





SMT POWER INDUCTORS

Toroid - Bobcat Series



-  **Height:** 5.5mm Max
-  **Footprint:** 12.7mm x 12.7mm Max
-  **Current Rating:** up to 3.8A
-  **Inductance Range:** 9.4µH to 439µH

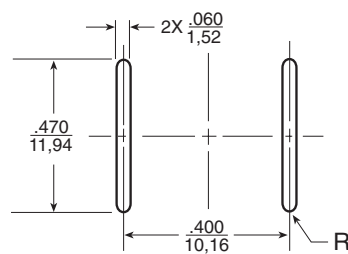
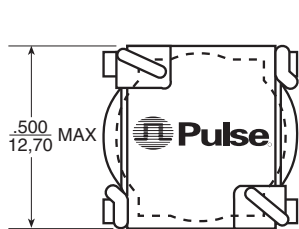
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C ¹¹

| Part Number ^{9,10} | Inductance @ Irated (µH) | Irated (A) | DCR (mΩ) | | ET (V-µsec) | Inductance @ 0A _{DC} (µH ±20%) | 100 Gauss ET ₁₀₀ (V-µsec) | 1 Amp DC H _i (Orsted) |
|-----------------------------|--------------------------|------------|----------|------|-------------|---|--------------------------------------|----------------------------------|
| | | | TYP | MAX | | | | |
| P0144NL | 9.4 | 3.80 | 27 | 31 | 15.2 | 10.4 | 2.65 | 11.95 |
| P0145NL | 13.3 | 3.13 | 40 | 46 | 18.8 | 14.6 | 3.13 | 14.12 |
| P0146NL | 23 | 2.43 | 65 | 75 | 24.3 | 25 | 4.10 | 18.46 |
| P0147NL | 50 | 1.65 | 121 | 139 | 37.0 | 56 | 6.15 | 27.69 |
| P0148NL | 75 | 1.35 | 181 | 208 | 44.3 | 83 | 7.47 | 33.67 |
| P0149NL | 90 | 1.23 | 246 | 283 | 49.2 | 100 | 8.19 | 36.93 |
| P0150NL | 137 | 0.99 | 387 | 445 | 59.4 | 152 | 10.12 | 45.61 |
| P0151NL | 200 | 0.81 | 585 | 673 | 71.3 | 220 | 12.17 | 54.85 |
| P0152NL | 305 | 0.65 | 845 | 972 | 85.8 | 331 | 14.94 | 67.34 |
| P0153NL | 439 | 0.53 | 1322 | 1520 | 99.6 | 472 | 17.83 | 80.37 |

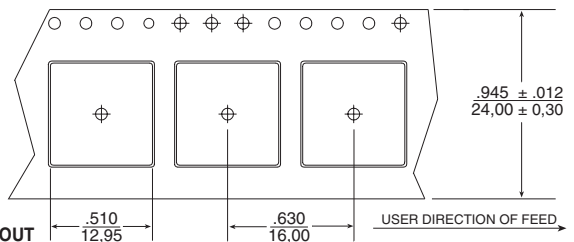
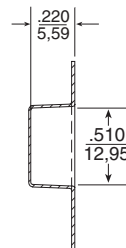
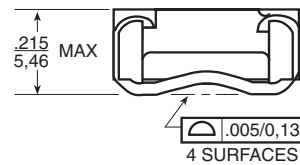
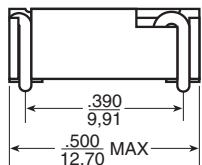
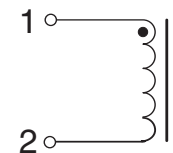
- NOTES:**
- The reference inductance at rated DC current is a typical value.
 - Temperature rise is 50°C in typical buck or boost circuits at 250kHz and with the reference ET applied to the inductor.
 - Total loss in the inductor is 380mW for 50°C temperature rise above ambient.
 - To estimate temperature rise in a given application, determine copper and core losses, divide by 380 and multiply by 50.
 - For the copper loss (mW), calculate $I_{DC}^2 \times R_{DC}$.
 - For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate $6.11 \times 10^{-18} \times B^{2.7} \times f^{2.04}$.
 - For flux density (B in Gauss), calculate ET (V-µsec) for the application, divide by ET₁₀₀ from the table, and multiply by 100.
 - Limit the DC bias (H) to 46 orsted. Calculate H by multiplying H_i from the table by I_{DC} of the application.
 - Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. P0144NL becomes P0144NLT). Pulse complies to industry standard tape and reel specification EIA481.
 - 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.
 - The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical

Schematic



Suggested Pad Layout



TAPE & REEL LAYOUT

Weight 1.5 grams
 Tape & Reel 500/reel
 Tube 40/tube
 Dimensions: Inches
 mm

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