SMT POWER INDUCTORS
Wirewound - PD0120NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

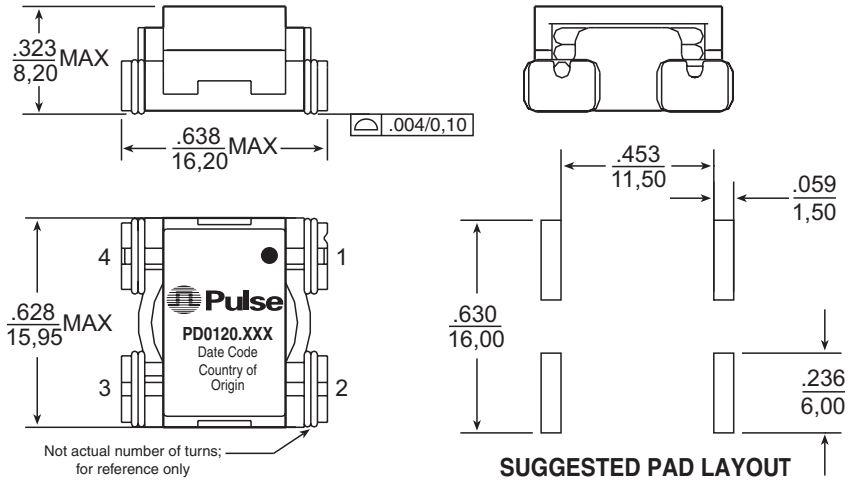
- **Height:** 8.2mm Max
- **Footprint:** 16.2mm x 16.0mm Max
- **Current Rating:** up to 15.4A
- **Inductance Range:** 1.2µH to 55.4µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [7]

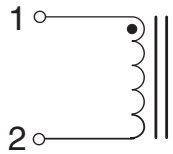
Part Number [5,7]	Inductance @ Irated (µH ±10%)	Irated [1] (ADC)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @ 0 ADC (µH ±10%)	Saturation Current [2] (A) 25°C	Saturation Current [2] (A) 100°C	Heating Current [3] (A)	Core Loss Factor [4] Kc
PD0120.102NL	1.2	15.4	1.5	2.0	1.2	29	24.6	15.4	5556
PD0120.152NL	1.8	14.2	2.5	3.0	1.8	24.3	19	14.2	4444
PD0120.222NL	2.5	11.4	4.0	4.2	2.6	20.6	17.6	11.4	3704
PD0120.332NL	4.5	11.2	6.3	6.8	4.6	15	13	11.2	2778
PD0120.532NL	5.6	10.4	8.0	8.5	5.7	13.6	11.6	10.4	2469
PD0120.702NL	7.1	8.6	9.5	10.0	7.2	12.6	10.6	8.6	2222
PD0120.113NL	12.0	7.6	15.0	16.0	12.2	9	8	7.6	1709
PD0120.183NL	18.3	6.4	21.5	25.5	18.7	7.6	6.6	6.4	1389
PD0120.223NL	22.6	5.3	30.5	35.5	23.1	6.8	6	5.3	1235
PD0120.373NL	39.9	4	51.5	58.5	40.7	5	4.6	4	926
PD0120.503NL	55.4	3.4	75.5	82.5	56.5	4.3	3.8	3.4	794

NOTE: To order RoHS compliant part, add the suffix "**NL**" to the part number (i.e. PD0120.102 becomes PD0120.102 **NL**).

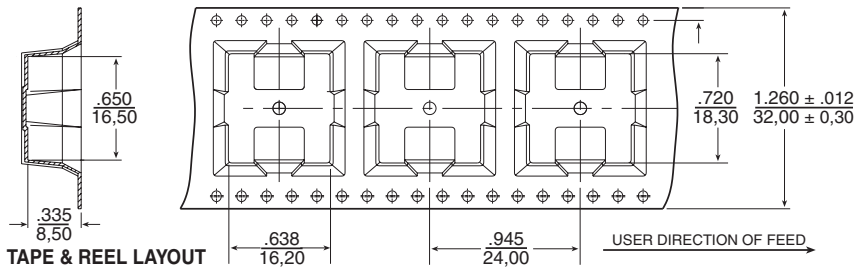
Mechanical



Schematic



Weight . . . . . .4.25 grams
Tape & Reel 250/reel



Dimensions: Inches / mm

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

Notes from Tables

1. The rated current as listed is either the saturation current or the heating current depending on which value is lower.
2. The saturation current is the current which causes the inductance to drop by 10% at the stated ambient temperatures (-40°C, 25°C and 125°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.
3. The heating current is the DC current which causes the temperature of the part to increase by approximately 45°C. This current is determined by mounting the component on a PCB with .25" wide, 3 oz. equivalent copper traces, and applying the current to the device for 30 minutes with no forced air cooling.
4. In high volt*time applications, additional heating in the component can occur due to losses in the inductor which may neccessitate derating the current in order to limit the temperature rise of the component. In order to determine the approximate total losses (or temperature rise) for a given application both copper losses and core losses should be taken into account.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PD0120.102 becomes PD0120.102**T**). Pulse complies to industry standard tape and reel specification EIA481.

Estimated Temperature Rise:

$$Trise = \left[\frac{Coreloss\ (mW) + DCRloss\ (mW)}{7.05}\right]^{.833}\ (°C)$$

$$Coreloss = 1.86E\text{-}12 * (Freq\ (kHz))^{1.63} * (K_c * V\mu sec)^{2.17}\ (mW)$$

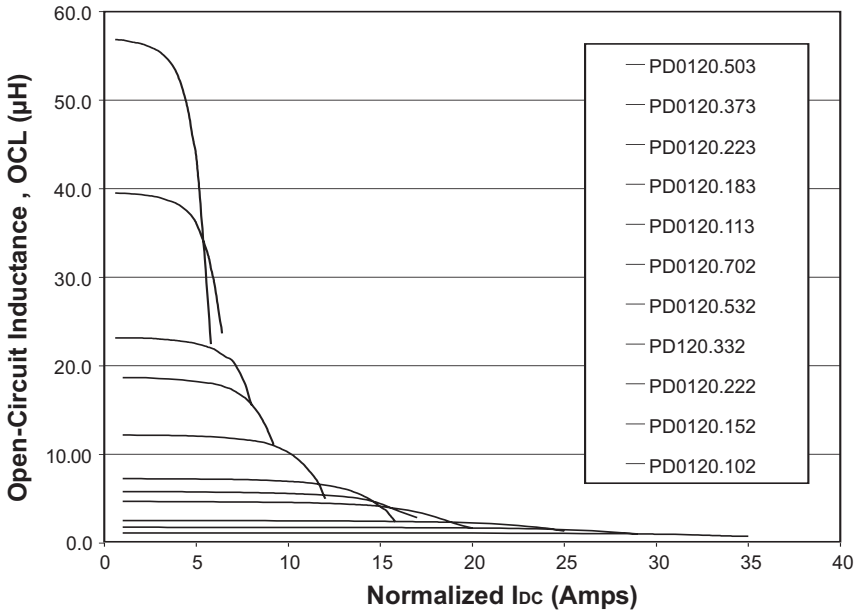
$$DCRloss = I_{rms}^2 * DCR(m\Omega)\ \ (mW)$$

$$I_{rms} = \left[I_{DC}^2 + \left[\frac{dI^2}{12}\right]\right]^{1/2}\ (A_{rms})$$

Freq (kHz) = *switching frequency (kHz)*
Vμsec = *L (μH) * dI or V * D * 1000/Freq (kHz)*
dI = *pk – pk ripple current across the component (A)*
V = *Voltage across the component (V)*
D = *Duty cycle*

6. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
7. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Inductance vs Current Characteristics



Mouser Electronics

Authorized Distributor

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Pulse:

PD0120.102T PD0120.113T PD0120.183T PD0120.332T PD0120.532T PD0120.113NLT PD0120.113NL PD0120.183NL PD0120.223NL PD0120.373NL PD0120.702NL PD0120.332NLT PD0120.223NLT PD0120.503NLT PD0120.102NLT PD0120.373NLT PD0120.183NLT PD0120.702NLT PD0120.532NLT