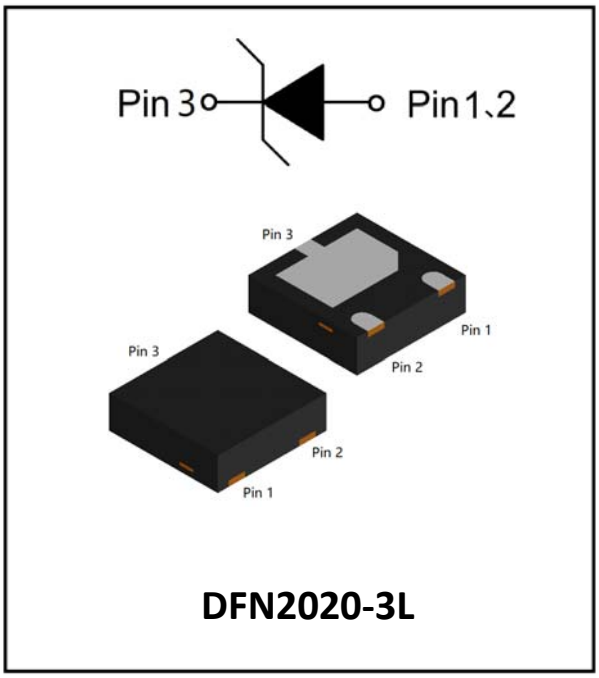
1-Line , Uni-directional , Transient Voltage Suppressor



Features

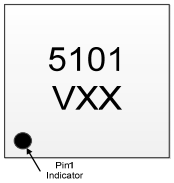
- Ultra small package
- Stand-off voltage: 10V ~24V
- Transient protection for each line according to
  IEC61000-4-2(ESD): ±30kV (contact)
  IEC61000-4-4 (EFT): 80A (5/50ns)
  IEC61000-4-5(surge)
- Low clamping voltage
- RoHS Compliant

Applications

- Power supply protection
- Power management
- Battery Contacts

Mechanical Characteristics

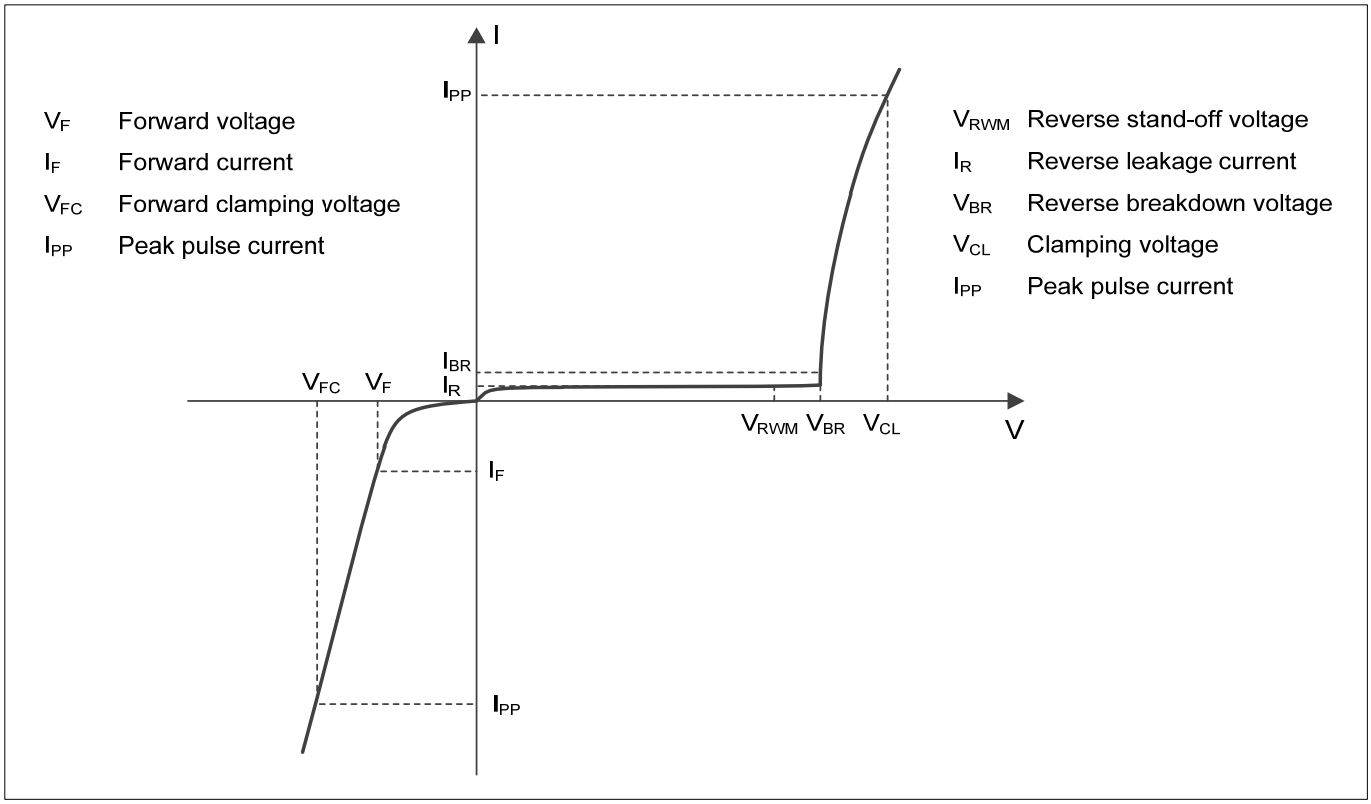
- Package: DFN2020-3L
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Marking Information: See Below



5101= Series code
VXX = Device code

Device	Device code
ESD10VP4A	V10
ESD12VP4A	V12
ESD15VP4A	V15
ESD18VP4A	V18
ESD24VP4A	V24

■Definitions of electrical characteristics



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

PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power (t_p = 8/20μs)	P_{pk}	4500	W
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	℃
Operating temperature	T_{OP}	-40~85	℃
Storage Temperature Range	T_{STG}	-55~150	℃

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

Part Number	Reverse Working Voltage V_{RWM}(V)	Breakdown Voltage V_{BR}(V)@I_T=1mA			Reverse Leakage Current I_R(μA)@V_{RWM}		Forward Voltage V_F(V)@I_F=20mA		Junction Capacitance Cj(pF)@ VR=0V,f=1MHz	
	Max	Min	Typ	Max	Typ	Max	Min	Max	Typ	Max
ESD10VP4A	10	10.5	11.0	12.5	-	1	0.45	1.25	2150	2600
ESD12VP4A	12	12.5	13.0	15.0	-	1	0.45	1.25	1650	2000
ESD15VP4A	15	15.5	16.5	18.0	-	1	0.45	1.25	1250	1500
ESD18VP4A	18	18.5	19.5	21.0	-	1	0.45	1.25	1000	1200
ESD24VP4A	24	24.5	26	28	-	1	0.45	1.25	800	1000

Part Number	Rated peak pulse current IPP （A） 1)	Clamping voltage VCL(V) @ IPP （A） 1)	
	Max	Typ	Max
ESD10VP4A	205	19	21
ESD12VP4A	200	22	24
ESD15VP4A	160	26	28
ESD18VP4A	150	31	33
ESD24VP4A	120	36	38

Notes:

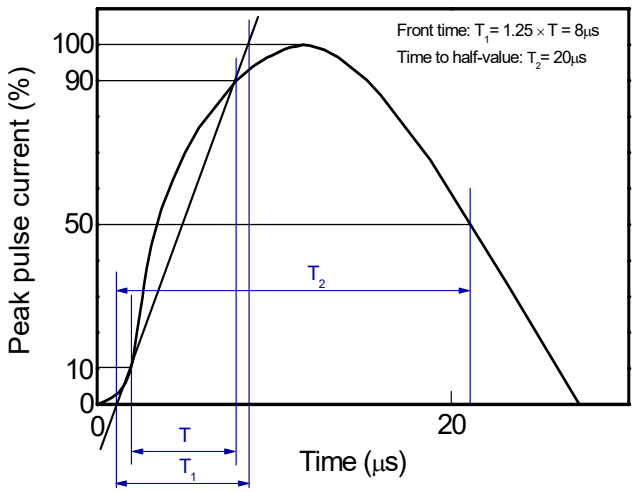
(1). Non-repetitive current pulse, according to IEC61000-4-5. (8/20μs current waveform).

■Ordering Information (Example)

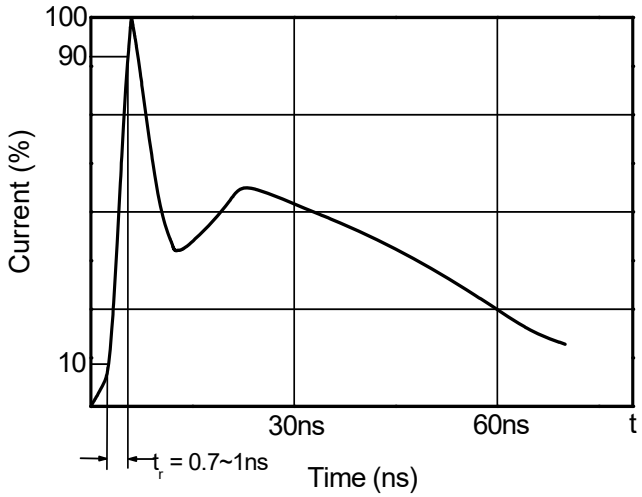
PREFERED P/N	UNIT WEIGHT(mg)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
ESD10VP4A THRU ESD24VP4A	Approximate 10	3000	30000	120000	Tape & reel

■Typical Performance Characteristics (T_a=25℃ unless otherwise Specified)

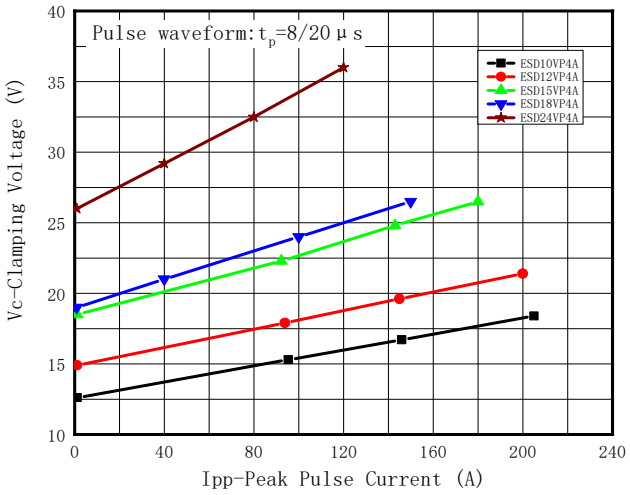
8/20μs waveform per IEC61000-4-5



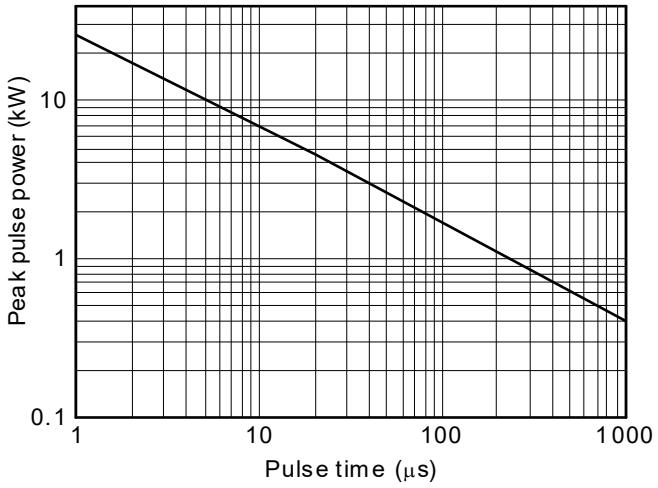
Contact discharge current waveform per IEC61000-4-2



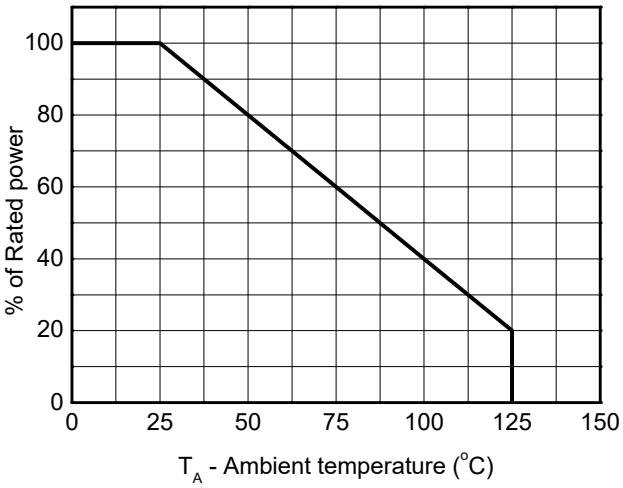
Clamping voltage vs. Peak pulse current



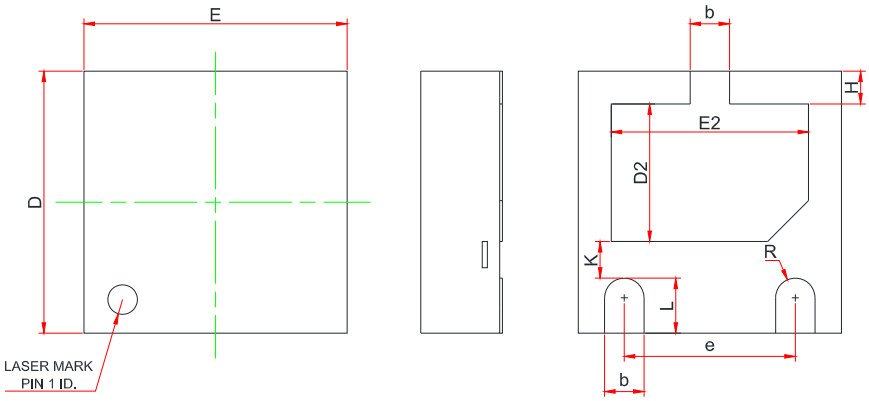
Non-repetitive peak pulse power vs. Pulse time



Power derating vs. Ambient temperature

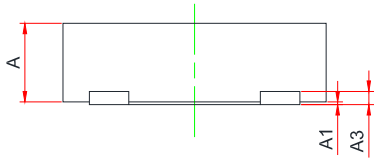


■Outline Dimensions



Top View

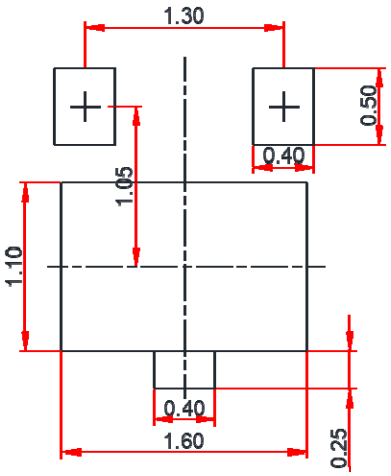
Bottom View



Side View

Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.55	0.60	0.65
A1	0.00	0.02	0.05
A3		0.10 REF.	
b	0.25	0.30	0.35
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	0.95	1.05	1.15
E2	1.40	1.50	1.60
e	1.20	1.30	1.40
H	0.20	0.25	0.30
K	0.20	0.30	0.40
L	0.35	0.40	0.45
R	0.13	-	-

■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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