

SMT POWER INDUCTORS

Toroid - 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 -40°C to +130°C⁶

Pulse ^{4,5} Part Number	Inductance @ Irated (µH TYP)	Irated (A)	DCR (mΩ)		Inductance @ 0A _{dc} (µH ±15%)	Reference ET (Volt-µsec)	Flux Density Factor (K1)	Core Loss Factor (K2)	Temp. Rise Factor (K3)	Connection
			TYP	MAX						
P0599	1.1	38	1.1	1.3	2.1	4.20	0.62	1.50E-09	33.8	Parallel
P0598	1.6	34	1.4	1.6	3.9	4.20	0.48	1.50E-09	33.8	Parallel
P0597	2.45	27	2.2	2.5	5.7	6.00	0.39	1.50E-09	33.8	Parallel
P0596	3.2	24	3.0	3.5	8.0	4.20	0.33	1.50E-09	33.8	Parallel
P0599	4.3	19	4.4	5.1	8.4	8.40	0.31	1.50E-09	33.8	Series
P0595	4.52	19	4.2	4.8	10.5	9.00	0.29	1.50E-09	33.8	Parallel
P0598	6.4	17	5.6	6.4	15.6	8.40	0.24	1.50E-09	33.8	Series
P0597	9.8	13.5	8.8	10.1	22.8	12.00	0.20	1.50E-09	33.8	Series
P0596	12.8	12	12.0	13.8	32.0	8.40	0.17	1.50E-09	33.8	Series
P0595	18.1	9.5	16.8	19.3	42.0	18.00	0.14	1.50E-09	33.8	Series

NOTES:

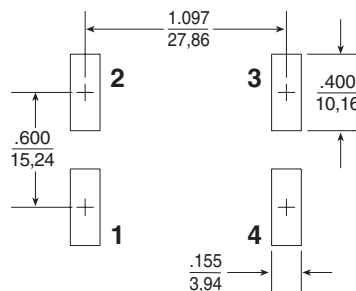
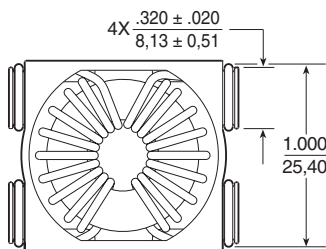
- Temperature rise is 55°C in typical buck or boost circuits operating at 300kHz with the rated I_{dc} current and reference ET applied to the inductor.
- Total loss in the inductor is 1.8W for 55°C temperature rise above ambient.
- In high volt-time applications, additional heating in the component 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:

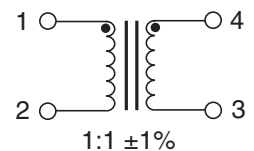
$$\begin{aligned} \text{Trise} &= K3 * (\text{CoreLoss}(W) + \text{CopperLoss}(W))^{.833} \text{ (C)} \\ \text{CopperLoss} &= I_{\text{rms}}^2 * \text{DCR_Typical} \text{ (m}\Omega\text{)} / 1000 \\ \text{CoreLoss} &= K2 * (\text{Freq_kHz})^{1.26} * (\Delta B)^{2.11} \\ \Delta B &= K1 * \text{Volt-}\mu\text{sec}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

- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. P0595 becomes P0595T). Pulse complies to industry standard tape and reel specification EIA481.
- To order RoHS compliant part, add the suffix "NL" to the part number (i.e. P0595 becomes P0595NL and P0595T becomes P0595NLT).
- The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical

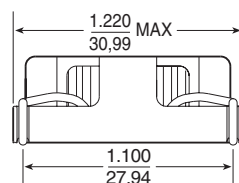


Schematic



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

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



SUGGESTED PAD LAYOUT

