

## Transient Voltage Suppressors for ESD Protection

### LC2504-P9

#### Description

The LC2504P9 is ultra low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from over-voltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

#### Feature

- ◆ 1000Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ Protects Two I/O Lines (Pairs)
- ◆ Low Clamping Voltage
- ◆ Working voltages : 2.5V
- ◆ IEC61000-4-2(ESD): ± 30kV (air discharge)  
± 30kV (contact discharge);
- ◆ IEC61000-4-4 (EFT) 40A (5/50 ns)
- ◆ IEC61000-4-5 (LIGHTING) 50A (8/20 μs)

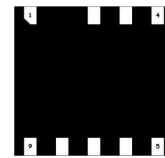
#### Applications

- ◆ 10/100/1000 Ethernet
- ◆ Central Office Equipment
- ◆ LVDS Interfaces
- ◆ MagJacks / Integrated Magnetics
- ◆ Notebooks / Desktops / Servers
- ◆ ATM Interfaces

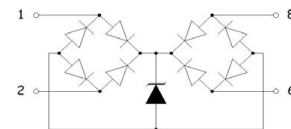
#### Mechanical Characteristics

Symbol	Parameter	Value	Units
Ppp	Peak Pulse Power (tp=8/20μs waveform)	1000	Watts
T <sub>J</sub>	Operating Junction Temperature Range	-40 to +125	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C
T <sub>L</sub>	Soldering Temperature, T max = 10s	260	°C

DFN2626P9



#### Functional Diagram



#### Mechanical Data

- ◆ DFN2626P9 (2.6x2.6x0.5mm) Package
- ◆ Molding Compound Flammability Rating : UL 94V-O
- ◆ Weight 12 Milligrams (Approximate)
- ◆ Quantity Per Reel : 3,000pcs
- ◆ Reel Size : 7 inch
- ◆ Lead Finish : Lead Free
- ◆ Device Marking: LC2504P9

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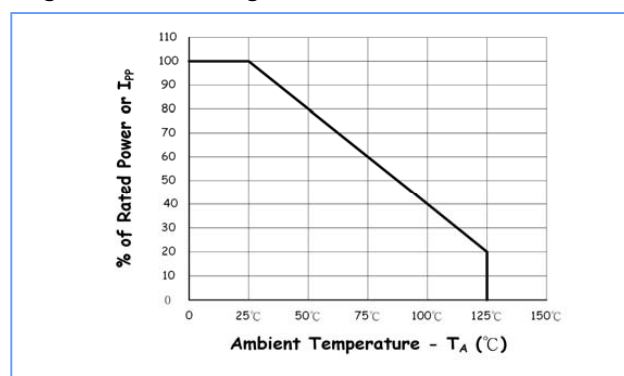
## LC2504-P9

### Electrical Characteristics (@ 25°C Unless Otherwise Specified )

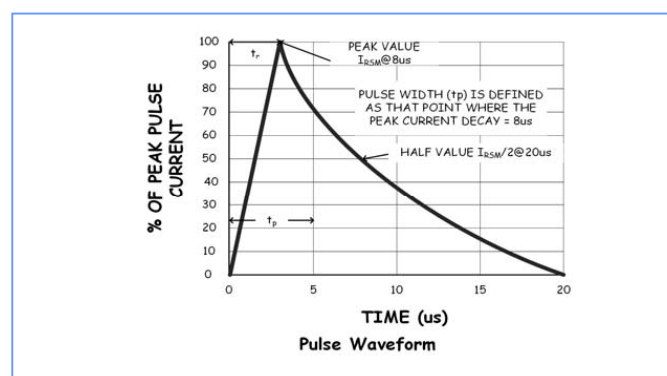
Part Number	Device Marking Code	Stand-Off Voltage $V_{RMW}$ (V)	Breakdown Voltage $V_{BR}$	Test Current $I_T$ (mA)	$V_C$ @5A (Max.)	$V_C$		Maximum Reverse Leakage $I_R$ @ $V_{RMW}$ (uA)	Maximum Junction Capacitance @0 V (pF)
						(Max.)	(@A)		
LC2504-P9	I/O to I/O	2.5	3.0	1.0	8.0	21	30	0.05	1.3
	Line to Line	2.5	3.0	1.0	6.0	25	40	0.05	2.6

### Characteristic Curves

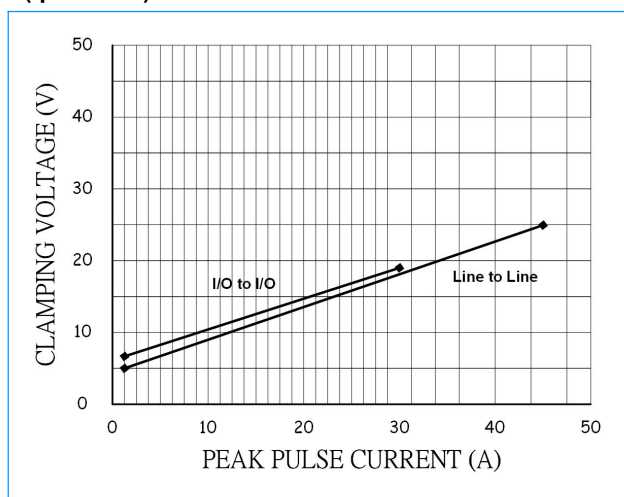
**Fig1. Power Derating Curve**



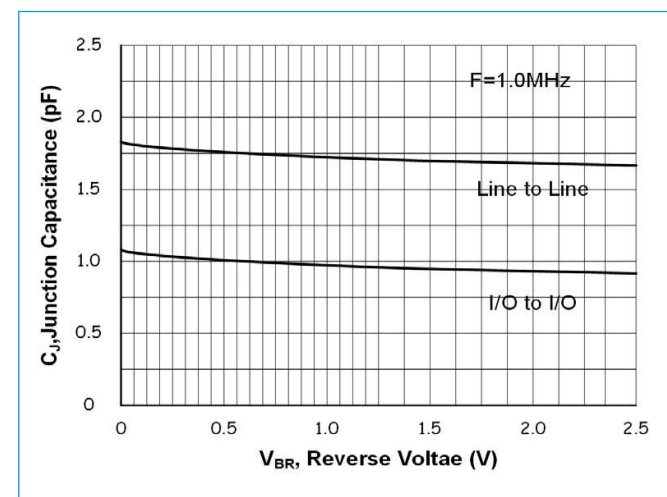
**Fig2. 8/20us Pulse Waveform**



**Fig3. Clamping Voltage vs. Peak Pulse Current ( $t_p=8/20us$ )**



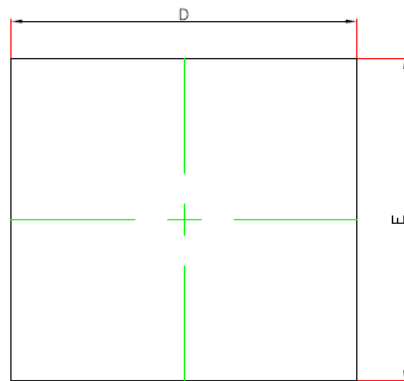
**Fig4. Typic Capacitance vs. Reverse Voltage**



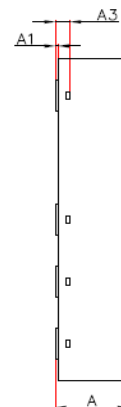
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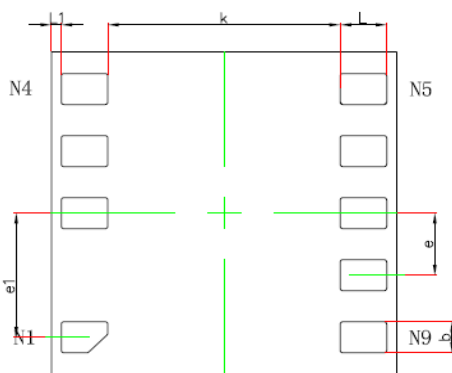
### DFN2626P9 Package Outline & Dimensions



TOP VIEW



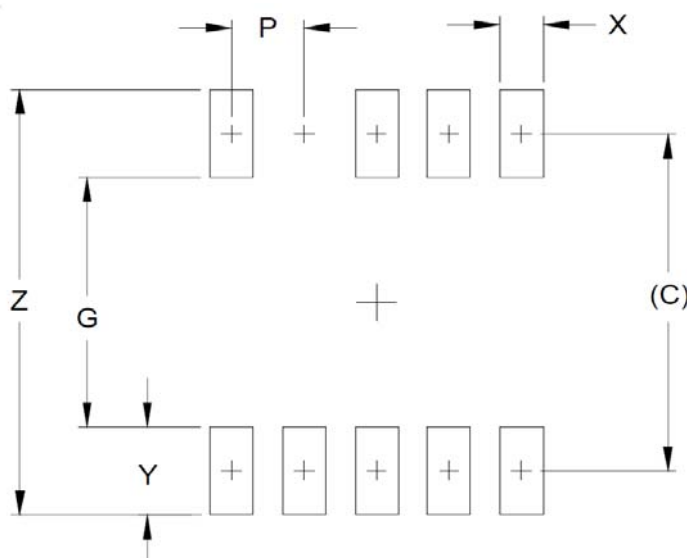
SIDE VIEW



BOTTOM VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN.	MAX.	MIN.	MAX.
A	0.500	0.600	0.020	0.024
A1	-0.004	0.046	0.000	0.002
A3	0.110REF.		0.004REF.	
D	2.500	2.700	0.098	0.106
E	2.500	2.700	0.098	0.106
b	0.200	0.300	0.008	0.012
e	0.500BSC.		0.020BSC.	
e1	1.000BSC.		0.039BSC.	
k	1.750REF.		0.069REF.	
L	0.274	0.426	0.011	0.017
L1	0.075REF.		0.003REF.	

### \* SOLDERING FOOTPRINT



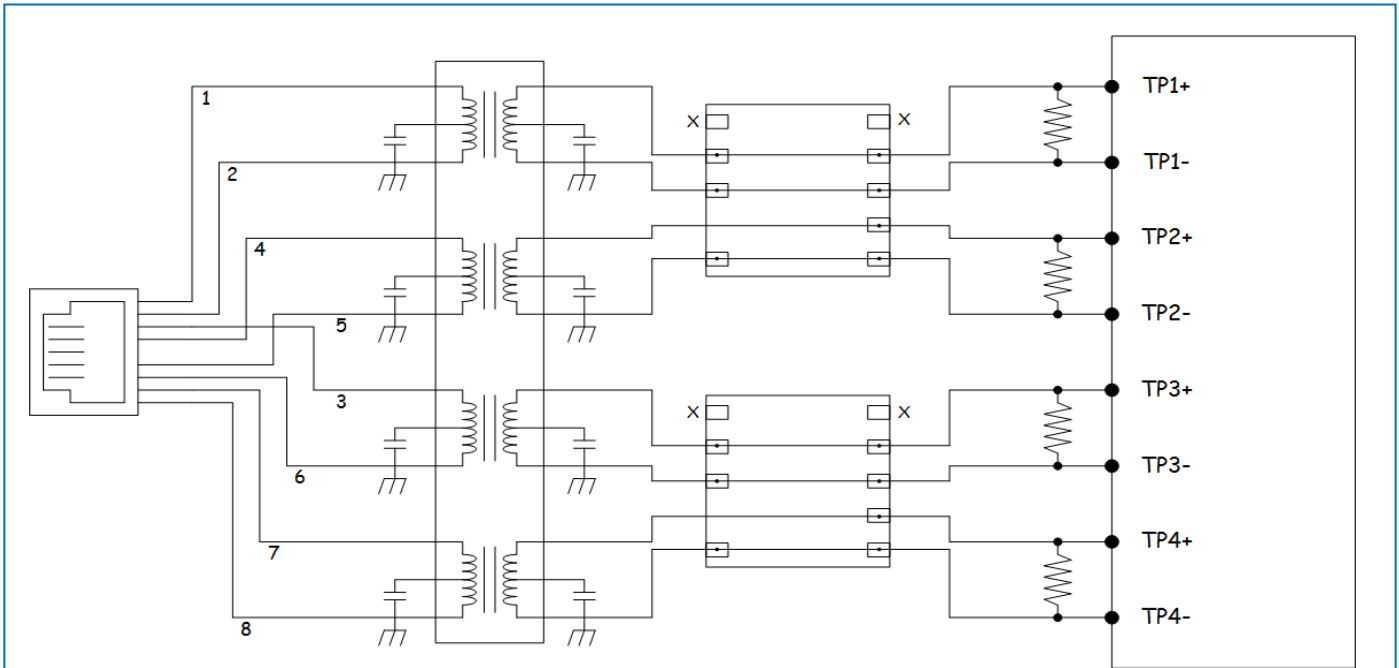
DIMENSIONS	
C	2.30
G	1.70
P	0.50
X	0.30
Y	0.60
Z	2.95

DIMENSIONS : MILLIMETERS

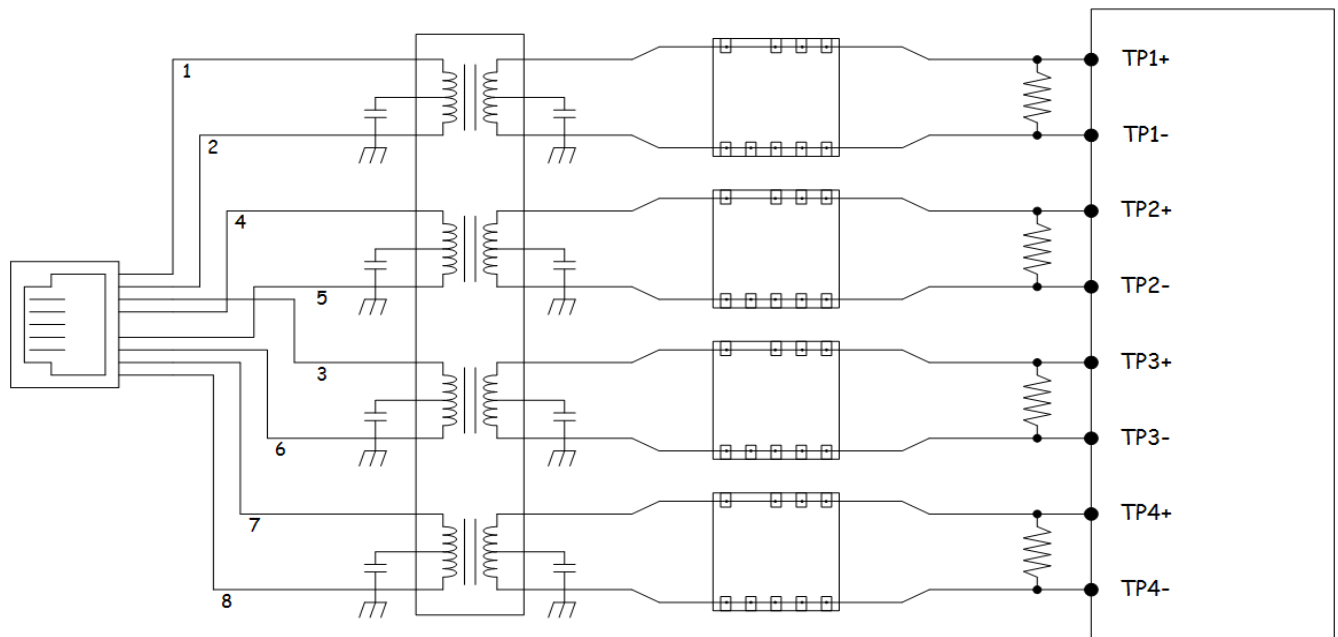
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### APPLICATION INFORMATION



I/O to I/O Schematic Diagram for Gigabit Ethernet Protection



Line to Line Schematic Diagram for Gigabit Ethernet Telcordia GR-1089 Intra-Building Protection (PHY Operating Temp  $\leq 90^{\circ}\text{C}$ )