

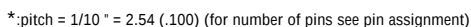


- Fully encapsulated
- Low profile
- High dielectric strength
- Ten models available
- Ex stock
- Competitively priced

- Line matching
- Fax modem

## LM-NP/-LP 1000 Series - Line Matching Transformers

## Product Dimensions



The LM-NP/-LP-1000 Series Line Matching Transformers meet the return loss specifications of BS 6305.

It is important, however, to use the circuit recommended by BS 6305 for return loss measurements.

The LM-NP-1000 Series are EN 41003 approved.

DIMENSIONS ARE:  $\frac{\text{MM}}{(\text{INCHES})}$

### Pin Assignment and Winding Configurations (Bottom View)

one-winding  
center-tapped\*

one winding  
split\*

both windings  
center-tapped

both windings  
split

\* Due to the unique design and the most advanced manufacturing techniques the 2 coils are fully identical, meaning there is no real primary nor secondary winding. Depending on the application, the transformers can be used either way.

# LM-NP/-LP 1000 Series - Line Matching Transformers

**BOURNS®**

## Part Numbers And Specifications

| Parameters                                                       |           | Unit                                                                                                                                                                   | LM-NP<br>1001B<br>1001B1 | LM-NP<br>1002             | LM-NP<br>1003     | LM-NP<br>1004               | LM-NP<br>1005       | LM-LP<br>1001   | LM-LP<br>1002             | LM-LP<br>1003     | LM-LP<br>1004               | LM-LP<br>1005       |
|------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------|-------------------|-----------------------------|---------------------|-----------------|---------------------------|-------------------|-----------------------------|---------------------|
| Ref. Temperature Data                                            |           | °C                                                                                                                                                                     | 25                       | 25                        | 25                | 25                          | 25                  | 25              | 25                        | 25                | 25                          | 25                  |
| Impedance<br>(min./at 1.0 kHz)                                   | Primary   | Ω                                                                                                                                                                      | 600                      | 600                       | 600               | 600<br>(150, 150)           | 600<br>(150+150)    | 600             | 600                       | 600               | 600<br>(150, 150)           | 600<br>(150+150)    |
|                                                                  | Secondary | Ω                                                                                                                                                                      | 600                      | 600<br>(150,150)          | 600<br>(150+150)  | 600<br>(150,150)            | 600<br>(150+150)    | 600             | 600<br>(150,150)          | 600<br>(150+150)  | 600<br>(150,150)            | 600<br>(150+150)    |
| Inductance<br>(min./at 0.2 kHz)                                  | Primary   | H                                                                                                                                                                      | 2.8                      | 2.8                       | 2.8               | 2.8<br>(0.7, 0.7)           | 2.8<br>(0.7+0.7)    | 2.8             | 2.8                       | 2.8               | 2.8<br>(0.7, 0.7)           | 2.8<br>(0.7+0.7)    |
|                                                                  | Secondary | H                                                                                                                                                                      | 2.8                      | 2.8<br>(0.7,0.7)          | 2.8<br>(0.7+0.7)  | 2.8<br>(0.7,0.7)            | 2.8<br>(0.7+0.7)    | 2.8             | 2.8<br>(0.7,0.7)          | 2.8<br>(0.7+0.7)  | 2.8<br>(0.7,0.7)            | 2.8<br>(0.7+0.7)    |
| DC-Resistance<br>(typical/±10 %)                                 | Primary   | Ω                                                                                                                                                                      | 66                       | 66                        | 66                | 66<br>(33,33)               | 66<br>(33+33)       | 90              | 90                        | 90                | 90<br>(45,45)               | 90<br>45+45)        |
|                                                                  | Secondary | Ω                                                                                                                                                                      | 66                       | 66<br>(33,33)             | 66<br>(33+33)     | 66<br>(33,33)               | 66<br>(33+33)       | 90              | 90<br>(45,45)             | 90<br>(45+45)     | 90<br>(45,45)               | 90<br>45+45)        |
| Turns Ratio (≤ ±2 %)                                             |           | —                                                                                                                                                                      | 1:1                      | 1:1                       | 1:1               | 1:1                         | 1:1                 | 1:1             | 1:1                       | 1:1               | 1:1                         | 1:1                 |
| Winding Configurations                                           |           | —                                                                                                                                                                      | —                        | one winding center tapped | one winding split | both windings center tapped | both windings split | —               | one winding center tapped | one winding split | both windings center tapped | both windings split |
| Insertion Loss (at 2.0 kHz)                                      |           | dB                                                                                                                                                                     | ≤ 1.5                    |                           |                   |                             |                     | ≤ 2.0           |                           |                   |                             |                     |
| Return Loss<br><br>Transformer<br>(0.2 - 4.0 kHz)<br>In Networks |           | dB                                                                                                                                                                     | ≥ 10.0                   |                           |                   |                             |                     | ≥ 8.0           |                           |                   |                             |                     |
|                                                                  |           |                                                                                                                                                                        | ≥ 21.0                   |                           |                   |                             |                     | ≥ 20.0          |                           |                   |                             |                     |
| Shunt Loss (typical)                                             |           | kΩ                                                                                                                                                                     | 9.0                      |                           |                   |                             |                     | 9.0             |                           |                   |                             |                     |
| Frequency Response<br>(typ./0.2 - 3.5 kHz)                       |           | dB                                                                                                                                                                     | - 0.3                    |                           |                   |                             |                     | - 0.5           |                           |                   |                             |                     |
| Wide Band Response<br>(0.2 - 10.0 kHz)                           |           | dB                                                                                                                                                                     | - 2.5                    |                           |                   |                             |                     | - 4.5           |                           |                   |                             |                     |
| Power Level                                                      |           | dBm                                                                                                                                                                    | - 45.0 to + 3.0          |                           |                   |                             |                     | - 43.0 to + 3.0 |                           |                   |                             |                     |
| Longitudinal Balance<br>(0.3 - 4.0 kHz)                          |           | dB                                                                                                                                                                     | -80.0                    |                           |                   |                             |                     | - 70.0          |                           |                   |                             |                     |
| Distortion (0 dB/at 1.0 kHz)                                     |           | %                                                                                                                                                                      | ≤ 0.1                    |                           |                   |                             |                     | ≤ 0.25          |                           |                   |                             |                     |
| Leakage Induction (typical)                                      |           | mH                                                                                                                                                                     | 14.0                     |                           |                   |                             |                     | 14.0            |                           |                   |                             |                     |
| Dielectric Strength (P/S)                                        |           | kVDC                                                                                                                                                                   | 6.5                      |                           |                   |                             |                     | 6.5             |                           |                   |                             |                     |
| Temperature Range                                                | Operation | °C                                                                                                                                                                     | -10 to +60               |                           |                   |                             |                     | -10 to +60      |                           |                   |                             |                     |
|                                                                  | Storage   | °C                                                                                                                                                                     | -20 to +70               |                           |                   |                             |                     | -20 to +70      |                           |                   |                             |                     |
| Specifications Met                                               |           | BS 6204: Construction and flammability (UL 94 VO)<br>BS 6301: Isolation<br>BS 6305: Return loss (1982/paragraph 4.3.2.2/b)<br><br>CCITT: Rec. T/CD 1-1<br>(Sept. 1982) |                          |                           |                   |                             |                     |                 |                           |                   |                             |                     |