SMT Power Inductors
Power Beads - PA1320NL and PA1320ANL Series

RoHS COMPLIANT

- **Current Rating:** *Over 75Apk*
- **Inductance Range:** *120µH to 300µH*
- **Height:** *6.5mm Max*
- **Footprint:** *10.4mm x 8.0mm Max*
- **Halogen Free**

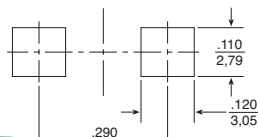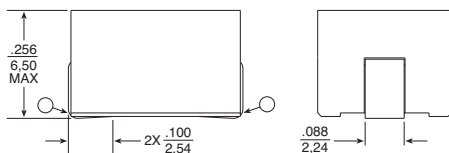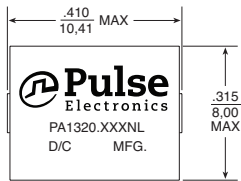## Electrical Specifications @ 25°C - Operating Temperature -40°C to +130°C [7]

Part Number	Inductance @ 0A$_{DC}$ (µH ±20%)	Inductance @ Irated (µH TYP)	Irated [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		74	65	
PA1320.141NL	140	140	40		66	52	
PA1320.171NL	180	174	40	0.48 ±8% (NL)	52	44	40
PA1320.221NL	215	185	40	0.47 ±5%(ANL)	50	42	
PA1320.301NL	310	250	30		30	26	

Notes:

1. The rated current as listed is either the saturation current or the heating current depending on which value is lower.
2. The nominal DCR tolerance is by design. The nominal DCR is measured from point ⓐ to point ⓑ, 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).
3. The saturation current is the typical current which causes the inductance to drop by 20% at the stated ambient temperatures (25C and 100C). 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.
4. 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.
5. 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.
6. 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.
7. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.
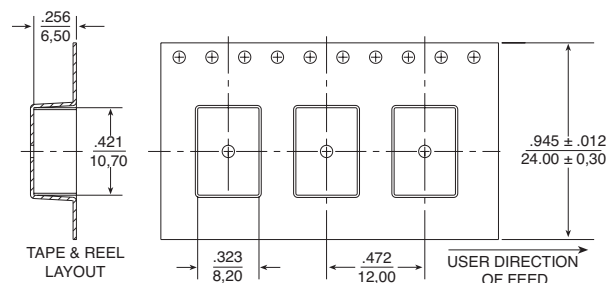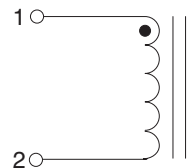
Mechanical

PA1320.XXXNL

Pulse Electronics
PA1320.XXXNL
D/C   MFG.

.410 / 10,41 MAX
.315 / 8,00 MAX

.256 / 6,50 MAX
2X .100 / 2,54
.088 / 2,24

.110 / 2,79
.120 / 3,05
.290 / 7,37

Weight ....2.05 grams
Tape & Reel 750/reel

Dimensions: $\dfrac{Inches}{mm}$

Unless otherwise specified, all tolerances are ± $\dfrac{.010}{0,25}$

.256 / 6,50
.421 / 10,70

TAPE & REEL LAYOUT

.323 / 8,20
.472 / 12,00
.945 ± .012 / 24.00 ± 0,30

USER DIRECTION OF FEED

Schematic

1
2

Pulse Electronics

SMT Power Inductors

Power Beads - PA1320NL and PA1320ANL Series

Typical Inductance vs DC Bias @ 25°C

Inductance (µH) vs DC Bias (A)

Curves: .301NL, .221NL, .171NL, .141NL, .121NL

Typical Inductance vs DC Bias @ 100°C

Inductance (µH) vs DC Bias (A)

Curves: .301NL, .221NL, .171NL, .141NL, .121NL

CoreLoss (W)

CoreLoss (W) vs ΔB

Curves: 1.0 MHz, 700 kHz, 600 kHz, 500 kHz, 400 kHz, 300 kHz, 200 kHz

where ΔB = 0.4 * L (µH) * ΔI

PA1320.XXXNL Temp Rise vs Power Dissipation

Temp Rise above Ambient (C)
$(Trise = 70.8 * Total\ Power\ Dissipation^{.833})$

Total Power Dissipation (W) = CopperLoss + CoreLoss
CopperLoss = $Irms^2$ * Rdc (m) / 1000
CoreLoss = (from table)

Pulse Electronics