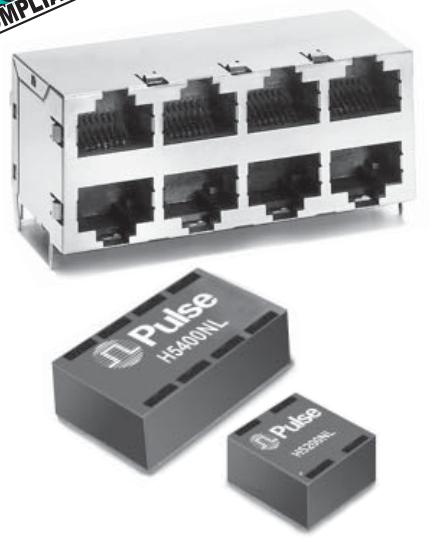
GIGABIT (10/100/1000 BASE-T QUAD- & DUAL-TRANSFORMER MODULES AND UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT



- World's smallest Gigabit Quad- and Dual-isolation transformer modules
- All pairs are symmetrical and balanced
- Reliable surface mount ball grid array
- Compact footprint, reduced board space
- Designed to fit behind 2x2 connectors
- RoHS-6 peak reflow temperature rating 245°C

Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

RoHS-6 Compliant Part Numaber	Number of Ports	Insertion Loss (dB MAX)	Return Loss (dB MIN)					Differential to Common Mode Rejection (dB MIN)			Crosstalk (dB MIN)			Hipot (Vrms)
		1-100 MHz	1-30 MHz	40 MHz	50 MHz	60-80 MHz	100 MHz	30 MHz	60 MHz	100 MHz	30 MHz	60 MHz	100 MHz	
H5200NL	2	1	-18	-18	-16	-12	-10	-43	-37	-33	-43	-37	-33	1500
H5201NL	2	1	-18	-18	-16	-12	-10	-43	-37	-33	-43	-37	-33	1500
H5400NL	4	1	-18	-18	-16	-12	-10	-43	-37	-33	-43	-37	-33	1500
H5401NL	4	1	-18	-18	-16	-12	-10	-43	-37	-33	-43	-37	-33	1500
HX5200NL	2	1	-18	-18	-16	-12	-10	-43	-37	-33	-43	-37	-33	1500
HX5201NL	2	1	-18	-18	-16	-12	-10	-43	-37	-33	-43	-37	-33	1500
HX5400NL	4	1	-18	-18	-16	-12	-10	-43	-37	-33	-43	-37	-33	1500
HX5401NL	4	1	-18	-18	-16	-12	-10	-43	-37	-33	-43	-37	-33	1500

1. **MSL =** Moisture Sensitivity Level: 1
2. **Second** level mechanical shock test, mounted to 4 layer FR-4 PCB (passed 500g in 5-axis)
3. **HX** = operating temperature: -40°C to +85°C (extended temperature)

Connector Mechanical Specifications--Operating Temperature -40°C to 85°C

RoHS-6	Mounting, Tab Position	Number of Ports	Package Dimensions L/W/H (mm)	Solder Temperature (35 seconds)	LED Option	Plating
E6588-22A225-L	THT, Tab Down	1x2	31.24 / 21.35 / 13.6	230°C - 250°C	No LED's	Gold Plating Over Nickel
E6588-22C244-L	THT, Tab Down	1x4	59.18 / 21.35 / 13.6	230°C - 250°C	No LED's	Gold Plating Over Nickel
E6588-A5N125-L	THT, Tab Up/Down	2x2	25.35 / 31.24 / 25.3	230°C - 250°C	No LED's	Gold Plating Over Nickel
E6588-A59125-L	THT, Tab Up/Down	2x4	59.18 / 28.35 / 25.3	230°C - 250°C	No LED's	Gold Plating Over Nickel

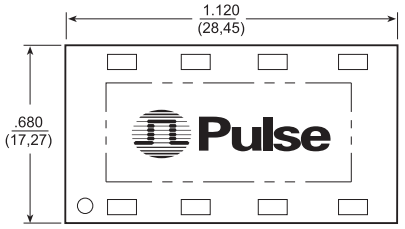
GIGABIT (10/100/1000 BASE-T QUAD- & DUAL-TRANSFORMER MODULES AND UNFILTERED CONNECTORS

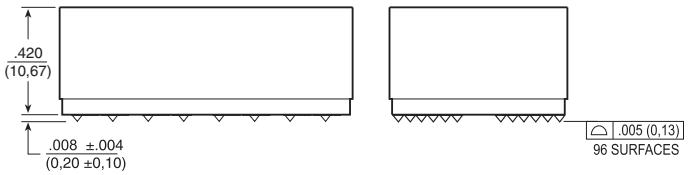
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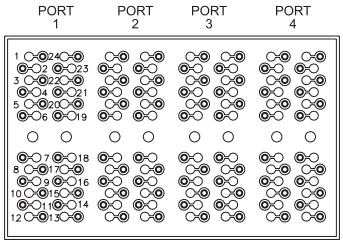
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Mechanicals

H5400NL, H5401NL, HX5400NL, HX5401NL

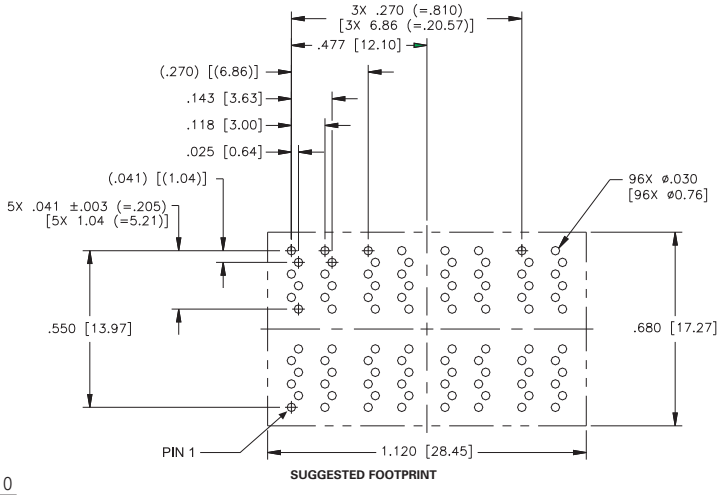






PIN NUMBERING

BOTTOM VIEW



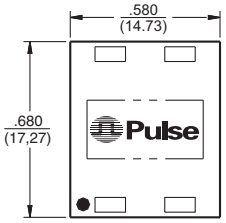
SUGGESTED FOOTPRINT

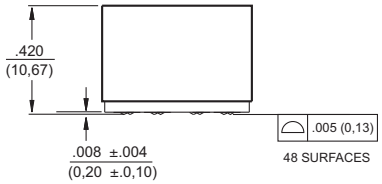
COMPONENT/TOP VIEW

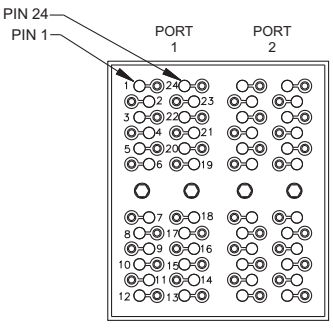
Weight. . . . . 10 grams
Tray 300

Dimensions: Inches / mm Unless otherwise specified, all tolerances are ± .010 / 0,25

H5200NL, H5201NL, HX5200NL, HX5201NL

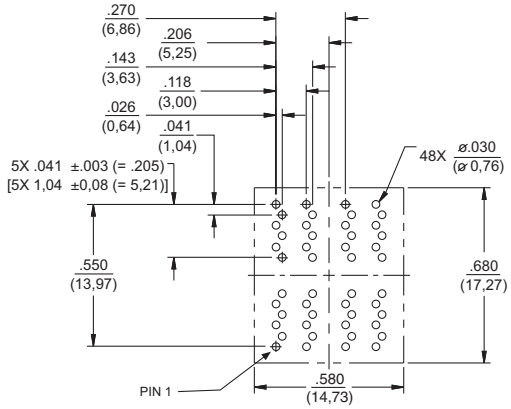






PIN NUMBERING

BOTTOM VIEW



SUGGESTED FOOTPRINT

COMPONENT/TOP VIEW

Weight . . . . . 5 grams
Tray 600

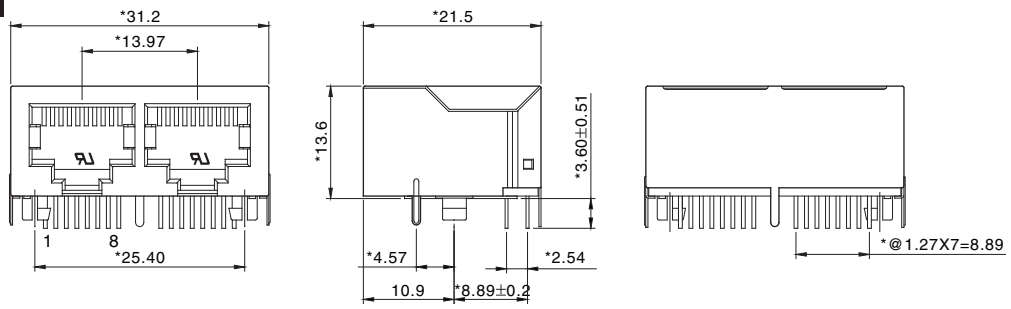
Dimensions: Inches / mm Unless otherwise specified, all tolerances are ± .010 / 0,25

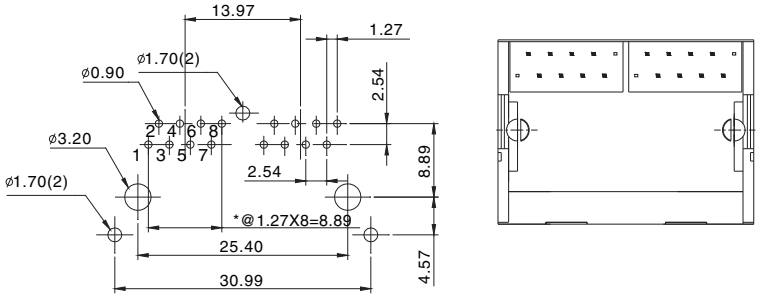
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Mechanicals *(continued)*

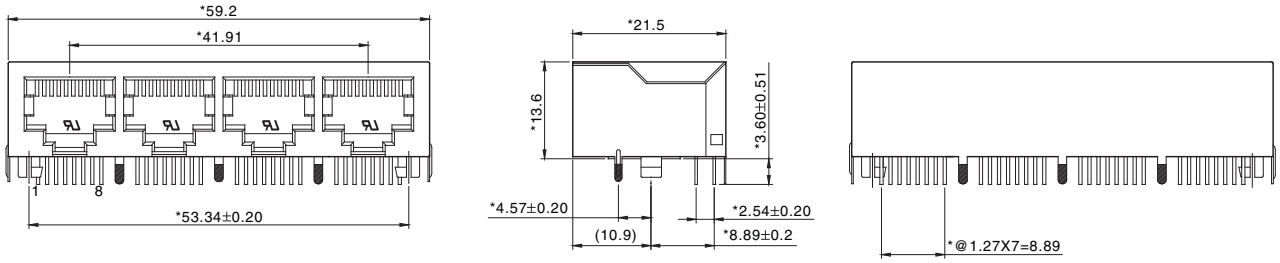
E6588-22A225-L

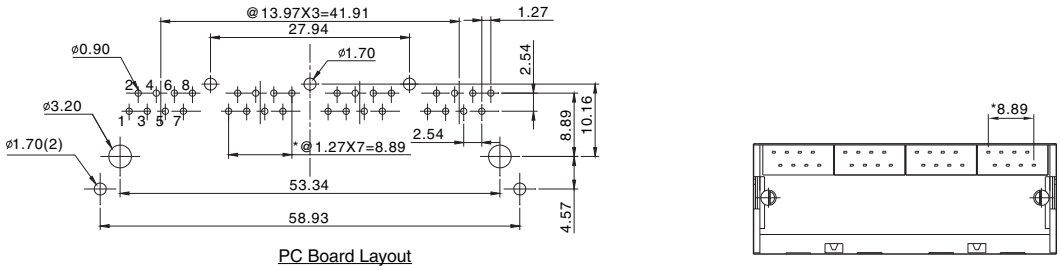




PC Board Layout
Component Side Shown

E6588-22C244-L





PC Board Layout
Component Side Shown

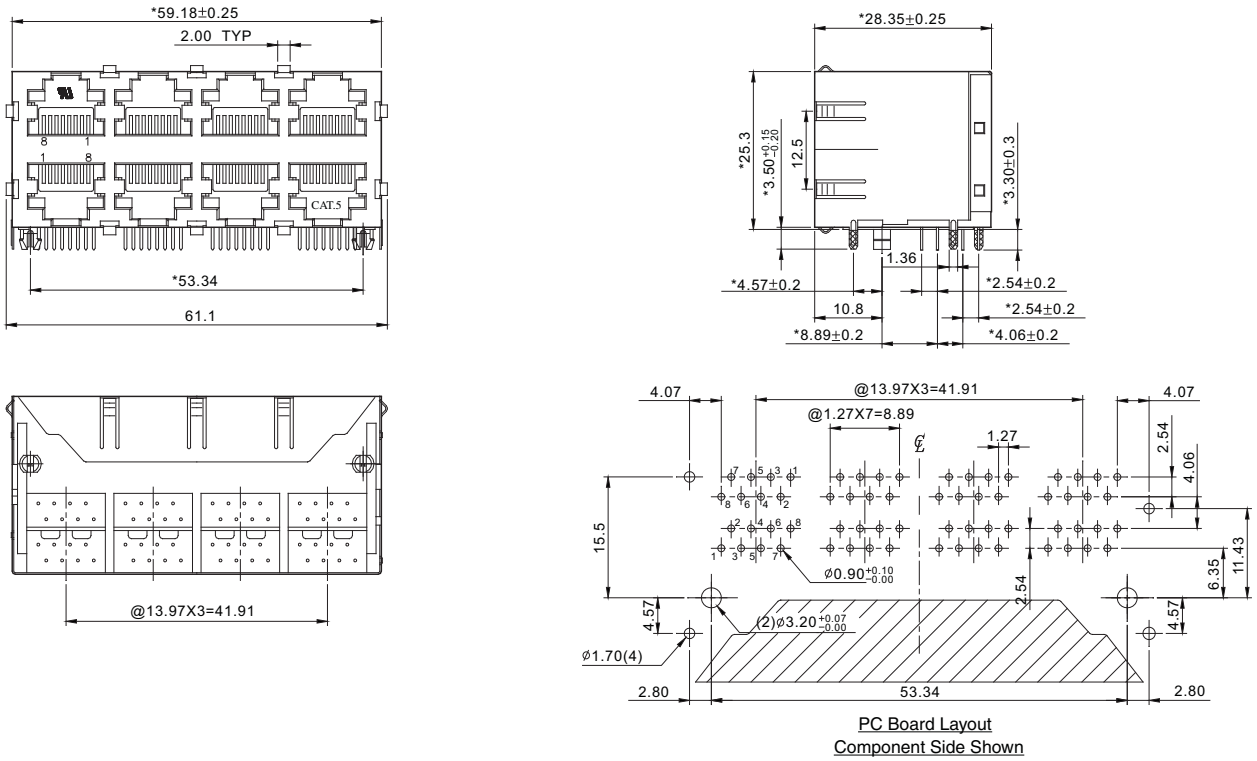
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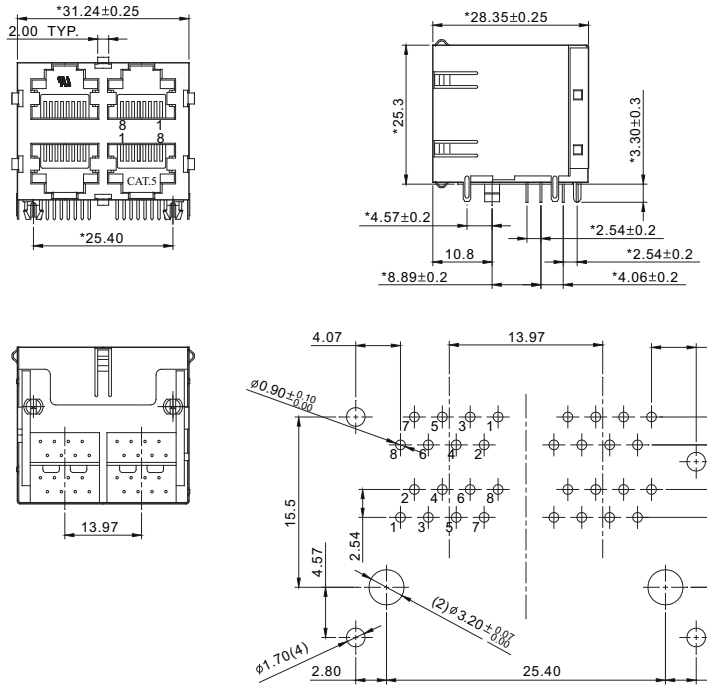
Mechanicals *(continued)*

E6588-A59125-L



PC Board Layout
Component Side Shown

E6588-G5N125-L



PC Board Layout
Component Side Shown

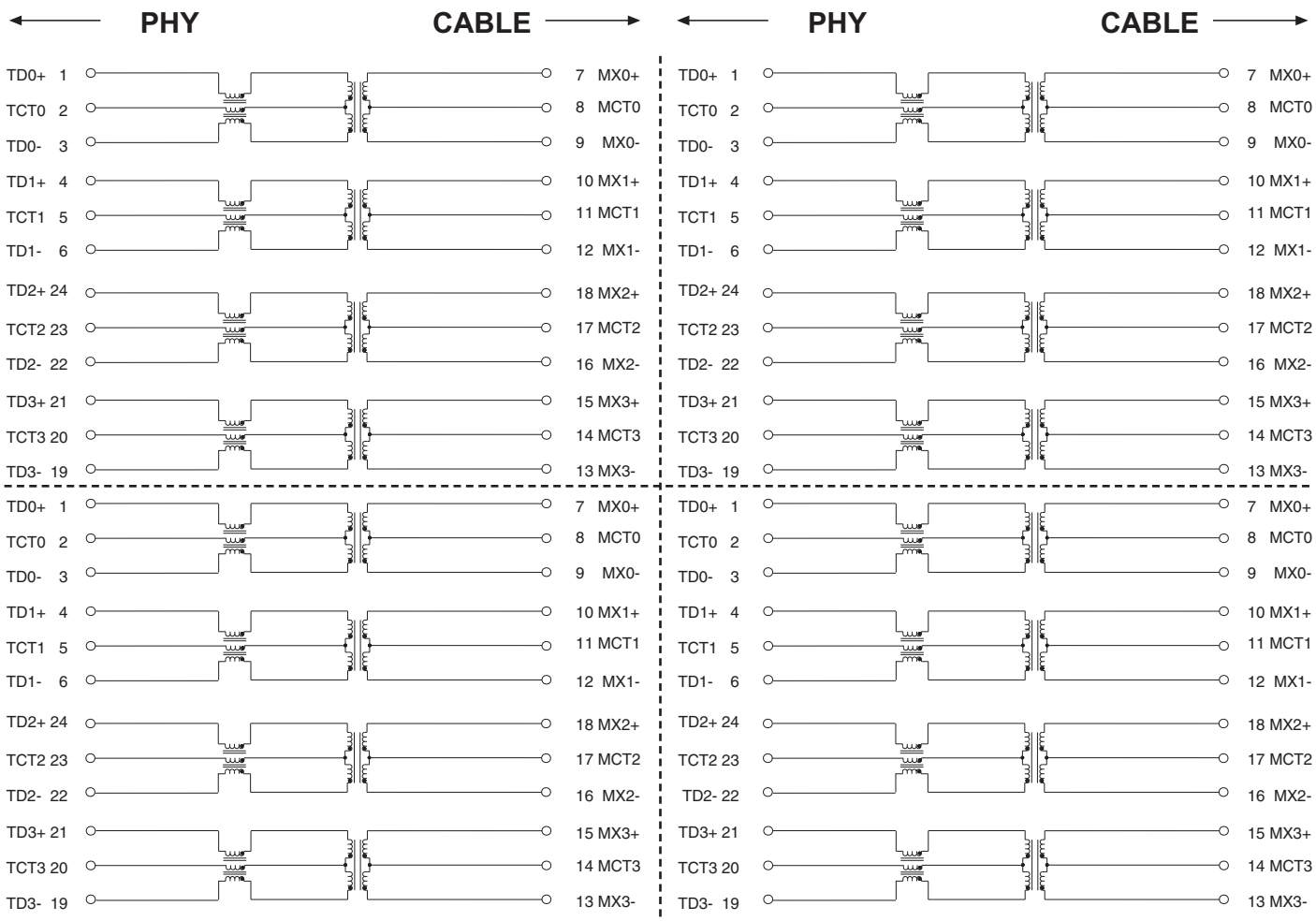
GIGABIT (10/100/1000 BASE-T QUAD- & DUAL-TRANSFORMER MODULES AND UNFILTERED CONNECTORS

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Schematics

H5400NL, HX5400NL



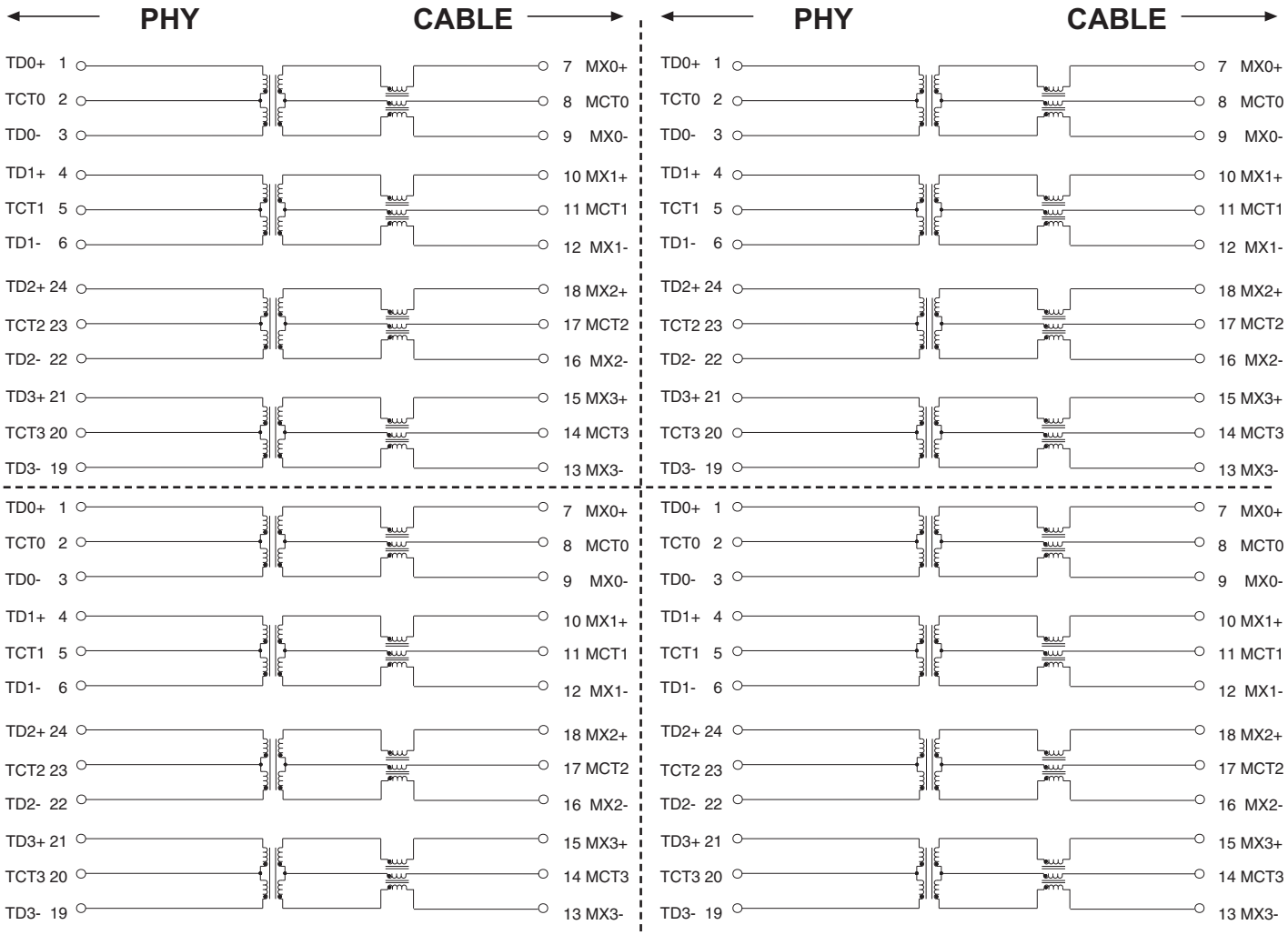
Schematics for quad ports

GIGABIT (10/100/1000 BASE-T QUAD- & DUAL-TRANSFORMER MODULES AND UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX

Schematics *(continued)*

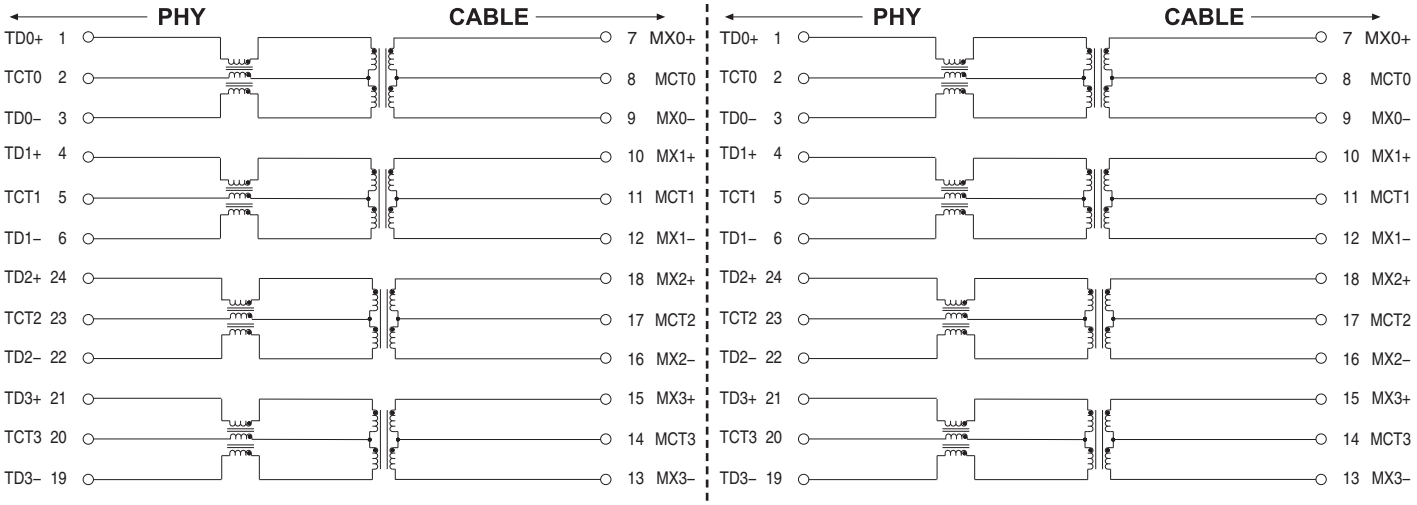
H5401NL, HX5401NL



Schematics for quad ports

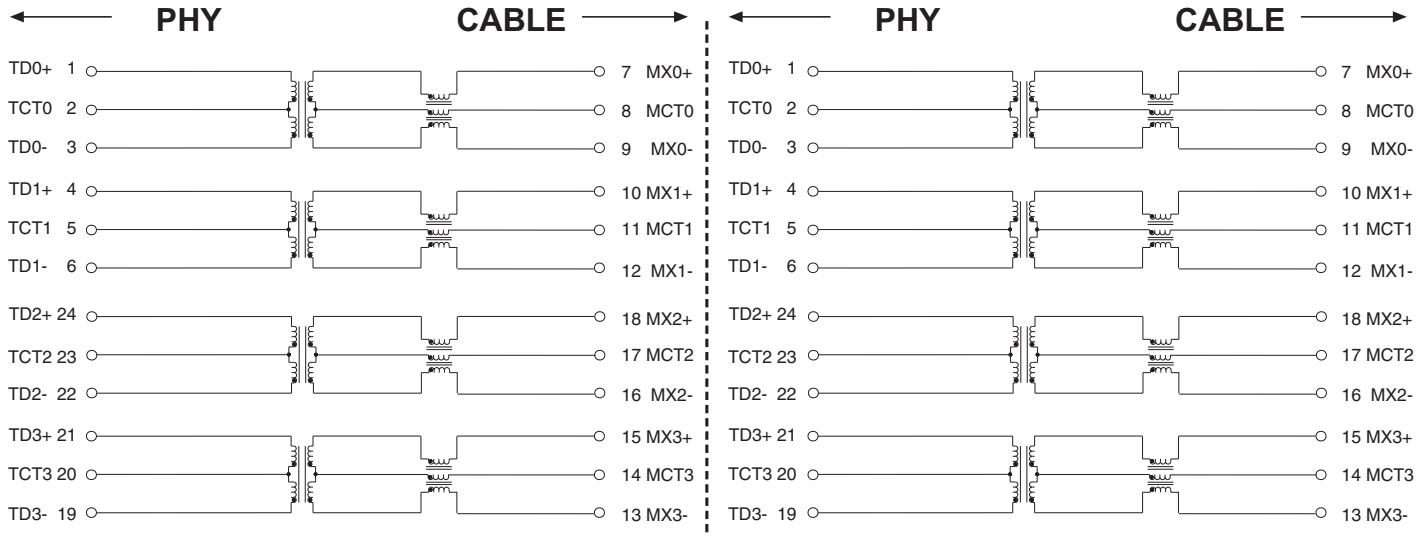
Schematics *(continued)*

H5200NL, HX5200NL



Schematics for dual ports

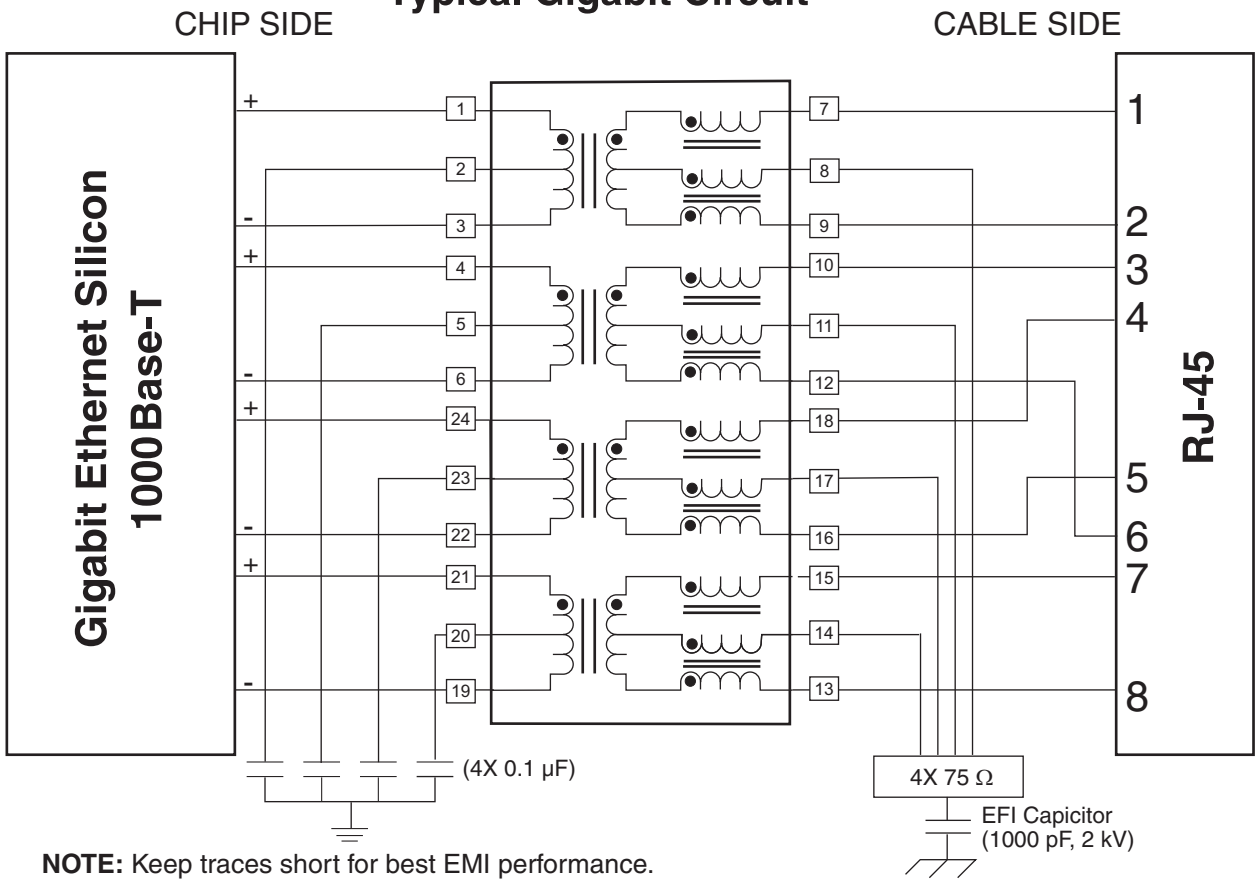
H5201NL, HX5201NL



Schematics for dual ports

Application Circuit

Typical Gigabit Circuit



NOTE: Keep traces short for best EMI performance.

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