

# HIGH FREQUENCY FLAT COIL PLANAR TRANSFORMERS



PH08XXNL Series (up to 160W)



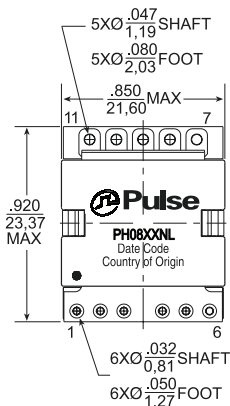
- Power Rating:** up to 160 W
- Height:** 8.6mm to 9.1mm Max
- Footprint:** 23.4mm x 21.6mm Max
- Frequency Range:** 200kHz to 700kHz
- Isolation (Primary to Secondary):** 1500 VDC

Electrical Specifications @ 25°C - Operating Temperature -40°C to +125°C

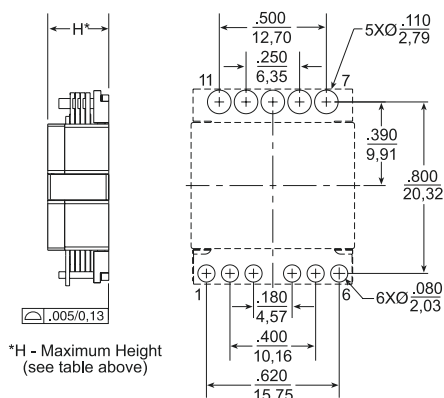
| Part <sup>3</sup><br>Number | Turns     |           |                  | Schematic | Primary <sup>1</sup><br>Inductance<br>(μ MIN) | Leakage <sup>2</sup><br>Inductance<br>(μ MAX) | DCR (mΩ MAX) |           |             | Maximum<br>Height<br>(mm) |
|-----------------------------|-----------|-----------|------------------|-----------|-----------------------------------------------|-----------------------------------------------|--------------|-----------|-------------|---------------------------|
|                             | Primary A | Primary B | Secondary        |           |                                               |                                               | Primary A    | Primary B | Secondary   |                           |
| PH0801NL                    | 4T        | 4T        | 4T<br>(1T:1T:1T) | A1        | 153                                           | 0.45                                          | 8.5          | 8.5       | 7           | 8.6                       |
| PH0802NL                    | 4T        | 5T        |                  |           | 194                                           | 0.45                                          | 8.5          | 12.5      | 7           | 8.6                       |
| PH0803NL                    | 5T        | 5T        |                  |           | 240                                           | 0.55                                          | 12.5         | 12.5      | 7           | 8.6                       |
| PH0804NL                    | 5T        | 6T        |                  |           | 290                                           | 0.60                                          | 12.5         | 14.2      | 7           | 9.1                       |
| PH0805NL                    | 6T        | 6T        |                  |           | 345                                           | 0.65                                          | 14.2         | 14.2      | 7           | 9.1                       |
| PH0806NL                    | 4T        | 4T        | 1T & 1T          | A2        | 153                                           | 0.45                                          | 8.5          | 8.5       | .875 & .875 | 8.6                       |
| PH0807NL                    | 4T        | 5T        |                  |           | 194                                           | 0.55                                          | 8.5          | 12.5      | .875 & .875 | 8.6                       |
| PH0808NL                    | 5T        | 5T        |                  |           | 240                                           | 0.55                                          | 12.5         | 12.5      | .875 & .875 | 8.6                       |
| PH0809NL                    | 5T        | 6T        |                  |           | 290                                           | 0.90                                          | 12.5         | 14.2      | .875 & .875 | 9.1                       |
| PH0810NL                    | 6T        | 6T        |                  |           | 345                                           | 1.00                                          | 14.2         | 14.2      | .875 & .875 | 9.1                       |
| PH0811NL                    | 4T        | 4T        | 2T & 1T          | A3        | 153                                           | 0.45                                          | 8.5          | 8.5       | 1.75 & 1.75 | 8.6                       |
| PH0812NL                    | 4T        | 5T        |                  |           | 194                                           | 0.45                                          | 8.5          | 12.5      | 1.75 & 1.75 | 8.6                       |
| PH0813NL                    | 5T        | 5T        |                  |           | 240                                           | 0.55                                          | 12.5         | 12.5      | 1.75 & 1.75 | 9.1                       |
| PH0814NL                    | 5T        | 6T        |                  |           | 290                                           | 0.65                                          | 12.5         | 14.2      | 1.75 & 1.75 | 9.1                       |
| PH0815NL                    | 6T        | 6T        |                  |           | 345                                           | 0.85                                          | 14.2         | 14.2      | 1.75 & 1.75 | 9.1                       |

## Mechanicals

### PH08XXNL



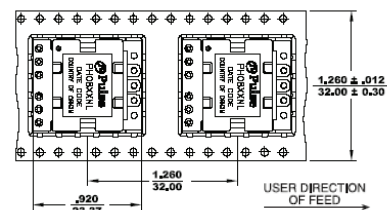
### SUGGESTED PAD LAYOUT



Weight .....11.0 grams  
Tape & Reel .....180/reel  
Tray .....40/tray

Dimensions: Inches  
mm  
Unless otherwise specified,  
all tolerances are ± .010  
0,25

### Tape & Reel Layout for PH0801NL THRU PH0815NL



**NOTE:** The above is a universal footprint for a component that has all 11 pins populated. For a given part number, it is only necessary to provide pads for the terminations shown in the schematics on the next page.

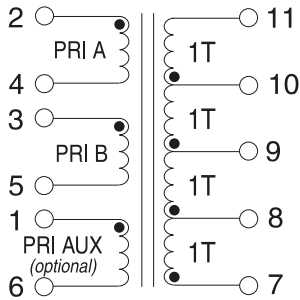
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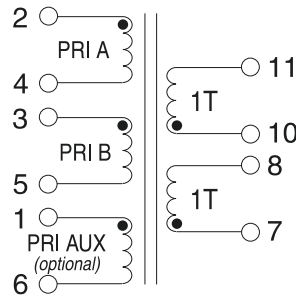
## Schematics

### PH08XXNL

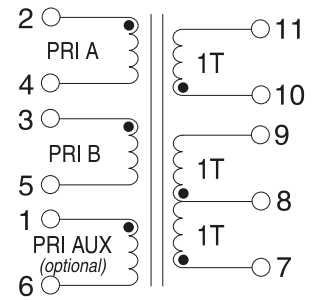
#### A1 PH0801 / 02 / 03 / 04 / 05



#### A2 PH0806 / 07 / 08 / 09 / 10



#### A3 PH0811 / 12 / 13 / 14 / 15

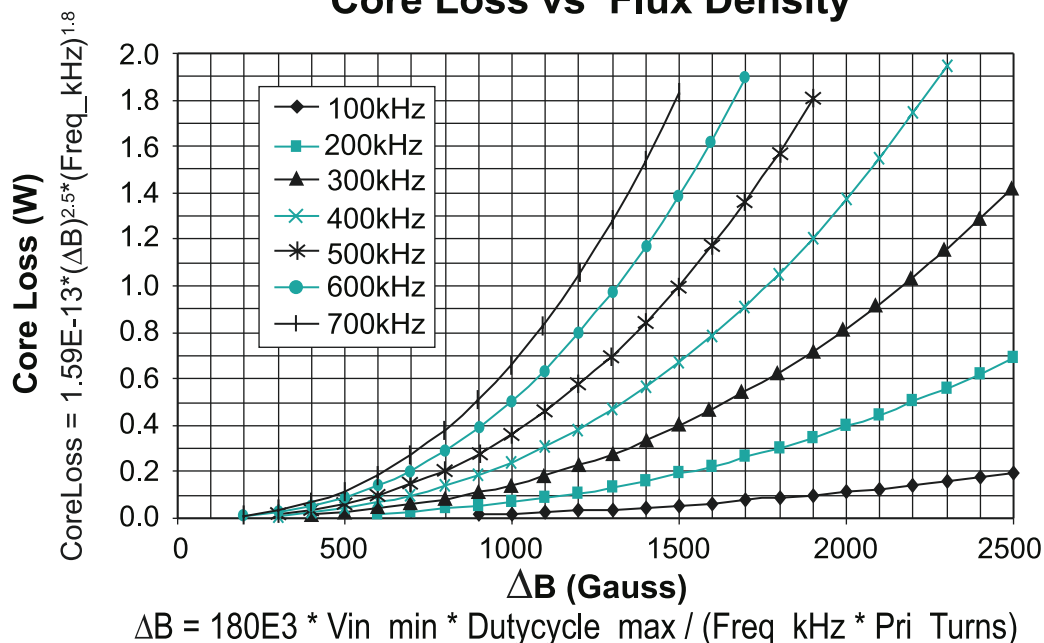


### Notes:

1. Inductance is measured with both primary windings connected in services (2 to 5, with 3 and 4 shorted).
2. Leakage inductance is measured on winding (2-5) with (3-4) and (7, 8, 9, 10, 11) shorted.
3. The "NL" suffix indicates an RoHS-compliant part number.
4. It is possible to add a primary side aux. winding to any of the above configurations as shown in the schematics. Transformers with primary side aux. winding are non-standard and can be made available upon request. The primary aux. winding can be between 2 and 16 turns. To add a primary aux. winding to a given base, use the

- extension .xxx. For example, to add a 4T aux. winding to the base part number PH0801NL, use the part number PH0801.004NL. The height increases by 0.5mm for .xxx part. For example, **PH0801NL** is 8.6mm MAX, **PH0801.004NL** is 9.1mm MAX.
5. Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the complete number (i.e. **PH0801.009NL** becomes **PH0801.009NLT**).
6. To determine if the transformer is suitable for your application, it is necessary to ensure that the temperature rise of the component (ambient plus temperature rise) not exceed its operating temperature. To determine the approximate temperature rise of the transformer, refer to the graphs below.

## Core Loss vs Flux Density

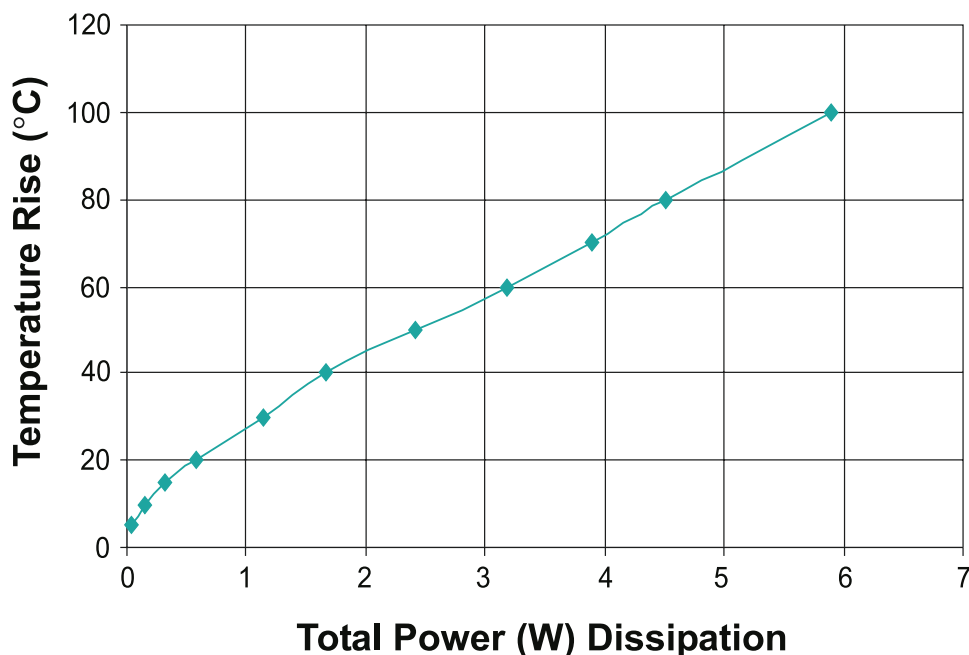


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## Temperature Rise vs. Power (W) Dissipation



### For More Information

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