

# HIGH FREQUENCY PLANAR TRANSFORMERS

## Spyglass Series (up to 140W)



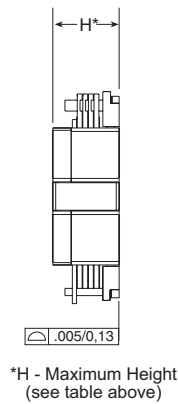
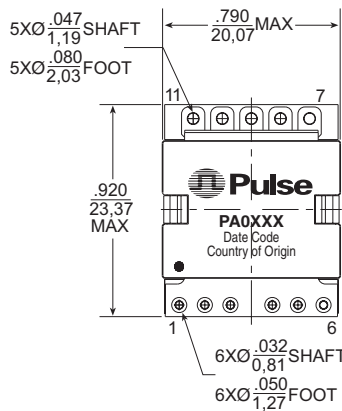
- Power Rating:** up to 140W
- Height:** 8.6mm MAX and 9.7mm MAX
- Footprint:** 23.4mm x 20.1mm MAX
- Frequency Range:** 200kHz to 700kHz

### Electrical Specifications @ 25°C — Operating Temperature -40°C to 125°C

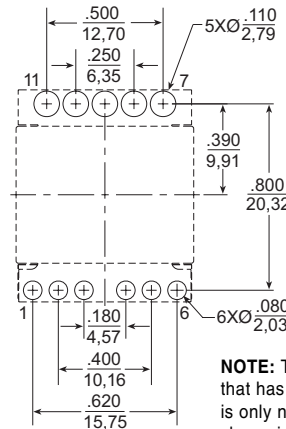
| Part <sup>4,5</sup> Number | Power <sup>1</sup> Rating | Turns Ratio (Pri:Sec)    | Primary <sup>2</sup> Secondary Isolation | Primary Inductance (μH MIN) | Leakage Inductance* (μH MAX) | DCR (mΩ MAX) |              |           | Maximum Height (mm) |
|----------------------------|---------------------------|--------------------------|--|-----------------------------|------------------------------|--------------|--------------|-----------|---------------------|
|                            |                           |                          |  |                             |                              | Primary      | Primary Aux. | Secondary |                     |
| PA0168                     | 100W<br>48v to 3.3v/30A   | 12:2                     | 1500 Vdc Basic                           | 320                         | 0.75                         | 45           | N/A          | 1.30      | 8.6                 |
| PA0369                     | 100W<br>48v to 3.3v/30A   | 6:1                      | 1500 Vdc Basic                           | 65                          | 0.25                         | 15           | N/A          | 0.40      | 8.6                 |
| PA0423                     | 140W<br>48v to 12v/11.7A  | 8:4<br>(w/4T Pri. Aux.)  | 1500 Vdc Basic                           | 140                         | 0.30                         | 35           | 500          | 7.00      | 8.6                 |
| PA0463                     | 50W<br>48v to 3.3v/15A    | 10:2<br>(w/9T Pri. Aux.) | 1500 Vdc Basic                           | 200                         | 1.00                         | 40           | 4885         | 2.50      | 8.6                 |
| PA0491                     | 100W<br>48v to 5.0v/20A   | 8:2                      | 1500 Vdc Basic                           | 140                         | 0.25                         | 35           | N/A          | 1.30      | 8.6                 |
| PA0634                     | 100W<br>48v to 5v/20A     | 8:2<br>(w/5T Pri. Aux.)  | 1500 Vdc Basic                           | 140                         | 0.38                         | 35           | 460          | 1.30      | 8.6                 |
| PA0693                     | 125W<br>48v to 5v/25A     | 12:3<br>(w/4T Pri. Aux.) | 1500 Vdc Basic                           | 346                         | 0.55                         | 50           | 300          | 3.50      | 9.7                 |

\*Leakage inductance is measured at primary terminals with all other windings shorted.

## Mechanicals



### SUGGESTED PAD LAYOUT

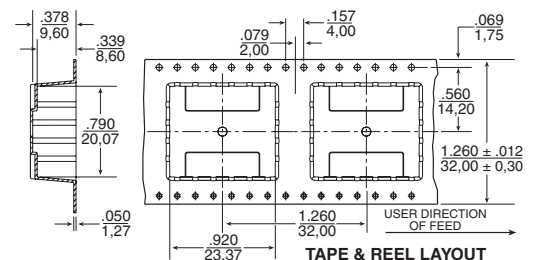
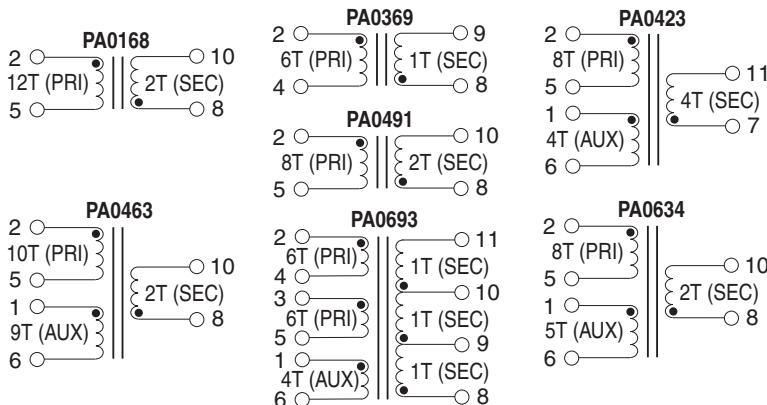


Weight .....11.0 grams  
Tape & Reel.....180/reel  
Tray.....40/tray

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

**NOTE:** The above is a universal footprint for a component that has all 11 pins populated. For a given part number it is only necessary to provide pads for the terminations shown in the schematic below.

## Schematics



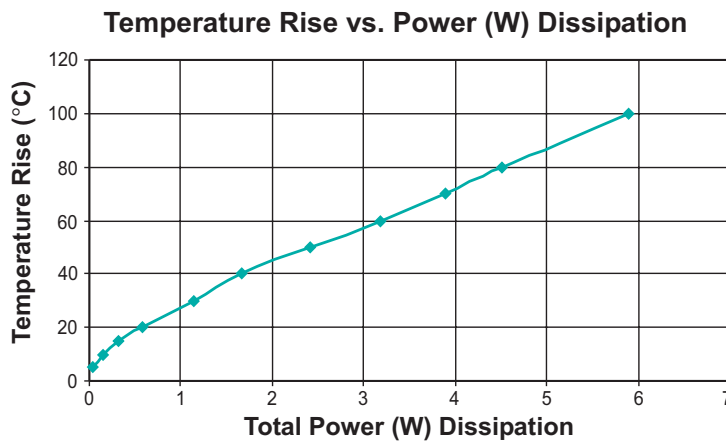
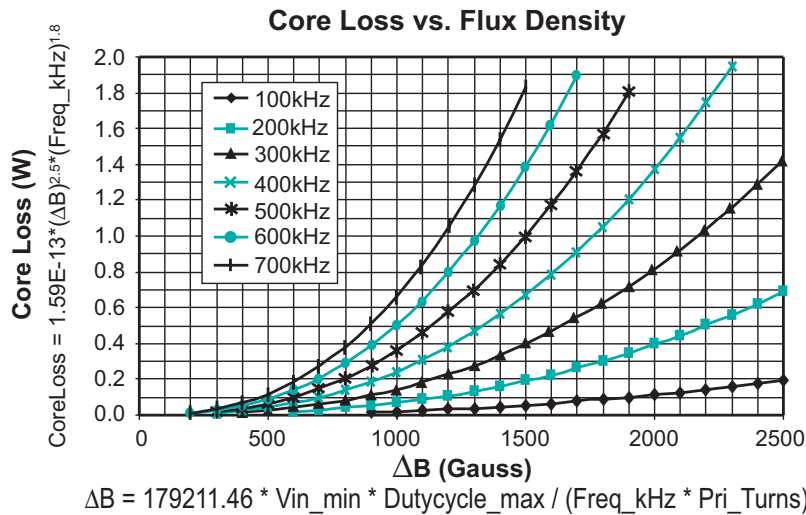
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### Notes from Tables

- The above transformers have been tested and approved by Pulse's IC partners and are cited in the appropriate datasheet or evaluation board documentation at these companies. To determine which IC and IC companies are matched with the above transformers, please refer to the IC cross reference on the Pulse web page. See the Spyglass transformer matrix on the next page for other winding configurations that can be made available.
- The listed transformers are designed to meet basic insulation (1.4mm creepage and clearance with 1500Vdc isolation). Lower cost transformers with operational insulation (1500Vdc isolation with no creepage and clearance spacings) are available. Please contact Pulse Power Applications Engineering for details.
- To determine if the transformer is suitable for your application, it is necessary to ensure that the temperature rise of the component (ambient plus temperature rise) does not exceed its operating temperature. To determine the approximate temperature rise of the transformer, refer to the graphs below.
- Add suffix "T" to part number for Tape & Reel package (i.e. PA0168T).
- RoHS compliant parts are being introduced. Please contact Pulse for RoHS compliant part availability. If available, order part by adding the suffix "NL" to the part number (i.e. PA0168 becomes PA0168NL and PA0168T becomes PA0168NLT).



$$\text{Total Power Dissipation (W)} = .001 * (DCR_{primary} * I_{rms\_primary}^2 + DCR_{secondary} * I_{rms\_secondary}^2) + \text{Core Loss (W)}$$

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