

# 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<sup>11</sup>

Part Number	Inductance @ Irated (μH)	Irated (A)	DCR (m Ω)		ET (V-μsec)	Inductance @ OADC (μH ±20%)	100 Gauss ET <sub>100</sub> (V-μsec)	1 Amp DC H <sub>1</sub> (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:**

- 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  $IDC^2 * RN$ .
- For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate  $6.11 * 10^{-18} * B^{2.7} * f^{2.04}$
- For flux density (B in Gauss), calculate ET (V-sec) for the application, divide by ET<sub>100</sub> from the table, and multiply by 100. Limit the DC bias (H) to 46 orsted. Calculate H by multiplying H<sub>1</sub> from the table IDC of the application.
- Limit the DC bias (H) to 46 orsted. Calculate H by multiplying H<sub>1</sub> from the table by I<sub>dc</sub> of the application.
- Optional Tape & Reel application 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.

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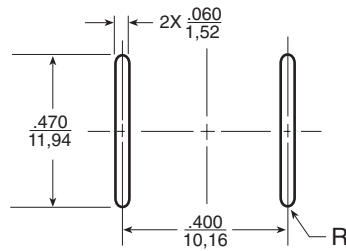
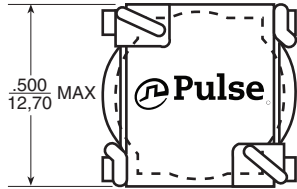
Toroid - Bobcat Series



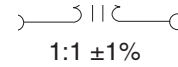
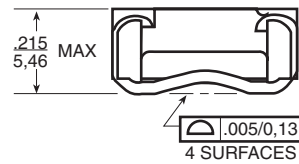
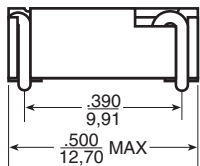
## Mechanical

## Schematic

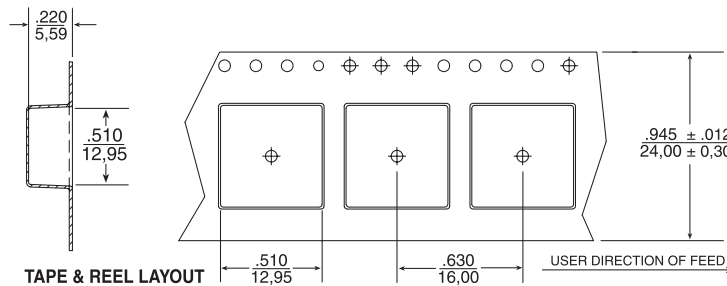
PXXXXXNL



Suggested Pad Layout



Weight .....1.5grams  
 Tape & Reel .....500/reel  
 Tube .....40/tube  
 Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are:  $\pm \frac{.010}{0.25}$



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