

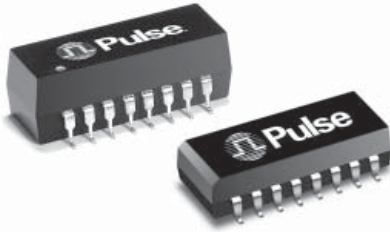


**THE DATASHEET OF  
HX1148NL**



# 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

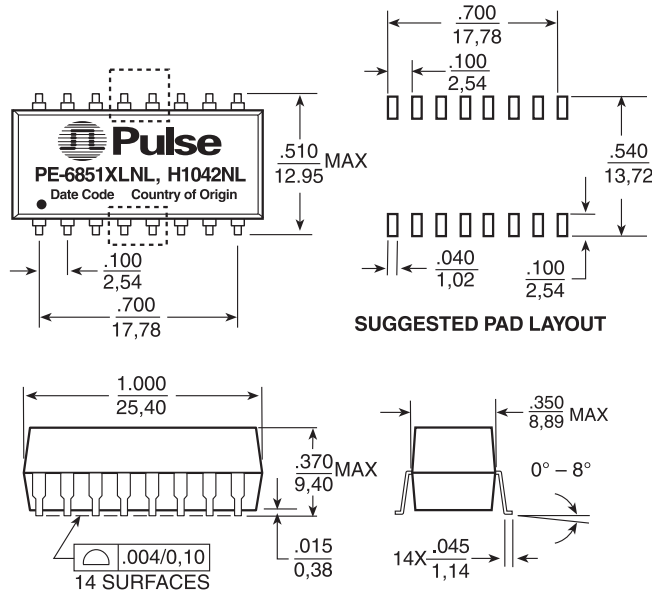
### Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

RoHS Compliant Part Number	Insertion Loss (dB MAX)	Return Loss (dB MIN @ 100 Ω)				Differential to Common Mode Rejection (dB MIN)			Crosstalk (dB TYP)			Hipot (Vrms MIN)
		0.1-100 MHz	1-30 MHz	40 MHz	50 MHz	60-80 MHz	30 MHz	60 MHz	100 MHz	30 MHz	60 MHz	
H1012NL <sup>4d</sup>	-1.0	-20	-20	-18	-14	-42	-36	-33	-50	-40	-40	1500
H1019NL <sup>4c</sup>	-1.0	-20	-18	-18	-14	-45	-40	-35	-45	-40	-35	1500
H1042NL <sup>4c</sup>	-1.0	-16	-13.5	-11.5	-10	-45	-40	-35	-40	-38	-35	1500
H1086NL <sup>4c</sup>	-1.0	-22	-20	-18	-12	-45	-40	-35	-50	-40	-40	1500
H1089NL <sup>4c</sup>	-1.0	-22	-20	-18	-12	-42	-38	-32	-50	-40	-40	1500
H1138NL <sup>4a</sup>	-0.8	-18	-16	-14	-12	42	-37	-33	-50	-40	-40	1500
HX1148NL <sup>2,4d</sup>	-1.5	-18	-13.5	-11.5	-10	-42	-37	-33	-50	-40	-40	1500
HX1178NL <sup>2,4d</sup>	-1.5	-18	-13.5	-11.5	-10	-42	-37	-33	-50	-40	-40	1500
PE-68515LNL <sup>4d</sup>	-1.0	-18	-18	-16	-12	-50	-45	-40	-55	-50	-50	1500
PE-68517LNL <sup>4d</sup>	-1.0	-18	-16	-15	-12	-45	-40	-35	-50	-40	-40	1500
H1338NL <sup>4a</sup>	-1.1	-18	-16	-14	-12	-42	-37	-35	-40	-40	-35	1500

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. H1012NLT
4. MSL = Moisture Sensitivity Level: a = 1, b = 2, c = 3, d = 4.

## Mechanical

### PE-68515LNL, PE-68517LNL, H1042NL



Weight . . . . . 3.5 grams  
 Tube . . . . . 20/tube  
 Tape & Reel . . . . . 160/reel

# 10/100 BASE-T SINGLE PORT TRANSFORMER MODULES

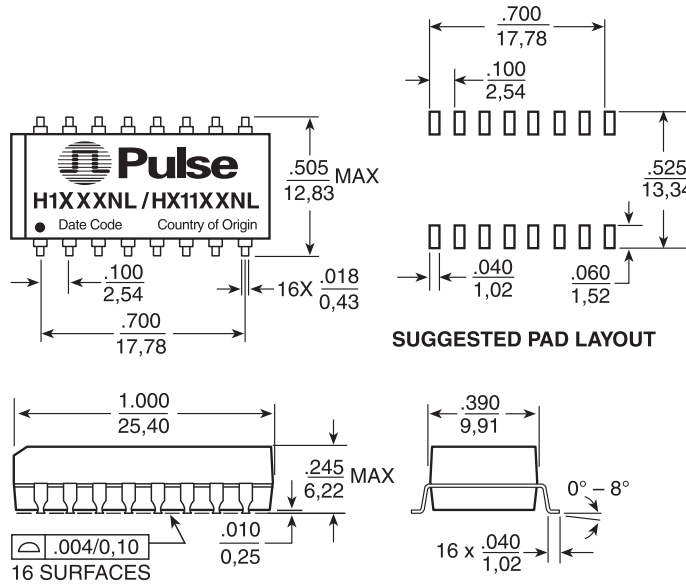
## With 1:1 Transmit Turns Ratios



### Mechanicals (continued)

H1012NL, H1019NL, H1086NL, H1089NL, H1138NL

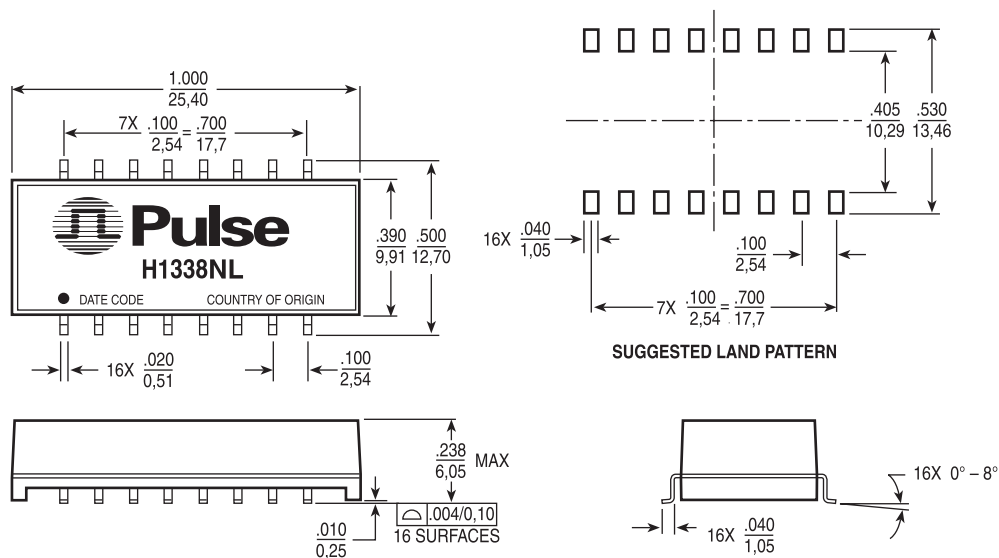
HX1148NL, HX1178NL



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0,25}$

Weight . . . . . 3.0 grams  
 Tube . . . . . 20/tube  
 Tape & Reel . . . . . 300/reel

### H1338NL



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0,25}$

Weight . . . . . 3.0 grams  
 Tube . . . . . 20/tube  
 Tape & Reel . . . . . 300/reel

# 10/100 BASE-T SINGLE PORT TRANSFORMER MODULES

## With 1:1 Transmit Turns Ratios

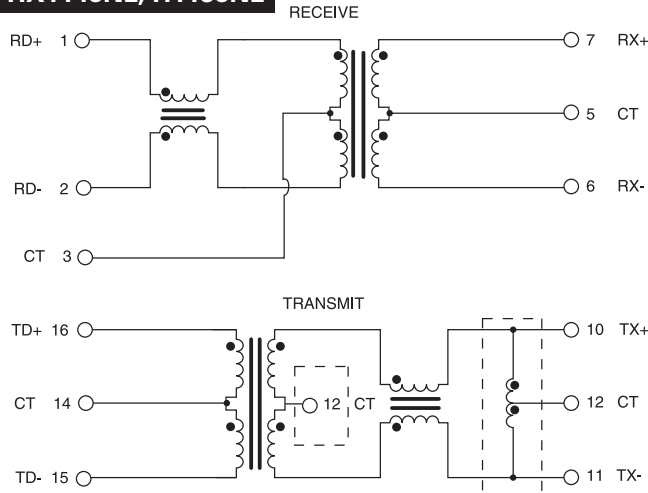


### Schematics

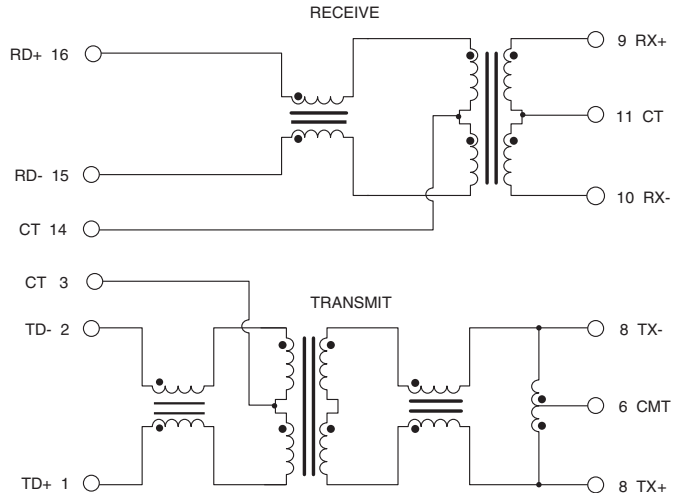
**PE-68515LNL, H1012NL, H1086NL, H1089NL**

**PE-68517LNL, H1019NL**

**HX1148NL, H1138NL**

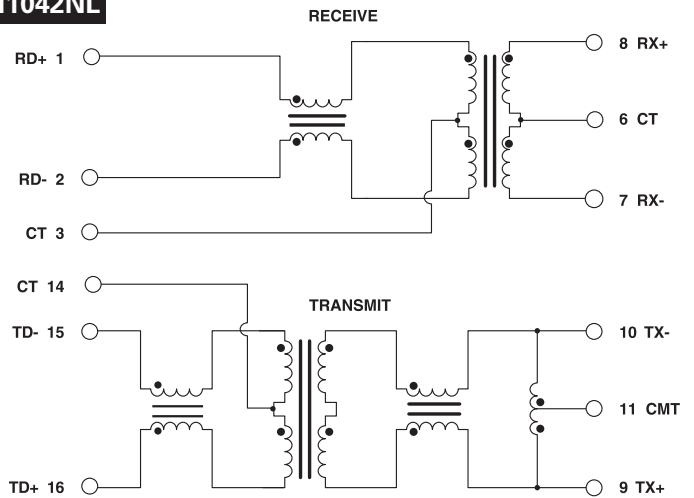
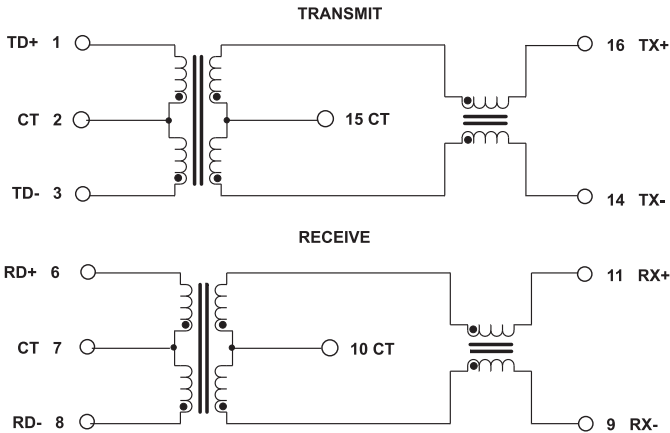


Center-tapped inductor not included in H1089. So, pin 12 connects to the transformer center tap.

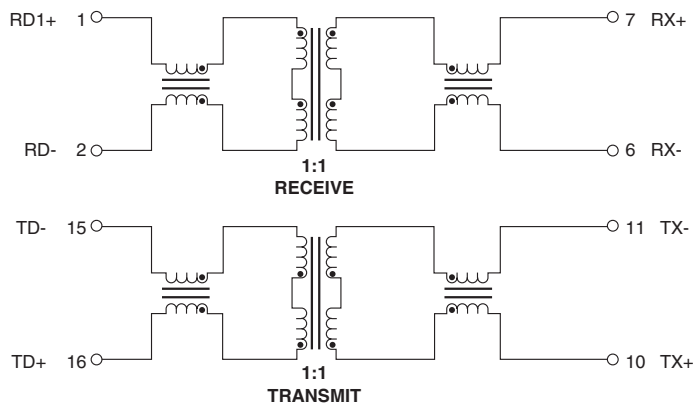


**HX1178NL**

**H1042NL**



**H1338NL**



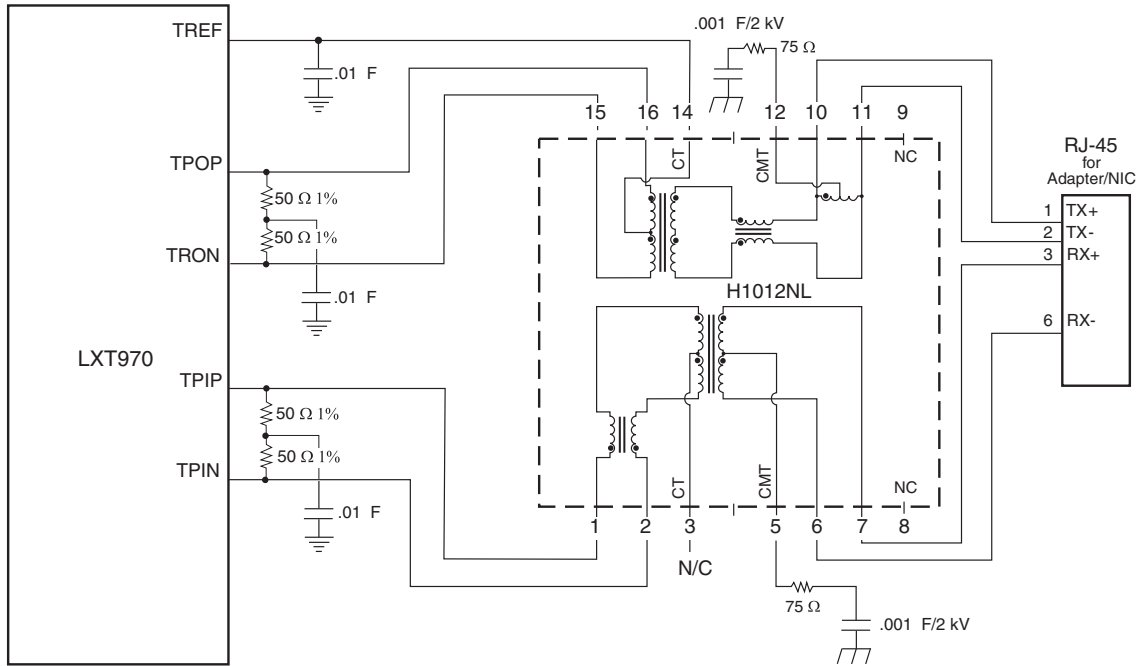
# 10/100 BASE-T SINGLE PORT TRANSFORMER MODULES

## With 1:1 Transmit Turns Ratios

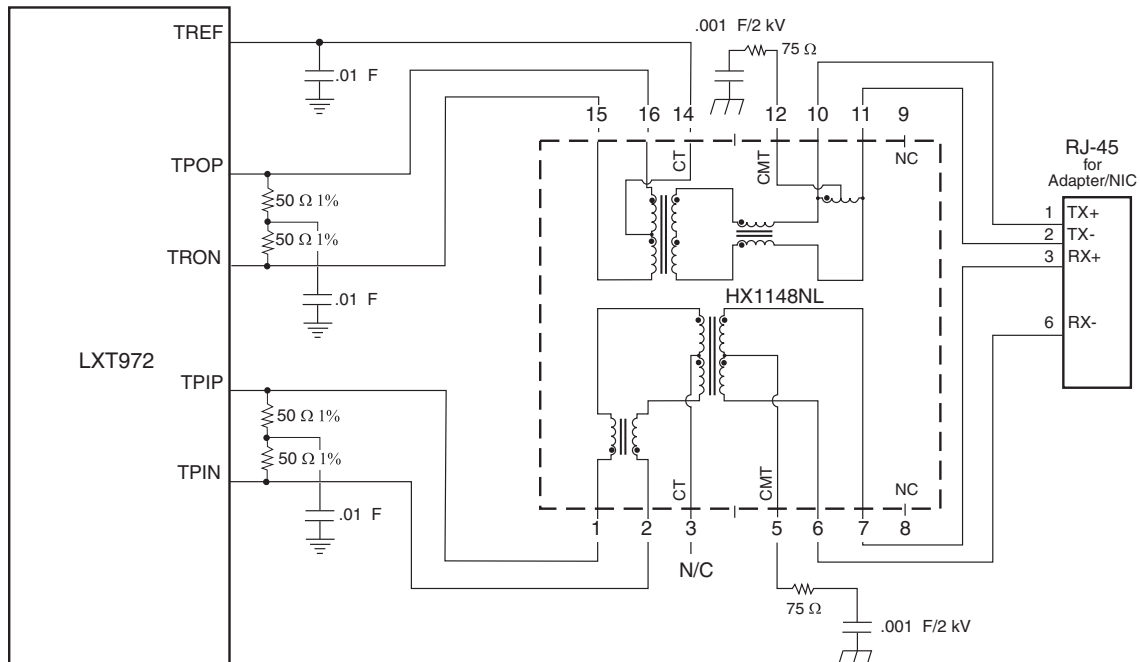


### Typical Application Circuits

#### H1012NL, H1138NL



#### HX1148NL



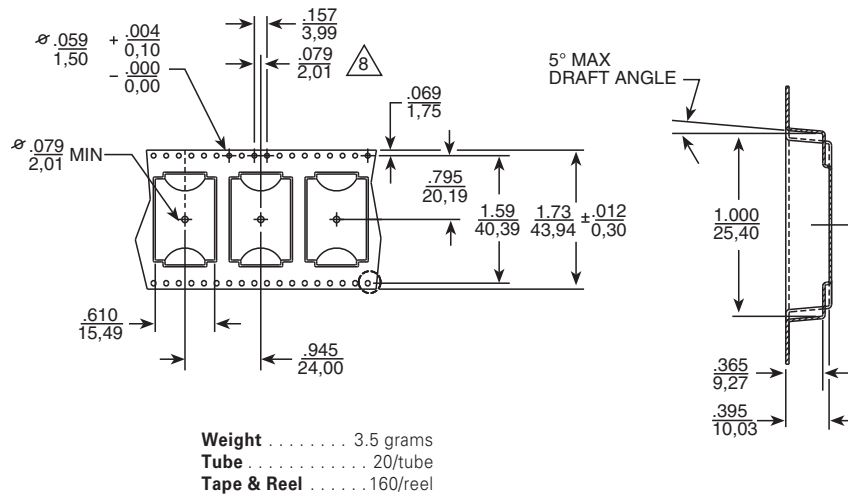
# 10/100 BASE-T SINGLE PORT TRANSFORMER MODULES

With 1:1 Transmit Turns Ratios



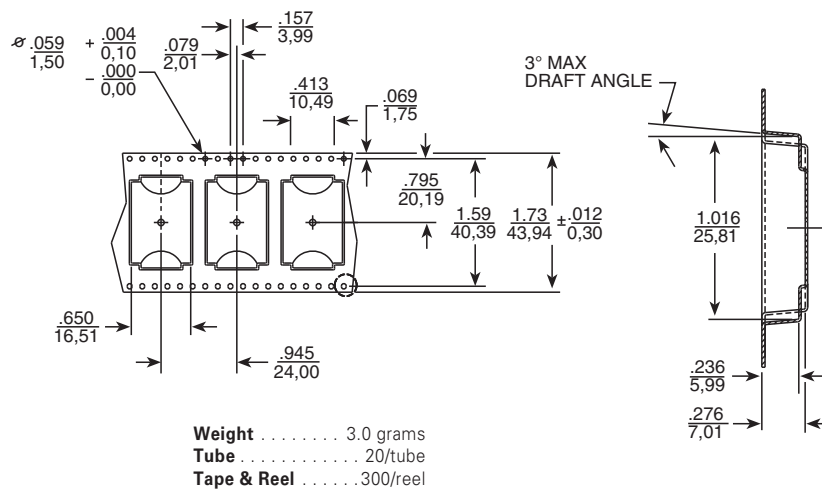
## Tape & Reel Specifications

**PE-68515LNL, PE-68517LNL, H1042NL**



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

**H1338NL, HX1148NL, HX1178NL**



### For More Information:

Pulse Worldwide Headquarters	Pulse Europe	Pulse China Headquarters	Pulse North China	Pulse South Asia	Pulse North Asia
12220 World Trade Dr. San Diego, CA 92128 U.S.A.	Einsteinstrasse 1 D-71083 Herrenberg Germany	B402, Shenzhen Academy of Aerospace Technology Bldg. 10th Kejinan Rd. High-Tech Zone Nanshan District Shenzhen, PR China 518057	Room 1503 XinYin Building No. 888 YiShan Rd. Shanghai 200233 China	135 Joo Seng Rd. #03-02 PM Industrial Bldg. Singapore 368363	No. 26, Kao Ching Rd. Yang Mei Chen Taoyuan Hsien Taiwan R. O. C.
<a href="http://www.pulseeng.com">www.pulseeng.com</a> Tel: 858 674 8100 Fax: 858 674 8262	Tel: 49 7032 7806 0 Fax: 49 7032 7806 135	TEL: 86 755 33966678 FAX: 86 755 33966700	Tel: 86 21 54643211/2 Fax: 86 21 54643210	TEL: 65 6287 8998 FAX: 65 6280 0080	Tel: 886 3 4643715 Fax: 886 3 4641911

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.

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View HX1148NL on WIN SOURCE](#)

 [Pulse Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management