

SMT POWER INDUCTORS

Shielded Shaped Core - Spyglass

Coupled Inductors

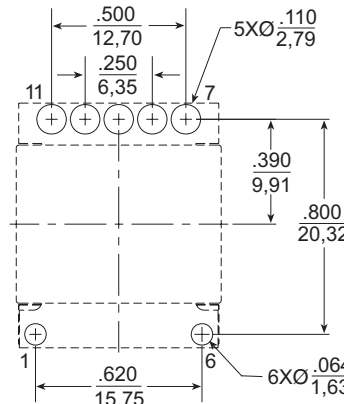
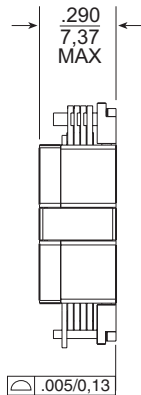
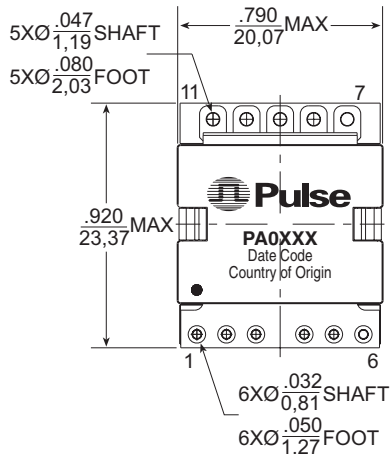


- Height: 7.4mm Max
- Footprint: 23.4mm x 20.1mm Max
- Current Rating: up to 30A
- Inductance Range: 2μH to 5.8μH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C

Part Number	Inductance @ Irated (μH ±12%)	Irated ² (A DC)	Turns Ratio (Main Winding to Aux.)	DCR (mΩ MAX)		Inductance @ 0 ADC (μH ±12%)	Saturation Current ³ (A)		Heating Current ⁴ (A)	Isolation (Vdc Basic) (Main Winding to Aux.)
				Main Winding	Aux. Winding		25°C	100°C		
PA0373	2.0	30	1:4	2.5	3850	2.1	44	35.2	34	1500
PA0533	2.0	21.5	1:3	1.9	2700	2.0	29	25	41	1500
PA0492	2.5	15	1:3	1.5	2650	3.0	18	16	41	1500
PA0519	3.3	17	1:4	2.5	3750	3.6	20	18	37	1500
PA0465	4.2	12.8	4:5	2.5	460	4.4	16	15	37	1500
PA0480	5.8	8.5	4:5	2.5	500	6.2	11	10	37	1500

Mechanical



Weight11.0 grams
Tape & Reel.....180/reel
Tray40/tray

Dimensions: Inches
mm
Unless otherwise specified,
all tolerances are ± .010
0.25

SUGGESTED PAD LAYOUT

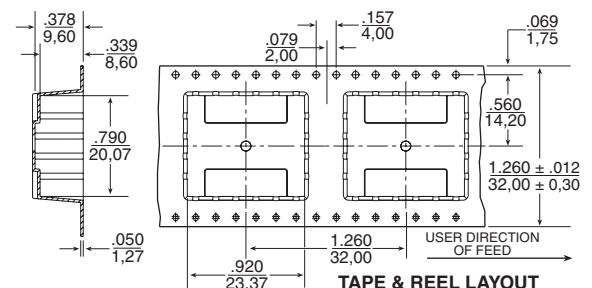
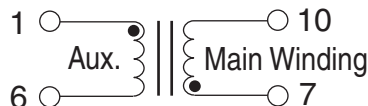
Note: The above suggested pad layout is for a component with all of the pins populated. For a given part number it is only necessary to provide pads for those pins that are populated as shown in the below schematics.

Schematic

PA0373 / PA0465
PA0480 / PA0519



PA0492 / PA0533



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Notes from Tables

1. These high current coupled inductors were designed for (but not limited to) use with the Pulse planar transformer series for use in high density forward converter applications. The inductor provides output filtering on the main winding, and at the same time provides an efficient way to generate an isolated primary side voltage for powering the converter's switching regulator integrated circuit. The above inductors have been tested and approved by Pulse's IC partners and are cited in the appropriate datasheet or evaluation board documentation at these companies. To determine which IC and IC partners are matched with the above Pulse part numbers, please see the IC Cross Reference on the Pulse web page. Other inductance/current ratings and turns ratios may be available. Please contact Pulse Power Applications Engineering for more information.
2. The rated current as listed is either 85% of the saturation current or the heating current depending on which value is lower.
3. The saturation current is the current which causes the inductance to drop by 15% at the stated ambient temperatures (25°C, 100°C). This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.

4. The heating current is the dc current which causes the temperature of the part to increase by approximately 45°C. This current is determined by mounting the component on a PCB with a .25" wide, 2oz. equivalent copper traces, and applying the current to the device for 30 minutes with no force air cooling.
5. 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.

Total Copper Losses ($P_{cu_total}(W)$):

$$P_{cu}(W) = .001 * DCR(m\Omega) * (I_{rms})^2$$

where:

$$I_{rms} = (I_{dc}^2 + (\Delta I/2)^2)^{.5}$$

ΔI = ripple current through inductor

Core Losses ($P_{core}(W)$):

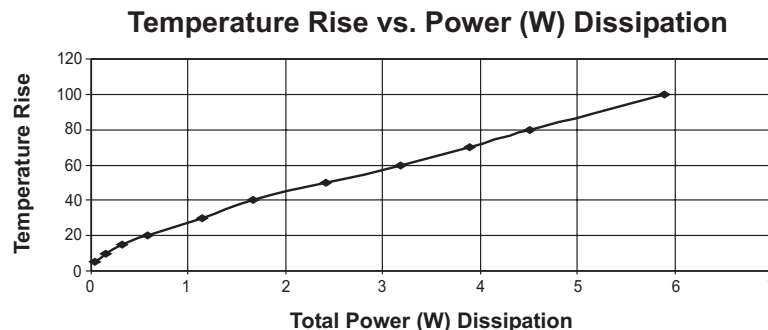
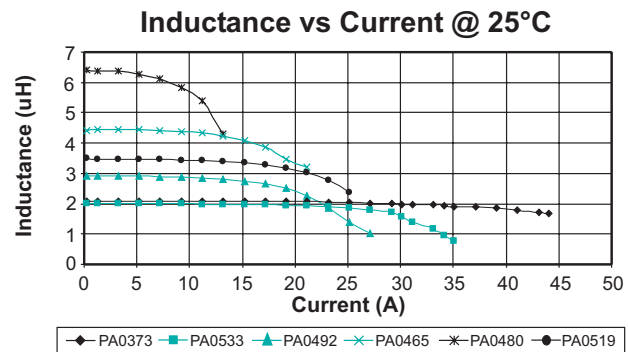
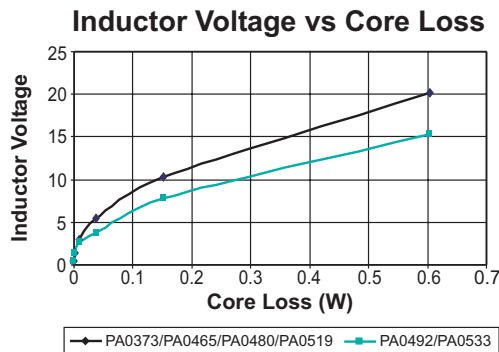
Use the Inductor Voltage versus Core Loss table to determine the approximate core losses

Total Losses:

$$P_{total} = P_{cu_total} + P_{core}$$

Temperature Rise:

The approximate temperature rise can be found by looking up the calculated total losses in the Temperature Rise vs. Power Dissipation curve.



For More Information:

Pulse Worldwide Headquarters

12220 World Trade Dr.
San Diego, CA 92128
U.S.A.

www.pulseeng.com

Tel: 858 674 8100

Fax: 858 674 8262

Pulse Europe

Einsteinstrasse 1
D-71083 Herrenberg
Germany

Tel: 49 7032 7806 116

Fax: 49 7032 7806 135

Pulse China Headquarters

B402, Shenzhen
Tech-Innovation International
Tenth Kejinan Rd.
High-Tech Industrial Park
Nanshan District, Shenzhen
China

Tel: 86 755 33966678

Fax: 86 755 33966700

Pulse North China

Room 1503
XinYin Building
No. 888 YiShan Rd.
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 Rd.
Yang Mei Chen
Taoyuan Hsien
Taiwan, R. O. C.

Tel: 886 3 4641811

Fax: 886 3 4641911

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