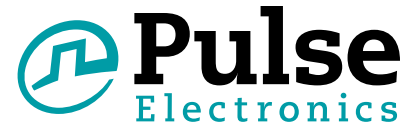


THT Current Sense Transformers

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) ($m\Omega$ MAX) | DCR Sec (1-10) ($m\Omega$ MAX) | Hi-Pot (Pri-Sec) (Vrms) |
|-------------|-------------|--------------------------------------|------------------------------------|-------------------------------------|------------------------------------|----------------------------|
| PA3655NL | 200:200:1 | 76 | 15.8 | 15.8 | 1.7 | 3000 |

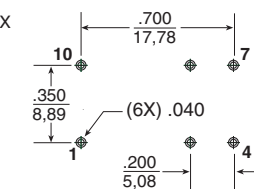
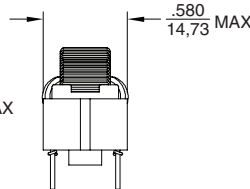
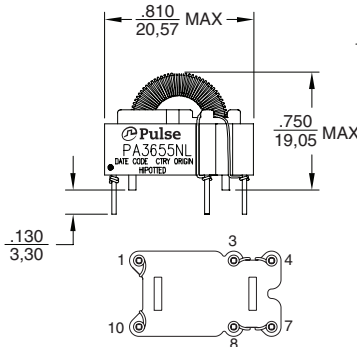
Electrical Specifications @ 25°C — Operating Temperature -40°C to 130°C

| Part Number | Reference Data | | | Calculation Data |
|-------------|--------------------|---------------|-----------------------------|------------------|
| | RT (Ω) | Ipk (Amps) | Max Flux Density (Gauss) | Kb |
| PA3655NL | 200 | 34 | 2000 | 17.12 |

- Notes:
- These current sense transformers have two one turn primaries that can be used in parallel. The listed current ratings are for parallel connection.
 - 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.
 - 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: $B_{pk} = K_b * I_{pk} * R_t * \text{don} / (F_f * \text{Freq. in kHz})$ where: R_t is the terminating resistor in the application and F_f is 1 for unipolar waveform and 2 for bipolar waveform
 - The temperature rise of the component is calculated based on the total core loss and copper loss:
 - To calculate total copper loss (W): $P_{cu} = I_{pk}^2 * DCR_{Sec} * F_f * \text{don}$ where: F_f is 1 for unipolar waveform and 2 for bipolar waveform
 - To calculate total core loss (W): $P_{core} = 0.000073 * (\text{Freq. in kHz})^{1.67} * (B_{op} \text{ in kG})^{2.532}$ where: $B_{op} \text{ in kG} = K_b * I_{pk} * R_t * \text{don} / (2000 * \text{Freq. in kHz})$
 - To calculate temperature rise: $\text{Temperature Rise (C)} = 60.18 * (\text{Core Loss (W)} + \text{Copper Loss (W)})^{.833}$

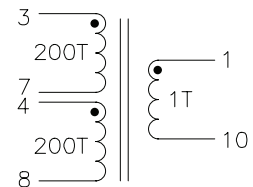
Mechanicals

PA3655NL



SUGGESTED PCB HOLE PATTERN

Schematic



Weight.....5 grams

Tray.....20/tray

Dimensions: $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified, all tolerances are $\pm \frac{.010}{0.25}$

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