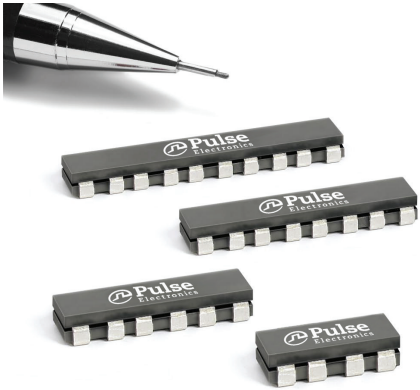


SMT Power Inductors

Power Beads - PA131xNL Series Coupled Inductors



- Ⓢ Gen 1.0 Coupled Inductors (2,3,4, and 5 phases)
- Ⓢ For use only with Volterra chipsets
- Ⓢ Coupled Inductors enabled:
 - Phase ripple current reduction due to AC magnetic field cancellation within the inductor core
 - Improved efficiency due to lower peak currents
 - Reduction in required output capacitance

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

| Part Number | Number of Coupled Phases | Equivalent ¹ Transient Inductance per Phase (μH ±20%) | I _{rated} ² per Phase (A _{dc}) | Open Circuit Ind. per Phase ³ μH ±20%, 0A _{dc} | | | | | Open Circuit Ind. per Phase ³ μH MIN, 5A _{dc} | | | | | DCR/Phase ⁴ (mΩ) | |
|-------------|--------------------------|--|--|---|-------|-------|-------|--------|--|-------|-------|-------|--------|--------------------------------|-----|
| | | | | L1 | L2 | L3 | L4 | L5 | L1 | L2 | L3 | L4 | L5 | TYP | MAX |
| | | | | (1-2) | (3-4) | (5-6) | (7-8) | (9-10) | (1-2) | (3-4) | (5-6) | (7-8) | (9-10) | | |
| PA1312NL | 2 | 50 | 40 | 310 | 310 | - | - | - | 240 | - | - | - | - | 0.425 | 0.5 |
| PA1313NL | 3 | 50 | 40 | 370 | 450 | 370 | - | - | 285 | 285 | 285 | - | - | | |
| PA1314NL | 4 | 50 | 40 | 370 | 490 | 490 | 370 | - | 285 | 385 | 385 | 285 | - | | |
| PA1315NL | 5 | 50 | 40 | 370 | 470 | 490 | 470 | 390 | 285 | 385 | 385 | 365 | 285 | | |

Notes:

1. In a non-coupled multi-phase topology, the power supply sees the same inductance during transient and steady-state conditions. As a result, any attempt to lower the inductance to improve transient response has the negative result of increasing ripple and peak currents throughout the system during steady-state operation. However, in a coupled inductor multi-phase topology, the interaction of magnetic fields from each phase enables an overall reduction in ripple current during steady-state operation and a lower equivalent inductance during transient operation. The equivalent transient inductance per phase, as listed, represents the actual value of inductance that would be required in a non-coupled topology to realize the same transient performance. This value is achieved by core and winding geometry and is not directly measured by Pulse. For more information on the operation of the coupled inductor topology, please contact Volterra..
2. The rate current per phase is based on Volterra's testing of the Pulse coupled inductors.
3. The open-circuit inductance per phase is the measured inductance (at specified current) across each phase when all other phases are open-circuit. The open circuit inductance is equal to the magnetizing inductance per phase (L_m) plus the equivalent transient inductance (L_k).
4. The nominal value of DCR/phase is for reference only. For production testing, the maximum limit is used..

SMT Power Inductors

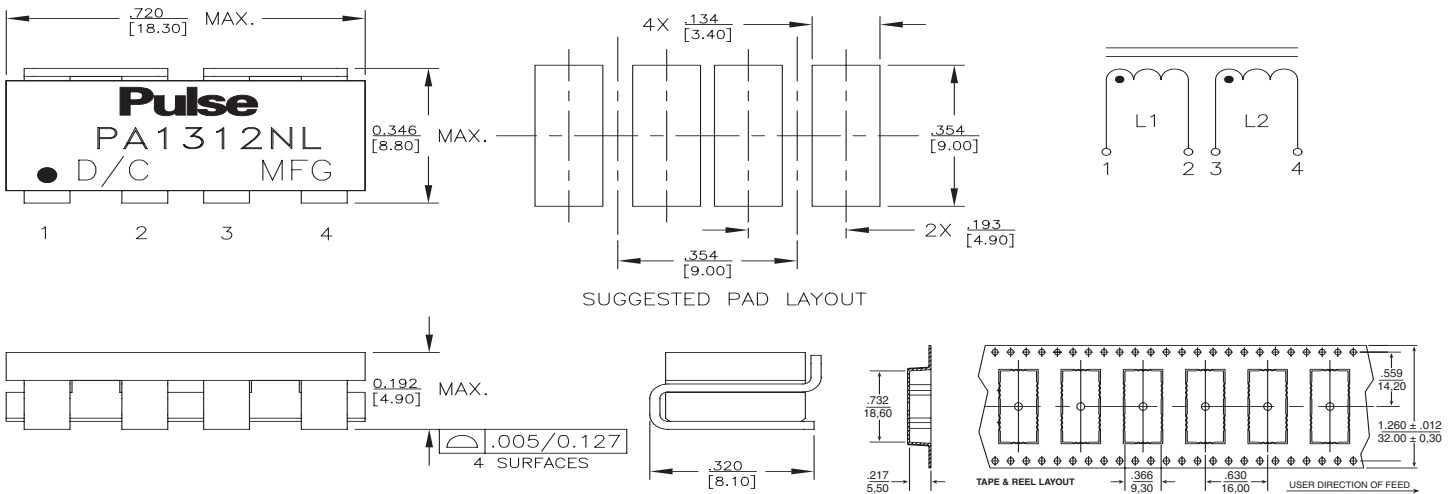
Power Beads - PA131xNL Series Coupled Inductors



Mechanical

Schematic

PA1312NL



Weight 3.0 grams

Tape & Reel 650/reel

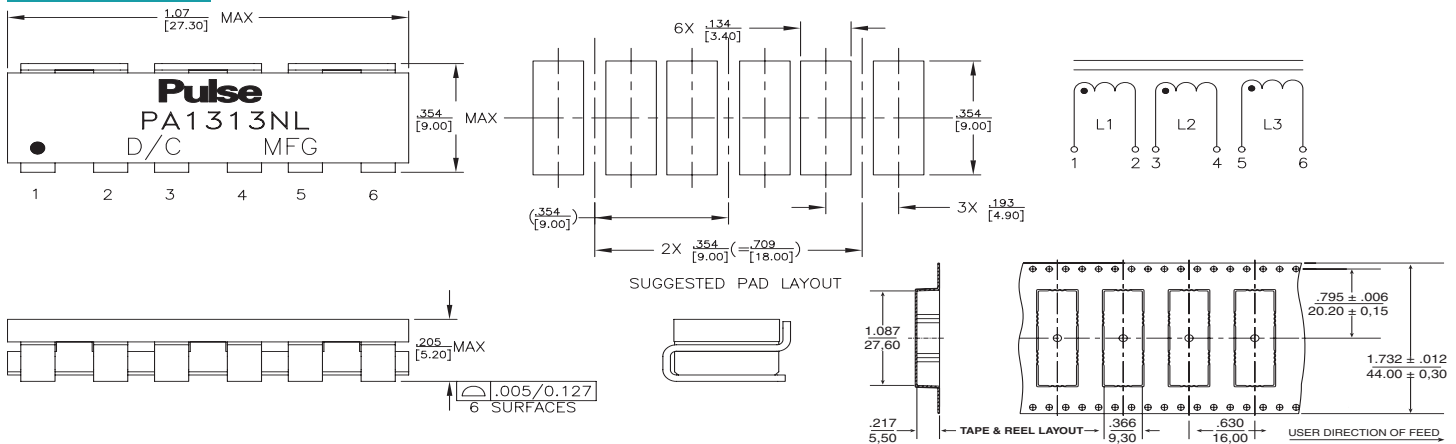
Tray 60/tray

Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified,
 all tolerances are: $\pm \frac{.010}{0.25}$

Mechanicals

Schematics

PA1313NL



Weight 4.5 grams

Tape & Reel 650/reel

Tray 45/tray

Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified,
 all tolerances are: $\pm \frac{.010}{0.25}$

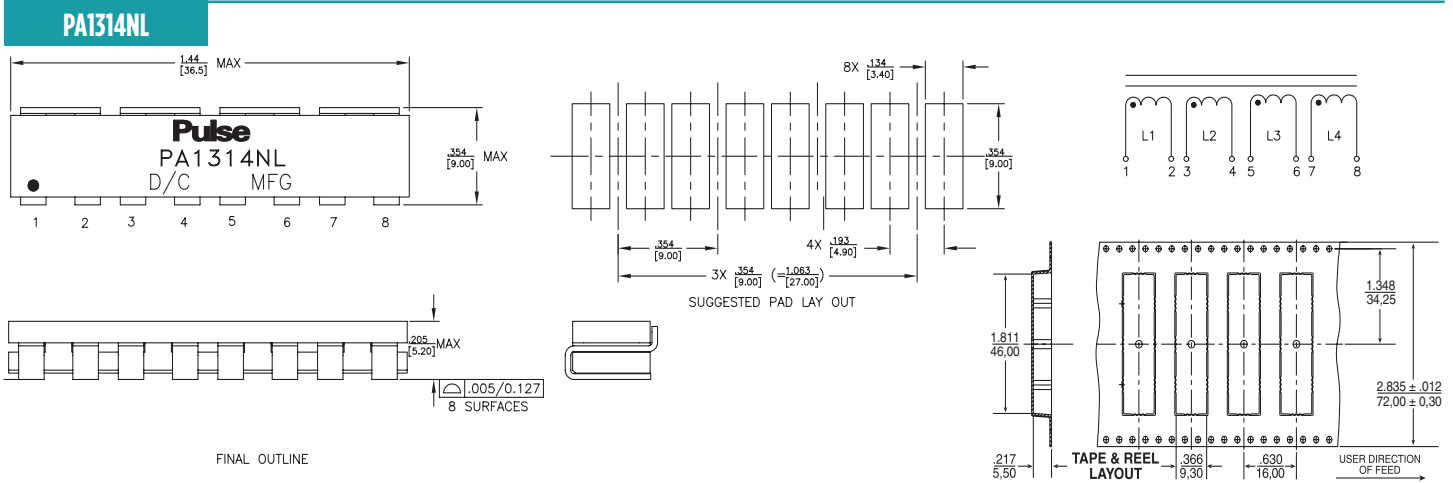
SMT Power Inductors

Power Beads - PA131xNL Series Coupled Inductors



Mechanicals (continued)

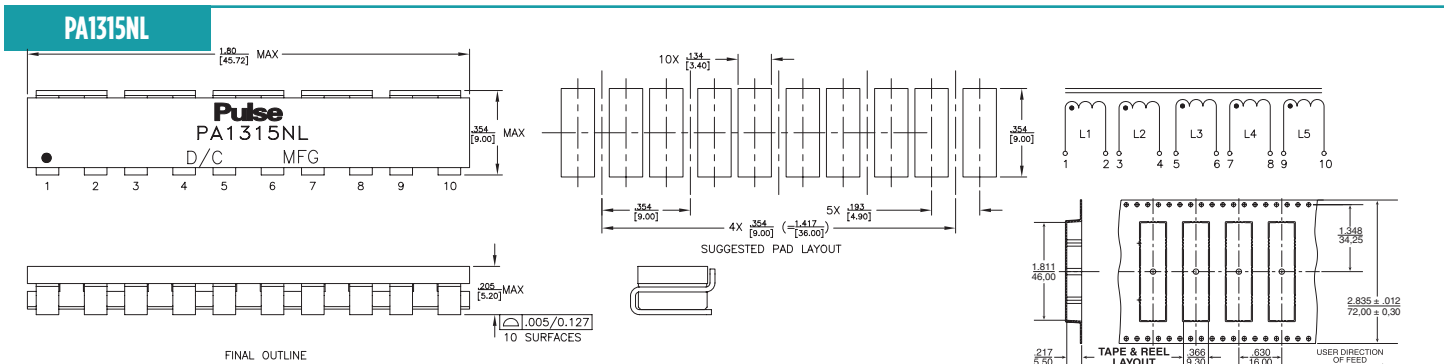
Schematics



Weight 4.5 grams
Tape & Reel550/reel
Tray30/tray
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified,
 all tolerances are: $\pm \frac{.010}{0,25}$

Mechanicals

Schematics



Weight 7.5 grams
Tape & Reel500/reel
Tray30/tray
Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified,
 all tolerances are: $\pm \frac{.010}{0,25}$

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 2162786973

Tel: 65 6287 8998
 Fax: 65 6280 0080

Tel: 886 3 4356768
 Fax: 886 3 4356820

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