

SMT Power Inductors

Shielded Toroid Series - Ros1/Ros2 Series



- Height:** 3.2mm and 5.3mm Max
- Footprint:** 8.1mm x 5.3mm and 14.0mm x 10.2mm
- Current Rating:** up to 5A
- Inductance Range:** .51μH to 357μH

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

Pulse Part Number	Inductance @ Irated (μH MIN)	Irated (A)	DCR (mΩ)		Inductance @ OADC (μH +/- 15%)	Reference ET (V*μsec)	Trise Factor (Ko)	Coreloss Factor (Kl)	ET Factor (K2)
			TYP	MAX					
Ros 1 Series									
P0430NL	0.51	2.00	14	16.1	.7	.8	1.45	1.27E-11	476.2
P0432NL	0.85	1.50	18	20.7	1.1	1.2	1.45	1.27E-11	370.4
P0435NL	2.72	1.00	40	46	3.9	2.3	1.45	1.27E-11	196.1
P0438NL	8.84	0.50	140	161	12.2	4.4	1.45	1.27E-11	111.1
P0439NL	10.79	0.45	155	178	14.7	5.0	1.45	1.27E-11	101.0
P0441NL	25.50	0.29	280	322	33.8	8.4	1.45	1.27E-11	66.7
P0445NL	88	0.16	1065	1225	122	15	1.45	1.27E-11	35.1
P0446NL	127	0.14	1600	1840	179	18	1.45	1.27E-11	29.0
Ros 2 Series									
P0450NL	0.51	5.00	8.1	9.3	.65	3	.508	8.87E-11	181.8
P0452NL	1.09	5.00	11.4	13.1	1.5	.5	.508	8.87E-11	113.6
P0453NL	1.53	5.00	13.0	15	2.3	1.0	.508	8.87E-11	90.9
P0454NL	1.78	3.00	15.0	17.3	2.3	7.5	.508	8.87E-11	90.9
P0456NL	4.76	2.00	26.1	30	6.3	13	.508	8.87E-11	56.8
P0460NL	22.95	1.00	90.4	104	34	31	.508	8.87E-11	24.6
P0461NL	39.10	0.90	123.5	142	57.2	39	.508	8.87E-11	18.9
P0462NL	40.80	0.80	240.0	276	62.5	35	.508	8.87E-11	18.2
P0463NL	69.70	0.60	245.2	282	100	55	.508	8.87E-11	14.0
P0465NL	137	0.40	480.9	553	180	78	.508	8.87E-11	10.0
P0466NL	182	0.35	681.7	784	254	87	.508	8.87E-11	8.7
P0467NL	272	0.30	1030.4	1185	422.5	105	.508	8.87E-11	7.0
P0468NL	357	0.25	1200.0	1380	500	130	.508	8.87E-11	6.1

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Notes:

1. Temperature rise is 55C in typical buck or boost circuits with the rated IDC current and reference ET applied to the inductor.
2. Total loss in the inductor is 80 mW (ROS1) and 280 mW (ROS 2) for 55C 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:
Temp Rise (C) = (Total Losses (mW))^{.833} * K0 (from table)

4. To determine copper losses, calculate:

$$\text{Copper Loss (mW)} = I_{DC}^2 \times DCR$$

5. For core loss in mWatts, using frequency f (in Hz) and operating flux density B (in Gauss), calculate:

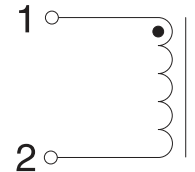
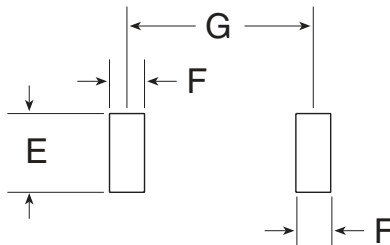
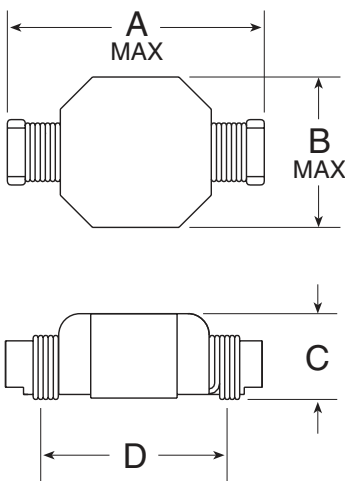
$$\text{Copper Loss (mW)} = K2 * f^{1.26} * B^{2.11}$$

6. For flux density (B), calculate ET (V-μsec) for the application, and multiply by ET₁₀ factor from the table.

Mechanical

Schematic

PXXXX



Suggested Pad Layout

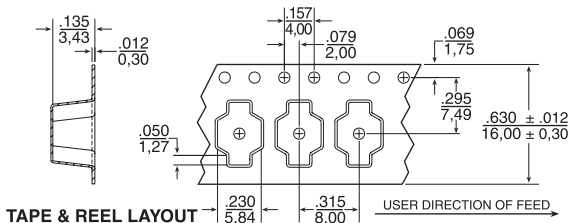
PKG	A	B	C	D	E	F	G
ROS 1	.335 8,51	.225 5,72	.125 3,18	.250 6,35	.100 2,54	.050 1,27	.250 6,35
ROS 2	.545 13,84	.390 9,91	.215 5,46	.440 11,18	.120 3,05	.065 1,65	.440 11,18

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

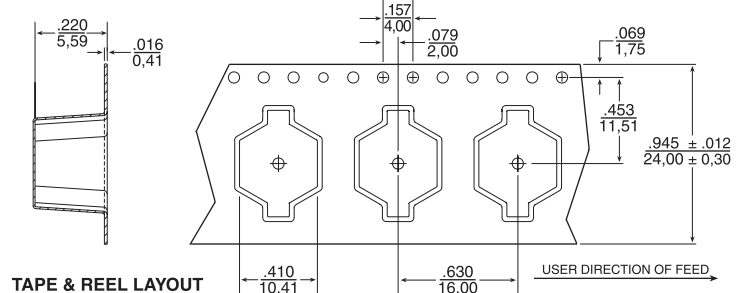
Dimensions: $\frac{\text{Inches}}{\text{mm}}$

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

ROS 1



ROS 2



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