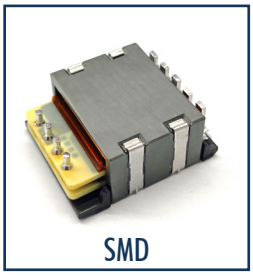
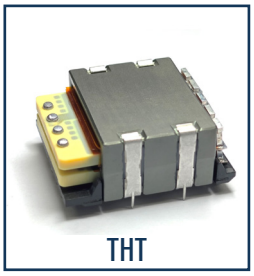
# HIGH FREQUENCY PLANAR TRANSFORMERS

Ruggedized

iNRCORE FAMILY OF BRANDS



SMD



THT

- Power Rating up to 1000W
- Frequency Range: 100kHz to 700kHz
- Isolation (Primary to Secondary & Core): 3000VAC
- Package: SMD or THT
- Operating & Storage Temperature: -55°C to +130°C
- Lead Finish: SnPb
- Moisture Sensitivity Level: 1

## Electrical Specifications @ 25°C

| Part Number | Turns Ratio (±5%) | | ET [3] (V*µsec) MAX | Primary [4] Inductance | Leakage [5] Inductance | DCR (mΩ MAX) | | |
|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | (1-4) | (µH MIN) | (µH MAX) | Primary A | Primary B | Secondary |
| SCHEMATIC A1 - SMD Package | | | | | | | | |
| PL10510 | 6T&6T | 4T (1T:1T:1T:1T) | 440 | 810 | 0.60 | 18 | 18 | 1.5 |
| PL10511 | 6T&8T | | 510 | 1110 | 0.80 | 18 | 24 | 1.5 |
| PL10512 | 8T&8T | | 580 | 1450 | 1.10 | 24 | 24 | 1.5 |
| PL10513 | 8T&10T | | 650 | 1830 | 1.40 | 24 | 30 | 1.5 |
| PL10514 | 10T&10T | | 730 | 2260 | 1.80 | 30 | 30 | 1.5 |
| PL10515 | 10T&12T | | 800 | 2740 | 2.20 | 30 | 36 | 1.5 |
| PL10516 | 12T&12T | | 870 | 3260 | 2.70 | 36 | 36 | 1.5 |
| SCHEMATIC A2 - SMD Package | | | | | | | | |
| PL10517 | 6T&6T | 2T (1T:1T) | 440 | 810 | 0.60 | 18 | 18 | 0.50 & 0.50 |
| PL10518 | 6T&8T | | 510 | 1110 | 0.80 | 18 | 24 | 0.50 & 0.50 |
| PL10519 | 8T&8T | | 580 | 1450 | 1.10 | 24 | 24 | 0.50 & 0.50 |
| PL10520 | 8T&10T | | 650 | 1830 | 1.40 | 24 | 30 | 0.50 & 0.50 |
| PL10521 | 10T&10T | | 730 | 2260 | 1.80 | 30 | 30 | 0.50 & 0.50 |
| PL10522 | 10T&12T | | 800 | 2740 | 2.20 | 30 | 36 | 0.50 & 0.50 |
| PL10523 | 12T&12T | | 870 | 3260 | 2.70 | 36 | 36 | 0.50 & 0.50 |
| SCHEMATIC A1 - THT Package | | | | | | | | |
| PL10524 | 6T&6T | 4T (1T:1T:1T:1T) | 440 | 810 | 0.60 | 18 | 18 | 1.5 |
| PL10525 | 6T&8T | | 510 | 1110 | 0.80 | 18 | 24 | 1.5 |
| PL10526 | 8T&8T | | 580 | 1450 | 1.10 | 24 | 24 | 1.5 |
| PL10527 | 8T&10T | | 650 | 1830 | 1.40 | 24 | 30 | 1.5 |
| PL10528 | 10T&10T | | 730 | 2260 | 1.80 | 30 | 30 | 1.5 |
| PL10529 | 10T&12T | | 800 | 2740 | 2.20 | 30 | 36 | 1.5 |
| PL10530 | 12T&12T | | 870 | 3260 | 2.70 | 36 | 36 | 1.5 |
| SCHEMATIC A2 - THT Package | | | | | | | | |
| PL10531 | 6T&6T | 2T (1T:1T) | 440 | 810 | 0.60 | 18 | 18 | 0.50 & 0.50 |
| PL10532 | 6T&8T | | 510 | 1110 | 0.80 | 18 | 24 | 0.50 & 0.50 |
| PL10533 | 8T&8T | | 580 | 1450 | 1.10 | 24 | 24 | 0.50 & 0.50 |
| PL10534 | 8T&10T | | 650 | 1830 | 1.40 | 24 | 30 | 0.50 & 0.50 |
| PL10535 | 10T&10T | | 730 | 2260 | 1.80 | 30 | 30 | 0.50 & 0.50 |
| PL10536 | 10T&12T | | 800 | 2740 | 2.20 | 30 | 36 | 0.50 & 0.50 |
| PL10537 | 12T&12T | | 870 | 3260 | 2.70 | 36 | 36 | 0.50 & 0.50 |

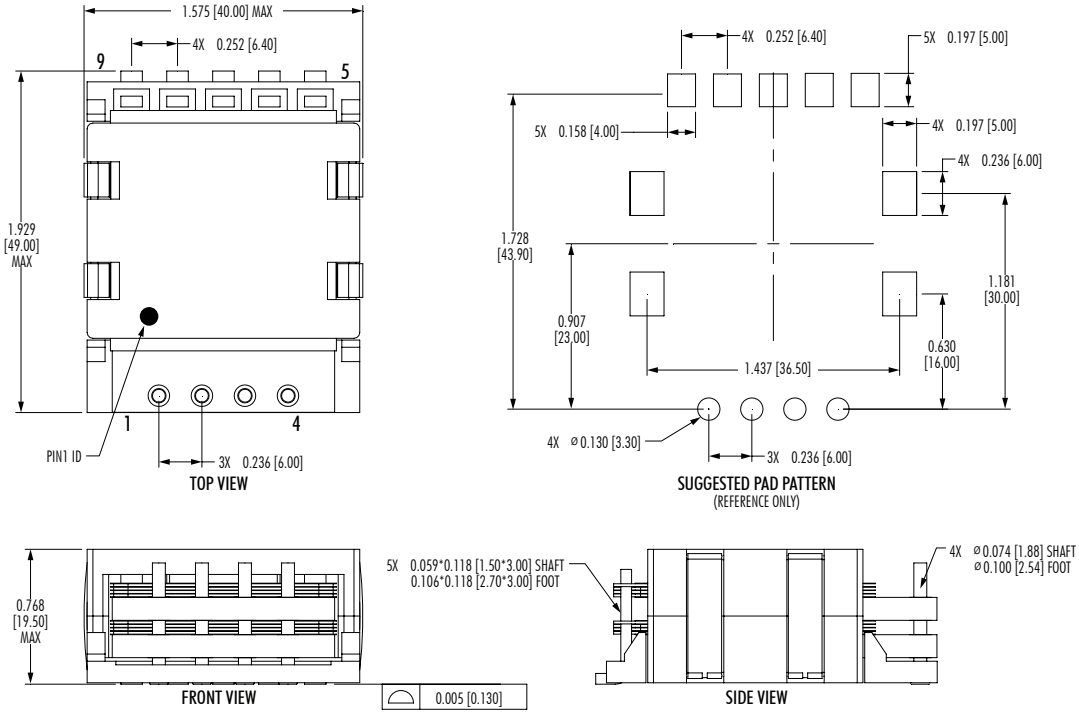
NOTES:

1. Add suffix "**NL**" for RoHS compliant version; i.e. PL10501 becomes **PL10510NL**.
2. For Tape & Reel packaging, add "**T**" suffix at the end of the part number: i.e. **PL10510T**.
3. The maximum volt-µsec rating limits the peak flux density to 2200 Gauss when used in a unipolar drive application. For bi-polar drive applications a maximum volt-µsec of two times this rating is acceptable (i.e.: 2 * (volt*µsec rating) Volt*µsec = (voltage applied to the primary) * dutycycle / Frequency = V * alpha / Freq_Hz = V * µsec.
4. Inductance is measured at 100KHz, 0.1Vrms across terminals 1-4 with terminals 2 and 3 connected together.
5. Leakage Inductance is measured at 100KHz, 0.1Vrms across terminals 1-4 with terminals 2 and 3 connected together and secondaries shorted.

## Mechanicals

### PL105XX (SMD)

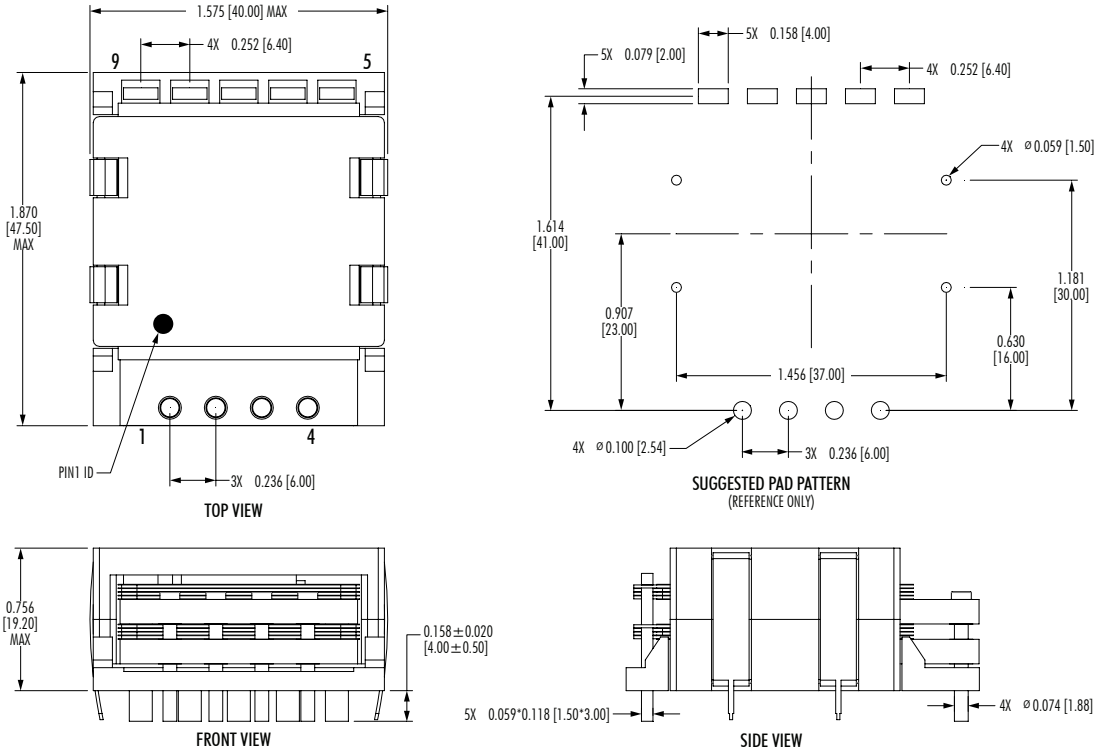
**Dimensions:** inch [mm]
**Tolerance** (unless otherwise specified): ±0.020 [0.50]




## Mechanicals

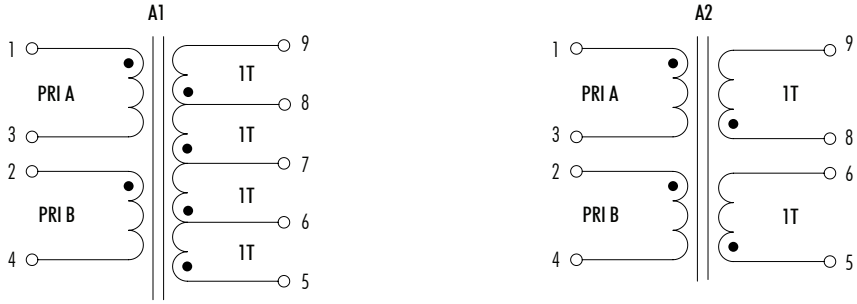
### PL105XX (THT)

**Dimensions:** inch [mm]
**Tolerance** (unless otherwise specified): ±0.020 [0.50]

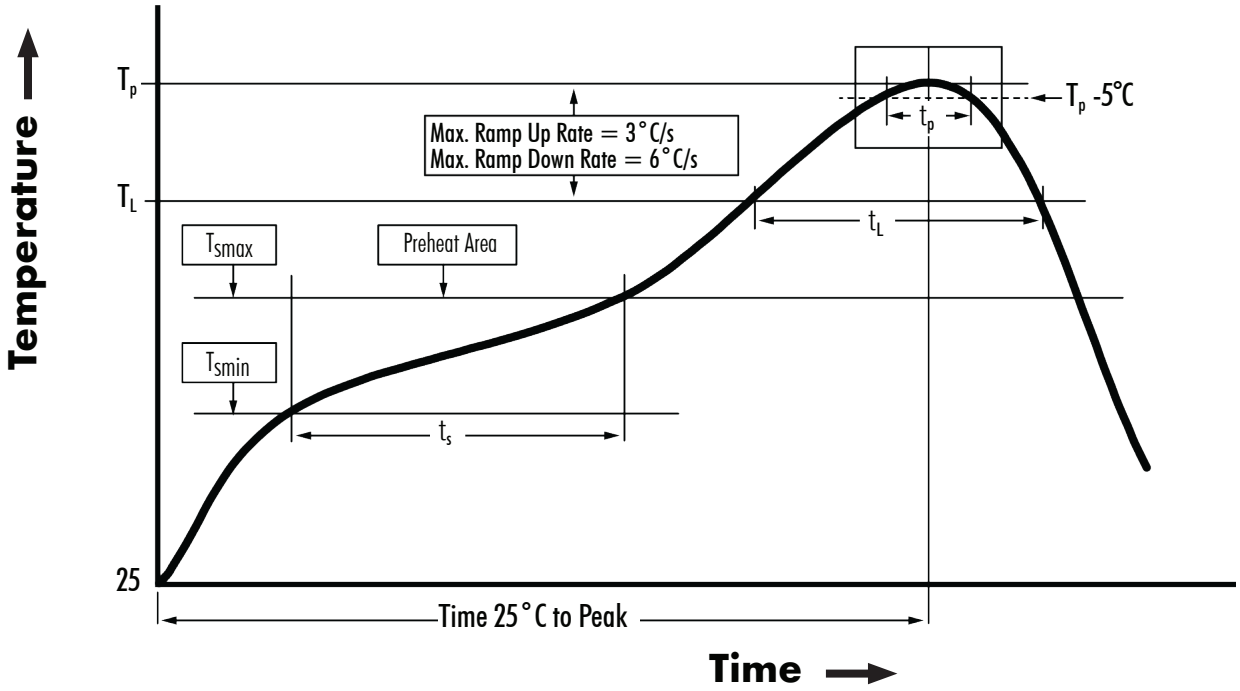


## Double Interleave Schematics

**PL105XX**




## 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) |
|---|---|---|---|---|---|---|---|---|---|
| Tin/Lead Profile | | | | | | | | | |
| 100 | 150 | 183 | 220 | 60 - 120 | 60 - 150 | 20 | 3°C/s MAX | 6°C/s MAX | 360 |
| Non-Lead Profile | | | | | | | | | |
| 150 | 200 | 217 | 245 | 60 - 120 | 60 - 150 | 30 | 3°C/s MAX | 6°C/s MAX | 480 |

NOTES:

1. All temperatures measured on the package leads.
2. Maximum number of reflow cycles not to exceed 2.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