

Features

- * Transient protection for high-speed data lines
IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Air)
 $\pm 30\text{kV}$ (Contact)
IEC 61000-4-4 (EFT) 40A (5/50 ns)
IEC 61000-4-5 (Surge) 10A (8/20 μs)
- * Package optimized for high-speed lines
- * Provides protection for two line pairs
- * Low capacitance: 4.5pF @ 2.5V (Typical)
- * Low leakage current: 10nA @ V_{RWM} (Typical)
- * Low operating and clamping voltage
- * Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge

Mechanical Characteristics

- * Package: DFN-8L package
- * Lead Finish: Matte Tin
- * Case Material: “Green” Molding Compound.
- * UL Flammability Classification Rating 94V-0
- * Moisture Sensitivity: Level 3 per J-STD-020
- * Terminal Connections: See Diagram Below

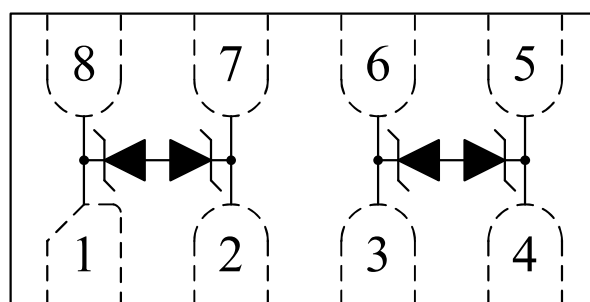
Applications

- * 10/100/1000M Ethernet Ports
- * WAN/LAN Equipment
- * Desktops, Servers and Notebooks
- * Switching Systems

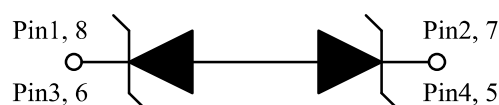
Ordering Information

Part Number	Qty per Reel	Reel Size
TPE2203-25	3000	7"

Dimensions and Pin Configuration



DFN-8L
(Top View)



Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	100	W
Peak Pulse Current (8/20 μs)	IPP	10	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-40 to +85	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V _{RWM}				2.5	V
Breakdown Voltage	V _{BR}	I _T = 1mA	3.0		4.5	V
Reverse Leakage Current	I _R	V _{RWM} = 2.5V			0.04	μA
Clamping Voltage	V _C	I _{PP} = 2A (8 x 20 μs pulse)			5	V
Clamping Voltage	V _C	I _{PP} = 10A (8 x 20 μs pulse)			9	V
Junction Capacitance	C _J	V _R = 2.5V, f = 1MHz (Each Line)		4.5		pF
Junction Capacitance	C _J	Pin1, 8 to 2, 7 & Pin3, 6 to Pin4, 5 V _R = 0V ~ 2.5V, f = 1MHz		1.5		pF

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

Fig1. 8/20 μ s Pulse Waveform

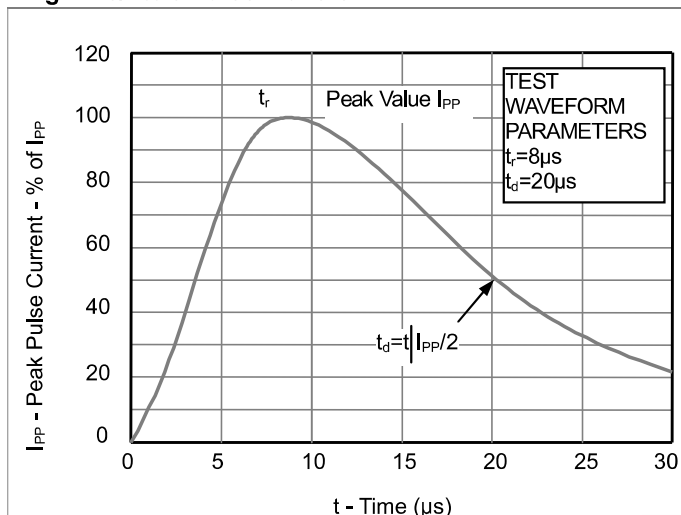


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

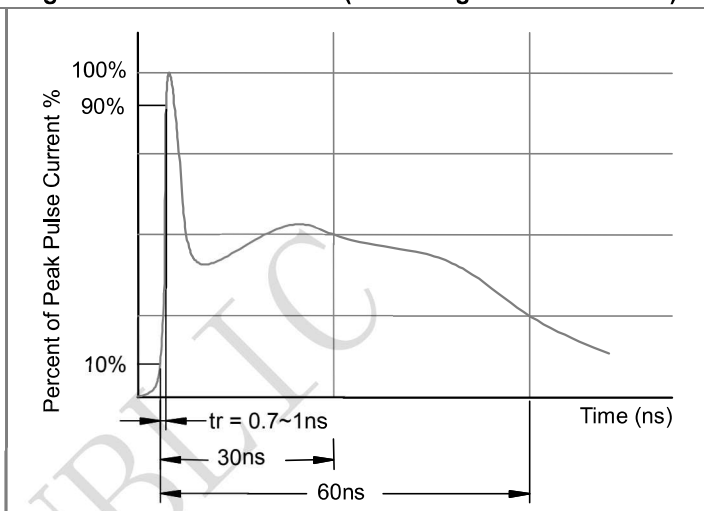
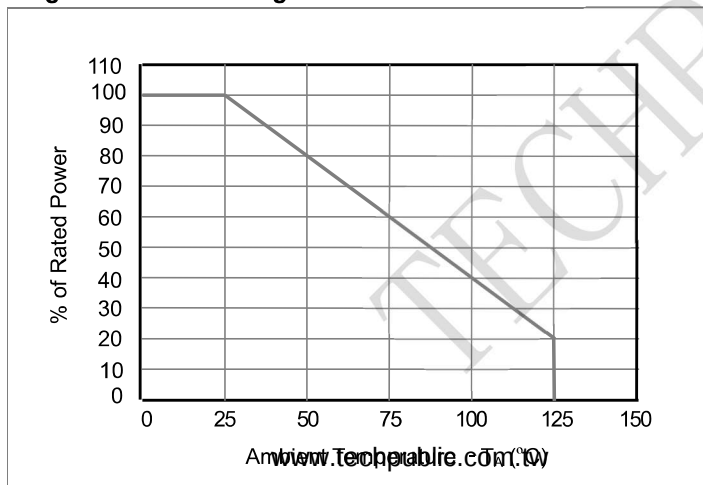
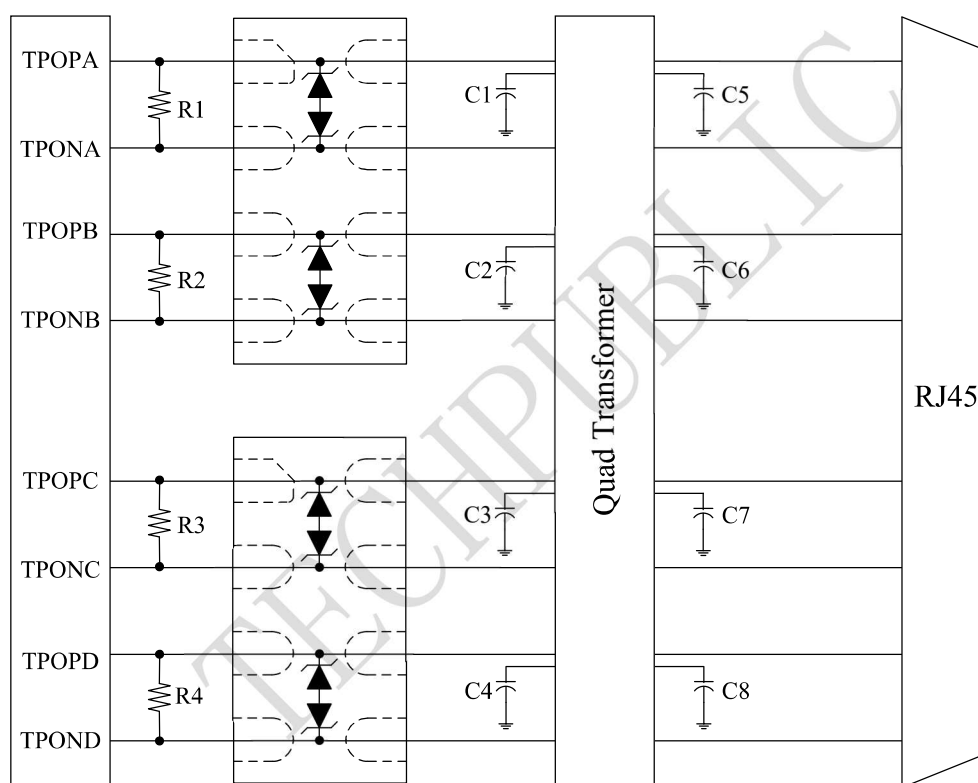


Fig3. Power Derating Curve



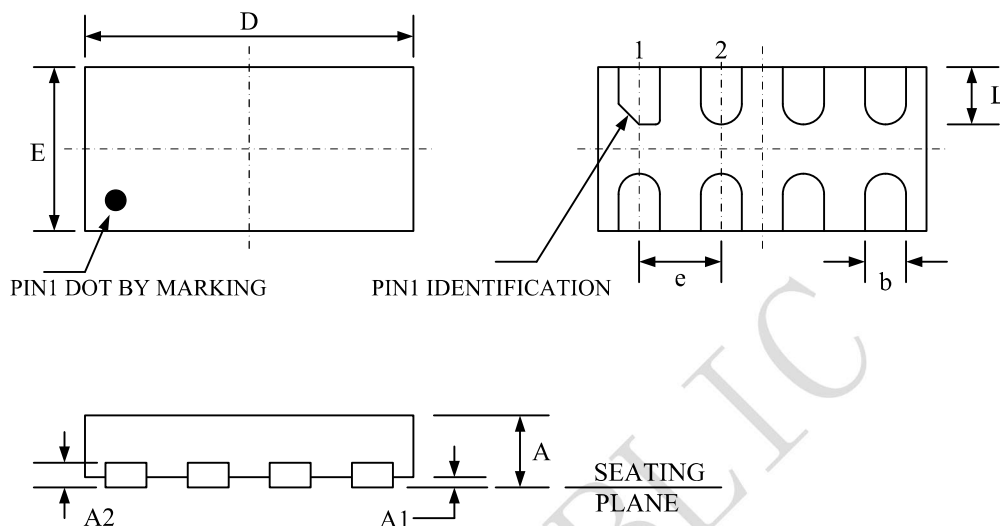
Application Information

Electronic equipment is susceptible to damage caused by a variety of sources, including Electrostatic Discharge (ESD), Electrical Fast Transients (EFT) and Lightning strikes. The TP2203-25 was designed to protect the sensitive equipment from damage which may be induced by such transient events. This product can be configured in a connection to meet the requirement of differential line pairs as follows:



Schematic Diagram for Gigabit Ethernet ESD/Surge Protection

DFN-8 Package Outline Drawing



Package Dimensions (Controlling dimensions are in millimeters)

Symbol	Dimensions (mm)			Dimensions (Inches)		
	Minimum	Typical	Maximum	Minimum	Typical	Maximum
A	0.370	0.400	0.430	0.015	0.016	0.017
A1	0.000	0.020	0.050	0.000	0.001	0.002
A2	0.130			0.005		
b	0.200	0.250	0.300	0.008	0.010	0.012
D	1.900	2.000	2.100	0.075	0.079	0.083
E	0.900	1.000	1.100	0.035	0.039	0.043
e	0.500 BSC			0.020 BSC		
L	0.300	0.350	0.400	0.012	0.014	0.016
R	0.050	0.100	0.150	0.002	0.004	0.006