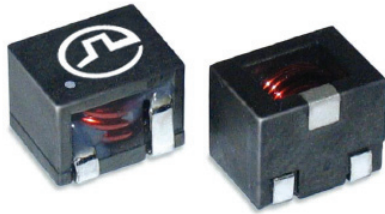


# SMT Power Inductors

Round Wire Coils - PG0702NL



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

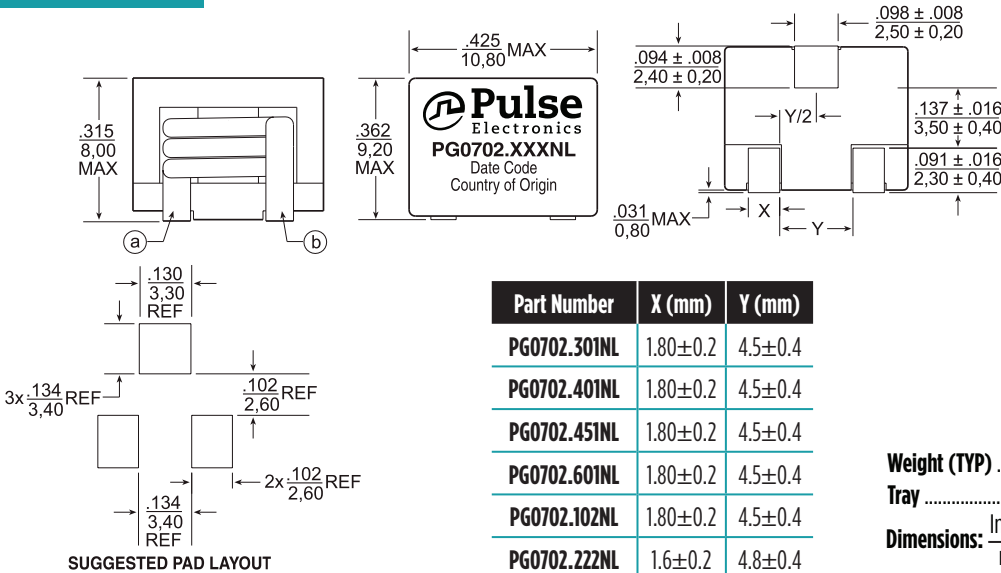
## Electrical Specifications @ 25°C - Operating Temperature -40°C to +130°C<sup>1</sup>

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>bc</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:**  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

USA 858 674 8100

Germany 49 7032 7806 0

Singapore 65 6287 8998

Shanghai 86 21 62787060

China 86 755 33966678

Taiwan 886 3 4356768

# SMT Power Inductors

Round Wire Coils - PG0702NL

## Notes:

1. Actual temperature of the component (ambient plus temperature rise) must be within the standard operating temperature range.
2. Inductance at  $I_{rated}$  is a typical inductance value for the component taken at rated current.
3. The rated current listed is the lower of 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 from point a and b as shown above on the mechanical drawing.
5. The saturation current,  $I_{SAT}$ , 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.
6. The heating current,  $I_{DC}$ , 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.

7. Core Loss approximation is based on published core data:

$$\text{Core Loss} = K1 * (f)^{1.12} * (K2\Delta I)^{2.17}$$

Where: Core Loss = in Watts

$$K1 = 2.20E-11$$

f = switching frequency in kHz

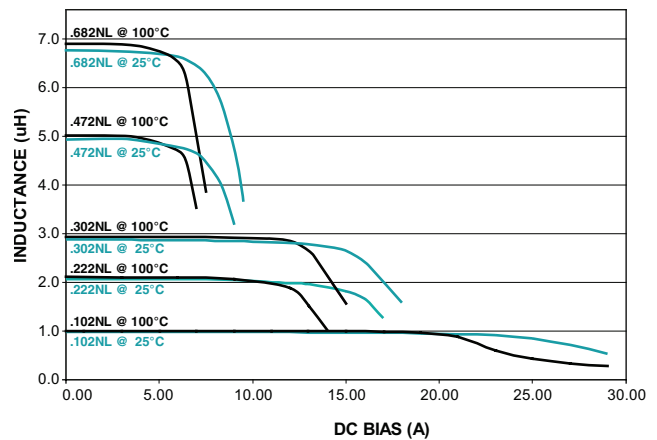
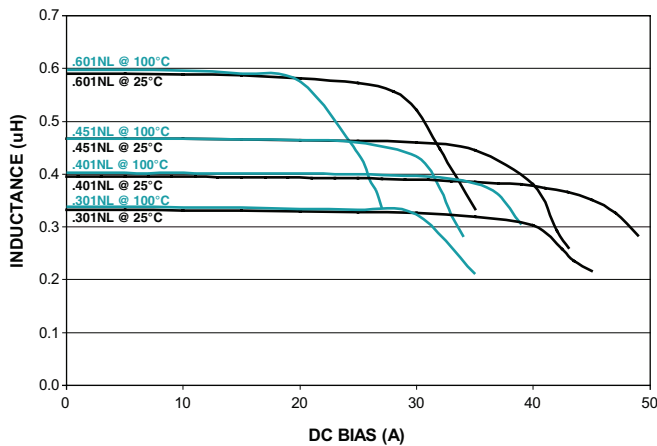
K1 & K2 = core loss factors

$\Delta I$  = 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, 0.1V<sub>AC</sub>.
9. 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).

## Typical Inductance vs Current Characteristics @ 25°C and 100°C



## For More Information

**Pulse Worldwide Headquarters**  
12220 World Trade Drive  
San Diego, CA  
92128  
U.S.A.

**Pulse Europe**  
Einsteinstrasse 1  
D-71083 Herrenberg  
Germany

**Pulse China Headquarters**  
B402, Shenzhen Academy of  
Aerospace Technol-  
ogy Bldg.  
10th Kejinan Road  
High-Tech Zone  
Nanshan District  
Shenzhen, 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)

Tel: 858 674 8100  
Fax: 858 674 8262

Tel: 49 7032 78060  
Fax: 49 7032 7806 135

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