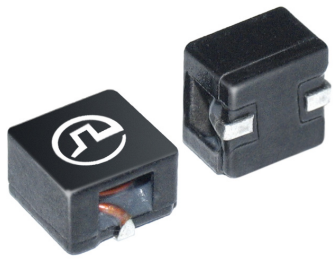
SMT Power Inductors

Round Wire Coils - PG0642NL Series



- ***Height:*** *5.0mm Max*
- ***Footprint:*** *7.9mm x 7.6mm Max*
- ***Saturation Current:*** *up to 32Apk*
- ***Inductance Range:*** *0.32µH to 5.4µH*

Electrical Specifications @ 25°C - Operating Temperature -40°C to +125°C [1]							
Part [9] Number	**Inductance [2] @ Irated** (µH TYP)	**Irated [3]** (A)	**DCR [4]** (mΩ) (±6%)	**Inductance @ 0A$_{DC}$** (µH ±20%)	**Saturation [5] Current Isat** (A TYP)	**Heating [6] Current I$_{DC}$** (A TYP)	**Core Loss [7] Factor K2**
PG0642.401NL	0.32	20.0	3.3	0.40	32	20.0	33.6
PG0642.681NL	0.54	17.5	4.3	0.68	25	17.5	46.5
PG0642.102NL	0.80	14.5	5.8	1.00	22	14.5	58.2
PG0642.152NL	1.20	13.3	6.8	1.50	18	13.3	75.7
PG0642.222NL	1.70	10.0	12.7	2.20	14	10.0	84.7
PG0642.332NL	2.60	9.5	16.6	3.30	13	9.5	107.0
PG0642.472NL	3.70	9.0	18.4	4.70	10	9.0	140.1
PG0642.682NL	5.40	6.0	26.4	6.80	8	6.0	176.2

Notes:

1. Actual temperature of the component (ambient plus temperature rise) must be within the standard operating temperature range.
2. Inductance at Irated 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 20C 3C 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:
   Core Loss = K1 * $(f)^{1.48}$ * $(K2\Delta I)^{1.97}$
   Where: Core Loss = in Watts
   K1 = 5.894E-10
   f = switching frequency in kHz
   K1 & K2 = core loss factors
   ΔI = delta I across the component in Ampere
   K2*ΔI = 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_{AC}.
9. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PG0642.222NL becomes PG0642.222NL**T**). Pulse complies to industry standard tape and reel specification EIA481. The tape and reel for this product has a width (W=24mm), pitch (Po=12mm) and depth (Ko=5.5mm).

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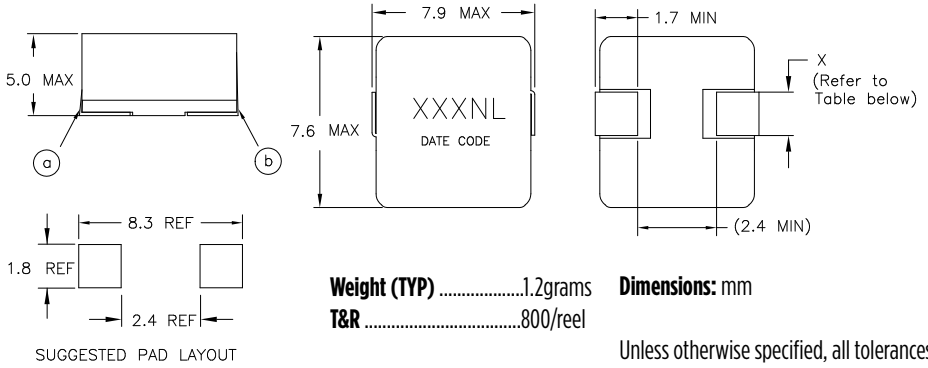
Mechanical

PG0642.XXXNL

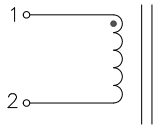


Weight (TYP) 1.2grams
T&R 800/reel

Dimensions: mm

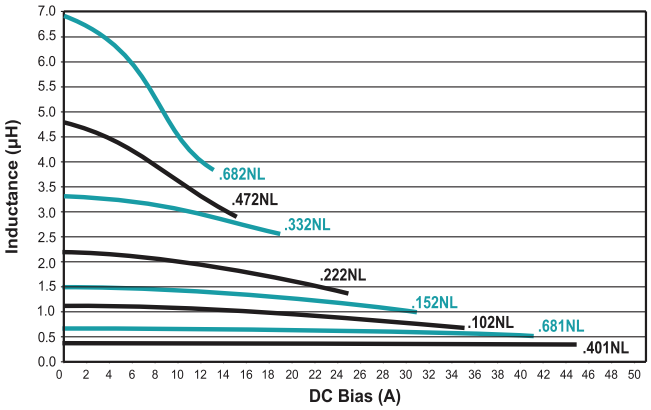
Unless otherwise specified, all tolerances are ±0,25

Schematic

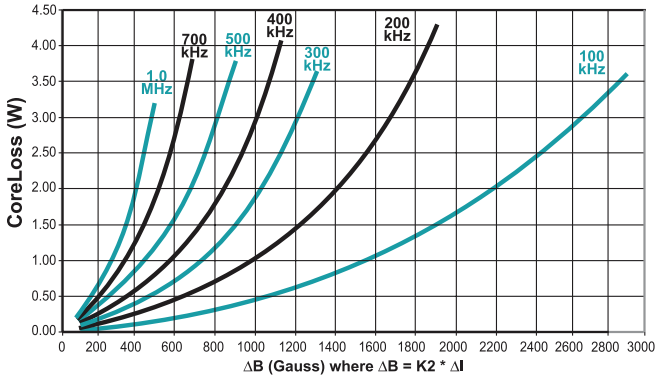


Part Number	X (Ref.)
PG0642.401NL	1.2mm
PG0642.681NL	1.2mm
PG0642.102NL	1.1mm
PG0642.152NL	1.1mm
PG0642.222NL	0.8mm
PG0642.332NL	0.7mm
PG0642.472NL	0.7mm
PG0642.682NL	0.7mm

Typical Inductance vs Current Characteristics



Typical Core Loss vs Peak Flux Density



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
Pulse Electronics GmbH
Am Rottland 12
58540 Meinerzhagen
Germany

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

Pulse China Headquarters
B402, Shenzhen Academy of Aerospace Technology 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)