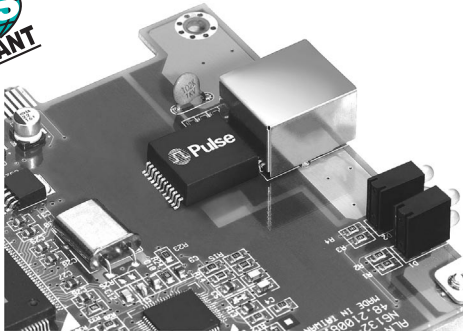


# 1000BASE-T MAGNETICSMODULES

## Designed to Support 1:1 Turns Ratio Transceivers



- RoHS peak reflow temperature rating 245°C
- Meets IEEE 802.3 specification

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

| RoHS<br>Compliant<br>Part 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               | 1-30 MHz | 40 MHz | 50 MHz | 60-80 MHz | 100 MHz | 30 MHz                                               | 60 MHz | 100 MHz | 30 MHz                | 60 MHz | 100 MHz |                 |
| H5004NL 3d                       | 1                     | 1                             |                         | -18      | -18    | -16    | -12       | -10     | -43                                                  | -37    | -33     | -43                   | -37    | -33     | 1500            |
| HX5004NL 1,3d                    | 1                     | 1                             |                         | -18      | -18    | -16    | -12       | -10     | -43                                                  | -37    | -33     | -43                   | -37    | -33     | 1500            |
| H5007NL 3d                       | 1                     | 1                             |                         | -18      | -18    | -16    | -12       | -10     | -43                                                  | -37    | -33     | -43                   | -37    | -33     | 1500            |
| H5008NL 3a                       | 1                     | 1                             |                         | -18      | -18    | -16    | -12       | -10     | -43                                                  | -37    | -33     | -43                   | -37    | -33     | 1500            |
| HX5008NL 1,3a                    | 1                     | 1                             |                         | -18      | -18    | -16    | -12       | -10     | -43                                                  | -37    | -33     | -43                   | -37    | -33     | 1500            |
| H5009NL 3a                       | 1                     | 1                             |                         | -18      | -18    | -16    | -12       | -10     | -43                                                  | -37    | -33     | -43                   | -37    | -33     | 1500            |
| H5012NL 3a                       | 2                     | 1.4                           |                         | -16      | -14.4  | -13.1  | -12       | -10     | -45                                                  | -40    | -35     | -43.5                 | -37.5  | -33     | 1500            |
| H5014NL 3a                       | 2                     | 1.4                           |                         | -16      | -14.4  | -13.1  | -12       | -10     | -45                                                  | -40    | -35     | -43.5                 | -37.5  | -33     | 1500            |
| HX5014NL 1,3a                    | 2                     | 1.4                           |                         | -16      | -14.4  | -13.1  | -12       | -10     | -45                                                  | -40    | -35     | -43.5                 | -37.5  | -33     | 1500            |
| H5015NL 3a                       | 1                     | 1                             |                         | -18      | -18    | -16    | -12       | -10     | -43                                                  | -37    | -33     | -43                   | -37    | -33     | 1500            |
| H5020NL 3a                       | 2                     | 1                             |                         | -18      | -14.4  | -13.1  | -12       | -10     | -40                                                  | -35    | -30     | -40                   | -33    | -28     | 1500            |
| HX5020NL 1,3a                    | 2                     | 1                             |                         | -18      | -14.4  | -13.1  | -12       | -10     | -40                                                  | -35    | -30     | -40                   | -33    | -28     | 1500            |
| H5089NL 3a                       | 2                     | 1.4                           |                         | -16      | -14.4  | -13.1  | -12       | -10     | -45                                                  | -40    | -35     | -43.5                 | -37.5  | -33     | 1500            |

1. HX = extended temperature version -40°C to +85°C

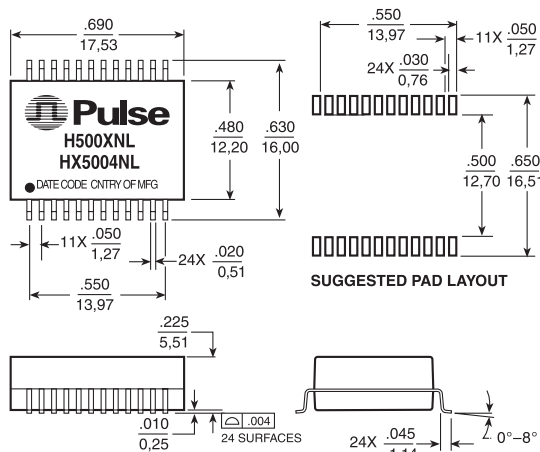
3. MSL = Moisture Sensitivity Level: a = 1, b = 2, c = 3, d = 4

2. For Tape & Reel packaging, add a "T" suffix at the end of the part number, e.g. H5007NLT.

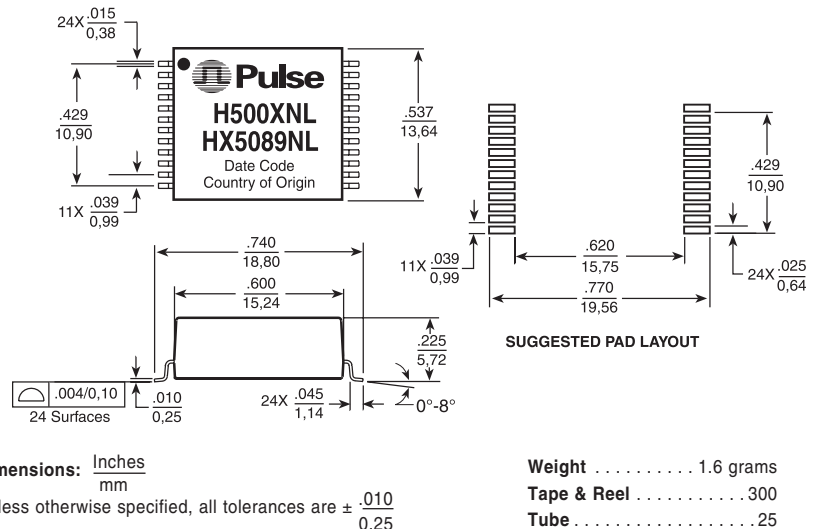
## Mechanicals

### H5004NL, HX5004NL\*, H5007NL\*

H5004NL, H5007NL, and HX5004NL are footprint-compatible to 10/100BASE-TX part H1267.



### H5008NL, H5009NL, HX5008NL



# 1000BASE-T MAGNETICSMODULES

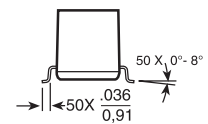
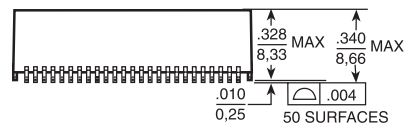
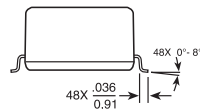
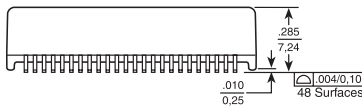
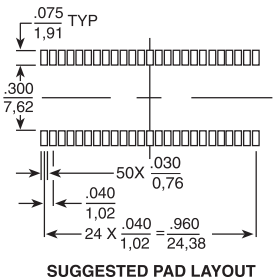
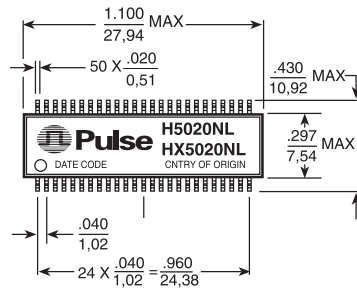
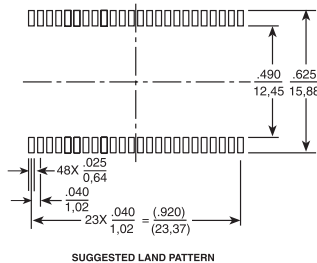
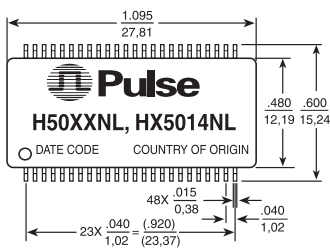
## Designed to Support 1:1 Turns Ratio Transceivers



### Mechanicals (continued)

#### H5012NL, H5014NL, HX5014NL, H5089NL

#### H5020NL, HX5020NL



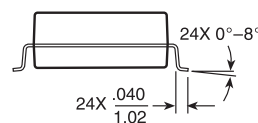
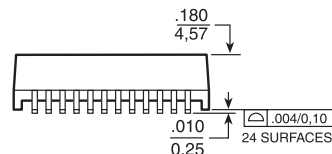
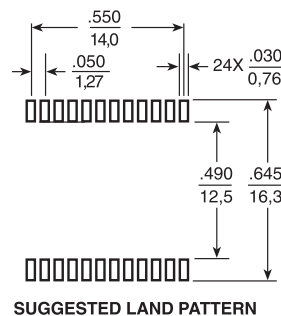
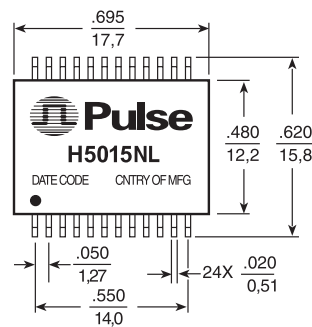
Weight ..... 4.0 grams  
Tape & Reel ..... 250/reel  
Tube ..... 15/tube

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0.25}$

Weight ..... 1.6 grams  
Tape & Reel ..... 250/reel  
Tube ..... 15/tube

#### H5015NL



Weight ..... 1.5 grams  
Tape & Reel ..... 400/reel

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

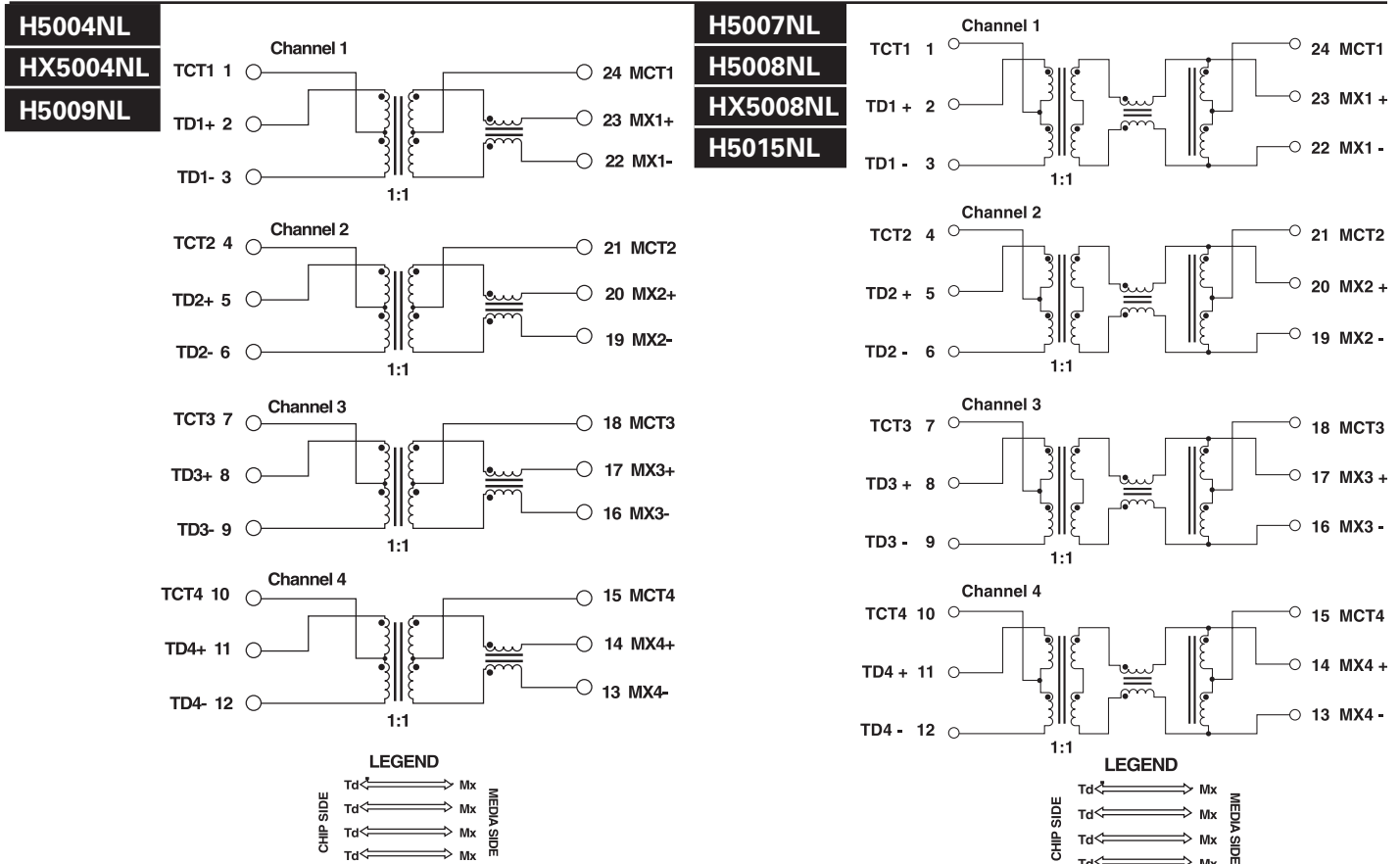
Unless otherwise specified, all tolerances are  $\pm \frac{.005}{0.13}$

# 1000BASE-T MAGNETICSMODULES

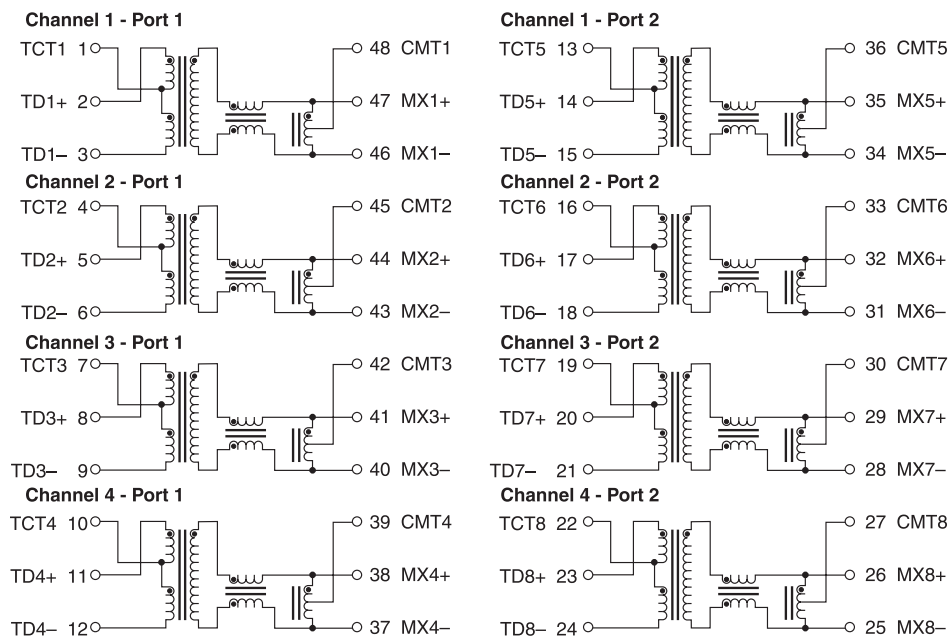
## Designed to Support 1:1 Turns Ratio Transceivers



### Schematics



### H5012NL, H5089NL



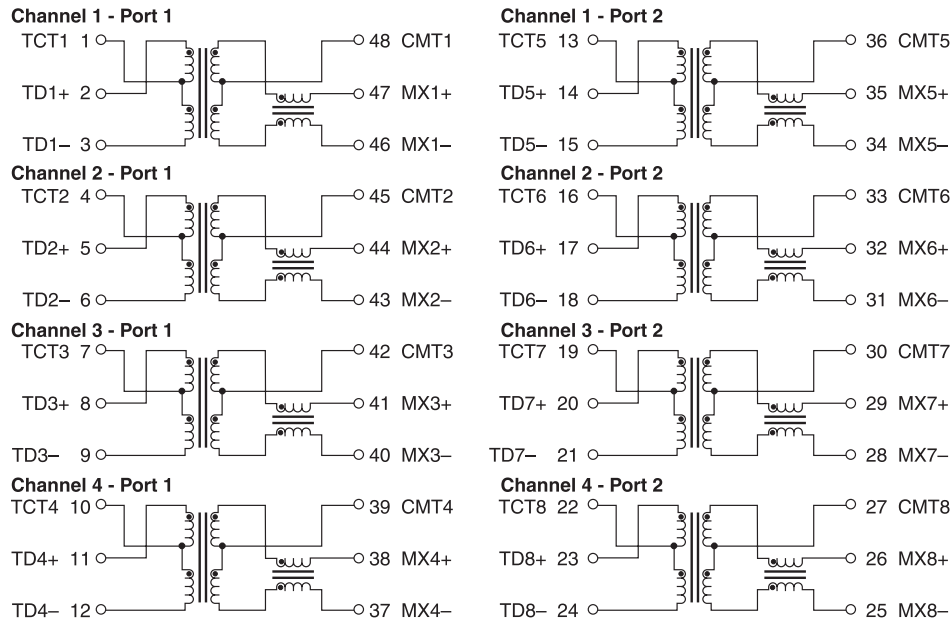
# 1000BASE-T MAGNETICSMODULES

Designed to Support 1:1  
Turns Ratio Transceivers

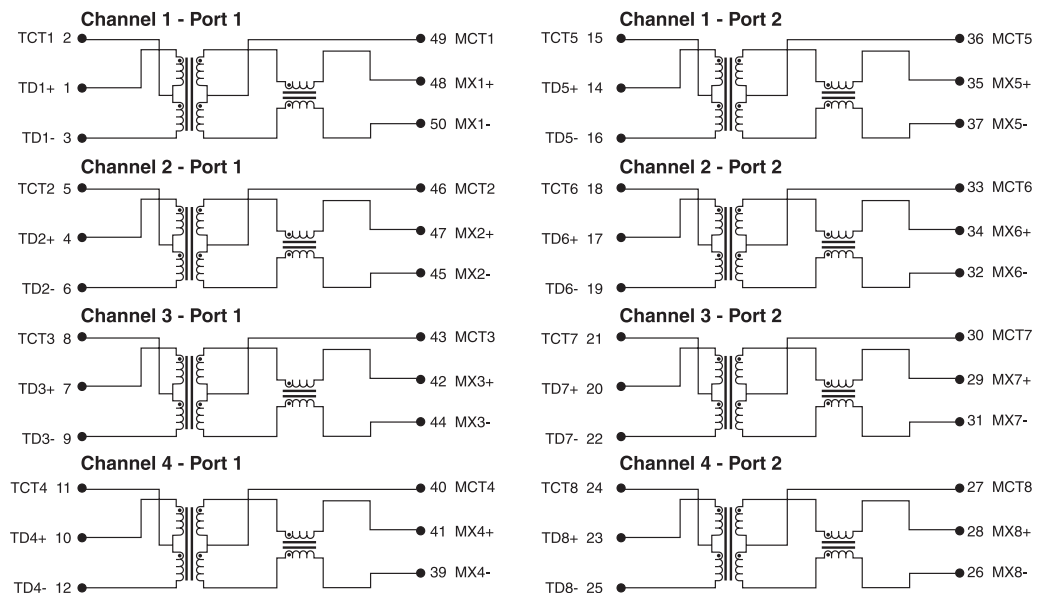


## Schematics (continued)

### H5014NL, HX5014NL



### H5020NL, HX5020NL



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