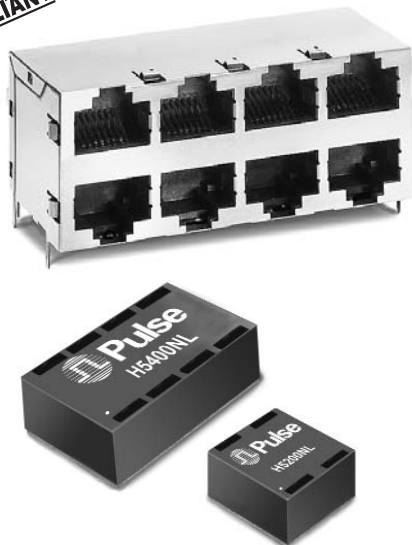


# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

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<br>Compliant<br>Part<br>Number | Number<br>of<br>Ports | Insertion<br>Loss<br>(dB MAX) | Return Loss<br>(dB MIN) |         |       |       |          | Differential to Common<br>Mode Rejection<br>(dB MIN) |       |       | Crosstalk<br>(dB MIN) |       |       | Hipot<br>(Vrms) |
|---------------------------------------|-----------------------|-------------------------------|-------------------------|---------|-------|-------|----------|------------------------------------------------------|-------|-------|-----------------------|-------|-------|-----------------|
|                                       |                       |                               | 1-100 MHz               | 1-30MHz | 40MHz | 50MHz | 60-80MHz | 100MHz                                               | 30MHz | 60MHz | 100MHz                | 30MHz | 60MHz | 100MHz          |
| 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

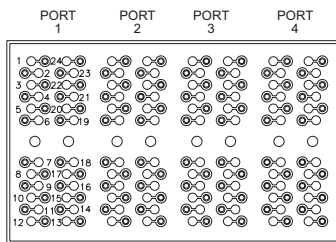
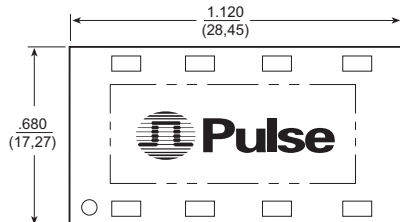
| RoHS-6         | Mounting,<br>Tab Position | Number<br>of Ports | Package Dimensions<br>L/W/H (mm) | Solder Temperature<br>(35 seconds) | LED Option | Plating                  |
|----------------|---------------------------|--------------------|----------------------------------|------------------------------------|------------|--------------------------|
| 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

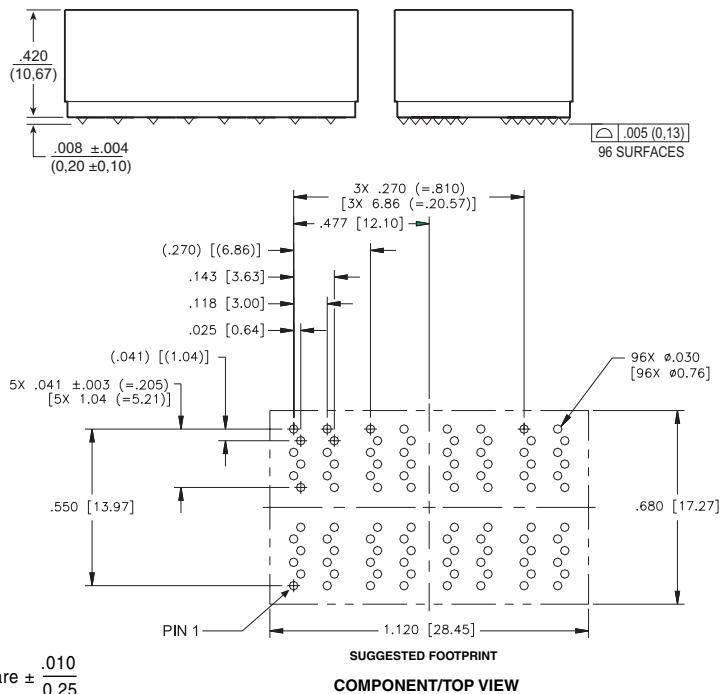


PIN NUMBERING  
BOTTOM VIEW

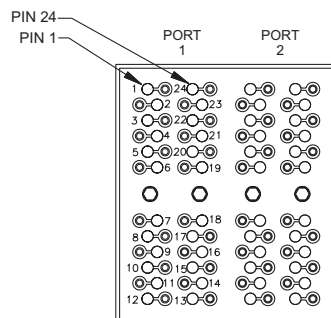
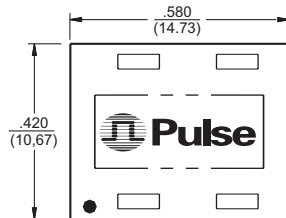
Weight .....10 grams

Tray .....300

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0.25}$



### H5200NL, H5201NL

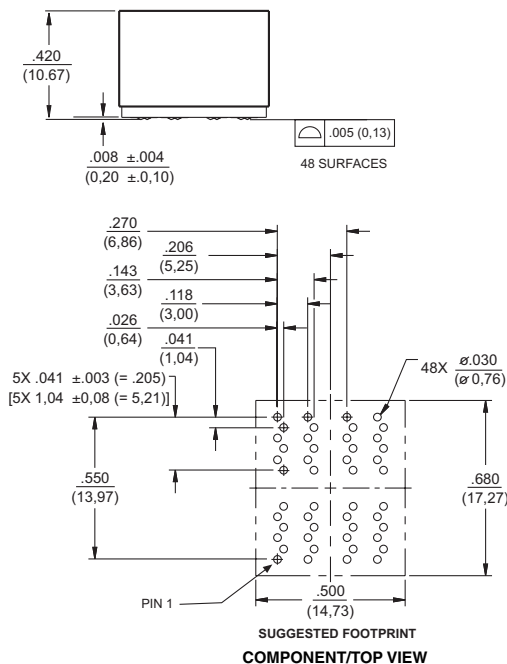


PIN NUMBERING  
BOTTOM VIEW

Weight .....5 grams

Tray .....600

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0.25}$



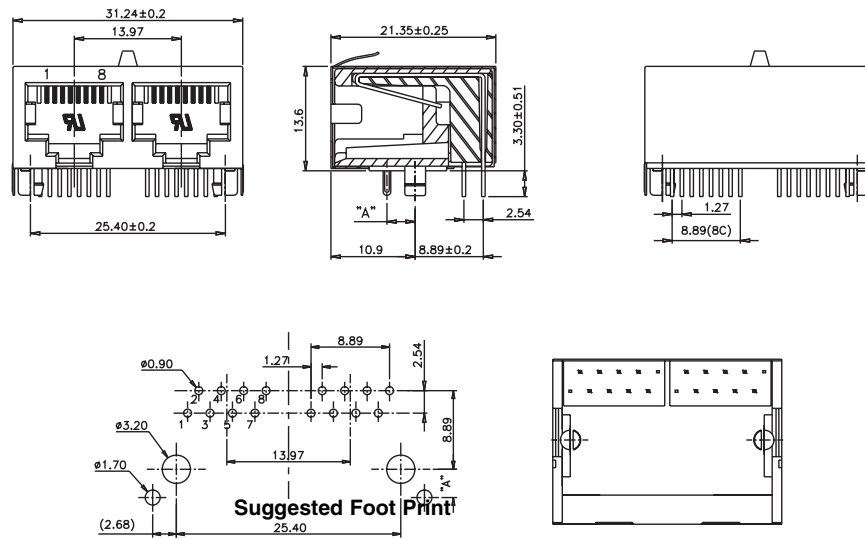
# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX

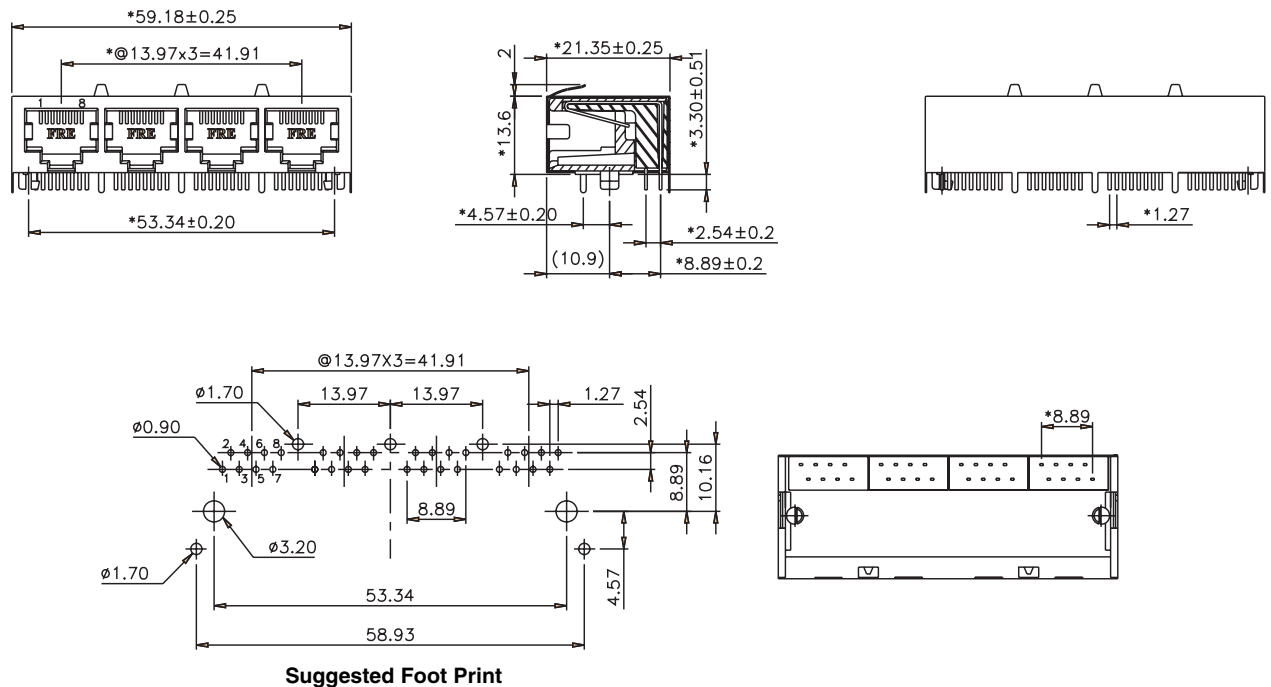


## Mechanicals (*continued*)

### E5908-25A1J45-LNL



### E5908-25C345-LNL





**Pulse**®  
A TECHNITROL COMPANY

**E5908-5VC144-LNL**



**ES908-57A132-LNL**



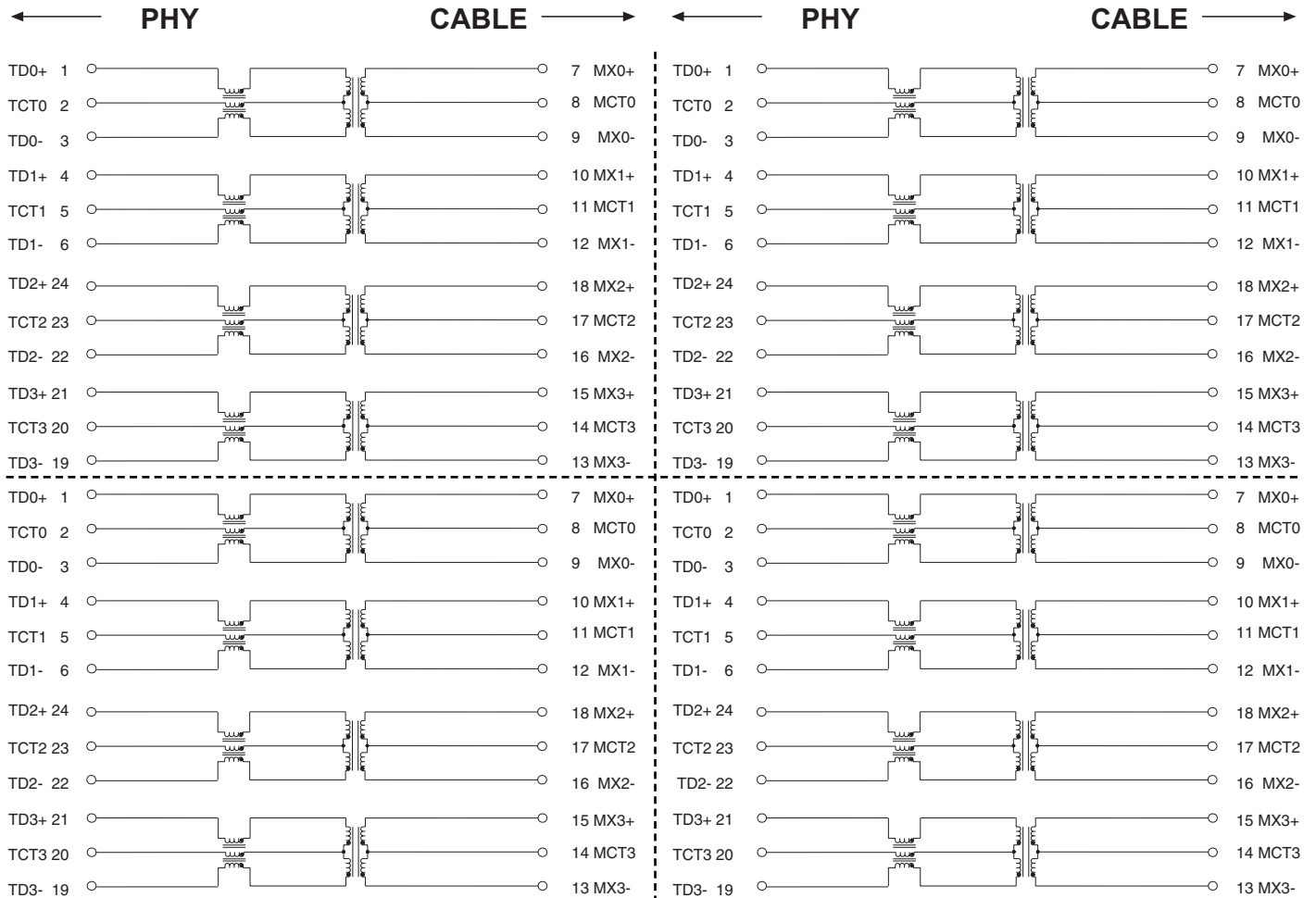
# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

Designed to Support PoE, Auto MDIX



## Schematics

H5400NL



Schematics for quad ports

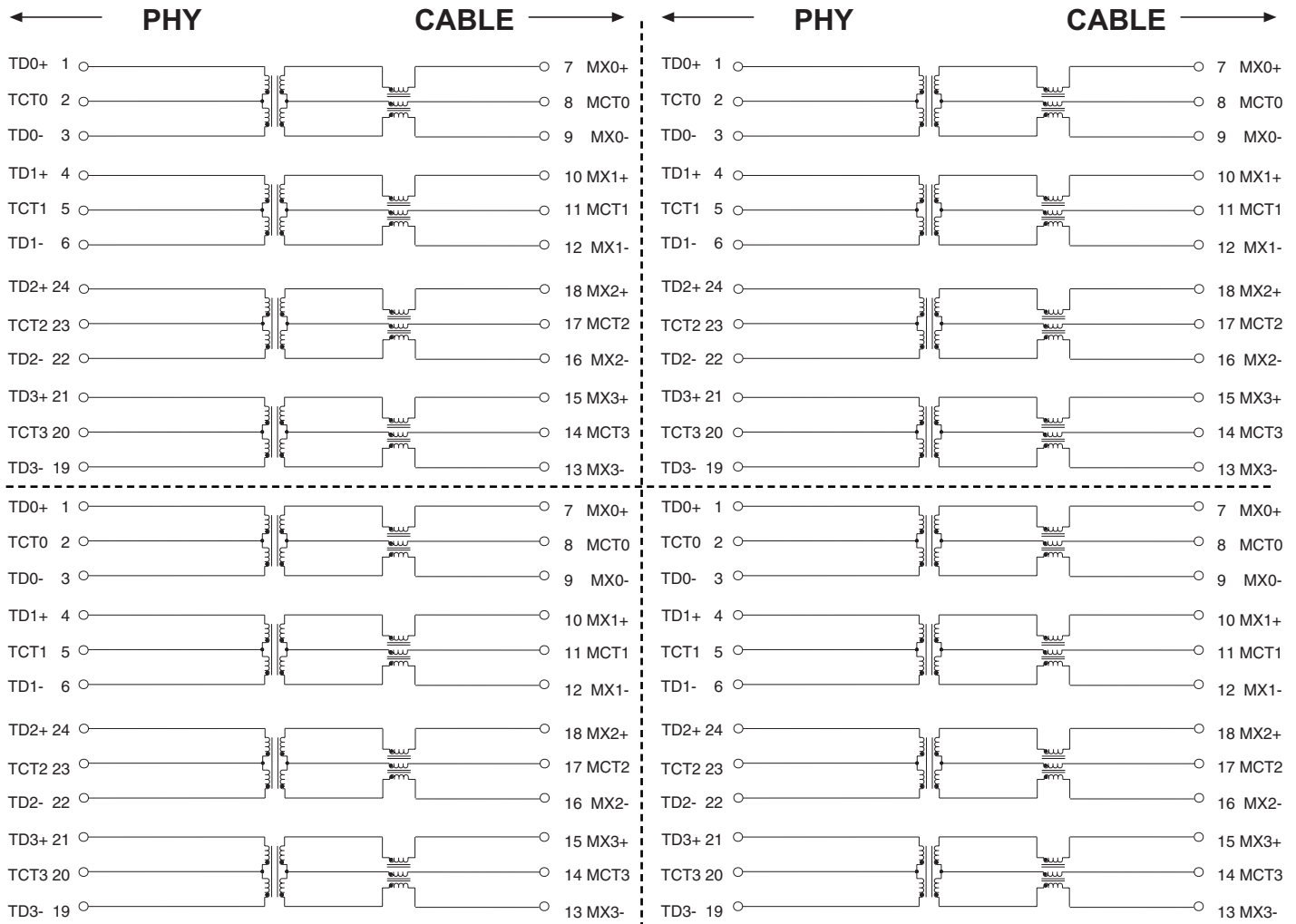
# GIGABIT (10/100/1000 BASE-T) QUAD/DUAL TRANSFORMER MODULES & UNFILTERED CONNECTORS

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## Schematics (*continued*)

**H5401NL**



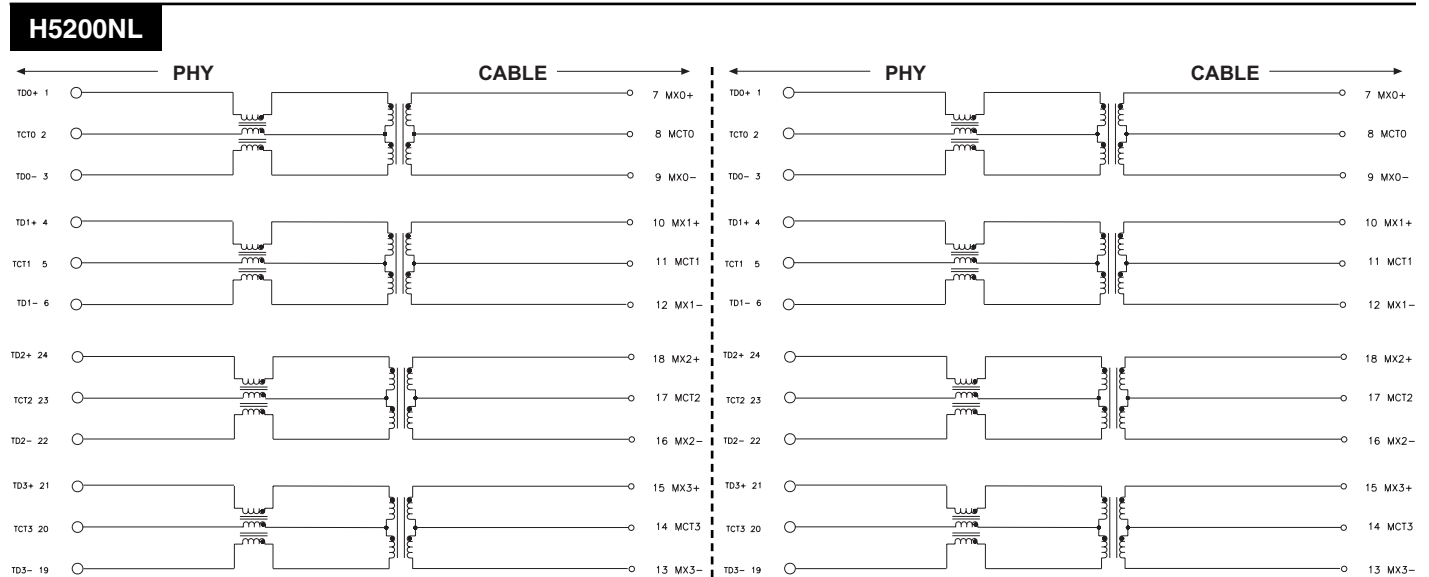
Schematics for quad ports

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

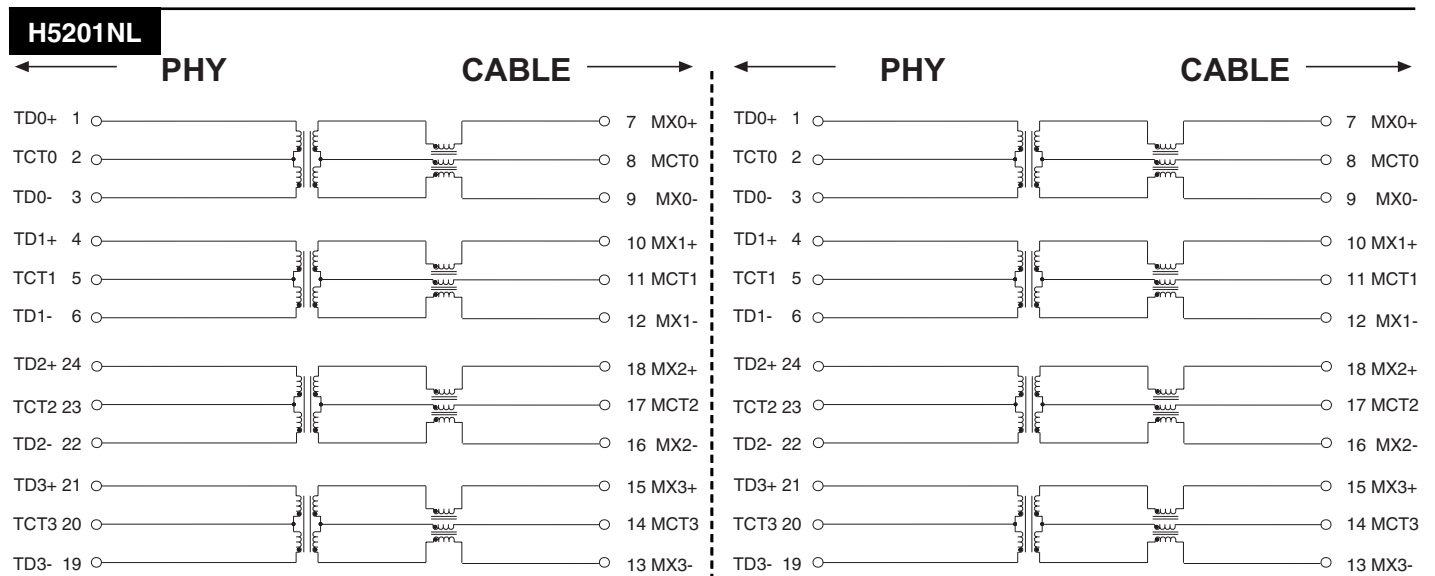
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## Schematics (continued)



## Schematics for dual ports



## Schematics for dual ports

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

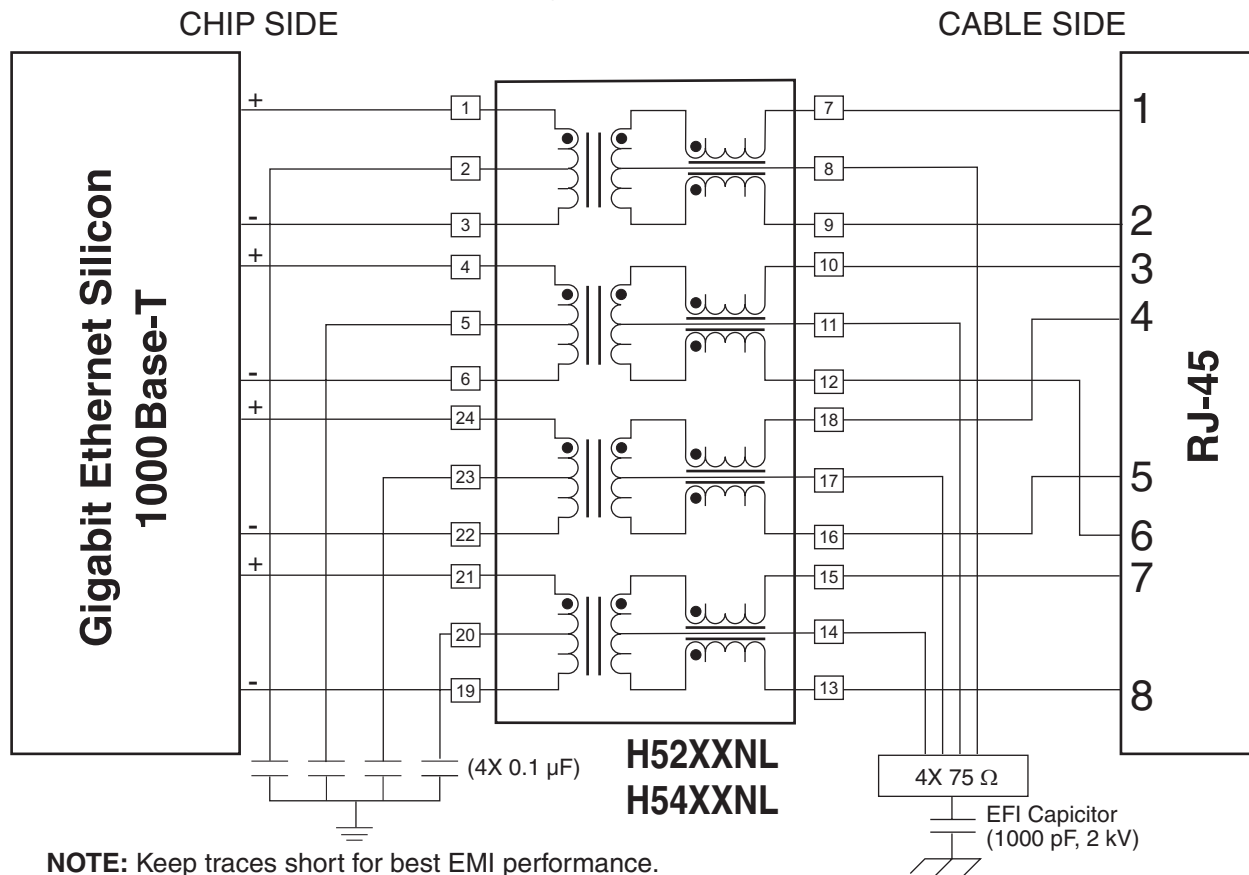
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## Application Notes

H5200NL, H5201NL, H5400NL, H5401NL

### Gigabit Circuit



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