

FEATURES

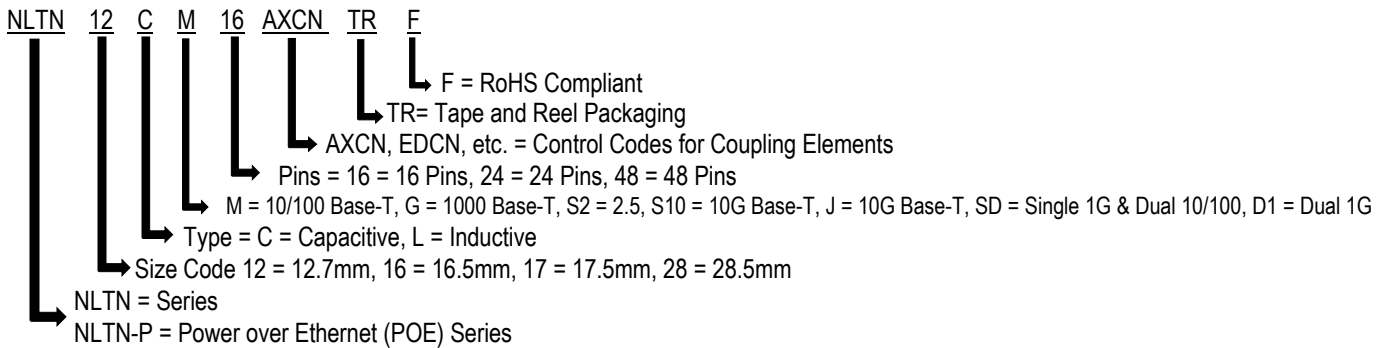
- 10/100 Ethernet Applications
- Gigabit Ethernet Applications
- Single 1G Ethernet Applications
- Single 2.5G Ethernet Applications
- Single 10G Ethernet Applications
- Dual 1G Ethernet Applications
- IEC 61000-4-5 10/700us 4KV (CM)
- IEC 61000-4-5 10/700us 1KV (DM)
- Small SMT Packages
- Wide Temperature: -40°C to +85°C
- RoHS Compliant
- Taped And Reeled for Automatic Insertion



**RoHS
Compliant**

includes all homogeneous materials
* See Part Number System for Details

Part Number Designations

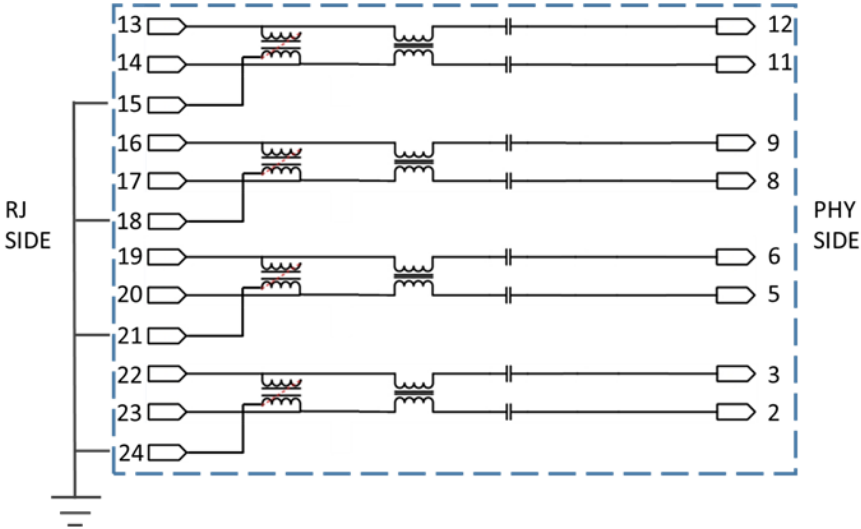


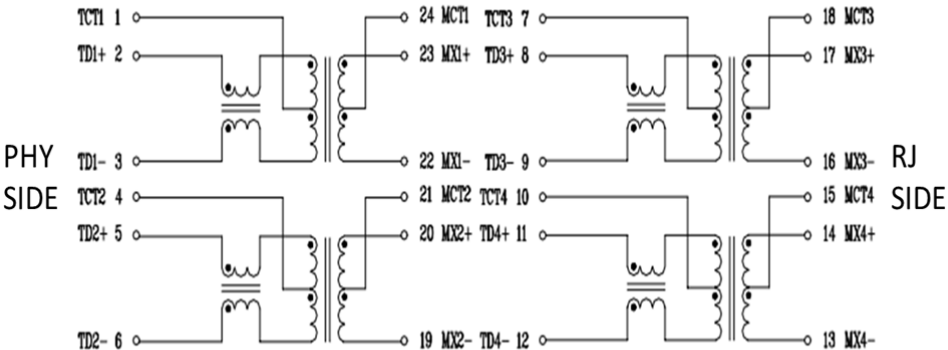
CHARACTERISTICS:

PN:	NLTN12CM16EDCNTRF
Application	10/100 Base-T, Single Port, Isolation Transformer
Type	Capacitive 1:1 ratio, 16 Pins
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	

PN:	NLTN12LM16BXCNTRF
Application	10/100 Base-T, Single Port, Isolation Transformer, Low Profile
Type	Inductive 1:1 ratio, 16 Pins
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	The schematic diagram shows the internal wiring of the NLTN12LM16BXCNTRF transformer. On the left, the 'RJ Side' has pins 16, 15, 14, 11, 10, and 9. On the right, the 'Ethernet PHY' side has pins 1, 2, 3, 6, 7, and 8. The transformer consists of two 1:1 inductive couplers. The top coupler connects RJ pin 16 to PHY pin 1 and RJ pin 15 to PHY pin 2. The bottom coupler connects RJ pin 14 to PHY pin 3 and RJ pin 11 to PHY pin 6. RJ pin 10 is connected to PHY pin 7, and RJ pin 9 is connected to PHY pin 8. The transformer is labeled '1:1' for both couplers.

PN:	NLTN-P12LM16ABCNTRF
Application	10/100 Base-T, Single Port, Isolation Transformer, 16 Pins, Low Profile
Type	Inductive, Power Over Ethernet (POE) 1:1 ratio, up to 15W, 16 Pins, Low Profile
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	The schematic diagram shows the internal wiring of the NLTN-P12LM16ABCNTRF transformer. On the left, the 'PHY Side' has pins 1, 2, 3, 6, 7, and 8. On the right, the 'RJ Side' has pins 16, 15, 14, 11, 10, and 9. The transformer consists of two 1:1 inductive couplers. The top coupler connects PHY pin 1 to RJ pin 16 and PHY pin 2 to RJ pin 15. The bottom coupler connects PHY pin 3 to RJ pin 14 and PHY pin 6 to RJ pin 11. PHY pin 7 is connected to RJ pin 10, and PHY pin 8 is connected to RJ pin 9. The transformer is labeled '1:1' for both couplers.

PN:	NLTN16CM24EDCNTRF
Application	Dual 10/100 Base-T, 1G Single Port, Isolation Transformer
Type	Capacitive, 1:1 ratio, 24 Pins
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	

PN:	NLTN16LM24BXCNTRF
Application	Dual 10/100 Base-T, 1G Single Port, Isolation Transformer
Type	Inductive 1:1 ratio, 24 Pins, Low Profile
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	

PN:	NLTN-P16LG24APCNTRF
Application	1000 Base-T (1G) Single Port, Isolation Transformer, Low Profile
Type	Inductive, Power Over Ethernet (POE) 1:1 ratio, up to 15W, 24 Pins, Low Profile
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	The schematic diagram for the NLTN-P16LG24APCNTRF transformer shows two sides: PHY SIDE and RJ SIDE. The PHY SIDE has 24 pins labeled TCT1 through TD2-6. The RJ SIDE has 24 pins labeled MCT1 through MX4-. The connections are as follows: - TCT1 (1) to MCT1 (7) - TD1+ (2) to MX3+ (17) - TD1- (3) to MX3- (16) - TCT2 (4) to MCT2 (10) - TD2+ (5) to MX4+ (14) - TD2- (6) to MX4- (13) - MX1+ (23) to TD3+ (8) - MX1- (22) to TD3- (9) - MX2+ (20) to TD4+ (11) - MX2- (19) to TD4- (12)

PN:	NLTN-P16LG24ABCNTRF
Application	1000 Base-T (1G) Single Port, Isolation Transformer, Low Profile
Type	Inductive, Power Over Ethernet (POE) 1:1 ratio, up to 30W, 24 Pins, Low Profile
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	The schematic diagram for the NLTN-P16LG24ABCNTRF transformer shows two sides: PHY SIDE and RJ SIDE. The PHY SIDE has 24 pins labeled TCT1 through TD2-6. The RJ SIDE has 24 pins labeled MCT1 through MX4-. The connections are as follows: - TCT1 (1) to MCT1 (7) - TD1+ (2) to MX3+ (17) - TD1- (3) to MX3- (16) - TCT2 (4) to MCT2 (10) - TD2+ (5) to MX4+ (14) - TD2- (6) to MX4- (13) - MX1+ (23) to TD3+ (8) - MX1- (22) to TD3- (9) - MX2+ (20) to TD4+ (11) - MX2- (19) to TD4- (12)

PN:	NLTN16LS224AGCGTRF
Application	Single 2.5G, Single Port, Isolation Transformer
Type	Inductive, 1:1 ratio, 24 Pins
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	PHY SIDE RJ SIDE

PN:	NLTN16LS1024ASCSTRF
Application	Single 10G, Single Port, Isolation Transformer
Type	Inductive, 1:1 ratio, 24 Pins
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	PHY SIDE RJ SIDE

PN:	NLTN17CM24EDCNTRF
Application	10/100 Base-T Dual port or 1G Single port.
Type	Capacitive 1:1 ratio, 24 Pins
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	The schematic diagram illustrates the internal wiring of the NLTN17CM24EDCNTRF transformer. It features a central core with four primary windings on the left (Cable Side) and four secondary windings on the right (PHY Side). The Cable Side pins are numbered 13 through 24, and the PHY Side pins are numbered 12 through 1. The transformer is configured for a 1:1 ratio. A ground connection (GND) is shown at the bottom left.

PN:	NLTN17LM24BXCNTRF
Application	10/100 Base-T Dual port or 1G Single port.
Type	Inductive 1:1 ratio, 24 Pins, Low Profile
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	The schematic diagram illustrates the internal wiring of the NLTN17LM24BXCNTRF transformer. It features a central core with four primary windings on the left (PHY SIDE) and four secondary windings on the right (RJ SIDE). The PHY SIDE pins are numbered 1 through 6, and the RJ SIDE pins are numbered 18 through 13. The transformer is configured for a 1:1 ratio. The diagram also shows the internal connections for the transformer, including the primary and secondary windings and the center tap connections.

PN:	NLTN28LD148BXCNTRF
Application	Dual 1G, Single Port, Isolation Transformer
Type	Inductive, 1:1 ratio, 48 Pins
Operating Temperature Range	-40°C to +85°C (including self-heating)
Schematic	The schematic diagram illustrates the internal structure of the NLTN28LD148BXCNTRF transformer, showing two main sections: PHY SIDE and RJ SIDE. Each side contains four transformer symbols, each labeled '1CT:1CT', representing 1:1 ratio transformers. The PHY SIDE pins are numbered 1 through 12, and the RJ SIDE pins are numbered 13 through 24. The diagram shows the following connections: PHY SIDE: - Pin 1 (TCT1) to Pin 48 (MCT1) - Pin 2 (TD1+) to Pin 47 (MX1+) - Pin 3 (TD1-) to Pin 46 (MX1-) - Pin 4 (TCT2) to Pin 45 (MCT2) - Pin 5 (TD2+) to Pin 44 (MX2+) - Pin 6 (TD2-) to Pin 43 (MX2-) - Pin 7 (TCT3) to Pin 42 (MCT3) - Pin 8 (TD3+) to Pin 41 (MX3+) - Pin 9 (TD3-) to Pin 40 (MX3-) - Pin 10 (TCT4) to Pin 39 (MCT4) - Pin 11 (TD4+) to Pin 38 (MX4+) - Pin 12 (TD4-) to Pin 37 (MX4-) RJ SIDE: - Pin 13 (TCT5) to Pin 36 (MCT5) - Pin 14 (TD5+) to Pin 35 (MX5+) - Pin 15 (TD5-) to Pin 34 (MX5-) - Pin 16 (TCT6) to Pin 33 (MCT6) - Pin 17 (TD6+) to Pin 32 (MX6+) - Pin 18 (TD6-) to Pin 31 (MX6-) - Pin 19 (TCT7) to Pin 30 (MCT7) - Pin 20 (TD7+) to Pin 29 (MX7+) - Pin 21 (TD7-) to Pin 28 (MX7-) - Pin 22 (TCT8) to Pin 27 (MCT8) - Pin 23 (TD8+) to Pin 26 (MX8+) - Pin 24 (TD8-) to Pin 25 (MX8-)

Typical Performance Characteristics

Part Number	Insertion Loss (dB Max)	Return Loss (dB min)			Differential Mode to Common Mode Rejection (DCMR) (dB min)		
		30Mhz	60Mhz	100Mhz	30Mhz	60Mhz	100Mhz
NLTN12CM16EDCNTRF	-1.0	-20	-15	-10	-25	-25	-25
NLTN12LM16BXCNTRF	-1.0	-20	-15	-10	-25	-25	-25
NLTN16CM24EDCNTRF	-1.0	-20	-15	-10	-25	-25	-25
NLTN16LM24BXCNTRF	-1.0	-20	-15	-10	-25	-25	-25
NLTN17CM24EDCNTRF	-1.0	-20	-15	-10	-25	-25	-25
NLTN17LM24BXCNTRF	-1.0	-20	-15	-10	-25	-25	-25
NLTN28LD148BXCNTRF	-1.0	-20	-15	-10	-25	-25	-25

Part Number	Insertion Loss (dB Max)	Return Loss (dB min)				Differential Mode to Common Mode Rejection (DCMR) (dB min)	
		1~30Mhz	30~60Mhz	60~80Mhz	80~100Mhz	1~60Mhz	60~100Mhz
NLTN-P12LM16ABCNTRF	-1.1	-20	-18	-14	-12	-35	-30

Part Number	Insertion Loss (dB Max)	Return Loss (dB min)					Differential Mode to Common Mode Rejection (DCMR) (dB min)	
		1~30Mhz	40Mhz	50Mhz	60~80Mhz	100Mhz	1~60Mhz	60~100Mhz
NLTN-P16LG24APCNTRF	-1.1	-18	-14.4	-13.1	-12	-10	-35	-30
NLTN-P16LG24ABCNTRF	-1.1	-18	-14.4	-13.1	-12	-10	-35	-30

Part Number	Insertion Loss (dB Max)	Return Loss (dB min)		Differential Mode to Common Mode Rejection (DCMR) (dB min)	
		1~40MHz	40~500MHz	1 ~ 250MHz	250 ~ 250MHz
NLTN16LS224AGCGTRF	-3.0	-16	-5	-30	-22

Part Number	Insertion Loss (dB Max)	Return Loss (dB min)		Differential Mode to Common Mode Rejection (DCMR) (dB min)	
		1~40MHz	40~500MHz	1 ~ 250MHz	250 ~ 500MHz
NLTN16LS1024ASCSTRF	-3.0	-16	-5	-22	-18

Typical Performance Characteristics Continued

Part Number	OCL (uH Min) @100KHz/0.1V with 8mA DC Bias	Cross Talk (db min)	Inductance Pins	Input-Output Isolation	Resistance to Solder Heat
NLTN12CM16EDCNTRF	200	-35	1-3, 6-8, 9-11, 14-16	N/A	+260°C for 10 seconds
NLTN12LM16BXCNTRF	350	-38	1-3, 6-8, 9-11, 14-16	1500VAC/60s	+260°C for 10 seconds
NLTN-P12LM16ABCNTRF	90	-38	1-3, 6-8, 9-11, 14-16	1500VAC/60s	+260°C for 10 seconds
NLTN16CM24EDCNTRF	200	-35	2-3, 5-6, 8-9, 11-12, 13-14, 16- 17, 19-20, 22-23	N/A	+260°C for 10 seconds
NLTN16LM24BXCNTRF	350	-35	2-3, 5-6, 8-9, 11-12, 13-14, 16- 17, 19-20, 22-23	1500VAC/60s	+260°C for 10 seconds
NLTN-P16LG24APCNTRF	90	-35	2-3, 5-6, 8-9, 11-12, 13-14, 16- 17, 19-20, 22-23	1500VAC/60s	+260°C for 10 seconds
NLTN-P16LG24ABCNTRF	90	-35	2-3, 5-6, 8-9, 11-12, 13-14, 16- 17, 19-20, 22-23	1500VAC/60s	+260°C for 10 seconds
NLTN16LS224AGCGTRF	120	-35	2-3, 5-6, 8-9, 11-12, 13-14, 16- 17, 19-20, 22-23	1500VAC/60s	+260°C for 10 seconds
NLTN16LS1024ASCSTRF	120	-30	2-3, 5-6, 8-9, 11-12, 13-14, 16- 17, 19-20, 22-23	1500VAC/60s	+260°C for 10 seconds
NLTN17CM24EDCNTRF	200	-35	2-3, 5-6, 8-9, 11-12, 13-14, 16- 17, 19-20, 22-23	N/A	+260°C for 10 seconds
NLTN17LM24BXCNTRF	350	-35	2-3, 5-6, 8-9, 11-12, 13-14, 16- 17, 19-20, 22-23	1500VAC/60s	+260°C for 10 seconds
NLTN28LD148BXCNTRF	350	-35	2-3, 5-6, 8-9, 11-12, 14-15, 17- 18, 20-21, 23-24, 25-26, 28- 29, 31-32, 34-35, 37-38, 40- 41, 43-44, 46-47	1500VAC/60s	+260°C for 10 seconds

DIMENSIONS: (mm)

Series	Figure	A	B	C	D	E	F	A'	B'	C'
NLTN12_	1	12.7 ±0.25	8.87 ±0.25	4.0 ±0.25	0.6 ±0.25	1.27 ±0.25	1.0 ±0.25	8.87 ±0.25	7.2 ±0.25	0.8 ±0.05
NLTN-P12	2	12.7 ±0.25	8.67 ±0.25	4.0 ±0.25	0.6 ±0.25	1.27 ±0.25	1.0 ±0.25	8.89 ±0.25	7.2 ±0.25	0.8 ±0.05
NLTN16_	3	16.5 ± 0.2	10.0 ± 0.2	4.15 ± 0.2	6.75 ± 0.2	4.75 ± 0.2	3.75 ±0.2	15.99 ± 0.2	9.5 ± 0.2	0.8 ± 0.2
NLTN-P16	4	16.5 ± 0.25	10.3 ± 0.25	4.1 ±0.25	6.75 ± 0.25	4.75 ±0.25	3.75 ±0.25	16.0 ±0.25	9.65 ±0.25	0.8 ±0.05
NLTN16_LS	5	16.5 ± 0.25	10.3 ± 0.25	4.1 ±0.25	6.75 ±0.25	4.75 ±0.25	3.75 ±0.25	16.0 ±0.25	9.65 ±0.25	0.8 ±0.05
NLTN17_	6	17.5 ±0.2	14.6 ± 0.2	4.5 ±0.2	6.86 ±0.2	4.32 ±0.2	3.05 ±0.2	17.03 ±0.2	13.92 ±0.2	1.0 ±0.2
NLTN28_	7	28.58 ±0.25	14.6 ±0.25	5.0 Max	6.64 ±0.25	4.6 ±0.25	3.58 ±0.25	28.08 ±0.25	13.99 ±0.25	1.2 ±0.25

Figure 1

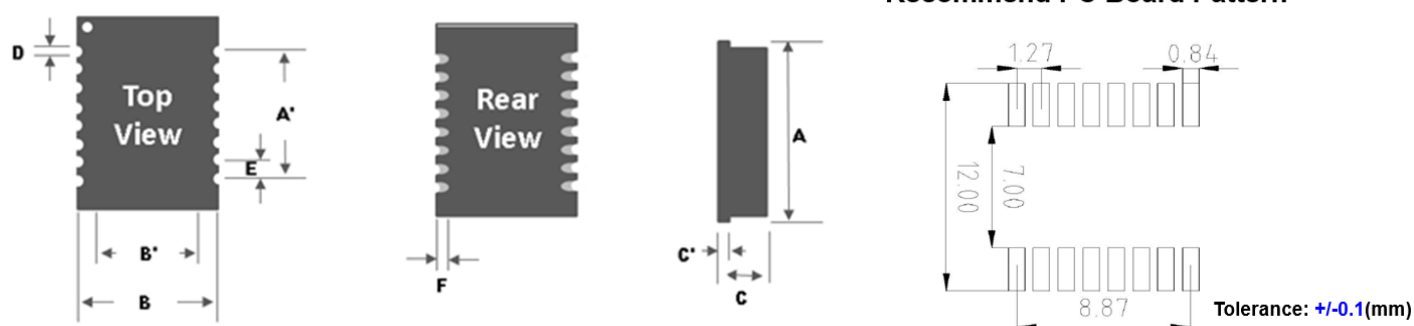


Figure 2

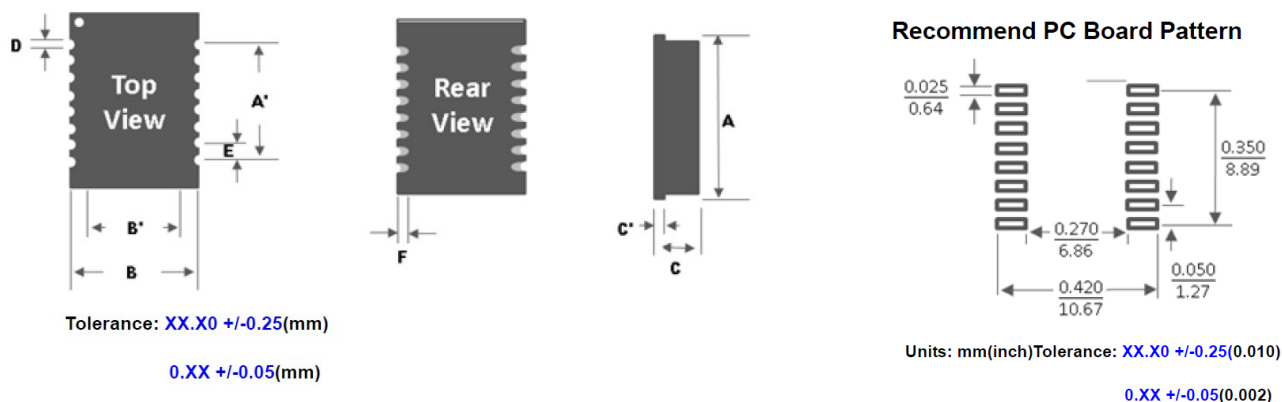


Figure 3

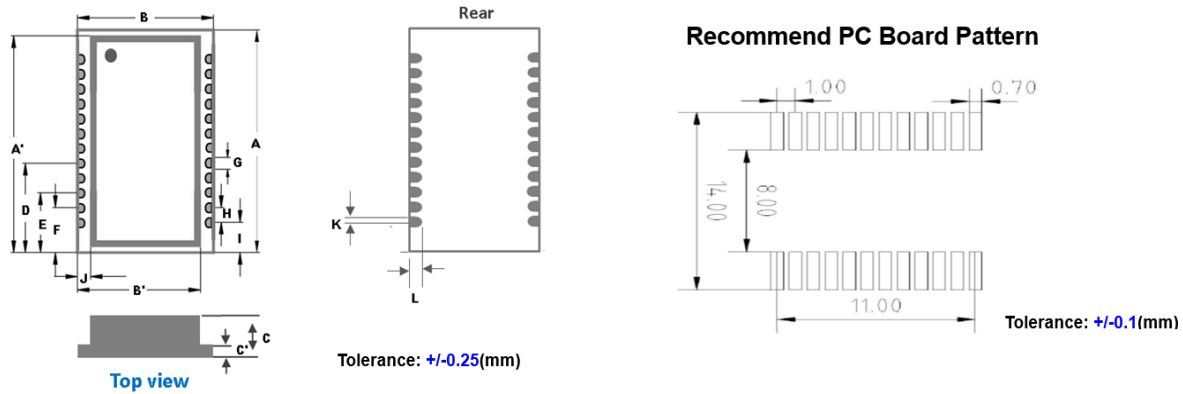


Figure 4

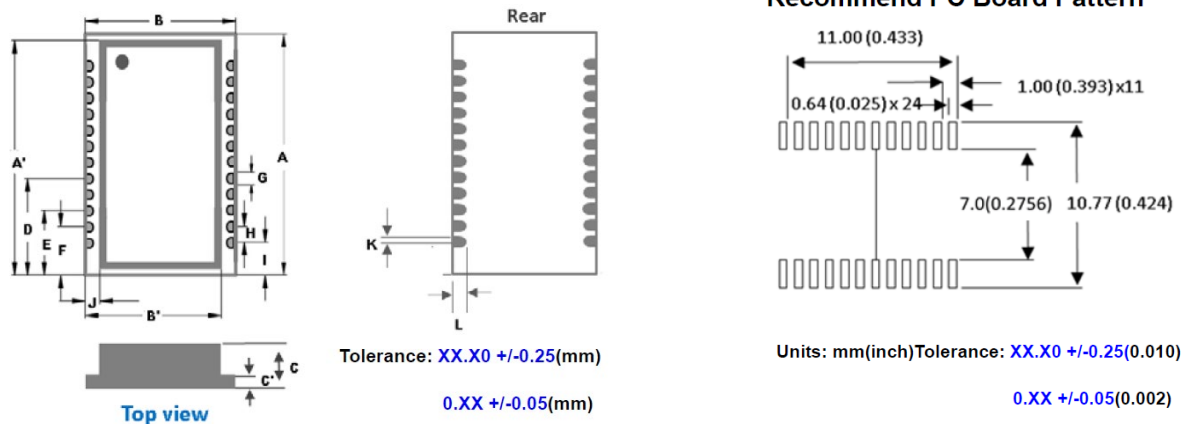


Figure 5

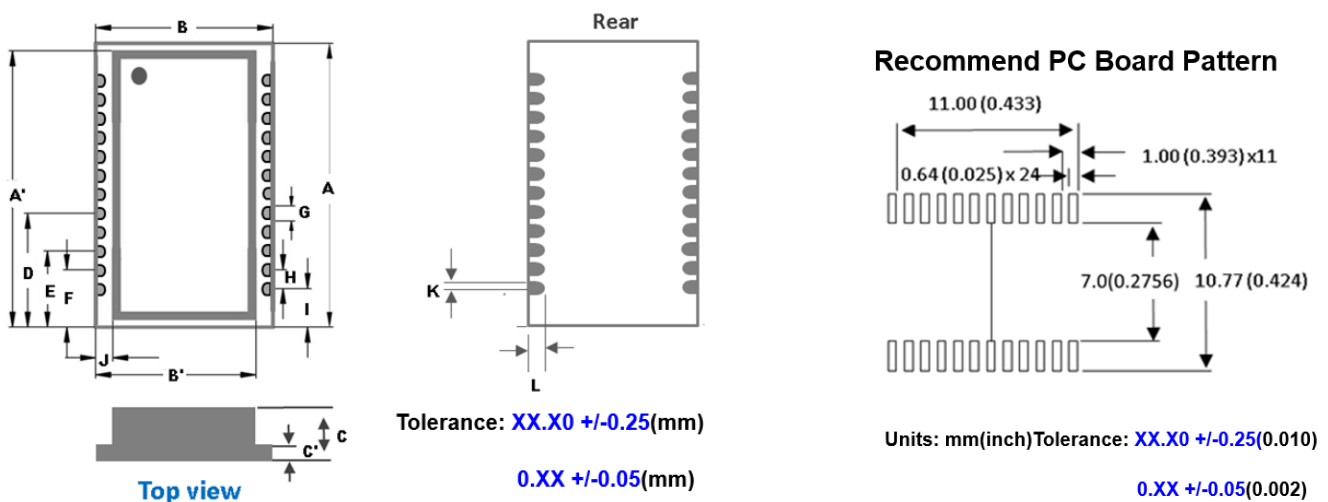
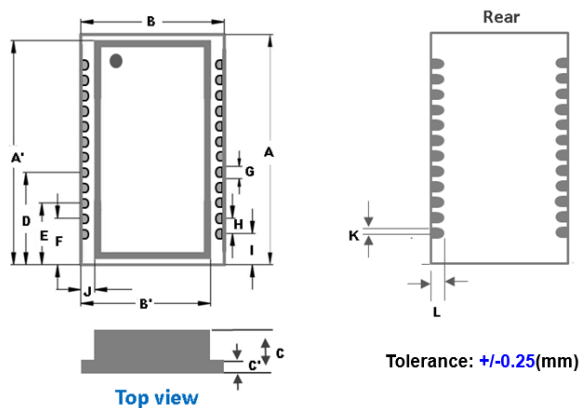
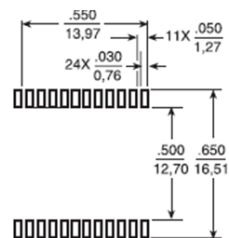


Figure 6



Recommend PC Board Pattern

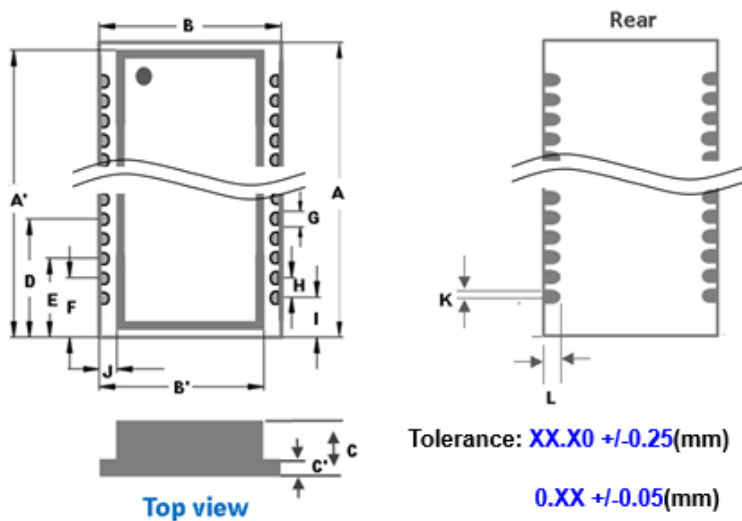


Units: mm (inch) Tolerance:

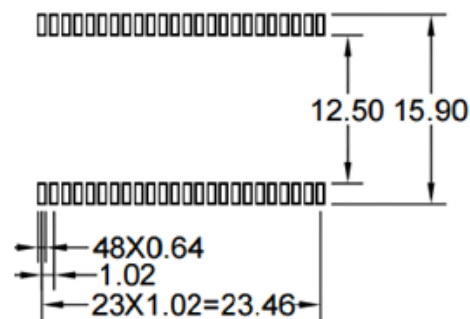
XX.X0 ± 0.25 (0.010)

0.XX ± 0.05 (0.002)

Figure 7



Recommend PC Board Pattern

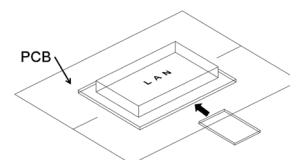


Units: mm(inch) Tolerance: XX.X0 ± 0.25 (0.010)

0.XX ± 0.05 (0.002)

Reliability Tests

Item	Performance	Test Condition – Method - Equipment								
Insertion Loss	Refer to standard electrical characteristics list.	Agilent E5071C								
Retuen Loss										
Cross talk										
DCMR										
Operating Temperature	-40°C~+85°C(Including self - temperature rise)									
Storage Temperature	-40°C~+85°C(Product without taping)									
Life Test	Appearance : No damage. Insertion Loss : within spec. Return Loss : within spec.	Preconditioning: Run through Reflow for 3 times. (IPC/JEDEC J-STD-020E Classification Reflow Profiles) Temperature : 85±2°C Duration : 1000±12hrs Measured at room temperature after placing for 24 hrs								
Humidity Resistance Test		Preconditioning: Run through Reflow for 3 times. (IPC/JEDEC J-STD-020E Classification Reflow Profiles) Humidity : 85±3 % R.H, Temperature : 85°C±2°C Duration : 1000hrs Min. Bead: with 100% rated current. Inductance: with 10% rated current. Measured at room temperature after placing for 24 hrs								
Thermal shock Test		Preconditioning: Run through Reflow for 3 times. (IPC/JEDEC J-STD-020E Classification Reflow Profiles) Step1 : -40±2°C 30±5min Step2 : 85±2°C ≤0.5min Step3 : 85±2°C 30±5min Number of cycles : 500 Measured at room temperature after placing for 24 hrs								
Vibration Test		Preconditioning: Run through Reflow for 3 times. (IPC/JEDEC J-STD-020E Classification 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)								
Solderability Test	More than 95% of bottom terminal electrode should be covered with solder.	a. Method B, 4 hrs @155°C dry heat @235°C±5°C Test time:5 +0/-0.5 seconds. b. Method D category 3. (steam aging 8hours ± 15 min) @ 260°C±5°C Test time: 30 +0/-0.5 seconds.								
Resistance To Solder Heat Test	Appearance : No damage.	Depth: completely cover bottom the termination <table><tr><td>Temperature(°C)</td><td>Time(s)</td><td>Temperature ramp/immersion and emersion rate</td><td>Number of heat cycles</td></tr><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr></table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1
Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles							
260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1							
Terminal Strength Test	<table><tr><td>Series No.</td><td>2(Kg)</td></tr><tr><td>LAN</td><td>1.0(min.)</td></tr></table>	Series No.	2(Kg)	LAN	1.0(min.)	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.				
Series No.	2(Kg)									
LAN	1.0(min.)									



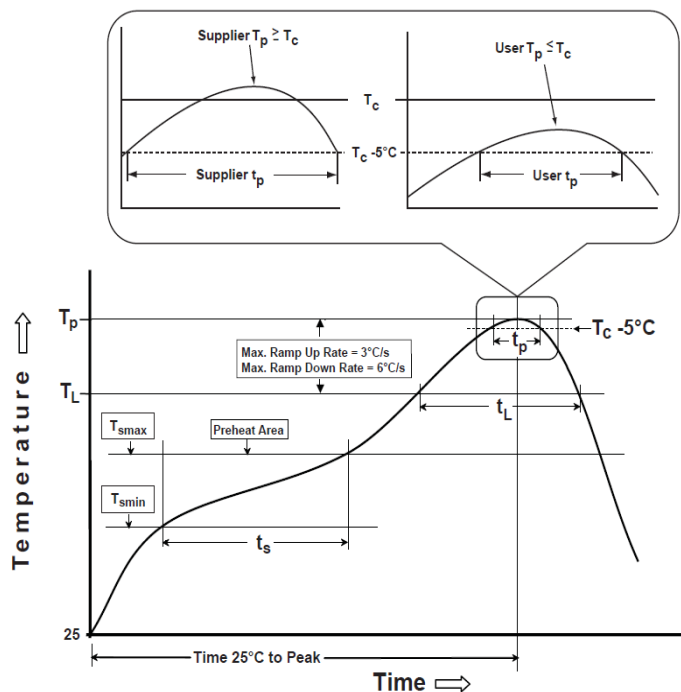
Soldering

MSL Level: Level 1

Soldering Reflow: Recommended temperature profiles for lead-free reflow soldering; Figure 8.

Peak Temperature (T_p) : +260°C for 10 seconds maximum

Figure.8 - Soldering Reflow / Reflow per IPC/JEDEC J-STD-020E



Reflow Cycles: 3 times max

Profile Type:	Pb-Free Assembly
Preheat	
-Temperature Min(T_{smin})	150°C
-Temperature Max(T_{smax})	200°C
-Time(t_s)from(T_{smin} to T_{smax})	60-120seconds
Ramp-up rate(T_L to T_p)	3°C/second max.
Liquidus temperature(T_L)	217°C
Time(t_L)maintained above T_L	60-150 seconds
Classification temperature(T_c)	See Table (1.2)
Time(t_p) at $T_c - 5^\circ\text{C}$ (T_p should be equal to or less than T_c .)	< 30 seconds
Ramp-down rate(T_p to T_L)	6°C./second max.
Time 25°C to peak temperature	8 minutes max.

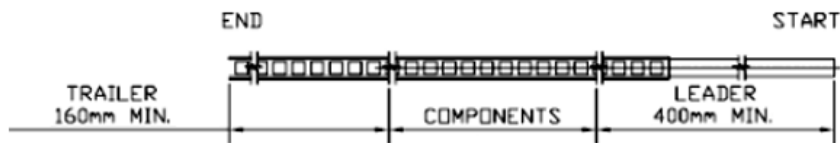
Table (1.2) Package Thickness/Volume and Classification Temperature (T_c)

	Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
PB-Free Assembly	<1.6mm	260°C	260°C	260°C
	1.6-2.5mm	260°C	250°C	245°C
	≥2.5mm	250°C	245°C	245°C

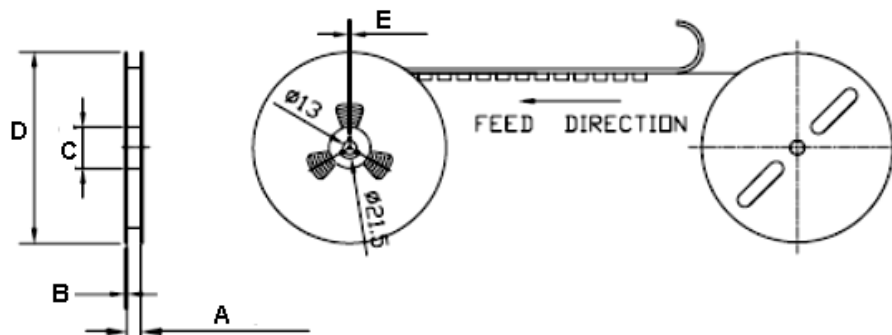
Reflow is referred to standard IPC/JEDEC J-STD-020E °

PACKAGING:

Packaging Information

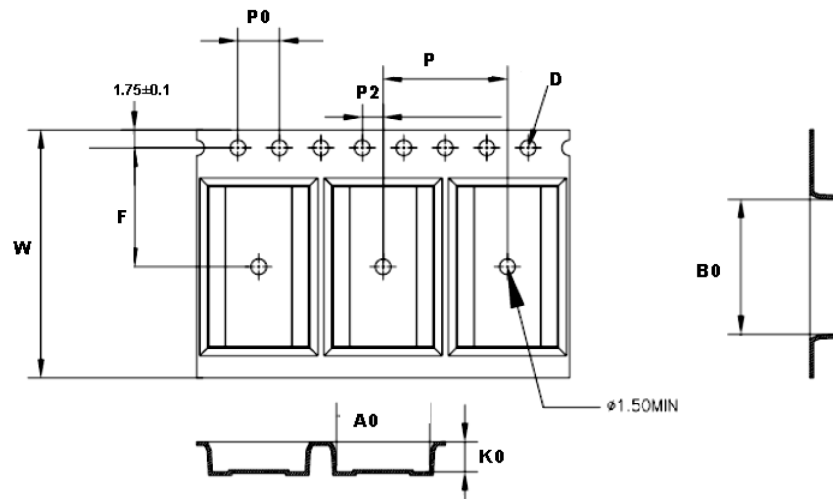


(1) Reel Dimensions



PN	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)
NLTN12CM16EDCNTRF	24.4±2.0	2.1±0.15	φ100	φ330±2	2.5
NLTN12LM16BXCNTRF	24.4±2.0	2.1±0.15	φ100	φ330±2	2.5
NLTN-P12LM16ABCNTRF	24.4±2.0	2.1±0.15	φ100	φ330±2	2.5
NLTN16CM24EDCNTRF	33.5±2.0	2.0±0.15	φ100	φ330±2	2.5
NLTN16LM24BXCNTRF	33.5±2.0	2.0±0.15	φ100	φ330±2	2.5
NLTN-P16LG24APCNTRF	33.5±2.0	2.0±0.15	φ100	φ330±2	2.5
NLTN-P16LG24ABCNTRF	33.5±2.0	2.0±0.15	φ100	φ330±2	2.5
NLTN16LS224AGCGTRF	33.5±2.0	2.0±0.15	φ100	φ330±2	2.5
NLTN16LS1024ASCSTRF	33.5±2.0	2.0±0.15	φ100	φ330±2	2.5
NLTN17CM24EDCNTRF	33.5±2.0	2.0±0.15	φ100	φ330±2	2.5
NLTN17LM24BXCNTRF	33.5±2.0	2.0±0.15	φ100	φ330±2	2.5
NLTN28LD148BXCNTRF	45.5±2.0	2.0±0.15	φ100	φ330±2	2.5

(2) Tape Dimension



PN	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	Po(mm)	P2(mm)	W(mm)	F(mm)	D(mm)
NLTN12CM16EDCNTRF	13.0 $\pm$ 0.1	9.0 $\pm$ 0.1	4.4 $\pm$ 0.1	16.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	24.0 $\pm$ 0.3	11.5 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN12LM16BXCNTRF	13.0 $\pm$ 0.1	9.0 $\pm$ 0.1	4.4 $\pm$ 0.1	16.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	24.0 $\pm$ 0.3	11.5 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN-P12LM16ABCNTRF	13.0 $\pm$ 0.1	9.0 $\pm$ 0.1	4.9 $\pm$ 0.1	16.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	32.0 $\pm$ 0.3	14.2 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN16CM24EDCNTRF	16.8 $\pm$ 0.1	10.6 $\pm$ 0.1	4.9 $\pm$ 0.1	16.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	32.0 $\pm$ 0.3	14.2 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN16LM24BXCNTRF	16.8 $\pm$ 0.1	10.6 $\pm$ 0.1	4.9 $\pm$ 0.1	16.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	32.0 $\pm$ 0.3	14.2 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN-P16LG24APCNTRF	16.8 $\pm$ 0.1	10.6 $\pm$ 0.1	4.9 $\pm$ 0.1	16.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	32.0 $\pm$ 0.3	14.2 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN-P16LG24ABCNTRF	16.8 $\pm$ 0.1	10.6 $\pm$ 0.1	4.9 $\pm$ 0.1	16.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	32.0 $\pm$ 0.3	14.2 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN16LS224AGCGTRF	16.8 $\pm$ 0.1	10.6 $\pm$ 0.1	4.9 $\pm$ 0.1	16.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	32.0 $\pm$ 0.3	14.2 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN16LS1024ASCSTRF	16.8 $\pm$ 0.1	10.6 $\pm$ 0.1	4.9 $\pm$ 0.1	16.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	32.0 $\pm$ 0.3	14.2 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN17CM24EDCNTRF	17.93 $\pm$ 0.1	15.3 $\pm$ 0.1	4.8 $\pm$ 0.1	24.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	32.0 $\pm$ 0.3	11.5 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN17LM24BXCNTRF	17.93 $\pm$ 0.1	15.3 $\pm$ 0.1	4.8 $\pm$ 0.1	24.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	32.0 $\pm$ 0.3	11.5 $\pm$ 0.1	1.5 $\pm$ 0.1
NLTN28LD148BXCNTRF	28.9 $\pm$ 0.1	14.9 $\pm$ 0.1	5.8 $\pm$ 0.1	20.0 $\pm$ 0.1	4.0 $\pm$ 0.1	2.0 $\pm$ 0.1	44.0 $\pm$ 0.3	20.2 $\pm$ 0.1	1.5 $\pm$ 0.1

(3) Packaging Quantity

PN	Reel / Pcs
NLTN12CM16EDCNTRF	800
NLTN12LM16BXCNTRF	800
NLTN-P12LM16ABCNTRF	800
NLTN16CM24EDCNTRF	800
NLTN16LM24BXCNTRF	800
NLTN-P16LG24APCNTRF	800
NLTN-P16LG24ABCNTRF	800
NLTN16LS224AGCGTRF	800
NLTN16LS1024ASCSTRF	800
NLTN17CM24EDCNTRF	400
NLTN17LM24BXCNTRF	400
NLTN28LD148BXCNTRF	500

Storage – Shipment - Handling Notice

1.) Storage Conditions (component level)

To maintain the solderability of terminal electrodes:

- Store Indoors
- Temperature: +5°C ~ +35°C (41°F ~ 95°F)
- Relative humidity: 40 to 75%
- Avoid storage where chlorine or sulfur exists in the atmosphere

2.) Period:

- Recommended to use within 12 months from the time of delivery.

Shipment / Handling:

- Products should be handled with care to avoid damage or contamination
- The use of tweezers or vacuum pick up is strongly recommended for individual components
- Bulk handling should ensure that abrasion and mechanical shock are minimized.