

# SMT POWER INDUCTORS

## Toroid - Tomcat Series



-  **Height:** 7.6mm Max
-  **Footprint:** 18.2mm x 15.0mm Max
-  **Current Rating:** up to 14.4A
-  **Inductance Range:** 1.5μH to 139μH

### Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C<sup>10</sup>

Part Number <sup>8,9</sup>	Inductance @ I <sub>rated</sub> (μH)	I <sub>rated</sub> (A)	DCR (TYP) (mΩ)	ET (V-μsec)	Storage Capacity (μJoules)	Inductance @ 0A <sub>dc</sub> (μH ±20%)	100 Gauss ET <sub>100</sub> (V-μsec)	1 Amp DC H <sub>1</sub> (Orsted)	Connection
P0395NL	1.5	14.40	4.41	4.80	159.01	2.2	1.71	3.77	Parallel
P0396NL	2.4	11.20	6.54	6.00	152.83	3.5	2.14	4.71	Parallel
P0397NL	4.2	8.20	10.47	7.85	142.57	5.9	2.78	6.12	Parallel
P0398NL	5.8	6.80	14.94	9.05	133.80	7.9	3.21	7.06	Parallel
P0395NL	6.1	7.20	17.60	9.60	159.01	9.0	3.42	7.53	Series
P0399NL	7.6	5.70	20.99	10.25	124.18	10.1	3.64	8.00	Parallel
P0396NL	9.7	5.60	26.20	12.00	152.83	14.0	4.28	9.42	Series
P0400NL	12.1	5.40	23.24	13.85	176.62	18.5	4.92	10.83	Parallel
P0397NL	17.0	4.10	41.90	15.70	142.57	23.7	5.56	12.24	Series
P0401NL	18.0	4.40	38.15	16.50	174.26	27.4	5.99	13.18	Parallel
P0398NL	23.1	3.40	59.70	18.10	133.80	31.5	6.42	14.12	Series
P0402NL	27.0	3.54	53.21	20.50	169.14	40.5	7.27	16.01	Parallel
P0399NL	30.6	2.85	84.00	20.50	124.18	40.5	7.27	16.01	Series
P0403NL	34.8	3.00	73.89	22.50	156.47	50.5	8.13	17.89	Parallel
P0400NL	48.5	2.70	93.00	27.70	176.62	74.1	9.84	21.66	Series
P0401NL	72.0	2.20	152.60	33.00	174.26	109.8	11.98	26.36	Series
P0403NL	139.1	1.50	295.60	45.00	156.47	202.2	16.26	35.78	Series
P0402NL	108.0	1.77	212.80	41.00	169.14	161.8	14.55	32.01	Series

#### NOTES:

- The reference inductance is a typical value at the AC and DC excitation listed.
- Temperature rise is 55°C in typical buck or boost circuits at 100kHz and with the reference ET applied to the inductor.
- Total loss in the inductor is 634mW for a 55°C temperature rise above ambient.
- To estimate temperature rise in a given application, determine copper and core losses, divide by 634 and multiply by 50.
- For the copper loss (mW), calculate  $I_{oc}^2 \times R_N$ .
- For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate  $2.24 \times 10^{-10} \times B^{2.11} \times f^{1.26}$ .
- For flux density (B in Gauss), calculate ET (V-μsec) for the application, divide by ET<sub>100</sub> from the table, and multiply by 100.
- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. P0395NL becomes P0395NLT). 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



Weight . . . . . 4.2 grams  
Tape & Reel . . . . . 300/reel  
Tube . . . . . 35/tube

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

