High Isolation Power Transformers
EP7 Platform SMD

- Push Pull Transformer
- Reinforced insulation for isolated power supply driver
- 8mm creepage
- 5KVrms isolation (600Vrms continuous)
- UL and TUV certified

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

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Inductance (1-3) (µH ±45%)</th>
<th>DCR (1-3) (Ω MAX)</th>
<th>DCR (4-6) (Ω MAX)</th>
<th>MAX (1-3)¹ (V-µsec Max)</th>
<th>Turns Ratio (1:3) (6:4)</th>
<th>Isolated Voltage² (Vrms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH9185.01NL</td>
<td>750</td>
<td>0.50</td>
<td>0.55</td>
<td>66</td>
<td>1CT : 1CT</td>
<td>5000</td>
</tr>
<tr>
<td>PH9185.012NL</td>
<td>450</td>
<td>0.40</td>
<td>0.80</td>
<td>52</td>
<td>1CT : 2CT</td>
<td></td>
</tr>
<tr>
<td>PH9185.013NL</td>
<td>200</td>
<td>0.35</td>
<td>0.95</td>
<td>36</td>
<td>1CT : 3CT</td>
<td></td>
</tr>
<tr>
<td>PH9185.021NL</td>
<td>1800</td>
<td>0.75</td>
<td>0.45</td>
<td>100</td>
<td>2CT : 1CT</td>
<td></td>
</tr>
<tr>
<td>PH9185.034NL</td>
<td>750</td>
<td>0.50</td>
<td>0.75</td>
<td>66</td>
<td>3CT : 4CT</td>
<td></td>
</tr>
<tr>
<td>PH9185.038NL</td>
<td>310</td>
<td>0.44</td>
<td>1.00</td>
<td>44</td>
<td>3CT : 8CT</td>
<td></td>
</tr>
<tr>
<td>PH9185.043NL</td>
<td>1260</td>
<td>0.70</td>
<td>0.56</td>
<td>89</td>
<td>4CT : 3CT</td>
<td></td>
</tr>
<tr>
<td>PH9185.083NL</td>
<td>2350</td>
<td>0.90</td>
<td>0.40</td>
<td>110</td>
<td>8CT : 3CT</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. The maximum volt-µsec rating limits the peak flux density to 3600 gauss when used in bi-polar drive application with 200kHz. For unipolar drive applications or a bi-polar drive with 350kHz, a maximum volt-µsec could be 60% of the listed value. For Push-Pull topology, where the voltage is applied across half the primary winding turns, the maximum volts-use needs to be derated by 50%.
2. The AEC-Q200 temperature and humidity operational life testing was completed using a dielectric strength test of 5000Vdc.
3. Optional Tape & Reel packing can be ordered by adding a “T” suffix to the part number (i.e. PH9185.012NL becomes PH9185.012NL-T). Pulse complies to industry standard tape and reel specification EIA481.
4. The “NL” suffix indicates an RoHS-compliant part number.
5. Continuous isolation voltage confirmed by 125°C/1000hrs accelerated aging with the bias voltage applied between primary and secondary windings.

**Mechanical**

- Weight ................. 2.6grams
- Tape & Reel ............ 150/reel
- Tray ..................... 80/tray

**Dimensions:**

- Unless otherwise specified, all tolerances are ±.010 .25
High Isolation Power Transformers
EP7 Platform SMD

Application

PH9185.XXXNL is a series of high isolation power supply transformer drivers. Intended to operate in a fixed duty cycle Push Pull topology, it is a part of a low cost solution for delivering lower power (up to 3W) from a low voltage source. A typical implementation would be an isolated RS-485/RS-232 power supply driver circuit, the design is compatible with the MAXIM™ MAX253 IC.

A schematic diagram for the Push Pull converter topology is given below.

![Schematic Diagram](image)

For a fixed 50% duty cycle mode of operation, the output voltage is simply determined by the input voltage and turns ratio. So, with the available turns ratios, a variety of output voltages can be selected.

This transformer design has been certified by UL to comply with UL60950-1 2nd edition, and CAN/CSA C22.2 NO. 60950-1-07 2nd edition; and by TUV to comply with EN61558-1 and EN61558-2-16 with reinforced insulation for a working voltage up to 400Vac 8mm creepage and 5000Vrms isolation voltage is guaranteed to meet this requirement. The design also complies with the Pulse’s class F insulation system. PH9185.013NL was not included in the original UL/TUV certification but is complaint. Cost reduced versions without UL/TUV certification available, please contact Pulse Electronics for more information.

MAXIM is a registered trademark of Maxim Integrated Products.