Description

The AR2504P9LA is a low capacitance high power TVS, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The AR2504P9LA complies with the IEC 61000-4-2 (ESD) standard with ±30kV air and ±30kV contact discharge. It is assembled into a 10-pin DFN3020-10 lead-free package. Each device will protect two line pairs high-speed lines. The combination of small size, low capacitance, and high surge capability makes them ideal for use in applications such as Gigabit Ethernet, telecommunication lines, and LVDS interfaces.

Features

- Low capacitance: 2pF typical
- Ultra low leakage: nA level
- Ultra low operating voltage: 2.5V
- Low clamping voltage
- Protects two line pairs
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±30kV
    - Contact discharge: ±30kV
  - IEC61000-4-5 (Lightning) 30A (8/20μs)
- RoHS Compliant

Mechanical Characteristics

- Package: DFN3020-10
- Case Material: “Green” Molding Compound
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

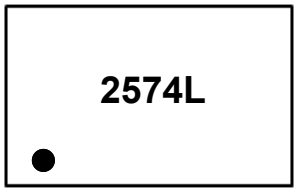
- LVDS Interfaces
- 10/100/1000 Ethernet
- Notebooks, Desktops, Servers
- Networking Equipment
- Switching Systems
- Audio/Video Inputs

Caution:

This Device is designed for signal line protection only.

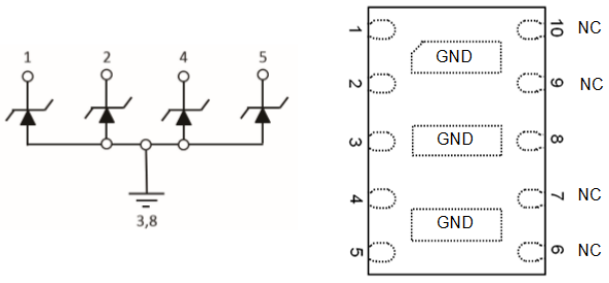
Not intended to be used under bias, not for application with a power line.

Marking Information



2574L= Device Marking Code

Equivalent Circuit and Pin Configuration



Circuit and Pin Schematic

Ordering Information

Part Number	Packaging	Reel Size
AR2504P9LA	3000/Tape & Reel	7 inch

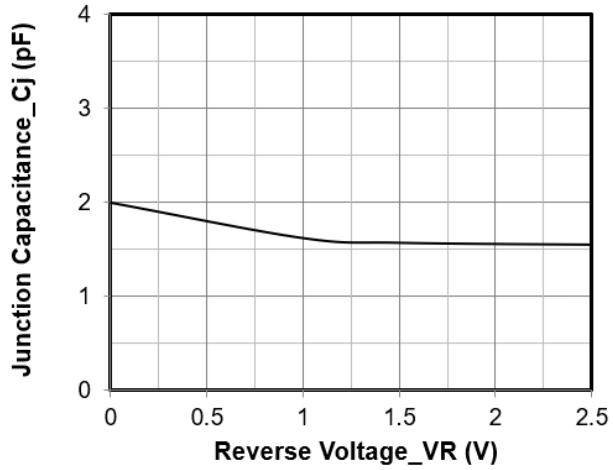
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	330	W
Peak Pulse Current (8/20μs)	I_{PP}	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	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

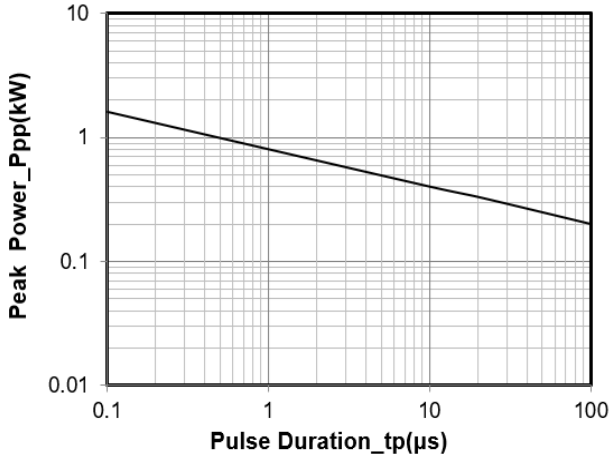
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			2.5	V	
Breakdown Voltage	V_{BR}	3.5			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 2.5V
Holding Voltage	V_{HOLD}		1		V	any I/O pin to ground
Clamping Voltage	V_C		9	11	V	I_{PP} = 30A (8 x 20μs pulse), any I/O pin to ground
Dynamic Resistance	R_{DYN}		0.17		Ohm	tp = 0.2/100ns (TLP)
Junction Capacitance	C_J		2	3	pF	VR = 0V, f = 1MHz, any I/O pin to ground

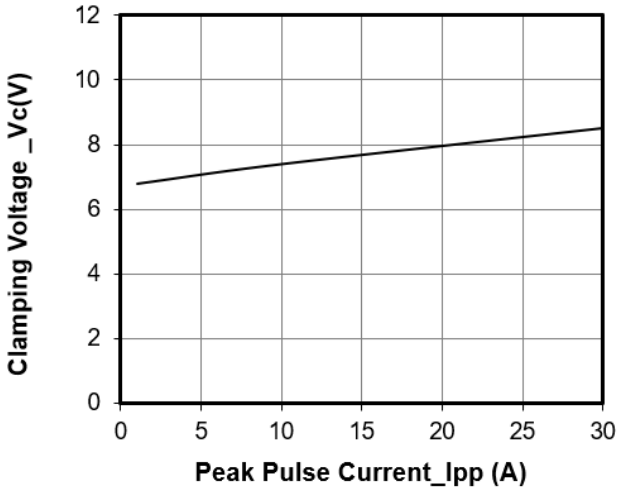
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



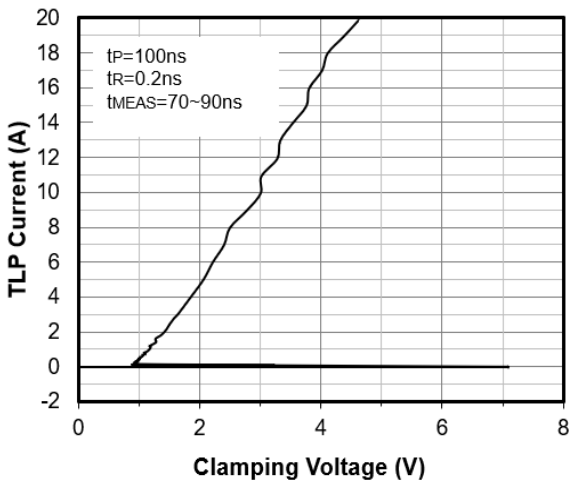
Junction Capacitance vs. Reverse Voltage



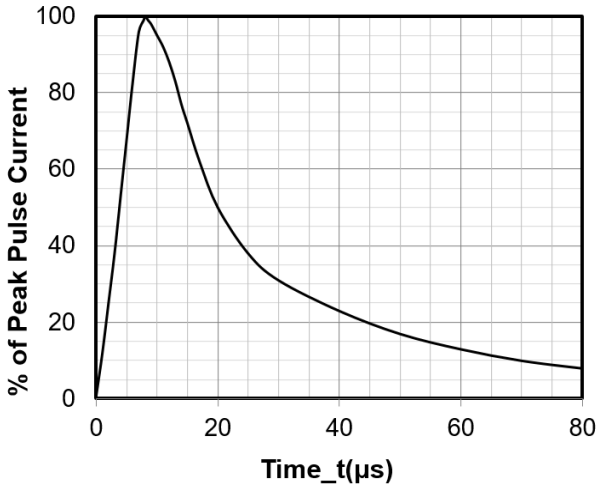
Peak Pulse Power vs. Pulse Time



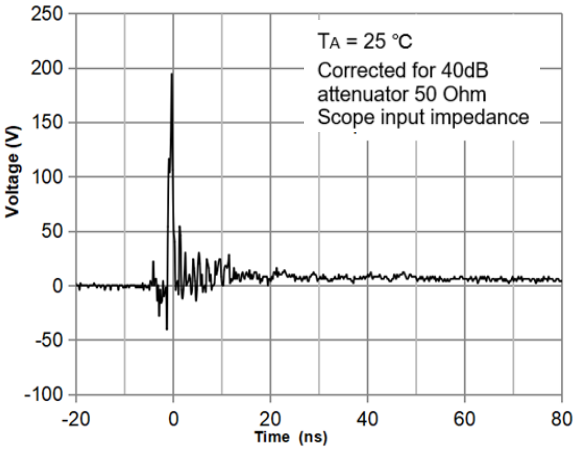
Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



TLP Measurement



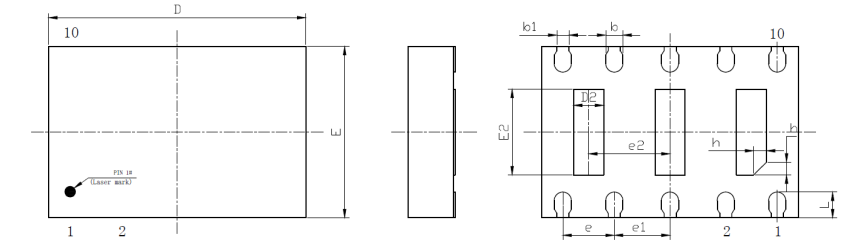
8 X 20μs Pulse Waveform



ESD Clamping Voltage

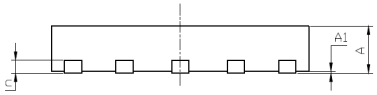
8 kV Contact per IEC61000−4−2

DFN3020-10 Package Outline Drawing



TOP VIEW

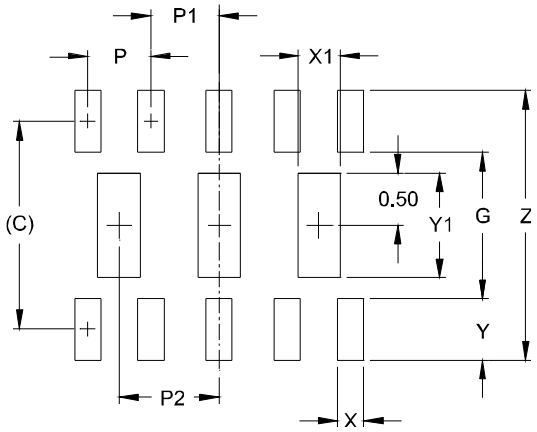
BOTTOM VIEW



SIDE VIEW

SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.50	0.55	0.60
A1	0	0.02	0.05
b	0.15	0.20	0.25
b1		0.14REF	
c		0.15REF	
D	2.90	3.00	3.10
D2	0.30	0.35	0.40
e		0.60BSC	
e1		0.65BSC	
e2		0.95BSC	
E	1.90	2.00	2.10
E2	0.95	1.00	1.05
L	0.25	0.30	0.35
h	0.10	0.15	0.20

Suggested Land Pattern



DIM	MILLIMETERS
C	(1.98)
D	1.40
P	0.60
P1	0.65
P2	0.95
X	0.25
X1	0.40
Y	0.58
Y1	1.00
Z	2.56

Contact Information

Applied Power Microelectronics Inc.

Website: http://www.appliedpowermicro.com

Email: sales@appliedpowermicro.com

Phone: +86 (0519) 8399 3606