10/100 BASE-T SINGLE PORT TRANSFORMER MODULES
With 1:1 Transmit Turns Ratios

RoHS peak reflow temperature rating: 245°C
Compatible with Broadcom, Intel, Micrel, National Semiconductor, ICS, and TDK Transceivers
Meets IEEE 802.3 specification

Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

<table>
<thead>
<tr>
<th>RoHS Compliant Part Number</th>
<th>Insertion Loss (dB MAX)</th>
<th>Return Loss (dB MIN @ 100 Ω)</th>
<th>Differential to Common Mode Rejection (dB MIN)</th>
<th>Crosstalk (dB TYP)</th>
<th>Hipot (Vrms MIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1012NL44</td>
<td>-1.0</td>
<td>-20</td>
<td>-18</td>
<td>-33</td>
<td>-50</td>
</tr>
<tr>
<td>H1019NL44</td>
<td>-1.0</td>
<td>-20</td>
<td>-18</td>
<td>-35</td>
<td>-45</td>
</tr>
<tr>
<td>H1042NL44</td>
<td>-1.0</td>
<td>-16</td>
<td>-13.5</td>
<td>-35</td>
<td>-45</td>
</tr>
<tr>
<td>H1086NL44</td>
<td>-1.0</td>
<td>-22</td>
<td>-18</td>
<td>-35</td>
<td>-50</td>
</tr>
<tr>
<td>H1089NL44</td>
<td>-1.0</td>
<td>-22</td>
<td>-18</td>
<td>-32</td>
<td>-50</td>
</tr>
<tr>
<td>H1138NL44</td>
<td>-0.8</td>
<td>-18</td>
<td>-16</td>
<td>-12</td>
<td>-42</td>
</tr>
<tr>
<td>HX1148NL2,44</td>
<td>-1.5</td>
<td>-18</td>
<td>-13.5</td>
<td>-10</td>
<td>-42</td>
</tr>
<tr>
<td>HX1178NL2,44</td>
<td>-1.5</td>
<td>-18</td>
<td>-13.5</td>
<td>-10</td>
<td>-42</td>
</tr>
<tr>
<td>PE-68515LNL4d</td>
<td>-1.0</td>
<td>-18</td>
<td>-18</td>
<td>-12</td>
<td>-50</td>
</tr>
<tr>
<td>PE-68517LNL4d</td>
<td>-1.0</td>
<td>-18</td>
<td>-16</td>
<td>-12</td>
<td>-45</td>
</tr>
<tr>
<td>H1338NL44</td>
<td>-1.1</td>
<td>-18</td>
<td>-16</td>
<td>-12</td>
<td>-42</td>
</tr>
</tbody>
</table>

1. Rise time optimized for National’s DP83843.
2. Operating temperature: -40°+ 85°C.
3. When ordering Tape & Reel packaging, add a “T” suffix to the end of the part number, e.g. H1012NL-T.
4. MSL = Moisture Sensitivity Level: a = 1, b = 2, c = 3, d = 4.

Mechanical

PE-68515LNL, PE-68517LNL, H1042NL

**NOTE:** The PE-68515L pins 4 and 13 are removed. The PE-68517L pins 5 and 12 are removed.
10/100 BASE-T SINGLE PORT TRANSFORMER MODULES
With 1:1 Transmit Turns Ratios

Mechanicals (continued)

**H1012NL, H1019NL, H1086NL, H1089NL, H1138NL**

**HX1148NL, HX1178NL**

**H1338NL**

---

**Dimensions:**

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

---

**Weight:**

- 3.0 grams

---

**Tube:**

- 20/tube

---

**Tape & Reel:**

- 300/reel

---

**USA 858 674 8100 • Germany 49 7032 7806 0 • Singapore 65 6287 8998 • Shanghai 86 21 32181071 • China 86 755 33966678 • Taiwan 8 86 3 4643715**

www.pulseeng.com
10/100 BASE-T SINGLE PORT TRANSFORMER MODULES
With 1:1 Transmit Turns Ratios

**Schematics**

**HX1148NL, H1138NL**

**HX1178NL**

**H1042NL**

**H1338NL**

Center-tapped inductor not included in H1089. So, pin 12 connects to the transformer center tap.
10/100 BASE-T SINGLE PORT TRANSFORMER MODULES
With 1:1 Transmit Turns Ratios

Tape & Reel Specifications

PE-68515LNL, PE-68517LNL, H1042NL

For More Information:

Performance warranty of products offered on this data sheet is limited to the parameters specified. Data is subject to change without notice. Other brand and product names mentioned herein may be trademarks or registered trademarks of their respective owners.

© Copyright, 2009. Pulse Engineering, Inc. All rights reserved.