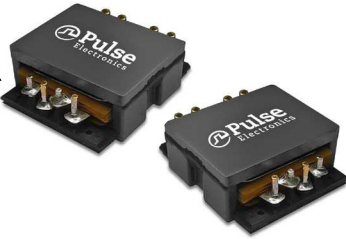
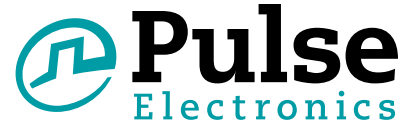


# High Frequency Flat Coil Planar Transformer

PH09XXNL Series (up to 300W)



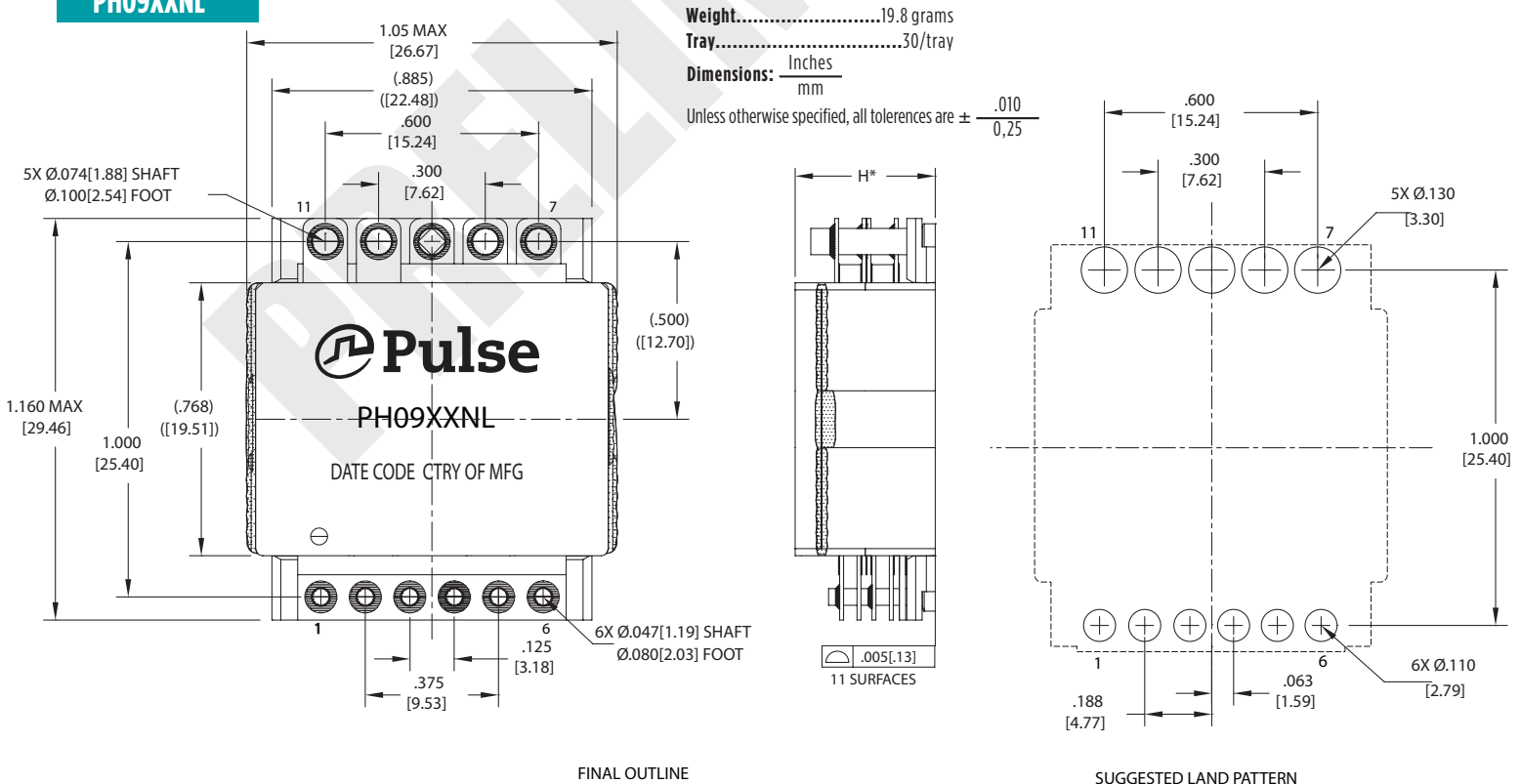
- Power Rating:** up to 300W
- Height:** 10.4mm to 11.9mm Max
- Footprint:** 29.5mm x 26.7mm Max
- Frequency Range:** 200kHz to 700kHz
- Isolation (Primary to Secondary):** 1750VDC

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

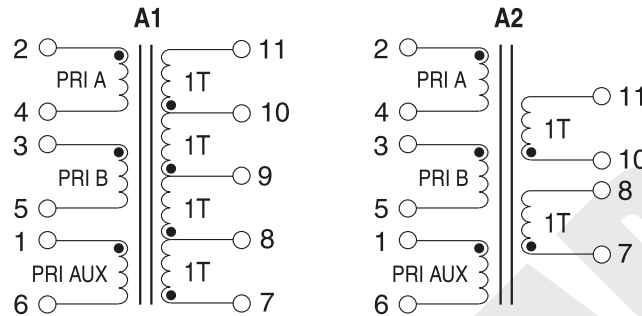
### PH09XXNL



## Schematics

PH09XXNL

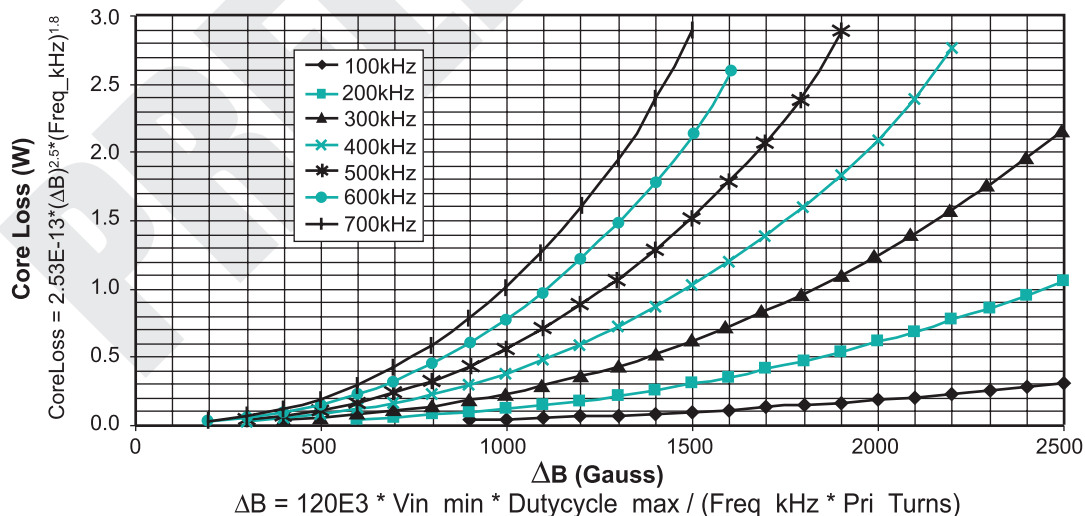
### — DOUBLE INTERLEAVE SCHEMATICS —



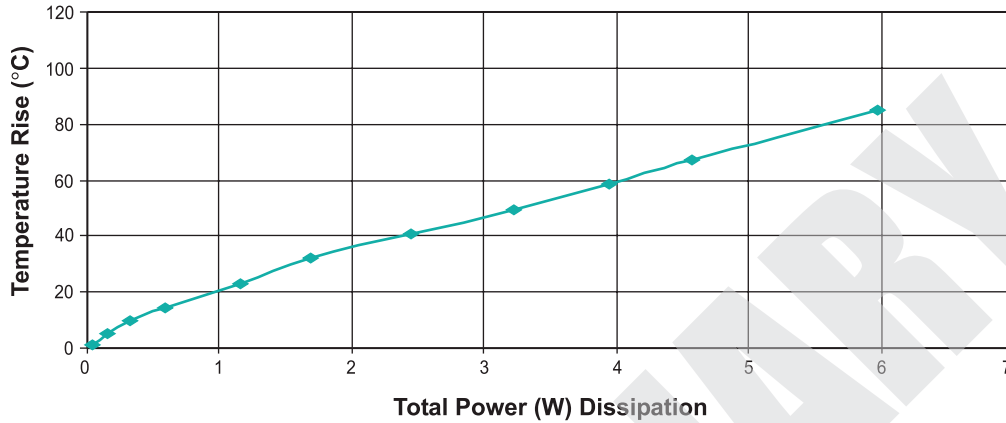
#### Notes:

- Inductance is measured with primary windings connected in series (2 to 5, with 3 and 4 shorted).
- Leakage inductance is measured on winding (2-5) with (3-4) and (7,8,9,10,11) shorted.
- The "NL" suffix indicates an ROHS-compliant part number.
- 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.
- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the complete number (i.e. PH0901.009NL becomes PH0901.009NLT).
- 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) =  $.001 * (DCR_{primary} * I_{RMS\_primary}^2 + DCR_{secondary} * I_{RMS\_secondary}^2) + \text{Core Loss (W)}$

For More Information

**Pulse Worldwide Headquarters**

12220 World Trade Drive  
San Diego, CA 92128  
U.S.A.

Tel: 858 674 8100  
Fax: 858 674 8262

**Pulse Europe**

Einsteinstrasse 1  
D-71083 Herrenberg  
Germany

Tel: 49 7032 7806 0  
Fax: 49 7032 7806 135

**Pulse China Headquarters**

B402, Shenzhen Academy of  
Aerospace Technology Bldg.  
10th Kejinan Road  
High-Tech Zone  
Nanshan District  
Shenzen, PR China 518057

Tel: 86 755 33966678  
Fax: 86 755 33966700

**Pulse North China**

Room 2704/2705  
Super Ocean Finance Ctr.  
2067 Yan An Road West  
Shanghai 200336  
China

Tel: 86 21 62787060  
Fax: 86 2162786973

**Pulse South Asia**

135 Joo Seng Road  
#03-02  
PM Industrial Bldg.  
Singapore 368363

Tel: 65 6287 8998  
Fax: 65 6287 8998

**Pulse North Asia**

3F, No. 198  
Zhongyuan Road  
Zhongli City  
Taoyuan County 320  
Taiwan R. O. C.

Tel: 886 3 4356768  
Fax: 886 3 4356823 (Pulse)  
Fax: 886 3 4356820 (FRE)

Performance warranty of products offered on this data sheet is limited to the parameters specified. Data is subject to change without notice. Other brand and product names mentioned herein may be trademarks or registered trademarks of their respective owners. © Copyright, 2011. Pulse Electronics, Inc. All rights reserved.