LAN Transformer Module

LAN-17E241P7R8

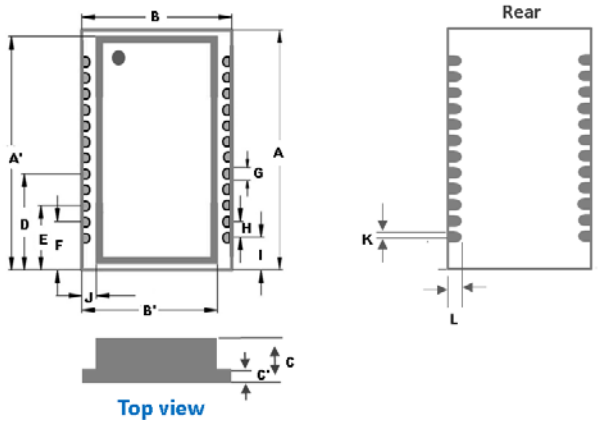
1. Features

1. Low profile, small footprint saves board space and height
2. Compliant with IEEE 802.3ab standard for 1000BASE-T
3. Pin to Pin compatibility with LAN transformer
4. Operating temperature range: 0°C to +85°C
5. Storage temperature range: 0°C to +85°C
6. 100% Lead (Pb)-Free and RoHS compliant.

2. Applications

1. 1000 Base-T, Single Port, Low profile Modules w/Surge Protection **(24 Pin)**
2. Notebook pc LAN Transformer Module
3. Hub switch, Ap router Multi-port LAN Transformer.
4. For 2.5G

3. Dimensions

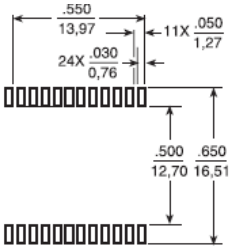


Size	A(mm)	A'(mm)	B(mm)	B'(mm)	C(mm)	C'(mm)
	17.53	17.03	14.6	13.92	4.5 max	0.8
	D(mm)	E(mm)	F(mm)	G(mm)	H(mm)	I(mm)
	6.86	4.32	3.05	0.4	1.27	1.78
	J(mm)	K(mm)	L(mm)			
	0.67	0.2	1.1			

Tolerance: XX.X0 +/-0.25(mm)

0.XX +/-0.05(mm)

Recommend PC Board Pattern



Units: mm (inch) Tolerance: XX.X0 +/-0.25 (0.010)
0.XX +/-0.05 (0.002)

4. Part Numbering

LAN	-	17	E	24	1	P7	R8
A		B	C	D	E	F	G

A: Series
B: Long
C: Application
D: Pin
E: Center tab
F: Pitch
G: Special

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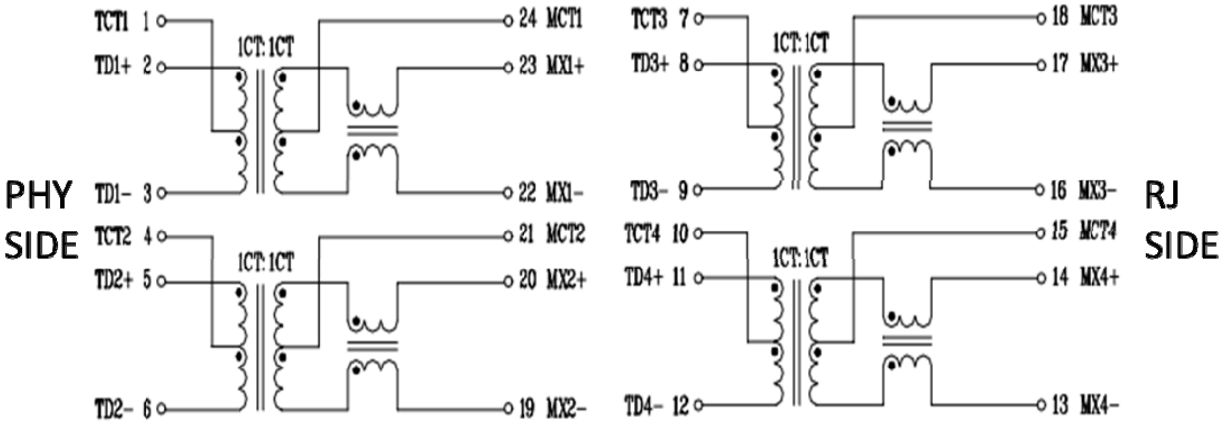
5. Specification

Part Number	Insertion Loss (dB Max)		Return Loss (dB min)	NEXT (db min)		FEXT(dB min)
	1~50MHz	50~125MHz	1~125MHz	1~40MHz	40~125MHz	1~100MHz
LAN-17E241P7R8	-0.5	-1	-15	-35	-35+15log10(f/40MHz)	43-20log10(f/100)

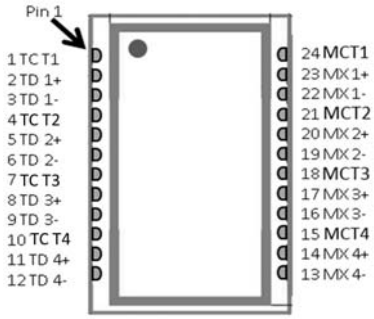
Note:

1. All test data referenced to 25℃ ambient
2. Recommended the design modules should be assembled on the second side.

6. Schematic



7. Pin Define



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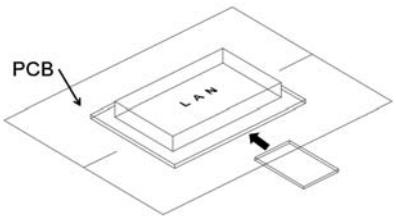
8. Reliability and Test Condition

<table>
<tr><th>Item</th><th>Performance</th><th>Test Condition</th></tr>
<tr><td>Insertion Loss</td><td rowspan="4">Refer to standard electrical characteristics list.</td><td rowspan="4">Agilent E5071C</td></tr>
<tr><td>Retuen Loss</td></tr>
<tr><td>Cross talk</td></tr>
<tr><td>DCMR</td></tr>
<tr><td>Operating Temperature</td><td>0℃~+85℃(Including self - temperature rise)</td><td></td></tr>
<tr><td>Storage Temperature</td><td>0℃~+85℃(Product without taping)</td><td></td></tr>
<tr><td>Life Test</td><td rowspan="2">Appearance：No damage.
Insertion Loss：within spec.
Return Loss：within spec.</td><td>Preconditioning:Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles
Temperature： 85±2℃
Duration：1000±12hrs
Measured at room temperature after placing for 24±2 hrs</td></tr>
<tr><td>Humidity Resistance Test</td><td>Preconditioning:Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles
Humidity：85±2% R.H,
Temperature：85℃±2℃
Duration：1000hrs Min.
Measured at room temperature after placing for 24±2 hrs</td></tr>
<tr><td>Thermal shock Test</td><td rowspan="2">Appearance：No damage.
Insertion Loss：within spec.
Return Loss：within spec.</td><td>Preconditioning:Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles
Step1：0±2℃ 30±5min
Step2：25±2℃ ≦0.5min
Step3：85±2℃ 30±5min
Number of cycles： 500
Measured at room temperature after placing for 24±2 hrs</td></tr>
<tr><td>Vibration Test</td><td>Preconditioning:Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles
Oscillation Frequency: 10Hz～2KHz～10Hz for 20 minutes
Equipment： Vibration checker
Total Amplitude:10g
Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations)。</td></tr>
<tr><td>Solderability Test</td><td>More than 95% of bottom terminal electrode should be covered with solder.</td><td>Preheat: 150℃,60sec.。
Solder:Sn96.5% Ag3% Cu0.5%
Temperature: 245±5℃。
Flux for lead free: Rosin. 9.5%。
Dip time: 4±1sec。
Depth: completely cover the termination</td></tr>
<tr><td>Resistance To Solder Heat Test</td><td>Appearance：No damage.</td><td><table><tr><th>Temperature (°C)</th><th>Time (s)</th><th>Temperature ramp/immersion and emersion rate</th><th>Number o heat cycles</th></tr><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr></table>Depth: completely cover bottom the termination</td></tr>
<tr><td>Terminal Strength Test</td><td><table><tr><td>Series No.</td><td>2(Kg)</td></tr><tr><td>LAN</td><td>1.0(min.)</td></tr></table></td><td>With the component mounted on a PCB with the device to be tested, apply a force to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.
 
</td></tr>
</table>

9. Soldering and Mounting

9-1. Soldering

Mildly activated rosin fluxes are preferred. TAI-TECH terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

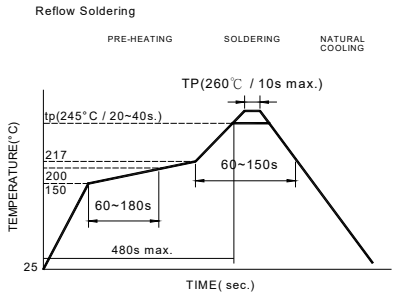
9-1.1 Solder re-flow:

Recommended temperature profiles for re-flow soldering in Figure 1.

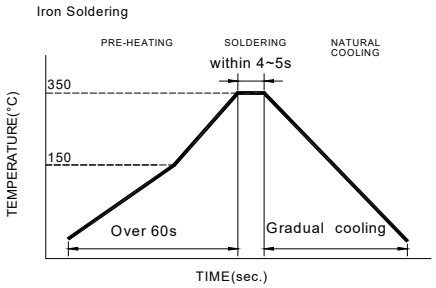
9-1.2 Soldering Iron(Figure 2):

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- Preheat circuit and products to 150℃
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 350℃ tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5 sec.



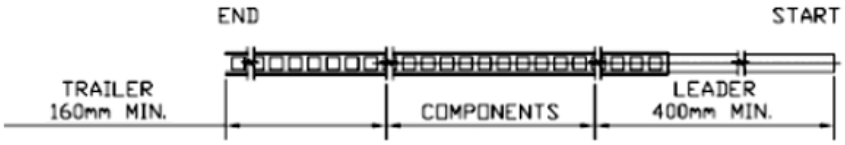
Reflow times: 3 times max
Fig.1

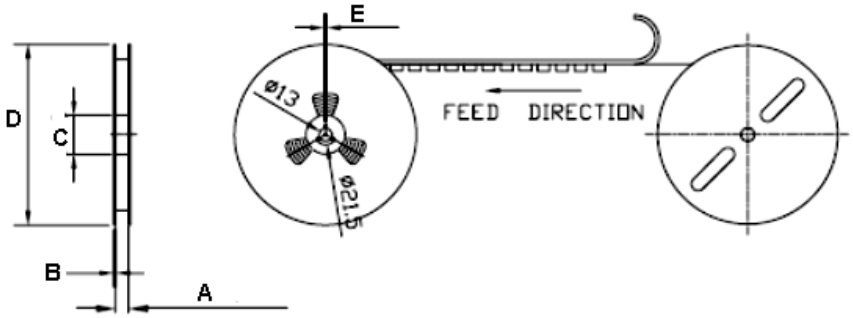


Iron Soldering times：1 times max
Fig.2

10. Packaging Information

(1) Reel Dimension





Type	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
LAN-17E241P7R8	33.5±2.0	2.0±0.15	φ100	φ330±2	2.5

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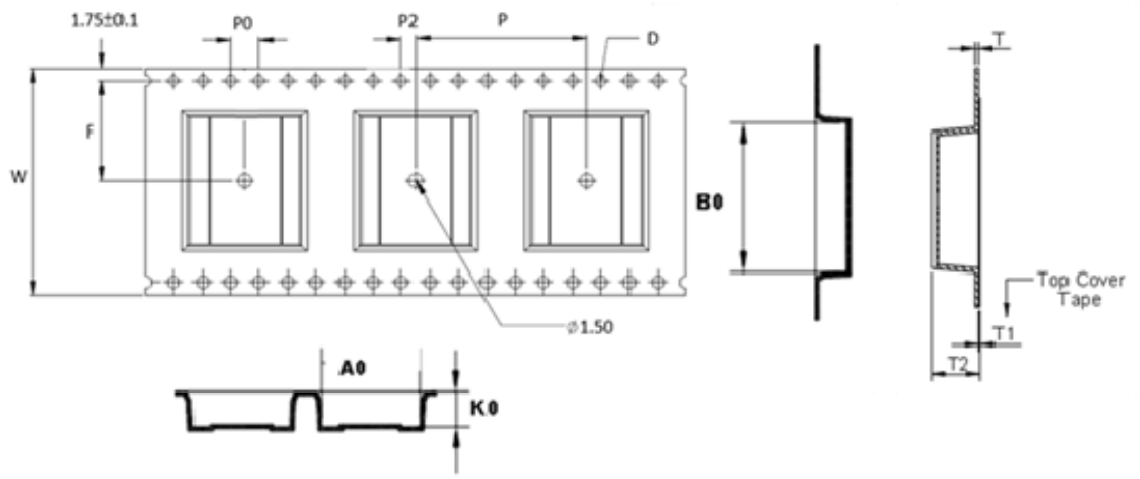
(2) Tape Dimension



Series	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	Po(mm)	P2(mm)	W(mm)	F(mm)	D(mm)	T(mm)	T1(mm)	T2(mm)
LAN-17E241P7R8	17.93±0.1	15.3±0.1	4.80±0.1	24.0±0.1	4.0±0.1	2.0±0.1	32±0.3	14.2±0.1	1.5±0.1	0.4±0.05	0.06±0.01	5.6±0.1

(3) Packaging Quantity

LAN	LAN-17E241P7R8
Chip / Reel	400

Application Notice

- Storage Conditions(component level)
  To maintain the solderability of terminal electrodes:
  1. products meet IPC/JEDEC J-STD-020D standard-MSL, level 1.
  2. Temperature and humidity conditions: Less than 40℃ and 60% RH.
  3. Recommended products should be used within 12 months form the time of delivery.
  4. The packaging material should be kept where no chlorine or sulfur exists in the air.
- Transportation
  1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
  2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
  3. Bulk handling should ensure that abrasion and mechanical shock are minimized.