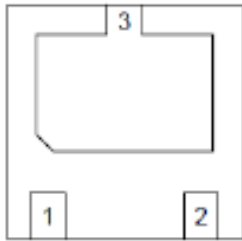
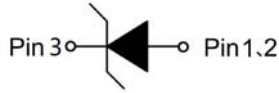


1-Line , Uni-directional , Transient Voltage Suppressor



DFN2020-3L

Features

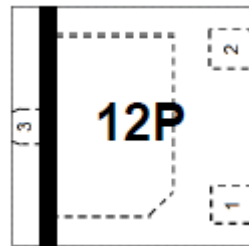
- Ultra small package
- Stand-off voltage: 12V
- Transient protection for each line according to
IEC61000-4-2(ESD): $\pm 30\text{kV}$ (contact)
IEC61000-4-5(surge): 250A (8/20ns)
- Low clamping voltage
- RoHS Compliant

Applications

- Power Management
- Industrial Application
- Power Supply Protection

Mechanical Characteristics

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



■Definitions of electrical characteristics

V_F Forward voltage

I_F Forward current

V_{FC} Forward clamping voltage

I_{PP} Peak pulse current

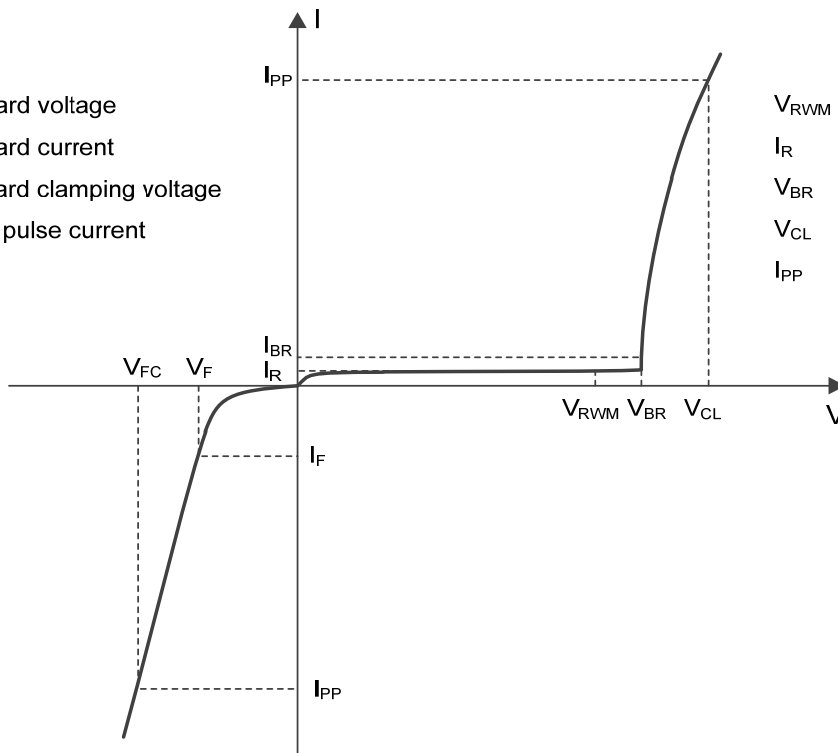
V_{RWM} Reverse stand-off voltage

I_R Reverse leakage current

V_{BR} Reverse breakdown voltage

V_{CL} Clamping voltage

I_{PP} Peak pulse current





ESD12VP4A3

■Absolute Maximum Ratings (Ta=25°C unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power ($t_p = 8/20\mu s$)	P_{pk}	6250	W
Peak pulse Current ($t_p = 8/20\mu s$)	I_{PP}	250	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	KV
ESD according to IEC61000-4-2 contact discharge		± 30	KV
Junction temperature	T_J	-55~125	°C
Storage Temperature Range	T_{STG}	-55~150	°C

■Electrical Characteristics (Ta=25°C Unless otherwise specified)

PARAMETER	Symbol	UNIT	Conditions	Min	Typ	Max
Reverse maximum working voltage	V_{RWM}	V			12	
Reverse leakage current	I_R	μA	$V_{RWM} = 12V$,			1
Reverse breakdown voltage	$V_{(BR)}$	V	$I_T = 1mA$,	13		
Clamping voltage	V_{CL}	V	$I_{PP} = 1A$, $t_p = 8/20\mu s$			17
		V	$I_{PP} = 250A$, $t_p = 8/20\mu s$			25
Junction capacitance	CJ	pF	$V_R = 0V$, $f = 1MHz$		1200	

Notes:

- (1). 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.
- (2). Contact discharge mode, according to IEC61000-4-2.
- (3). Non-repetitive current pulse, according to IEC61000-4-5

■Ordering Information (Example)

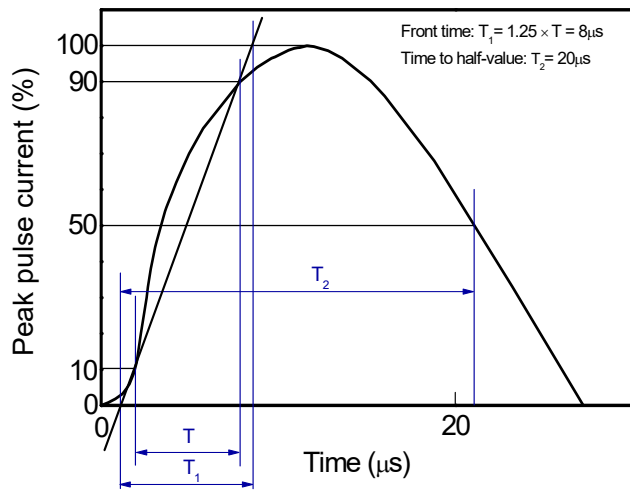
PREFERED P/N	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD12VP4A3	Approximate 10	3000	30000	120000	Tape & reel



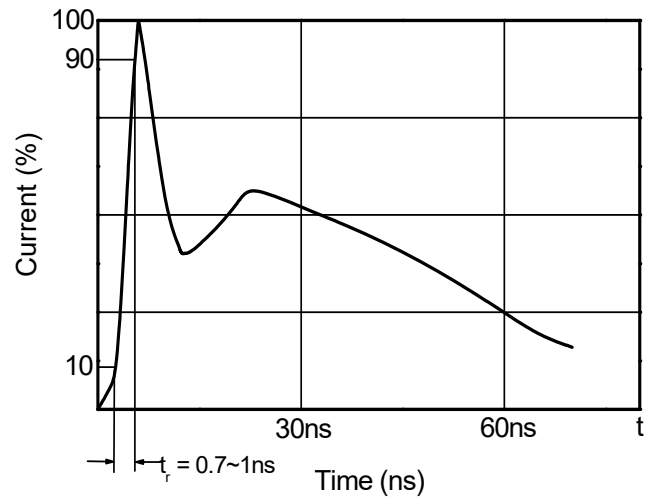
ESD12VP4A3

■ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

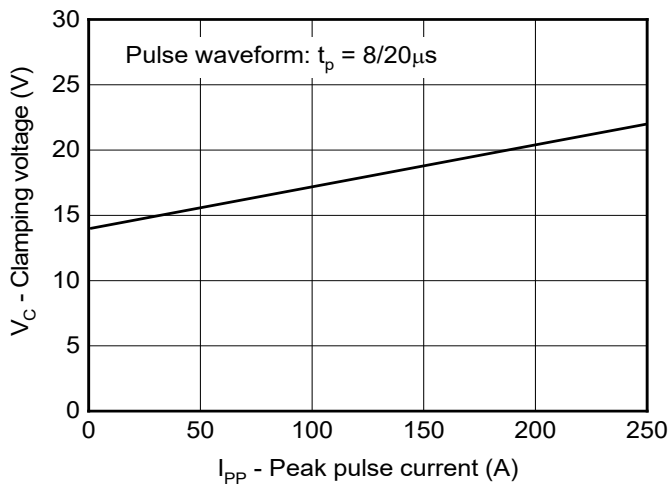
8/20 μs waveform per IEC61000-4-5



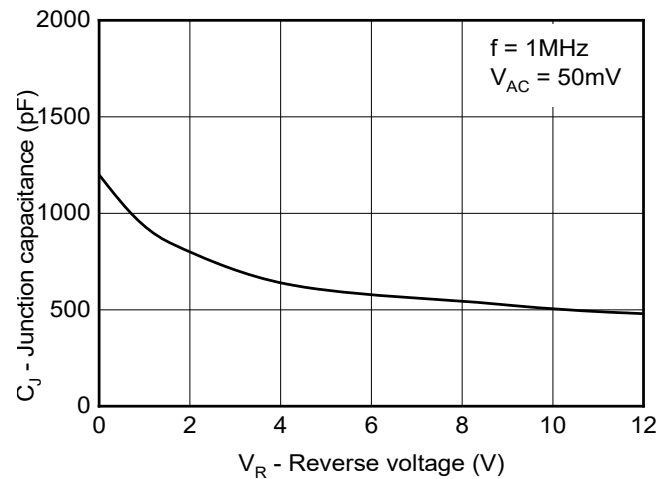
Contact discharge current waveform per IEC61000-4-2



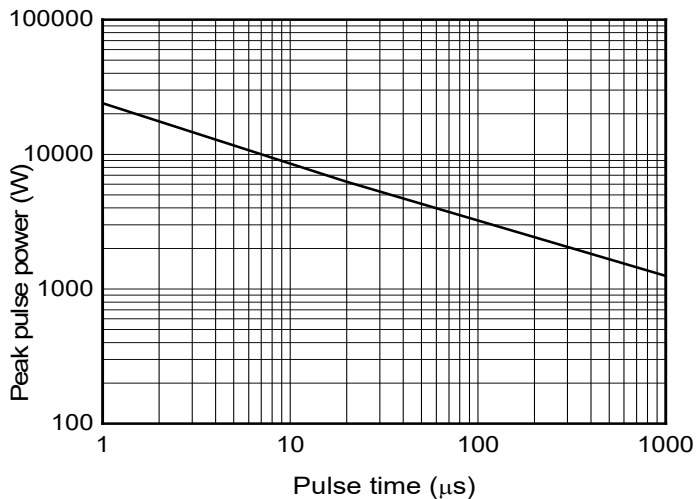
Clamping voltage vs. Peak pulse current



Capacitance vs. Reverse voltage



Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature

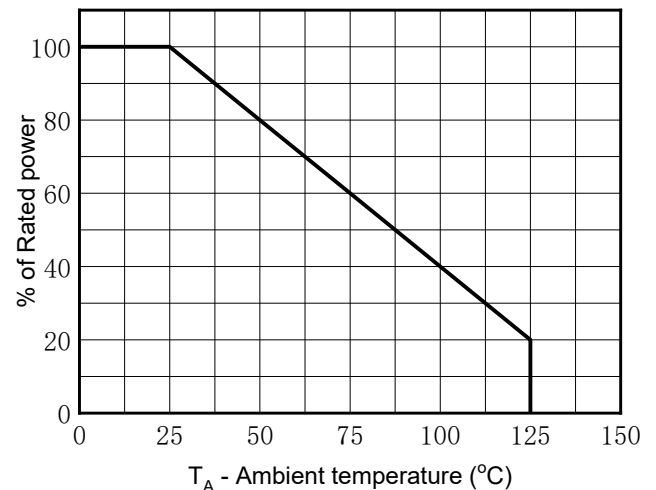
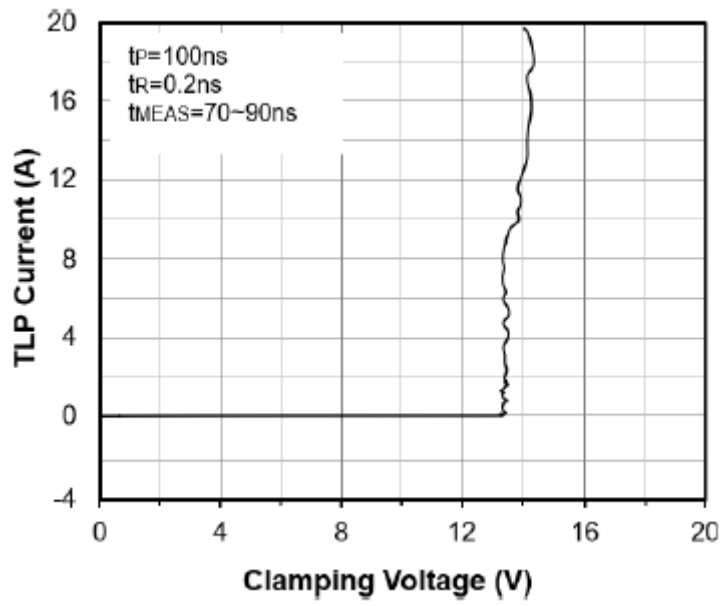




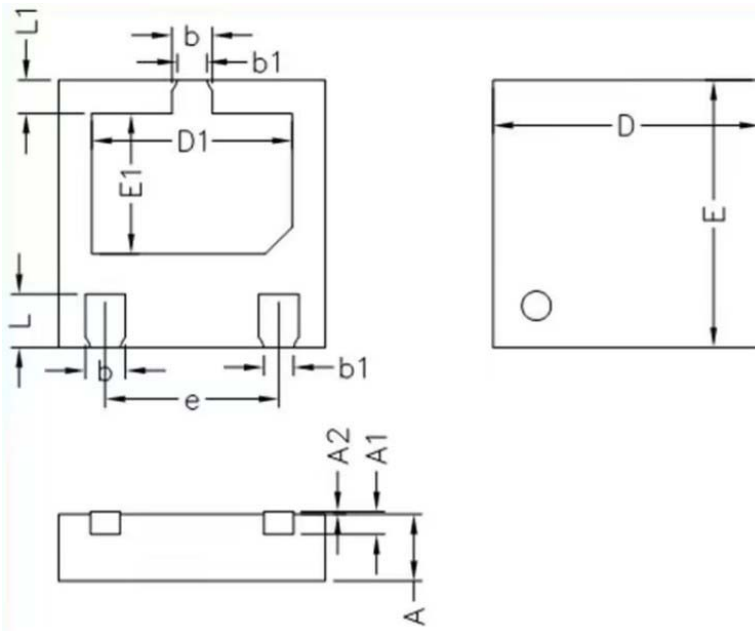
Fig.7 TLP Measurement





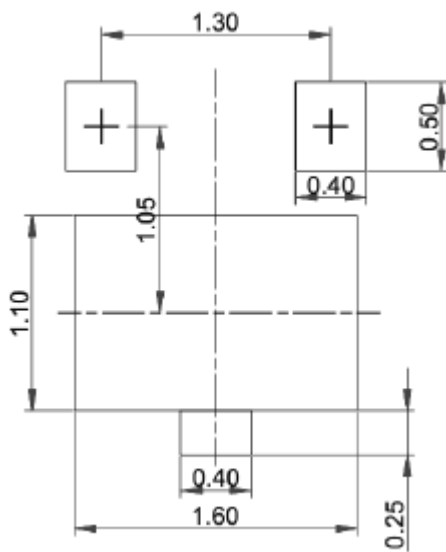
ESD12VP4A3

■Outline Dimensions



SYM	MILLIMETERS		
	MIN	NOM	MAX
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D1	1.45	1.50	1.55
E1	1.00	1.05	1.10
L1	0.20	0.25	0.30
L	0.35	0.40	0.45
b1	0.22REF		
b	0.25	0.30	0.35
e	1.30BSC		
A1	0.15REF		
A2	0.00	0.02	0.05
A	0.45	-	0.60

■Recommend land pattern (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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