SMT POWER INDUCTORS
Shielded Toroid Series - Ros1/Ros2 Series

Pulse® A TECHNITROL COMPANY

TWO PACKAGE SIZES:

- **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 @ 0ADC (µH +/- 15%)	Reference ET (V*µsec)	Trise Factor (K0)	Coreloss Factor (K1)	ET Factor (K2)
			TYP	MAX					
Ros 1 Series									
P0430	0.51	2.00	14	16.1	.7	.8	1.45	1.27E-11	476.2
P0431	0.76	1.90	18	20.7	1.1	.8	1.45	1.27E-11	370.4
P0432	0.85	1.50	18	20.7	1.1	1.2	1.45	1.27E-11	370.4
P0433	1.44	1.20	28	32.2	1.9	1.8	1.45	1.27E-11	277.8
P0434	1.87	1.20	34	39.1	2.6	1.8	1.45	1.27E-11	238.1
P0435	2.72	1.00	40	46	3.9	2.3	1.45	1.27E-11	196.1
P0436	4.33	0.70	73	84	6.0	3.1	1.45	1.27E-11	158.7
P0437	5.35	0.60	100	115	7.1	3.3	1.45	1.27E-11	144.9
P0438	8.84	0.50	140	161	12.2	4.4	1.45	1.27E-11	111.1
P0439	10.79	0.45	155	178	14.7	5.0	1.45	1.27E-11	101.0
P0440	17.59	0.34	250	288	23.8	6.5	1.45	1.27E-11	79.4
P0441	25.50	0.29	280	322	33.8	8.4	1.45	1.27E-11	66.7
P0442	35.80	0.24	440	506	49	9.8	1.45	1.27E-11	55.6
P0443	52.70	0.20	650	747	72	12	1.45	1.27E-11	45.7
P0444	79	0.17	1050	1208	110	14	1.45	1.27E-11	37.0
P0445	88	0.16	1065	1225	122	15	1.45	1.27E-11	35.1
P0446	127	0.14	1600	1840	179	18	1.45	1.27E-11	29.0
Ros 2 Series									
P0450	0.51	5.00	8.1	9.3	.65	3	.508	8.87E-11	181.8
P0451	0.67	5.00	8.7	10	.86	3.1	.508	8.87E-11	151.5
P0452	1.09	5.00	11.4	13.1	1.5	.5	.508	8.87E-11	113.6
P0453	1.53	5.00	13.0	15	2.3	1.0	.508	8.87E-11	90.9
P0454	1.78	3.00	15.0	17.3	2.3	7.5	.508	8.87E-11	90.9
P0455	3.74	2.50	23.0	26.5	5.1	10.5	.508	8.87E-11	60.6
P0456	4.76	2.00	26.1	30	6.3	13	.508	8.87E-11	56.8
P0457	5.61	1.80	33.0	38	7.5	14	.508	8.87E-11	50.5
P0458	9.09	1.50	70.4	81	13.2	15	.508	8.87E-11	39.5
P0459	11.47	1.30	60.0	69	15.5	21	.508	8.87E-11	35.0
P0460	22.95	1.00	90.4	104	34	31	.508	8.87E-11	24.6
P0461	39.10	0.90	123.5	142	57.2	39	.508	8.87E-11	18.9
P0462	40.80	0.80	240.0	276	62.5	35	.508	8.87E-11	18.2
P0463	69.70	0.60	245.2	282	100	55	.508	8.87E-11	14.0
P0464	76.50	0.50	305.2	351	103	54	.508	8.87E-11	14.2
P0465	137	0.40	480.9	553	180	78	.508	8.87E-11	10.0
P0466	182	0.35	681.7	784	254	87	.508	8.87E-11	8.7
P0467	272	0.30	1030.4	1185	422.5	105	.508	8.87E-11	7.0
P0468	357	0.25	1200.0	1380	500	130	.508	8.87E-11	6.1

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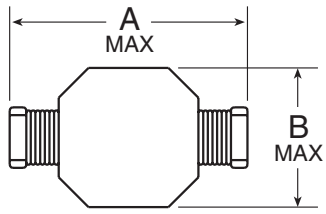
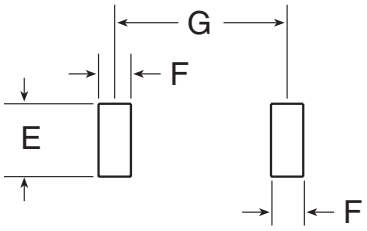
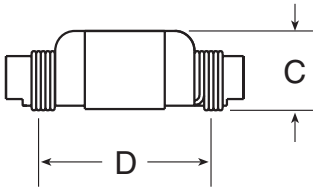
Notes:

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 mW (ROS 1) and 280 mW (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:
   Temp Rise (C) = (Total Losses (mW))$^{.833}$ * KO (from table)
4. To determine copper losses, calculate:
   Copper Loss (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:
   Core Loss (mW) = k2 * $f^{1.26}$ * $B^{2.11}$
6. For flux density (B), calculate ET (V-µsec) for the application, and multiply by ET_{10} factor from the table.

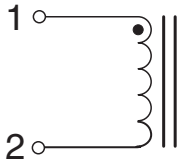
Mechanical







Schematic



Suggested Pad Layout

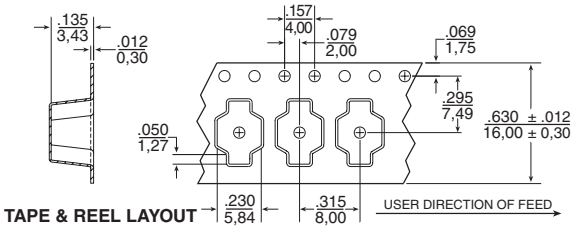
	ROS 1	ROS 2
Weight	0.29 grams	1.1 grams
Tape & Reel	2000/reel	600/reel

Dimensions: Inches / mm

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

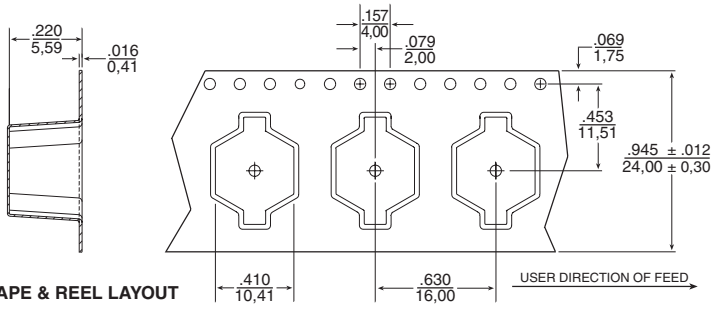
PKG	A	B	C	D	E	F	G
ROS 1	.335 / 8,51	.225 / 5,72	.125 / 3,18	.250 / 6,35	.100 / 2,54	.050 / 1,27	.250 / 6,35
ROS 2	.545 / 13,84	.390 / 9,91	.215 / 5,46	.440 / 11,18	.120 / 3,05	.065 / 1,65	.440 / 11,18

ROS 1



TAPE & REEL LAYOUT

ROS 2



TAPE & REEL LAYOUT

For More Information:

Pulse Worldwide Headquarters
12220 World Trade Drive
San Diego, CA 92128
U.S.A.
www.pulseeng.com
TEL: 858 674 8100
FAX: 858 674 8262

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

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

Pulse China Headquarters
No. 1
Industrial District
Changan, Dongguan
China
TEL: 86 769 85538070
FAX: 86 769 85538870

Pulse North China
Room 1503
XinYin Building
No. 888 YiShan Road
Shanghai 200233
China
TEL: 86 21 54643211/2
FAX: 86 21 54643210

Pulse South Asia
150 Kampong Ampat
#07-01/02
KA Centre
Singapore 368324
TEL: 65 6287 8998
FAX: 65 6280 0080

Pulse North Asia
No. 26
Kao Ching Road
Yang Mei Chen
Taoyuan Hsien
Taiwan, R. O. C.
TEL: 886 3 4641811
FAX: 886 3 4641911