HIGH FREQUENCY PLANAR TRANSFORMERS

Ruggedized

NJ/./VV Qcpgcq

- Fcgefr8 5,2kk K_v
- Dmmrnpglr8 /7,6kk v /7,4kk K_v
- Asppclr P_rgle8 sn rm 51?
- Glbsar_lac P_lec8 ,2.3ØF rm 4,0ØF
- Kmgqrspc Qclqgrgtgrw Jctcj8 /

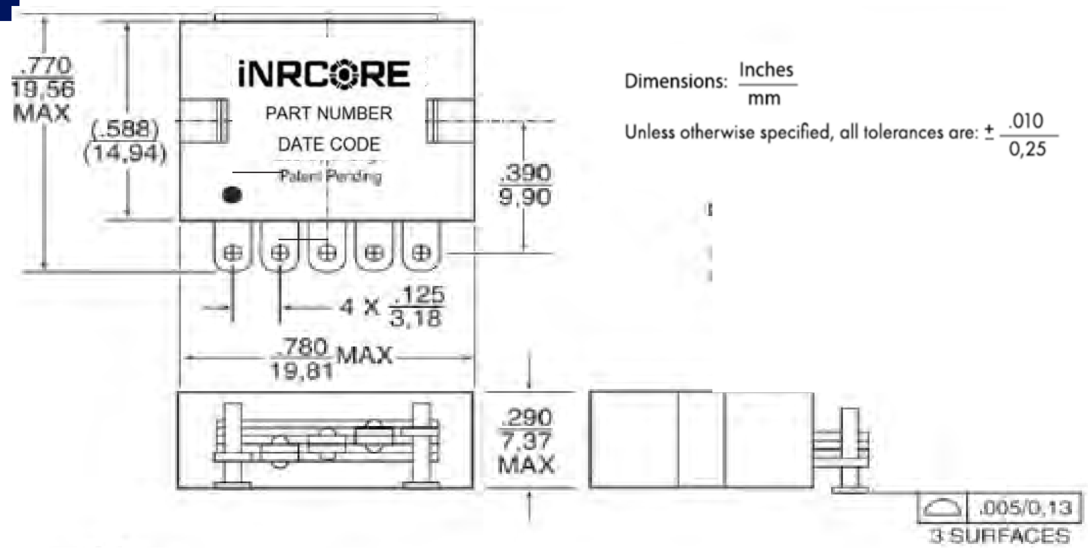
Electrical Specifications @ 25 °C – Operating Temperature – 40°C to +130 °C

Part Number 5,7	Inductance @ Irated (μH ±15%)	Irated 1 (A_{DC})	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @ 0 A_{DC} (μH ±15%)	Saturation Current 2 25°C	Saturation Current 2 100°C	Heating Current 3 (A)
2-TURN (LOW - LOSS) SERIES								
PL10100	0.45	73	.38	.48	0.45	95	80	73
PL10101	0.63	54	.38	.48	0.65	63	53	73
PL10102	0.85	39	.38	.48	0.91	46	37	73
PL10103	1.05	30	.38	.48	1.10	35	30	73
PL10104	1.25	25	.38	.48	1.30	29	26	73
PL10105	1.45	21	.38	.48	1.50	24	22	73
2-TURN SERIES								
PL10106	0.45	52	.78	.98	0.45	95	80	52
PL10107	0.63	52	.78	.98	0.65	63	53	52
PL10108	0.85	39	.78	.98	0.91	46	37	52
PL10109	1.05	30	.78	.98	1.10	35	30	52
PL10110	1.25	25	.78	.98	1.30	29	26	52
PL10111	1.45	21	.78	.98	1.50	24	22	52
3-TURN SERIES								
PL10112	0.95	42	1.15	1.43	1.0	68	54	42
PL10113	1.40	36	1.15	1.43	1.5	43	35	42
PL10114	1.90	25	1.15	1.43	2.0	29	25	42
PL10115	2.40	20	1.15	1.43	2.5	23	21	42
PL10116	2.80	15	1.15	1.43	3.0	18	16	42
PL10117	3.40	12	1.15	1.43	3.5	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. Parts can be ordered Non-Lead by adding "NL" to the part number (i.e. **PL10303NL**)
2. Optional Tape & Reel packaging can be ordered by adding a "T" suffix at the end of the part number (i.e. **PL10301T**)
3. The rated current as listed is either 85% of the s aturation 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 temperatures (25°C and 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.
5. The heating current is the DC current which causes the t emperature of the part to increase by approximately 45°C. This current is deter-mined by mounting the component on a PCB with .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 neccessitate derating the current in order to limit the temperature rise of the com-ponent. In order to determine the approximate total losses (or tem-perature 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 solderability test per IPC/EIA J-STD-002B using flux type ORL0.

Mechanical

PL101XX

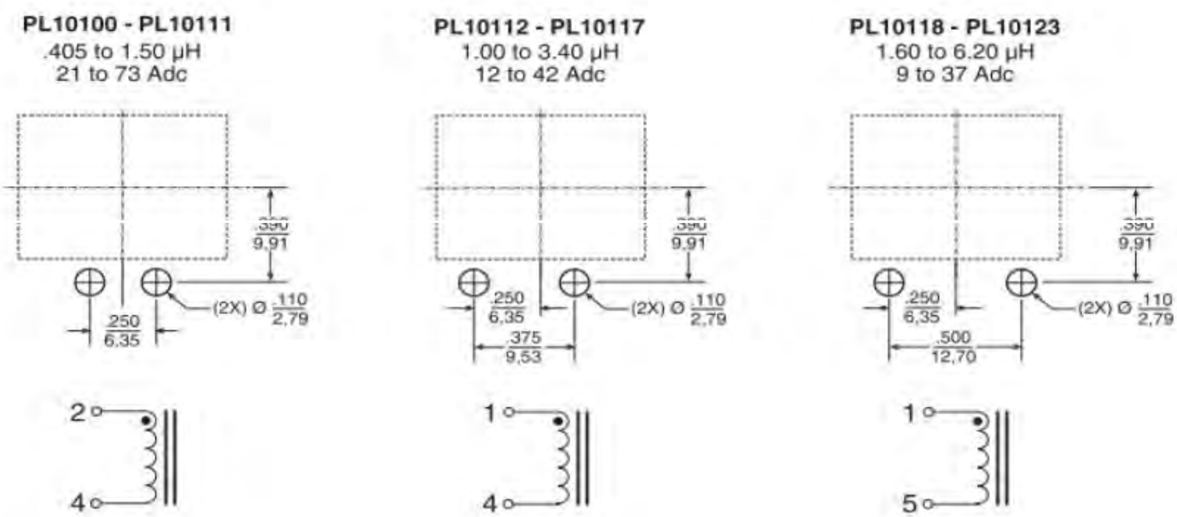


Dimensions: Inches / mm

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

Suggested Pad Layouts and Schematics

PL101XX



Inductance vs. Current Characteristics (25°C)

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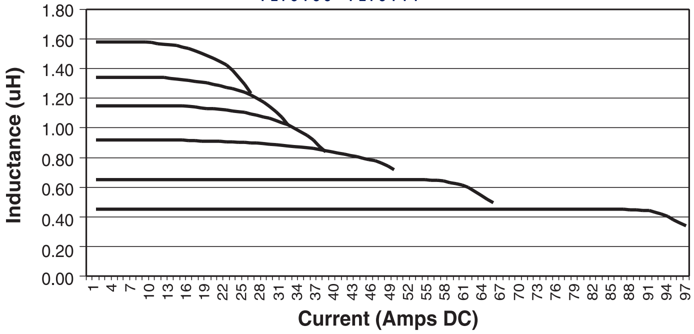
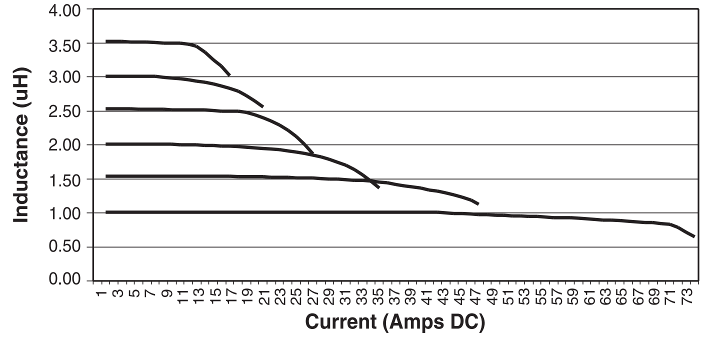
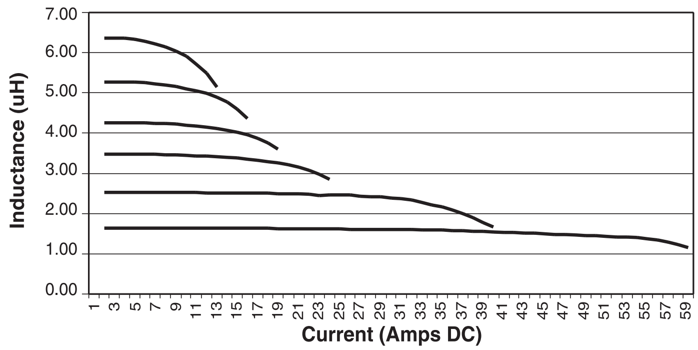
PL10100 - PL10111



PL10112 - PL10117



PL10118 - PL10123



Measurements Charts

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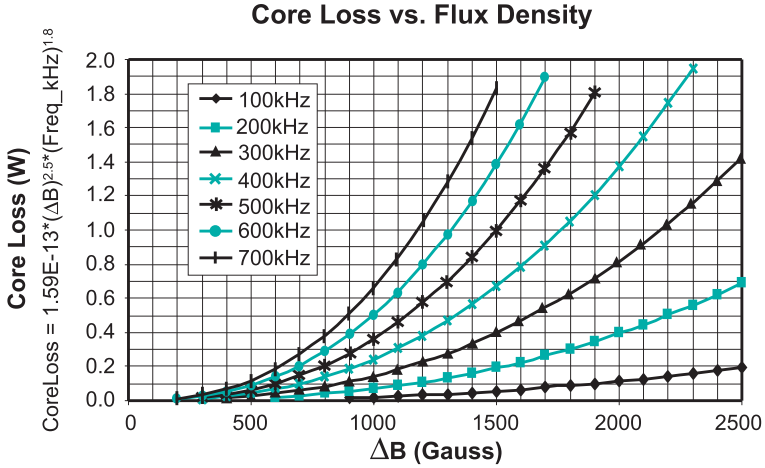
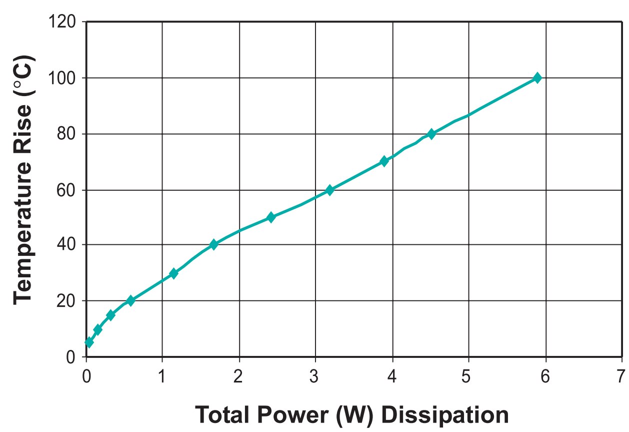
Core Loss vs. Flux Density



ΔB = 179 * L(μH) * ΔA / (Pri_Turns)

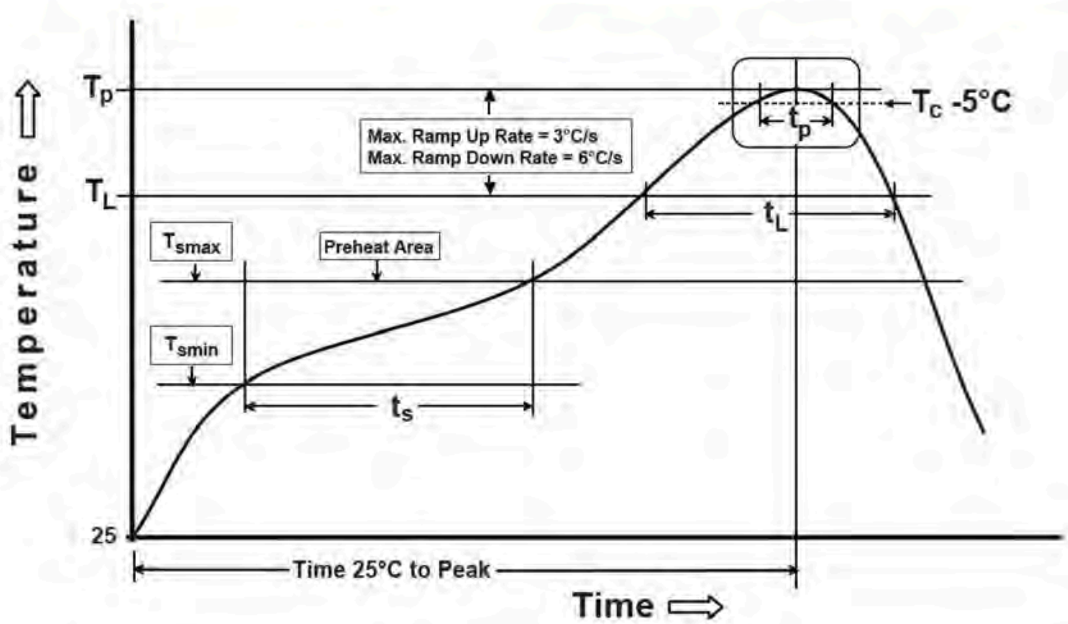
Temperature Rise vs. Power (W) Dissipation



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.

For More Information

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iNRCORE:

PL10100 PL10100NL PL10100NLT PL10100T PL10101 PL10101NL PL10101NLT PL10101T PL10102 PL10102NL PL10102NLT PL10102T PL10103 PL10103NL PL10103NLT PL10103T PL10104 PL10104NL PL10104NLT PL10104T PL10105 PL10105NL PL10105NLT PL10105T PL10106 PL10106NL PL10106NLT PL10106T PL10107 PL10107NL PL10107NLT PL10107T PL10108 PL10108NL PL10108NLT PL10108T PL10109 PL10109NL PL10109NLT PL10109T PL10110 PL10110NL PL10110NLT PL10110T PL10111 PL10111NL PL10111NLT PL10111T PL10112 PL10112NL PL10112NLT PL10112T PL10113 PL10113NL PL10113NLT PL10113T PL10114 PL10114NL PL10114NLT PL10114T PL10116 PL10116NL PL10116NLT PL10116T PL10117 PL10117NL PL10117NLT PL10117T PL10118 PL10118NL PL10118NLT PL10118T PL10119 PL10119NL PL10119NLT PL10119T PL10120 PL10120NL PL10120NLT PL10120T PL10121 PL10121NL PL10121NLT PL10121T PL10122 PL10122NL PL10122NLT PL10122T PL10123 PL10123NL PL10123NLT PL10123T