

SMT Power Inductors

Power Beads - PA1320NL and PA1320ANL Series



-  **Current Rating:** Over 75Apk
-  **Inductance Range:** 120nH to 310nH
-  **Height:** 6.5mm Max
-  **Footprint:** 10.4mm x 8.0mm Max

Electrical Specifications @ 25°C - Operating Temperature -40°C to +130°C⁷

Part Number	Inductance @ 0A _{DC} (nH ±20%)	Inductance @ I _{rated} (nH TYP)	I _{rated} ¹ (A _{DC})	DCR ² (mΩ)	Saturation Current ³ (A TYP)		Heating ⁴ Current (A TYP)
					25°C	100°C	
PA1320.121NL	120	120	40	0.48 ±8% (NL) 0.47 ±5% (ANL)	90	73	40
PA1320.141NL	140	140	40		76	64	
PA1320.171NL	180	174	40		54.5	52	
PA1320.221NL	200	185	40		55	45	
PA1320.301NL	310	250	30		34	29.5	

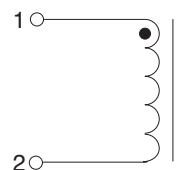
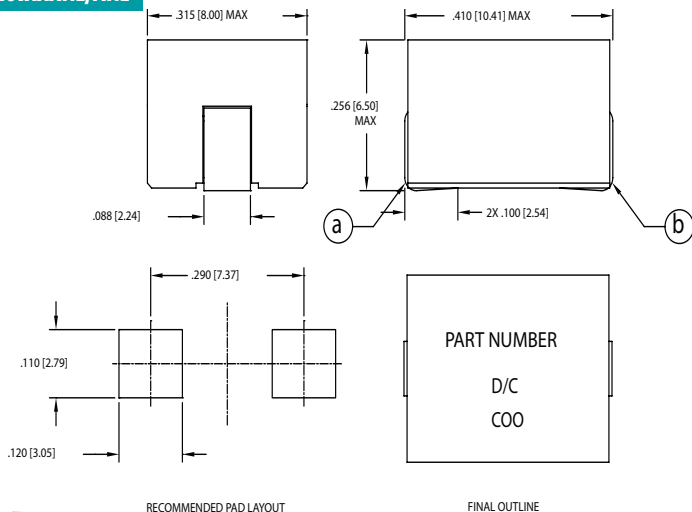
Notes:

- The rated current as listed is either the saturation current or the heating current depending on which value is lower.
- The nominal DCR tolerance is by design. The nominal DCR is measured from point (a) to point (b), as shown below on the mechanical drawing. The standard part PA1320. XXXNL has a DCR tolerance of +/-8%. A tighter DCR tolerance (+/-5%) part is available by changing the NL suffix to ANL (i.e. PA1320.121NL becomes PA1320.121ANL).
- The saturation current is the typical current which causes the inductance to drop by 20% at the stated ambient temperatures (25°C and 100°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 is the DC current which causes the part temperature to increase by approximately 40C. This current is determined by soldering the component on a typical application PCB, and then applying the current to the device for 30 minutes with 25LFM of forced air cooling.
- In high volt*time applications, additional heating in the component can occur due to core losses in the inductor which may necessitate derating the current in order to limit the temperature rise of the component. To determine the approximate total losses (or temperature rise) for a given application, the coreloss and temperature rise curves can be used.
- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. PA1320.121NL becomes PA1320.121NLT). Pulse complies to industry standard tape and reel specification EIA481.
- The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical

Schematic

PA1320.XXXNL/ANL

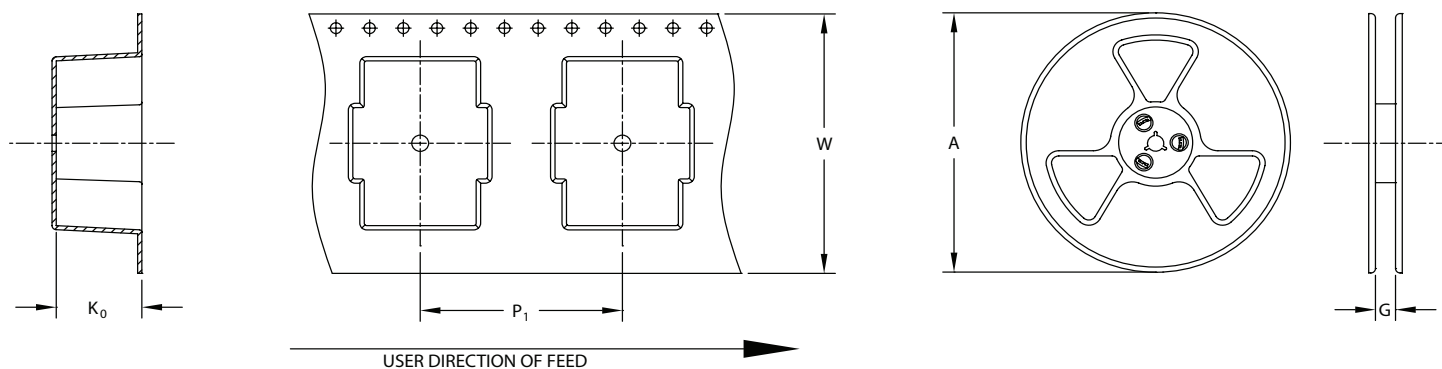


Weight2.05 grams
Tape & Reel750/reel

Dimensions: $\frac{\text{Inches}}{\text{mm}}$

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

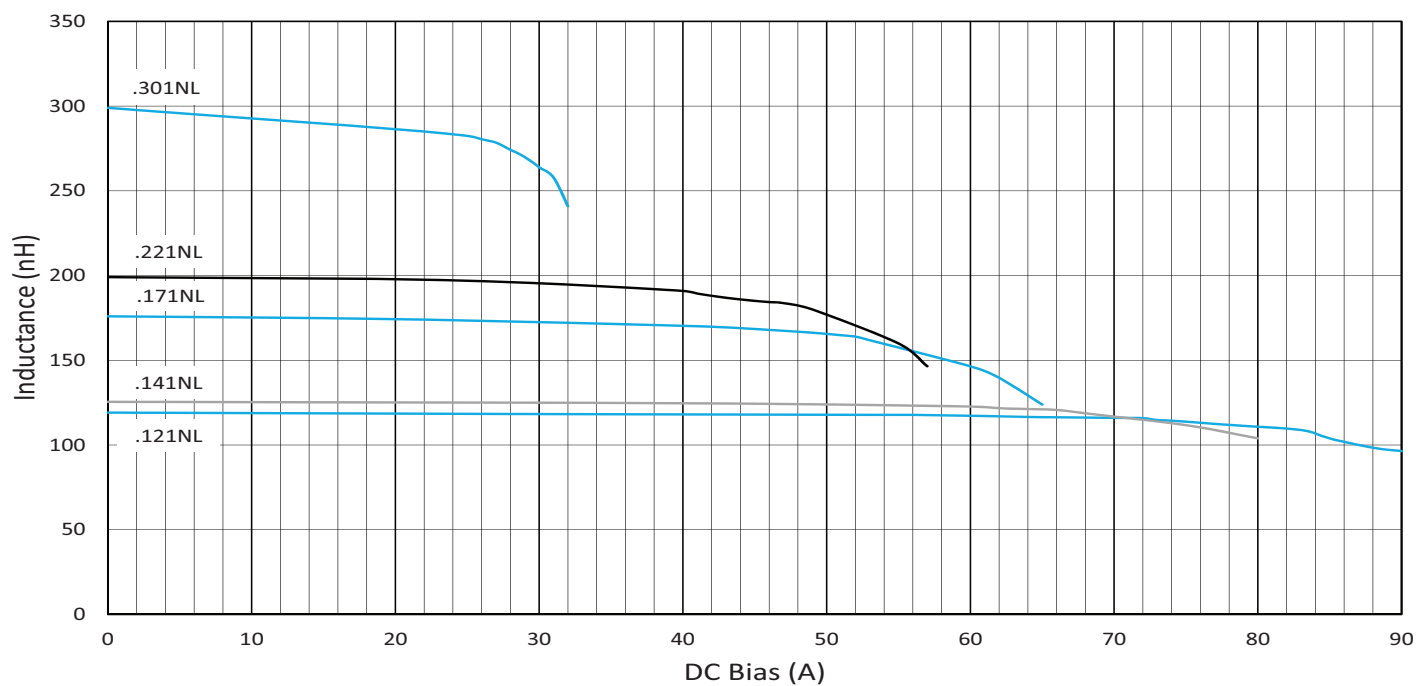
TAPE & REEL INFO



SURFACE MOUNTING TYPE, REEL/TAPE LIST

PART NUMBER	REEL SIZE (mm)		TAPE SIZE (mm)			QTY PCS/REEL
	A	G	P ₁	W	K ₀	
PA1320.XXXNL/PA1320.XXXANLT	Ø330	24.4	12	24	6.5	750

Typical Inductance vs DC Bias @ 25°C

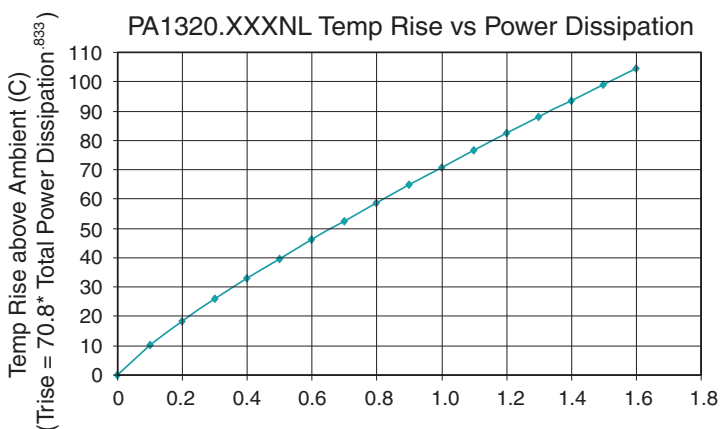
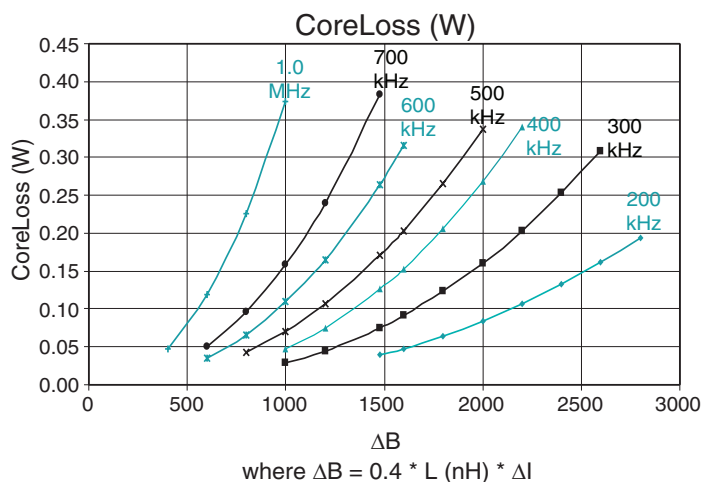
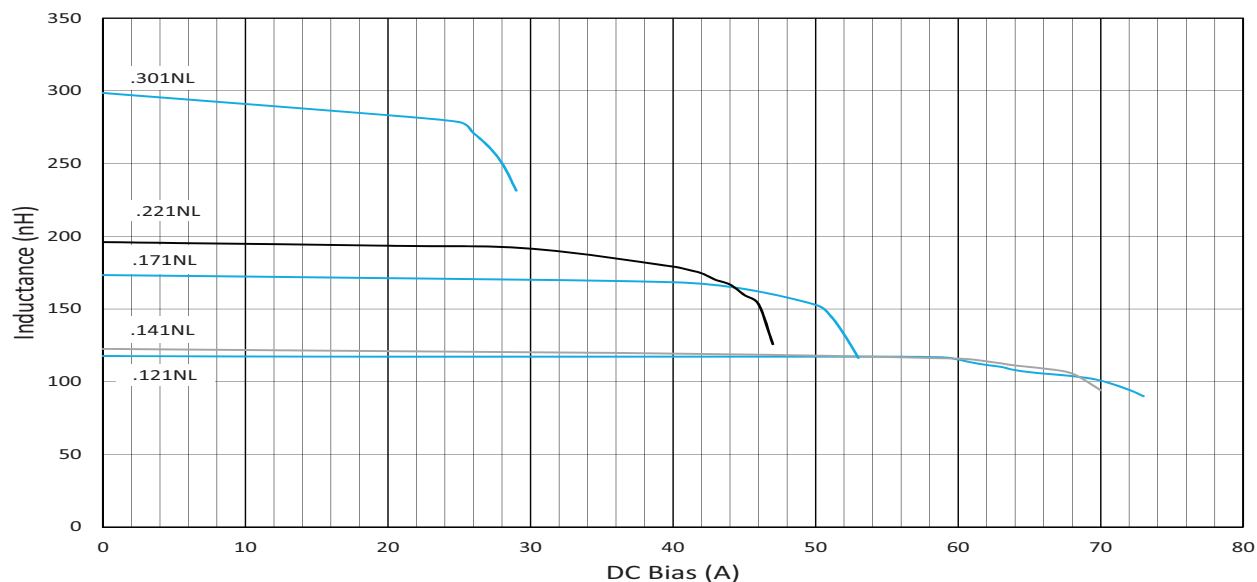


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Typical Inductance vs DC Bias @ 100°C



$$\text{Total Power Dissipation (W)} = \text{CopperLoss} + \text{CoreLoss}$$

$$\text{CopperLoss} = I_{\text{rms}}^2 * R_{\text{dc}} \text{ (m}\Omega\text{)} / 1000$$

$$\text{CoreLoss} = \text{(from table)}$$

For More Information

Pulse Worldwide Headquarters

15255 Innovation Drive Ste 100
San Diego, CA 92128
U.S.A.

Pulse Europe

Pulse Electronics GmbH
Am Rottland 12
58540 Meinerzhagen
Germany

Pulse China Headquarters

Pulse Electronics (ShenZhen) CO., LTD
D708, Shenzhen Academy of
Aerospace Technology,
The 10th Keji South Road,
Nanshan District, Shenzhen,
P.R. China 518057

Pulse North China

Room 2704/2705
Super Ocean Finance Ctr.
2067 Yan An Road West
Shanghai 200336
China

Pulse South Asia

3 Fraser Street 0428
DUO Tower
Singapore 189352

Pulse North Asia

1F., No.111 Xiyuan Road
Zhongli District
Taoyuan City 32057
Taiwan (R.O.C)

Tel: 858 674 8100
Fax: 858 674 8262

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

Tel: 86 755 33966678
Fax: 86 755 33966700

Tel: 86 21 62787060
Fax: 86 21 62786973

Tel: 65 6287 8998
Fax: 65 6280 0080

Tel: 886 3 4356768
Fax: 886 3 4356820

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