Description

The DL3312PT is a 3.3V bi-directional ESD protection diode, utilizing leading monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protect-ing voltage sensitive data and power line. The DL3312PT complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV contact discharge. It is assembled into an ul-tra-small DFN lead-free package. The small size and high ESD surge protection make DL3312PT an ideal choice to protect high speed Ethernet and RJ-45 connectors.

Features

- Protects two line pairs
- Ultra low leakage: nA level
- Ultra low operating voltage：3.3V
- Ultra low clamping voltage
- Flow-through design simplifies layout
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC 61000-4-5 (Lightning) 30A (8/20μs
- RoHS Compliant

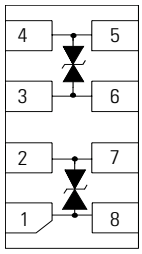
Mechanical Characteristics

- Package: DFN2010-8
- Case Material: “Green” Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

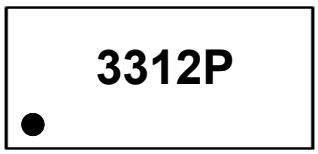
- LAN/WAN Equipment
- 10/100/1000 Ethernet
- RJ-45 connectors
- Industrial Controls
- Security Cameras
- Notebooks & Desktop Computers

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information



3312P = Device Marking Code

Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
DL3312PT	3312P	3000/Tape & Reel	7 inch

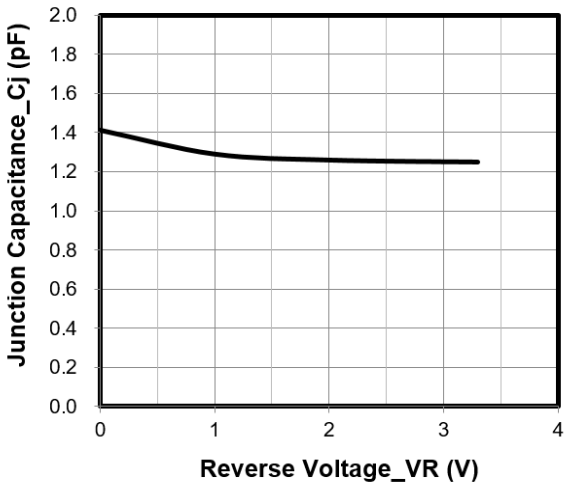
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	360	W
Peak Pulse Current (8/20μs)	Ipp	30	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−40 to +85	°C
Storage Temperature Range	Tstg	−55 to +150	°C

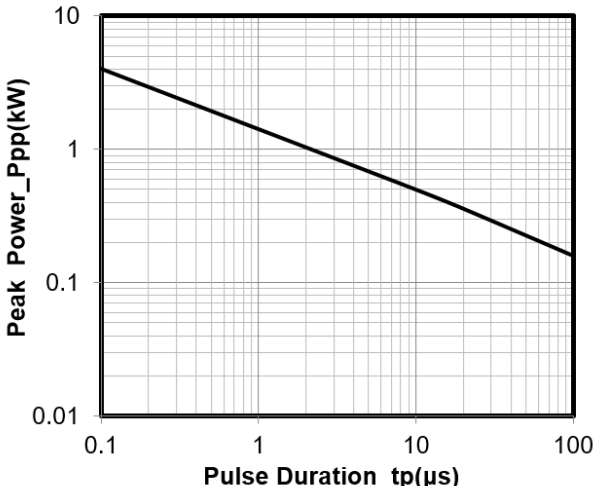
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			3.3	V	
Breakdown Voltage	V_{BR}	3.5			V	I_T = 2uA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 3.3V
Clamping Voltage	V_C			7.5	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			9	V	I_{PP} = 10A (8 x 20μs pulse)
Clamping Voltage	V_C			12	V	I_{PP} = 30A (8 x 20μs pulse)
Junction Capacitance	C_J		1.5		pF	Pins 1, 8 to 2, 7 and pins 3, 6 to 4, 5 VR = 0V, f = 1MHz

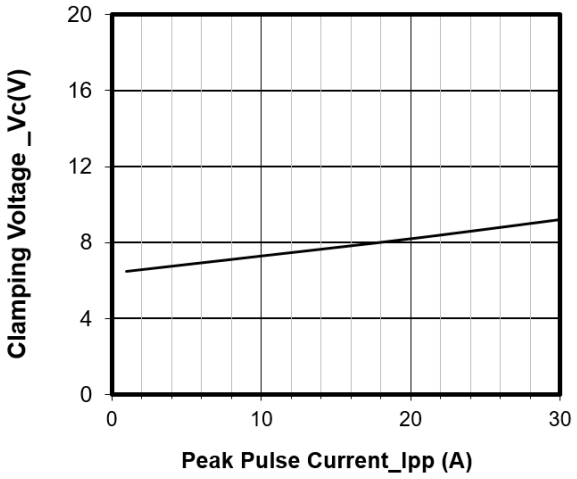
Typical Performance Characteristics (T_A=25℃ unless otherwise Specified)



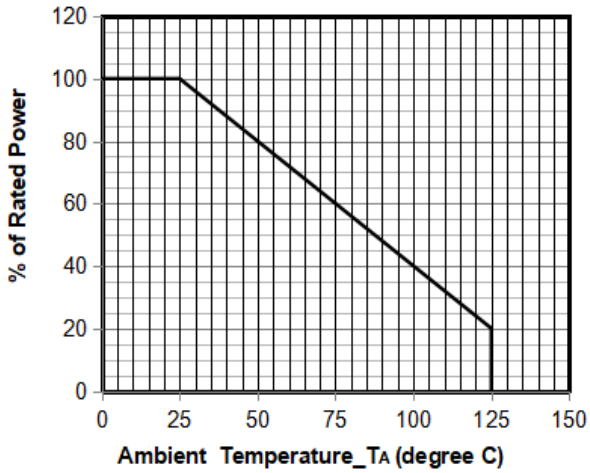
Junction Capacitance vs. Reverse Voltage



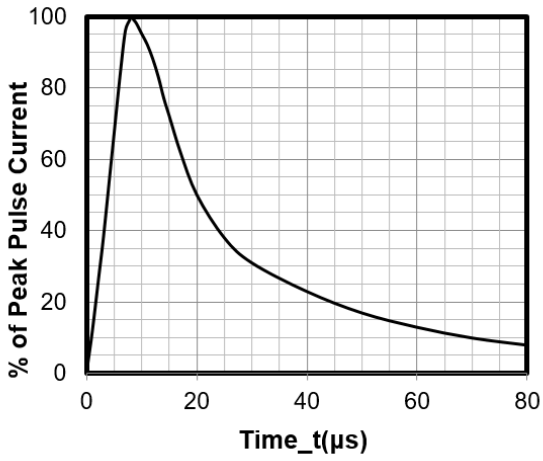
Peak Pulse Power vs. Pulse Time



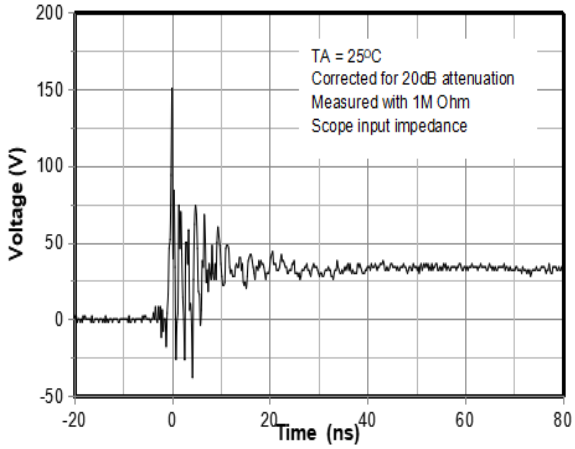
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



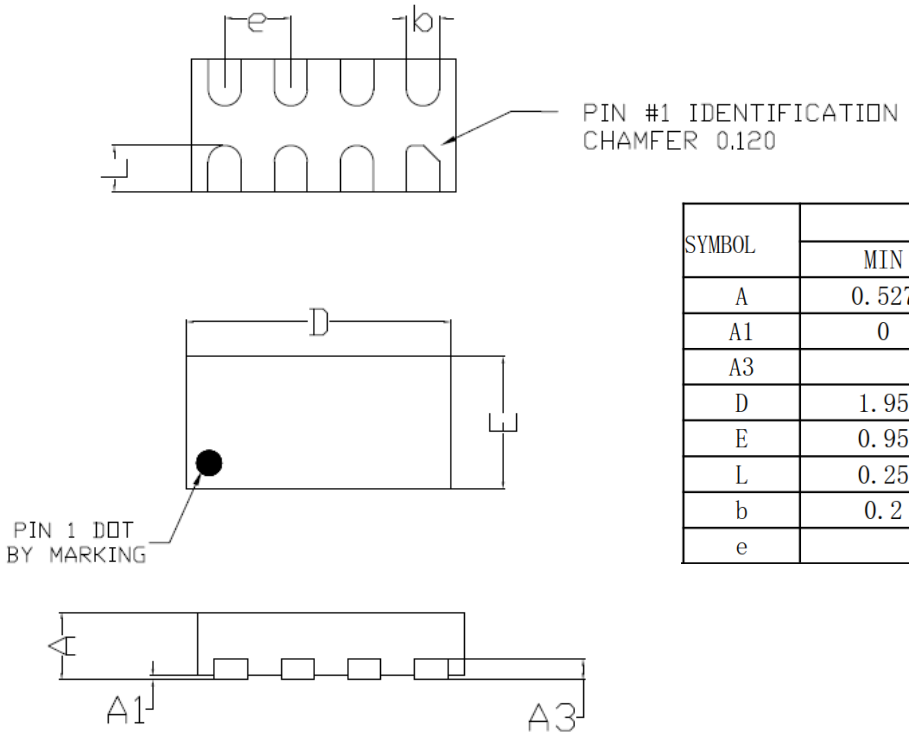
8 X 20μs Pulse Waveform



ESD Clamping Voltage

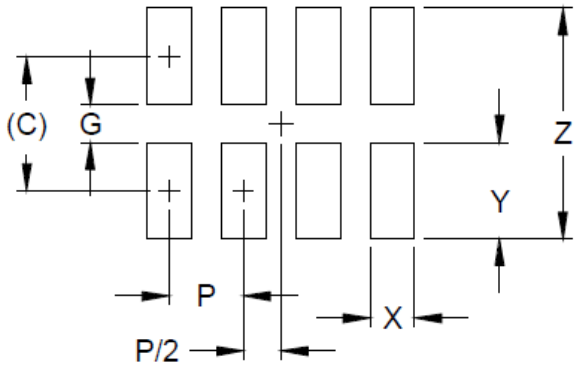
8 kV Contact per IEC61000−4−2

DFN2010-8 Package Outline Drawing



SYMBOL	MILLLMETER(mm)		
	MIN	NOM	MAX
A	0.527	0.55	0.57
A1	0	-	0.05
A3	0.125REF		
D	1.95	2	2.05
E	0.95	1	1.05
L	0.25	0.35	0.45
b	0.2	0.25	0.3
e	0.50Bsc		

Suggested Land Pattern



DIMENSIONS	
DIM	MILLIMETERS
C	(0.90)
G	0.25
P	0.50
X	0.30
Y	0.65
Z	1.55

Contact Information

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