# OFFLINE GATE DRIVE TRANSFORMERS

Pulse® A TECHNITROL COMPANY

RoHS COMPLIANT

- UL and C-UL recognized, TÜV approved components
- 3000Vrms gate to drive winding test
- Useful operating frequency from 50kHz to 500kHz
- Most popular winding configurations

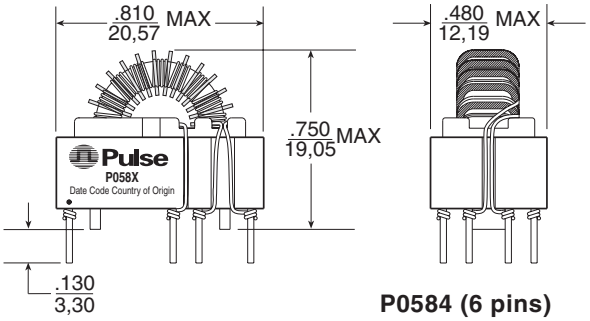
## Electrical Specifications @ 25°C — Operating Temperature -40°C to 130°C

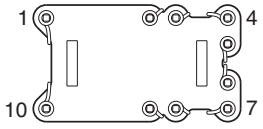
| Part [4] Number | Turns Ratio | Reference Data | | Primary Inductance (1-10) (µH MIN) | Leakage Inductance Gate to Drive (µH MAX) | DCR Drive (1-10) (mΩ ±20%) | DCR Gates (mΩ ±20%) | Drive Pri-Sec (Vrms) |
|---|---|---|---|---|---|---|---|---|
| | | ET (V * µsec MAX) | Maximum Flux Density | | | | | |
| **P0584** | 1:1:1 | 95.0 | 2100 | 450 | 0.5 | 80 | 72 | 3000 |
| **P0585** | 1:1:1:1:1 | 95.0 | 2100 | 450 | 3.0 | 330 | 180 | 3000 |

**NOTES:**

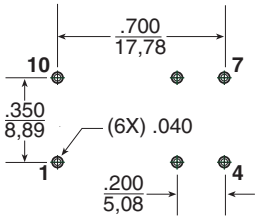
1. These gate drive transformers are meant to operate between 50 and 300kHz with a 12V, 45% bipolar waveform.
2. The peak flux density should remain below 2100 Gauss to ensure that the core does not saturate. Use the following procedure to calculate the peak flux density:
   A. Calculate the Volt-µsec product (ET):
   $ET = 10^3 * (\text{Drive Voltage}) * (\text{Don}) / (\text{Frequency in kHz})$
   B. Calculate the operating flux density (B): Bpk (Gauss) = 40.32 * ET/Ff where: Ff = 1 for unipolar drive applications and 2 for bipolar drive applications
3. The temperature rise of the component is calculated based on the total core loss and copper loss:
   A. To calculate total copper loss (W), use the following formula:
   Copper Loss (W) = $Irms^2$ * (DCR_Drive + (# of Gates) * DCR_Gates)
   B. To calculate total core loss (W), use the following formula:
   Core Loss (W) = 7.5E-5 * (Frequency in kHz)$^{1.67}$ * (20.16 * ET/1000)$^{2.532}$
   C. To calculate temperature rise, use the following formula:
   Temperature Rise (C) = 60.18 * (Core Loss(W) + Copper Loss (W))$^{.833}$
4. To order RoHS compliant part, add the suffix "**NL**" to the part number (i.e. P0584 becomes P0584**NL**).

## Mechanical

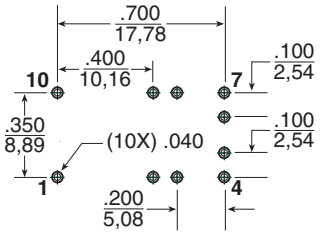



**P0584 (6 pins)**



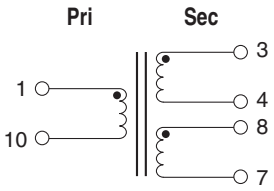

**P0585 (10 pins)**



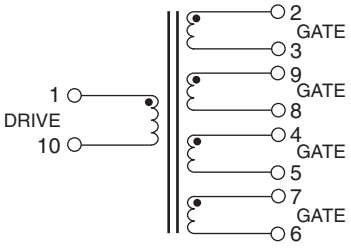

SUGGESTED PCB HOLE PATTERN

## Schematics

**P0584**




**P0585**




**Weight** . . . . . .5 grams
**Tray** . . . . . .20/tray

**Dimensions:** Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

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