

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°C¹¹

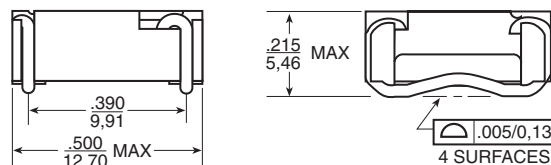
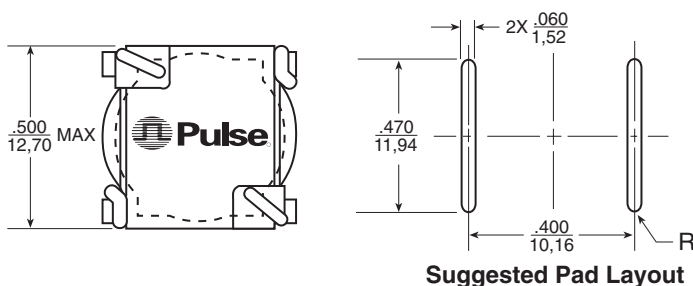
Part Number ^{9,10}	Inductance @ I _{rated} (μH)	I _{rated} (A)	DCR (mΩ)		ET (V-μsec)	Inductance @ 0A _{DC} (μH ±20%)	100 Gauss ET ₁₀₀ (V-μsec)	1 Amp DC H ₁ (Orsted)
			TYP	MAX				
P0144	9.4	3.80	27	31	15.2	10.4	2.65	11.95
P0145	13.3	3.13	40	46	18.8	14.6	3.13	14.12
P0146	23	2.43	65	75	24.3	25	4.10	18.46
P0147	50	1.65	121	139	37.0	56	6.15	27.69
P0148	75	1.35	181	208	44.3	83	7.47	33.67
P0149	90	1.23	246	283	49.2	100	8.19	36.93
P0150	137	0.99	387	445	59.4	152	10.12	45.61
P0151	200	0.81	585	673	71.3	220	12.17	54.85
P0152	305	0.65	845	972	85.8	331	14.94	67.34
P0153	439	0.53	1322	1520	99.6	472	17.83	80.37

- NOTES:**
1. The reference inductance at rated DC current is a typical value.
 2. Temperature rise is 50°C in typical buck or boost circuits at 250kHz and with the reference ET applied to the inductor.
 3. Total loss in the inductor is 380mW for 50°C temperature rise above ambient.
 4. To estimate temperature rise in a given application, determine copper and core losses, divide by 380 and multiply by 50.
 5. For the copper loss (mW), calculate $I_{OC}^2 \times R_{DC}$.
 6. For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate $6.11 \times 10^{-18} \times B^{2.7} \times f^{2.04}$.
 7. For flux density (B in Gauss), calculate ET (V-μsec) for the application, divide by ET₁₀₀ from the table, and multiply by 100.

8. Limit the DC bias (H) to 46 orsted. Calculate H by multiplying H₁ from the table by I_{OC} of the application.
9. Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. P0144 becomes P0144T). Pulse complies to industry standard tape and reel specification EIA481.
10. To order RoHS compliant part, add the suffix "NL" to the part number (i.e. P0144 becomes P0144NL and P0144T becomes P0144NLT).
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 40/tube

Dimensions: Inches
mm

Unless otherwise specified, all tolerances are ± .010
0.25

