## **SMT Power Inductors**

Round wire Coils- PG1096NL series







Inductance Range: 1.5uH to 82uH

Current Rating: up to 65Apk

Footprint: 26mm x 26mm Max

🕖 Height: 14.8mm Max

No Thermal AgingRoHS Compliant

Electrical Specifications @ 25°C - Operating Temperature -40°C to 130°C¹									
Part Number	Inductance @ Irated² µH TYPICAL	Irated <sup>3</sup> (A)	Controlled Electrical Specs.		Saturation <sup>5</sup> Current Isat (A TYP)		Heating Current <sup>6</sup>	Core Loss Factor <sup>7</sup>	
			DCR <sup>4</sup> (mΩ) MAX	Inductance @ <b>0Adc</b> (μH ± 20%)	25°C	100°C	<b>Idc</b> (A TYP)	(K2)	
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:

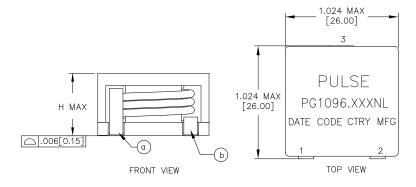
- Actual temperature of the component during system operation (ambient plus temperature rise) must be within the standard operating range.
- Inductance at Irated is a typical inductance value for the component taken at rated current.
- 3. The rated current as listed is either the saturation current (@ 25°C) or the heating current depending on which value is lower.
- 4. 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.
- 5. The saturation current, Isat, 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.
- 6. The heating current, Idc, 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.

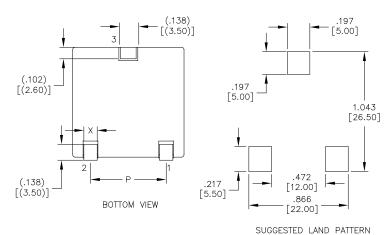
- 7. Core loss approximation is based on published core data:
  - Core Loss = K1 \*  $(f)^{1.42}$  \*  $(K2\Delta I^*0.1)^{2.57}$  in mW
  - K1=2.86E-06 (2.50E-06 FOR PG1096.152NL)
  - f = switching frequency in KHz
  - K1 & K2 = core loss factors
  - $\Delta$ I= delta I across the component in Ampere
  - $K2\Delta I$ =one half of the peak to peak flux density across the component in Gauss
- 8. 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).
- 10. 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		
PG1096.252NL	3.0mm			
PG1096.472NL	3.0mm		17.00±1.00mm	
PG1096.682NL	3.0mm			
PG1096.103NL	3.0mm	14.8mm		
PG1096.183NL	3.0mm			
PG1096.223NL	3.0mm			
PG1096.333NL	3.0mm			
PG1096.473NL	3.0mm			
PG1096.683NL	3.0mm			
PG1096.823NL	2.3mm		17.00±1.70mm	

Dimensions: Inches mm

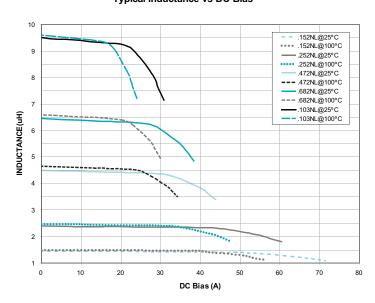
Unless otherwise specified, all tolerences are  $\pm \frac{0.01}{0.25}$ 



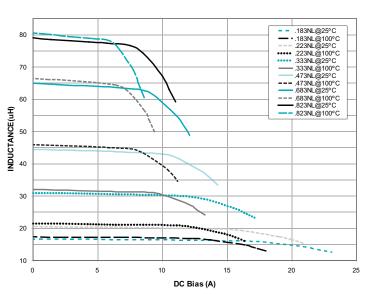
#### **Inductance Charts**

#### 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				

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## Pulse:

<u>PG1096.683NLT PG1096.223NLT PG1096.103NLT PG1096.183NLT PG1096.823NLT PG1096.682NLT PG1096.473NLT PG1096.333NLT PG1096.472NLT PG1096.152NLT PG1096.252NLT PG1096.252NLT PG1096.472NLT P</u>