





SMT Power Inductors

Toroid - Polecat Series



-  **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°C¹¹

| Part ^{9,10} Number | 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 H1 (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 $IDC^2 * RN$.
5. For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate $6.11 * 10^{-18} * B^{2.7} * f^{2.04}$.
6. For flux density (B in Gauss), calculate ET (V-sec) for the application, divide by ET_{100} from the table, and multiply by 100.
7. Limit the DC bias (H) to 46 orstedts. Calculate H by multiplying H1 from the table IDC 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 P0174NLT).
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.

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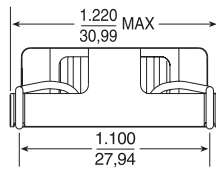
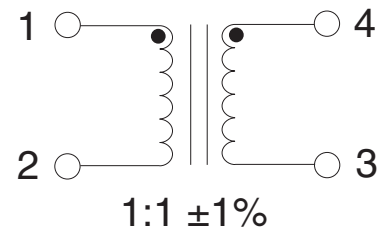
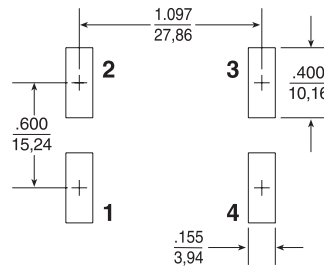
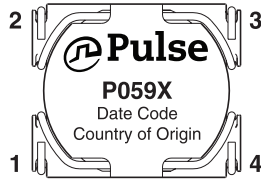
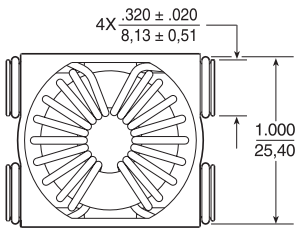
Toroid - Polecat Series



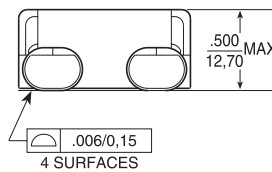
Mechanical

Schematic

POTXXNL



SUGGESTED PAD LAYOUT



Weight1.5grams
 Tape & Reel500/reel
 Tube35/tube
 Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified,
 all tolerances are: $\pm \frac{0.10}{0.25}$

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- Доставку товара в любую точку России и стран СНГ.
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- Изготовление тестовой платы монтаж и пусконаладочные работы.



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