

# 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 +125°C

Part <sup>8,9</sup> Number	Inductance @ Irated (μH)	Irated (A)	DCR (TYP) (mΩ)	ET (V-μsec)	Storage Capacity (μJoules)	Inductance @ 0 <sub>abc</sub> (μH ±20%)	100 Gauss ET <sub>100</sub> (V-μsec)	1 Amp DC H <sub>i</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:

1. The reference inductance is a typical value at the AC and DC exhibition listed.
2. Temperature rise is 55°C in typical buck or boost circuits at 100kHz and with the reference ET applied to the inductor.
3. Total loss in the inductor is 634mW for a 55°C temperature rise above ambient.
4. To estimate temperature rise in a given application, determine copper and core losses, divide by 634 and multiply by 50.
5. For the copper loss (mW), calculate  $IDC^2 * RN$ .
6. For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate  $2.24 * 10^{-10} * B^{2.31} * f^{1.26}$ .
7. For flux density (B in Gauss), calculate ET (V-μsec) for the applications, divide by ET100 from the table, and multiply by 100.
8. 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.
9. 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.
10. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.  
\* Contact Pulse for availability

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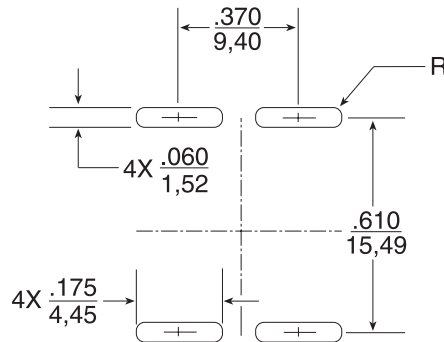
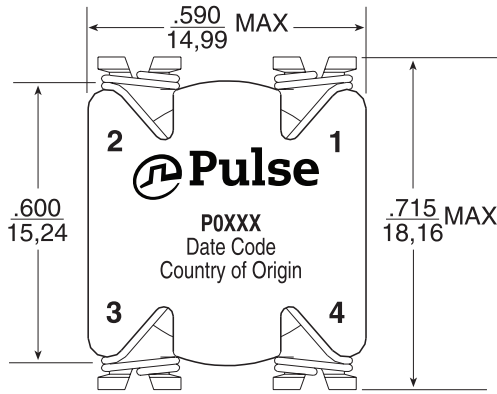
Toroid - Tomcat Series



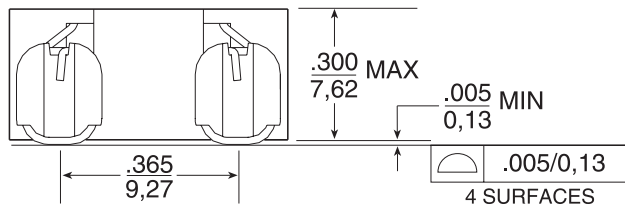
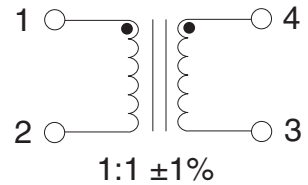
## Mechanical

## Schematic

PXXXXNL



Suggested Pad Layout



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

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are:  $\pm \frac{0,10}{0,25}$

### For More Information

#### Pulse Worldwide Headquarters

15255 Innovation Drive Ste 100  
San Diego, CA 92128  
U.S.A.

#### Pulse Europe

Pulse Electronics GmbH  
Am Rottland 12  
58540 Meinerzhagen  
Germany

#### Pulse China Headquarters

Pulse Electronics (ShenZhen) CO., LTD  
D708, Shenzhen Academy of  
Aerospace Technology,  
The 10th Keji South Road,  
Nanshan District, Shenzhen,  
P.R. China 518057

#### Pulse North China

Room 2704/2705  
Super Ocean Finance Ctr.  
2067 Yan An Road West  
Shanghai 200336  
China

#### Pulse South Asia

3 Fraser Street 0428  
DUO Tower  
Singapore 189352

#### Pulse North Asia

1F., No.111 Xiyuan Road  
Zhongli District  
Taoyuan City 32057  
Taiwan (R.O.C)

Tel: 858 674 8100  
Fax: 858 674 8262

Tel: 49 2354 777 100  
Fax: 49 2354 777 168

Tel: 86 755 33966678  
Fax: 86 755 33966700

Tel: 86 21 62787060  
Fax: 86 2162786973

Tel: 65 6287 8998  
Fax: 65 6280 0080

Tel: 886 3 4356768  
Fax: 886 3 4356820

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