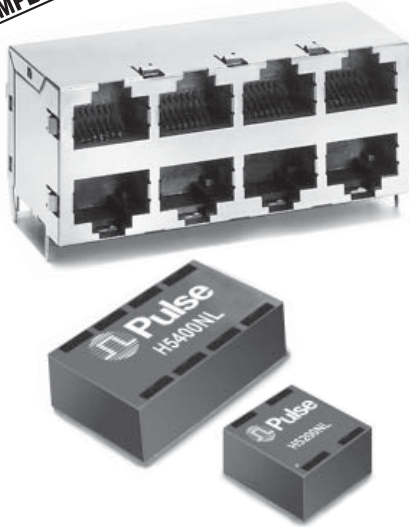




# GIGABIT (10/100/1000 BASE-T QUAD- & DUAL-TRANSFORMER MODULES AND UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX



- ⚙ 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 Number	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	
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

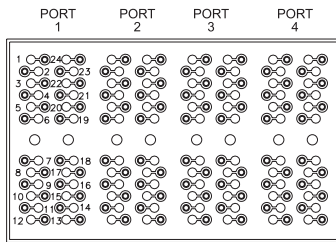
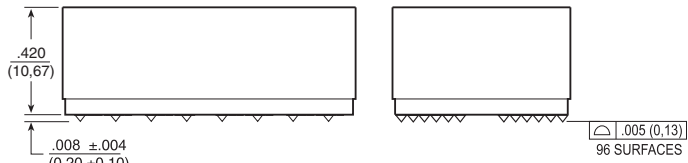
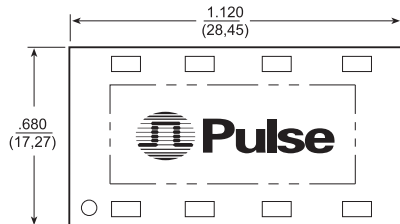
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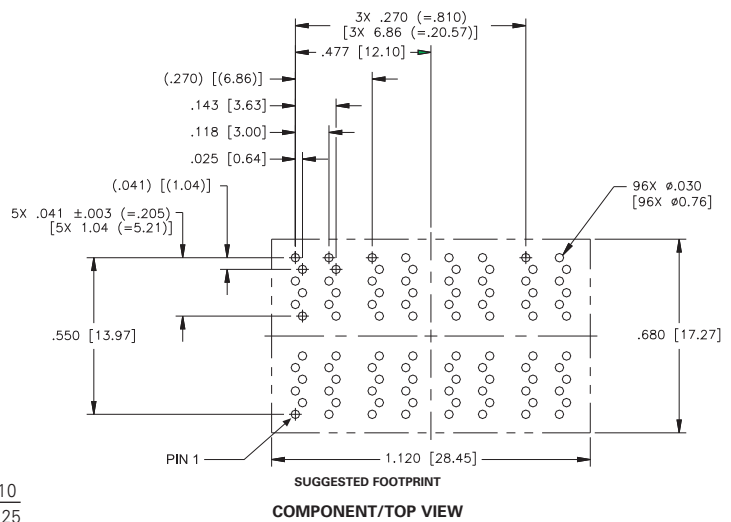


## Mechanicals

### H5400NL, H5401NL, HX5400NL, HX5401NL



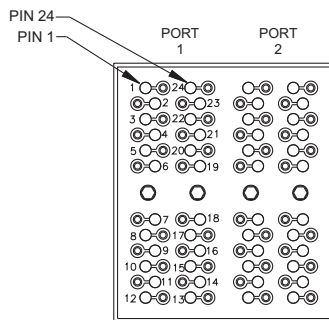
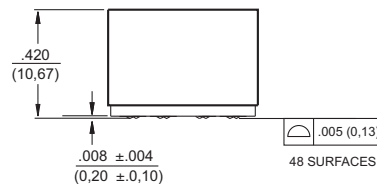
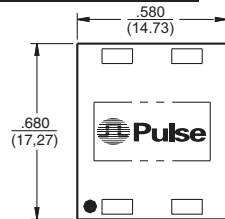
PIN NUMBERING  
BOTTOM VIEW



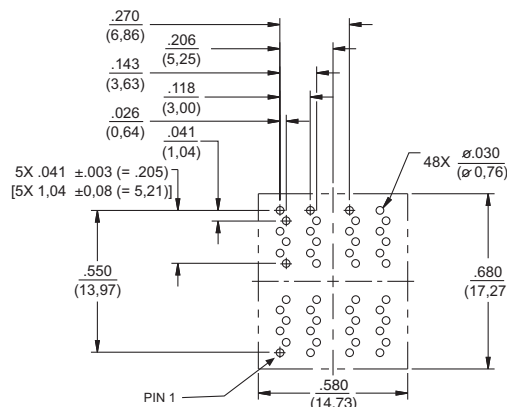
Weight . . . . . 10 grams  
Tray . . . . . 300

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0,25}$

### H5200NL, H5201NL, HX5200NL, HX5201NL



PIN NUMBERING  
BOTTOM VIEW



Weight . . . . . 5 grams  
Tray . . . . . 600

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0,25}$



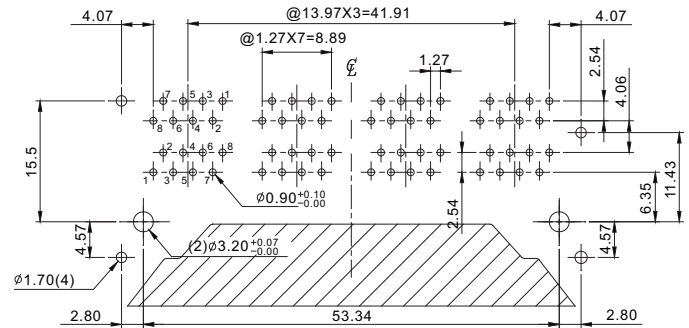
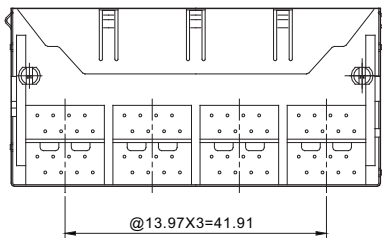
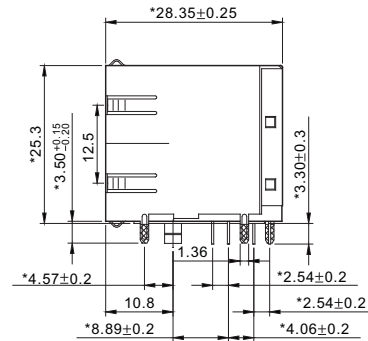
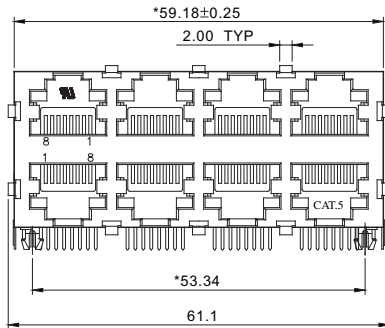
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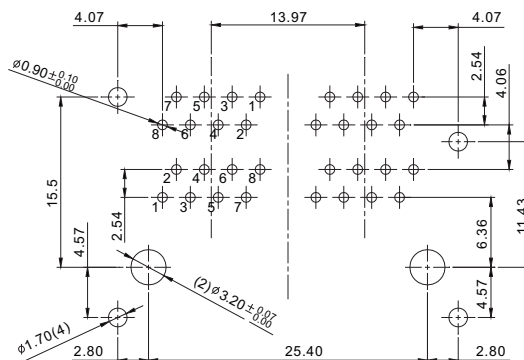
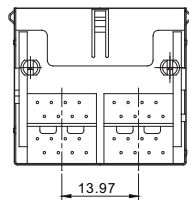
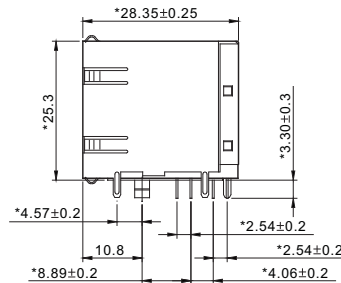
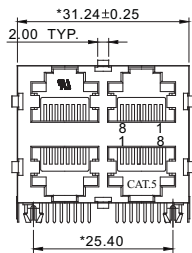
## Mechanicals (continued)

**E6588-A59125-L**



PC Board Layout  
Component Side Shown

**E6588-G5N125-L**



PC Board Layout  
Component Side Shown

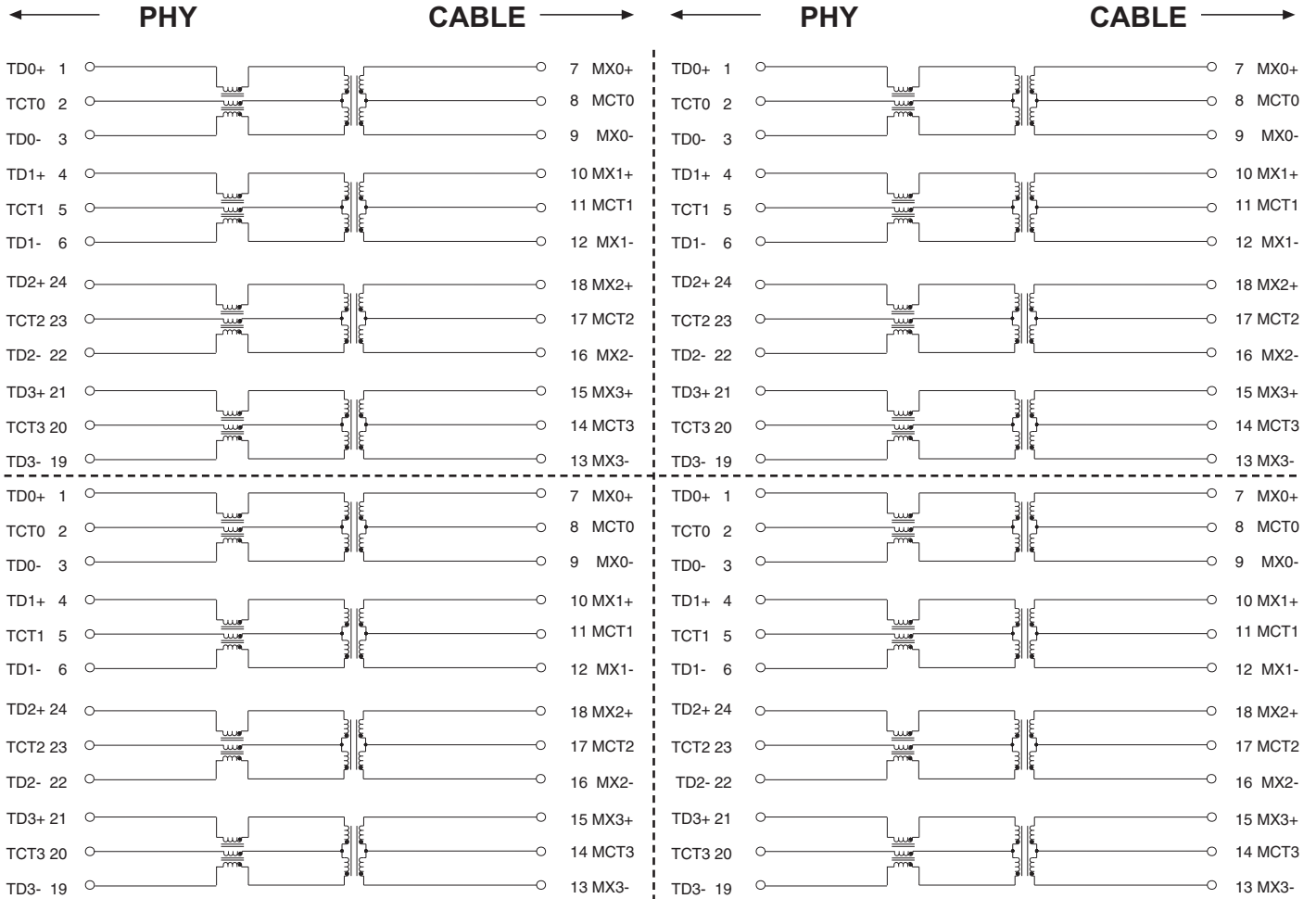
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## Schematics

H5400NL, HX5400NL



Schematics for quad ports

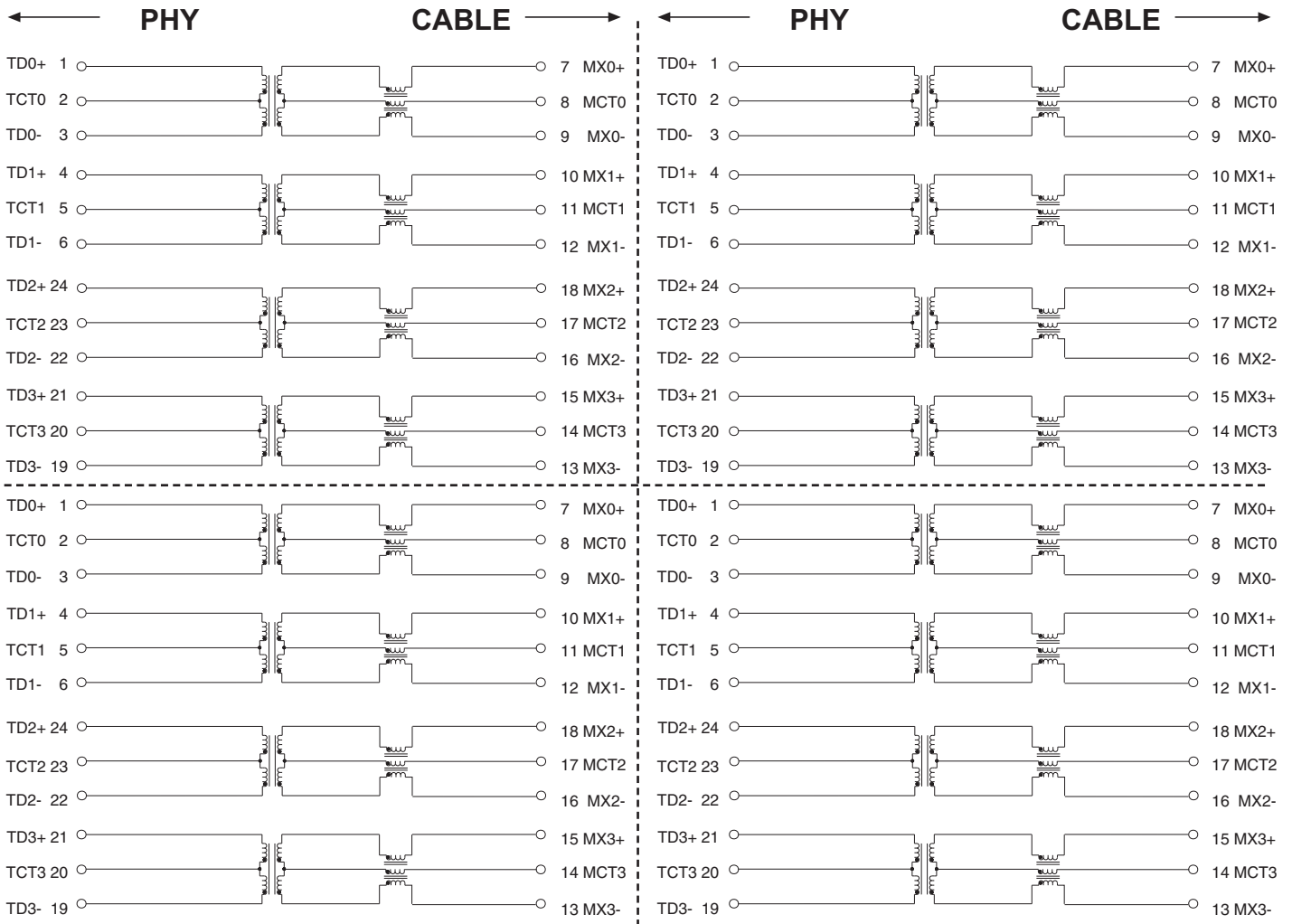
# GIGABIT (10/100/1000 BASE-T QUAD- & DUAL-TRANSFORMER MODULES AND UNFILTERED CONNECTORS

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## Schematics (continued)

H5401NL, HX5401NL



Schematics for quad ports

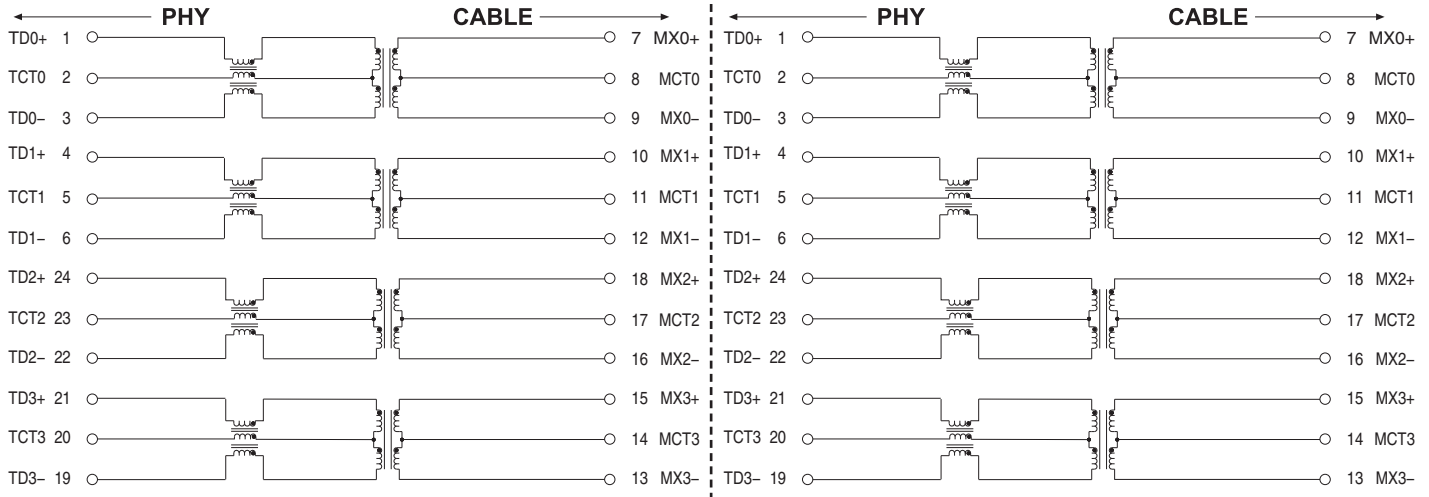
# GIGABIT (10/100/1000 BASE-T QUAD- & DUAL-TRANSFORMER MODULES AND UNFILTERED CONNECTORS

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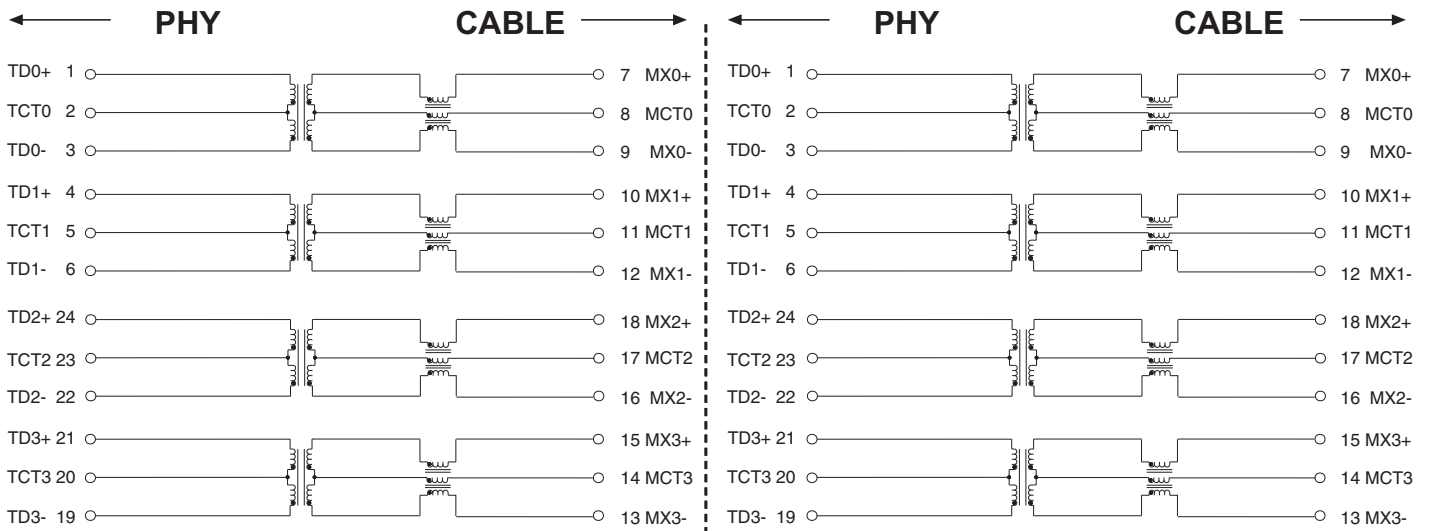
## Schematics (continued)

### H5200NL, HX5200NL



Schematics for dual ports

### H5201NL, HX5201NL



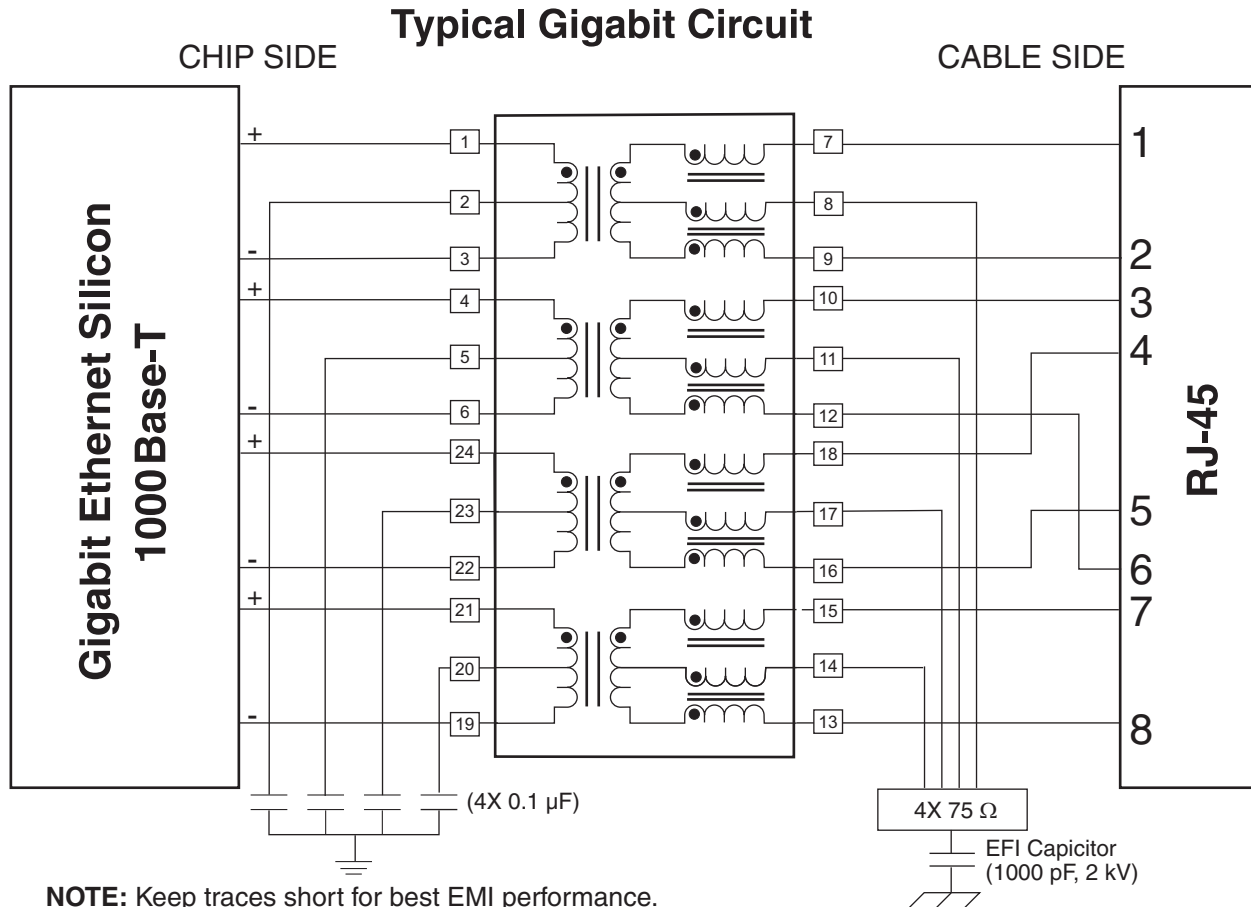
Schematics for dual ports

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

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## Application Circuit



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