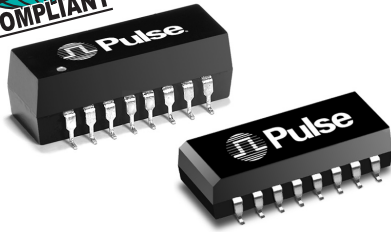


# 10/100 BASE-T SINGLE PORT TRANSFORMER MODULES

## With 1:1 Transmit Turns Ratios



- RoHS-5 peak reflow temperature rating: 235°C
- RoHS-6 peak reflow temperature rating: 245°C
- Compatible with Broadcom, Intel, Micrel, National Semiconductor, ICS, and TDK Transceivers
- Meets IEEE 802.3 specification

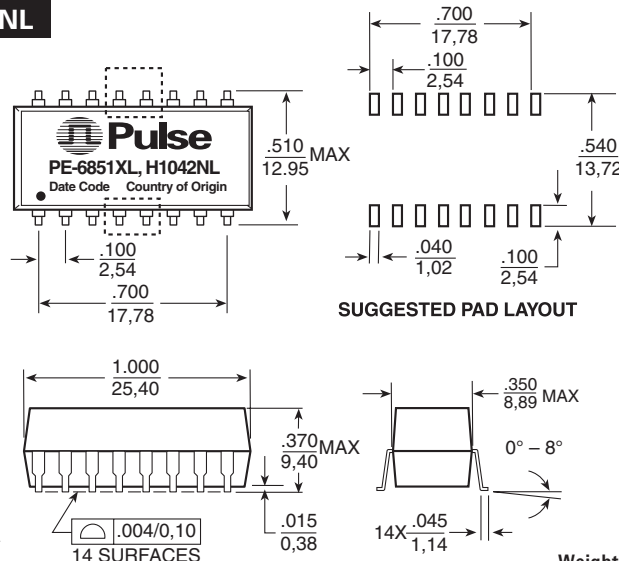
### Electrical Specifications @ 25°C — Operating Temperature 0°C to 70°C

RoHS <sup>6</sup> Compliant Part Number	RoHS <sup>5</sup> 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>	H1012	-1.0	-20	-20	-18	-14	-42	-36	-33	-50	-40	-40	1500
H1019NL <sup>4c</sup>	H1019	-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>	H1086 <sup>1</sup>	-1.0	-22	-20	-18	-12	-45	-40	-35	-50	-40	-40	1500
H1089NL <sup>4c</sup>	H1089	-1.0	-22	-20	-18	-12	-42	-38	-32	-50	-40	-40	1500
H1117NL <sup>4d</sup>	H1117	-1.0	-22	-20	-18	-12	-45	-40	-35	-50	-40	-40	1500
H1138NL <sup>4a</sup>	H1138	-0.8	-18	-16	-14	-12	42	-37	-33	-50	-40	-40	1500
HX1148NL <sup>2, 4d</sup>	HX1148 <sup>2</sup>	-1.5	-18	-13.5	-11.5	-10	-42	-37	-33	-50	-40	-40	1500
HX1178NL <sup>2, 4d</sup>	HX1178 <sup>2</sup>	-1.5	-18	-13.5	-11.5	-10	-42	-37	-33	-50	-40	-40	1500
PE-68515LNL <sup>4d</sup>	PE-68515L	-1.0	-18	-18	-16	-12	-50	-45	-40	-55	-50	-50	1500
PE-68517LNL <sup>4d</sup>	PE-68517L	-1.0	-18	-16	-15	-12	-45	-40	-35	-50	-40	-40	1500
H1338NL <sup>4a</sup>	H1338	-1.1	-18	-16	-14	-12	-42	-37	-35	-40	-40	-35	1800

- Rise time optimized for National's DP83843.
- Operating temperature: -40°+ 85°C.
- When ordering Tape & Reel packaging, add a "T" suffix to the end of the part number, e.g. H1012T
- MSL = Moisture Sensitivity Level: a = 1, b = 2, c = 3, d = 4.
- RoHS-5: Product does not contain 5 out of the 6 banned substances specified in the RoHS directive (product contains lead in applications considered solder).
- RoHS-6: Product does not contain 5 out of the 6 banned substances specified in the RoHS directive. Some internal connections may contain lead in high-temperature solder (solder alloys containing more than 85% lead).

## Mechanicals

### PE-68515L, PE-68517L, H1042NL



NOTE: The PE-68515L pins 4 and 13 are removed.  
The PE-68517L pins 5 and 12 are removed.

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0.25}$

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

USA 858 674 8100 • Germany 49 7032 7806 0 • Singapore 65 6287 8998 • Shanghai 86 21 32181071 • China 86 755 33966678 • Taiwan 886 3 4643715

# 10/100 BASE-T SINGLE PORT TRANSFORMER MODULES

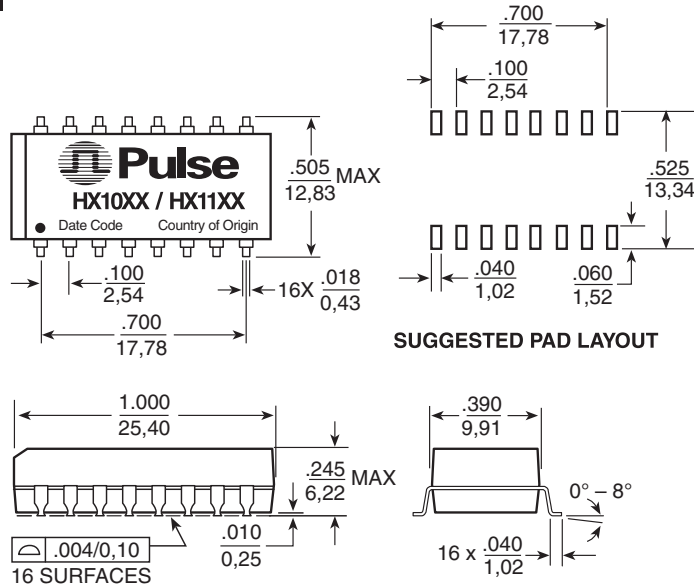
## With 1:1 Transmit Turns Ratios



### Mechanicals (continued)

**H1012, H1019, H1086, H1089, H1117,**

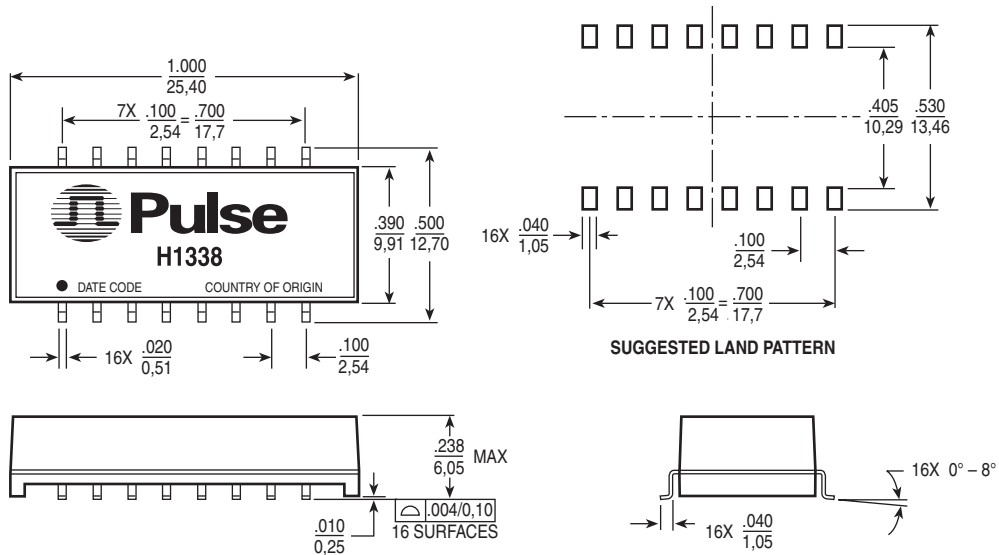
**H1138, HX1148, HX1178**



**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

### H1338



**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

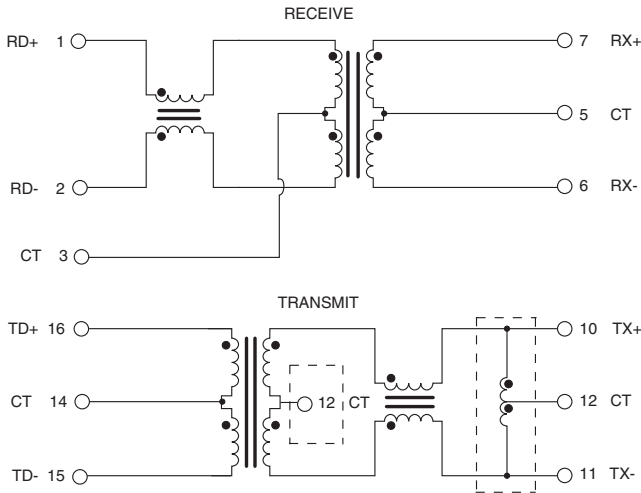
# 10/100 BASE-T SINGLE PORT TRANSFORMER MODULES

## With 1:1 Transmit Turns Ratios



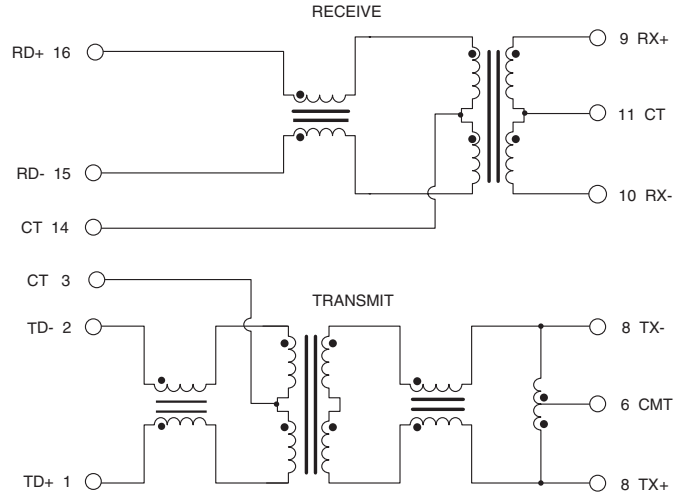
### Schematics

#### PE-68515L, H1012, H1086, H1089, HX1148, H1138

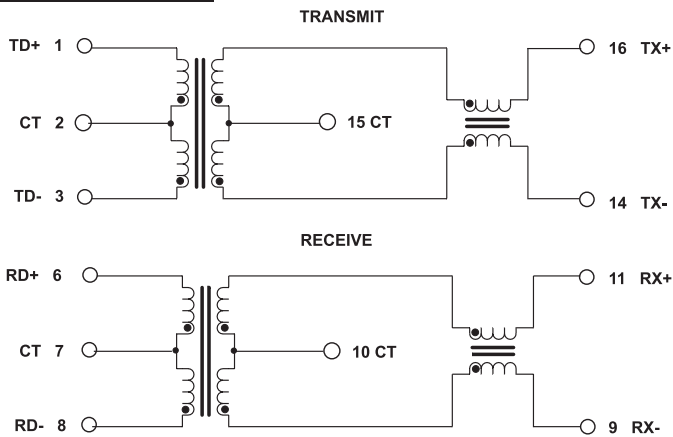


Center-tapped inductor not included in H1089. So, pin 12 connects to the transformer center tap.

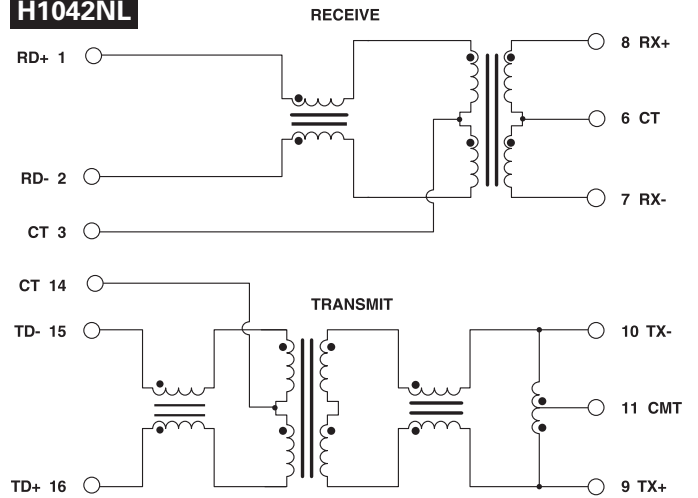
#### PE-68517L, H1019



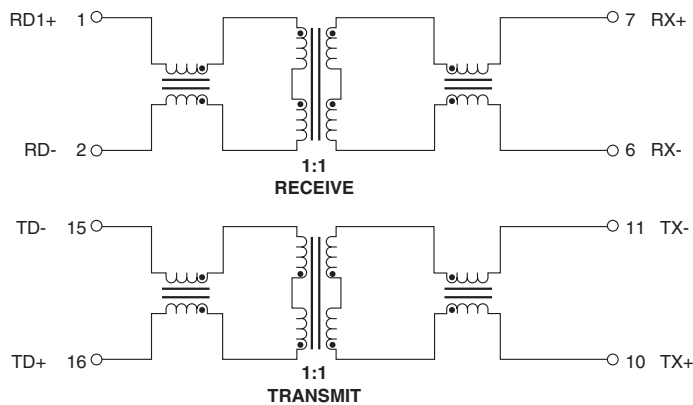
#### H1117, HX1178



#### H1042NL



#### H1338



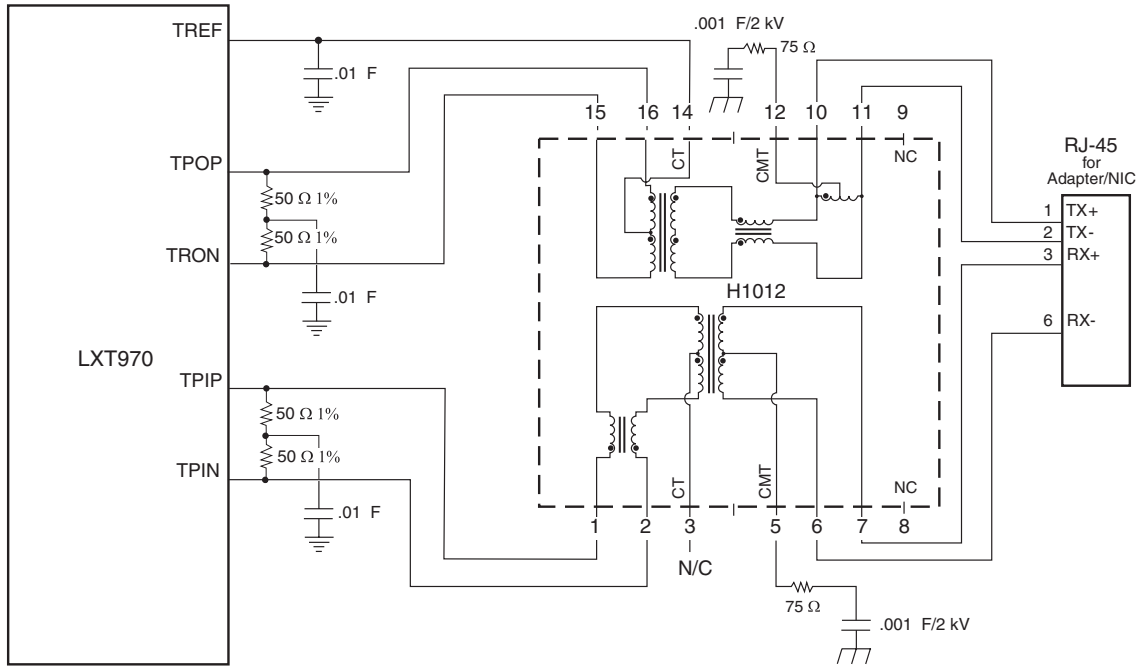
# 10/100 BASE-T SINGLE PORT TRANSFORMER MODULES

## With 1:1 Transmit Turns Ratios

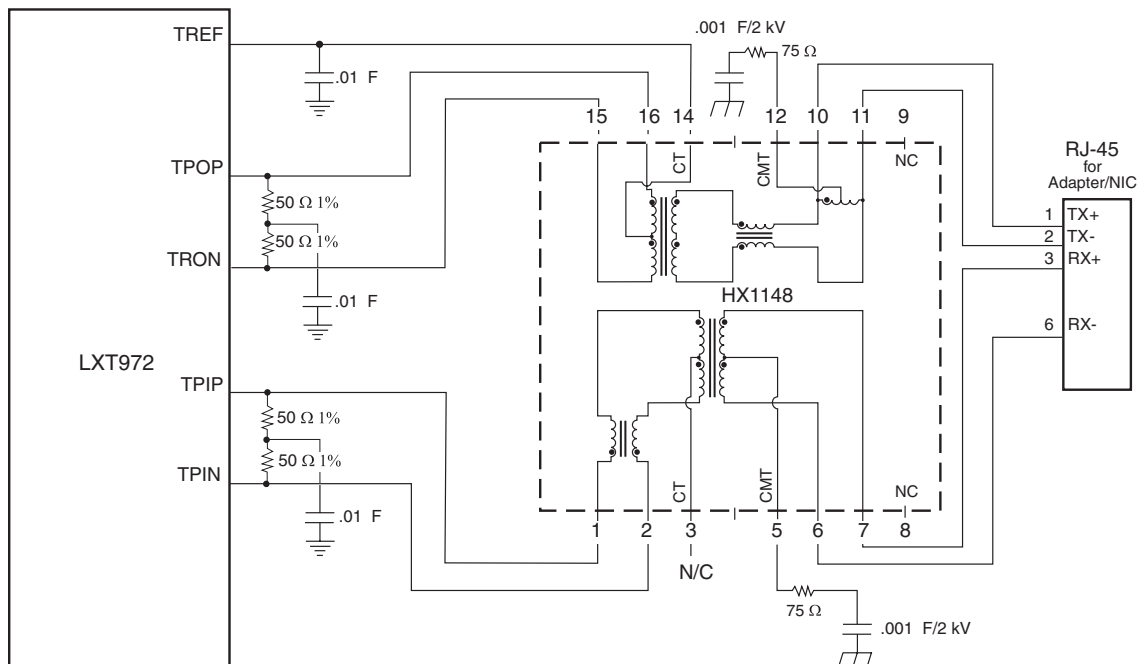


### Typical Application Circuits

**H1012, H1138**



**HX1148**



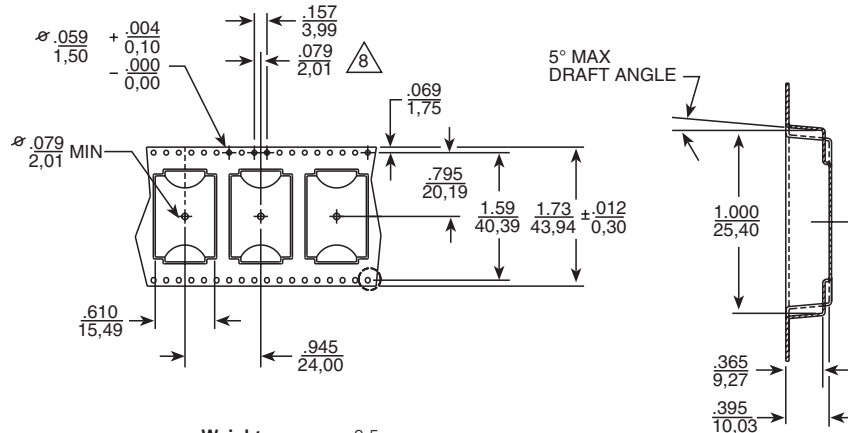
# 10/100 BASE-T SINGLE PORT TRANSFORMER MODULES

## With 1:1 Transmit Turns Ratios



### Tape & Reel Specifications

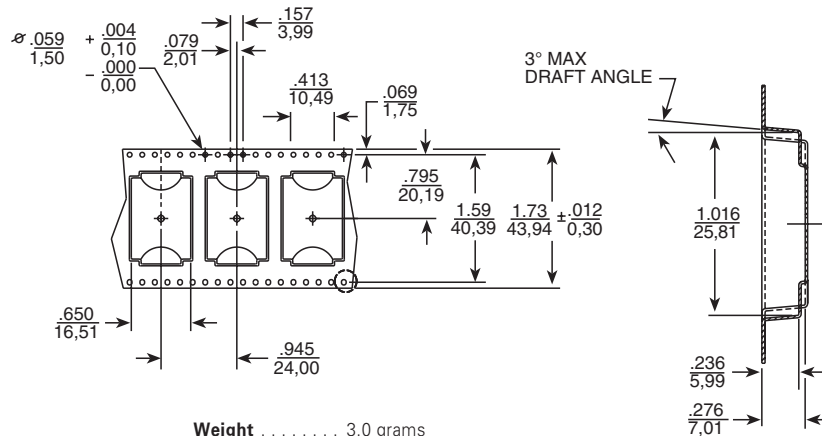
**PE-68515L, PE-68517L, H1042NL**



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

**H1012, H1019, H1086, H1089, H1117,**

**H1138, H1338, HX1148, HX1178**



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

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