# THT CURRENT SENSE TRANSFORMERS

Pulse
A TECHNITROL COMPANY


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

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

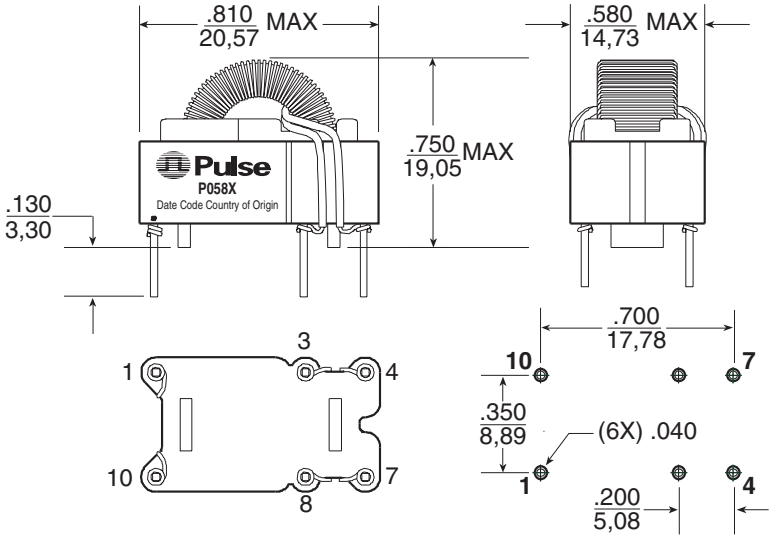
| Part Number | Turns Ratio | Primary Inductance (1-10) (mH MIN) | DCR Pri (1-10) (Ω MAX) | DCR Sec1 (3-7) (mΩ ±15%) | DCR Sec2 (4-8) (mΩ ±15%) | Hi-Pot (Pri-Sec) (Vrms) |
|---|---|---|---|---|---|---|
| **P0581** | 200:1:1 | 76 | 2.8 | 1.7 | 1.7 | 3000 |
| **P0582** | 100:1:1 | 19 | 1.4 | 1.7 | 1.7 | 3000 |
| **P0583** | 50:1:1 | 5 | 0.7 | 1.7 | 1.7 | 3000 |

**Additional Specifications**

| Part Number | Reference Data | | | | Calculation Data | |
|---|---|---|---|---|---|---|
| | RT | Ipk (Amps) | Droop (%) | Max Flux Density | Kb | Req (mΩ) |
| **P0581** | 200 | 34 | 1.00 | 2000 | 17.12 | .9 |
| **P0582** | 100 | 35 | 1.98 | 2000 | 68.49 | .8 |
| **P0583** | 15 | 36 | 1.19 | 2000 | 273.97 | .75 |

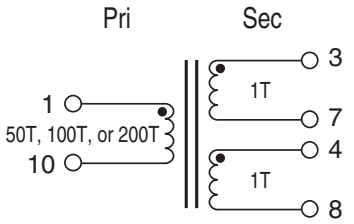
**NOTES:**
1. These current sense transformers have two one turn primaries that can be used in parallel. The listed current ratings are for parallel connection.
2. The reference values are for an application using the termination resistor (Rt) and operating with unipolar waveform at 100 kHz, 40% duty cycle. The estimated temperature rise is 55° C.
3. The peak flux density should remain below 2100 Gauss to ensure that the core does not saturate. Use the following formula to calculate the peak flux density: Bpk = Kb * Ipk * Rt * don/(Ff * Freq. in kHz) where: Rt is the terminating resistor in the application and Ff is 1 for unipolar waveform and 2 for bipolar waveform
4. To calculate the droop: Droop Exponent (D) = Rt * don/(Lpri in mH * Freq. in kHz) %Droop = $(1-e^{-D}) * 100$
5. The temperature rise of the component is calculated based on the total core loss and copper loss:
   A. To calculate total copper loss (W): P(cu) = $Ipk^2$ * Req * Ff * don where: Ff is 1 for unipolar waveform and 2 for bipolar waveform
   B. To calculate total core loss (W): P(core) = 0.000073 * (Freq. in kHz)$^{1.67}$ * (Bop in kG)$^{2.532}$ where: Bop in kG = Kb * Ipk * Rt * don/(2000 * Freq. in kHz)
   C. To calculate temperature rise: Temperature Rise (C) = 60.18 * (Core Loss(W) + Copper Loss (W))$^{.833}$

## Mechanical




SUGGESTED PCB HOLE PATTERN

## Schematic




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

**Dimensions:** Inches / mm

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