SMT POWER INDUCTORS
Toroid - Polecat Series

Pulse
A TECHNITROL COMPANY

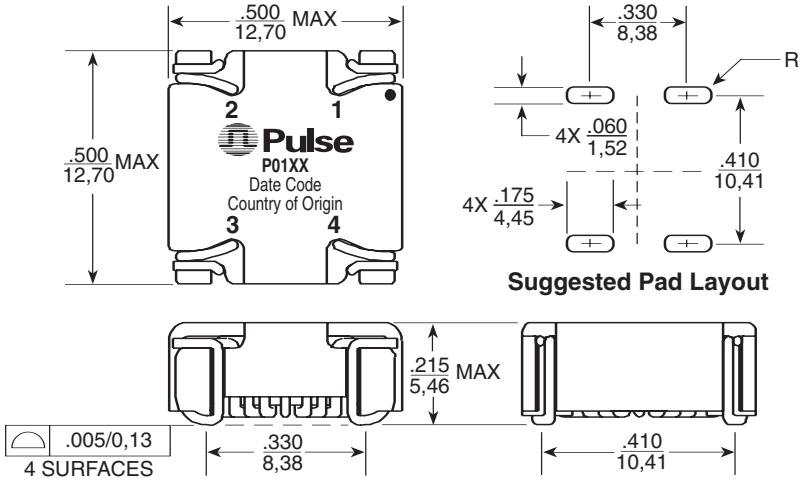
- **Height:** 5.5mm Max
- **Footprint:** 12.7mm x 12.7mm Max
- **Current Rating:** up to 8.3A
- **Inductance Range:** 2.0µH to 364µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [11]

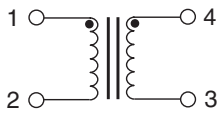
Part Number [9,10]	Inductance @ Irated (µH MIN)	Irated (A)	DCR (MAX) (mΩ)	ET (V-µsec)	Inductance @0ADC (µH ±10%)	100 Gauss ET_{100} (V-µsec)	1 Amp DC H_1 (Orsted)	Connection
P0174NL	2.0	8.30	7.6	7.31	2.2	1.20	5.43	Parallel
P0175NL	2.4	7.20	10.9	7.81	2.6	1.33	5.97	Parallel
P0176NL	5.0	5.20	19.0	11.72	5.5	1.93	8.69	Parallel
P0174NL	7.0	4.16	32.0	14.61	8.75	2.41	10.86	Series
P0177NL	9.3	3.80	29.8	16.12	10.4	2.65	11.95	Parallel
P0175NL	8.4	3.78	43.6	15.62	10.4	2.65	11.95	Series
P0178NL	14.1	3.10	45.3	19.73	15.7	3.25	14.66	Parallel
P0179NL	19.8	2.60	66.3	23.45	22.1	3.86	17.38	Parallel
P0176NL	17.9	2.60	76.0	23.43	22.45	3.86	17.38	Series
P0180NL	29.3	2.20	106	28.50	32.8	4.70	21.18	Parallel
P0177NL	33.8	1.89	120	32.25	41.7	5.30	23.89	Series
P0181NL	42.6	1.80	151	34.49	47.6	5.66	25.52	Parallel
P0178NL	50.9	1.54	182	39.46	62.8	6.51	29.32	Series
P0182NL	61.3	1.50	224	40.85	67.5	6.75	30.41	Parallel
P0179NL	71.5	1.30	266	46.90	88.2	7.71	34.75	Series
P0183NL	84.2	1.20	324	46.22	91.0	7.83	35.30	Parallel
P0180NL	106.1	1.07	404	57.00	131.0	9.40	42.36	Series
P0181NL	154.2	0.89	604	68.99	190.3	11.33	51.05	Series
P0182NL	218.9	0.74	888	81.70	270.2	13.50	60.82	Series
P0183NL	295.0	0.64	1272	92.43	364.0	15.66	70.59	Series

NOTES:
1. Temperature rise is 50°C in typical buck or boost circuits at 250kHz and with the reference ET applied to the inductor.
2. Total loss in the inductor is 380mW for a 50°C temperature rise above ambient.
3. To estimate temperature rise in a given application, determine copper and core losses, divide by 380 and multiply by 50.
4. For the copper loss (mW), calculate I_{DC}^2 X R_N.
5. For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate $6.11 \times 10^{-18} \times B^{2.7} \times f^{2.04}$.
6. For flux density (B in Gauss), calculate ET (V-µsec) for the application, divide by ET_{100} from the table, and multiply by 100.
7. Limit the DC bias (H) to 46 orsteds. Calculate H by multiplying H_1 from the table by I_{DC} of the application.
8. The maximum DCR listed is approximately 17% over the nominal DCR.
9. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0174NL becomes P0174NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
10. 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.
11. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical



Schematic



Weight . . . . . 1.5 grams
Tape & Reel. 500/reel
Tube 35/tube

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25