High Isolation Power Transformers
PA200xNL Basic and Operational Insulation

- 1500Vrms isolation (380Vrms continuous)
- Basic insulation (1.4mm creepage/clearance) and operational available
- Operating frequency: 50kHz and up

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

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Turns Ratio</th>
<th>Primary Isolation (VRMS)</th>
<th>MAX$^1$ V$\mu$s</th>
<th>Primary Inductance (µH MIN)</th>
<th>Leakage$^1$ Inductance (µH MAX)</th>
<th>DCR Primary (Ω MAX)</th>
<th>DCR Secondary (Ω MAX)</th>
<th>Package Size (L x W x H) (mm MAX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA2000NL</td>
<td>1:1</td>
<td>1500</td>
<td>12</td>
<td>403</td>
<td>0.46</td>
<td>0.60</td>
<td>0.60</td>
<td>8.6 x 6.7 x 2.5</td>
</tr>
<tr>
<td>PA2002NL</td>
<td>1:1:1</td>
<td>1500</td>
<td>60</td>
<td>1800</td>
<td>0.60</td>
<td>1.60</td>
<td>1.60</td>
<td>9.0 x 8.6 x 7.6</td>
</tr>
<tr>
<td>PA2004NL</td>
<td>1:1:1</td>
<td>1500</td>
<td>20</td>
<td>437</td>
<td>0.85</td>
<td>0.85</td>
<td>0.85</td>
<td>8.6 x 6.7 x 3.6</td>
</tr>
</tbody>
</table>

**Operational Insulation**

**Basic Insulation (1.4mm Creepage and Clearance between Primary and Secondary)**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Turns Ratio</th>
<th>Primary Isolation (VRMS)</th>
<th>MAX$^1$ V$\mu$s</th>
<th>Primary Inductance (µH MIN)</th>
<th>Leakage$^1$ Inductance (µH MAX)</th>
<th>DCR Primary (Ω MAX)</th>
<th>DCR Secondary (Ω MAX)</th>
<th>Package Size (L x W x H) (mm MAX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA2005NL</td>
<td>1:1:1</td>
<td>1500</td>
<td>26</td>
<td>840</td>
<td>0.75</td>
<td>1.05</td>
<td>1.05</td>
<td>11.8 x 8.8 x 4.0</td>
</tr>
<tr>
<td>PA2006NL</td>
<td>1:1:1</td>
<td>1500</td>
<td>26</td>
<td>864</td>
<td>0.75</td>
<td>0.82</td>
<td>0.82</td>
<td>11.8 x 8.8 x 4.0</td>
</tr>
<tr>
<td>PA2007NL</td>
<td>1:1:1</td>
<td>1500</td>
<td>53</td>
<td>1490</td>
<td>1.00</td>
<td>1.15</td>
<td>1.15</td>
<td>9.0 x 8.6 x 7.6</td>
</tr>
<tr>
<td>PA2008NL</td>
<td>2:1:1</td>
<td>1500</td>
<td>52</td>
<td>1425</td>
<td>0.80</td>
<td>1.35</td>
<td>0.575</td>
<td>9.0 x 8.6 x 7.6</td>
</tr>
<tr>
<td>PA2009NL</td>
<td>2.5:1:1</td>
<td>1500</td>
<td>47</td>
<td>1486</td>
<td>0.80</td>
<td>1.35</td>
<td>0.425</td>
<td>9.0 x 8.6 x 7.6</td>
</tr>
</tbody>
</table>

**Notes:**

1. The maximum volt-$\mu$s limits the peak flux density to 2800 Gauss when used in a unipolar drive application. For bi-polar drive applications, a maximum volt-$\mu$s of two times this rating is acceptable (i.e. Z = (volt $\mu$s rating) Volt$^\mu$s = (voltage applied to the primary) * duty cycle / Frequency = V * alpha / Freq_Hz = V * $\mu$s)

2. Leakage inductance is measured at primary terminals with all secondaries shorted.

3. Optional Tape & Reel packaging can be ordered by adding a “T” suffix to the part number (i.e. PA2002NL becomes PA2002NLT). Pulse complies to industry standard tape and reel specification EIA481.

4. The “NL” suffix indicates an RoHS-compliant part number.

5. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

6. Continuous isolation voltage confirmed by 125°C/1000hrs accelerated aging with the bias voltage applied between primary and secondary windings.

**PA2001NL**

**Mechanical**

- Weight: 0.28 grams
- Tape & Reel: 1500/reel
- Tube: 60/tube

**Dimensions:**

- 1.00 2.54
- 0.07 1.78
- 0.365 9.27
- 200 5.08
- 0.240 6.1

**Suggested Pad Layout**

- 4 SURFACES
- 0.005/0.13
- 2.49
- 0.098 MAX

**Schematic**

- 1
- 2
- 3
- 4
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PA200xNL Basic and Operational Insulation

**Mechanicals (CONTINUED)**

**PA2002NL**

![Mechanical Diagram](Image)

**Suggested Pad Layout**

**PA2004NL**

![Mechanical Diagram](Image)

**Suggested Pad Layout**

**Schematics**

**Mechanicals**

**Schematics**

**PA2002NL**

- Weight: 0.60 grams
- Tape & Reel: 400/reel
- Tube: 50/tube

Unless otherwise specified, all tolerances are ± .010 / 0.25

**PA2004NL**

- Weight: 0.23 grams
- Tape & Reel: 800/reel
- Tube: 75/tube

Unless otherwise specified, all tolerances are ± .000 / 0.25
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PA200xNL Basic and Operational Insulation

PA2005NL, PA2006NL

Mechanical (CONTINUED)

Schematic

PA2005NL

PA2006NL

SUGGESTED PAD LAYOUT

PA2007NL, PA2008NL, PA2009NL

Mechanicals

Schematics

PA2008NL / PA2009NL

PA2007NL

Weight .................. 0.48 grams
Tape & Reel ............. 900/reel
Tube ..................... 60/tube

Dimensions: Inches
mm

Unless otherwise specified, all tolerances are ± 0.001
0.25

* for PA2007NL the pads for pins 3 and 6 in the suggested pad layout
should not be used in the layout

Weight .................. 0.60 grams
Tape & Reel ............. 400/reel
Tube ..................... 50/tube

Dimensions: Inches
mm

Unless otherwise specified, all tolerances are ± 0.001
0.25

* for PA2007NL the pads for pins 3 and 6 in the suggested pad layout
should not be used in the layout

PA2005NL

PA2006NL

SUGGESTED PAD LAYOUT

PA2007NL

PA2008NL

PA2009NL

SUGGESTED PAD LAYOUT

 Dimensions:
High Isolation Power Transformers
PA200xNL Basic and Operational Insulation

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