

# SMT Power Inductors

Toroid - Ruggedized POGO Series.

Ruggedized



- Ruggedized header with POGO pins for secure board mounting
- Current Rating: up to 14.4ADC
- Inductance Range: 1.5μH to 139μH.
- Moisture Sensitivity Level: 1

Electrical Specifications 25°C — Operating Temperature -40°C to +130°C									
Part #	Inductance @ I <sub>rated</sub> (μH)	I <sub>rated</sub> (A)	DCR (TYP) (mΩ)	ET (V-μsec)	Storage Capacity (μJoules)	Inductance @ 0ADC (μH ±20%)	100 Gauss ET <sub>100</sub> (V-μsec)	1 Amp DC H <sub>1</sub> (Orsted)	Connection
<b>Pogo 40</b>									
PL8700	1.5	14.40	4.41	4.80	159.01	2.2	1.71	3.77	Parallel
	6.1	7.20	17.60	9.60	159.01	9.0	3.42	7.53	Series
PL8701	2.4	9.40	6.54	6.00	152.83	3.5	2.14	4.71	Parallel
	9.7	5.60	26.20	12.00	152.83	14.0	4.28	9.42	Series
PL8702	4.2	8.10	10.47	7.85	142.57	5.9	2.78	6.12	Parallel
	17.0	4.10	41.90	15.70	142.57	23.7	5.56	12.24	Series
PL8703	5.8	6.80	14.94	9.05	133.80	7.9	3.21	7.06	Parallel
	23.1	3.40	59.70	18.10	133.80	31.5	6.42	14.12	Series
PL8704	7.6	5.70	20.99	10.25	124.18	10.1	3.64	8.00	Parallel
	30.6	2.85	84.00	20.50	124.18	40.5	7.27	16.01	Series
PL8705	12.1	5.20	23.24	13.85	176.62	18.5	4.92	10.83	Parallel
	48.5	2.70	93.00	27.70	176.62	74.1	9.84	21.66	Series
PL8706	18.0	4.20	38.15	16.50	174.26	27.4	5.99	13.18	Parallel
	72.0	2.20	152.60	33.00	174.26	109.8	11.98	26.36	Series
PL8707	27.0	3.30	53.21	20.50	169.14	40.5	7.27	16.01	Parallel
	108.0	1.77	212.80	41.00	169.14	161.8	14.55	32.01	Series
PL8708	34.8	2.30	73.89	22.50	156.47	50.5	8.13	17.89	Parallel
	139.1	1.50	295.60	45.00	156.47	202.2	16.26	35.78	Series

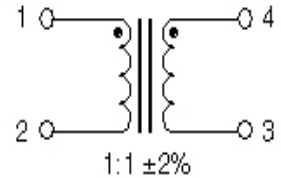
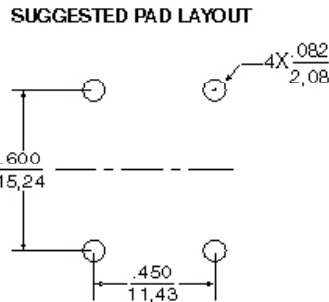
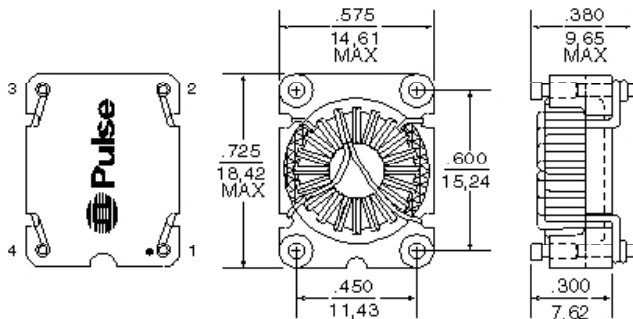
**NOTES:**

- 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 634mWatts 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, calculate  $I_{DC}^2 \times R_N$
- 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), calculate ET (V-μsec) for the application, divide by  $ET_{100}$  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. PL8700 becomes PL8700T). Pulse complies to industry standard tape and reel specification EIA481.

## Mechanical

## Schematic

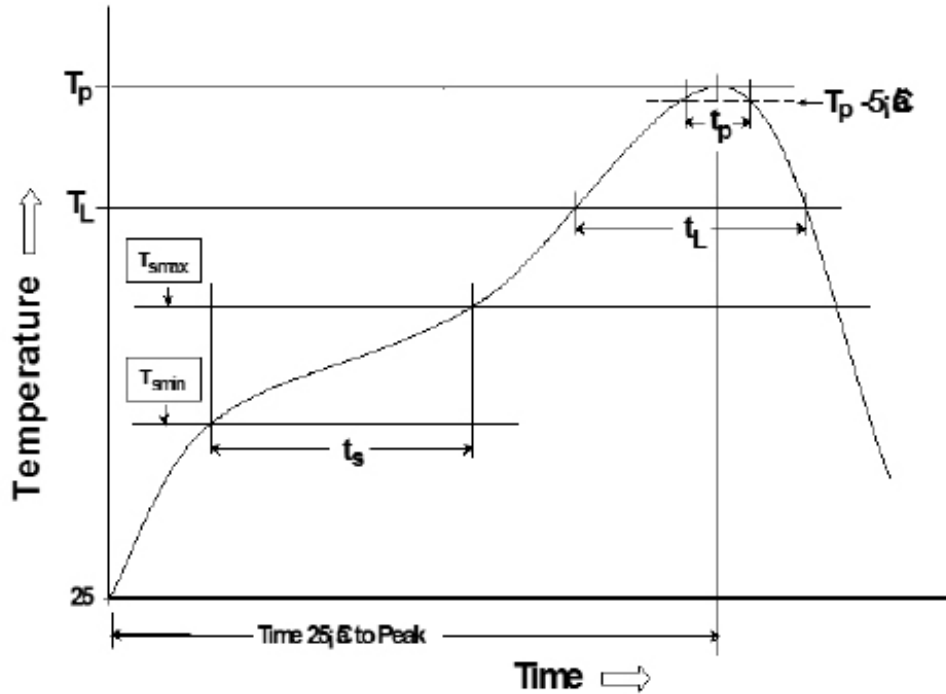
### PL870X



Tube.....30/tube  
Tape & Reel .....300/reel

Dimensions: Inches  
mm  
Unless otherwise specified, all tolerances are ±.010  
0,25

## Transceiver Tin/Lead Recommended Reflow Profile (Based on J-STD-020D)



$T_{SMIN}$ (°C)	$T_{SMAX}$ (°C)	$T_L$ (°C)	$T_P$ (°C MAX)	$t_s$ (s)	$t_L$ (s)	$t_p$ (s MAX)	Ramp-up rate ( $T_L$ to $T_P$ )	Ramp-down rate ( $T_P$ to $T_L$ )	Time 25°C to peak temperature (s MAX)
100	150	183	225	60-120	60-150	20	3°C/s MAX	6°C/s MAX	360

**Notes:**

1. All temperatures measured on the package leads.
2. Maximum times of reflow cycle: 2.

### For More Information

Pulse North America  
Headquarters  
Two Pearl Buck Court  
Bristol, PA 19007  
U.S.A.

For Global Sales Representative and Locations Visit:  
<http://www.pulseruggedized.com>

Tel: +1.215. 781. 6400  
Fax: +1.215. 781. 6403

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