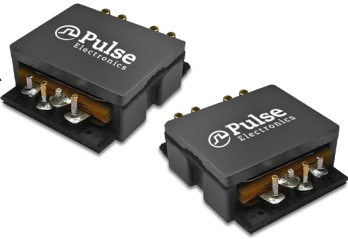


# High Frequency Flat Coil Planar Transformer

PH09XXNL Series (up to 300W)



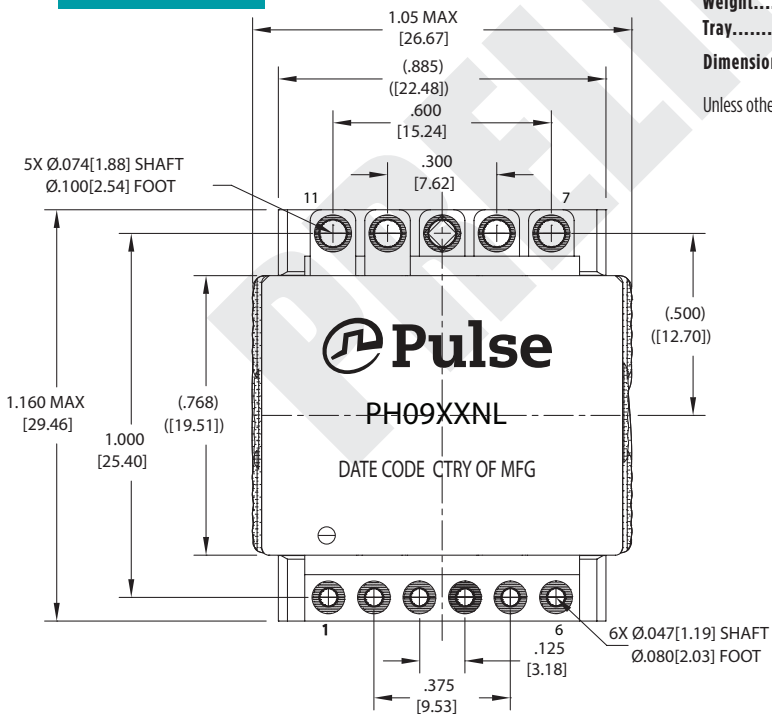
- Power Rating:** up to 300W
- Height:** 10.4mm to 11.9mm Max
- Footprint:** 29.5mm x 26.7mm Max
- Frequency Range:** 200kHz to 700kHz
- Isolation (Primary to Secondary):** 1750VDC

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

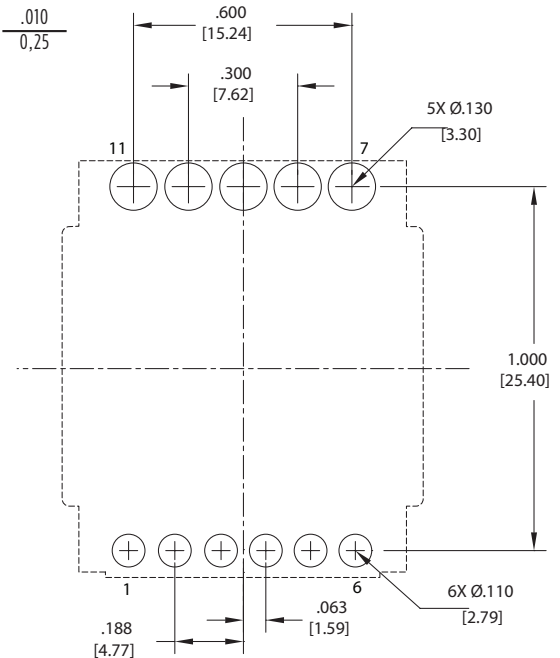
Part Number	Turns Ratio		Schematic	Primary* Inductance (μH MIN)	Leakage** Inductance (μH MAX)	DCR (mΩ MAX)				Maximum Height (mm)
	Primary	Secondary				Primary A	Primary B	Primary Aux.	Secondary	
<b>DOUBLE INTERLEAVE DESIGNS (HIGHER EFFICIENCY, LOWER DCR AND LOWER LEAKAGE)</b>										
PH0901NL	4T & 4T	4T (1T:1T:1T:1T)	A1	211	0.3	6.8	6.8	—	4.5	10.4
PH0903NL	5T & 5T			330	0.45	8.5	8.5	—		
PH0905NL	6T & 6T			423	0.6	10.2	10.2	—		
PH0907NL	7T & 7T			588	0.83	11.8	11.8	—		
PH0909NL	8T & 8T			768	1.2	13.4	13.4	—		
PH0908NL	4T & 4T	1T & 1T	A2	211	0.45	6.8	6.8	—	0.56 & 0.56	10.4
PH0910NL	5T & 5T			330	0.84	8.5	8.5	—		
PH0912NL	6T & 6T			432	1.0	10.2	10.2	—		
PH0914NL	7T & 7T			588	1.2	11.8	11.8	—		
PH0916NL	8T & 8T			768	1.7	13.4	13.4	—		

## Mechanicals

### PH09XXNL



FINAL OUTLINE

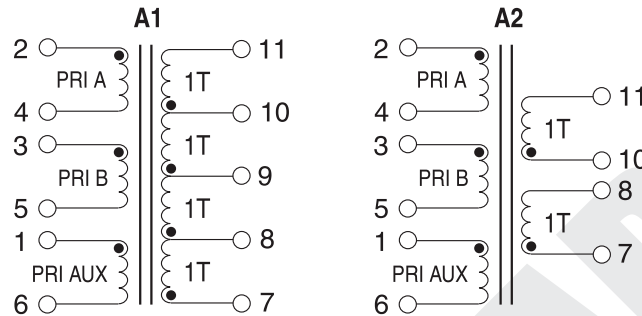


SUGGESTED LAND PATTERN

## Schematics

PH09XXNL

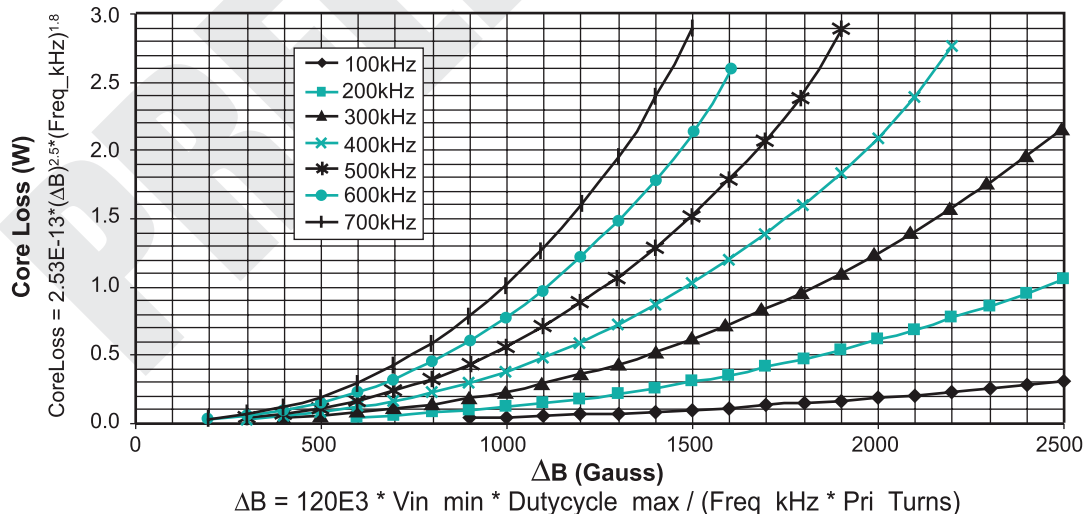
### — DOUBLE INTERLEAVE SCHEMATICS —



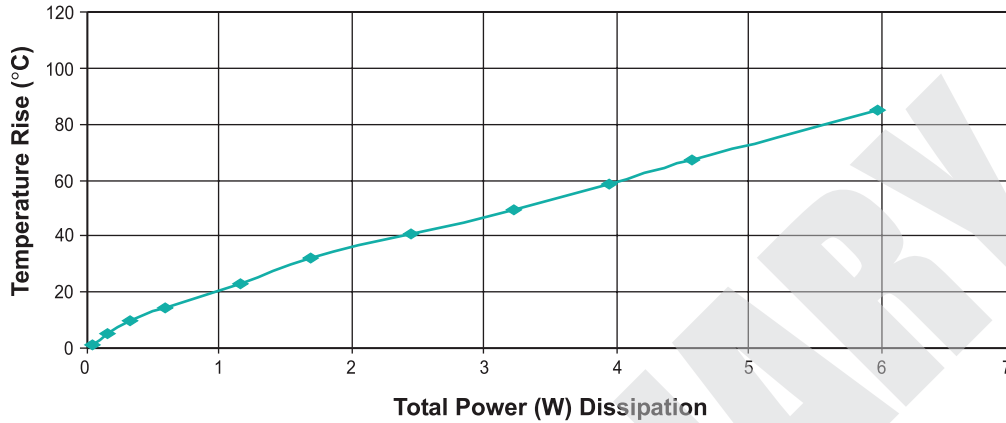
#### Notes:

1. Inductance is measured with primary windings connected in series (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 nonstandard 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 4 T aux. winding to the base part number PH0901NL, use the base part PH0901.004NL. The height increase by 0.5mm for .xxx part. For example, PH0901NL is 10.4mm MAX, PH0901.004NL is 10.9mm MAX.
5. Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the complete number (i.e. PH0901.009NL becomes PH0901.009NLT).
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



Temperature Rise vs. Power (W) Dissipation



Total Power Dissipation (W) =  $.001 * (DCR_{primary} * I_{RMS\_primary}^2 + DCR_{secondary} * I_{RMS\_secondary}^2) + \text{Core Loss (W)}$

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