INDUCTOR FOR HARRIS SEMICONDUCTOR
Portable Power Converter HIP 5020 Eval 1

Pulse A TECHNITROL COMPANY

- Surface mount, self-leaded inductor
- Solution based on efficiency, using Allied Microlite core
- Designed for Notebooks, portables and PCAs
- Wide variety of other inductor sizes and values available

| **Electrical Specifications @ 25°C — Operating Temperature -30°C to +130°C**								
Pulse Part Number	**Reference Values**				**Control Values**		**Calculation Data**	
	I_{DC} (amp)	L @ DC L_{DC} (μH)	ET (V-μsec)	Storage Capacity (μJoules)	L w/o DC L_0±20% (μH)	DCR MAX (mΩ)	100 Gauss ET_{100} (V-μsec)	1 Amp DC H_1 (Orsted)
P0119	4.96	7.4	14.34	90.43	12.7	18.2	1.20	7.42

NOTES:
1. The reference inductance is a typical value at the AC and DC excitation listed.
2. Temperature rise is 55° C in typical buck or boost circuits at 200 KHz and with the reference ET applied to the inductor.
3. Total loss in the inductor is 423 mWatts for 55°C temperature rise above ambient.
4. To estimate temperature rise in a given application, determine the total losses (copper losses + core losses), divide by 423 and multiply by 55.
5. To determine copper losses, calculate:
   $CopperLoss (mW) = I_{DC}^2 \times R_N$ (with R_N in mΩ).
6. The maximum DCR listed is approximately 17% over the nominal DCR (R_N).
7. For core loss in mWatts, using frequency (f, Hz) and operating flux density (B, Gauss), calculate: $0.342 \times 10^{-12} \times B^{2.13} \times f^{1.52}$.
8. For flux density (B, Gauss), calculate ET (V-μsec) for the application, divide by ET_{100} factor from the table and multiply by 100.
9. For estimating L with DC current, calculate H by multiplying H_1 from the table by I_{DC} of the application. Using H determine the DC perm Factor (F_{UDC}). Multiply L w/o DC by F_{UDC} for L @ DC.
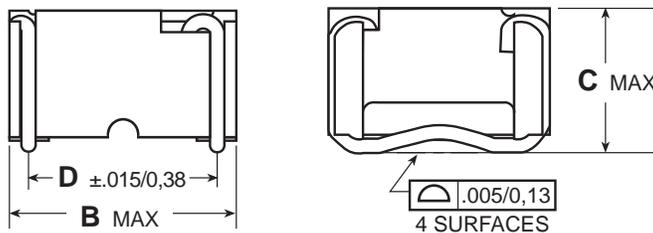10. Add suffix **"T"** to part number for tape and reel package (i.e. P0119**T**).

Mechanical

Suggested PCB Layout

Schematic

1 ○——⌒⌒⌒——○ 2
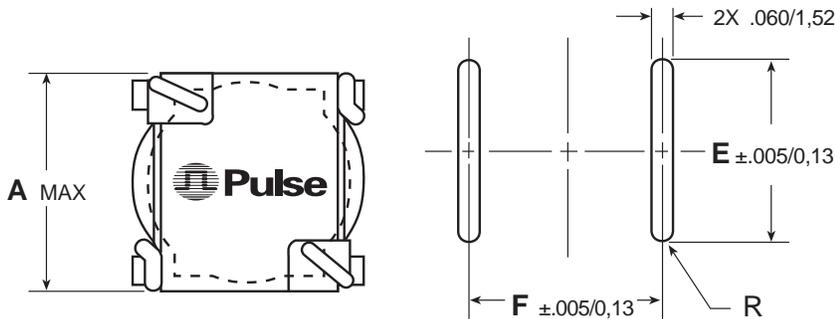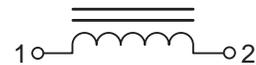
Weight . . . . 2.4 grams
Tube 30/tube

A	B	C	D	E	F
.565	.570	.360	.450	.520	.460
14,35	14.48	9,14	11.43	13.21	11.68

Dimensions: $\frac{Inches}{mm}$

Unless otherwise specified, all tolerances are $\pm \frac{.010}{0,25}$

PC503.E (9/98)