

# SMT Power Inductors

Round wire Coils- PG1096NL series



- Inductance Range: 1.5uH to 82uH
- Current Rating: up to 65A<sub>pk</sub>
- Footprint: 26mm x 26mm Max
- Height: 14.8mm Max
- No Thermal Aging
- RoHS Compliant

## Electrical Specifications @ 25°C - Operating Temperature -40°C to 130°C<sup>1</sup>

Part Number	Inductance @ I <sub>rated</sub> <sup>2</sup> μH TYPICAL	I <sub>rated</sub> <sup>3</sup> (A)	Controlled Electrical Specs.		Saturation <sup>5</sup> Current I <sub>sat</sub> (A TYP)		Heating Current <sup>6</sup> I <sub>dc</sub> (A TYP)	Core Loss Factor <sup>7</sup> (K <sub>2</sub> )
			DCR <sup>4</sup> (mΩ) MAX	Inductance @ 0A <sub>dc</sub> (μH ± 20%)	25°C	100°C		
PG1096.152NL	1.35	50	0.85	1.5	65	50.5	50	27.9
PG1096.252NL	2.25	45	1.2	2.5	55	43	45	31
PG1096.472NL	4.2	35	1.8	4.7	40	31	35	43.7
PG1096.682NL	6	30	2	6.8	35	27.5	30	50.6
PG1096.103NL	9	24.5	3.15	10	28	21.8	24.5	62
PG1096.183NL	16	18.5	5	18	21	16.5	18.5	83.6
PG1096.223NL	19.5	17	5.5	22	19	14.8	17	90.9
PG1096.333NL	29.5	13.5	10.5	33	15.5	12	13.5	111.5
PG1096.473NL	42.3	11	12.5	47	13	10	11	134.4
PG1096.683NL	61	9.5	15	68	11	8.6	9.5	168.5
PG1096.823NL	73.5	8.5	22	82	10	7.8	8.5	179.3

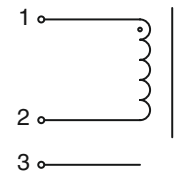
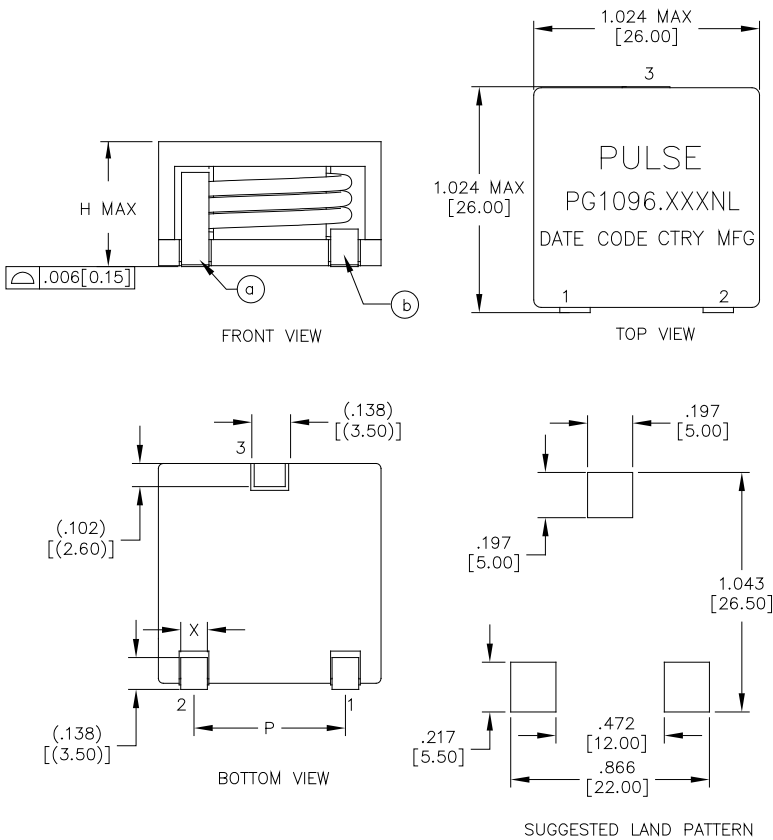
### Notes:

- Actual temperature of the component during system operation (ambient plus temperature rise) must be within the standard operating range.
- Inductance at I<sub>rated</sub> is a typical inductance value for the component taken at rated current.
- The rated current as listed is either the saturation current (@ 25°C) or the heating current depending on which value is lower.
- The DCR of the part is measured at an ambient temperature of 20°C±3°C from point a to b as shown below on the mechanical drawing.
- The saturation current, I<sub>sat</sub>, is the current at which the component inductance drop by 20% (typical) at an ambient temperature. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effect) to the component.
- The heating current, I<sub>dc</sub>, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the components' performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
- Core loss approximation is based on published core data:  
 $Core\ Loss = K1 * (f)^{1.42} * (K2 \Delta I * 0.1)^{2.57}$  in mW  
 K1=2.86E-06 (2.50E-06 FOR PG1096.152NL)  
 f = switching frequency in KHz  
 K1 & K2 = core loss factors  
 ΔI = delta I across the component in Ampere  
 K2ΔI = one half of the peak to peak flux density across the component in Gauss
- Unless otherwise specified, all testing is made at 100kHz, 0.1Vac
- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. PG1096.223NL becomes PG1096.223NLT). Pulse complies with industry standard tape and reel specification EIA481. The tape and reel for this product has a width (W=44.0mm), pitch (Po=36.0mm) and depth (Ko=15.6mm).
- The core is a conductive material so care should be taken when mounting this component over an exposed via or if the voltage across the terminals exceeds 24V. Trickle current through the core material may generate additional losses and potential overheating. Please contact Pulse to discuss an alternative solution if required.

## Mechanicals

## Schematic

### PG1096.XXXNL



\*PIN 3 IS FOR MECHANICAL SUPPORT ONLY  
AND HAS NO INTERNAL ELECTRICAL CONNECTION

Part Number	Lead Width (X) Ref	H (Height)	P (Pin Pitch)
PG1096.152NL	3.0mm	13mm	17.00±1.00mm
PG1096.252NL	3.0mm	14.8mm	
PG1096.472NL	3.0mm		
PG1096.682NL	3.0mm		
PG1096.103NL	3.0mm		
PG1096.183NL	3.0mm		
PG1096.223NL	3.0mm		
PG1096.333NL	3.0mm		
PG1096.473NL	3.0mm		
PG1096.683NL	3.0mm		
PG1096.823NL	2.3mm		

Weight.....34.0 grams (28.0 grams for PG1096.152NL)  
Tape and Reel.....60/reel

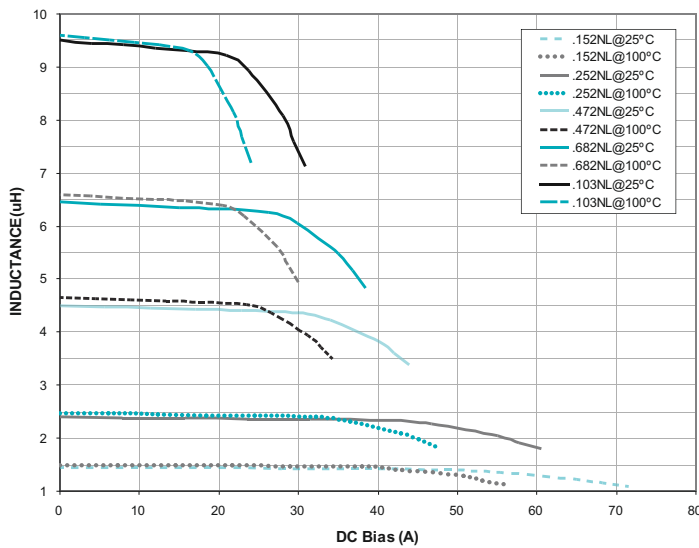
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified, all tolerances are  $\pm \frac{0.01}{0.25}$

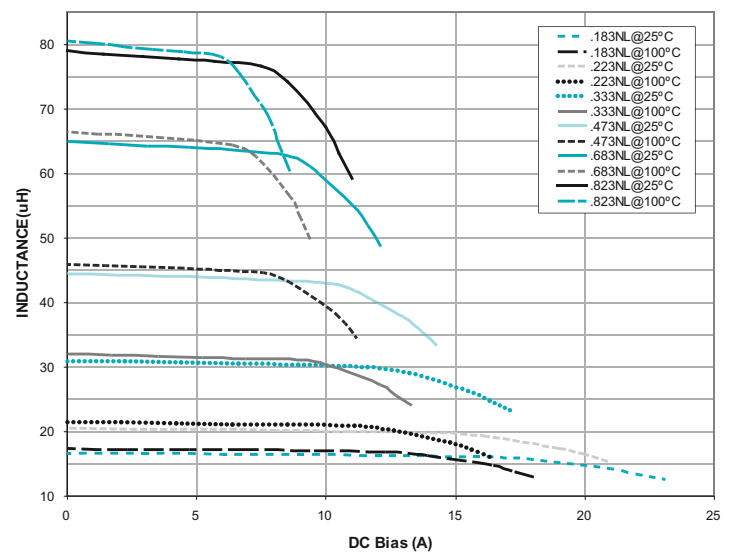
## Inductance Charts

### PG1096.XXXNL

Typical Inductance vs DC Bias



Typical Inductance vs DC Bias



### For More Information

#### Pulse Worldwide Headquarters

15255 Innovation Drive Ste 100  
San Diego, CA 92128  
U.S.A.

#### Pulse Europe

Pulse Electronics GmbH  
Am Rottland 12  
58540 Meinerzhagen  
Germany

#### Pulse China Headquarters

Pulse Electronics (ShenZhen) CO., LTD  
D708, Shenzhen Academy of  
Aerospace Technology,  
The 10th Keji South Road,  
Nanshan District, Shenzhen,  
P.R. China 518057

#### Pulse North China

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

#### Pulse South Asia

3 Fraser Street  
0428 DUO Tower  
Singapore 189352

#### Pulse North Asia

1F., No.111 Xiyuan Rd  
Zhongli City  
Taoyuan City 32057  
Taiwan (R.O.C)

Tel: 858 674 8100  
Fax: 858 674 8262

Tel: 49 2354 777 100  
Fax: 49 2354 777 168

Tel: 86 755 33966678  
Fax: 86 755 33966700

Tel: 86 21 62787060  
Fax: 86 2162786973

Tel: 65 6287 8998  
Fax: 65 6280 0080

Tel: 886 3 4356768  
Fax: 886 3 4356820

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, 2018. Pulse Electronics, Inc. All rights reserved.