HIGH FREQUENCY FLAT COIL
PLANAR TRANSFORMERS
PH08XXCNL Series (up to 160W)

- **Power Rating:** up to 160 W
- **Height:** 9.1mm to 9.6mm Max
- **Footprint:** 24.7mm x 21.6mm Max
- **Frequency Range:** 200kHz to 700kHz
- **Isolation (Primary to Secondary):** 1500 Vdc
- **Patented:** US Pat 9378885

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

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Turns</th>
<th>Schematic</th>
<th>Primary Inductance (µH Min)</th>
<th>Leakage Inductance (µH Max)</th>
<th>DCR (mΩ MAX)</th>
<th>Maximum Height (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH0801CNL</td>
<td>4T</td>
<td>A1</td>
<td>153</td>
<td>0.45</td>
<td>8.5</td>
<td>7</td>
</tr>
<tr>
<td>PH0802CNL</td>
<td>4T</td>
<td>A1</td>
<td>194</td>
<td>0.45</td>
<td>8.5</td>
<td>7</td>
</tr>
<tr>
<td>PH0803CNL</td>
<td>5T</td>
<td>A1</td>
<td>240</td>
<td>0.55</td>
<td>12.5</td>
<td>7</td>
</tr>
<tr>
<td>PH0804CNL</td>
<td>5T</td>
<td>A1</td>
<td>290</td>
<td>0.60</td>
<td>12.5</td>
<td>9.6</td>
</tr>
<tr>
<td>PH0805CNL</td>
<td>6T</td>
<td>A1</td>
<td>345</td>
<td>0.65</td>
<td>14.2</td>
<td>9.6</td>
</tr>
<tr>
<td>PH0806CNL</td>
<td>4T</td>
<td>A2</td>
<td>153</td>
<td>0.45</td>
<td>8.5</td>
<td>1.0 &amp; 1.0</td>
</tr>
<tr>
<td>PH0807CNL</td>
<td>4T</td>
<td>A2</td>
<td>194</td>
<td>0.55</td>
<td>8.5</td>
<td>1.0 &amp; 1.0</td>
</tr>
<tr>
<td>PH0808CNL</td>
<td>5T</td>
<td>A2</td>
<td>240</td>
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<td>12.5</td>
<td>1.0 &amp; 1.0</td>
</tr>
<tr>
<td>PH0809CNL</td>
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<td>A2</td>
<td>290</td>
<td>0.90</td>
<td>12.5</td>
<td>1.0 &amp; 1.0</td>
</tr>
<tr>
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<td>6T</td>
<td>A2</td>
<td>345</td>
<td>1.00</td>
<td>14.2</td>
<td>1.0 &amp; 1.0</td>
</tr>
<tr>
<td>PH0811CNL</td>
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<td>1.75 &amp; 1.75</td>
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<tr>
<td>PH0812CNL</td>
<td>4T</td>
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<td>194</td>
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<td>8.5</td>
<td>1.75 &amp; 1.75</td>
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<td>PH0813CNL</td>
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<td>A3</td>
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<td>12.5</td>
<td>1.75 &amp; 1.75</td>
</tr>
<tr>
<td>PH0814CNL</td>
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<td>A3</td>
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<td>12.5</td>
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<tr>
<td>PH0815CNL</td>
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<td>0.85</td>
<td>14.2</td>
<td>1.75 &amp; 1.75</td>
</tr>
</tbody>
</table>

### Mechanicals

- **Weight:** 11.8 grams
- **Tape & Reel:** 180/reel
- **Tray:** 40/tray
- **Dimensions:** Inches

Unless otherwise specified, all tolerances are ±0.10/0.25
Notes:
1. Inductance is measured with both primary windings connected in series (2 to 5, with 3 and 4 shorted).
2. Leakage inductance is measured on winding (2-5) with (3-4) and (7, 8, 9, 10, 11) shorted.
3. The "NL" suffix indicates an RoHS-compliant part number.
4. It is possible to add a primary side aux. winding to any of the above configurations as shown in the schematics. Transformers with primary side aux. winding are non-standard and can be made available upon request. The primary aux. winding can be between 2 and 16 turns. To add a primary aux. winding to a given base, use the extension .xxx. For example, to add a 4T aux. winding to the base part number PH0801CNL, use the part number PH0801.004NL. The height increases by 0.5mm for .xxx part. For example, PH08010CNL is 8.6mm MAX, PH0801.004CNL is 9.1mm MAX.
5. Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the complete number (i.e. PH0801.009CNL becomes PH0801.009CNLT).
6. 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) not exceed its operating temperature. To determine the approximate temperature rise of the transformer, refer to the graphs below.

Core Loss vs Flux Density

\[
\text{Core Loss} = 1.59E-13(\Delta B)^2 \cdot \text{F}(\text{Freq. kHz})^1.8
\]

\[
\Delta B = 180E3 \cdot \text{Vin_min} \cdot \text{Dutycycle_max} / (\text{Freq. kHz} \cdot \text{Pri_Turns})
\]
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PLANAR TRANSFORMERS

PH08XXCNL Series (up to 160W)

Temperature Rise vs. Power (W) Dissipation

For More Information

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