





SMT POWER INDUCTORS

Toroid - Military/Aerospace HCCI-80 Series



-  **Height:** 12.7mm Max
-  **Footprint:** 31.0mm x 25.4mm Max
-  **Current Rating:** up to 38A
-  **Inductance Range:** 1.1μH to 18.1μH

Electrical Specifications @ 25°C — Operating Temperature -55°C to +130°C

Pulse ⁴ Part Number	Inductance @ Irated (μH)	Irated (A)	DCR (mΩ)		Inductance @ 0Apc (μH)	Reference ET (Volt-μsec)	Flux Density Factor (K1)	Core Loss Factor (K2)	Temp. Rise Factor (K3)	Connection
			TYP	MAX						
PL8304	1.1	38	1.1	1.3	2.1	4.20	0.62	1.50E-09	33.8	Parallel
PL8303	1.6	34	1.4	1.6	3.5	4.20	0.48	1.50E-09	33.8	Parallel
PL8302	2.45	27	2.2	2.5	5.1	6.00	0.39	1.50E-09	33.8	Parallel
PL8301	3.2	24	3.0	3.5	7.2	4.20	0.33	1.50E-09	33.8	Parallel
PL8304	4.3	19	4.4	5.1	8.4	8.40	0.31	1.50E-09	33.8	Series
PL8300	4.52	19	4.2	4.8	9.5	9.00	0.29	1.50E-09	33.8	Parallel
PL8303	6.4	17	5.6	6.4	13.8	8.40	0.24	1.50E-09	33.8	Series
PL8302	9.8	13.5	8.8	10.1	20.4	12.00	0.20	1.50E-09	33.8	Series
PL8301	12.8	12	12.0	13.8	28.7	8.40	0.17	1.50E-09	33.8	Series
PL8300	18.1	9.5	16.8	19.3	38.0	18.00	0.14	1.50E-09	33.8	Series

NOTES:

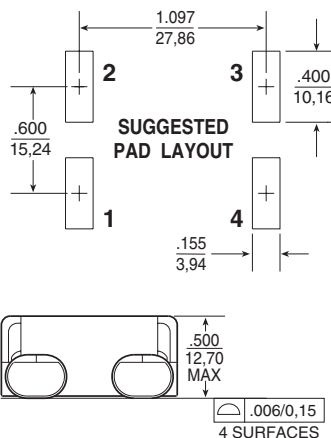
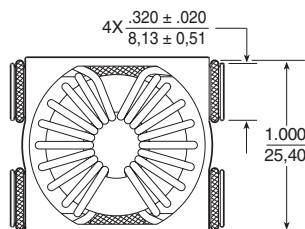
- Temperature rise is 55°C in typical buck or boost circuits operating at 300kHz with rated Idc current and reference ET applied to inductor.
- Total inductor loss is 1.8W for 55°C temperature rise above ambient.
- In high volt-time applications, additional heating in the component can occur due to core losses in the inductor which may necessitate derating the current in order to limit the temperature rise of the component. In order to determine the approximate total losses (or temperature rise) for a given application, both copper and core losses should be taken into account.

Estimated Temperature Rise:

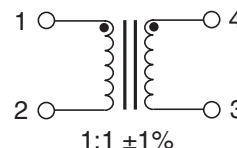
$$\begin{aligned} \text{Trise} &= K3 * (\text{CoreLoss}(W) + \text{CopperLoss}(W))^{.833} (C) \\ \text{CopperLoss} &= \text{Irms}^2 * \text{DCR_Typical} (m\Omega) / 1000 \\ \text{CoreLoss} &= K2 * (\text{Freq_kHz})^{1.26} * (\Delta B)^{2.11} \\ \Delta B &= K1 * \text{Volt-}\mu\text{sec} * 100 \end{aligned}$$

- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. PL8304 becomes PL8304T). Pulse complies to industry standard tape and reel specification EIA481.

Mechanical



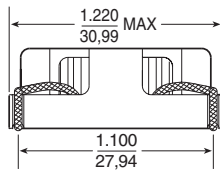
Schematic



Weight 18.7 grams
Tape & Reel 75/reel
Tube 20/tube

Dimensions: Inches
mm

Unless otherwise specified,
all tolerances are ± .010
0,25



For More Information:

UNITED STATES
(Worldwide)
2 Pearl Buck Court
Bristol, PA 19007
U.S.A.
http://www.pulseeng.com
TEL: 215 781 6400
FAX: 215 781 6403

UNITED KINGDOM
(Northern Europe)
3 Huxley Road
Surrey Research Park
Guildford, Surrey GU2 5RE
United Kingdom
TEL: 44 1483 401700
FAX: 44 1483 401701

FRANCE
(Southern Europe)
Zone Industrielle
F-39270
Orgelet
France
TEL: 33 3 84 35 04 04
FAX: 33 3 84 25 46 41

SINGAPORE
(Southern Asia)
150 Kampong Ampat
#07-01/02
KA Centre
Singapore 368324
TEL: 65 6287 8998
FAX: 65 6280 0080

TAIWAN, R.O.C.
(Northern Asia)
3F-4, No. 81, Sec. 1
HsinTai Wu Road
Hsi-Chih, Taipei Hsien
Taiwan, R.O.C.
Tel: 886 2 2698 0228
FAX: 886 2 2698 0948

HONG KONG
(China/Hong Kong)
Unit 11, 11/F
Wah Lai Industrial Centre
10-14 Kwei Tei Street,
Fotan, Shatin, Hong Kong
Tel: 852 2788 6588
FAX: 852 2776 1055

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