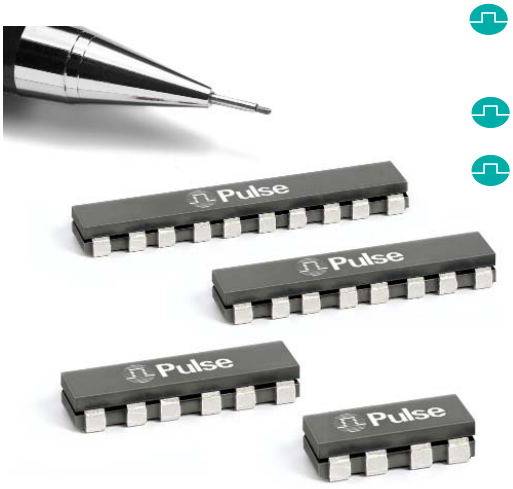
SMT POWER INDUCTORS

Power Beads - PA131xNL Series Coupled Inductors

Pulse® A TECHNITROL COMPANY



- Two, three, four and five phase Coupled Inductors for VR10/VR11 applications
- For use only with Volterra VT1105M®, VT1115M® chipsets
- **Coupled Inductors enable:**
  - Output 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
  - Faster transient response due to the ability to use lower effective inductance values
  - Reduced overshoot/undershoot during load transients
  - Frequency range up to 2MHz

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

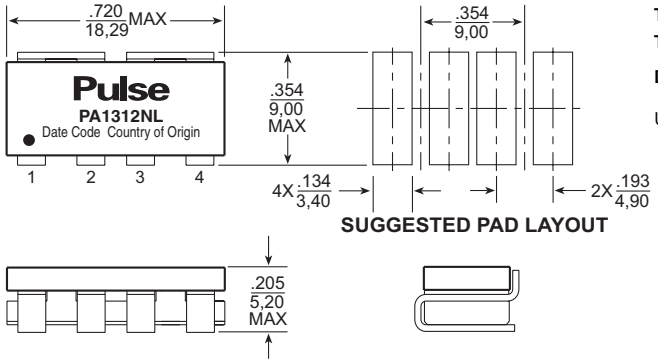
Pulse Part No.	Number of Coupled Phases	Equivalent[1] Transient Inductance per Phase (nH)	Irated[2] per Phase (Adc)	Magnetizing Inductance per Phase[3] nH ±15%, 0Adc					Magnetizing Inductance per Phase[4] nH MIN, 5Adc					DCR/Phase[5]	
				L1 (1-2)	L2 (3-4)	L3 (5-6)	L4 (7-8)	L5 (9-10)	L1 (1-2)	L2 (3-4)	L3 (5-6)	L4 (7-8)	L5 (9-10)	TYP	MAX
PA1312NL	2	50	40	300	300	-	-	-	240	240	-	-	-	0.425	0.5
PA1313NL	3	50	40	360	440	360	-	-	285	350	285	-	-		
PA1314NL	4	50	40	360	480	480	360	-	285	385	385	285	-		
PA1315NL	5	50	40	360	460	480	460	360	285	365	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 an 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 Volterrra.
2. The rated current per phase is based on Volterra's testing of the Pulse coupled inductors.
3. The magnetizing inductance per phase is the measured inductance (at 0Adc) across each phase when all other phases are open-circuit. This inductance is a Pulse production measurement. Although the equivalent inductance per phase during steady-state is significantly higher then the equivalent transient inductance as listed, it should not be confused with the magnetizing inductance.
4. The magnetizing inductance per phase is the measured inductance (at 5Adc) across each phase when all other phases are open-circuit. This inductance is a Pulse production measurement. This test is performed to verify that the inductor can withstand a phase-to-phase load imbalance of 5Adc without saturating.
5. The nominal value of DCR/phase is for reference only. For production testing, the maximum limit is used.
6. The VT1105M® and VT1115M® are registered trademarks of Volterra Semiconductor Corporation.

Mechanical

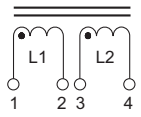
PA1312NL

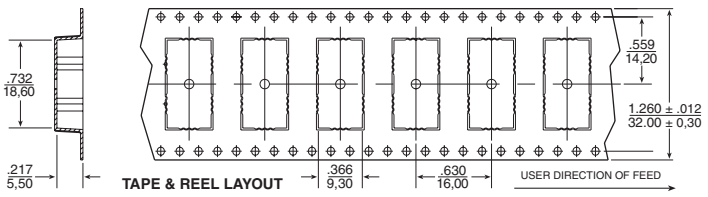


Weight . . . . . .3.0 grams
Tape & Reel 650/reel
Tray 60/tray
Dimensions: Inches / mm

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

Schematic





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Mechanical

Schematic

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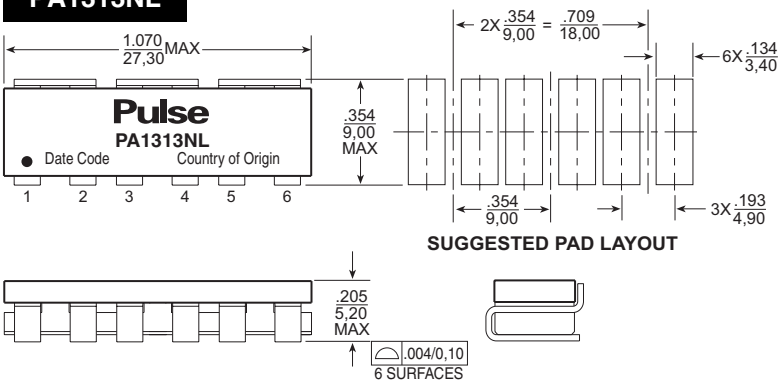
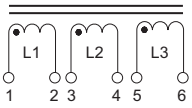
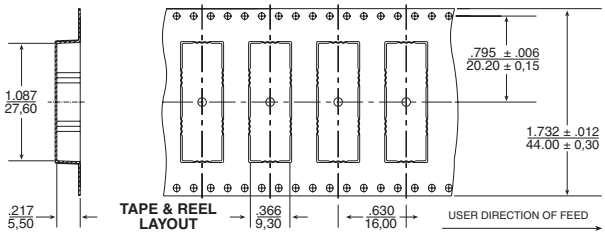
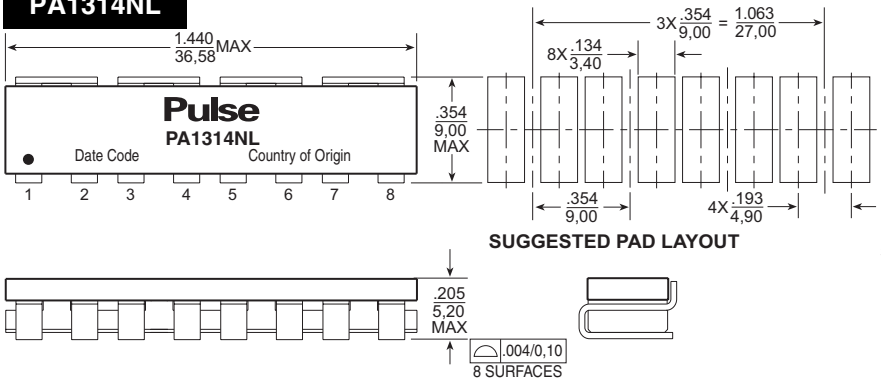


Weight . . . . . .4.5 grams
Tape & Reel 650/reel
Tray 45/tray

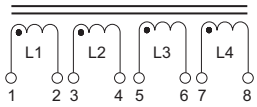


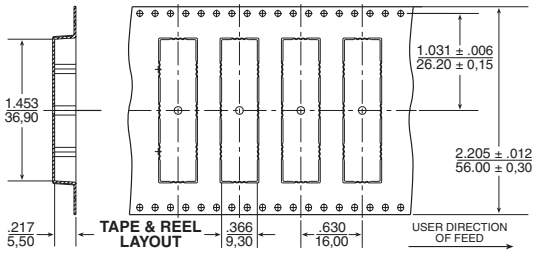


PA1314NL

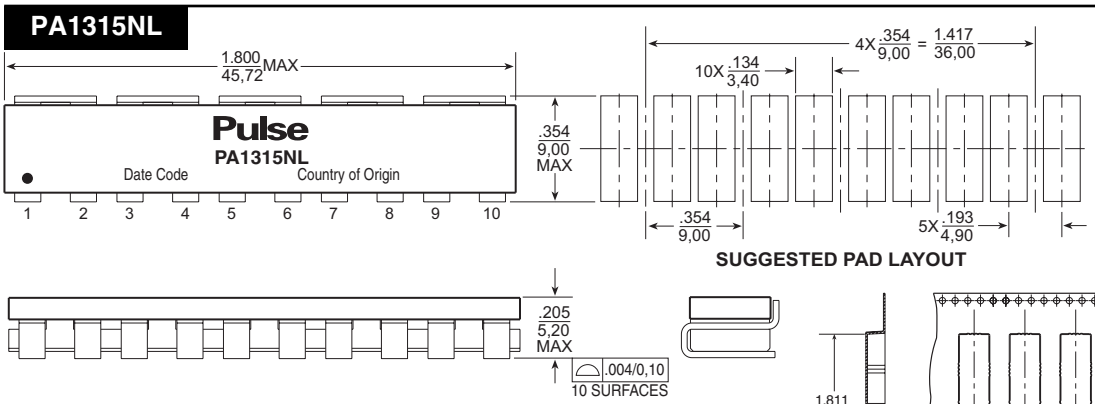


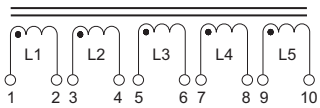
Weight . . . . . .6.0 grams
Tape & Reel . . .550/reel
Tray 30/tray



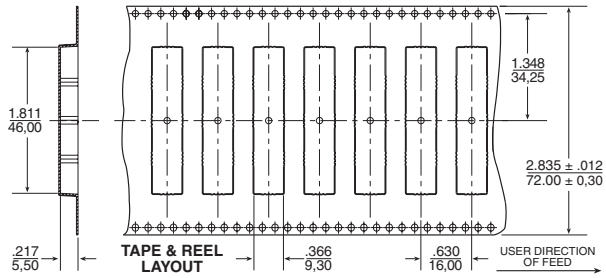


PA1315NL





Weight . . . . . .7.5 grams
Tape & Reel 500/reel
Tray 30/tray



All Part Numbers:

Dimensions: Inches / mm

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

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