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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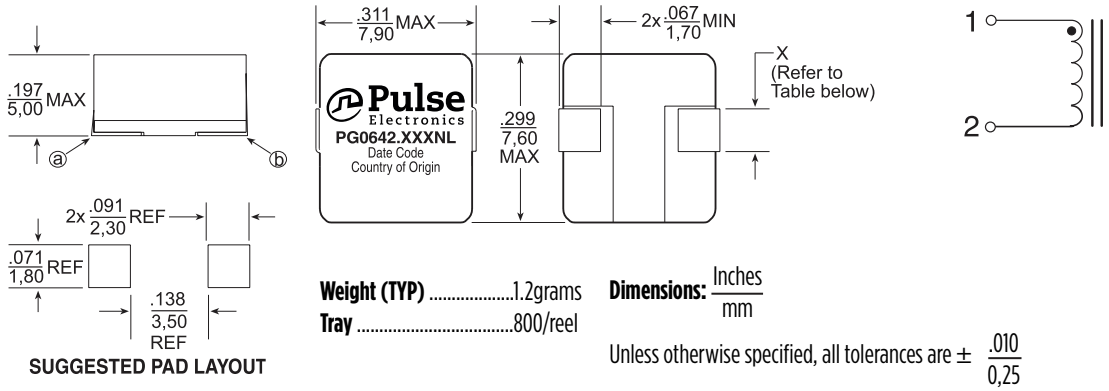
Mechanical

Schematic

PG0642.XXXNL



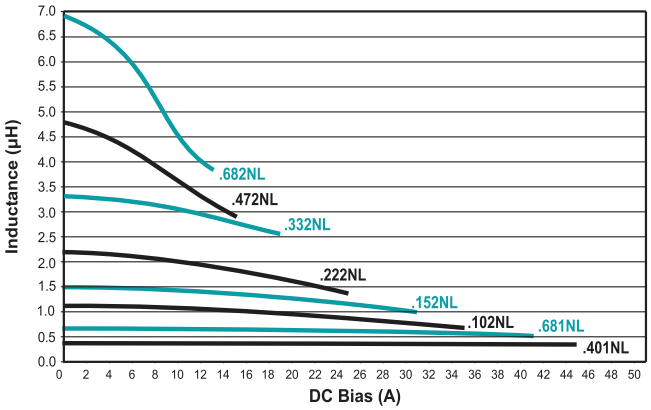
Weight (TYP) 1.2grams
Tray 800/reel

Dimensions: Inches / mm

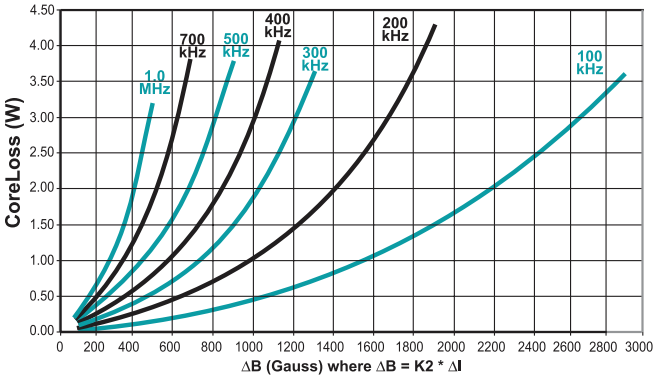
Unless otherwise specified, all tolerances are ± .010 / 0,25

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



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