THT Current Sense Transformers

For Arc Fault Detection Circuits

- *Works with the TI SolarMagic RD-195 DC Arc Fault Detection Reference Design Kit*
- *For the TI SM73201-ARC-EV PCB*
- *UL/C-UL recognized components*
- *3000 Vrms gate to drive winding test*
- *Useful operating frequency from 50 kHz to 500 kHz*

Electrical Specifications @ 25°C — Operating Temperature -40°C to 130°C						
Part Number	**Turns Ratio**	**Primary Inductance** (3-7) (mH MIN)	**DCR Pri 1** (3-7) (Ω MAX)	**DCR Pri 2** (4-8) (mΩ MAX)	**DCR Sec** (1-10) (mΩ MAX)	**Hi-Pot** (Pri-Sec) (Vrms)
PA3655NL	200:200:1	76	15.8	15.8	1.7	3000

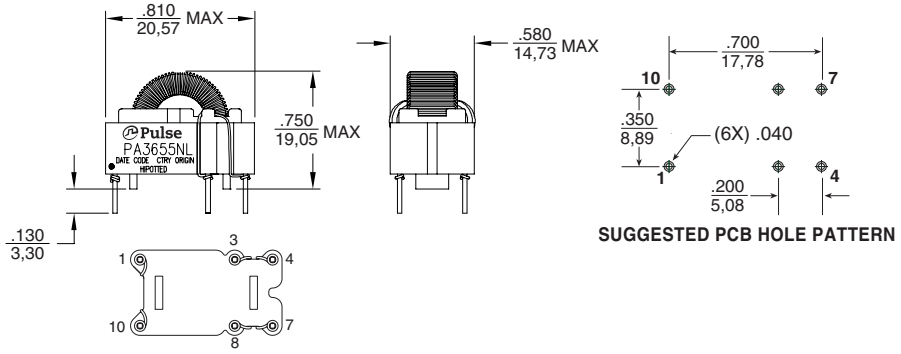
Electrical Specifications @ 25°C — Operating Temperature -40°C to 130°C				
Part Number	**Reference Data**			**Calculation Data**
	RT (Ω)	**Ipk** (Amps)	**Max Flux Density** (Gauss)	**Kb**
PA3655NL	200	34	2000	17.12

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 Ff is 1 for unipolar waveform and 2 for bipolar waveform
4. 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) = Ipk2 * DCR Sec * 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

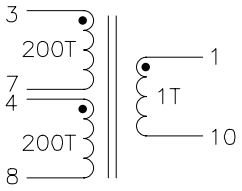
Mechanicals

PA3655NL



SUGGESTED PCB HOLE PATTERN

Schematic



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

Dimensions: Inches / mm

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

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