HIGH FREQUENCY PLANAR TRANSFORMERS

Military / Aerospace Grade

Pulse Electronics
Military & Aerospace
Specialty Components

- Power Rating up to 140 W
- **Height:** 8.6mm to 9.7mm Max
- **Footprint:** 23.4mm x 21.6mm Max
- **Frequency Range:** 200kHz to 700kHz
- **Lead Finish**: Sn63/Pb37
- **Isolation** (Primary to Secondary & Core): 1750V_{DC}

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

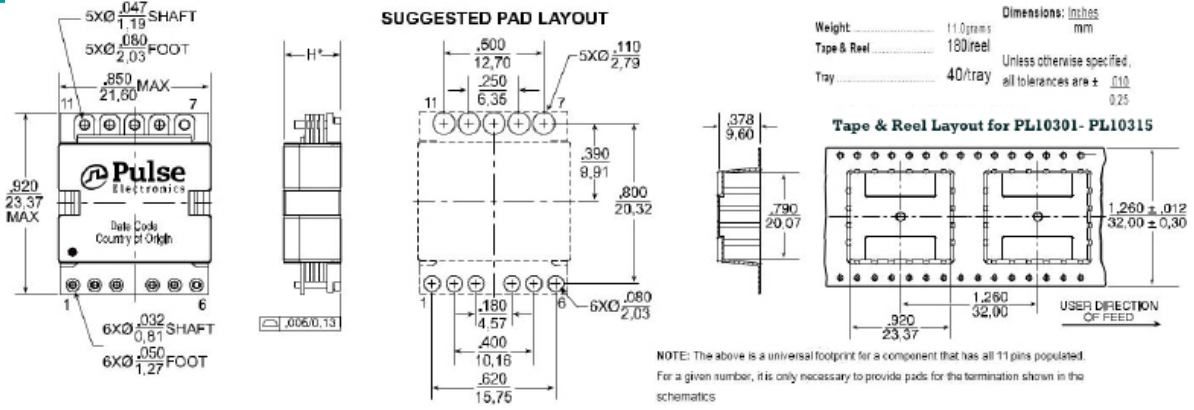
Part [3] Number	Turns Ratio			Schematic	Primary 1 Inductance (µH MIN)	Leakage 2 Inductance (µH MAX)	DCR (mΩ MAX)			Maximum Height (mm)
	Primary A	Primary B	Secondary				Primary A	Primary B	Secondary	
PL10301	4T	4T	4T (1T:1T:1T:1T)	A1	153	0.45	17.5	17.5	7	8.6
PL10302	4T	5T			194	0.45	17.5	20	7	8.6
PL10303	5T	5T			240	0.55	20	20	7	8.6
PL10304	5T	6T			290	0.60	20	25	7	8.6
PL10305	6T	6T			345	0.65	25	25	7	8.6
PL10306	4T	4T	1T & 1T	A2	153	0.45	17.5	17.5	.875 & .875	8.6
PL10307	4T	5T			194	0.45	17.5	20	.875 & .875	8.6
PL10308	5T	5T			240	0.55	20	20	.875 & .875	8.6
PL10309	5T	6T			290	0.60	20	25	.875 & .875	8.6
PL10310	6T	6T			345	0.65	25	25	.875 & .875	8.6
PL10311	4T	4T	2T & 1T	A3	153	0.45	17.5	17.5	1.75 & 1.75	8.6
PL10312	4T	5T			194	0.45	17.5	20	1.75 & 1.75	8.6
PL10313	5T	5T			240	0.45	20	20	1.75 & 1.75	8.6
PL10314	5T	6T			290	0.50	20	25	1.75 & 1.75	9.7
PL10315	6T	6T			345	0.55	25	25	1.75 & 1.75	9.7

Notes:

1. Inductance is measured, where applicable, with north primary windings connected in series (2 to 5, with 3 and 4 shorted.)
2. Leakage inductance is measured on windings (2-5) with (3-4) and (7,8,9,10,11) shorted.
3. The NL suffix indicates a RoHS-compliant part number. Non-NL suffixed parts are not neccessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "NL" suffix, but a RoHS compliant version is required, please contact Pulse for availability.
4. Basic insulated parts can be made available. Please contact Pulse for availability.

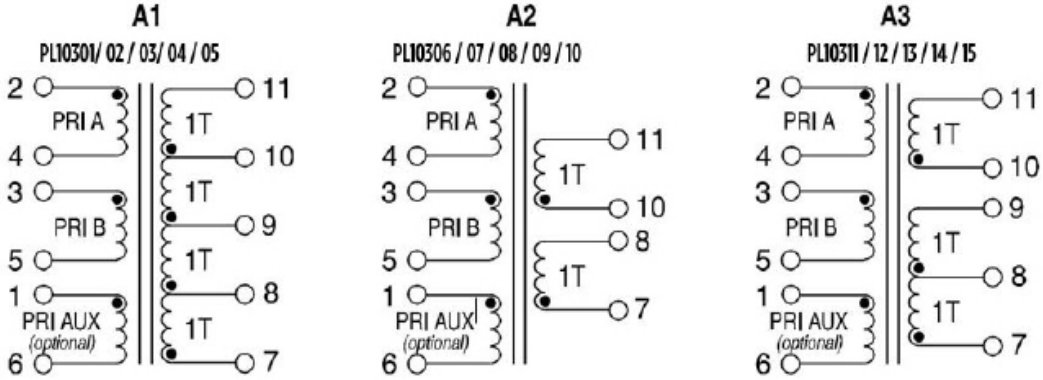
Mechanicals

PL103XX



Schematics

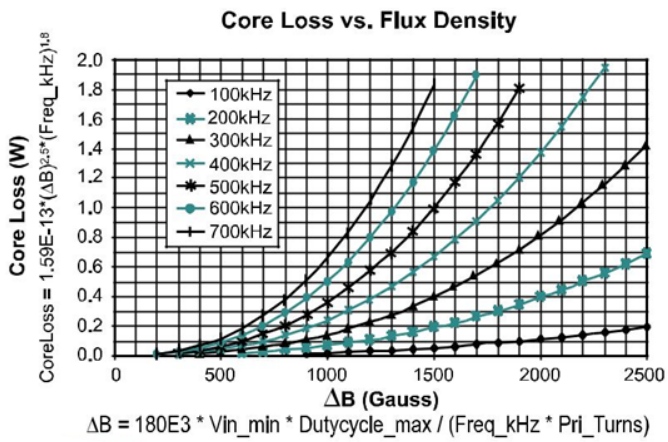
PL103XX

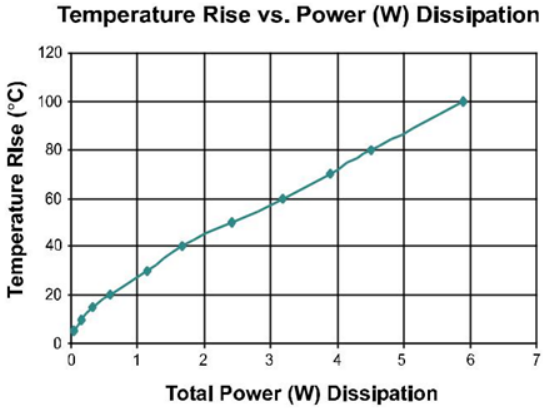


Notes:

1. The above transformers have been tested and approved by Pulses' IC partners and are cited in the apprpriate datasheet or evaluation board documentation at these companies. To determine which IC and IC companies are matched with the above transformers, please refer to the IC cross reference on the Pulse web page. See Spy glass transformer matrix on the next page for the other winding configuration sthat can be made available.

2. To determine if the transformer is suitable for your application, it is necessary to ensuret hat the temperature rise of the component (Ambient plus temperature rise) does not exceed its operating temperature. To determine the approximate temprature rise of the transformer, refer to the graphs below.





PL103XX Transformer Winding Configuration Matrix

The following is a matrix of thewinding configurations that are possiblewiththePulsePL103XXPlanarTransformerPlatform.Thepackage is typcially capbale of handling between 80-140W of power depending on the application, ambient conditions and available cooling.

Once a configuration is selected, the formulae and charts can be used to determine the approximate power dissipation and temperaturerise of the component in a given application.

				SECONDARY WINDINGS									
				Single Winding				Tapped Winding				Dual Winding	
		Turns		1T	2T	3T	4T	1:1	1:2	1:3	2:2	1T & 1T	1T & 2T
			DCR (mΩ)	0.44	1.3	3.5	7	1.3	3.5	7	7	1.3	3.5
PRIMARY WINDINGS	Single Winding	4T	10	PL10306	PL10306	PL10311	PL10301	PL10306	PL10311	PL10301	PL10301	PL10306	PL10311
		5T	12.5	PL10308	PL10308	PL10313	PL10303	PL10308	PL10313	PL10303	PL10303	PL10308	PL10313
		6T	15	PL10310	PL10310	PL10315	PL10305	PL10310	PL10315	PL10305	PL10305	PL10310	PL10315
		8T	40	PL10306	PL10306	PL10311	PL10301	PL10306	PL10311	PL10301	PL10301	PL10306	PL10311
		9T	45	PL10307	PL10307	PL10312	PL10302	PL10307	PL10312	PL10302	PL10302	PL10307	PL10312
		10T	50	PL10308	PL10308	PL10313	PL10303	PL10308	PL10313	PL10303	PL10303	PL10308	PL10313
		11T	55	PL10309	PL10309	PL10314	PL10304	PL10309	PL10314	PL10304	PL10304	PL10309	PL10314
		12T	60	PL10310	PL10310	PL10315	PL10305	PL10310	PL10315	PL10305	PL10305	PL10310	PL10315
	Dual Winding	4T/4T	20/20	PL10306	PL10306	PL10311	PL10301	PL10306	PL10311	PL10301	PL10301	PL10306	PL10311
		4T/5T	20/25	PL10307	PL10307	PL10312	PL10302	PL10307	PL10312	PL10302	PL10302	PL10307	PL10312
		5T/5T	25/25	PL10308	PL10308	PL10313	PL10303	PL10308	PL10313	PL10303	PL10303	PL10308	PL10313
		5T/6T	25/30	PL10309	PL10309	PL10314	PL10304	PL10309	PL10314	PL10304	PL10304	PL10309	PL10314
		6T/6T	30/30	PL10310	PL10310	PL10315	PL10305	PL10310	PL10315	PL10305	PL10305	PL10310	PL10315

NOTES:

1. The primary inductance for any configuration can be calculated as:
   Primary Inductance (µH Min) = 2.4 * (Primary Turns)^2
2. The above base part numbers (**PL103XX) are available from stock.**
3. It is possible to add a small gap to the transformer. Gapped transformers are non-standard and can be made available upon request, but are not typically available from stock. To request a gapped version of the transformer, add a suffix "**G**" to the base number (ie: PL10301**G or PL10301GNL**). The nominal inductance with a gap can be calculated as: Primary Inductance (µH Nominal) = 0.69 (Primary Turns)^2
4. It is possible to add a primary side aux. winding to any of the above configurations as shown in the schematics. Transformers with primary size aux. windings are non-standard and can be made available upon request, but are not typically available from stock. The primary aux. winding can be between 2 and 16 turns. To add a primary aux. winding to a given base, use the extension .0XX. For example, to add a 4T aux. winding to the base part number PL10301NL, use the part number PL10301.004NL. To add a 16T aux. winding, use the part number PL10301.016NL.
5. Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the complete part number (i.e. PL10301 becomes PL10301T for no AUX- PL10301.009 becomes PL10301.009NLT for 9T AUX). Pulse complies to industry standard tape and reel specification EIA481.

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