MINIATURE SURFACE MOUNT POWER INDUCTORS

Pulse
A TECHNITROL COMPANY

- Reliable self-leaded design
- Very small size and cost-effective
- High energy storage and low DC resistance
- Ideal for DC/DC conversion in notebook computers, PDAs, step-up or step-down converters

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Pulse Part Number	Reference Values			Control Values		Calculation Data
	I_{DC} (amp)	L @ I_{DC} MIN (µH)	ET (V-µsec)	L w/o DC ±15% (µH)	DCR ±15% (mΩ)	ET_{10} (V-µsec)
ROS 1						
P0430T	2.00	0.51	0.8	0.7	14	476.2
P0431T	1.90	0.76	0.8	1.1	18	370.4
P0432T	1.50	0.85	1.2	1.1	18	370.4
P0433T	1.20	1.44	1.8	1.9	28	277.8
P0434T	1.20	1.87	1.8	2.6	34	238.1
P0435T	1.00	2.72	2.3	3.9	40	196.1
P0436T	0.70	4.33	3.1	6.0	73	158.7
P0437T	0.60	5.35	3.3	7.1	100	144.9
P0438T	0.50	8.84	4.4	12.2	140	111.1
P0439T	0.45	10.79	5.0	14.7	155	101.0
P0440T	0.34	17.59	6.5	23.8	250	79.4
P0441T	0.29	25.50	8.4	33.8	280	66.7
P0442T	0.24	35.80	9.8	49	440	55.6
P0443T	0.20	52.70	12	72	650	45.7
P0444T	0.17	79	14	110	1050	37.0
P0445T	0.16	88	15	122	1065	35.1
P0446T	0.14	127	18	179	1600	29.0
ROS 2						
P0450T	5	0.51	3.0	0.64	7.6	181.8
P0451T	5	0.67	3.1	0.86	8.7	151.5
P0452T	5	1.09	0.5	1.5	11.4	113.6
P0453T	5	1.53	1.0	2.3	13	90.9
P0454T	3	1.78	7.5	2.3	15	90.9
P0455T	2.5	3.74	10.5	5.13	23	60.6
P0456T	2	4.76	13	6.3	26	56.8
P0457T	1.8	5.61	14	7.5	33	50.5
P0458T	1.5	9.09	15	13.2	70	39.5
P0459T	1.3	11.47	21	15.5	60	35.0
P0460T	1	22.95	31	34	90	24.6
P0461T	0.9	39.10	39	57.2	123	18.9
P0462T	0.8	40.80	35	62.5	240	18.2
P0463T	0.6	69.70	55	100	245	14.0
P0464T	0.5	76.50	54	103	305	14.2
P0465T	0.4	137	78	180	481	10.0
P0466T	0.35	182	87	254	682	8.7
P0467T	0.3	272	105	380	1030	7.0
P0468T	0.25	357	130	500	1200	6.1

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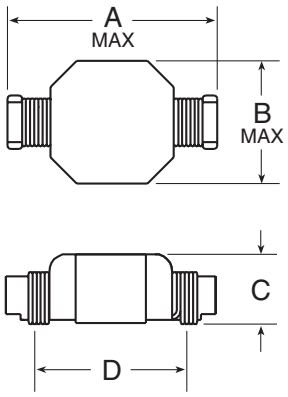
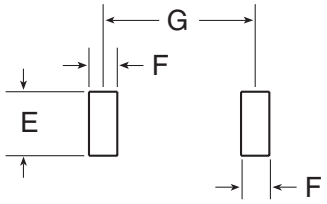
Notes:

1. Temperature rise is 55° C in typical buck or boost circuits with the rated I_{DC} current and reference ET applied to the inductor.
2. Total loss in the inductor is 80 mWatts (ROS 1) and 280 mWatts (ROS 2) for 55°C temperature rise above ambient.
3. To estimate temperature rise in a given application, you must determine the total losses (copper losses + core losses) and apply the following formula:
   ROS 1: TempRise (C) = (Total Losses (mW))$^{.833}$ x 1.45
   ROS 2: TempRise (C) = (Total Losses (mW))$^{.833}$ x .508
4. To determine copper losses, calculate:
   CopperLoss (mW) = I_{DC}^2 x DCR
5. For core loss in mWatts, using frequency f (in Hz) and operating flux density B (in Gauss), calculate:
   ROS 1: CopperLoss (mW) = .127 x 10^{-10} x $f^{1.26}$ x $B^{2.11}$
   ROS 2: CopperLoss (mW) = .887 x 10^{-10} x $f^{1.26}$ x $B^{2.11}$
6. For flux density (B), calculate ET (V-µsec) for the application, and multiply by ET_{10} factor from the table.

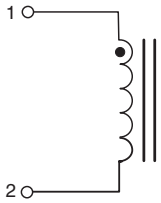
Mechanical





Suggested Pad Layout

Schematic



PKG	A	B	C	D	E	F	G
ROS 1	.335 8,51	.225 5,72	.125 3,18	.250 6,35	.100 2,54	.050 1,27	.250 6,35
ROS 2	.545 13,84	.390 9,91	.215 5,46	.440 11,18	.120 3,05	.065 1,65	.440 11,18

Dimensions: Inches / mm

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

	ROS 1	ROS 2
Weight	0.29 grams	1.1 grams
Tape & Reel	2000/reel	600/reel