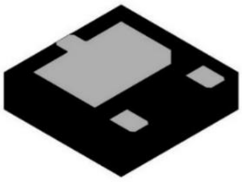
Descriptions

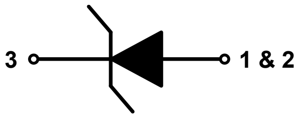
The XESD319D-12V is a transient voltage suppressor designed to protect sensitive electronic components which are connected to power and control lines from over-stress damage caused by Electrostatic Discharging (ESD) and Lighting.



DFN2x2-3L

Features

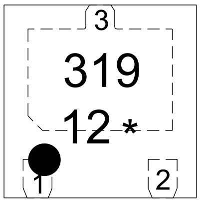
- 1-Line, Uni-directional
- Working voltage: 12V Max.
- ESD withstand voltage according to IEC61000-4-2: ±30kV (contact & air discharge)
- Lighting withstand according to IEC61000-4-5: 200A (8/20μs)
- Solid-state silicon technology
- Low leakage current
- Device meets MSL 3 requirements
- Pb-Free, Halogen Free, RoHS Compliant



Circuit diagram

Applications

- Power supply protection
- Power management

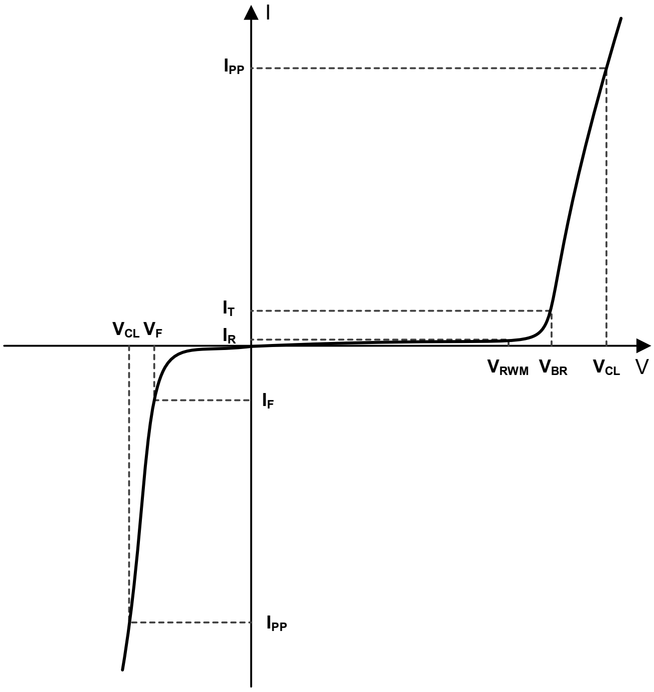


319 = Series code
12 = Device code
* = Date code(A~z)
Marking

Part Number	Package Type	Marking Code	Shipping
XESD319D-12V	DFN2x2-3L	319 12*	3000/Tape & Reel

Electrical Characteristics

Symbol	Parameter
V_F	Forward Voltage
I_F	Forward Current
V_{RWM}	Reverse Stand-off Voltage
I_R	Reverse Leakage Current
V_{BR}	Reverse Breakdown Voltage
I_T	Test Current
I_{PP}	Peak Pulse Current
V_{CL}	Clamping Voltage



Absolute Maximum Ratings (T_A = 25℃, unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs)	P_{PP}	4800	W
Peak Pulse Current (tp=8/20μs)	I_{PP}	200	A
ESD air discharge voltage according to IEC61000-4-2	V_{ESD}	±30	kV
ESD contact discharge voltage according to IEC61000-4-2		±30	
Junction Temperature Range	T_J	-55~125	°C
Operating Temperature Range	T_{OP}	-55~125	°C
Lead Solder Temperature (10 Seconds)	T_L	260	°C
Storage Temperature Range	T_{STG}	-55~150	°C

Electrical Characteristics (T_A = 25°C, unless otherwise specified)

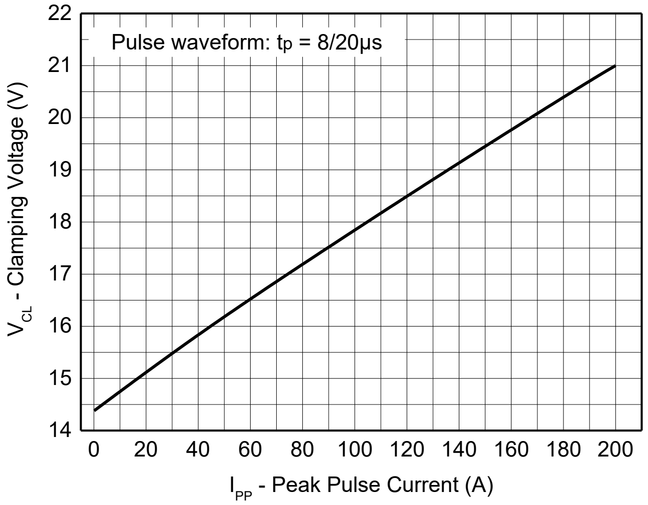
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	I_T = 1mA	13		15	V
Reverse Leakage Current	I_R	V_{RWM} = 12V			200	nA
Forward Voltage	V_F	I_T = 10mA	0.4	0.75	1.1	V
Clamping Voltage $^{1)}$	V_{CL}	V_{ESD} = +8kV		15		V
Clamping Voltage $^{2)}$	V_{CL}	I_{PP} = 1A, t_p = 8/20μs		14.5	16	V
		I_{PP} = 200A, t_p = 8/20μs		21	24	V
Junction Capacitance	C_J	V_R = 0V, f = 1MHz		1800	2350	pF
		V_R = 12V, f = 1MHz		460	600	pF

Notes:

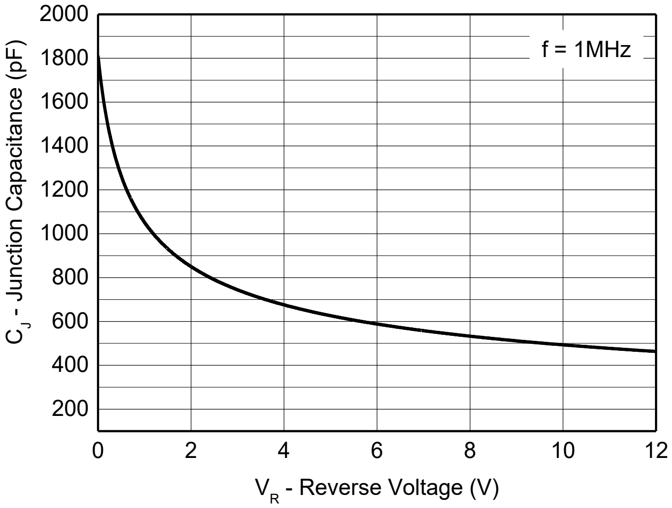
1) Contact discharge mode, according to IEC61000-4-2.

2) Clamping Voltage was measured by 8/20μs current waveform, R_S = 2 Ω, according to IEC61000-4-5.

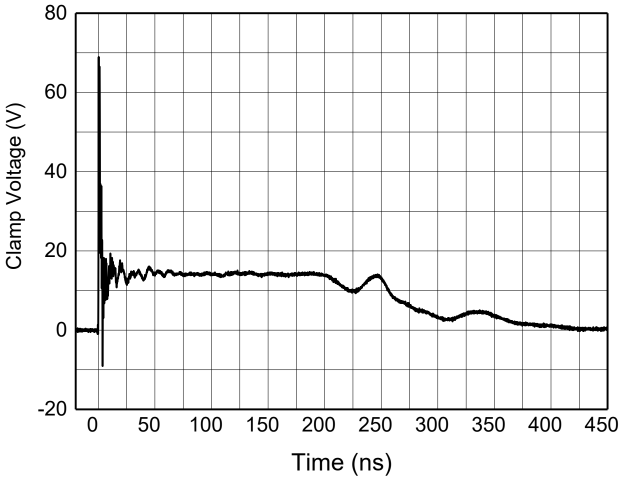
Typical Characteristics (T_A = 25 °C, unless otherwise specified)



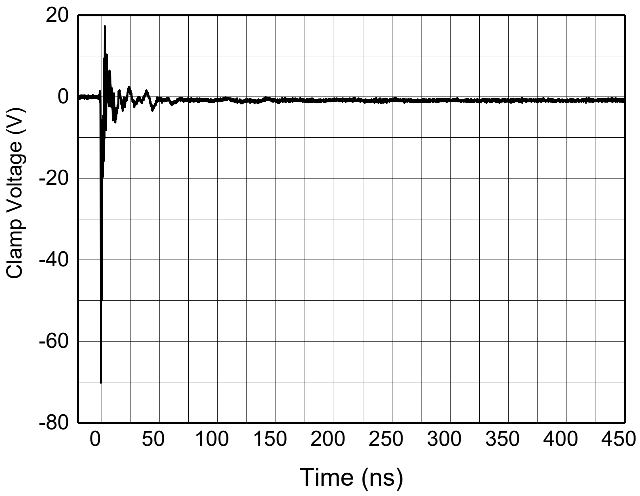
Clamping Voltage vs. Peak Pulse Current



Capacitance vs. Reverse Voltage

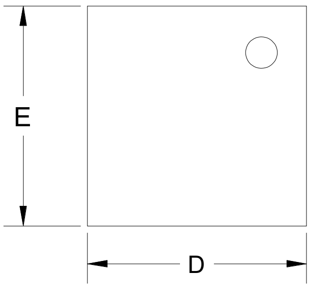


+8kV contact discharge per IEC61000-4-2

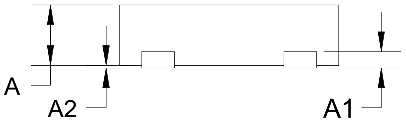


-8kV contact discharge per IEC61000-4-2

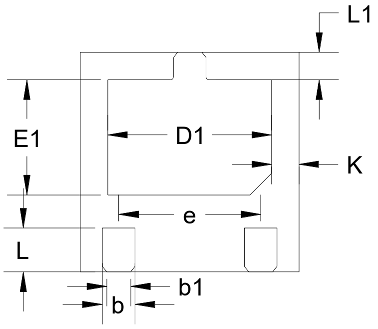
PACKAGE OUTLINE &PCB LAYOUT DIMENSIONS



TOP VIEW

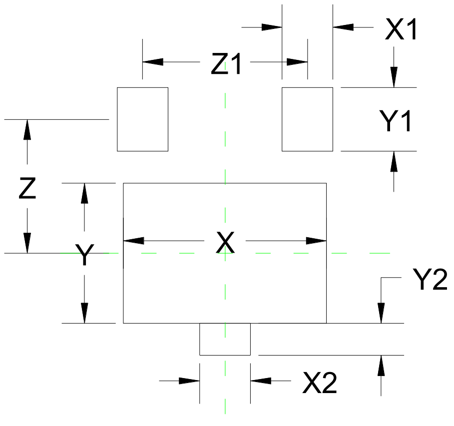


SIDE VIEW



BOTTOM VIEW

Symbol	Dimensions in Millimeters		
	Min.	**Typ.**	**Max.**
A	0.50	0.55	0.60
A1	0.15REF		
A2	0.00	-	0.05
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
L	0.35	0.40	0.45
L1	0.20	0.25	0.30
b	0.25	0.30	0.35
b1	0.22REF		
e	1.30BSC		
K	0.22	0.25	0.28



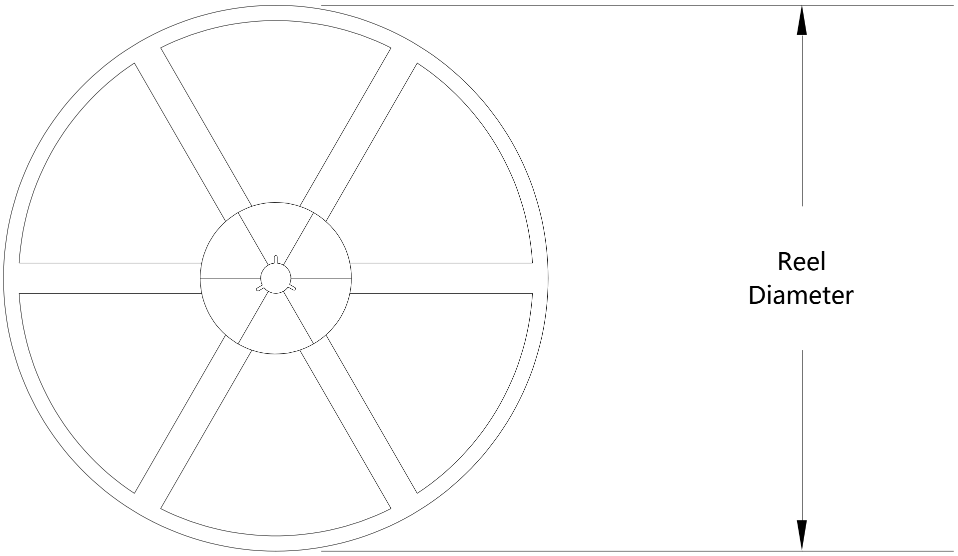
Land Layout

Symbol	Dimensions in Millimeters
X	1.60
X1	0.40
X2	0.40
Y	1.10
Y1	0.50
Y2	0.25
Z	1.05
Z1	1.30

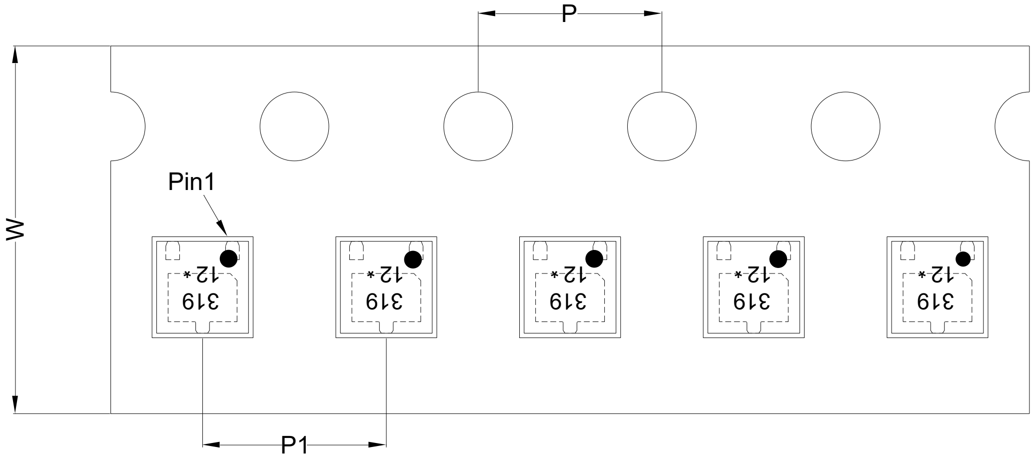
Notes: This Land Layout is for reference purposes only. Please consult your manufacturing partners to ensure your company's PCB design guidelines are met.

TAPE AND REEL INFORMATION

Reel Dimensions



Tape Dimensions



User Direction of Feed

Package Type	Reel Diameter(inch)	W (mm)	P (mm)	P1 (mm)
DFN2x2-3L	7	8	4	4