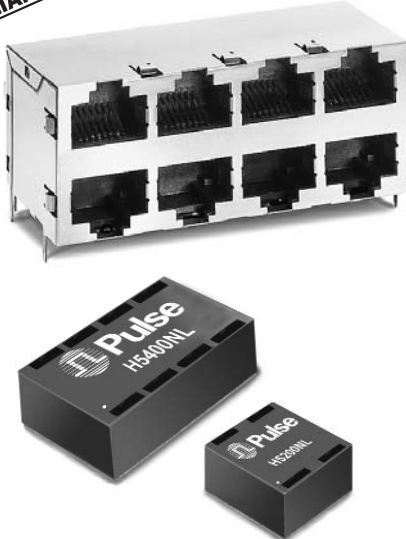


# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX



- ⊕ World's smallest Gigabit Quad/Dual isolation transformer module
- ⊕ 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	1-30MHz	40MHz	50MHz	60-80MHz	100MHz	30MHz	60MHz	100MHz	30MHz	60MHz	
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

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. RoHS-6: Product does not contain 5 out of the 6 banned substances specified in the RoHS directive. Some internal connections may contain lead in high-temperature solder (solder alloys containing more than 85% lead).
4. Parts come with/without lead.

## 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
E5908-25A1J5-L	THT, Tab Down	1x2	31.24 / 21.35 / 13.6	230°C - 250°C	No LED's	Gold Plating Over Nickel
E5908-25C345-L	THT, Tab Down	1x4	59.18 / 21.35 / 13.6	230°C - 250°C	No LED's	Gold Plating Over Nickel
E5908-57A132-L	THT, Tab Up/Down	2x2	25.35 / 31.24 / 25.3	230°C - 250°C	No LED's	Gold Plating Over Nickel
E5908-5VC144-L	THT, Tab Up/Down	2x4	59.18 / 28.35 / 25.3	230°C - 250°C	No LED's	Gold Plating Over Nickel

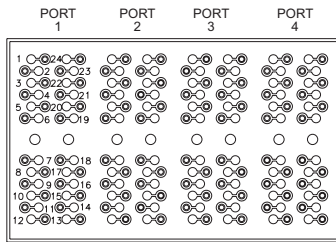
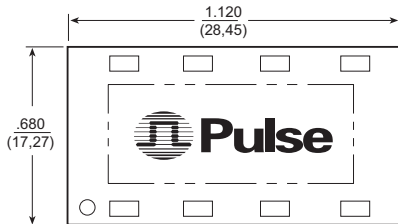
# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX

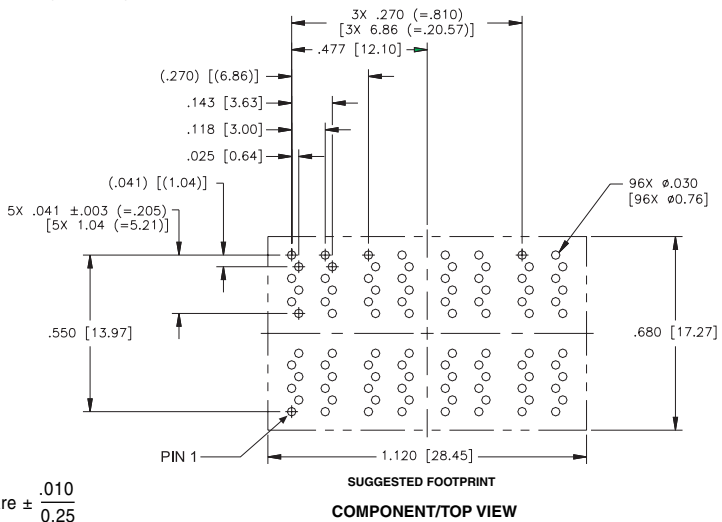
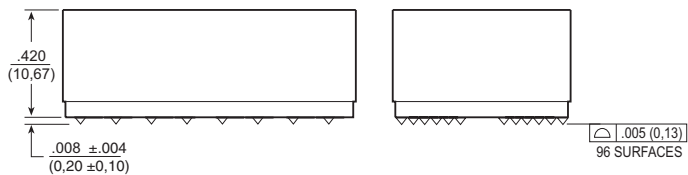


## Mechanicals

### H5400NL, H5401NL



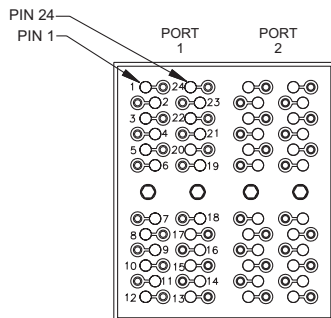
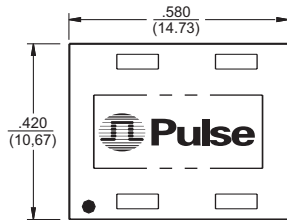
PIN NUMBERING  
BOTTOM VIEW



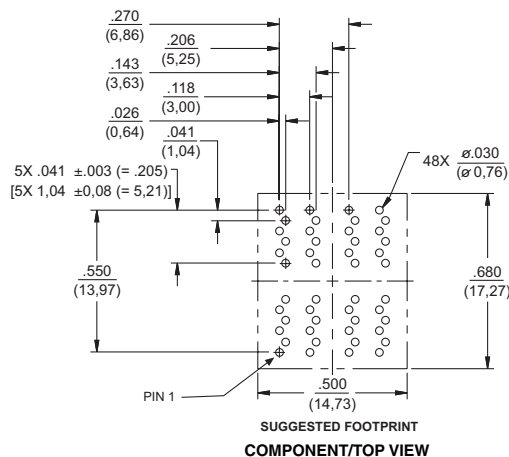
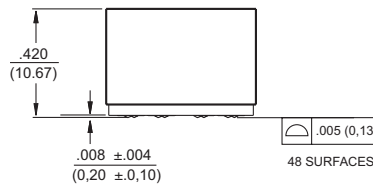
Weight .....10 grams  
Tray .....300

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

### H5200NL, H5201NL



PIN NUMBERING  
BOTTOM VIEW



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

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

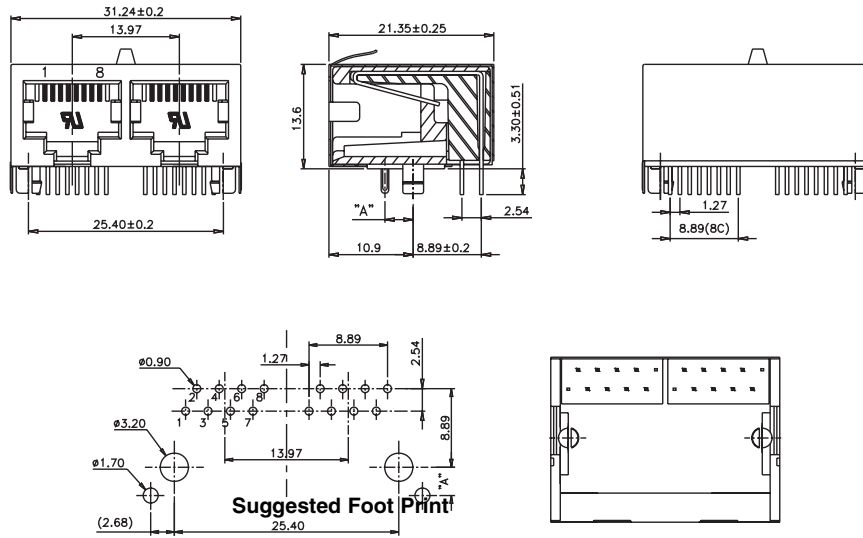
# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX

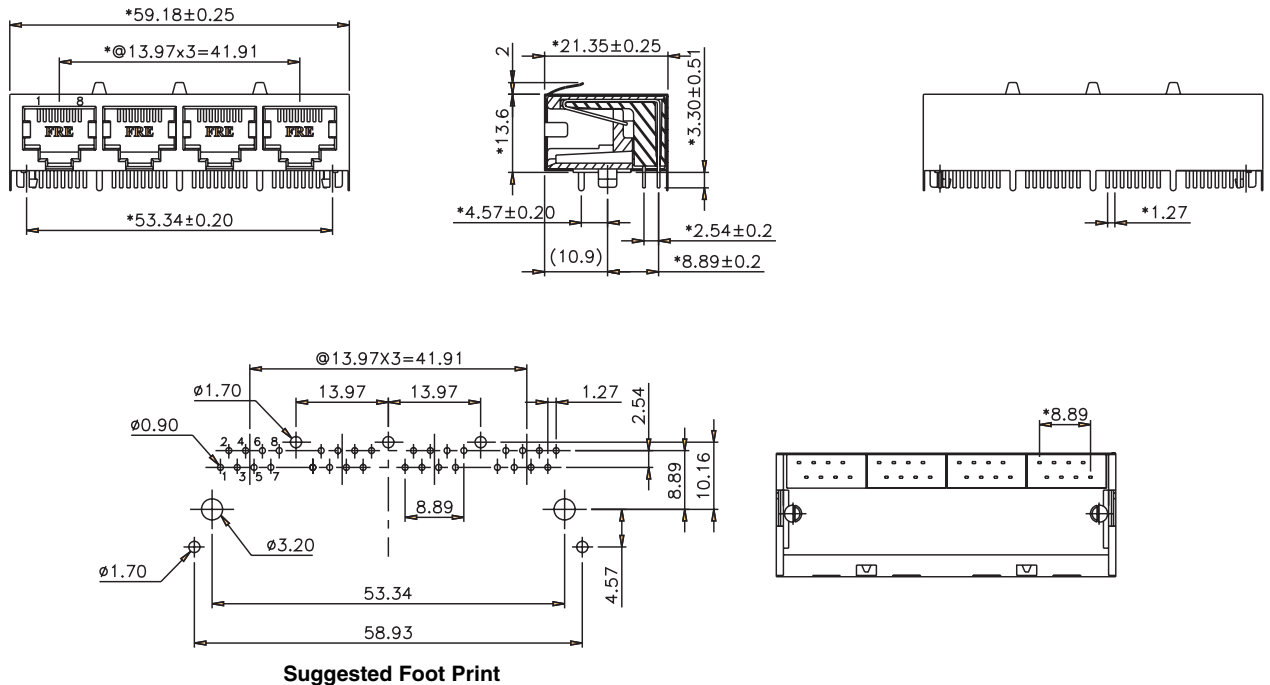


## Mechanicals (continued)

### E5908-25A1J45-LNL



### E5908-25C345-LNL





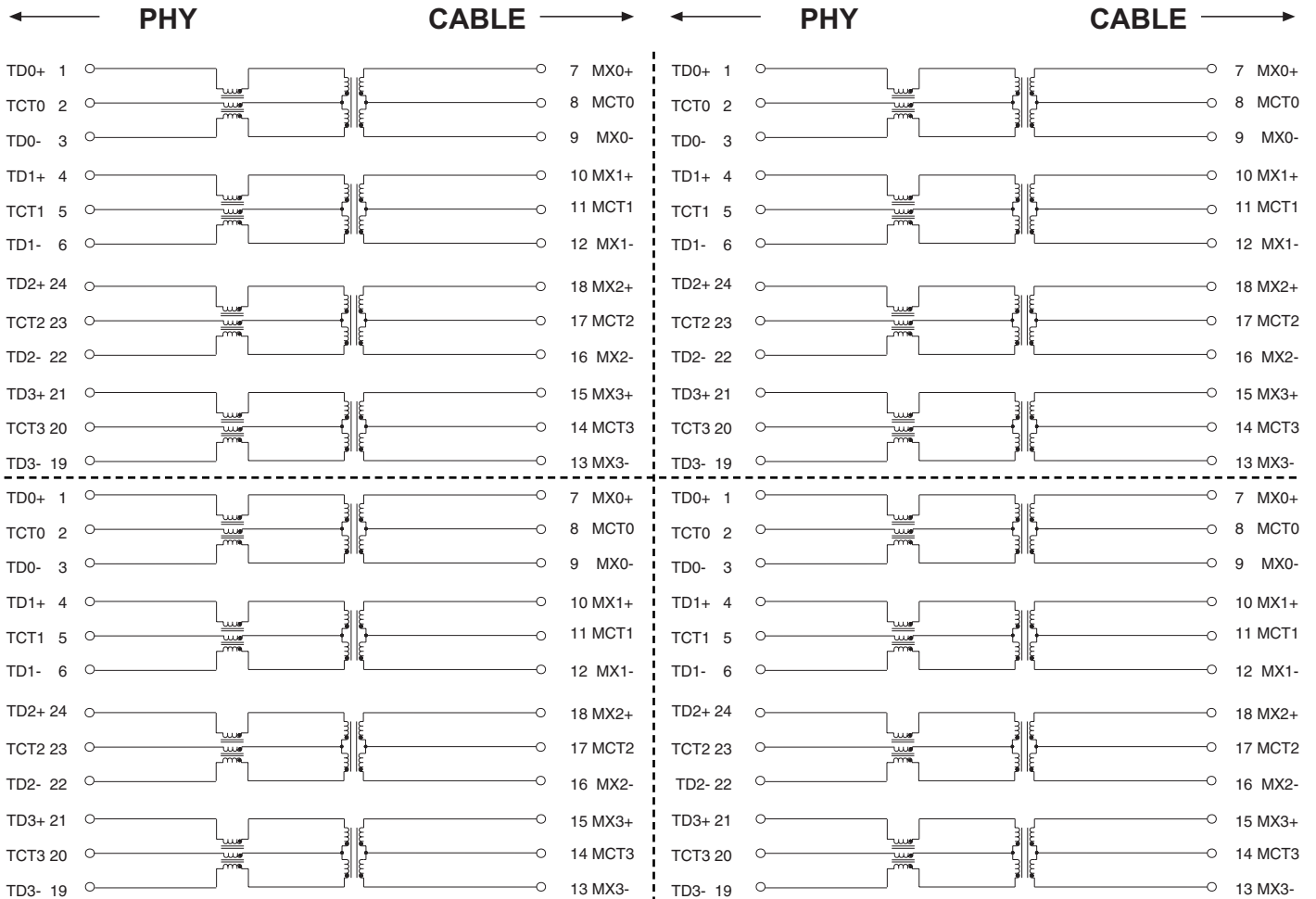
# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX



## Schematics

**H5400NL**



Schematics for quad ports

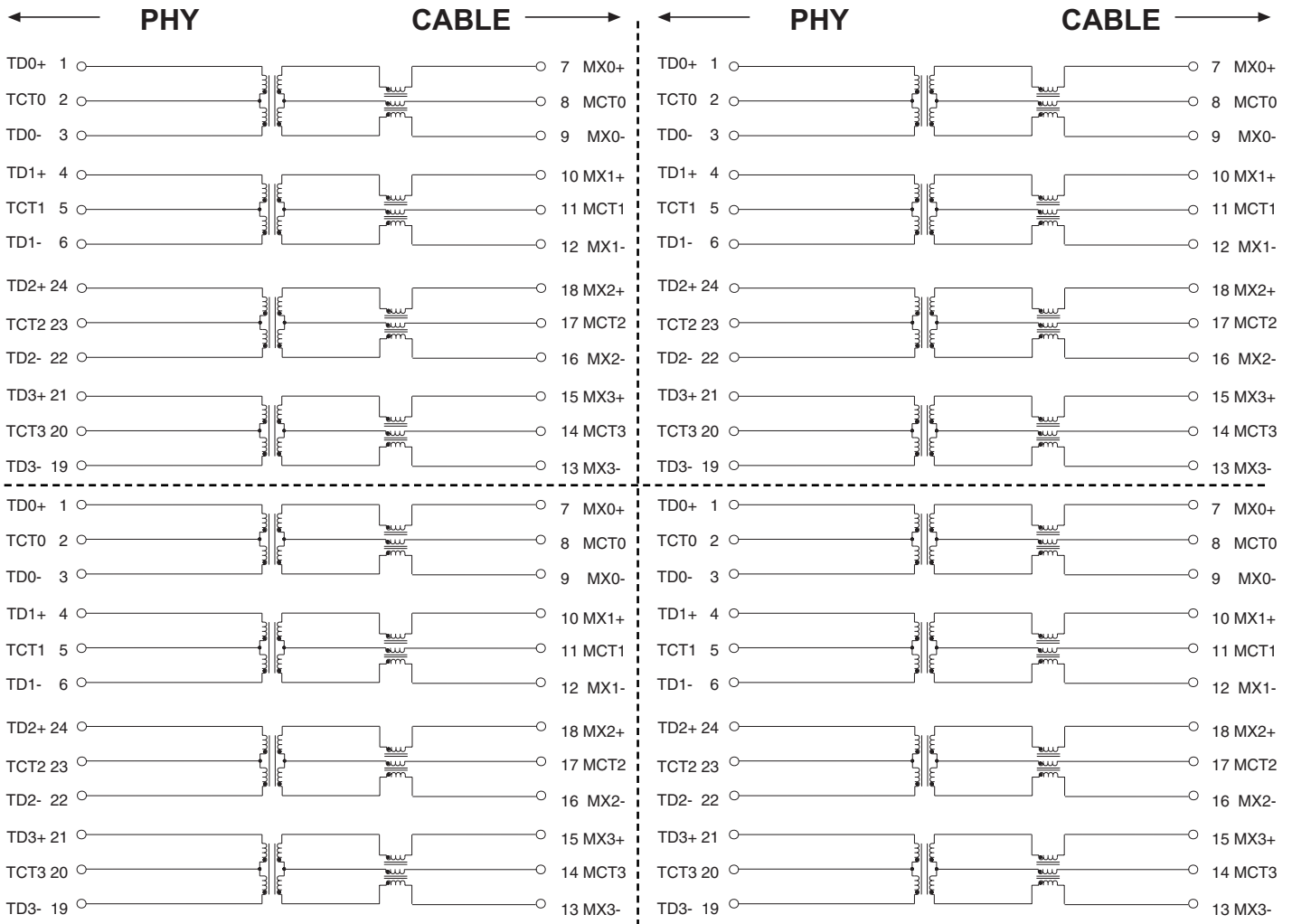
# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX



## Schematics (continued)

H5401NL



Schematics for quad ports

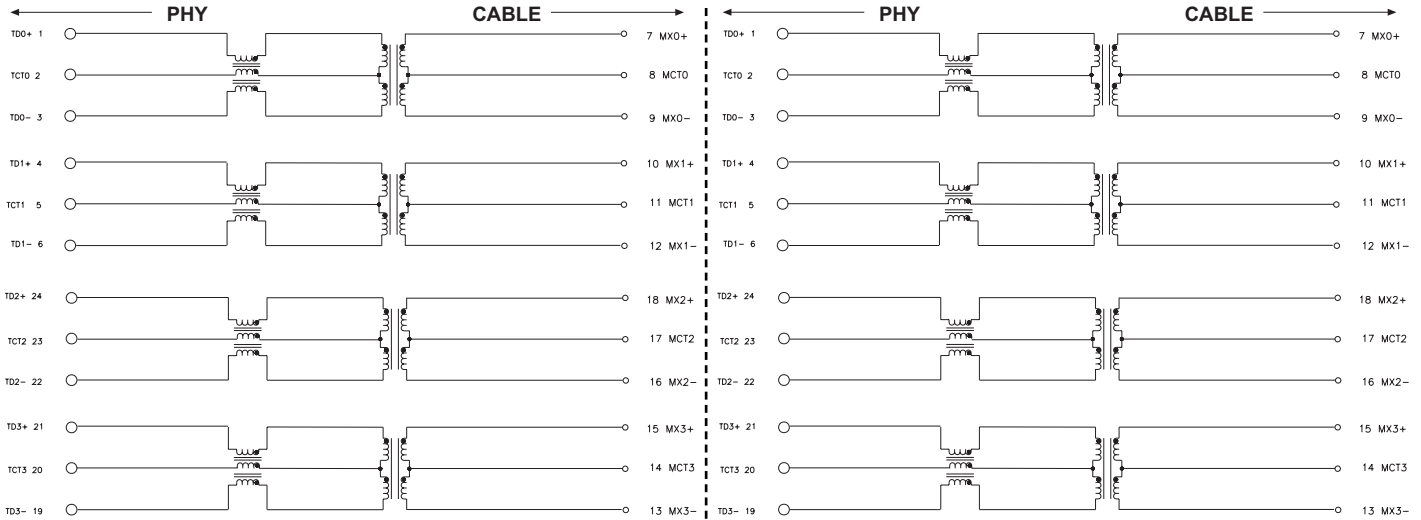
# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX



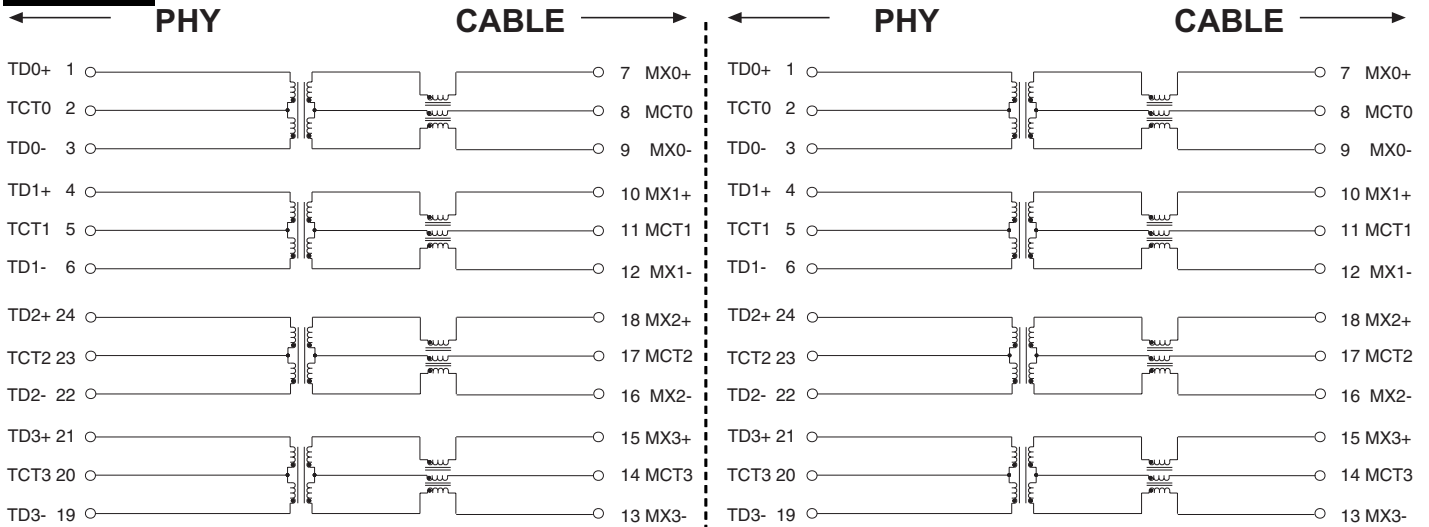
## Schematics (continued)

### H5200NL



Schematics for dual ports

### H5201NL



Schematics for dual ports

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

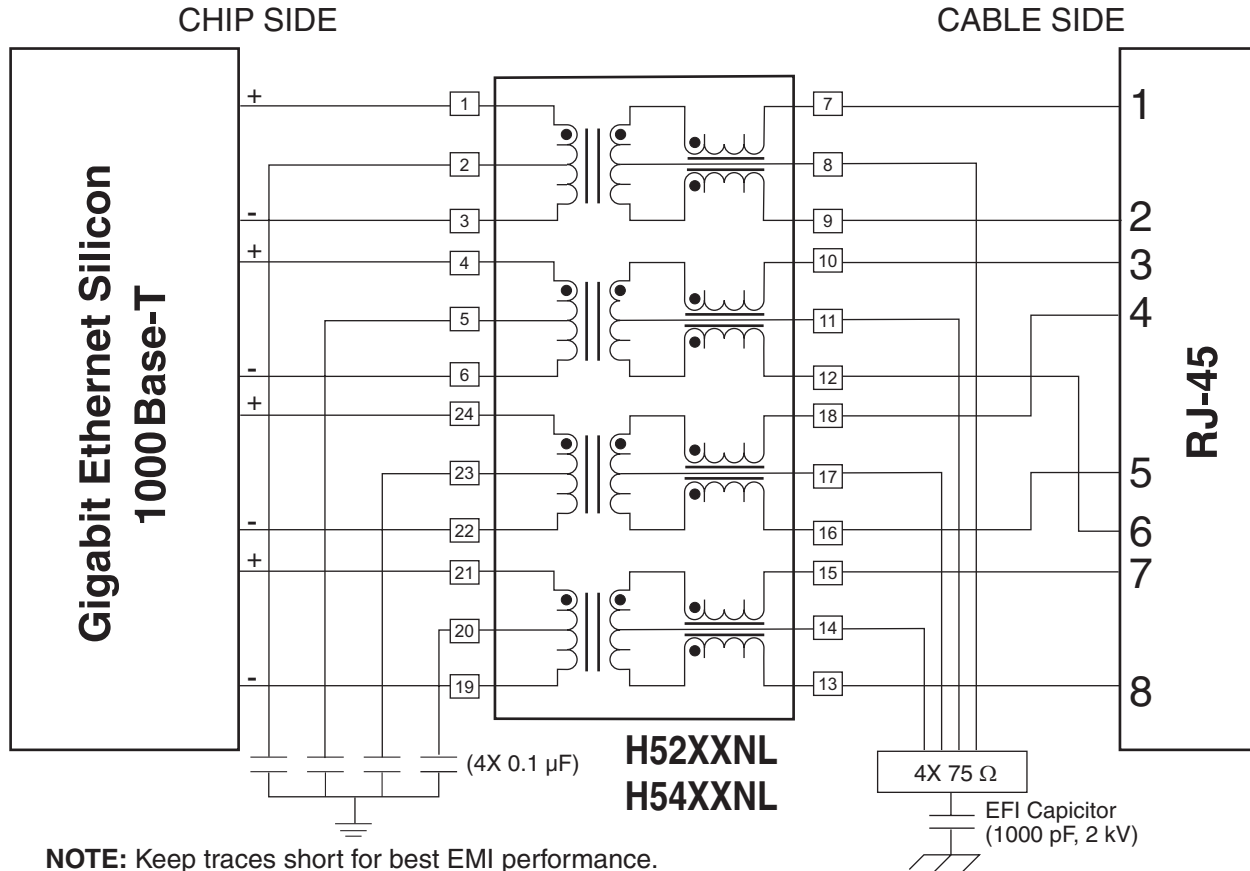
Designed to Support PoE, Auto MDIX



## Application Notes

H5200NL, H5201NL, H5400NL, H5401NL

### Gigabit Circuit



### For More Information:

#### Pulse Worldwide Headquarters

12220 World Trade Dr.  
San Diego, CA 92128  
U.S.A.

[www.pulseeng.com](http://www.pulseeng.com)

Tel: 858 674 8100  
Fax: 858 674 8262

#### Pulse Europe

Einsteinstrasse 1  
D-71083 Herrenberg  
Germany

Tel: 49 7032 7806  
Fax: 49 7032 7806 135

#### Pulse China Headquarters

B402, Shenzhen  
Tech-Innovation International  
Tenth Kejinan Rd.  
High-Tech Industrial Park  
Nanshan District, Shenzhen  
China

Tel: 86 755 33966678  
Fax: 86 755 33966700

#### Pulse North China

Room 1503  
XinYin Building  
No. 888 YiShan Rd.  
Shanghai 200233  
China

Tel: 86 21 54643211/2  
Fax: 86 21 54643210

#### Pulse South Asia

150 Kampong Ampat  
#07-01/02  
KA Centre  
Singapore 368324

Tel: 65 6287 8998  
Fax: 65 6280 0080

#### Pulse North Asia

No. 26  
Kao Ching Rd.  
Yang Mei Chen  
Taoyuan Hsien  
Taiwan, R. O. C.

Tel: 886 3 4641811  
Fax: 886 3 4641911

Performance warranty of products offered on this data sheet is limited to the parameters specified. Data is subject to change without notice. Other brand and product names mentioned herein may be trademarks or registered trademarks of their respective owners.

© Copyright, 2007. Pulse Engineering, Inc. All rights reserved.