THT Current Sense Transformers

Pulse Electronics

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

Electrical Specifications @ 25°C - Operating Temperature -40°C to +130°C						
Part[6] 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%)	**Hipot** (Pri-Sec) (Vrms)
P0581NL	200:1:1	76	2.8	1.7	1.7	3000
P0582NL	100:1:1	19	1.4	1.7	1.7	3000
P0583NL	50:1:1	5	0.7	1.7	1.7	3000

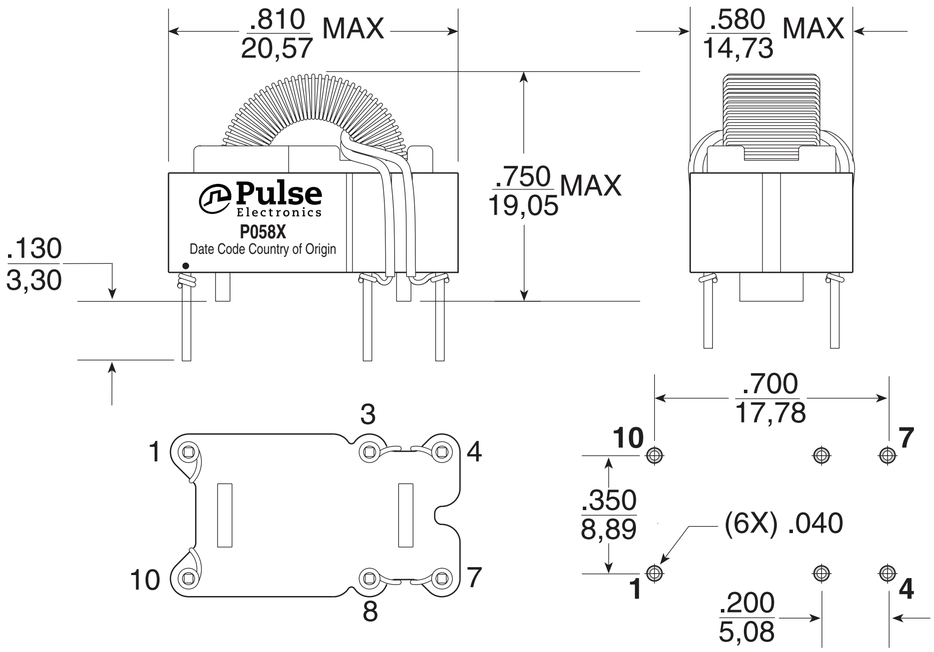
Additional Specifications						
	Reference Data				**Calculation Data**	
Part Number	**RT**	**Ipk** (Amps)	**Droop** (%)	**Max Flux Density**	**Kb**	**Req** (mΩ)
P0581NL	200	34	1.00	2000	17.12	.9
P0582NL	100	35	1.98	2000	68.49	.8
P0583NL	15	36	1.19	2000	273.97	.75

Notes:

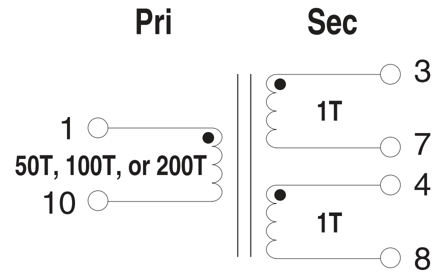
1. These current sense transformers have two one turn primaries that can be used in parallel. The listed current ratings are for parallel connection.
2. The reference values are for an application using the termination resistor (Rt) and operating with unipolar waveform at 100kHz, 40% duty cycle. The 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 the 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 = $(1\text{-}e^{-D})$ * 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 * $(\text{Freq. in kHz})^{1.67}$ * (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 **Schematic**

PXXXX



SUGGESTED PCB HOLE PATTERN



Weight ....5 grams
Tray 20/tray

Dimension: Inches / mm

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

For More Information

Pulse Worldwide Headquarters
12220 World Trade Drive
San Diego, CA
92128
U.S.A.
Tel: 858 674 8100

Pulse Europe
Einsteinstrasse 1
D-71083 Herren-
berg
Germany
Tel: 49 7032 7806

Pulse China Headquarters
B402, Shenzhen Academy of
Aerospace Technol-
ogy Bldg.
10th Kejinan Road
High-Tech Zone
Nanshan District
Shenzen, PR China
518057

Pulse North China
Room 2704/2705
Super Ocean Finance
Ctr.
2067 Yan An Road
West
Shanghai 200336
China

Pulse South Asia
135 Joo Seng Road
#03-02
PM Industrial Bldg.
Singapore 368363
Tel: 65 6287 8998
Fax: 65 6287 8998

Pulse North Asia
3F, No. 198
Zhongyuan Road
Zhongli City
Taoyuan County 320
Taiwan R. O. C.
Tel: 886 3 4356768
Fax: 886 3 4356823
(Pulse)

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