Description

The DC2512PT is a 2.5V bidirectional 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 protecting voltage sensitive data and power line. The DC2512PT complies with the IEC61000-4-2 (ESD) standard with ±30kV air an ±30kV contact discharge. It is assembled into an ultra-small 2.0x1.0x0.5mm DFN lead-free package. The small size, and high ESD surge protection make DC2512PT 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: 2.5V
- Ultra low clamping voltage
- Flow-through design simplifies layout
- Complies with following standards:
  - IEC 61000-4-2 (ESD): ±30kV (Contact/Air)
  - IEC 61000-4-5 (Lightning) 10A (8/20μs)
- RoHS Compliant

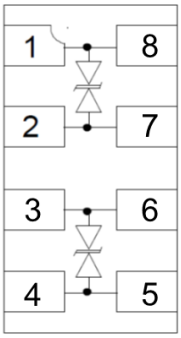
Mechanical Characteristics

- 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

2512P = Device Marking Code

YYWW = Date Code

Dot denotes Pin1

Ordering Information

Part Number	Marking	Packaging	Reel Size
DC2512PT	2512P	3000/Tape & Reel	7 inch

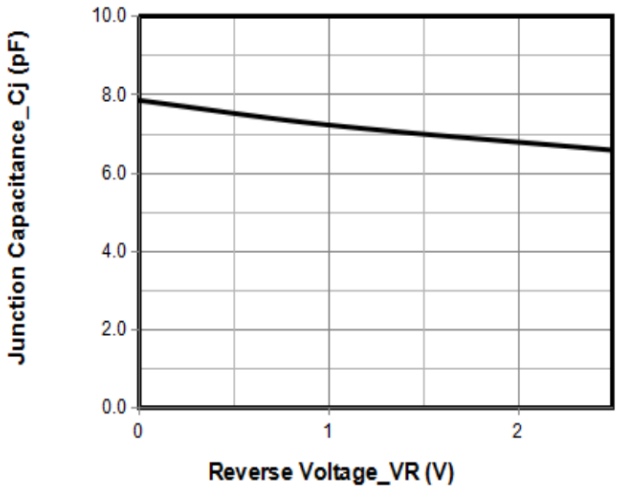
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	100	W
Peak Pulse Current (8/20μs)	Ipp	10	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

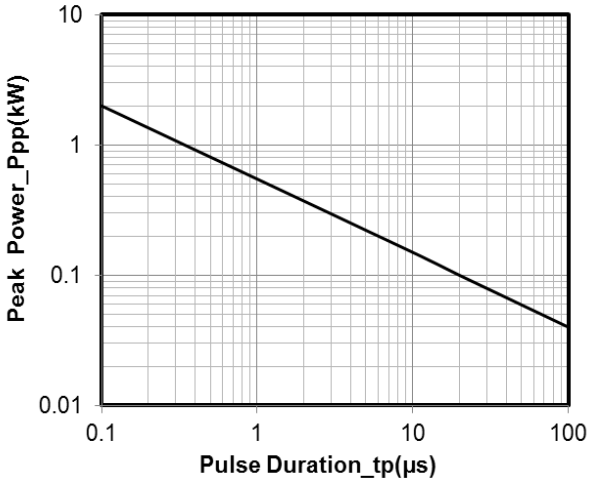
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			2.5	V	
Punch-Through Voltage	V_{PT}	2.7			V	I_T = 2μA
Snap-Back Voltage	V_{SB}	2.8			V	I_T = 50mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 2.5V
Clamping Voltage	V_C			5	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			10	V	I_{PP} = 10A (8 x 20μs pulse)
Junction Capacitance	C_J			8	pF	Pins 1, 8 to 2, 7 and pins 3, 6 to 4, 5 VR = 2.5V, f = 1MHz
Variation in Capacitance with Reverse Bias*			1.3		pF	Pins 1, 8 to 2, 7 and pins 3, 6 to 4, 5 VR = 0 to 2.5V f = 1MHz

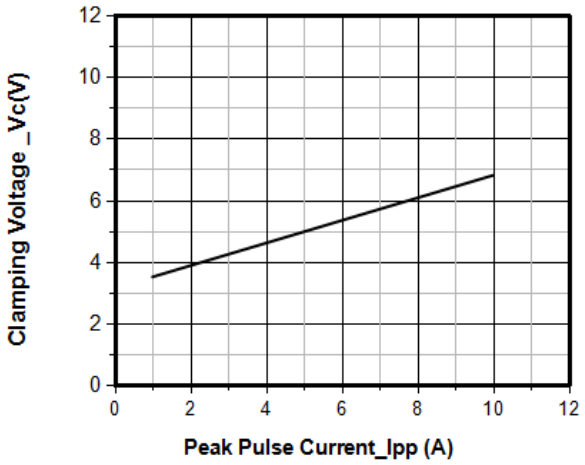
Typical Performance Characteristics (T_A=25℃ unless otherwise Specified)



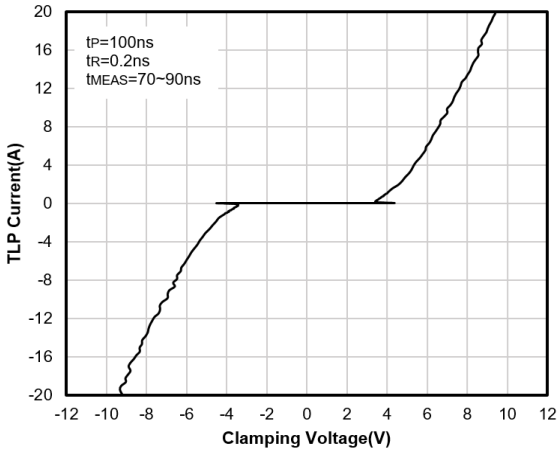
Junction Capacitance vs. Reverse Voltage



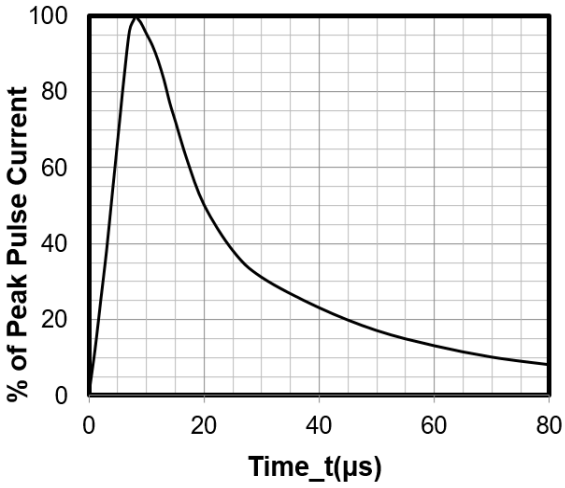
Peak Pulse Power vs. Pulse Time



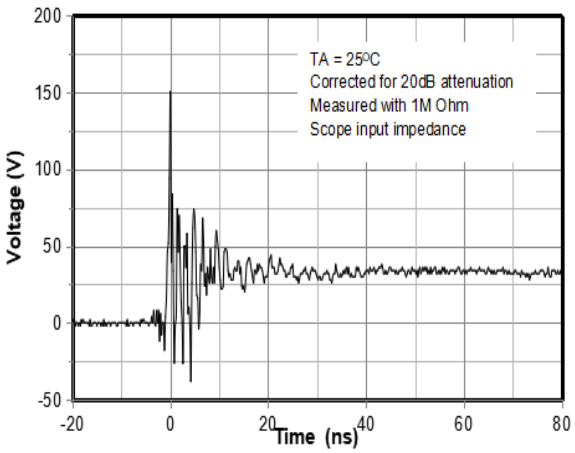
Clamping Voltage vs. Peak Pulse Current



TLP Curve



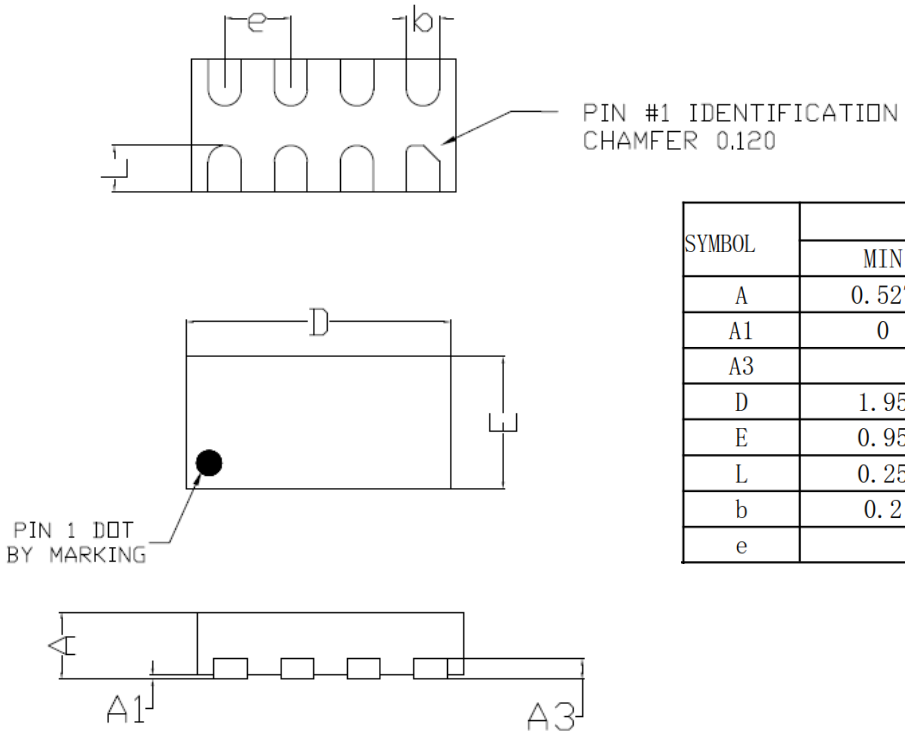
8 X 20μs Pulse Waveform



ESD Clamping Voltage

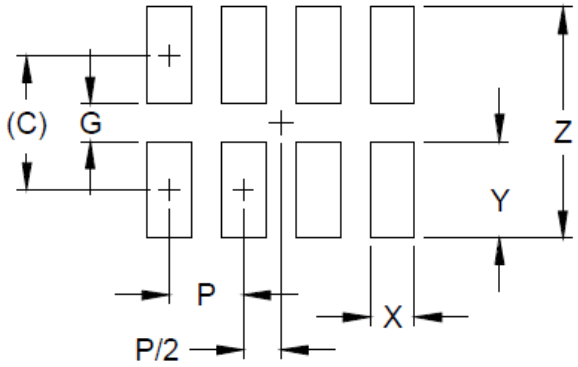
8 kV Contact per IEC61000−4−2

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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