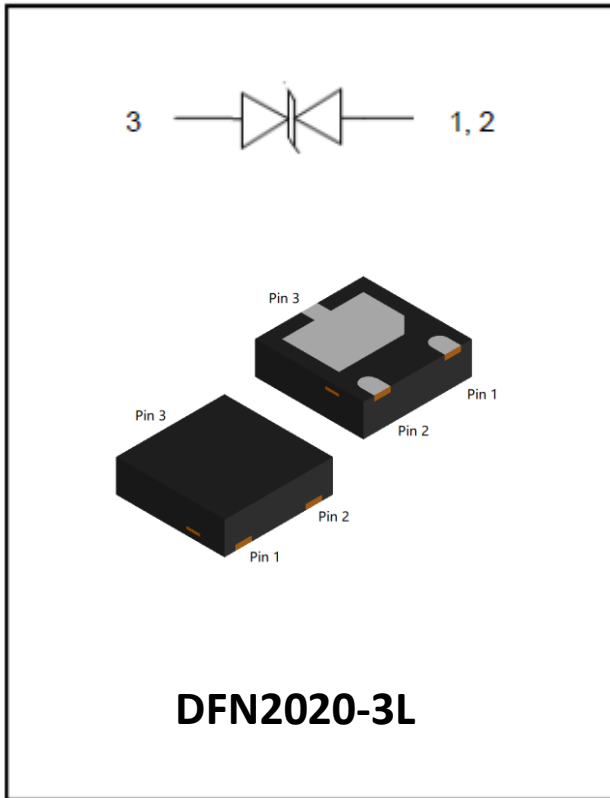


## 1-Line, Uni-directional, Transient Voltage Suppressor



### Features

- Stand-off voltage: 4.5V Max
- Transient protection for each line according to  
IEC61000-4-2(ESD):  $\pm 30\text{kV}$  (contact)  
IEC61000-4-5(surge): 300A (8/20 $\mu\text{s}$ )
- Low leakage current
- Low clamping voltage
- Low clamping voltage:
- RoHS Compliant

### Applications

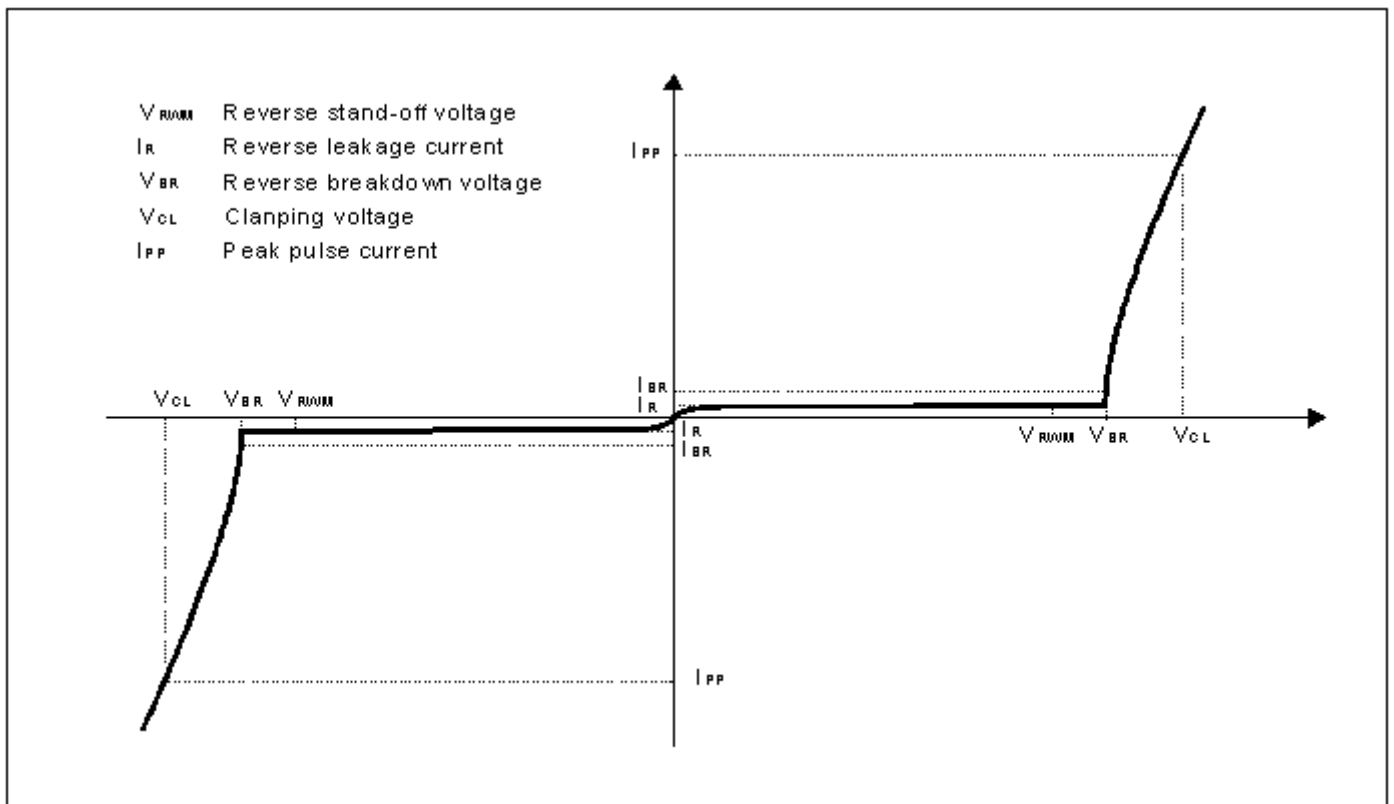
- Power Management
- Industrial Application
- Power Supply Protection
- Notebooks, desktops, and servers

### Mechanical Data

- Package: DFN2020-3L
- Case Material: "Green" Molding Compound
- Marking Information: See Below



### ■ Definitions of electrical characteristics





# ESD4V5P4B

## ■Maximum Ratings

PARAMETER	SYMBOL	LIMITS	UNIT
Peak pulse power ( $t_p = 8/20\mu s$ )	$P_{pk}$	6000	W
Peak pulse current ( $t_p = 8/20\mu s$ )	$I_{pp}$	300	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	$T_J$	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				4.5
Reverse leakage current	$I_R$	$\mu A$	$V_{RWM} = 4.5V$			1
Reverse breakdown voltage	$V_{BR}$	V	$I_{BR} = 1mA$	4.8		
Clamping voltage <sup>1)</sup>	$V_{CL}$	V	$I_{PP} = 50A, t_p = 8/20\mu s$			8.5
		V	$I_{PP} = 300A, t_p = 8/20\mu s$			20
Junction capacitance	$C_J$	pF	$V_R = 0V, f = 1MHz$		350	

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
ESD4V5P4B	F1	Approximate 6.5	3000	30000	120000	7" reel



## ■ Characteristics (Typical)

Fig1, 8/20 $\mu$ s waveform per IEC61000-4-5

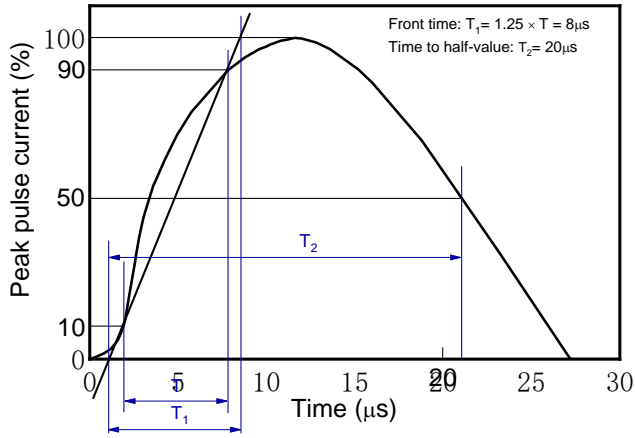


Fig2, Contact discharge current waveform per IEC61000-4-2

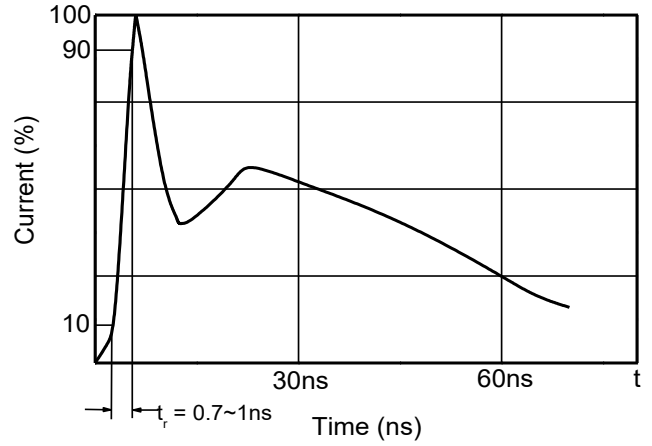


Fig3, Clamping voltage vs. Peak pulse current

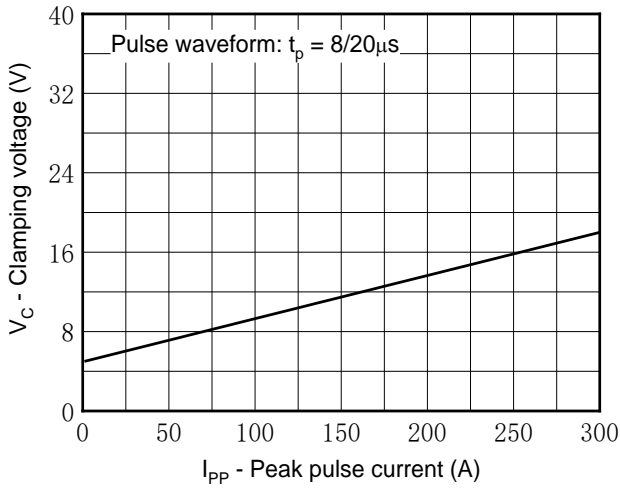


Fig4, Capacitance vs. Reverse voltage

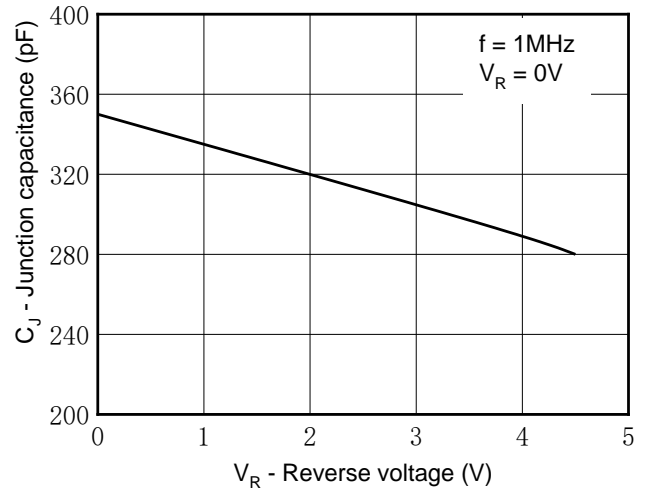


Fig5, Non-repetitive peak pulse power vs. Pulse time

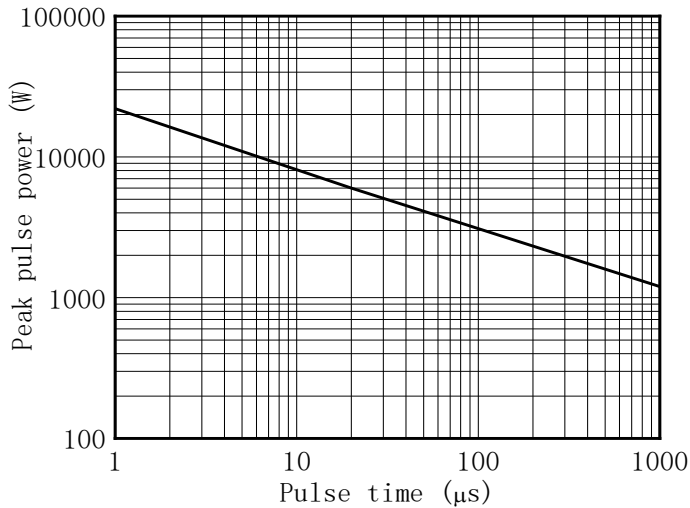
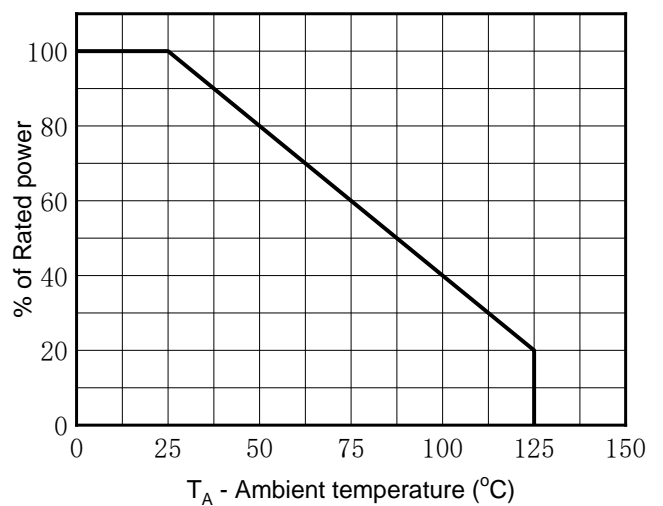


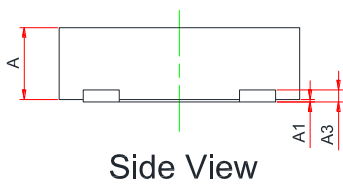
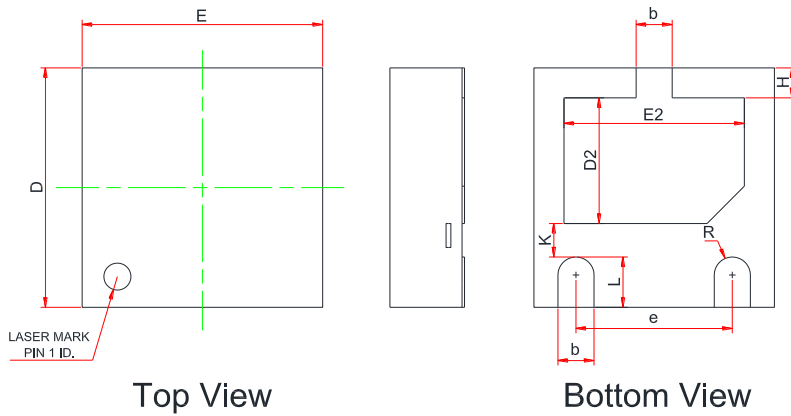
Fig6, Power derating vs. Ambient temperature





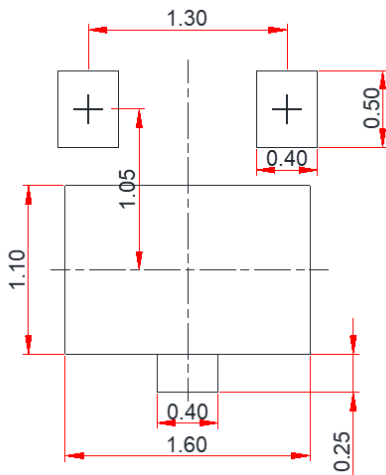
# ESD4V5P4B

## ■ Outline Dimensions



	MILLIMETERS		
	MIN	NOM	MAX
A	0.55	0.60	0.65
A1	0.00	0.02	0.05
A3	0.10REF.		
b	0.25	--	0.35
D	1.90	--	2.10
E	1.90	--	2.10
D2	0.95	--	1.15
E2	1.40	--	1.60
e	1.20	--	1.40
H	0.20	--	0.30
K	0.20	--	0.40
L	0.35	--	0.45
R	0.13	--	--

## ■ 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



## ESD4V5P4B

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