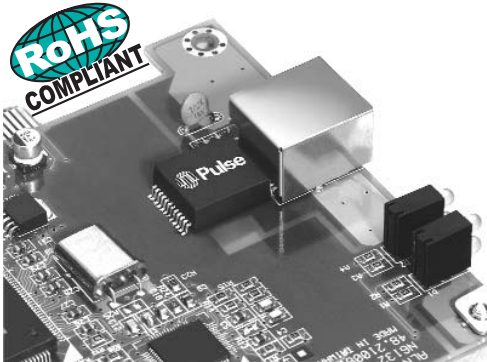


# 1000BASE-T MAGNETICS MODULES

Designed to Support 1:1  
Turns Ratio Transceivers



- RoHS-5 peak reflow temperature rating 235°C
- RoHS-6 peak reflow temperature rating 245°C
- Meets IEEE 802.3 specification

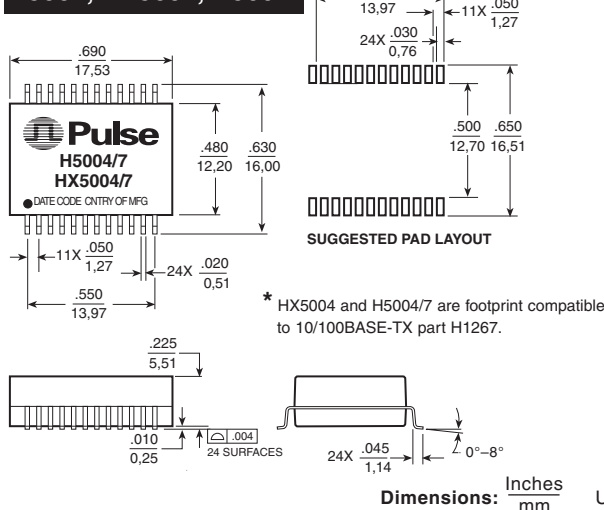
## Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

| RoHS-5 <sup>4</sup><br>Compliant<br>Part<br>Number | RoHS-6 <sup>5</sup><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>(V <sub>RMS</sub><br>MIN) |
|----------------------------------------------------|----------------------------------------------------|-----------------------|-------------------------------|-------------------------|---------|-------|-------|----------|------------------------------------------------------|-------|-------|-----------------------|-------|-------|------------------------------------|
|                                                    |                                                    |                       |                               | 1-100MHz                | 1-30MHz | 40MHz | 50MHz | 60-80MHz | 100MHz                                               | 30MHz | 60MHz | 100MHz                | 30MHz | 60MHz |                                    |
| H5004                                              | H5004NL <sup>3c</sup>                              | 1                     | 1                             | -18                     | -18     | -16   | -12   | -10      | -43                                                  | -37   | -33   | -43                   | -37   | -33   | 1500                               |
| HX5004 <sup>1</sup>                                | HX5004NL <sup>1,3c</sup>                           | 1                     | 1                             | -18                     | -18     | -16   | -12   | -10      | -43                                                  | -37   | -33   | -43                   | -37   | -33   | 1500                               |
| H5007                                              | H5007NL <sup>3d</sup>                              | 1                     | 1                             | -18                     | -18     | -16   | -12   | -10      | -43                                                  | -37   | -33   | -43                   | -37   | -33   | 1500                               |
| H5008                                              | H5008NL <sup>3c</sup>                              | 1                     | 1                             | -18                     | -18     | -16   | -12   | -10      | -43                                                  | -37   | -33   | -43                   | -37   | -33   | 1500                               |
| HX5008 <sup>1</sup>                                | HX5008NL <sup>3a</sup>                             | 1                     | 1                             | -18                     | -18     | -16   | -12   | -10      | -43                                                  | -37   | -33   | -43                   | -37   | -33   | 1500                               |
| H5009                                              | H5009NL <sup>3a</sup>                              | 1                     | 1                             | -18                     | -18     | -16   | -12   | -10      | -43                                                  | -37   | -33   | -43                   | -37   | -33   | 1500                               |
| H5012                                              | H5012NL <sup>3a</sup>                              | 2                     | 1.4                           | -16                     | -14.4   | -13.1 | -12   | -10      | -45                                                  | -40   | -35   | -43.5                 | -37.5 | -33   | 1500                               |
| H5014                                              | H5014NL <sup>3a</sup>                              | 2                     | 1.4                           | -16                     | -14.4   | -13.1 | -12   | -10      | -45                                                  | -40   | -35   | -43.5                 | -37.5 | -33   | 1500                               |
| HX5014 <sup>1</sup>                                | HX5014NL <sup>1,3a</sup>                           | 2                     | 1.4                           | -16                     | -14.4   | -13.1 | -12   | -10      | -45                                                  | -40   | -35   | -43.5                 | -37.5 | -33   | 1500                               |
| H5015                                              | H5015NL <sup>1,3a</sup>                            | 1                     | 1                             | -18                     | -18     | -16   | -12   | -10      | -43                                                  | -37   | -33   | -43                   | -37   | -33   | 1500                               |
| H5020                                              | H5020NL <sup>3c</sup>                              | 2                     | 1                             | -18                     | -14.4   | -13.1 | -12   | -10      | -40                                                  | -35   | -30   | -40                   | -33   | -28   | 1500                               |
| HX5020 <sup>1</sup>                                | HX5020NL <sup>1,3a</sup>                           | 2                     | 1                             | -18                     | -14.4   | -13.1 | -12   | -10      | -40                                                  | -35   | -30   | -40                   | -33   | -28   | 1500                               |

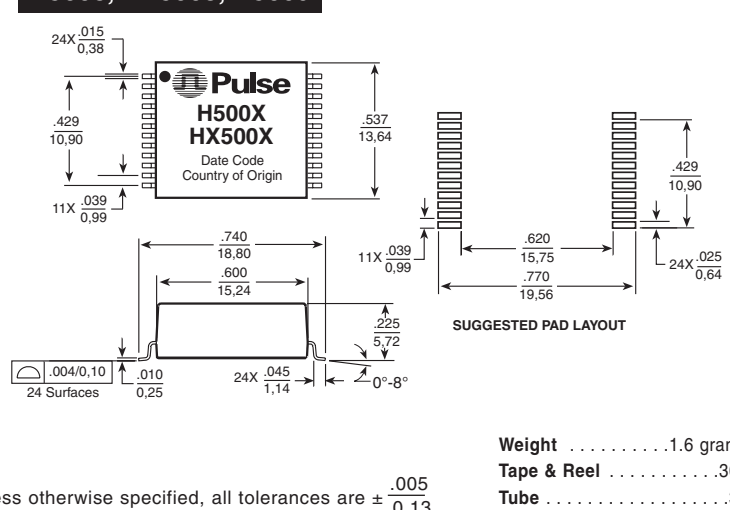
- HX: Extended temperature version -40°C to +85°C
- For Tape & Reel packaging, add a "T" suffix at the end of the part number, e.g. H5007T.
- MSL=Moisture Sensitivity Level: a=1 b=2 c=3 d=4
- RoHS-5: Product does not contain 5 out of the 6 banned substances specified in the RoHS directive (product contains lead in applications considered solder).
- 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)

## Mechanicals

### H5004, HX5004, H5007\*



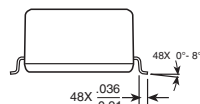
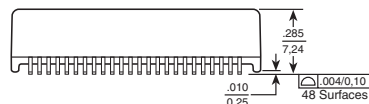
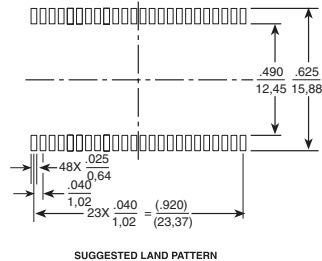
### H5008, HX5008, H5009



## Designed to Support 1:1 Turns Ratio Transceivers



Technical drawing of a Pulse H50XX, HX50XX component. The drawing shows the component's dimensions and markings. The top dimension is 1.095, with a sub-dimension of 27.81. The component has a series of markings on the top edge. The central part of the component features the Pulse logo and the text "H50XX, HX50XX". Below this, there are two fields: "DATE CODE" and "COUNTRY OF ORIGIN". The bottom edge has a series of markings, including "48X", ".015", ".920", ".040", and ".038". The bottom dimension is 1.02, with a sub-dimension of 23X. The right side has dimensions of .480, .600, 12, 19, and 15.24.



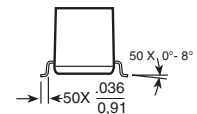
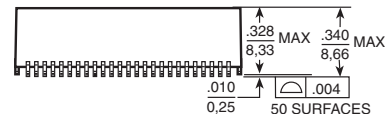
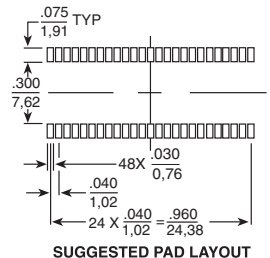
**Weight** . . . . .4.0 grams  
**Tape & Reel** . . . . .250/reel  
**Tube** . . . . .15/tube

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

mm  
Unless otherwise specified, all tolerances are  $\pm \frac{.010}{.025}$

Diagram of the H5020 HX5020 component showing dimensions and labels:

- Top dimension:  $1.100$  MAX,  $27.94$
- Left side dimension:  $48 \times \frac{.020}{0.51}$
- Right side dimension:  $.430$  MAX,  $10.92$
- Bottom right dimension:  $.297$  MAX,  $7.54$
- Bottom left dimension:  $.040$ ,  $1.02$
- Bottom dimension:  $24 \times \frac{.040}{1.02} = .960$ ,  $24.38$
- Component label: **Pulse** H5020 HX5020
- Labels: DATE CODE, COUNTRY OF ORIGIN



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

## Schematics

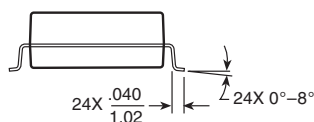
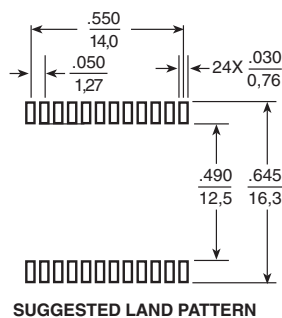
Technical drawing of the H5015 Pulse component showing dimensions in inches and millimeters.

Dimensions (inches / millimeters):

- Top width: .695 / 17,7
- Right side height: .480 / 12,2
- Right side height: .620 / 15,8
- Bottom width: .550 / 14,0
- Bottom width: .180 / 4,57
- Bottom width: .020 / 0,51
- Bottom width: .010 / 0,25
- Bottom width: .004/0,10 / 24 SURFACES

Labels on the component:

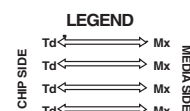
- Pulse
- H5015
- DATE CODE
- CNTRY OF MFG
- 24X



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

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

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



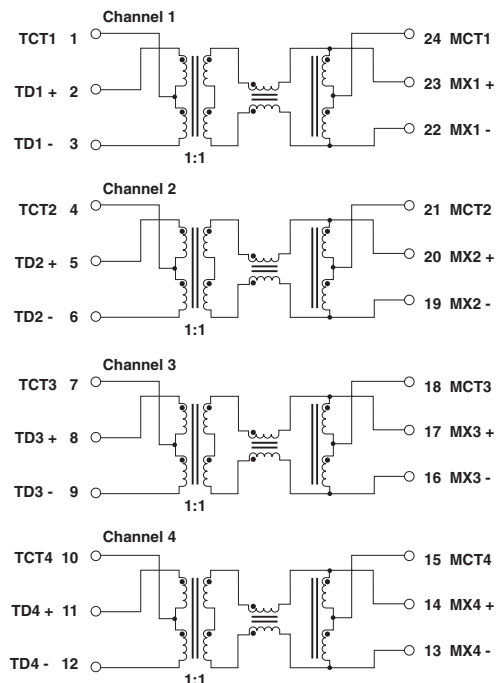
# 1000BASE-T MAGNETICS MODULES

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Turns Ratio Transceivers

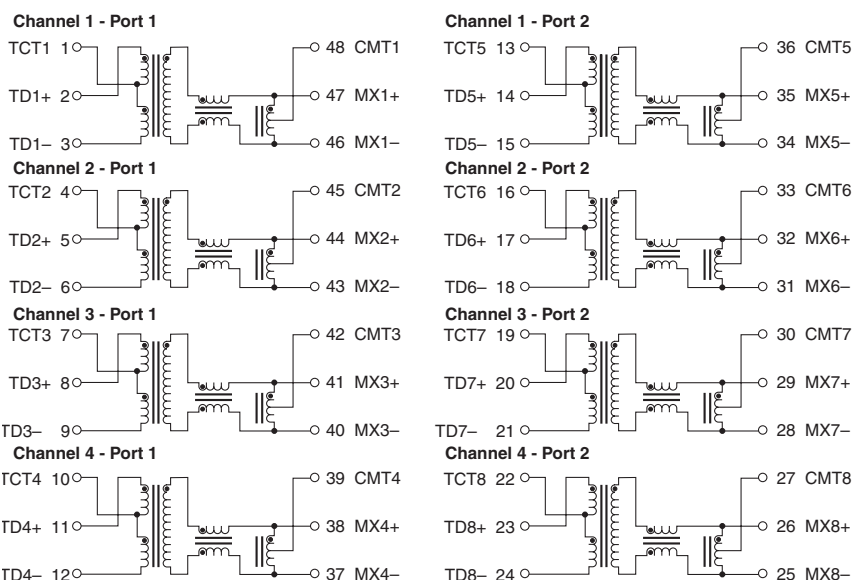


## Schematics (continued)

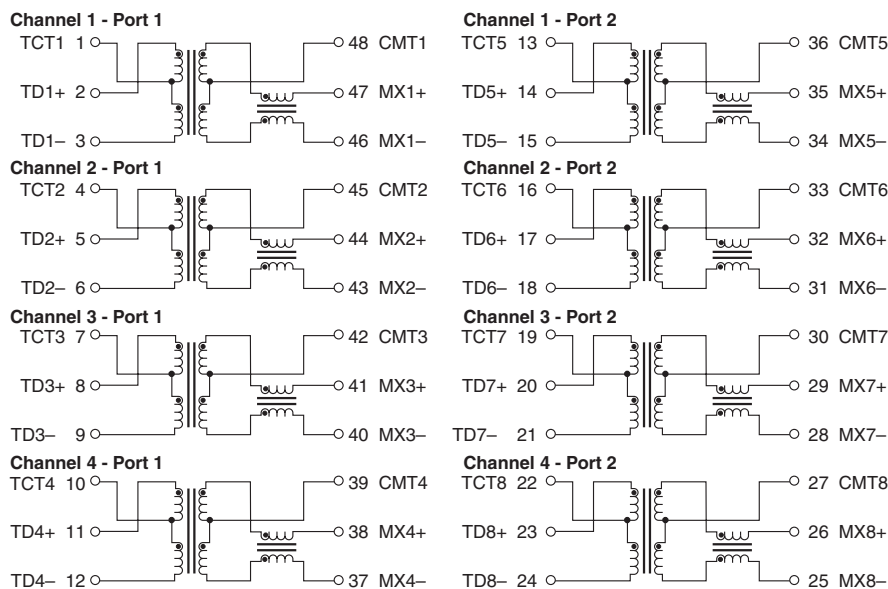
### H5007\*, H5008, HX5008, H5015



### H5012 \*



### H5014, HX5014



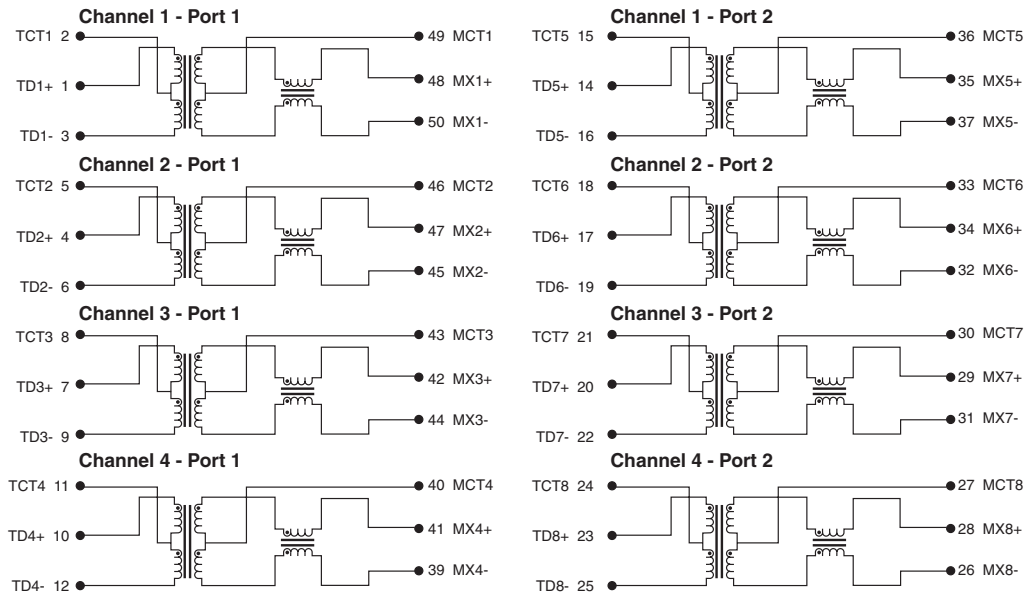
# 1000BASE-T MAGNETICS MODULES

Designed to Support 1:1  
Turns Ratio Transceivers



## Schematics (*continued*)

**H5020, HX5020**



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