Max
- Transient protection for each line according to IEC61000-4-2(ESD): $\pm 15\text{kV}$ (contact)
- IEC61000-4-5(surge): 5.5A ($8/20\mu\text{s}$)
- Low leakage current
- Ultra-low capacitance: $C_J = 0.3\text{pF}$ typ.
- Low clamping voltage:
 $V_{CL} = 7.5\text{V}$ typ. @ $I_{PP} = 16\text{A}$ (TLP)
- RoHS Compliant
- Solid-state silicon technology

Applications

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

Caution:

*This Device is designed for signal line protection only.
Do not operate under electrical bias or connect to a power line.*

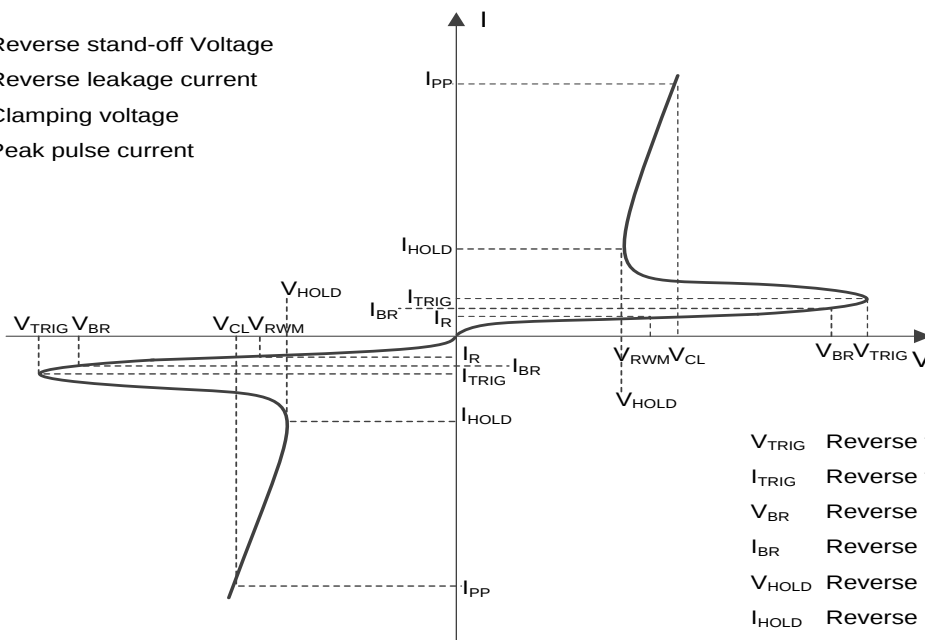
Mechanical Data

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

S1

■Definitions of electrical characteristics

- V_{RWM} Reverse stand-off Voltage
 I_R Reverse leakage current
 V_{CL} Clamping voltage
 I_{PP} Peak pulse current



- V_{TRIG} Reverse trigger voltage
 I_{TRIG} Reverse trigger current
 V_{BR} Reverse breakdown voltage
 I_{BR} Reverse breakdown current
 V_{HOLD} Reverse holding voltage
 I_{HOLD} Reverse holding current



SESDULC3V3LZB

■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	33	W
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	5.5	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	kV
ESD according to IEC61000-4-2 contact discharge		± 15	
Junction temperature	T_J	-40~125	$^{\circ}C$
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				3.3
Reverse leakage current	I_R	μA	$V_{RWM} = 3.3V$			0.1
Reverse breakdown voltage	V_{BR}	V	$I_{BR} = 1mA$	6		
Reverse holding voltage	V_{HOLD}	V		1.5		
Clamping voltage ¹⁾	V_{CL}	V	$I_{PP} = 16A, t_p = 0.2/100ns(TLP)$		7.5	
Clamping voltage ¹⁾	V_{CL}	V	$I_{PP} = 1A, t_p = 8/20\mu s$		3	3.5
Clamping voltage ¹⁾	V_{CL}	V	$I_{PP} = 5.5A, t_p = 8/20\mu s$		5	6
Junction capacitance	C_J	pF	$V_R = 0V, f = 1MHz$			0.22

Notes:

TLP parameter: $Z_0 = 50\Omega$, $t_p = 100ns$, $t_r = 2ns$, averaging window from 60ns to 80ns. RDYN is calculated from 4A to 16A.

Contact discharge mode, according to IEC61000-4-2.

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
SESDULC3V3LZB	F1	Approximate 0.18	10000	100000	400000	7" reel



■ Characteristics (Typical)

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

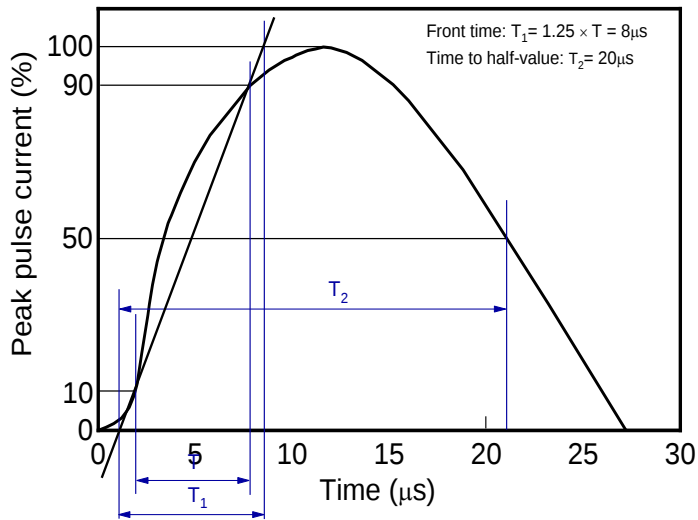


Fig.2 Contact discharge current waveform per IEC61000-4-2

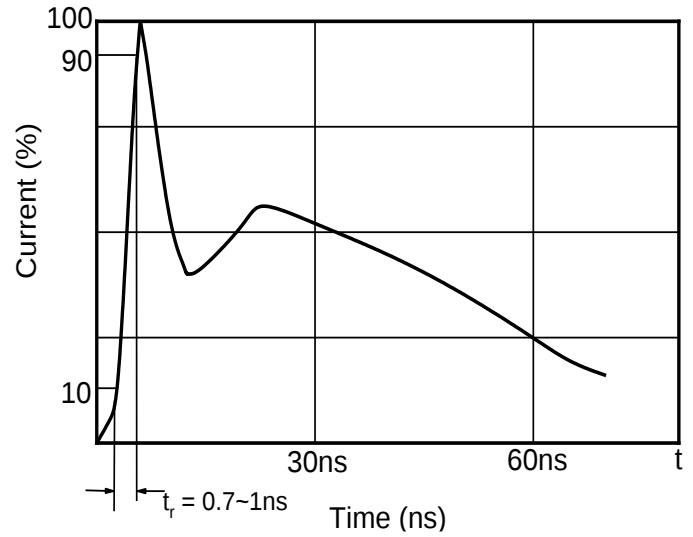


Fig.3 Clamping voltage vs. Peak pulse current

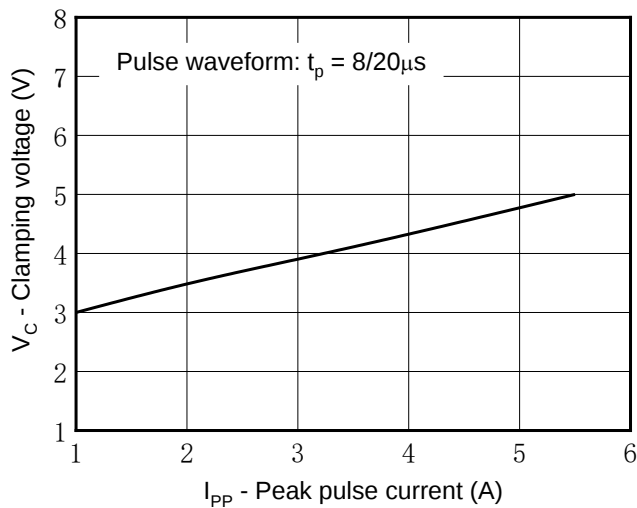


Fig.4 Capacitance vs. Reverse voltage

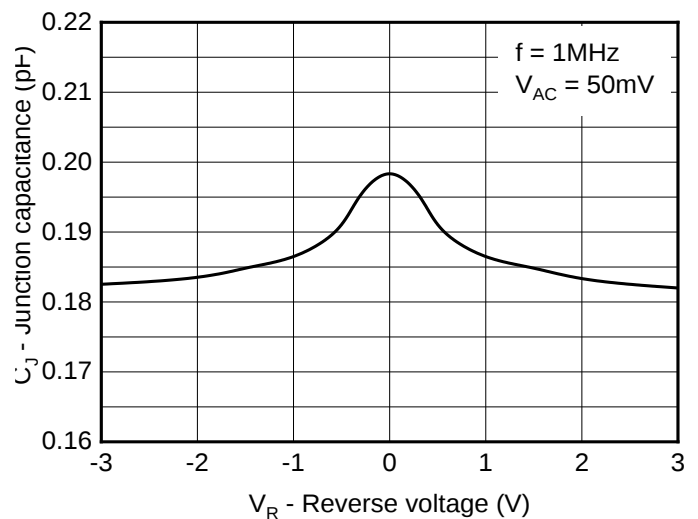


Fig.5 Non-repetitive peak pulse power vs. Pulse time

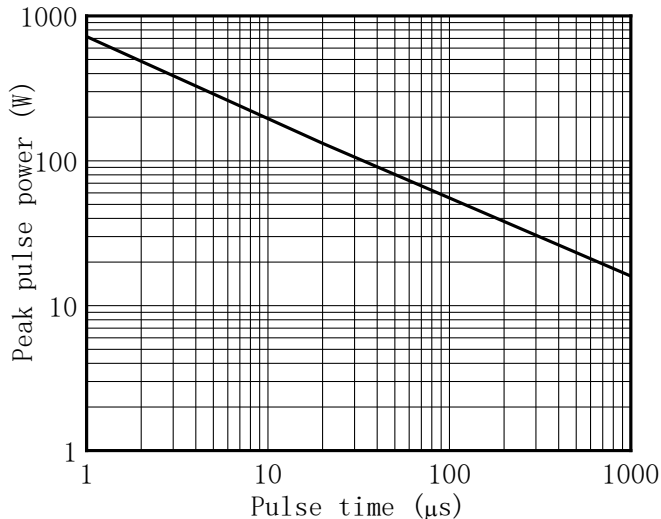


Fig.6 Power derating vs. Ambient temperature

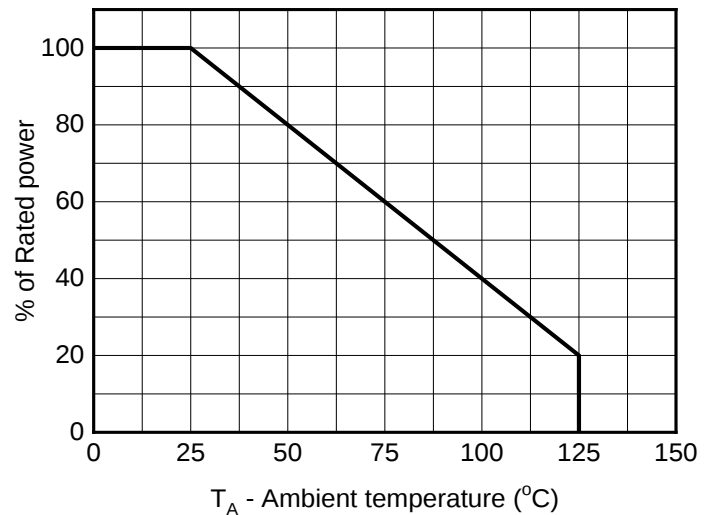
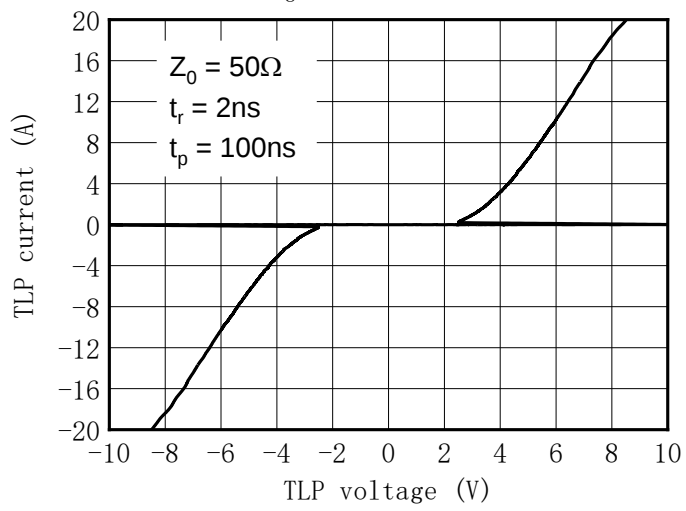




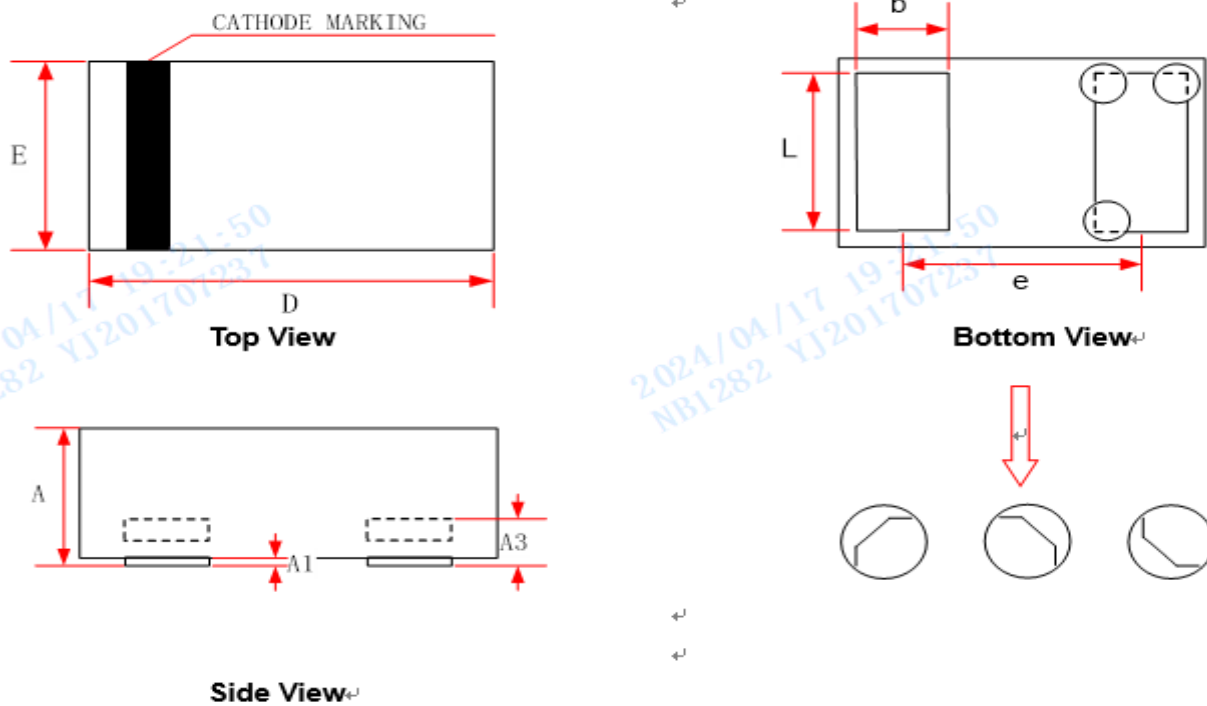
Fig. 7 TLP Measurement





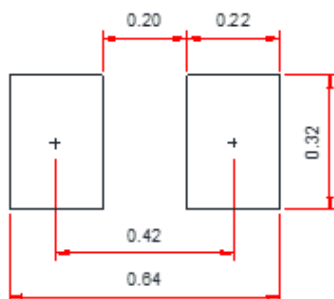
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■ Outline Dimensions



Symbol↵	Dimensions in Millimeters↵		
	Min.↵	Typ.↵	Max.↵
A↵	0.230↵	0.300↵	0.350↵
A1↵	0.000↵	↵	0.050↵
A3↵	0.102REF.↵		
D↵	0.550↵	0.600↵	0.670↵
E↵	0.250↵	0.300↵	0.370↵
b↵	0.100↵	0.170↵	0.250↵
L↵	0.200↵	0.240↵	0.280↵
e↵	0.360 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



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