





# SMT Power Inductors

Round Wire Coils - PG0702NL Series



-  **Height:** 8.0mm Max
-  **Footprint:** 10.8mm x 9.2mm Max
-  **Saturation Current:** up to 42.5A
-  **No thermal aging**

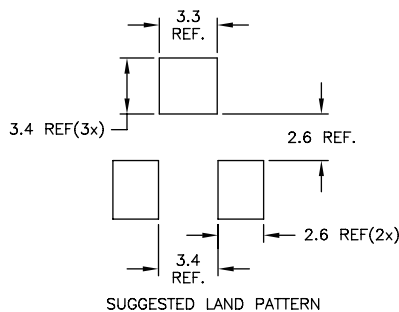
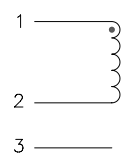
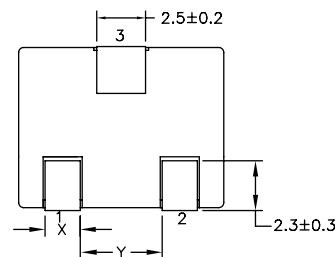
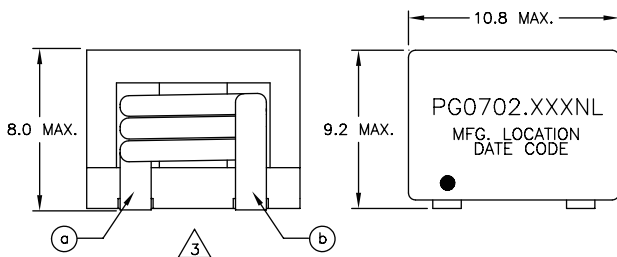
## Electrical Specifications @ 25°C - Operating Temperature -40°C to +130°C<sup>1</sup>

Part Number	Inductance <sup>2</sup> @ Irated (μH TYP)	Irated <sup>3</sup> (A) Factor	DCR <sup>4</sup> (mΩ) (±6%)	Inductance @ 0A <sub>DC</sub> (μH ±20%)	Saturation Current Isat (A TYP)		Heating <sup>6</sup> Current I <sub>DC</sub> (A TYP)	Core Loss <sup>7</sup> Factor K2
					25°C	100°C		
PG0702.301NL	0.24	42.5	0.68	0.30	42.5	33.5	47.0	30.8
PG0702.401NL	0.38	38.0	0.91	0.40	43.0	34.0	38.0	27.4
PG0702.451NL	0.41	38.0	0.91	0.45	41.0	31.7	38.0	30.8
PG0702.601NL	0.48	32.0	0.91	0.60	32.0	25.5	38.0	41.1
PG0702.102NL	0.80	26.0	1.76	1.00	26.0	20.3	26.1	51.4
PG0702.222NL	1.76	15.9	3.30	2.20	15.9	12.7	16.4	90.5
PG0702.302NL	2.90	12.4	5.90	3.00	16.0	12.5	12.4	102.8
PG0702.472NL	3.76	8.4	5.30	4.70	8.4	6.7	13.2	161.0
PG0702.682NL	5.44	8.5	7.70	6.80	8.5	6.8	9.6	155.4

## Mechanical

## Schematic

### PG0702.XXXNL



Part Number	X (mm)	Y (mm)
PG0702.301NL	1.80±0.2	4.5±0.4
PG0702.401NL	1.80±0.2	4.5±0.4
PG0702.451NL	1.80±0.2	4.5±0.4
PG0702.601NL	1.80±0.2	4.5±0.4
PG0702.102NL	1.80±0.2	4.5±0.4
PG0702.222NL	1.6±0.2	4.8±0.4
PG0702.302NL	1.6±0.2	4.8±0.4
PG0702.472NL	1.6±0.2	4.8±0.4
PG0702.682NL	1.6±0.2	4.8±0.4

**Weight (TYP)** .....2.6grams  
**Tray** .....500/tray  
**Dimensions: mm**  
 Unless otherwise specified,  
 all tolerances are ±0.25

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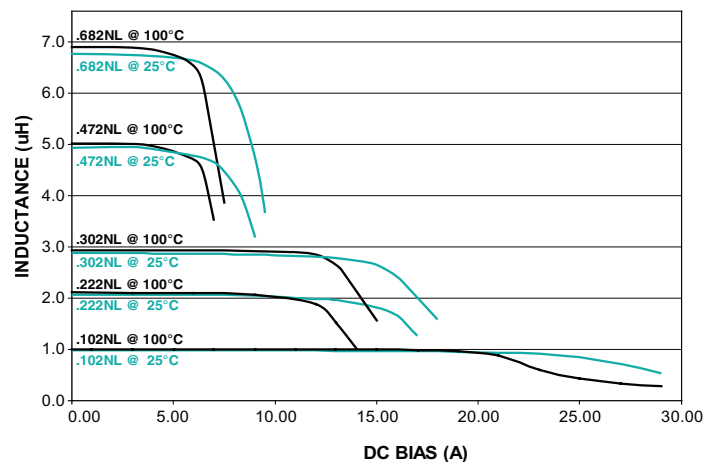
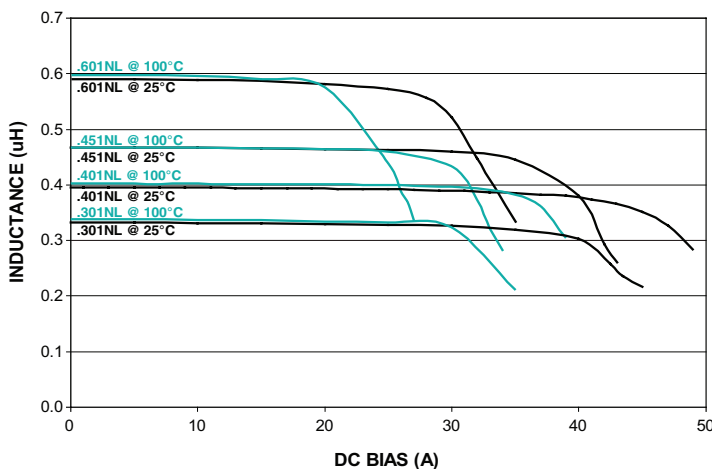
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## Notes:

- Actual temperature of the component (ambient plus temperature rise) must be within the standard operating temperature range.
- Inductance at Irated is a typical inductance value for the component taken at rated current.
- The rated current listed is the lower of 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 from point a and b as shown above on the mechanical drawing.
- The saturation current, Isat, is the current at which the component inductance drops by 20% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
- The heating current, Ihc, 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 component's 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:  

$$\text{Core Loss} = K1 * (f)^{1.2} * (K2 \Delta I)^{2.7}$$
**Where: Core Loss** = in Watts  
 $K1 = 2.20E-11$   
 $f$  = switching frequency in kHz  
 $K1 \text{ \& } K2$  = 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
- 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. PG0702.401NL becomes PG0702.401NLT). Pulse complies to industry standard tape and reel specification EIA481. The tape and reel for this product has a width (W=24.0mm), pitch (Po=16mm) and depth (Ko=8.9mm).
- 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.



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