HIGH FREQUENCY PLANAR TRANSFORMERS

Ruggedized

- Height: 7.4mm MAX
- Footprint: 19.8mm x 19.6mm MAX
- Current Rating: up to 73A
- Inductance Range: 0.405µH to 6.2µH
- Operating Temperature: -40°C to +130°C
- Moisture Sensitivity Level: 1

Electrical Specifications @ 25°C

Part Number	Inductance @ Irated (µH ±15%)	Irated [3] (ADC)	DCR (mΩ)		Inductance @ 0 ADC (µH ±15%)	Saturation Current [4]		Heating Current [5] (A)
			TYP	MAX		25°C	100°C	
2-TURN (LOW-LOSS) SERIES								
PL10100	0.45	73	0.38	0.48	0.45	95	80	73
PL10101	0.63	54	0.38	0.48	0.65	63	53	73
PL10102	0.85	39	0.38	0.48	0.91	46	37	73
PL10103	1.05	30	0.38	0.48	1.10	35	30	73
PL10104	1.25	25	0.38	0.48	1.30	29	26	73
PL10105	1.45	21	0.38	0.48	1.50	24	22	73
2-TURN SERIES								
PL10106	0.45	52	0.78	0.98	0.45	95	80	52
PL10107	0.63	52	0.78	0.98	0.65	63	53	52
PL10108	0.85	39	0.78	0.98	0.91	46	37	52
PL10109	1.05	30	0.78	0.98	1.10	35	30	52
PL10110	1.25	25	0.78	0.98	1.30	29	26	52
PL10111	1.45	21	0.78	0.98	1.50	24	22	52
3-TURN SERIES								
PL10112	0.95	42	1.15	1.43	1.00	68	54	42
PL10113	1.40	36	1.15	1.43	1.50	43	35	42
PL10114	1.90	25	1.15	1.43	2.00	29	25	42
PL10115	2.40	20	1.15	1.43	2.50	23	21	42
PL10116	2.80	15	1.15	1.43	3.00	18	16	42
PL10117	3.40	12	1.15	1.43	3.50	15	13	42
4-TURN SERIES								
PL10118	1.60	37	1.44	1.80	1.60	55	43	37
PL10119	2.40	30	1.44	1.80	2.42	35	27	37
PL10120	3.30	17	1.44	1.80	3.60	20	18	37
PL10121	4.00	14	1.44	1.80	4.40	16	15	37
PL10122	4.90	11	1.44	1.80	5.34	13	12	37
PL10123	5.80	9	1.44	1.80	6.20	11	10	37

NOTES:

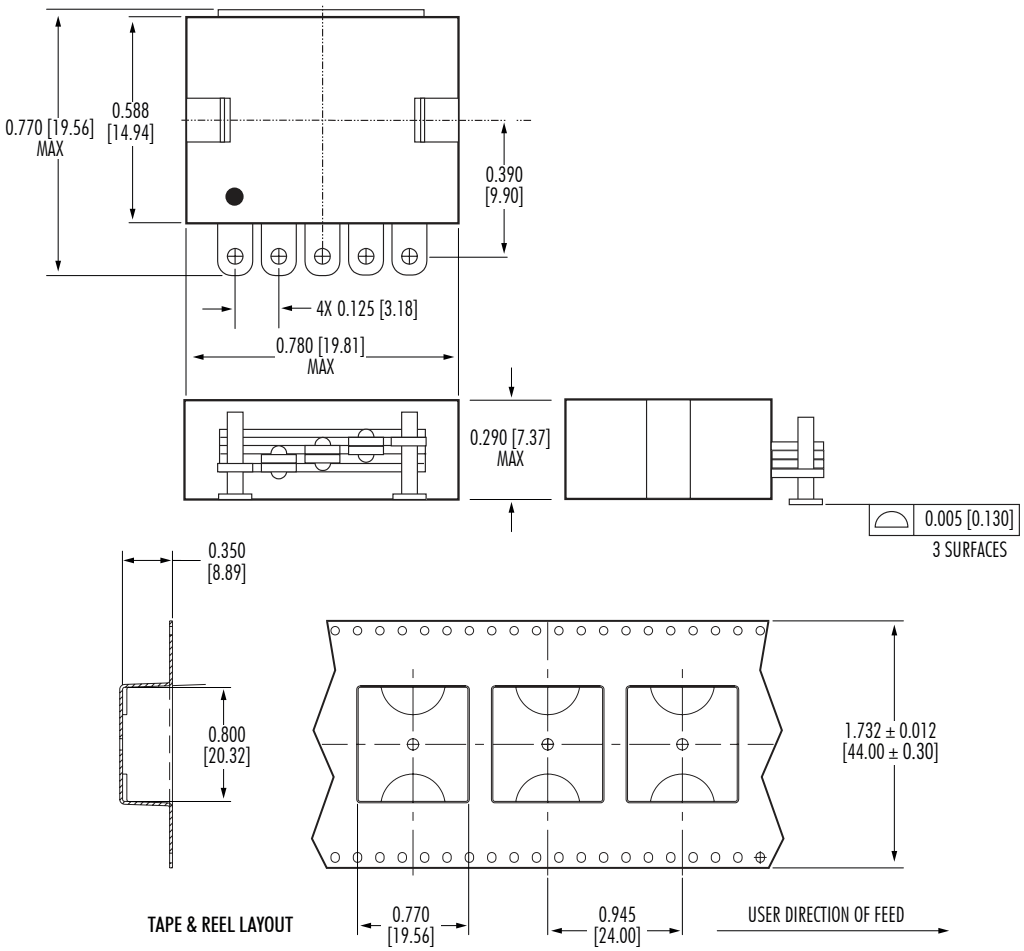
1. Add suffix "NL" for RoHS (Non-Lead) compliant version; i.e. PL10101 becomes **PL10101NL**.
2. For Tape & Reel packaging, add "T" suffix at the end of the part number: i.e. **PL10101T**
3. The rated current as listed is either 85% of the saturation current or the heating current, depending on which value is lower.
4. The saturation current is the current which causes the inductance to drop by 15% at the stated ambient temperature (25°C and 100°C). This current is determined by placing the component in the specified ambient environment and applying a short durationg pulse current (to eliminate self-heating effects) to the component.
5. 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 0.25" wide, 2 oz. equivalent copper traces, and applying the current to the device for 30 minutes with no forced air cooling.
6. 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 teh component. In order to determine the approximate total losses (or temperature rise) for a given application, the total copper and core losses should be taken into account. For approximate value of core losses, in a given application, use the core loss graph on page 24.
7. Meets solerability test per IPC/EIA J-STD-002B using flux type ORL0.

Mechanicals

PL101XX

Dimensions: inch [mm]
Tolerance (unless otherwise specified)**:** ±0.010 [0.25]

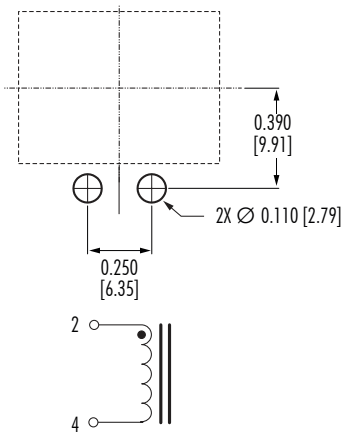
Weight: .....TBD
Tray:.....TBD



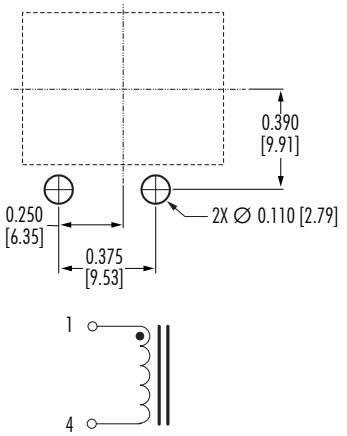
Suggested Pad Layout and Schematics

PL101XX

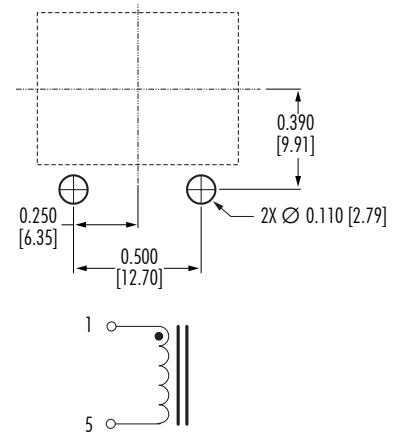
PL10100 - PL10111
0.405 to 1.50 µH
21 to 73 ADC



PL10112 - PL10117
1.00 to 3.40 µH
12 to 42 ADC



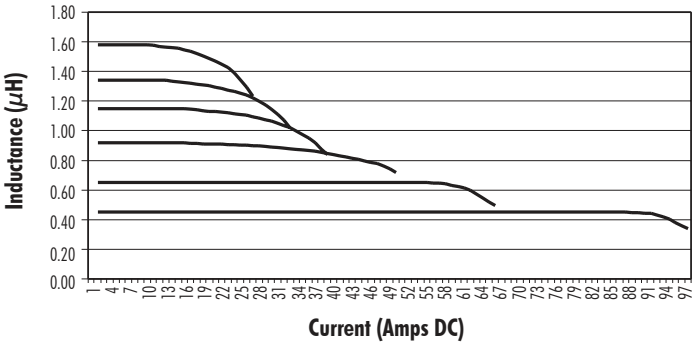
PL10118 - PL10123
1.60 to 6.20 µH
9 to 37 ADC



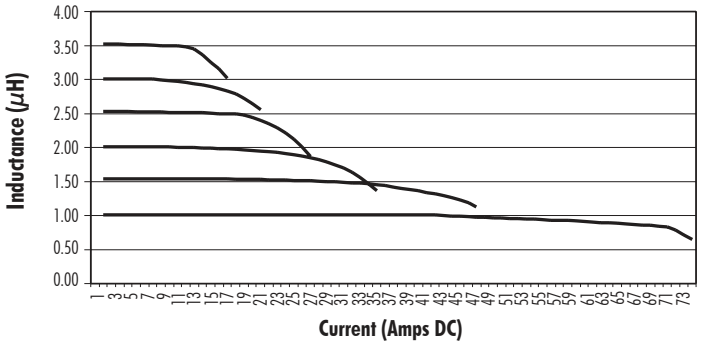
Inductance vs. Current Characteristics (25°C)

PL101XX

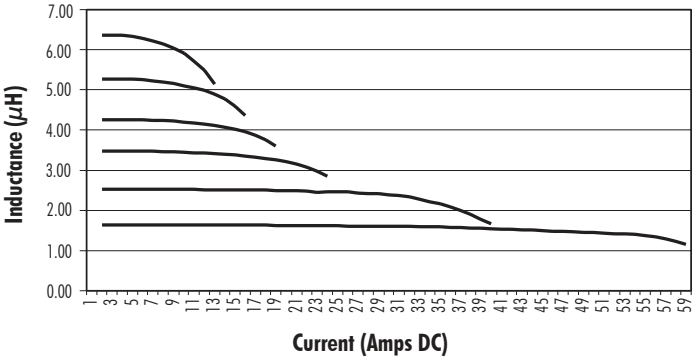
PL10110 - PL10111



PL10112 - PL10117



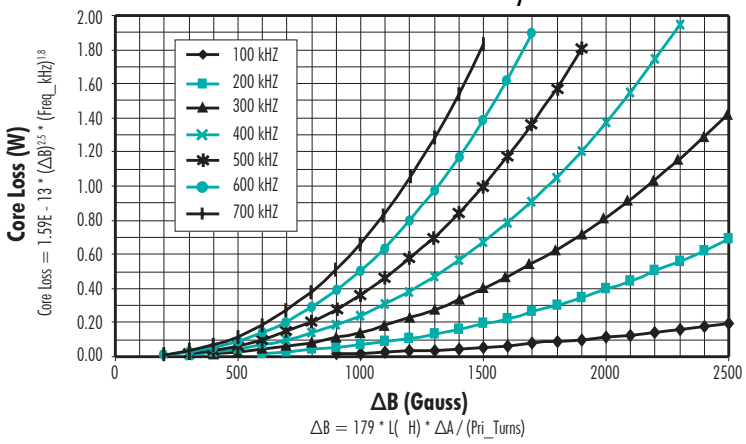
PL10118 - PL10123



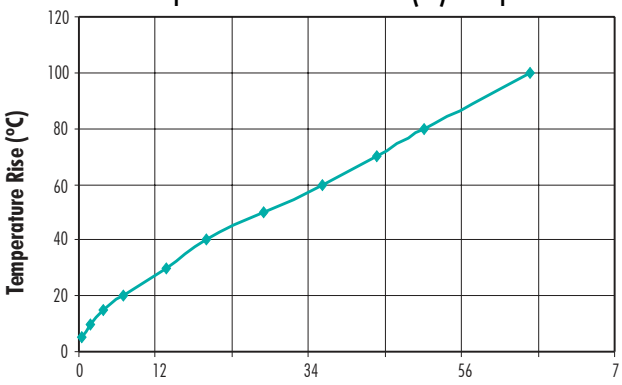
Measurement Charts

PL101XX

Core Loss vs. Flux Density



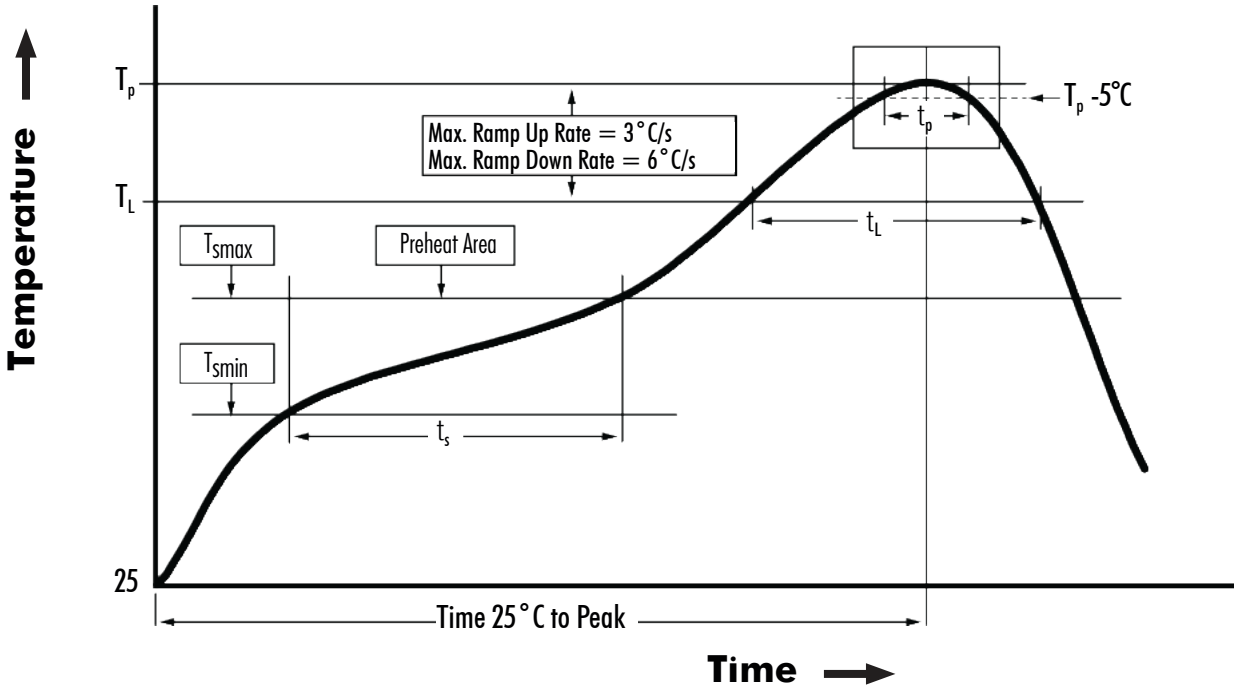
Temperature Rise vs. Power (W) Dissipation



Total Power Dissipation = Copper Loss (W) + Core Loss (W)

Copper Loss (W) = Current (rms)2 * DCR (mΩ) / 1000
Core Loss (W) = per table

Tin/Lead Recommended Reflow Profile (Based on J-STD-020D)



T_{SMIN} (°C)	T_{SMAX} (°C)	T_L (°C)	T_P (°C MAX)	t_S (s)	t_L (s)	t_P (s MAX)	Ramp-up rate (T_L to T_P)	Ramp-down rate (T_P to T_L)	Time 25°C to peak temperature (s MAX)
100	150	183	235	60 - 120	60 - 150	20	3°C/s MAX	6°C/s MAX	360

NOTES:

1. All temperatures measured on the package leads.
2. Maximum times of reflow cycle: 2

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