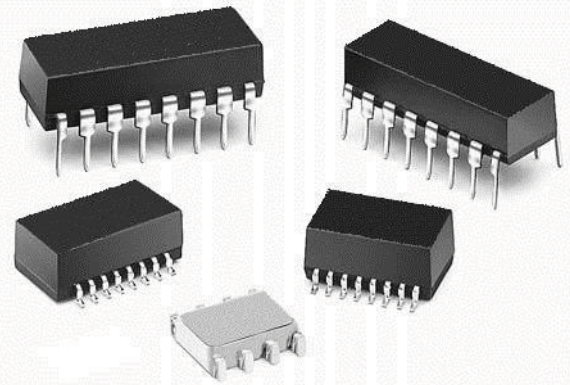


# 10Base-T Isolation Transformers

Link-PP Int'l Technology

- ✧ For Adaptor Cards, Mous, Hubs, and Motherboard applications
- ✧ Designed to meet or exceed IEEE802.3. 10Base-T specifications
- ✧ Available With Common Mode Chokes for EMI Suppression
- ✧ SMT, THT, DIP etc Package
- ✧ For RoHS part add suffix NL
- ✧ RoHS NL peak solder rating 235°C



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

Part Number	Turns Ratio (±5%)		Primary Pins	Common Mode Choke	Sine Wave Inductance OCL <sup>1</sup> (uH MIN)	Interwinding Capacitance C <sub>ww</sub> <sup>1</sup> (pF MAX)	Leakage Inductance LL <sup>1</sup> (μ H MAX)	DCR (Ω MAX)	Hipot (Vrms)	Schem .	Mech.
	Transmit	Receive									
<b>Surface Mount</b>											
LP114SM	1CT:1CT	1CT:1CT	1-3/6-8		200	12	0.3	0.3	2000	D	SMT5
LP128SM	1CT:1.414CT	1CT:1CT	6-8/1-3		200	15	0.5	0.4	2000	D	SMT5
LP356SM	1CT:1.414CT	1CT:1CT	6-8/1-3	X	200	12	0.5	0.6	2000	G	SMT5
LP435SM	2CT:1CT	1CT:1CT	1-3/6-8		100	10	0.4	0.5	2000	D	SMT5
LP467SM	1CT:2CT	1CT:1CT	6-8/1-3	X	140	12	0.2	0.6	2000	G	SMT5
LP2023	1CT:2.5CT	1CT:1CT	6-8/1-3	X	200	15	0.5	0.4	2000	J	SMT4
LP4001	1CT:2CT	1CT:1CT	6-8/1-3	X	112	8	0.3	0.8	3000	E	SMT4
LP4005	1CT:2.5CT	1CT:1CT	6-8/1-3	X	200	10	0.4	0.5	1500	J	SMT4
LP5017	1CT:1CT	1CT:1CT	1-3/6-8	X	200	10	0.25	1.0	1500	F	SMT4
LP2024 <sup>2</sup>	1CT:2.5CT	1CT:1CT	6-8/1-3	X	350	30	0.8	0.6	2000	J	SMT4
LP85454	1:1.414	1:1	3-4/1-2		140	12	0.2	0.4	2000	A	SMT2
LP85726	1CT:1CT	1CT:1CT	1-3/6-8		200	10	0.2	0.3	2000	D	SMT4
LP85745	1CT:1.414CT	1CT:1CT	6-8/1-3		140	12	0.2	0.3	2000	D	SMT4
LP88023	1CT:2CT	1CT:1CT	1-3/6-8	X	200	12	0.3	1.0	1500	F	SMT4
LP88041	1CT:2CT	1CT:1CT	6-8/1-3		112	8	0.3	0.5	1500	D	SMT4
LP88042	2.828CT:1	1:1	2-4/7-9		200	14	1	0.5	1500	I	SMT1
LP88048	1CT:1.414CT	1CT:1CT	6-8/1-3	X	110	15	0.4	1.0	1500	E	SMT4
LP88052	2CT:1CT	1CT:1CT	1-3/6-8	X	140	12	0.3	1.0	1500	F	SMT4
LP88810	---	1:1(4X)	1-2/3-4		140	12	0.2	0.4	2000	C	SMT4
LP88820	1:1.414(4X)	---	1-2/3-4 5-6/7-8		140	12	0.2	0.4	2000	C	SMT4
<b>Through Hole</b>											
LP128	1CT:2CT	1CT:1CT	6-8/1-3		140	15	0.5	0.4	2000	D	TH3
LP435	2CT:1CT	1CT:1CT	1-3/6-8		80	10	0.4	0.5	2000	D	TH3
LP85263	1CT:1CT	1CT:1CT	1-3/6-8		200	15	0.25	0.3	2000	D	TH4

- NOTES: 1. OCL, C<sub>ww</sub> and LL are measured at 20 mVrms, 100 kHz.  
 2. Extended temperature parts -40°C to 85°C, electrical specifications @ 25°C.

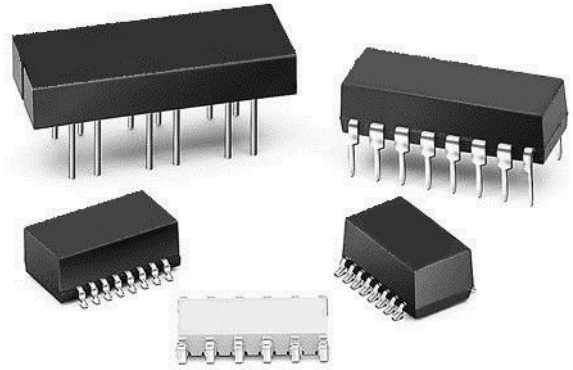
## Electrical Specifications @25°C---Operating Temperature 0°C to 70°C

Part Number	Insertion Loss 1 to 10 MHz (dB MAX)	Attenuation (dB MIN)				Return Loss 1 to 10 MHz 100 Ω ± 15 Ω (dB MIN)	Crosstalk 1 to 30 MHz (dB MIN)	Common Mode Rejection (dB MIN)		Schem.	Mech.
		30-50MHz		50-100MHz				50MHz	100MHz		
		TX	RX	TX	RX						
LP85433	-1.0	-30	-15	-35	-20	-15	-30	-35	-30	K	TH5

# Isolation Transformers For Ethernet

Link-PP Int'l Technology

- ✘ For Ethernet AUI Transformers
- ✘ Low leakage inductance and coupling capacitance for faster rise times
- ✘ SMT,DIP package
- ✘ For RoHS Parts add Suffix NL
- ✘ RoHS NL peak solder rating 235°C



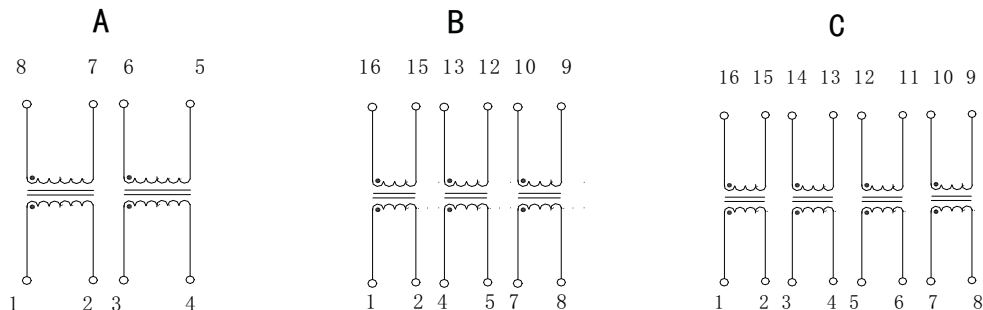
## Electrical Specifications @25 °C---- Operating Temperature 0°C to 70°C

Part Number	Turns Ratio (±2%)	Primary Pins	Primary Sine Wave OCL (μH ±20%)	Primary ET-Constant (V-μs MIN)	Rise Time (ns MAX)	Interwinding Capacitance C <sub>ww</sub> (pF MAX)	Leakage Inductance L <sub>L</sub> (uH MAX)	DCR (Ω MAX)	Schem.	Mech.	Hipot (Vrms)
<b>SURFACE MOUNT</b>											
LP90SM	1:1	1-2/4-5/7-8	75	2.4	3.0	10	0.20	0.20	B	SMT5	2000
LP91SM	1:1	1-2/4-5/7-8	100	2.4	3.0	10	0.20	0.30	B	SMT5	2000
LP108SM	1:1	1-2/4-5/7-8	350	2.5	3.5	16	0.30	0.35	B	SMT5	2000
LP6002	1:1	1-2/4-5/7-8	40(MIN)	2.1	3.0	8	0.20	0.25	B	SMT4	2000
LP85723	1:1	1-2/4-5/7-8	75	1.8	3.0	8	0.20	0.30	B	SMT4	2000
LP85727	1:1	1-2/4-5/7-8	150	1.2	3.0	12	0.20	0.30	B	SMT4	2000
LP85728	1:1	1-2/4-5/7-8	100	1.8	3.0	9	0.20	0.30	B	SMT4	2000
LP88801	1:1	1-2/3-4/5-6	75	1.8	3.0	12	0.20	0.30	H	SMT3	2000
<b>THROUGH HOLE</b>											
LP84102	1:1	1-2/4-5/7-8	75	2.1	3.0	10	0.20	0.20	B	TH4	500
LP84103	1:1	1-2/4-5/7-8	100	2.1	3.0	10	0.20	0.30	B	TH4	500
LP84104	1:1	1-2/4-5/7-8	150	2.1	3.5	12	0.20	0.30	B	TH4	500
LP84107	1:1	1-2/4-5/7-8	75	2.4	3.5	10	0.25	0.30	B	TH2	2000
LP84108	1:1	1-2/4-5/7-8	100	2.1	3.5	10	0.25	0.40	B	TH2	2000
LP84109	1:1	1-2/4-5/7-8	150	3.0	3.0	15	0.20	0.45	B	TH2	2000
LP84502	1:1	1-2/4-5/7-8	75	2.1	3.0	10	0.20	0.20	B	TH4	2000
LP84503	1:1	1-2/4-5/7-8	100	2.1	3.0	10	0.20	0.30	B	TH4	2000

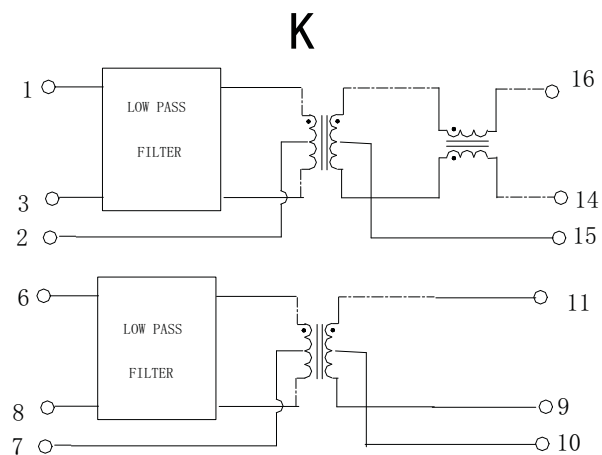
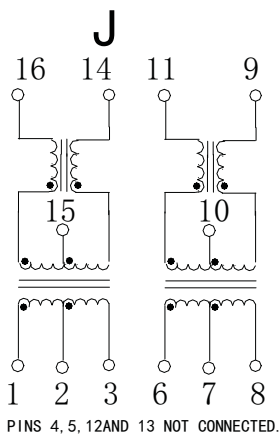
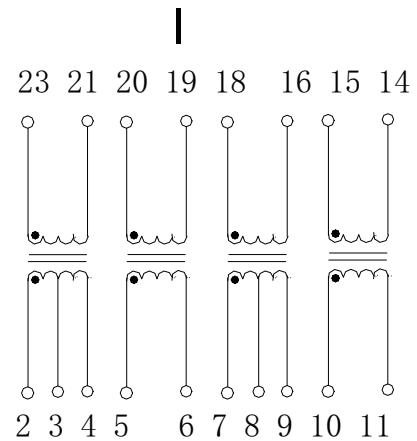
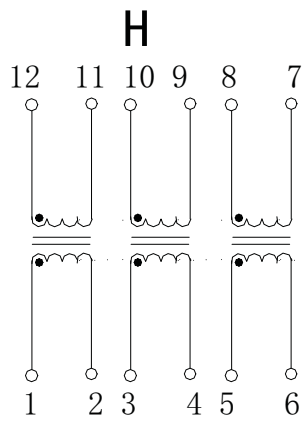
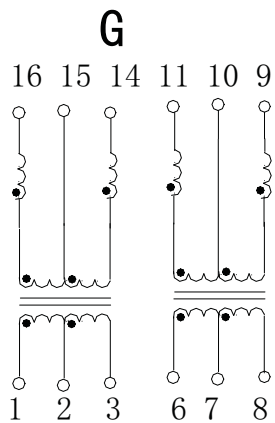
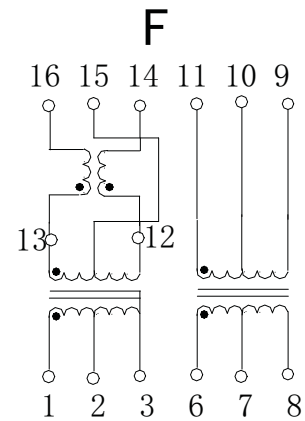
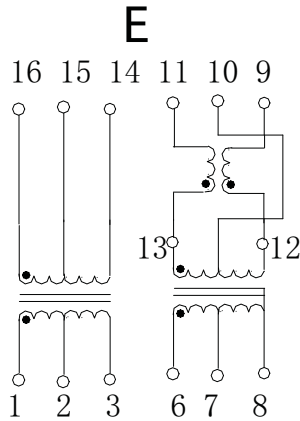
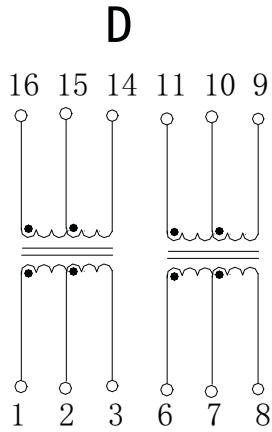
**NOTES:**

1. OCL, C<sub>ww</sub> and L<sub>L</sub> are measured at 20 mVrms, 100 kHz.
2. Rise time is measured in 75 Ω systems.

## Schematics

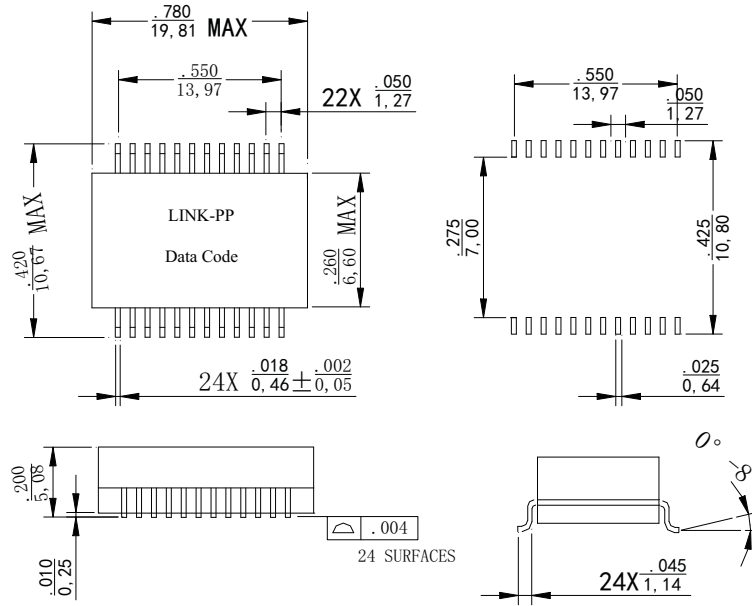


## Schematics (continued)



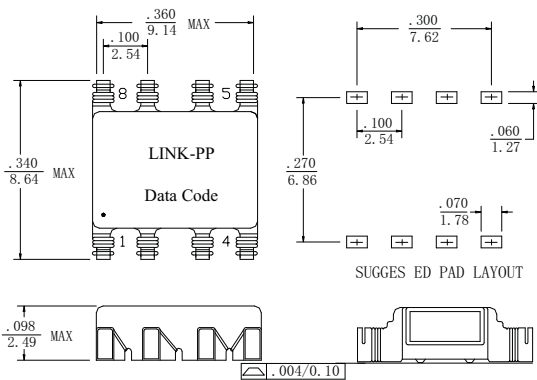
## Surface Mount Mechanicals

### SMT1



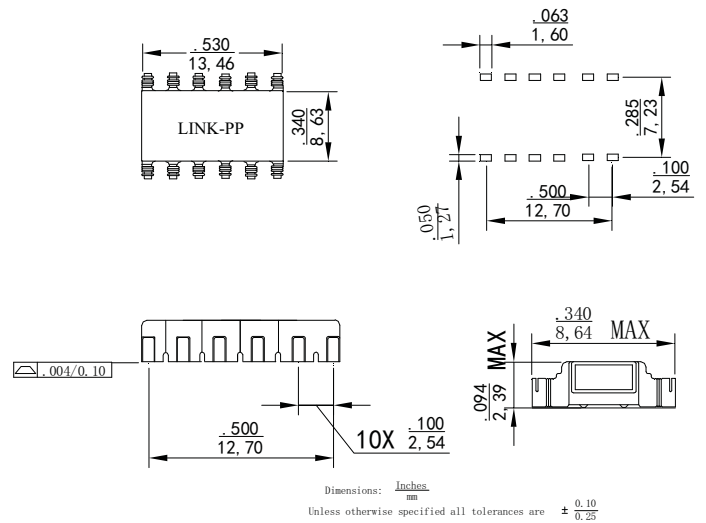
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm \frac{.010}{0.25}$

### SMT2



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm \frac{.010}{0.25}$

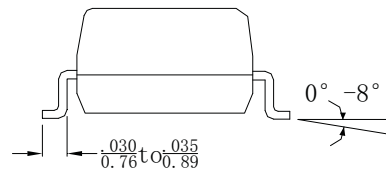
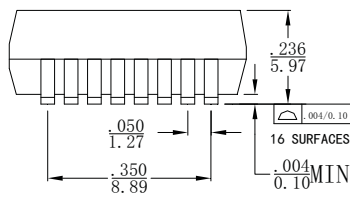
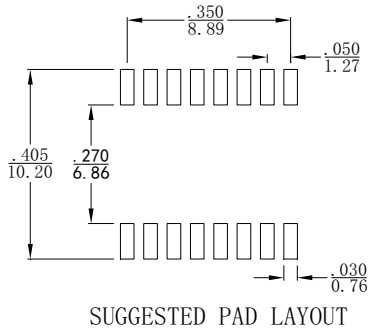
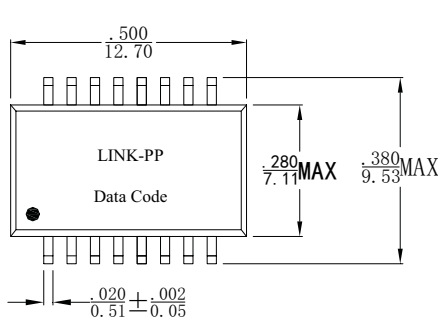
### SMT3



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified all tolerances are  $\pm \frac{0.10}{0.25}$

## Surface Mount Mechanicals (continued)

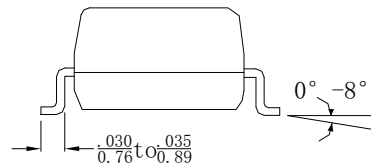
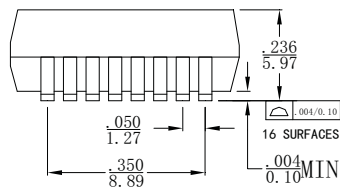
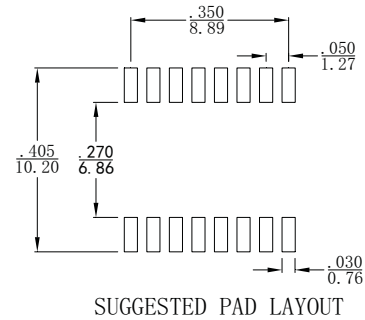
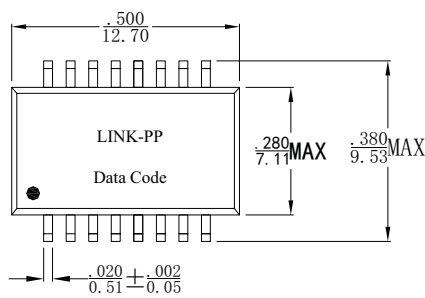
### SMT4



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

Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{.25}$

### SMT5

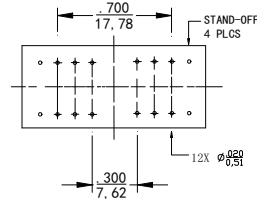
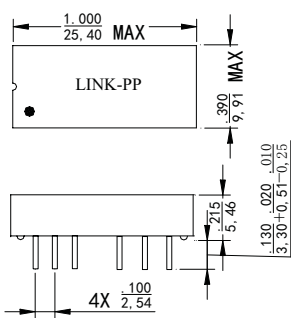


Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

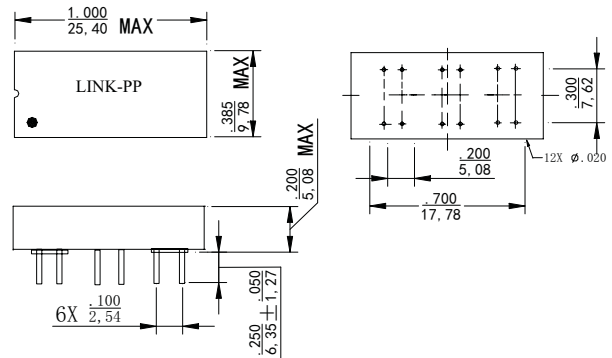
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{.25}$

## Through Hole Mechanicals

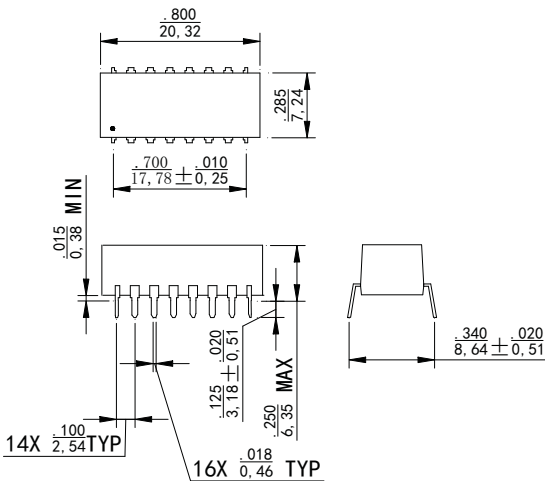
### TH1



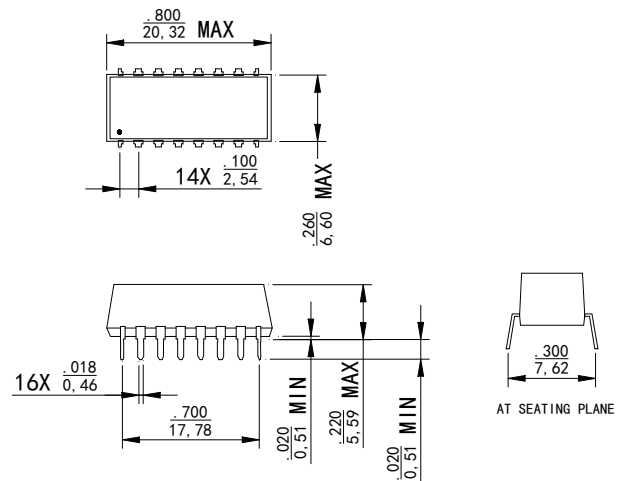
### TH2



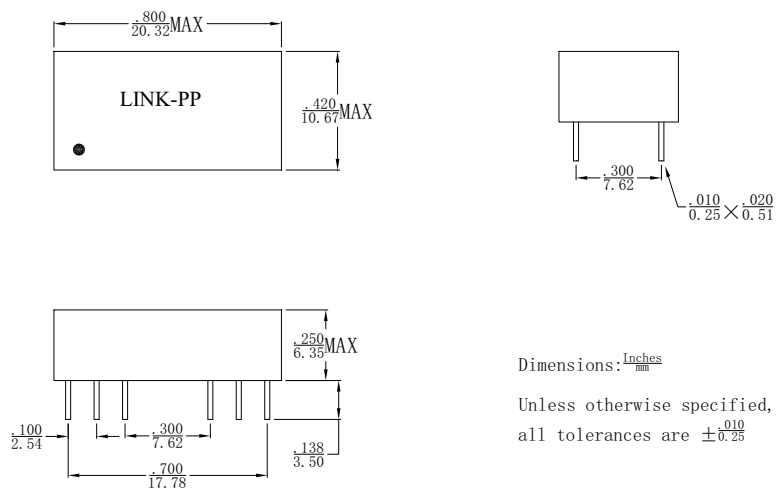
### TH3



### TH4



### TH 5



- ※Fully Integrated for Adaptor, Hub,  
And Motherboard Applications
- ※Add Suffix NL For RoHS Compliant
- ※RoHS NI peak solder rating 235°C

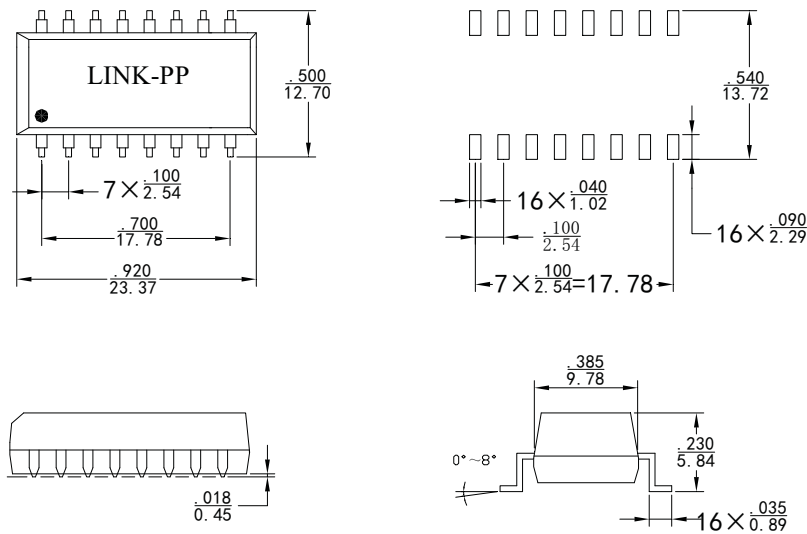


## Electrical Specifications @25°C--- Operating Temperature 0°C to +70°C

Part Number	Insertion Loss to 10 MHz (dB MAX)	Attenuation (XMIT) (dB MIN)			Return loss 5 to 10MHz (dB MIN)		Crosstalk (dB MIN) 5-10MHz	Common Mode Rejection (XMIT) (db MIN)					Hi-Pot (Vrms MIN)
		30MHz	40 MHz	100 MHz	100 Ω	98±13 Ω		5MHz	10MHz	50MHz	100MHz	200MHz	
LP88025	-6.0	-35	-35	-35	-18	-15	-35	-60	-60	-55	-50	-45	1500
LP88026	-1.0	-30	-35	-35	-18	-15	-35	-60	-60	-55	-50	-45	1500
LP88027	-6.5	-35	-35	-35	-18	-15	-35	-60	-60	-55	-50	-45	1500
LP88056	-1.0	-30	-27	-27	-18	-15	-30	-40	-30	-50	-45	--	1500
LP2001	-5.5	-30	-30	-35	-18	-15	-30	-35	-30	-55	-50	--	1500
LP2003	-6.0	-30	-27	-27	-18	-18	-35	-40	-35	-45	-30	--	1500
LP2007	-5.0	-30	-35	-40	-18	-15	-25	-35	-30	-55	-50	--	1500
LP2009	-1.0	-30	-27	-27	-18	-15	-35	-40	-35	-45	-45	--	1500

## Mechanical

### LP880XX,LP200X



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm 0.025$

# Surface Mount 10Base-T Interface Modules

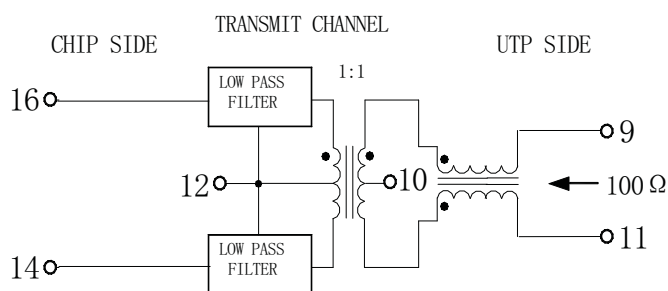
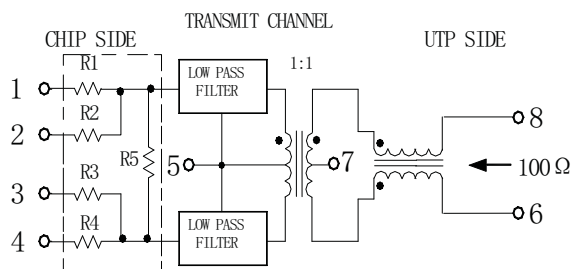
Link-PP Int'l Technology

## Resistor Values(Ω)

Part Number	IC Manufacturer	R1	R2	R3	R4	R5	R6	R7
LP88025	AMD	TXD(+)=61.9	TXP(+)=422	TXD(-)=61.9	TXP(-)=422	1.2K	RX(+)=49.9	RX(-)=49.9
LP88026	Various	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LP88027	National	TXOD(-)=274	TXO(+)=66.5	TXO(-)=66.5	TXOD(+)=274	806	RX(+)=49.9	RX(-)=49.9

## Schematics

### LP88025,LP88026, LP88027



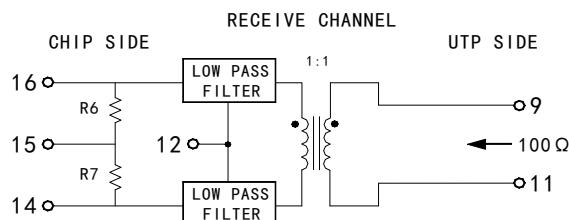
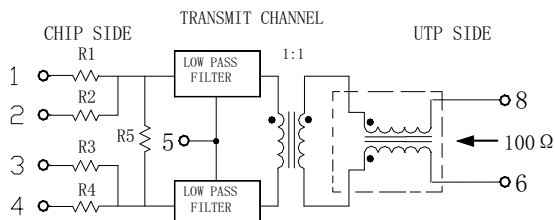
NOTE:LP88026 does not contain resistors .They are an external configuration.

## Resistor Values(Ω)

Part Number	IC Manufacturer	R1	R2	R3	R4	R5	R6	R7
LP2001	National	348.0	53.6	53.6	348.0	806	49.9	49.9
LP2003	AMD	61.9	422.0	61.9	422.0	1,210	49.9	49.9
LP2007	Motorola	39.0	N/A	39	N/A	N/A	49.9	49.9

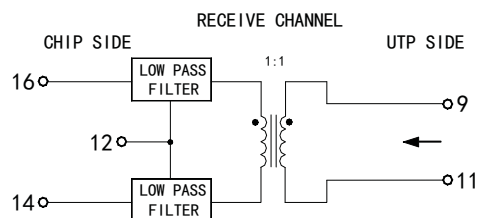
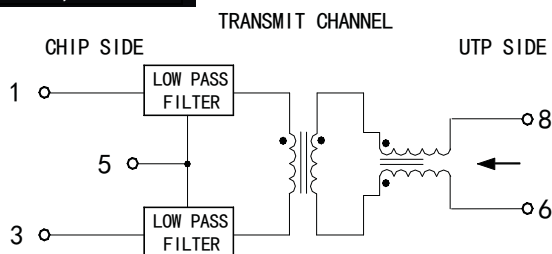
## Schematics

### LP2001, LP2003, LP2007



NOTE: Common Mode Choke on transmit channel for LP2001 and LP2003.

### LP2009,LP88056



Turns Ratio for Transmit: LP88056 is 1:1; LP2009 is 1:1.414.

NOTE: The LP88056 is designed for use with most transceivers requiring a turns ratio of 1:1 on transmit. The LP2009 is designed for use with DEC and most other transceivers requiring a turns ratio of 1:1.414 on transmit.



# ADSL Line LPAnformer

Link-PP Int'l Technology

- ※ For Globespan G7000 ADSL Chipset
- ※ Designed for CenLPAI Office (CO) and Customer Premise (CPE) applications
- ※ Excellent THD performance in a small footprint
- ※ Designed to meet UL 1950 and EN60950 supplementary insulation requirements for working voltages up to 250 Vrms
- ※ For RoHS part add suffix NL
- ※ RoHS NL peak solder rating 235°C



## Electrical Specifications @ 25°C --- Operating Temperature -40°C to +85°C

Part Number	Mounting	Application	Turns Ratio (±2%)	OCL @10kHz,0.1V		Leakage Inductance @100kHz ,0.1V(MAX)	Longitudinal Balance
				(1-5)with(2-4)shorted	(10-6)with(7-9)shorted		
LPA2088	SMT	CPE	1:1	430µH ±10%	430µH ±10%	10µH (1-5)with2-4,7-9,10-6shorted	≤-40dB (25KHz -1,1MHz)
LPA2201	SMT	CO	1:1.42	237µH ±10%	474µH ±10%	15µH (10-6)with7-9,1-4,2-5shorted	≤-60dB (20KHz -1MHz)

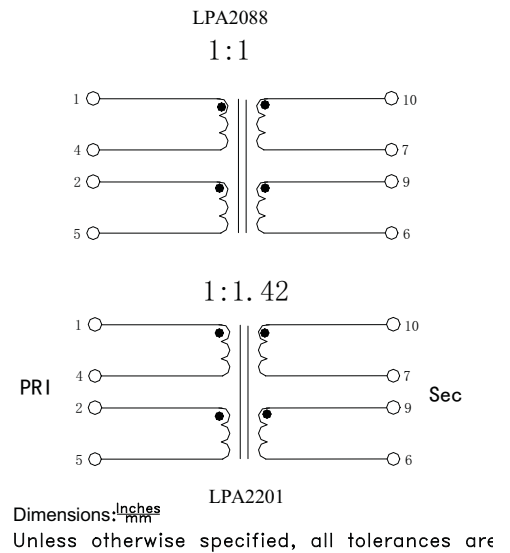
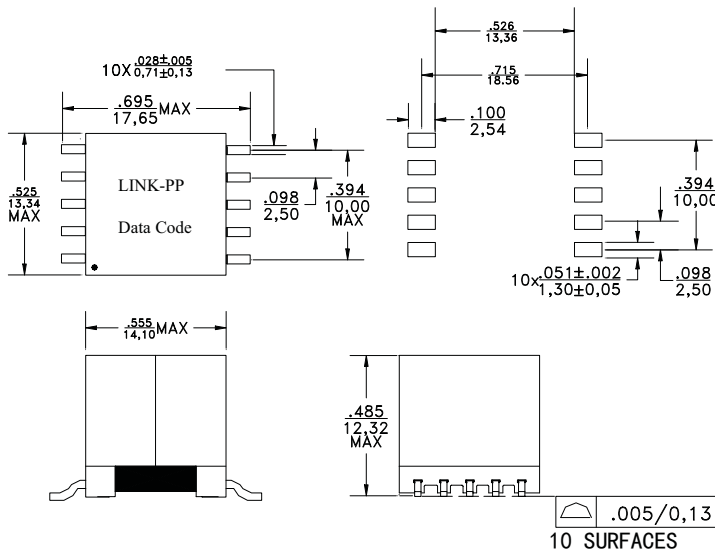
## Additional Specifications

Part Number	THD Typical (Linearity)	DC Resistance (Ω - MAX)		Isolation Voltage (Vrms)	Insertion Loss (MAX)
		Line Side	Chip Side		
LPA2088	≤80 dB @100kHz	≤.45 (1-4) = (2-5)	≤.35 (10-7) = (9-6)	1875	≤0.50dB @772kHz
LPA2201	≤70dB@200 kHz	≤2.0 (1-5) with 2-4 shorted	≤2.0 (10-6) with 7-9 shorted	2000	≤1.00dB@150 kHz -1.5MHz

## Mechanicals

## Schematic

LPA2XXX



# ADSL Line LPAnformers

Link-PP Int'l Technology

- ※ For use with Globespan ADSL/RADSL Line Driver IC (EL-1501) at the Customer Premise
- ※ For RoHS part add suffix NL
- ※ RoHS NL peak solder rating 235°C



## Electrical Specifications @ 25°C ---- Operating Temperature -40°C to +85°C

Part Number	Application	Mounting	Turns Ratio (1-3):(10-8),(2-4):(9-7) (1-3):(2-4)	OCL @ 10 KHz,0.1V (1-4)with (2-3) shorted	Leakage Inductance @300KHz,0.1V(1-4)with(2-3), (7-10)and (8-9) shorted	Longitudinal Balance (from 30 KHz to 1.1 MHz)
LPA2139	CPE	THT	1:1(±2%)	407 μH (±5%)	10.0 μH MAX	-50 dB MIN

## Additional Specifications

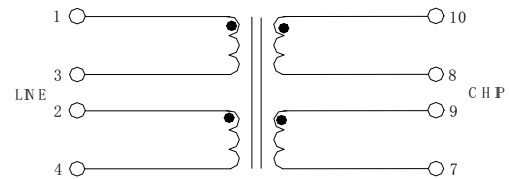
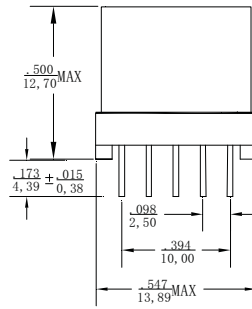
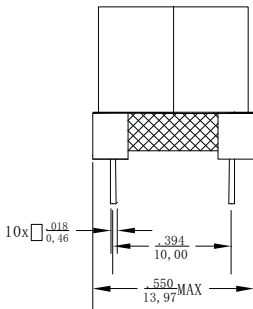
Part Number	THD (Linearity - Typical)	DC Resistance	Isolation Voltage (Vrms)	Insertion Loss <sup>1</sup> (@772 KHz)
LPA2139	-85 dB MIN @ 100 KHz	1-3=2-4=.66 Ω (±10%) 10-8=9-7=.56 Ω (±10%)	1875	<0.5 dB

<sup>1</sup>Frequency Response: >3.0 dB ,from 30 KHz to 2.0 MHz.

## Mechanical

## Schematic

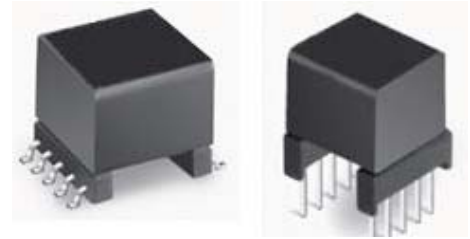
### LPA2139



Dimensions: Inches

Unless otherwise specified, all tolerances are ±.010 / 0.25

- ※Designed for use AD'S AD20msp918 ADSL Chipset
- ※Excellent THD performance in a small footprint
- ※ Designed to UL 1950 and EN60950 supplementary insulating requirements for working voltages up to 250 Vrms
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C



### Electrical Specification @ 25°C--- Operating Temperature 0°C to 70°C

Part Number	Mounting	Turns Ratio (±2%)	OCL @ 10KHz,0.1V (MIN)		Leakage Inductance @100 KHz,0.1v (MAX) (1-4) with 2-3,8-9,10-7 shorted	Longitudinal Balance (30KHz -1.1 MHz)
			(1-4) with 2-3 shorted	(10-7) with 8-9 shorted		
LPA2104	THT	1:1.27	1.80	2.90	7.5μH	50 dB MIN
LPA2105	SMT	1:1.27	1.80	2.90	7.5μH	50 dB MIN

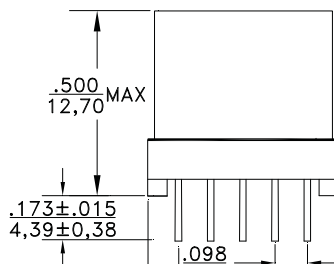
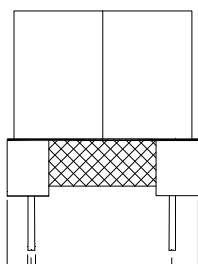
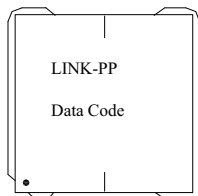
### Additional Specifications

Part Number	THD Typical (Linearity)	Load Resistance (Ω)	DC Resistance (1-4),(10-7)	Isolation Voltage (Vrms)	Insertion Loss <sup>1</sup> (dB @ 100 KHz)
LPA2104	-80 dB @30 KHz	100	2 Ω MAX	1500	<0.5
LPA2105	-80 dB @30 KHz	100	2 Ω MAX	1500	<0.5

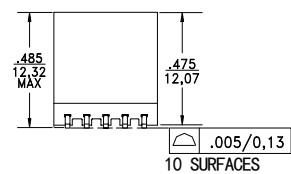
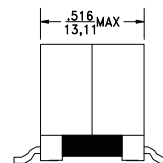
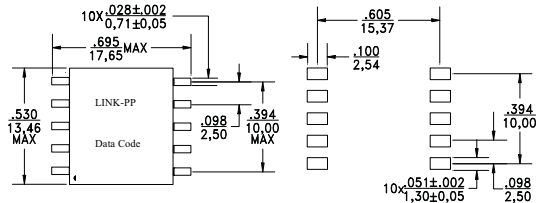
<sup>1</sup>FrequencyResponse: ± 1.0dB MAX, form 30KHz to 1.1MHz.

### Mechanicals

#### LPA2104

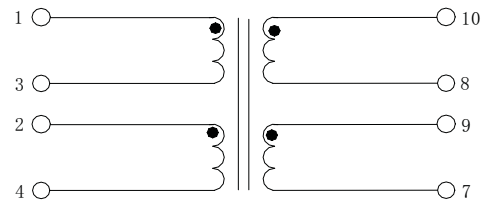


#### LPA2105



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## Schematic

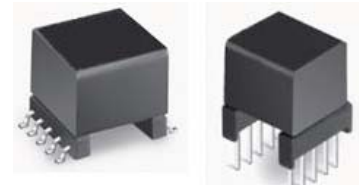


# ADSL Line LPAnformers

Link-PP Int'l

## Technology

- ✳ For Analog Devices AD20msp930 Chipset
- ✳ Compatible with ADSL and ADSL over ISDN
- CenLPAl Office Applications
- ✳ For RoHS part add suffix NL
- ✳ RoHS NL peak solder rating 235°C



### Electrical Specification @ 25°C--- Operating Temperature 0°C to 70°C

Part Number	Mounting	Application	Turns Ratio (1-4):(10-7) (± 2%)	OCL@10 KHz ,0.1V (1-4)with 2-3 shorted	Leakage Inductance @100KHz,0.1V(MAX) (1-4)with2-3,8-9,10-7 shorted	Longitudinal Balance (10KHz -1.1MHz)
LPA2136	THT	ADSL	1:1.1	1.75mH	7.5μH	50dB MIN
LPA2137	SMT	ADSL	1:1.1	1.75mH	7.5μH	50dB MIN
LPA2168	SMT	ADSL/ISDN	1:1	100μH	4.0μH	46dB MIN
LPA2188	THT	ADSL/ISDN	1:1	100μH	4.0μH	46dB MIN

### Additional Specifications

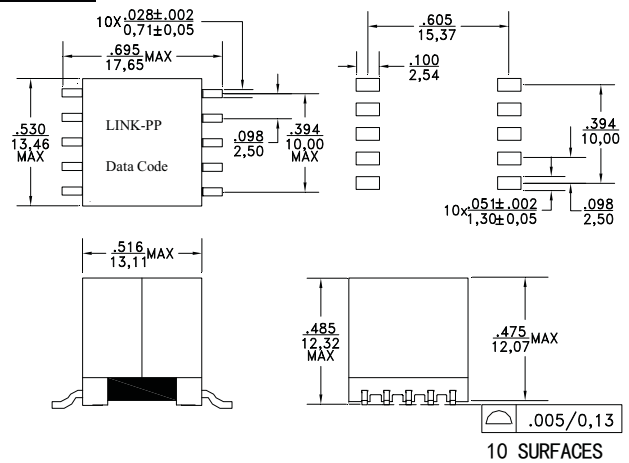
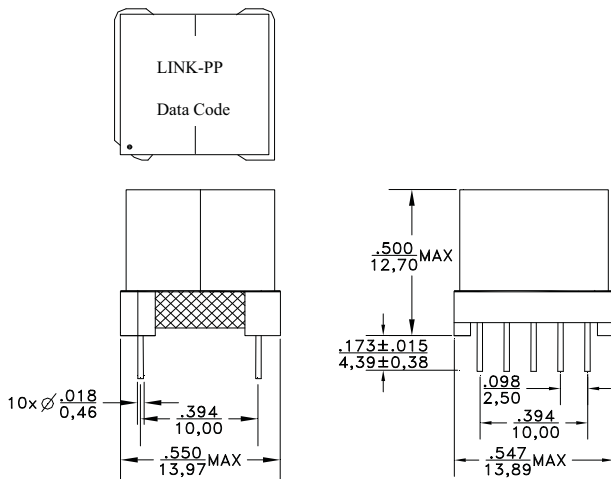
Part Number	THD Typical (Linearity)	DC Resistance (Ω-MAX)		Isolation Voltage (Vrms)	Insertion Loss <sup>1</sup> (dB @ 300 KHz)
LPA2136	-80 dB @ 30 KHz	1.5(1-4) with (2-3) short	1.3 (10-7)with (8-9) short	1500	<0.5
LPA2137	-80 dB @ 30 KHz	1.5(1-4) with (2-3) short	1.3 (10-7)with (8-9) short	1500	<0.5
LPA2168	-80 dB @ 30 KHz	1.0 (1-4)=(2-3)	1.0(10-8) = (9-7)	1500	<0.5
LPA2188	-80 dB @ 100 KHz	1.0 (1-4)=(2-3)	1.0(10-8) = (9-7)	1500	<0.5

<sup>1</sup>Frequencyresponse: ± 1.0 dB MAX, from 30 KHz to 1.1 MHz.

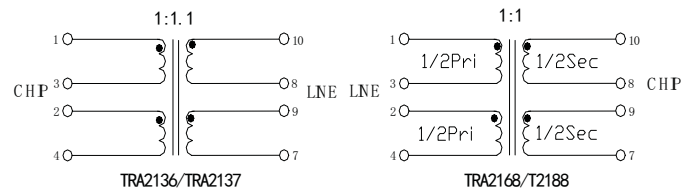
## Mechanicals

### LPA2136,2188

### LPA2137,2168



## Schematics



# ADSL Line LPAnformers

Link-PP Int'l Technology

✳For use with Analog Devices AD20msp930 ADSL

Chipset (CenLPAI Office)

✳For RoHS part add suffix NL

✳RoHS NL peak solder rating 235°C



## Electrical Specification @ 25°C--- Operating Temperature -40°C to + 85°C

Part Number	Mounting	Application	Turns Ratio (10-7):(1-4) (± 2%)	OCL @ 10 KHz, 0.1V (mH – MIN)		Leakage Inductance @100KHz,0.1V(MAX) (10-7)with 2-3,1-4,8-9 shorted	Longitudinal Balance (10KHz-1,1MHz)
				(1-4)with2-3shorted	(10-7)with 8-9shorted		
LPA2162	SMT	CO	1:1.1	2.03	1.75	7.5 µH	50 dB MIN

## Additional Specifications

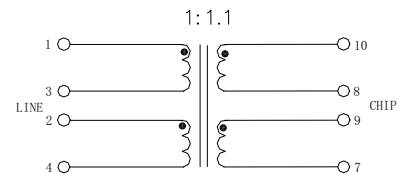
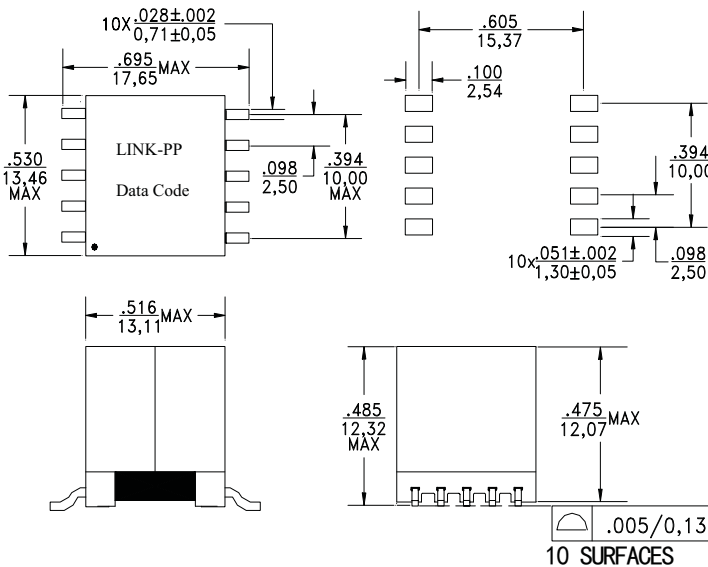
Part Number	THD Typical (Linearity)	Load Resistance (Ω)	DC Resistance (Ω – MAX)		Isolation Voltage (Vrms)	Insertion loss <sup>1</sup> (dB @ 300KHz)
			(1-4)with2-3shorted	(10-7)with 8-9 shorted		
LPA2162	-80 dB @ 30 KHz	100	1.30	1.50	1500	<0.5

<sup>1</sup>FrequencyResponse: ± 1.0dB MAX, from 30 KHz to 1.1 MHz.

## Mechanical

## Schematic

### LPA2162



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

Unless otherwise specified, all tolerances are  $\pm \frac{.010}{.025}$

# ADSL Line LPAnformer

Link-PP Int'l Technology

- ✳ For use with TI's TNET D 4000 C/P chipset
- ✳ Excellent THD performance
- ✳ Small footprint
- ✳ Designed to meet UL 1950
- ✳ For RoHS part add suffix NL
- ✳ RoHS NL peak solder rating 235°C



## Electrical Specifications @ 25°C --- Operating Temperature -40°C to 85°C

Part Number	Application	Mounting	Turns Ratio (±2%)(10-7):(1-4)	OCL @10KHz,0.1 (1-4) with (2-3) shorted	Leakage Inductance @10KHz, 0.1V (1-4) with (10-7),shorted
LPA2132	CO	SMT	1:1.95(Chip to Line)	1.5 mH (± 10%)	12.0 μH MAX

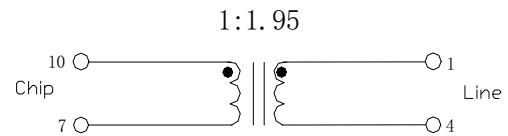
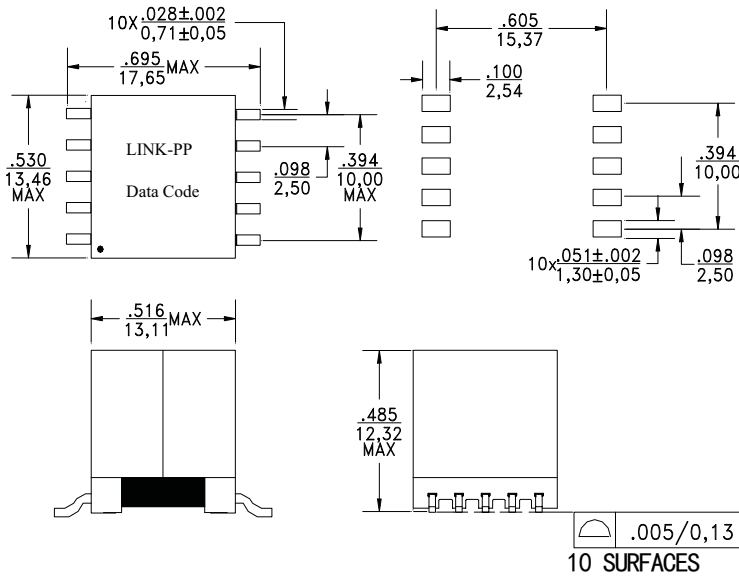
## Additional Specifications

Part Number	DC Resistance (1-4)(w/2-3 shorted)	Isolation Voltage (Vrms)	Interwinding capacitance @ 10KHz,0.1 V (1-10)
LPA2132	2.0 Ω MAX	1500	35 pF MAX

## Mechanical

## Schematic

### LPA2132



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

# ADSL Line LPAnformer

Link-PP Int'l Technology

※For Use with Texas Instruments TNETD4500C CO chipsets

※For RoHS part add suffix NL

※RoHS NL peak solder rating 235°C



## Electrical Specifications @25°C — Operating Temperature -40°C to +85°C

Part Number	Turns Ratio (Line:Chip)	OCV Primary ( $\mu\text{H} \pm 6\%$ )	Leakage Inductance ( $\mu\text{H} \text{ MAX}$ )	DCR Primary (1-3 & 2-4) ( $\Omega \text{ MAX}$ )	DCR Secondary (10-8 & 9-7) ( $\Omega \text{ MAX}$ )	Isolation Voltage (Vrms)	THD@100Khz 5.0 Vp-p (dB MIN)
LPA2243 <sup>1</sup>	2:1	400	5.0	0.5	0.3	1500	-80
LPA2133 <sup>2</sup>	2:1	75	5.0	0.5	0.3	1500	-80

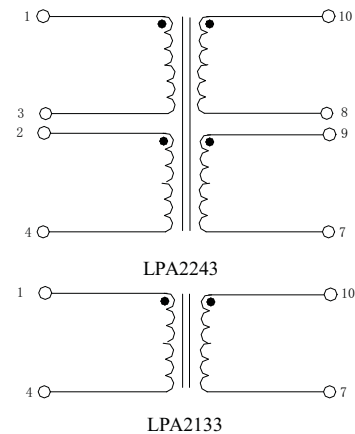
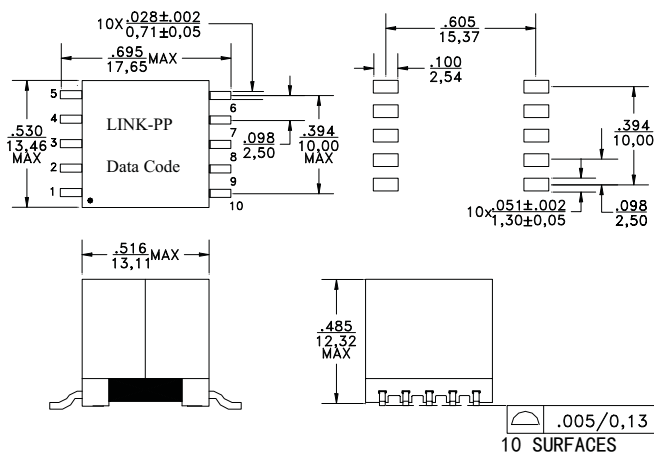
<sup>1</sup>LPA2243 is designed for ADSL over POTS applications where THS6012/72 Line Drivers and Active termination is used.

<sup>2</sup>LPA2133 is designed for ADSL over ISDN applications where THS6012/72 Line Drivers and Active termination is used.

## Mechanical

## Schematic

### LPA2243/LPA2133



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0.25}$



# VDSL LPAnformers

Link-PP Int'l Technology

- ※Designed for Broadcom® BCM 6010/6020
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C



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

Part Number	Turns Ratio		DCR (MAX)	Return Loss (dB MIN)	Insertion Loss* (dB MAX)	LPAnshybrid Loss (dB MIN)	Longitudinal Balance (dB MIN)	Isolation Voltage (Vrms)
	TX	RX						
LPA4008(THT)	2:1	1:1	0.5 Ω	138 KHz to 1 MHz:13.5	138 KHz to 20 MHz: 0.5	138 KHz to 1 MHz:30	138 KHz to 300 KHz:60	2000
LPA4025(SMT)				1 MHz to 20 MHz:20		1 MHz to 20 MHz:25	300 KHz to 1 MHz: 50	
							1 MHz to 20 MHz : 30	

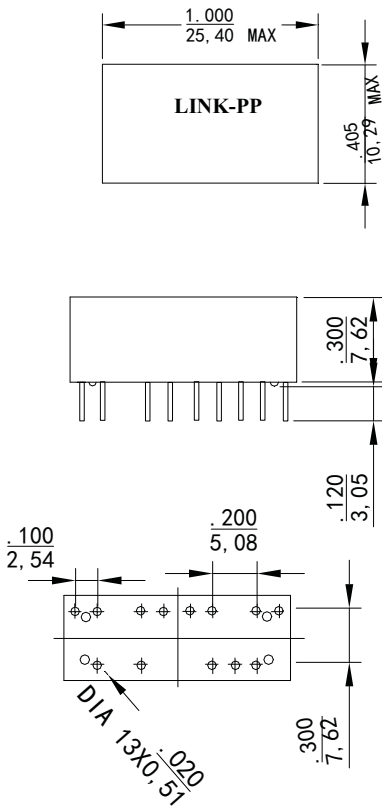
NOTE: Common Mode Chokes to reduce common mode ingress from AM Broadcast or HAM Radios are available. See P/N LPA4001 & LPA4003.

Surge Voltage Capability: Metallic: 800 Vpeak 10/560 usec. Long.:2400 Vpeak 10/700 μsec.

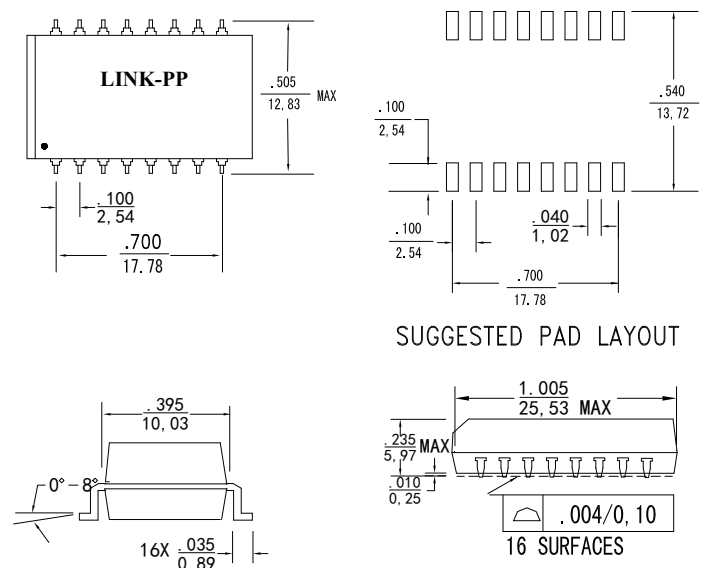
Surge over the Extended Temperature Range: Insertion Loss can increase to 1 dB. Return Loss can drop to 7 dB from 138 KHz, to 300KHz and 12 dB from 300 KHz to 1 MHz.

## Mechanicals

### LPA4008

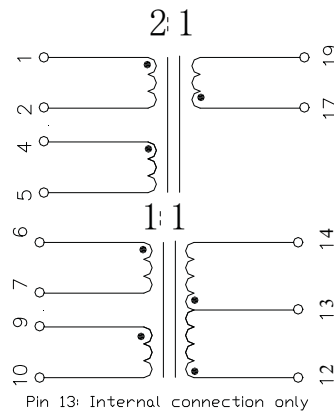


### LPA4025



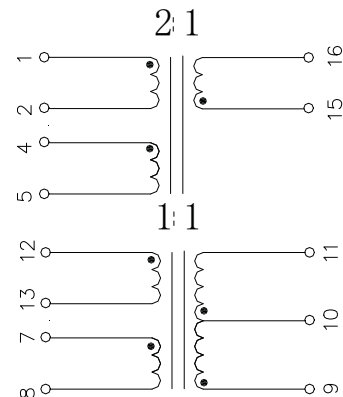
## Schematics

### LPA4008



Pin 13: Internal connection only

### LPA4025



Pin 10: Internal connection only

# Common Mode Choke For ADSL And VDSL

Link-PP Int'l Technology

- ✧ For use XDSL interfaces
- ✧ Effective reduction of C. M. noise caused by AM broadcast or ham radio
- ✧ For RoHS part add suffix NL
- ✧ RoHS NL peak solder rating 235°C

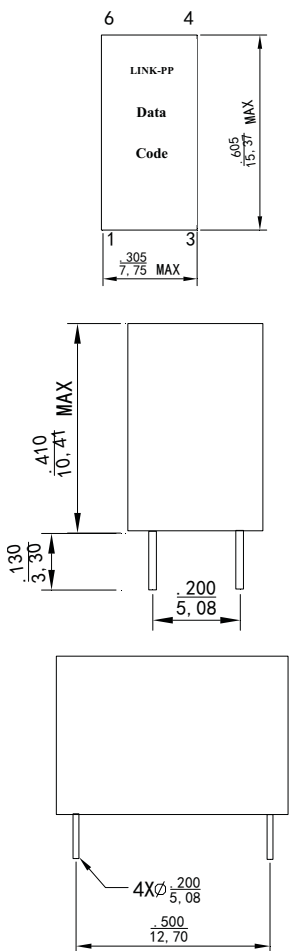


## Electrical Specifications @ 25°C — Operating Temperature -40°C to +85°C

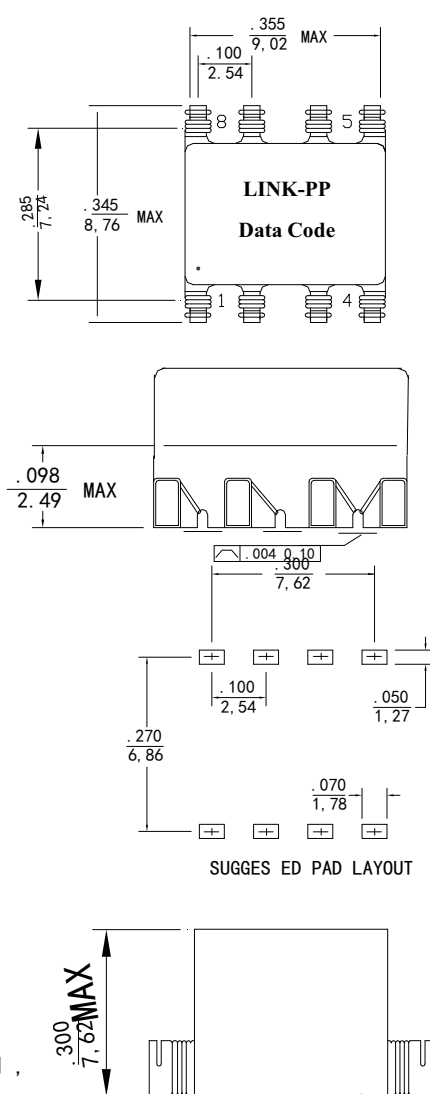
Part Number	C.M. Attenuation			Isolation Voltage (Vrms)	Mounting
	(dB TYP @ 500 KHz)	(dB TYP @ 1 MHz)	(dB TYP @ 10 MHz)		
LPA4001	45	49	35	1500	THT
LPA4003	45	49	35	1500	SMT
LPA4053	45	49	35	1500	SMT

## Mechanicals

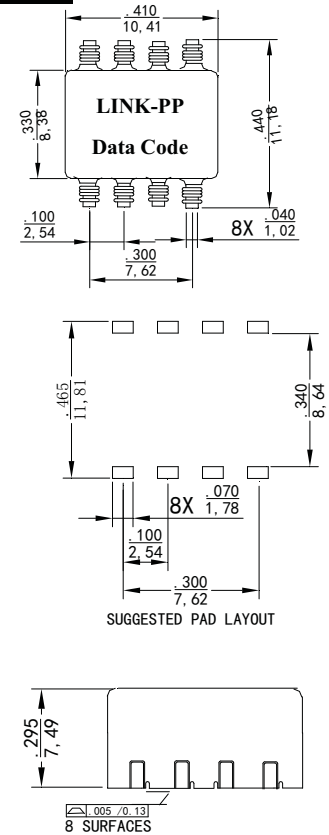
### LPA4001



### LPA4003

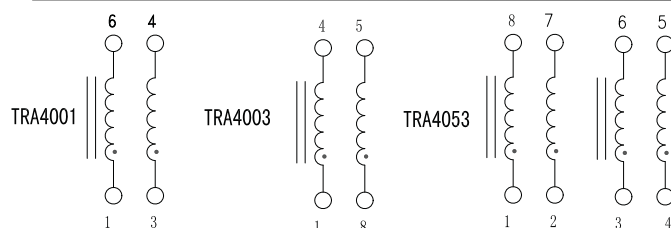


### LPA4053



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm \frac{.010}{0.25}$

## Schematics



- ※Excellent return loss and balance
- ※Surface mount or through hole package
- ※Supplementary insulation
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C



### Electrical Specifications @ 25°C — Operating Temperature -40°C to +85°C

Part Number	Turns Ratio	Insertion Loss (dB MAX)	Return Loss (dB MIN)	Longitudinal Balance (dB TYP)	Isolation Voltage (Vrms)
LPA4006(THT)	1:1	200 KHz to 400 KHz: 0.75	200 KHz to 18 MHz: 20	200 KHz: 60	3000
		400 KHz to 30 MHz: 0.50	18 MHz to 30 MHz: 14	11 MHz: 50	
LPA4023(THT)	1:1CT	200 KHz to 20 MHz: 0.50	200 KHz to 18 MHz: 17	200 KHz: 60	3000
		20 MHz to 30MHz: 0.75	18MHz to 30 MHz: 13	11 MHz: 50	
LPA4004(SMT)	1CS:1CS	200 KHz to 11MHz: 1.00	200 KHz: 10	200 KHz: 50	1500
			400 KHz: 16	2 MHz: 40	
			4 MHz: 16	11 MHz: 40	

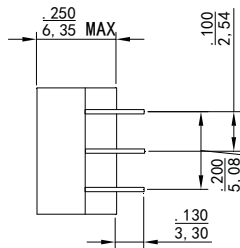
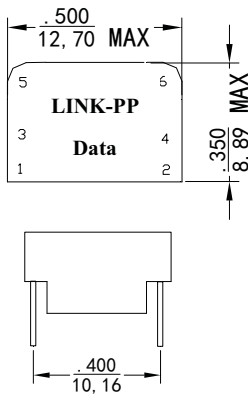
**NOTES:** Temperature range: -40°C to +80°C. Insertion loss increases by up to 1 dB at the extreme temperatures. Impedance for test: 100 Ω or 135 Ω. Small difference in return loss will occur.

**Surge Voltage Capability:** Metallic: 800 Vpeak 10/560 μsec. Longitudinal: 2400 Vpeak 10/700μsec. Products are designed to meet the requirements for supplementary insulation according to IEC950. Common Mode Chokes to reduce common mode ingress from AM Broadcast or HAM Radios are available. See LPA4001 & LPA4003

### Mechanicals

### Schematics

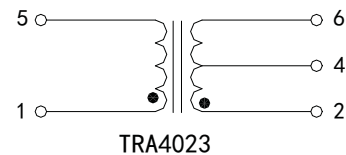
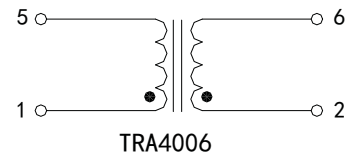
#### LPA4006/LPA4023



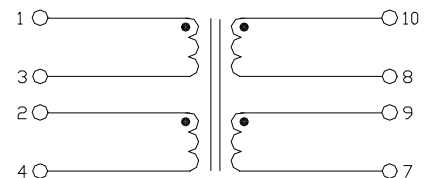
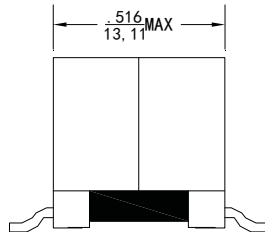
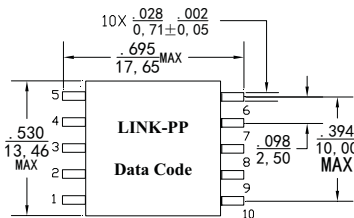
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,

all tolerances are  $\pm \frac{.010}{0.25}$



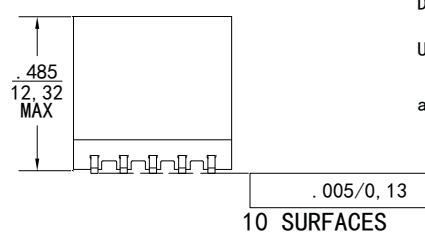
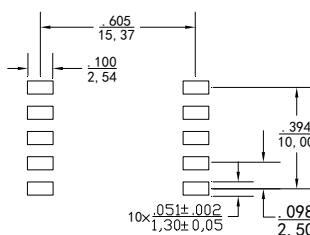
#### LPA4004



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

Unless otherwise specified,

all tolerances are  $\pm \frac{.010}{0.25}$



- ※ For use with Broadcom's BCM6315 LPAnceiver chip
- ※ LPA4020, LPA4021 and LPA4055: for use with Texas Instrument's TNETD800 chipset
- ※ For RoHS part add suffix NL
- ※ RoHS NL peak solder rating 235°C



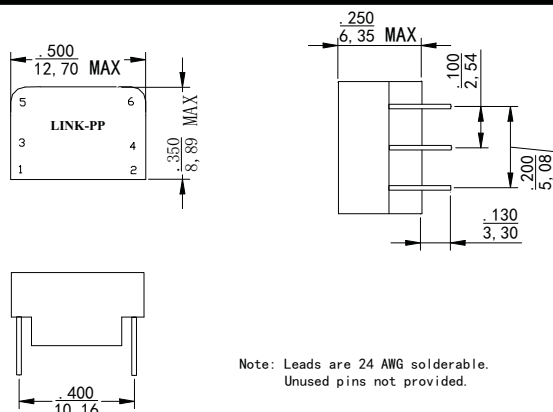
### Electrical Specifications @ 25°C — Operating Temperature -40°C to +85°C

Part Number	Turns Ratio	Inductance (μH MIN)	Return Loss (dB MIN)	Insertion Loss* (dB MAX)	Line Impedance (Ω)	Longitudinal Balance (dB TYP)	CM Rejection (dB TYP)	Isolation Voltage (Vrms)
LPA4020 (THT)	1:1	190	300 KHz to 1 MHz: 18	200 KHz to 1 MHz: 0.8	100	200 KHz: 60	10 MHz: 35	3000
			1 MHz to 11 MHz: 20	1 MHz to 30 MHz: 0.7		11 MHz: 42	30 MHz: 33	
			11 MHz to 30 MHz: 16			100 MHz: 30	100 MHz: 25	
LPA4055 (SMT)	1:1	190	300 KHz to 20 MHz: 20	200 KHz to 400 KHz: .75	100	200 KHz: 60	10 MHz: 35	1500
LPA4021 (SMT)	1:1		20 MHz to 30 MHz: 18	200 KHz to 30 MHz: .50		11 MHz: 50	30 MHz: 33	
LPA4056 (SMT)	1:1.16	190	300 KHz to 1 MHz: 15	200 KHz to 400 KHz: 0.75	135	200 KHz: 60	10 MHz: 35	1500
			1 MHz to 20 MHz: 20	400 KHz to 30 MHz: 0.60		11 MHz: 50	30 MHz: 33	
			20 MHz to 30 MHz: 17			100 MHz: 40	100 MHz: 30	

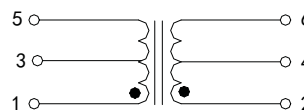
NOTES - Surge Voltage Capability: Metallc: 800 Vpeak 10/560 μsec. Long.: 2400 Vpeak 10/700 μsec. LPA4020 is designed to meet the requirements for supplementary isolation according to IEC950. Common Mode Chokes to reduce common mode ingress from AM Broadcast or HAM Radios are available. See LPA4001 & LPA4003

### Mechanicals

#### LPA4020



### Schematics

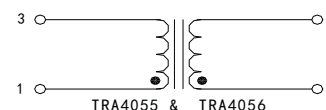
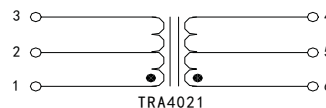
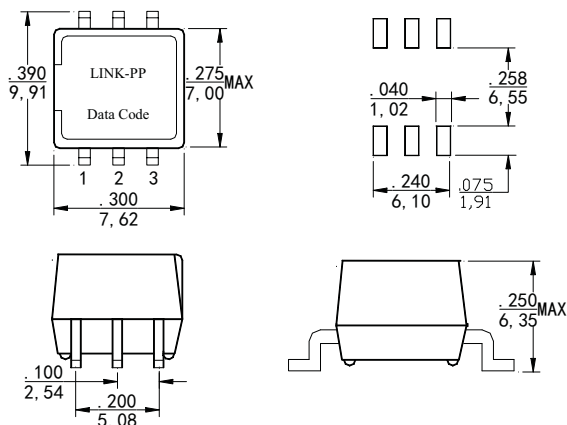


Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified ,

all tolerances are  $\pm \frac{.010}{0.25}$

#### LPA4021/LPA4055/LPA4056



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

Unless otherwise specified ,

all tolerances are  $\pm \frac{.010}{0.25}$

# VDSL LPAnformers

Link-PP Int'l Technology

- ※ Designed for Broadcom® BCM 6010/6020
- ※ Hybrid LPAnformer provides two – wire to four - wire conversion
- ※ Extended bandwidth
- ※ Surface mount device
- ※ Meets international safety regulations for telecom
- ※ For RoHS part add suffix NL
- ※ RoHS NL peak solder rating 235°C



## Electrical Specifications @ 25°C — Operating Temperature -40°C to +85°C

Part Number	Turns Ratio		DCR (MAX)	Return Loss (dB MIN)	Insertion Loss (dB MAX)	LPAnshybrid Loss (dB MIN)	Longitudinal Balance (dB TYP)	Isolation Voltage (Vrms)
	TX	RX						
LPA4030	2:1	1:1	0.5 Ω	138 KHz to 300 KHz: 8	138 KHz to 30 MHz: .7	138 KHz to 20 MHz: 30	138 KHz to 300 KHz: 60	2500
--	--	--	--	300 KHz to 1 MHz: 13.5	--	20 MHz to 30 MHz: 25	300 KHz to 1 MHz: 50	---
--	--	--	--	1MHz to 10 MHz: 20	--	--	1MHz to 10 MHz: 45	---
--	--	--	--	10 MHz to 20 MHz: 13.5	--	--	10 MHz to 30 MHz: 40	---
--	--	--	--	20 MHz to 30 MHz: 8	--	--	--	---

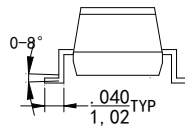
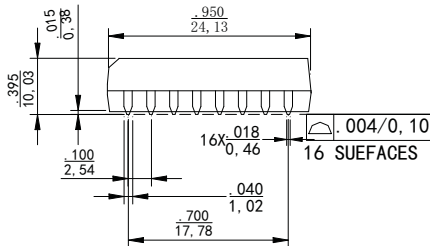
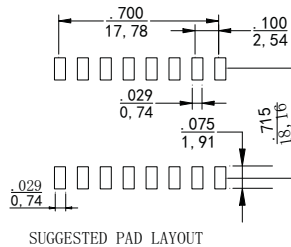
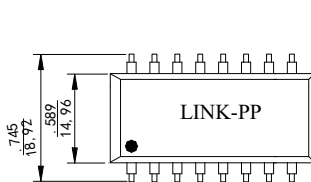
### NOTES:

1. LPA4030 complies with the safety regulations of IEC950 for supplementary insulation.
2. Surge Voltage Capability – Metallic: 800 Vpeak, 10/560 μsec; Longitudinal: 2400 Vpeak, 10/700 μsec.
3. Extended Temperature Range – Insertion loss will increase approximately 0.5 db from 138 KHz to 1 MHz. Return loss will decrease to 5 dB TYP @ 138 KHz and 10 dB TYP @ 300 KHz.
4. Common mode chokes to reduce ingress from AM radio broadcast or HAM radio are available. See LPA4001 & LPA4003.

### Mechanicals

### Schematics

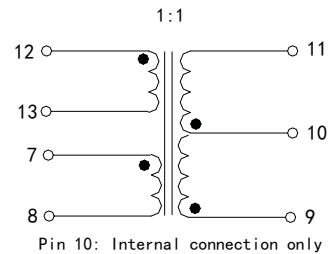
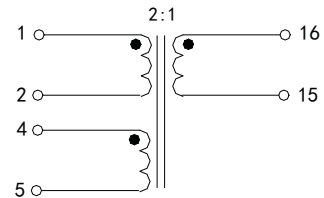
#### LPA4030



Dimensions: Inches  
mm

Unless otherwise specified,

all tolerances are  $\pm \frac{.010}{.025}$



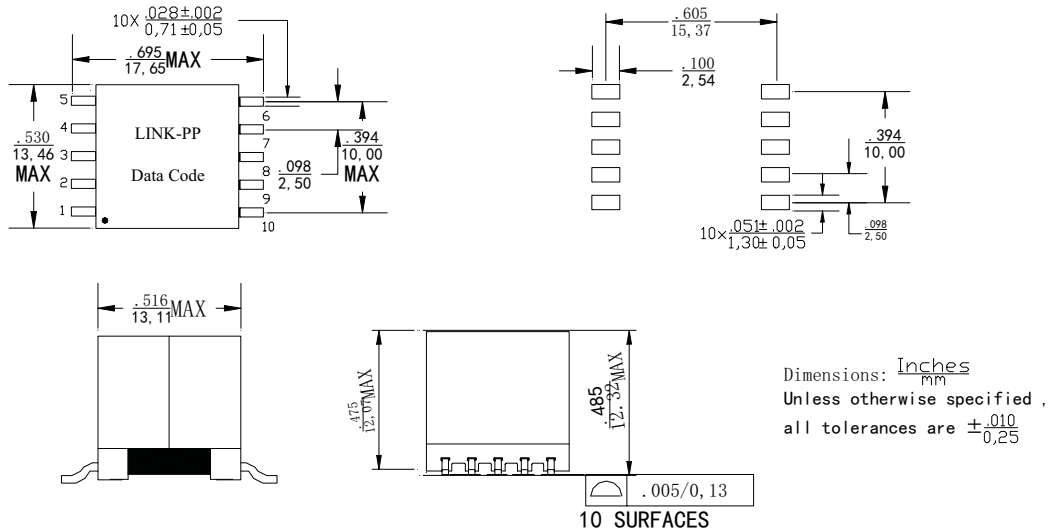
- ※ Designed for Metalink Chipsets
- ※ Matched to Metalink's VDSL solution
- ※ LPA4033 and LPA4064 for ANSI applications
- ※ LPA4034 for ETSI applications
- ※ For RoHS part add suffix NL
- ※ RoHS NL peak solder rating 235°C



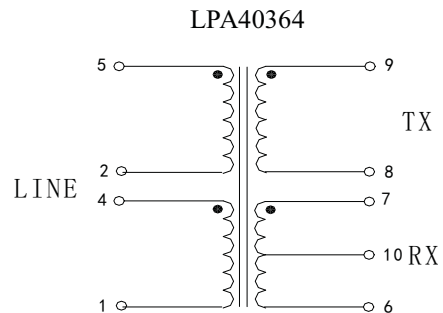
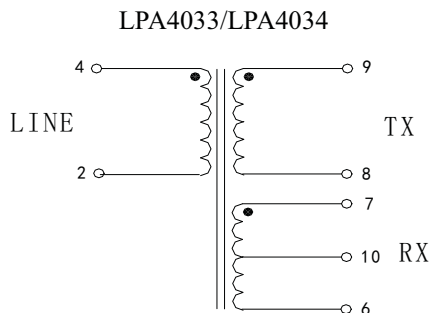
**Electrical Specifications @ 25°C --- Operating Temperature -40°C to +85°C**

Part Number	Turns Ratio		OCL Line @ 25°C (mH MIN)	DCR Line (Ω MAX)	Insertion Loss (dB MAX) 120 KHz – 12 MHz	Return Loss (dB MIN)		Isolation Voltage (Vrms)
	TX:Line	RX: Line				120 KHz – 12 MHz	12 MHz– 30 MHz	
LPA4033	1:3.0	2:3.0	1.00	1.14	0.4	12.0	6.0	1500
LPA4034	1:3.5	2:3.5	1.60	1.35	0.4	12.0	6.0	1500
LPA4064	1:3.6	2:3.6	1.13	1.00	0.4	12.0	6.0	1500

**Mechanicals**



**Schematics**



# 10/100Base-T Single Port Transformer Modules

Link-PP Int'l Technology

- ✳️ 1:1 transmits turns ratios compatible with various IC manufacturers.
- ✳️ Meets all IEEE standards including 350  $\mu$  H OCL with 8 mA bias
- ✳️ For RoHS compliant parts add suffix NL
- ✳️ RoHS NL peak solder rating 235°C



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

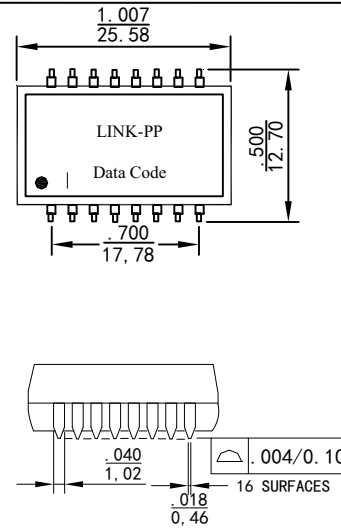
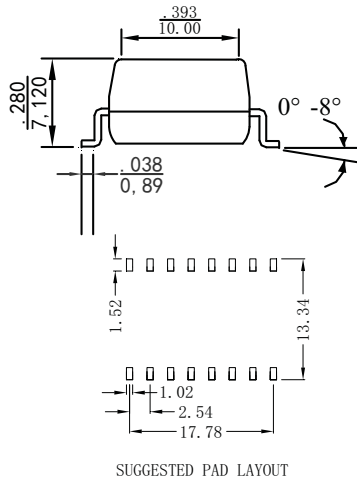
Part Number	Insertion Loss (dB MAX)	Return Loss (dB MIN @ 100 $\Omega$ )					Differential to Common Mode Rejection (dB MIN)			Crosstalk (dB TYP)			Hipot (Vrms MIN)
		0.1-100MHz	1-30 MHz	40MHz	50 MHz	60-80	30MHz	60 MHz	100 MHz	30MHz	60 MHz	100 MHz	
LP1012	-1.0	-20	-20	-18	-14	-42	-36	-33	-50	-40	-40	1500	
LP1012P	-1.0	-20	-20	-18	-14	-42	-36	-33	-50	-40	-40	1500	
LP1019	-1.0	-20	-18	-18	-14	-45	-40	-35	-45	-40	-35	1500	
LP1086 <sup>1</sup>	-1.0	-22	-20	-18	-12	-45	-40	-35	-50	-40	-40	1500	
LP1042	-1.0	-16	-13.5	-11.5	-10	-45	-40	-35	-40	-38	-35	1500	
LP1089	-1.0	-22	-20	-18	-12	-42	-38	-32	-50	-40	-40	1500	
LP1117	-1.0	-22	-20	-18	-12	-45	-40	-35	-50	-40	-40	1500	
LP1138	-0.8	-18	-16	-14	-12	-42	-37	-33	-50	-40	-40	1500	
LP1148 <sup>2</sup>	-1.5	-18	-13.5	-11.5	-10	-42	-37	-33	-50	-40	-40	1500	
LP1178 <sup>2</sup>	-1.5	-18	-13.5	-11.5	-10	-42	-37	-33	-50	-40	-40	1500	
LP88515	-1.0	-18	-18	-16	-12	-50	-45	-40	-55	-50	-50	1500	
LP88517	-1.0	-18	-16	-15	-12	-45	-40	-35	-50	-40	-40	1500	

1.\*.Add suffix NL for RoHS compliant, eg: LP1012 changes to LP1012NL

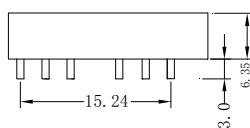
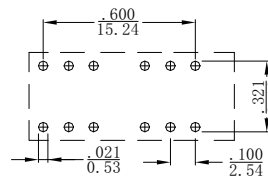
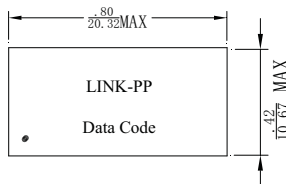
\*.Operating temperature -40°C to +85°C

## Mechanicals

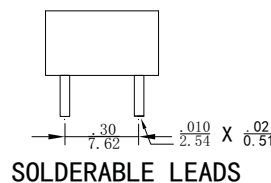
LPXXXX



LP1012P



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm 0.25$



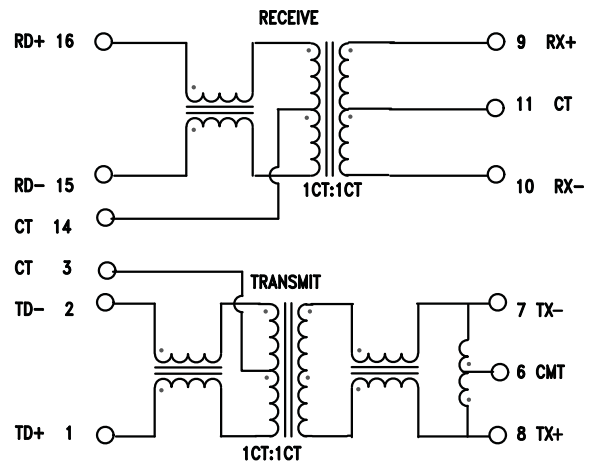
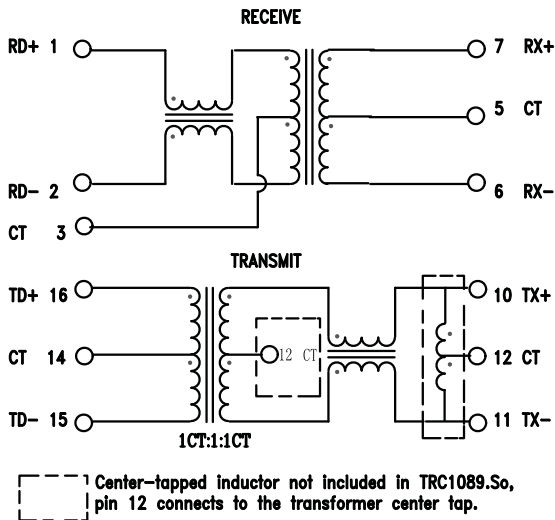
# 10/100Base-T Single Port Transformer Modules

Link-PP Int'l Technology

## Schematics

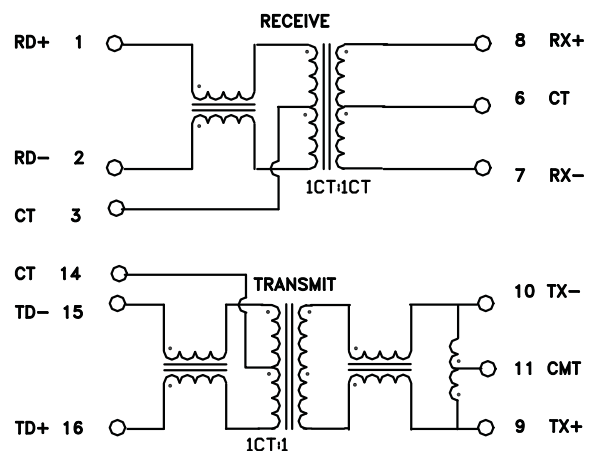
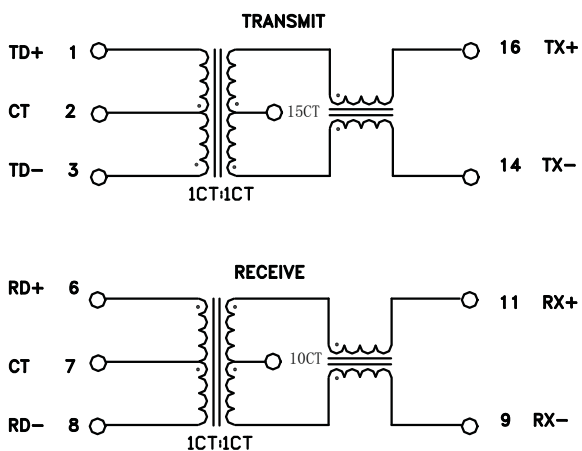
LP88515, LP1012, LP1012P, LP1086,  
LP1089, LP1148, LP1138

LP88517,  
LP1019



LP1117, LP1178

LP1042





# 10/100Base-T Single Port Transformer Modules

Link-PP Int'l Technology

- ✧ With various turns ratios
- ✧ Meets IEEE 802.3 and ANSI X3.263 standards, including 350  $\mu$ H OCL with 8 mA bias
- ✧ For RoHS part add suffix NL\*
- ✧ RoHS NL peak solder rating 235°C



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

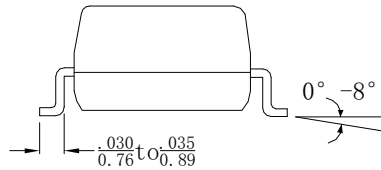
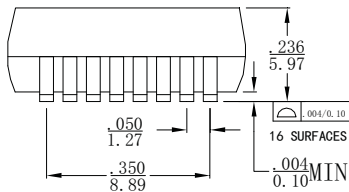
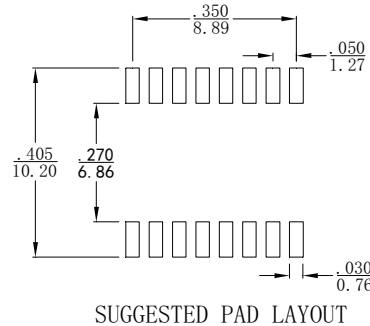
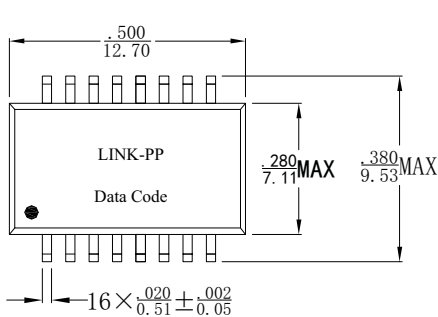
Part Number	Turns Ratio		Insertion Loss 100KHz ---100MHz (dB MAX)	Return Loss (dB TYP)			Differential to Common Mode Rejection (dB TYP)			Crosstalk (dB TYP)			Hipot (Vrms MIN)
	TX	RX		30MHz	60MHz	80MHz	30MHz	50MHz	100 MHz	30MHz	60MHz	100MHz	
LP1100	2:1	1:1	-1.1	-20	-14	-11.5	-42	-37	-33	-45	-40	-35	1500
LP1101	1.25:1	1:1	-1.1	-20	-14	-11.5	-42	-37	-33	-45	-40	-35	1500
LP1102	1:1	1:1	-1.1	-20	-14	-11.5	-42	-37	-33	-45	-40	-35	1500
LP1104	1:1	1:1	-1.0	-20	-14	-14	-42	-35	-33	-50	-40	-40	1500
LP1108	1:1	1:1	-1.1	-20	-14	-11.5	-42	-37	-33	-45	-40	-35	1500
LP1121	1:1.414	1:1	-1.1	-18	-12	-11.5	-42	-37	-30	-45	-40	-35	1500
LP1141	1:1	1:1	-1.0	-18	-13	-12	-50	-40	-35	-50	-40	-35	1500
LP1183	1:1	1:1	-1.0	-18	-14	-12	-40	-40	-40	-35	-35	-35	1500
LP1199	1:1	1:1	-0.9	-18	-12	-11	-40	-35	-30	-45	-45	-37	1500
LP1011	1:1	1:1	-1.1	-18	-12	-11	-40	-40	-35	-50	-40	-35	1500
LP9016	1:1	1:1	-1.0	-16	-12	-10	-42	-37	-35	-45	-40	-35	1500
LP1188*	1:1	1:1	-1.0	-20	-14	-12	-42	-37	-32	-45	-40	-35	1500
LP1198*	1:1	1:1	-1.0	-20	-14	-12	-42	-37	-32	-45	-40	-35	1500

\*.Add suffix NL for RoHS compliant, eg: LP1102 changes to LP1102NL

\*.Operating temperature -40°C to +85°C

## Mechanicals

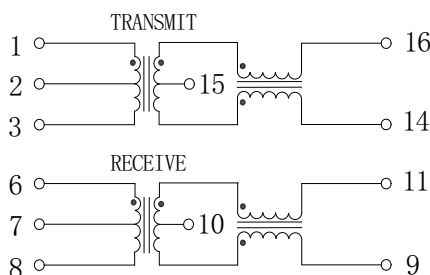
LP110X, LP112X, LP1183, LP1199, LP1141, LP1011, LP9016, LP1188, LP1198



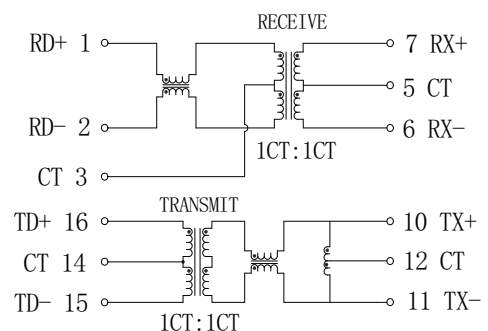
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm 0.25$

## Schematics

LP1100, LP1101, LP1102, LP1121, LP1188



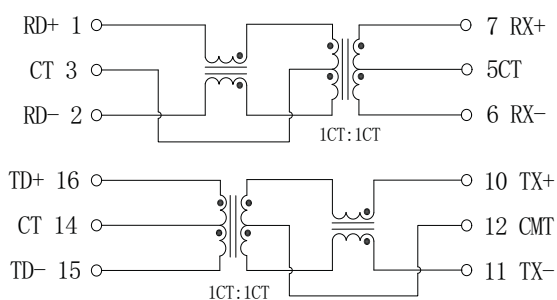
LP1104



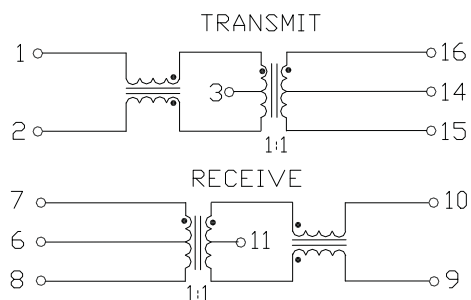
# 10/100Base-T Single Port Transformers Modules

Link-PP Int'l Technology

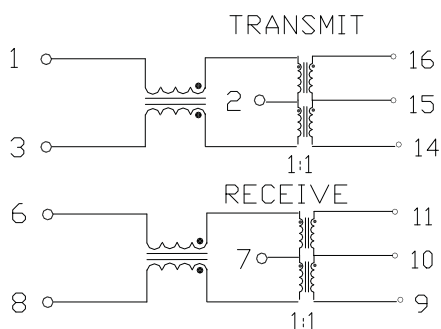
LP1108



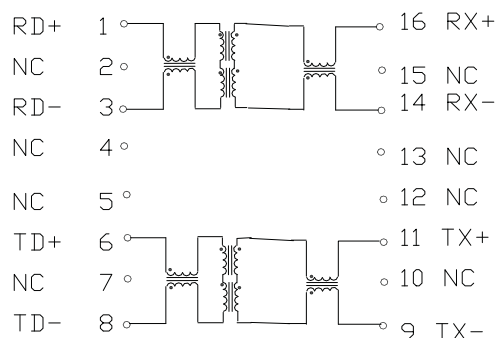
LP1199



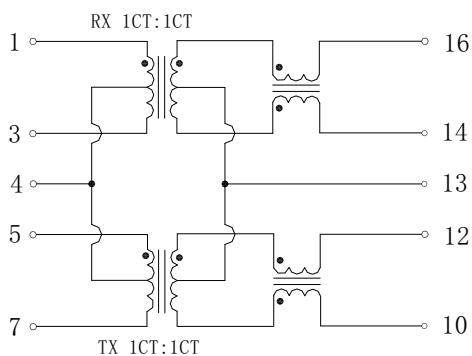
LP1198, LP1183



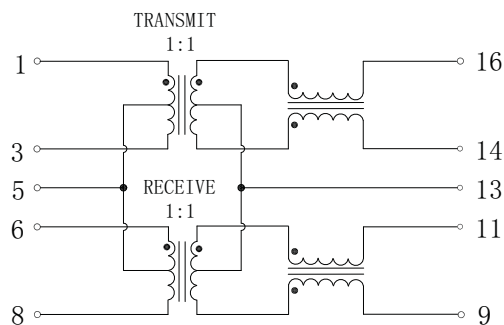
LP1141



LP1011



LP9016



# 10/100Base PC Card Lan Magnetic Modules

Link-PP Int'l Technology

- ※Low profile package
- ※Isolation voltage: 1500 Vrms
- ※For RoHS part add suffix NL\*
- ※RoHS NL peak solder rating 235°C



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

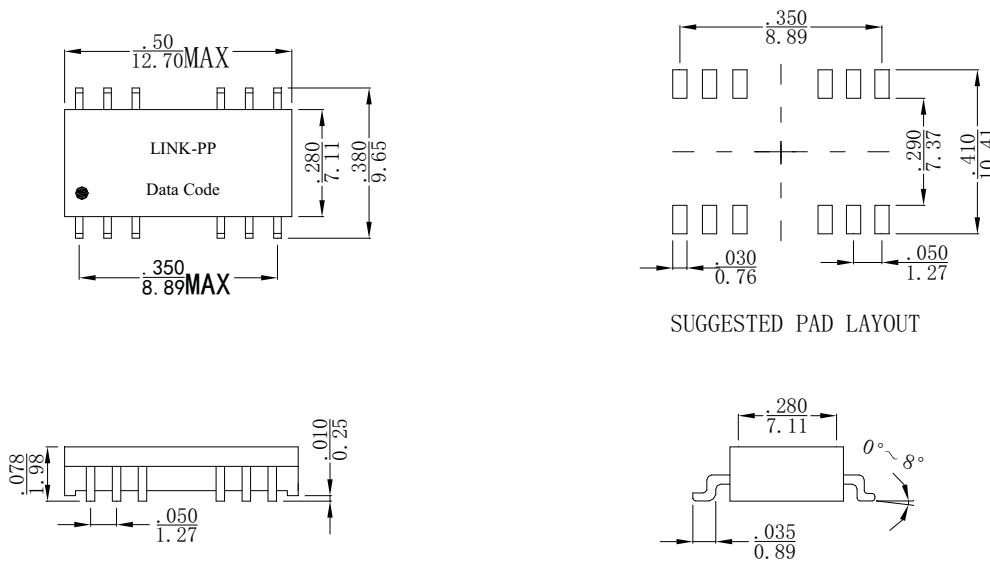
Part Number	Turn Ratio		Insertion Loss (dB Max) 100KHz—100MHz	Return Loss(dB Min)			DCMR(dB Min)			Crosstalk(dB Min)			HI-POT
	TX	RX		30MHz	60MHz	80MHz	30MHz	50MHz	100MHz	30MHz	62MHz	100MHz	
LP0013	1:1	1:1	-0.9	-16	-12	-11	-35	-33	-20	-50	-45	-37	1500V
LP41604	1:1	1:1	-1.1	-20	-14	-11.5	-42	-37	-33	-45	-40	-35	1500V

\*.Add suffix NL for RoHS compliant, eg:LP0013 changes to LP0013NL

\*.Operating temperature-40°C to +85°C

## Mechanicals

### LP0013, LP41604

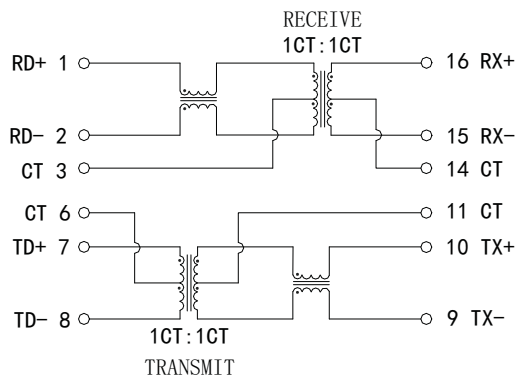


SUGGESTED PAD LAYOUT

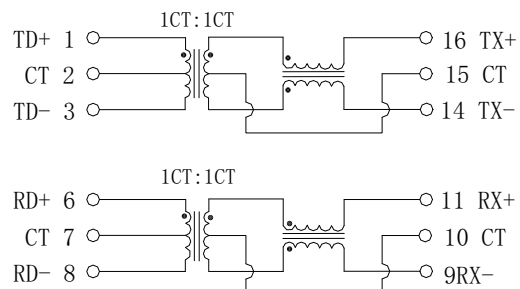
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm 0.25$

## Schematics

### LP0013



### LP41604



# 10/100Base-TX Dual Port Transformer Modules

Link-PP Int'l Technology

- ※Meets all IEEE standards including 350  $\mu$  H OCL with 8 mA bias
- ※Symmetrical TX and RX channels for auto MDI/MDIX capability
- ※For RoHS compliant parts add suffix NL
- ※RoHS NL peak solder rating 235°C

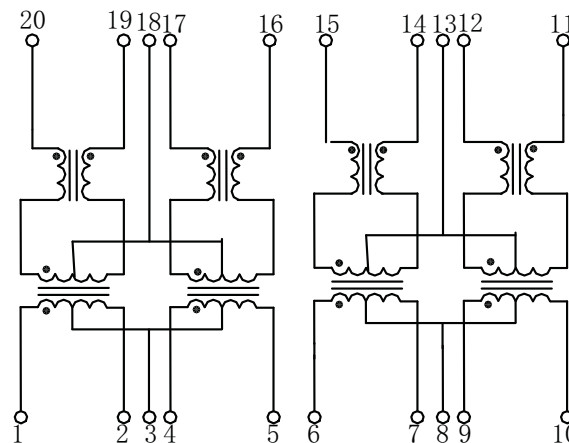


Electrical Specifications 25 °C — Operating Temperature 0°C to 70°C												
Part Number	Pri Inductance (100KHz/0.1V @8mA)	Leakage Inductance (1MHz/0.1V)	Interwinding CAP (100 KHz/0.1V)	DCR.	Hi-Pot	Turns Ratio ( $\pm$ 5%)	Insertion Loss (1-100MHz) (dB MAX)	Return Loss (dB MIN)			Cross Talk (dB MIN)	CMRR (dB TYP)
LP2064	350 $\mu$ H MIN	0.4 $\mu$ H MAX	56pF MAX	0.9 $\Omega$ MAX	1500Vrms/ 0.5mA	1CT:1CT	-1.15	1-30 MHz	30-60 MHz	60-80 MHz	1-100 MHz	1-100 MHz
								-18	-14	-12	-38	-40

## Mechanicals

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

## Schematics



# 10/100Base-TX Quad Port Transformer Modules

Link-PP Int'l Technology

- ※1:1 transmit and receive turn ratios
- ※Compatible with various IC manufacturers
- ※Compliant with IEEE standards
- ※1500 Vrms Isolation voltage
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C

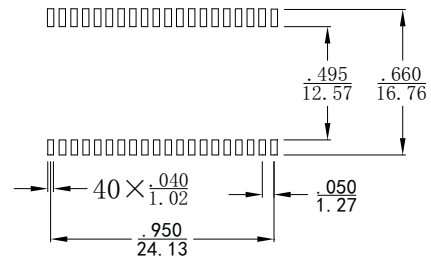
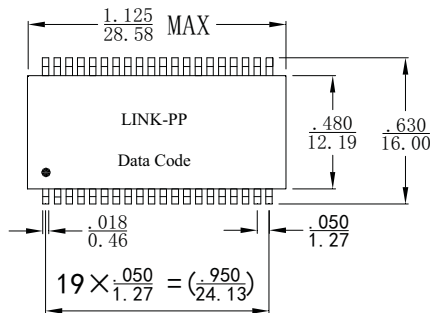


## Electrical Specifications 25 °C — Operating Temperature 0°C to 70°C

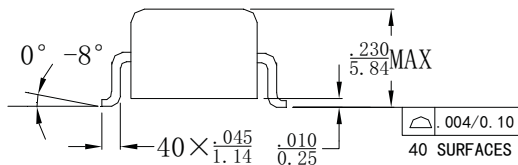
Part Number	Insertion LOSS (dB TYP)	Return Loss (dB TYP)					Crosstalk (dB TYP)				Common to Common Rejection Ratio 0.1-60 MHz (dB TYP)		Differential to Common Mode Rejection (dB TYP)	
		0.1-100MHz	2-30 MHz	40 MHz	50 MHz	60-80 MHz	1 MHz	30 MHz	60 MHz	100 MHz	Transmit	Receive	1-60MHz	60-80 MHz
LP1036	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-30	-30	-40	-30	
LP1044	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-30	-30	-40	-30	
LP1053	-0.5	-21	-17	-14.5	-12	-65	-50	-40	-30	-30	-30	-40	-30	
LP1060	-0.5	-21	-17	-14.5	-12	-65	-50	-40	-30	-30	-30	-40	-30	
LP1062	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-30	-30	-40	-30	
LP1071	-0.5	-21	-17	-14.5	-12	-65	-50	-40	-30	-30	-30	-40	-30	
LP1166	-0.5	-16	-14.4	-13.1	-12	-50	-45	-40	-35	-30	-30	-40	-30	
LP1203	-0.5	-21	-17	-14.5	-12	-65	-55	-45	-35	-30	-30	-40	-30	
LP1236	-0.5	-18	-16	-14.5	-12	-50	-45	-40	-35	-30	-30	-40	-35	

## Mechanical

### LP1XXX,LP12XX



SUGGESTED PAD LAYOUT



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

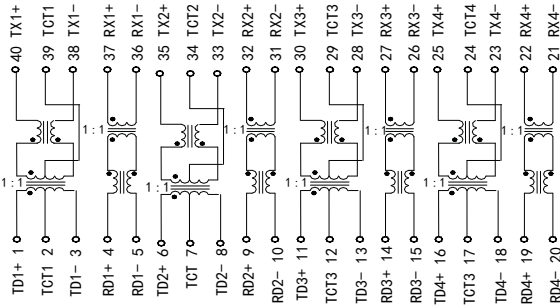
Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0.25}$

# 10/100Base-TX Quad Port Transformer Modules

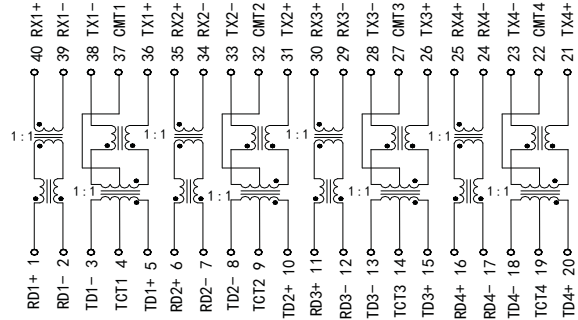
Link-PP Int'l Technology

## Schematics

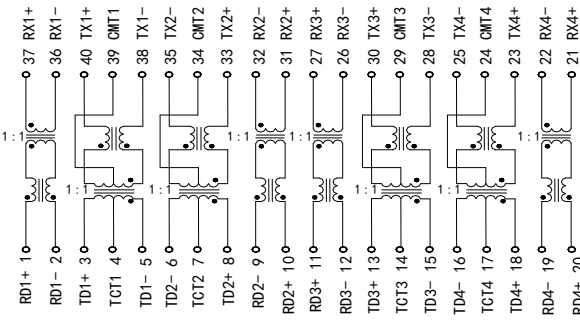
LP1036 ,LP1236



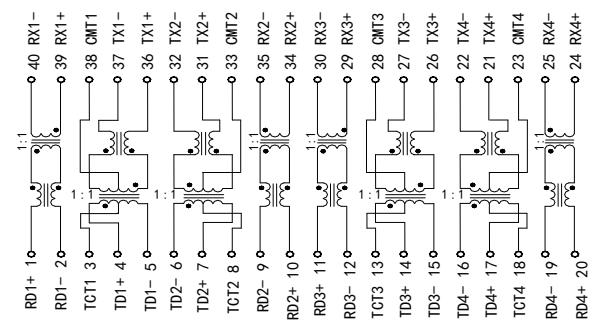
LP1044



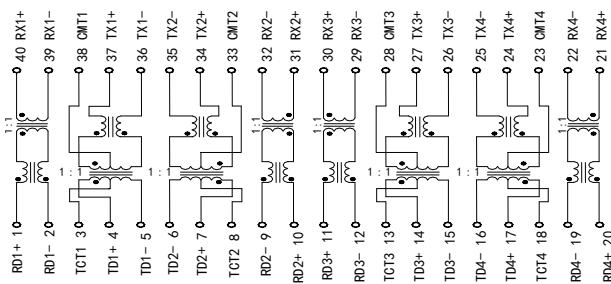
LP1053



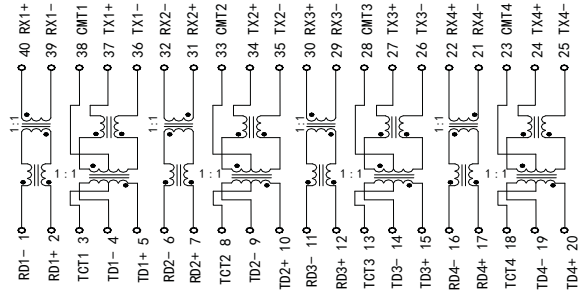
LP1060



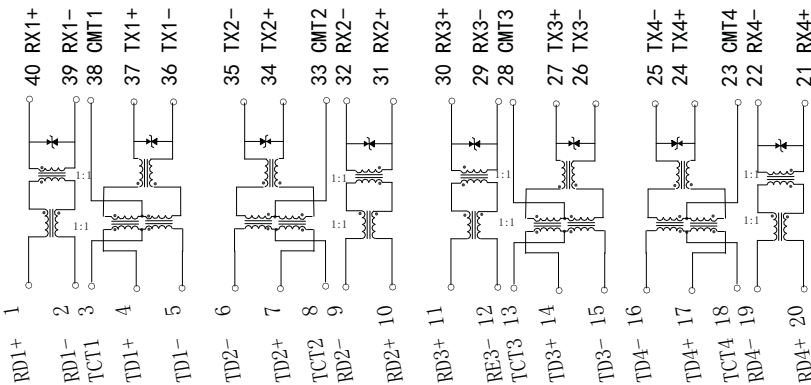
LP1062, LP1203



LP1071



LP1166



# 10/100Base-TX Quad Port Transformer Modules

Link-PP Int'l Technology

- ※ Symmetrical TX and RX Channels For Auto MDI/MDIX capability
- ※ Approved for use with the Broadcom BCM5226 and Level One LXT9784
- ※ Compliant with IEEE 802.3u and ANSI X3.263 standards including 350 uH OCL with 8 Ma bias
- ※ For RoHS part add suffix NL
- ※ RoHS NL peak solder rating 235°C



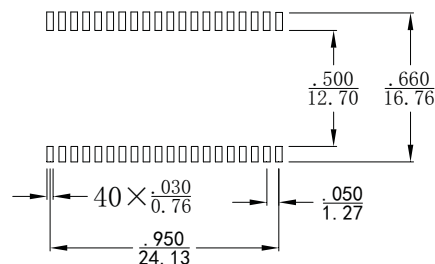
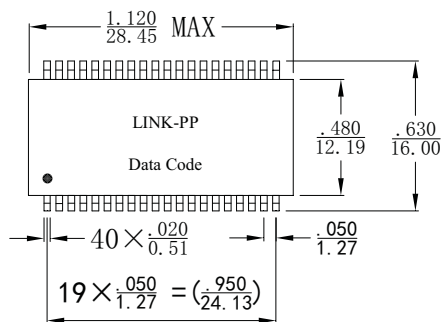
## Electrical Specifications @25°C --- Operating Temperature 0°C to 70°C

Part Number	Insertion Loss (dB MAX)	Return Loss (dB MIN)				Crosstalk (dB MIN)				Differential to Common Mode Rejection (dB TYP)		Hipot (Vrms)
		0.1-100MHz	2-30 MHz	40 MHz	50 MHz	60-80 MHz	1 KHz	30 MHz	60 MHz	100 MHz	1-60MHz	
LP1140	-1.0	-18	-14.4	-13.1	-12	-65	-50	-40	-35	-40	-35	1500
LP1164	-1.0	-18	-14.4	-13.1	-12	-55	-45	-40	-33	-37	-25	1500
LP1234 <sup>1</sup>	-1.4	-18	-14.4	-13.1	-12	-55	-45	-40	-33	-37	-25	1500
LP1240 <sup>1</sup>	-1.0	-16.5	-16	-15.5	-12	-60	-43	-38	-33	-43	-27	1500

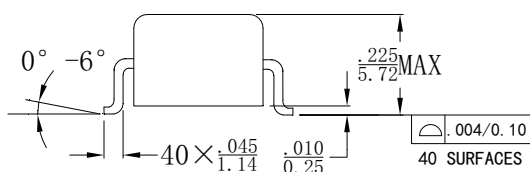
1. Operating Temperature -40°C to +85°C

## Mechanicals

LP1140, LP1164, LP1234, LP1240



SUGGESTED PAD LAYOUT



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

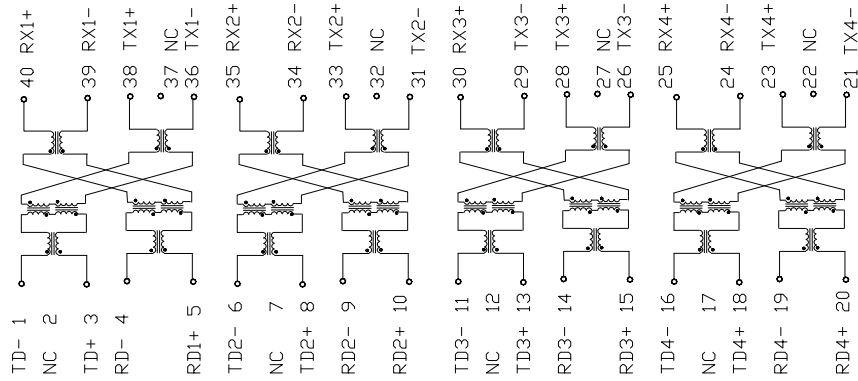
Unless otherwise specified, all tolerances are  $\pm 0.010$

# 10/100Base-TX Quad Port Transformer Modules

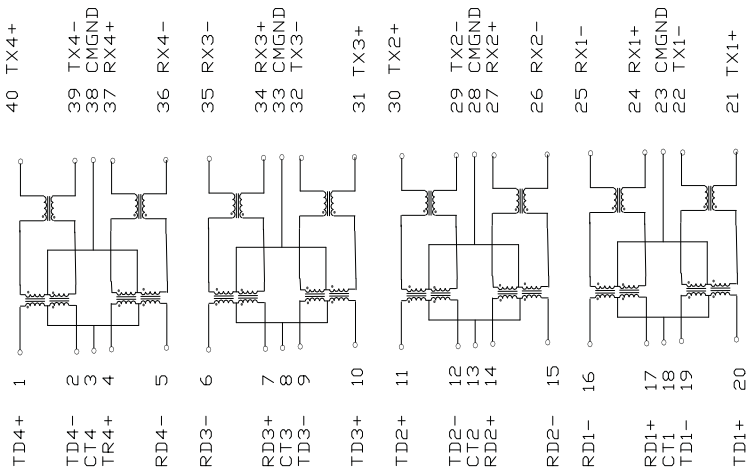
Link-PP Int'l Technology

## Schematics

### LP1140,LP1240



### LP1164,LP1234





# Gigabit Transformer Modules With Power Over Ethernet Option

Link-PP Int'l Technology

- ※ Meets IEEE 802.3 specification
- ※ For RoHS part add suffix NL
- ※ RoHS "NL" peak solder rating 235°C



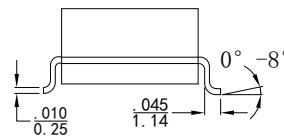
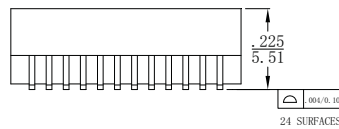
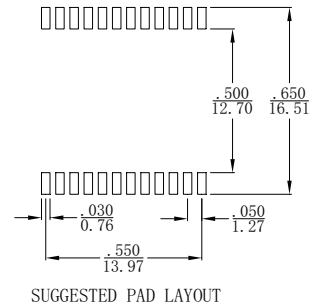
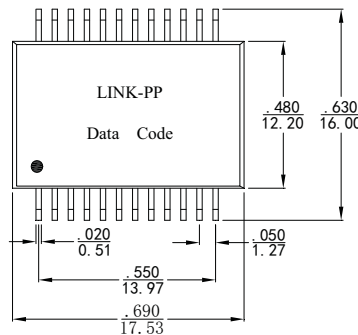
## Electrical Specifications @ 25°C --- Operating Temperature 0°C to 70°C

Part Number	PoE	Turns Ratio		Insertion Loss (dB MAX)			Return Loss (Zout=100Ω±15%)				Crosstalk (adjacent channels, dB MIN)			Hipot (Vrms MIN)
		TX	RX	0.1MHz	100MHz	125MHz	30MHz	60MHz	80MHz	100MHz	30MHz	60MHz	100MHz	
LP5062NL*	No	1:1	1:1	-1.1	-1.0	-2.0	-18	-12	-12	-10	-43	-37	-33	1500
LP6062NL*	Yes	1:1	1:1	-1.1	-1.0	-2.0	-18	-12	-12	-10	-43	-37	-33	1500

\*NL is Lead free

## Mechanical

### LP5062NL/LP6062NL

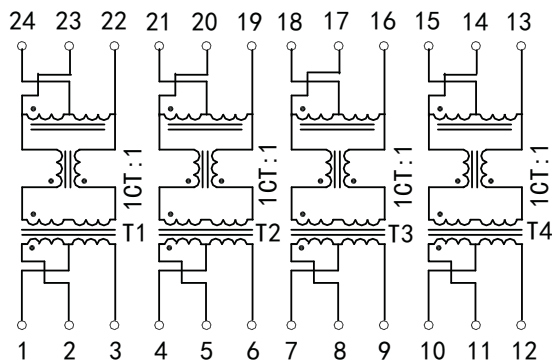


Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

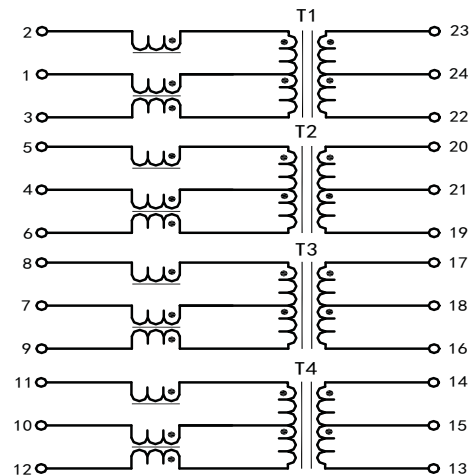
Unless otherwise specified, all tolerances are  $\pm 0.010$

## Schematics

### LP5062NL



### LP6062NL



# 1000Base-T Magnetics Modules

Link-PP Int'l Technology

- ※Designed to Support 1:1 Turns Ratio Transceivers
- ※Compliant with IEEE 802.3ab standard for 1000Base-T
- ※For RoHS part add suffix NL\*



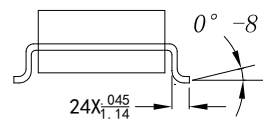
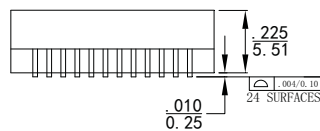
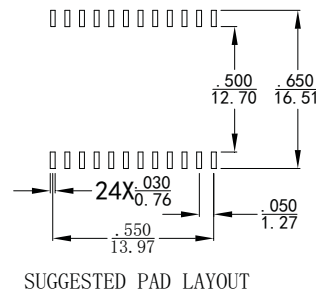
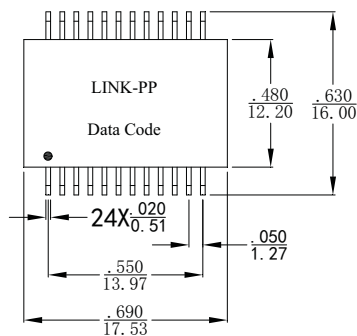
## Electrical Specifications @ 25°C --- Operating Temperature 0°C to 70°C

Part Number	Insertion Loss (dB MAX)	Return Loss (dB MIN @ 100 Ω)					Differential to Common Mode Rejection (dB MIN)			Crosstalk (dB MIN)			Hipot (Vrms MIN)
		1-100MHz	1-30MHz	40MHz	50 MHz	60-80 MHz	100 MHz	30 MHz	60 MHz	100 MHz	30 MHz	60 MHz	
LP5004	1.0	-18	-18	-16	-12	-10	-43	-37	-33	-45	-40	-35	1500
LP5007	1.0	-18	-18	-16	-12	-10	-43	-37	-33	-45	-40	-35	1500

\*.Add suffix NL for ROHS compliant, eg:LP5007 changes to LP5007NL

## Mechanical

### LP5004,LP5007

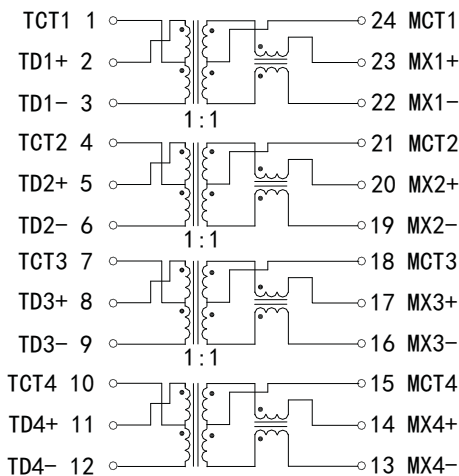


Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

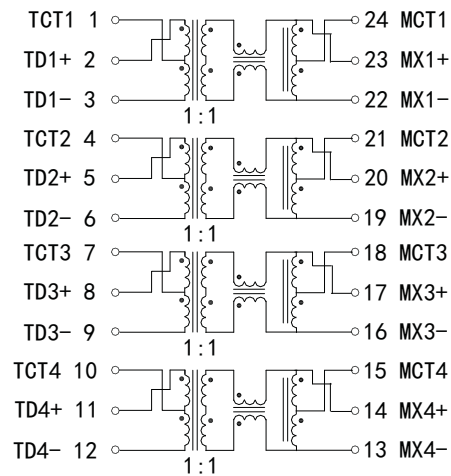
Unless otherwise specified, all tolerances are  $\pm 0.010$

## Schematics

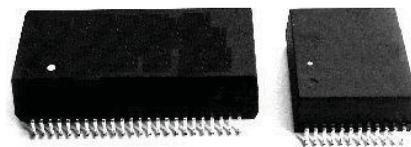
### LP5004



### LP5007



- ※Meets IEEE 802.3 specification
- ※Designed to support 1:1 turns ratio transceivers
- ※Designed for long haul Gigabit Ethernet(10/100/1000BASE-T) applications
- ※LP5008 designed to fit behind 1x1 RJ45 connector
- ※Cable interface for isolation and low common mode emissions
- ※For RoHS part add suffix NL
- ※RoHS “NL” peak solder rating 235°C



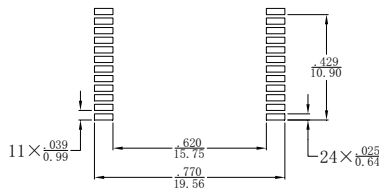
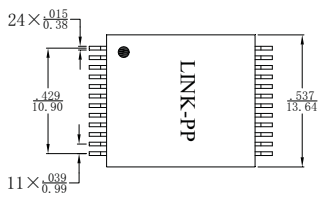
**Electrical Specifications @ 25°C --- Operating Temperature 0°C to 70°C**

Part Number	Number of Ports	Insertion Loss (dB MAX)	Return Loss (dB MIN)					Differential Common Mode Rejection (dB MIN)			Differential to Mode Crosstalk (dB MIN)			Hipot (Vrms MIN)
			1-30 MHz	40 MHz	50 MHz	60-80 MHz	100 MHz	30 MHz	60 MHz	100 MHz	30 MHz	60 MHz	100 MHz	
LP5008	1	1	-18	-18	-16	-12	-10	-43	-37	-33	-45	-40	-33	1500
LP5012	2	1.4	-16	-14.4	-13.1	-12	-10	-45	-40	-35	-43.5	-37.5	-33	1500
LP5014	2	1.4	-16	-14.4	-13.1	-12	-10	-45	-40	-35	-43.5	-37.5	-33	1500

- Contact Trxcom for RoHS compliant part availability
- Add suffix NL for RoHS compliant parts ,e.g. LP5008 changes to LP5008NL

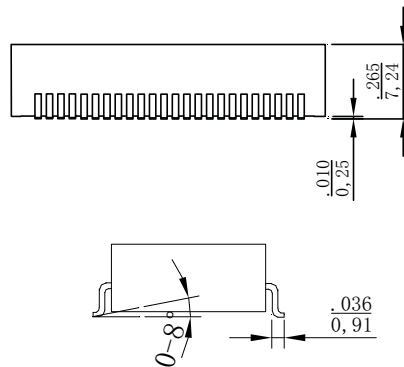
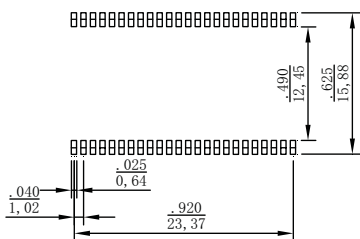
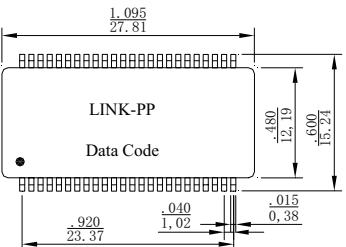
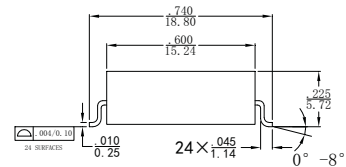
**Mechanical**

LP5008



SUGGESTED PAD LAYOUT

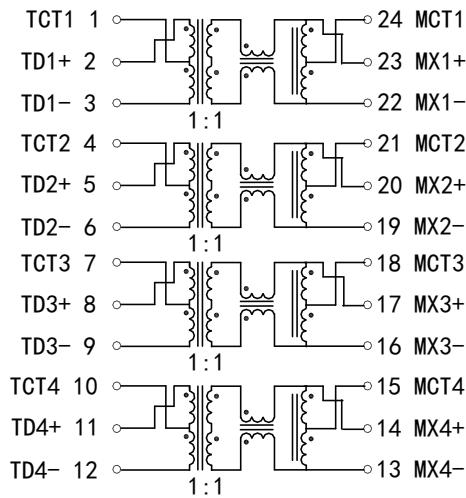
LP5012,LP5014



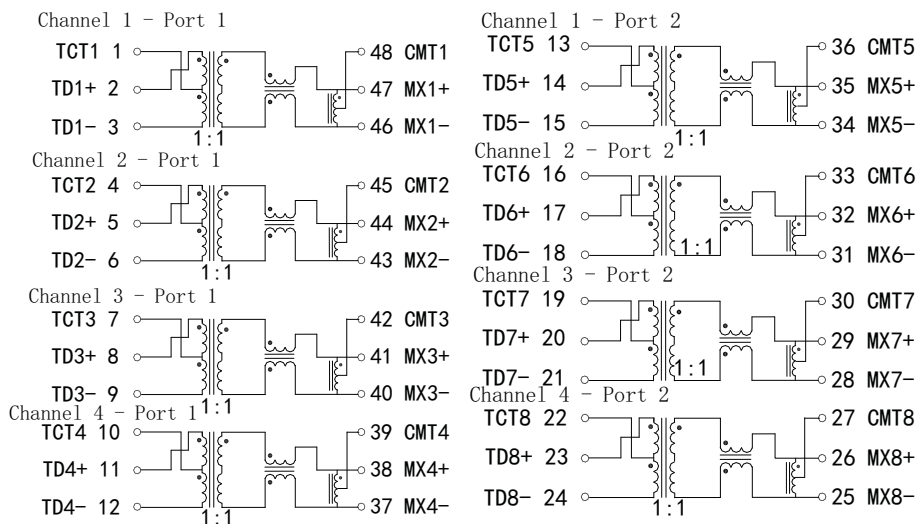
Dimensions: Inch/mm  
Unless otherwise specified, all tolerances are ±.010/0.25

Schematic

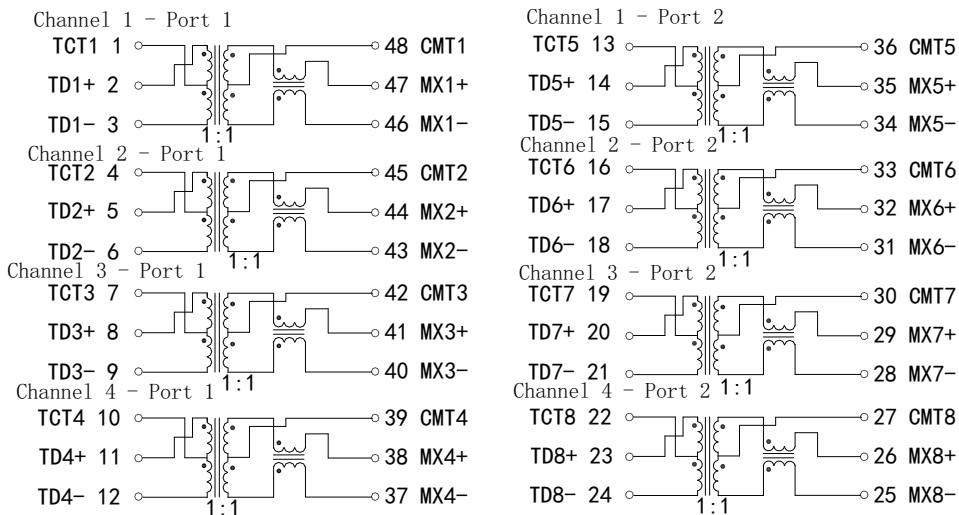
LP5008



LP5012



LP5014



# 10/100/1000 Base-TX 1×4 Port Transformer Modules

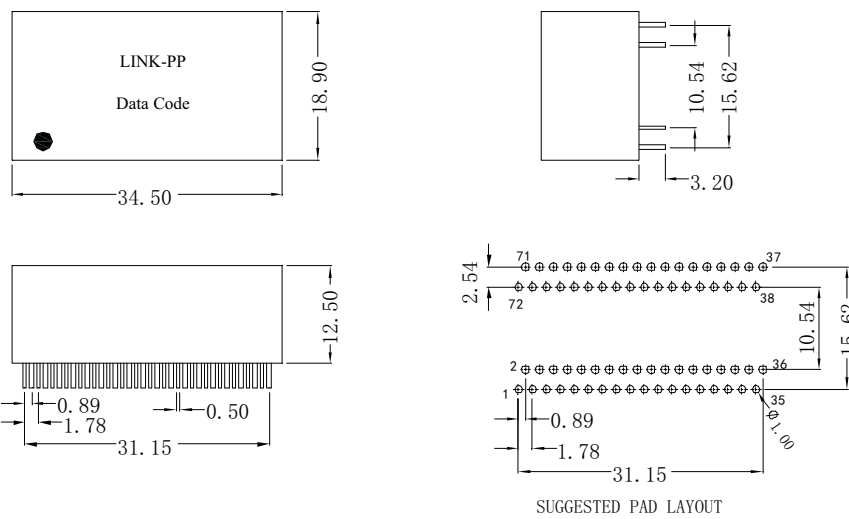
Link-PP Int'l Technology

- ※With Various Turns Ratios
- ※Meets all IEEE Standards including 350 μ H OCL With 8 mA bias
- ※For RoHS Parts add Suffix NL
- ※RoHS NL peak solder rating 235°C



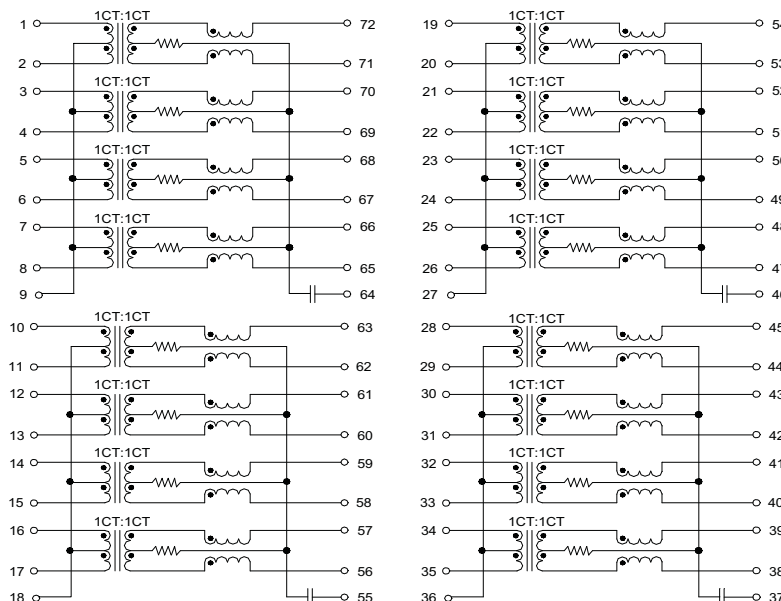
Electrical Specifications 25 °C — Operating Temperature 0°C to 70°C												
Part Number	Pri Inductance (100KHz/0.1V @8mA)	Leakage Inductance (1MHz/0.1V)	DCR.	Hi-Pot 1500Vrms/ 0.5mA	Turns Ratio (±5%)	Insertion Loss (0.1-100MHz) (dB MAX)	Return Loss (dB MIN)			Cross Talk (dB MIN)		
							1-30 MHz	40-50 MHz	60-80 MHz	30 MHz	60 MHz	100 MHz
LP5028	350μH MIN	0.5μH MAX	0.9Ω MAX		1CT:1CT	-1.0	-18	-14.2	-12	-40	-35	-30

## Mechanicals



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified, all tolerances are  $\pm \frac{0.10}{0.25}$

## Schematics



# 10GBASE-T Magnetics Modules

Link-PP Int'l Technology

- ※Designed to Support 10GBASE-T Transceivers
- ※Compliant with IEEE 802.3 standard
- ※Qualified with top 10Gig PHY Manufacturer
- ※RoHS peak reflow temperature rating: 245°C
- ※Low profile package for PCI Express
- ※Fine-tuned magnetics to specific PHY vendors

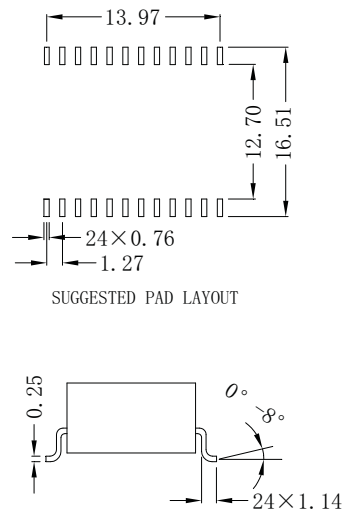
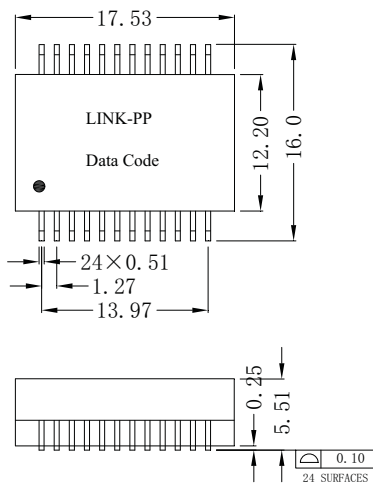


## Electrical Specifications @ 25°C --- Operating Temperature 0°C to 70°C

Part Number	Insertion Loss (dB MAX)		Return Loss (dB MIN)		Common to Differential Mode Rejection (dB MIN)		Crosstalk (dB MIN)		Hipot (Vrms MIN)
	100 KHz	1-500 MHz	1-40 MHz	40-500 MHz	1-250 MHz	250-500 MHz	1-100 MHz	100-500MHz	
LPM5108	-3.0	-1.0(-0.6 dB TYP)	-18	-17+10*LOG(f/40)	-30	-22	-40	-30	1500
LPM5109	-3.0	-1.0(-0.6 dB TYP)	-18	-17+10*LOG(f/40)	-30	-22	-40	-30	1500

## Mechanical

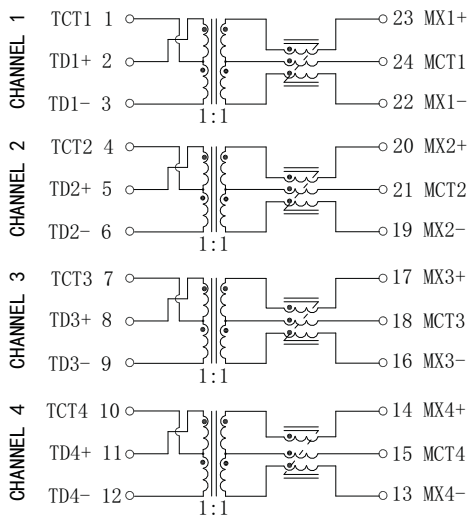
### LPM5108, LPM5109



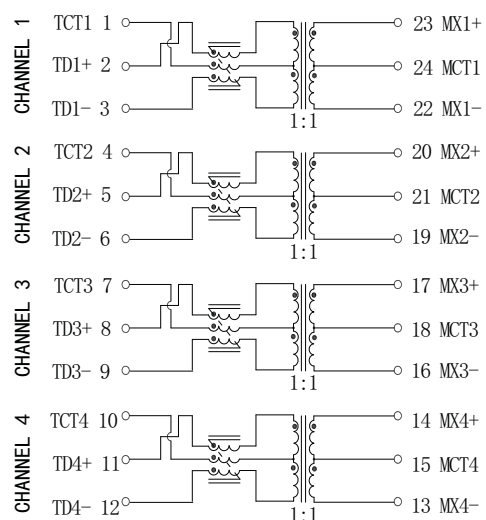
Dimensions: mm  
Unless otherwise specified,  
all tolerances are  $\pm 0.25$

## Schematic

### LPM5108



### LPM5109



- ※Dual SMT package
- ※Isolation voltage: 1500 Vrms
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C



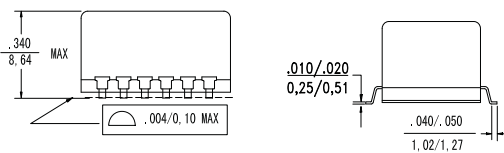
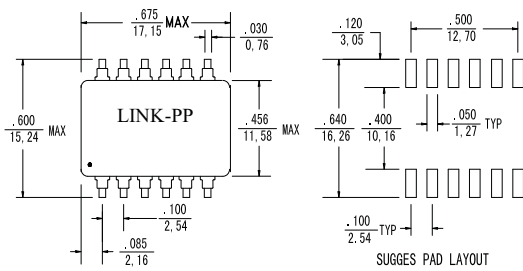
### Electrical Specifications @25°C

Part Number	Turns Ratio (Pri: Sec±2%)	OCL @ 25°C (mH MIN)	L <sub>L</sub> (μH MAX)	C <sub>ww</sub> (pF MAX)	DCR Pri (Ω MAX)	DCR Sec (Ω MAX)	Package/ Schematic	Primary Pins
<b>EXTENDED TEMPERATURE RANGE MODELS – OPERATING TEMPERATURE -40°C TO +85°C</b>								
LPB88841	1CT:2CT&1CT:2CT	1.20&1.20	0.80&0.80	50&50	1.00&1.00	1.70&1.70	TE1/2	12-10,4-6
LPB88822	1CT:2CT&1:1.36CT	1.60&1.60	1.00&0.80	60&55	1.70&1.70	2.00&1.70	TE1/1	12-10,4-6
LPB88825	1:1.15CT&1CT:2CT	1.60&1.60	0.80&0.80	60&50	1.00&1.00	1.20&1.20	TE1/4	12-10,4-6
LPB88826	1:1/1.26&1:2CT	1.20&1.20	0.80&0.80	50&60	1.00&1.00	1.10&1.70	TE1/5	12-10,4-6
LPB88827	1:2CT&2:1	1.60&1.60	1.30&1.30	55&40	1.10&1.10	1.10&0.70	TE1/6	1-3,4-6
LPB88828	1CT:1CT&1CT:1CT	1.20&1.20	0.80&0.80	50&50	1.00&1.00	1.00&1.00	TE1/2	1-3,4-6
LPB88874	1CT:1.15CT&1CT:1.15CT	1.20&1.20	0.80&0.80	50&50	1.20&1.20	1.40&1.40	TE1/2	1-3,4-6
LPB88877	1CT:1CT&1CT:2CT	1.20&1.20	0.80&0.80	50&50	1.00&1.00	1.00&1.80	TE1/2	1-3,4-6
LPB88882	1CT:1.15CT&1CT:1CT	1.60&1.60	0.80&0.80	60&60	1.20&1.20	1.40&1.20	TE1/2	12-10,4-6
LPB88884	1CT:1.36CT&1CT:1.36CT	1.20&1.20	0.80&0.80	50&50	1.20&1.20	1.40&1.40	TE1/2	1-3,4-6
LPB88887	1CT:1.41CT&1CT:1.41CT	1.20&1.20	0.80&0.80	50&50	1.40&1.40	1.20&1.20	TE1/2	12-10,9-7
LPB88881	1CT:2.3CT&1CT:2CT	1.20&1.20	0.80&0.80	60&50	1.20&1.20	2.10&2.10	TE1/2	10-12,4-6
LPB81277	1CT:1CT&1CT:2CT	1.20&1.20	0.80&0.80	50&50	1.00&1.00	1.00&1.80	TE1/2	1-3,4-6
<b>STANDARD TEMPERATURE RANGE MODELS – OPERATING TEMPERATURE 0°C TO +70°C</b>								
LPB81131	1CT:1&1:1.36CT	0.70&0.70	0.70&0.70	20&20	0.25&0.50	0.80&0.40	TE1/7	1-3,9-7
LPB88861	1CT:2CT&1CT:2CT	1.20&1.20	0.60&0.60	35&35	0.70&0.70	1.20&1.20	TE1/2	12-10,4-6
LPB88862	1CT:2CT&1:1.36CT	1.20&1.20	0.60&0.80	35&37	0.70&0.70	1.20&0.90	TE1/1	12-10,4-6
LPB88863	1:2CT&1:1.14CT	1.20&1.20	0.55&0.80	40&35	0.70&0.70	1.20&0.90	TE1/5	12-10,4-6
LPB88864	1CT:2CT&1:1	1.20&1.20	0.30-0.55&0.80	30&30	0.70&0.70	1.20&0.70	TE1/3	1-3,5-6
LPB88865	1:1.15CT&1CT:2CT	1.50&1.20	0.80&0.60	35&35	0.70&0.70	0.90&1.20	TE1/4	12-10,4-6
LPB88866	1:1/1.26&1:2CT	1.50&1.20	0.40&0.50	40&40	0.70&0.70	0.90&1.20	TE1/5	12-10,4-6
LPB88869	1CT:2CT&1:1.08CT	1.20&1.20	0.60&0.60	40&30	0.70&0.70	1.10&0.90	TE1/1	12-10,4-6
LPB88836	1:1/1.26&1:1/1.26	1.50&1.50	0.40&0.40	45&45	0.80&0.80	1.00&1.00	TE1/7	12-10,9-7

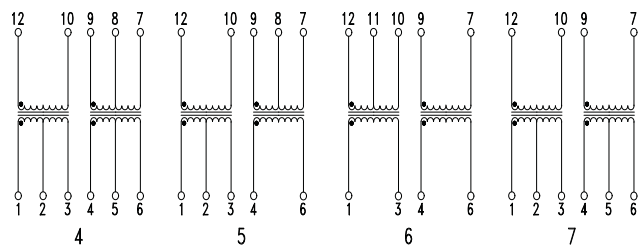
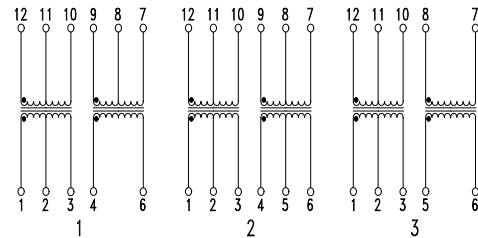
### Mechanical

### Schematics

TE1



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$  Unless otherwise specified, all tolerances are  $\pm 0.25$





- ※Dual SMT Small package
- ※Isolation Voltage: 1500 Vrms
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C



## Electrical Specifications @25°C

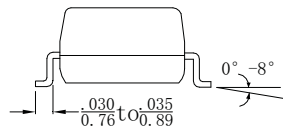
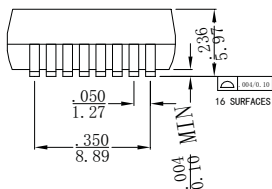
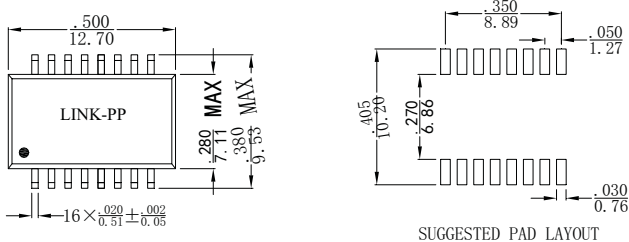
P/N (STD temp)	P/N (EXT temp.)	Turns Ratio (Pri: Sec±5%)	OCL (mH MIN)	C <sub>WV</sub> (pF MAX)	L <sub>L</sub> (μH MAX)	DCR Pri (Ω MAX)	Package/ Schematic	Primary Pins
LPB85861	LPB81090	1CT:2CT&1CT:2CT	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/1	16-14,6-8
LPB85862	LPB81091	1CT:2CT&1:1.36CT	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/2	16-14,6-8
LPB85865	LPB81076	1:1.15CT&1CT:2CT	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/3	16-14,6-8
LPB85866 <sup>F</sup>	LPB81092	1:1/1.26&1CT:2CT	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/3	16-14,6-8
LPB85870	LPB81093	1CT:1.15CT&1CT:1.15CT	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/1	1-3,6-8
LPB81022	LPB81077	1CT:1CT&1CT:1.5CT	1.20&1.20	30&30	.80&.80	0.70&0.70	TE2/1	16-14,6-8
LPB88678	LPB81094	1CT:1CT&1CT:2CT	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/1	16-14,6-8
LPB88786	LPB81095	1CT:1.41CT&1CT:1.41CT	1.00&1.00	30&30	.60&.60	0.70&0.70	TE2/1	16-14,11-9
LPB81023	LPB81096	1CT:1.41CT&1CT:1.41CT	1.00&1.00	30&30	.60&.60	0.70&0.70	TE2/1	1-3,11-9
---	LPB81144	1CT:1CT&1CT:2.4CT	1.00&1.00	30&30	.80&.80	0.85&0.85	TE2/1	9-11,1-3
---	LPB81097	1CT:1CT&1CT:1.67CT	1.00&1.00	25&25	.80&.80	0.80&0.80	TE2/1	6-8,14-16
LPB81136	---	1CT:1CT&1CT:1.36CT	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/1	6-8,1-3
LPB81121	---	1CT:1.5CT&1CT:1.5CT	1.50&1.50	40&40	.80&.80	0.70&0.70	TE2/1	1-3,6-8
LPB81122	---	1CT:2CT&1CT:2.3CT	1.20&1.20	30&30	.80&.80	0.90&0.90	TE2/1	6-8,14-16
LPB81021	---	2CT:1/1.26&2CT:1/1.26	1.50&1.50	40&40	.50&.50	0.70&0.70	TE2/1	1-3,11-9
LPB81075	---	2CS:1.57/2&2CS:1.57/2	1.50&1.50	40&40	.50&.50	0.70&0.70	TE2/4	1-2,5-6
LPB81190	---	1CT:1CT&1CT:1.36CT	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/1	16-14,6-8
LPB81137	LPB81287	1CT:2.42CT&1CT:2.42CT	1.20&1.20	25&25	.60&.60	0.70&0.70	TE2/1	1-3,6-8
---	LPB81146	1:2/2.4&1:0.79/1	1.00&1.00	35&35	1.00&1.00	0.80&0.80	TE2/5	1-3,6-8
LPB81286	---	1CT:2.4CT&1CT:2.4CT	1.20&1.20	15&15	.30&.30	0.30&0.30	TE2/1	1-3,6-8
---	LPB81317	1:2CT&1:2CS	1.20&1.20	35&35	.50&1.00	1.00&1.00	TE2/6	1-3,11-9
---	LPB81189	1:1.36CT&1:2CT	1.20&1.20	30&30	.60&.60	1.00&1.00	TE2/7	16-14,6-8
---	LPB81188	1CT:2CT&1CT:2CT	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/1	1-3,6-8
---	LPB81187	1CT:2CT&1:1	1.20&1.20	30&30	.60&.60	0.70&0.70	TE2/8	1-3,6-8
---	LPB81088	1CT:2CT&1CT:2.42CT	1.20&1.20	35&35	.80&.80	1.00&1.00	TE2/1	1-3,6-8
---	LPB81089	1CT:1CT&1CT:1CT	1.20&1.20	30&30	.80&.80	0.70&0.70	TE2/1	1-3,6-8
---	LPB81099	1CT:1:0.8&1CT:1:0.8	1.20&1.20	30&30	.80&.80	1.00&1.00	TE2/4	16-14,11-9
---	LPB81186	1CT:1.58:2&1:1.65:2	1.20&1.20	30&30	.80&.80	1.00&1.00	TE2/9	2-4,6-7
---	LPB81467	1CT:1:1&1CT:1:1	1.20&1.20	30&30	.80&.80	1.00&1.00	TE2/4	16-14,11-9

NOTE: Standard (STD) operating temperature range is 0°C to 70°C. Extended (EXT) operating temperature range is -40°C to +85°C. Models are available with unused leads removed.

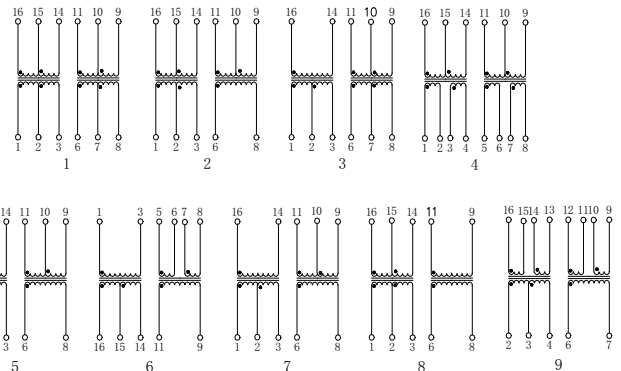
## Mechanical

## Schematics

### TE2



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm \frac{0.10}{0.25}$





- ※For T1/CEPT line interfaces
- ※Isolation Voltage: 3000 Vrms
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C



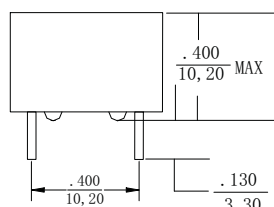
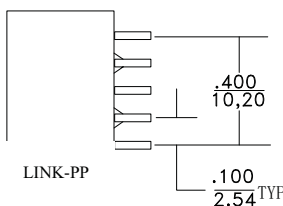
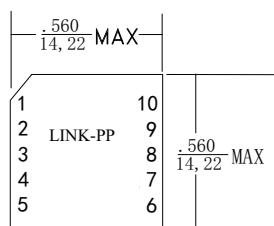
**Electrical Specifications @ 25°C ----Operating Temperature 0°C to 70°C (Unless Otherwise Noted)**

Part Number	Turns Ratio (±5%)	OCV (mH MIN)	C <sub>ww</sub> (pF MAX)	L <sub>L</sub> (μH MAX)	DCR Pri (Ω MAX)	DCR Sec (Ω MAX)	Safety Agency Recognition	Package/Schematic	Primary Pins
LPB85830	1.27CS:1	.800	15	0.70	0.50	0.35	C,T,U,B	TE3/3	1-5
LPB85831	1CS:1	.800	15	0.70	0.50	0.45	C,T,U,B	TE3/3	1-5
LPB85832	1:1.36CT	1.20	35	0.60	0.70	0.90	C,T,U,B	TE3/4	10-6
LPB85833	1CT:2CT	1.20	20	0.30-0.55	0.50	0.90	C,T,U,B	TE3/1	1-5
LPB85834	1:1	1.20	20	0.50	0.50	0.50	C,T,U,B	TE3/2	1-5
LPB85835	1CT:2CT	1.20	15	0.80	0.70	1.10	C,T,U,B	TE3/1	1-5
LPB85836	1CT:3CT:1	.600	30	0.80	0.70	1.70	C,T,U,B	TE3/5	1-3
LPB85837	1:1.08/1.36	1.50	20	0.60	0.70	0.90	C,T,U,B	TE3/4	10-6
LPB85838	1:1.14CT	1.50	30	1.00	0.70	0.90	C,T,U,B	TE3S/4	10-6
LPB85839	1:1/1.26	1.50	35	0.60	0.70	1.10	C,T,U,B	TE3/4	10-6
LPB88646	1:1.58/2	1.50	20	0.70	0.70	1.20	C,T,U,B	TE3/4	10-6
LPB88788	1CT:1.41CT	1.20	20	0.80	0.60	0.80	T,U,B	TE3/1	10-6

**Mechanical**

**Schematics**

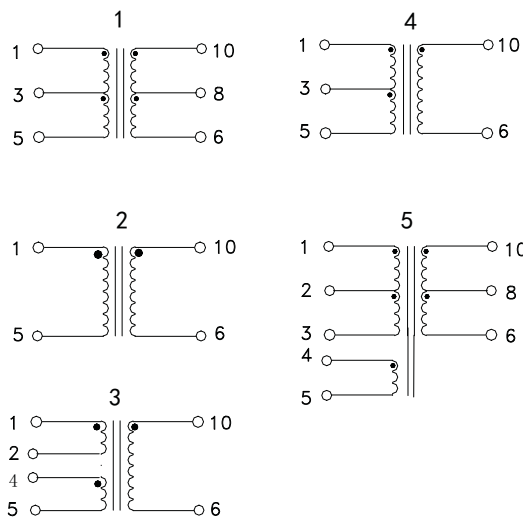
**TE3**



Notes:  
Leads are 22AWG solderable.  
Unused pins not provided.

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

Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0,25}$



# T1/CEPT/ISDN-Pri Transformers

Link-PP Int'l Technology

- ✳ Single Through Hole
- ✳ Isolation Voltage: 1500 Vrms MIN
- ✳ For RoHS part add suffix NL
- ✳ RoHS NL peak solder rating 235°C



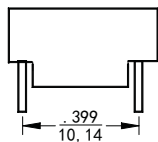
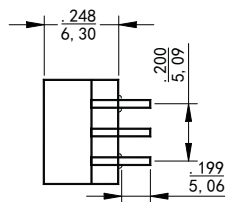
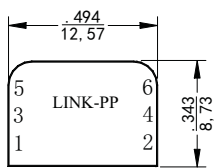
## Electrical Specifications @ 25°C

Part Number	Turns Ratio (Pri: Sec±5%)	OCL @ 25°C (mH MIN)	C <sub>ww</sub> (pF MAX)	L <sub>L</sub> (μH MAX)	DCR Pri (Ω MAX)	DCR Sec (Ω MAX)	Package/Schematic	Primary Pins
<b>STANDARD TEMPERATURE RANGE SINGLE TRANSFORMERS -- OPERATING TEMPERATURE 0°C TO +70°C</b>								
LPB84931	1:1:1(1:2CS)	1.20	25	0.50	0.70	0.70&0.70	TE4/2	1-2
LPB84933	1CT:3CT	1.20	30	0.50	0.70	1.60	TE4/4	1-5
LPB84934	1:1	1.20	25	0.50	0.70	0.70	TE4/1	1-2
LPB84936	1CT:1	1.20	25	0.80	0.70	0.70	TE4/3	1-5
LPB84937	1:1.36	1.20	35	0.80	0.70	0.80	TE4/1	5-6
LPB84940	1.26CS:1(1:1:1.58)	0.30	30	0.60	0.80	0.60	TE4/2	1-4
LPB84941	1CS:1	0.80	30	0.60	0.80	0.60	TE4/2	1-4
LPB84942	1CS:1.31	0.80	30	0.40	0.80	0.60	TE4/2	1-4
LPB84943	1CT:2CT	1.20	30	0.30-0.55	0.70	1.20	TE4/4	1-5
LPB85351	1:2CT	1.20	40	0.50	0.70	1.30	TE4/3	2-6
LPB85363	1:4CT	0.50	40	1.00	0.50	1.50	TE4/5	1-5
LPB85379	1:1.14CT	1.20	35	0.80	0.70	0.80	TE4/5	1-5
LPB85388	1:1.15CT	1.50	35	0.60	0.70	0.90	TE4/3	2-6
LPB85389	1:1/1.26	1.50	40	0.40	0.70	0.90	TE4/3	2-6
LPB85415	1CT:2CT	1.20	30	0.50	0.70	1.20	TE4/4	1-5
LPB85558	1:2.3CT	1.20	35	0.80	0.70	1.40	TE4/5	1-5
LPB85586	1:1.36CT	1.20	35	0.80	0.70	0.90	TE4/5	1-5
LPB85755	1CT:1CT	1.20	25	0.80	0.80	0.80	TE4/4	1-5
LPB88644	1CT:1	0.70	20	0.70	0.20	0.80	TE4/3	1-5
LPB88645	1:1.36CT	0.70	20	0.70	0.50	0.40	TE4/5	1-5
LPB81054	1:1.5CT	1.20	30	0.60	0.70	1.00	TE4/3	2-6
LPB81249	1:1.26CT	1.20	60	0.80	0.90	1.00	TE4/4	2-6
<b>EXTENDED TEMPERATURE RANGE SINGLE TRANSFORMERS -- OPERATING TEMPERATURE -40°C TO +85°C</b>								
LPB85340	1:1.36	1.20	35	0.80	0.90	1.20	TE4/1	5-6
LPB85770	1:1.15CT	1.50	40	0.80	0.90	1.00	TE4/3	2-6
LPB85771	1CT:2CT	1.20	50	0.60	1.00	2.00	TE4/4	2-6
LPB85788	1CT:1CT	1.20	40	1.00	1.00	1.00	TE4/4	1-5
LPB88600	1CT:3CT	1.20	60	0.80	0.90	2.70	TE4/4	1-5
LPB88664	1:1/1.26	1.50	50	0.80	0.90	1.10	TE4/3	2-6

## Mechanical

## Schematics

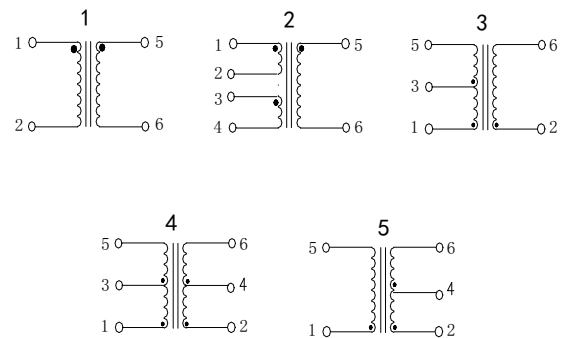
TE4



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

Unless otherwise specified, all tolerances are ±

$\frac{.010}{0,25}$



※Dual Through Hole

※1500 Vrms

### Electrical Specifications @ 25°C

Part Number	Turns Ratio (Pri: Sec±5%)	OCL @ 25°C (mH MIN)	C <sub>ww</sub> (pF MAX)	L <sub>L</sub> (μH MAX)	DCR Pri (Ω MAX)	DCR Sec (Ω MAX)	Package/ Schematic	Primary Pins
<b>STANDARD TEMPERATURE RANGE DUAL TRANSFORMERS – OPERATING TEMPERATURE 0°C TO +70°C</b>								
LPB84951	1:2CT&1:2CT	1.20&1.20	35&35	0.50&0.50	0.70&0.70	1.20&1.20	TE6/1	14-12,5-7
LPB84952	1:2CT&1:1.36	1.20&1.20	35&35	0.50&0.80	0.80&0.80	1.20&1.00	TE6/2	14-12,5-7
LPB84953	1:2CT&1:2CT	2.00&2.00	50&50	0.60&0.60	1.00&1.00	2.00&2.00	TE6/3	14-12,10-8
LPB84954	1CT:2CT&1:1	1.20&1.20	30&30	0.30-0.55&0.50	0.70&0.70	1.20&0.70	TE6/4	1-3,5-7
LPB84955	1:1.26CT&1.58:1	0.80&0.80	30&30	0.50&0.50	0.60&0.60	0.70&0.30	TE6/5	1-3,5-7
LPB84956	1:1CT&2:1	0.80&0.80	30&30	0.60&0.60	0.50&0.50	0.50&0.20	TE6/5	1-3,5-7
LPB84957	1CT:1.31&2.62:1	1.20&1.20	30&30	0.80&0.80	0.60&0.60	0.50&0.30	TE6/5	1-3,5-7
LPB85565	1:1.15CT&1:2CT	1.50&1.20	35&40	0.60&0.50	0.70&0.70	1.10&1.30	TE5/1	14-12,5-7
LPB85566	1:1/1.26&1:2CT	1.50&1.20	40&40	0.50&0.40	0.70&0.70	0.90&1.30	TE5/1	14-12,5-7
<b>EXTENDED TEMPERATURE RANGE DUAL TRANSFORMERS – OPERATING TEMPERATURE -40°C TO +85°C</b>								
LPB85567	1:1.15CT&1:2CT	1.50&1.20	40&60	0.80&0.80	0.90&0.90	1.00&1.70	TE5/1	14-12,5-7
LPB85568	1:1/1.26&1:2CT	1.50&1.20	50&60	0.80&0.80	0.90&0.90	1.00&1.70	TE5/1	14-12,5-7
LPB85774	1CT:2CT&1:1.36CT	1.20&1.20	50&50	0.96&0.80	1.00&1.00	1.70&1.20	TE5/7	14-12,5-7
LPB88618	1CT:1CT&3CT:1CT:25	1.20&32.0	40&65	0.80&0.80	1.00&3.00	1.00&1.20	TE7/6	1-3,11-9
LPB84950	1CT:1CT&1CT:3CT:1	1.20&1.60	50&50	0.80&0.80	1.00&0.80	1.00&2.00	TE7/6	1-3,4-6

### Mechanicals

TE5

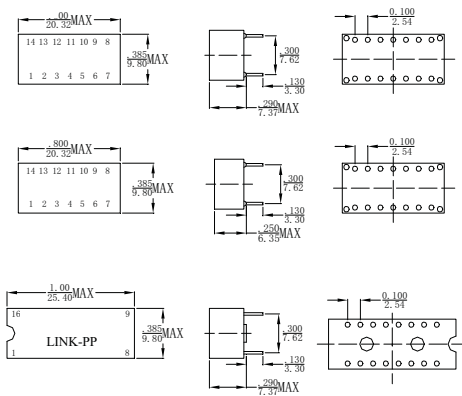
DUAL

TE6

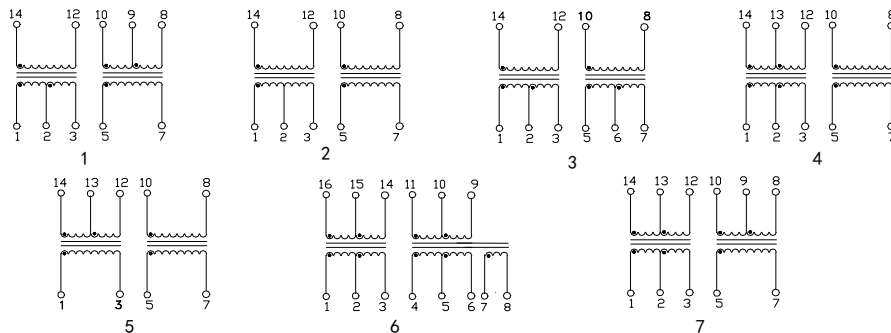
DUAL

TE7

DUAL



### Schematics





# T1/E1/CEPT/ISDN-Pri Quad Transformers

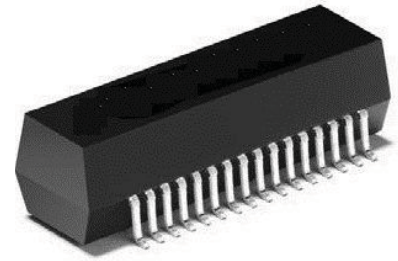
Link-PP Int'l Technology

※ Quad transformers in a surface mount package supports two T1/E1 ports

※ Isolation voltage: 1500 Vrms

※ For RoHS part add suffix NL

※ RoHS "NL" peak solder rating 235°C

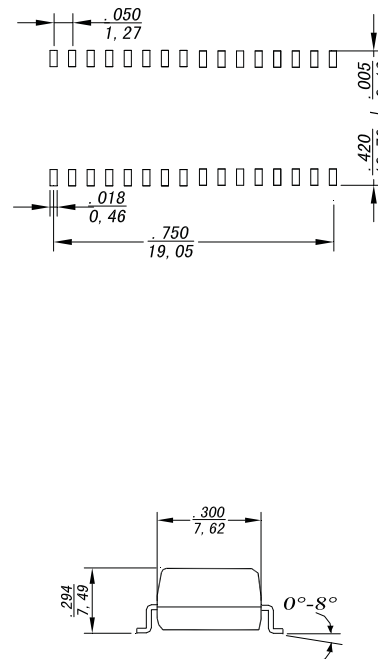
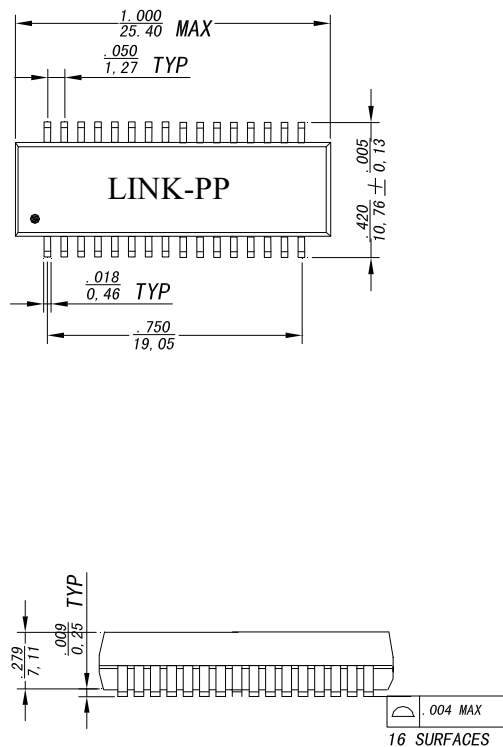


## Electrical Specifications @ 25°C --- Operating Temperature 0°C to 70°C

Part Number	Turns Ratio (Pri: Sec±2%)	OCL@ 25°C (mH MIN)	L <sub>L</sub> (µH MAX)	C <sub>ww</sub> (pF MAX)	DCR Pri (MAX)	DCR Sec (MAX)	Package/Schematic	Primary Pins
LPB81001	1:1.36/1	1.2	0.40	30	0.7	1.0	YB/1	1-3,5-7,10-12,14-16
LPB81005	1:1.58/1.266	1.2	0.50	24	0.6	0.8	YB/1	1-3,5-7,10-12,14-16
LPB81006	1:2CT	1.2	0.35	30	0.6	1.0	YB/1	1-3,5-7,10-12,14-16
LPB81007	1:1.15CT	1.2	0.70	23	0.6	0.8	YB/1	1-3,5-7,10-12,14-16
LPB81008	1:1.36and 1:2	1.2	0.80	35	0.6	1.0	YB/2	1-3,10-12,19-17,28-26
LPB81009	1:1.265/1	1.2	0.80	35	0.6	0.8	YB/1	1-3,5-7,10-12,14-16
LPB81010	1:1.36CT	1.2	0.50	30	0.6	0.8	YB/1	1-3,5-7,10-12,14-16
LPB81016	1:2/1.15	1.2	0.40	30	0.6	1.0	YB/1	1-3,5-7,10-12,14-16
LPB81017	1:2.3/2	1.2	0.80	35	0.6	1.1	YB/3	1-3,28-26,10-12,19-17

## Mechanical

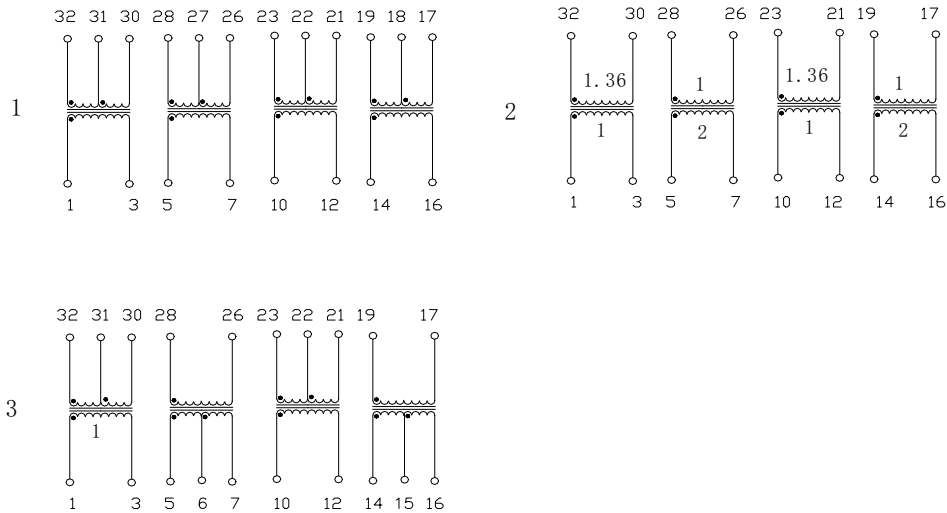
YB



# T1/E1/CEPT/ISDN-Pri Quad Transformers

Link-PP Int'l Technology

## Schematics



## Transformer Selection Guide

IC Manufacturer	IC Part Number	Application	T/R	Trxcom Part No.	Ratio	Pins	
LEVEL ONE	LXT332	T1	Transmit	LPB81017	1:2.3	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
			Receive	LPB81006	1:2CT	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
		E1/CEPT	Transmit	LPB81006	1:2	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
			Receive	LPB81006	1:2CT	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
VLSI	VP14Q575	T1	Transmit	LPB81007	1:1.15	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
			Receive	LPB81006	1:2CT	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
		75 Ω/E1	Transmit	LPB81005	1:1.266	(1-3): (32-31), (5-7): (28-27), (10-12): (23-22), (14-16): (19-18)	
		120 Ω/CEPT	Transmit	LPB81005	1:1.58	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
		E1/CEPT	Receive	LPB81006	1:2CT	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
AT&T/LUCENT	T7690(5V)	T1	Transmit	LPB81007	1:1.15	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
			Receive	LPB81007	1:1.15CT	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
		E1/CEPT	Transmit	LPB81010	1:1.36	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
			Receive	LPB81010	1:1.36CT	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
PMC-SIERRA	PM4313QDSX	T1	Transmit	LPB81008	1:1.36	(1-3): (32-30), (10-12): (23-21)	
			Receive	LPB81008	1:2	(28-26): (5-7), (19-17): (14-16)	
		E1/CEPT	Transmit	LPB81008	1:1.36	(1-3): (32-30), (10-12): (23-21)	
			Receive	LPB81008	1:2	(28-26): (5-7), (19-17): (14-16)	
EXAR	XR-5793/5795	T1	Transmit	LPB81009	1:1.265	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
			Receive	LPB81009	1:1	(1-3): (32-31), (5-7): (28-27), (10-12): (23-22), (14-16): (19-18)	
		75 Ω/E1	Transmit	LPB81009	1:1	(1-3): (32-31), (5-7): (28-27), (10-12): (23-22), (14-16): (19-18)	
		120 Ω/CEPT	Transmit	LPB81009	1:1.265	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
		E1/CEPT	Receive	LPB81009	1:1	(1-3): (32-31), (5-7): (28-27), (10-12): (23-22), (14-16): (19-18)	
CRYSTAL	CS61582/3/4(5V)	T1	Transmit	LPB81016	1:2	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
			Receive	LPB81016	1:1.15	(1-3): (32-31), (5-7): (28-27), (10-12): (23-22), (14-16): (19-18)	
		E1/CEPT	Transmit	LPB81016	1:2	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)	
			Receive	LPB81016	1:1.15	(1-3): (32-31), (5-7): (28-27), (10-12): (23-22), (14-16): (19-18)	
		CS61584(3V)	T1/E1/CEPT	Trans/Rec	LPB81016	1:2	(1-3): (32-30), (5-7): (28-26), (10-12): (23-21), (14-16): (19-17)

# T1/E1/CEPT/ISDN-PRI TRANSFORMERS

Link-PP Int'l Technology

- ✳ Quad port SMT package with 8 transformers
- ✳ Isolation voltage :1500 Vrms
- ✳ For RoHS part add suffix NL
- ✳ RoHS "NL" peak solder rating 235°C



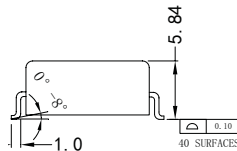
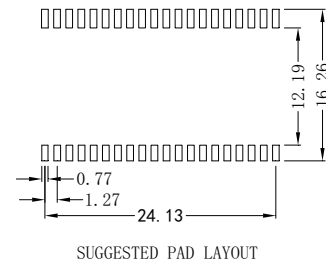
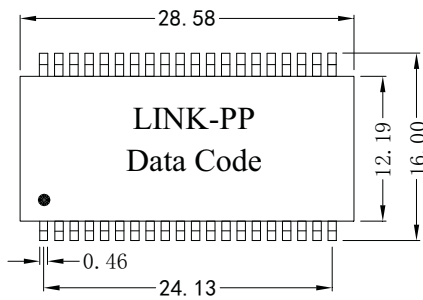
## Electrical Specifications @ 25°C

Part Number		Turns Ratio (Prussic ±2%)		OCL @ 25°C (mH MIN) <sup>f</sup>		L <sub>L</sub> (μH MAX)		C <sub>WW</sub> (pF MAX)		Package/Schematic	Primary Pins	
STD Temp	EXTemp.	TX	RX	TX	RX	TX	RX	TX	RX		TX	RX
LPB81063	LPB81103	1:1.36	1:1.36CT	1.2	1.2	.6	.6	35	35	TE9/1	1-2,6-7,11-12,16-17	38-36,33-31,28-26,23-21
LPB81064	LPB81104	1:1.14	1:1.14CT	1.2	1.2	.6	.6	35	35	TE9/1	1-2,6-7,11-12,16-17	38-36,33-31,28-26,23-21
LPB81065	LPB81105	1:2CT	1:2CT	1.2	1.2	.8	.8	35	35	TE9/3	4-5,9-10,14-15,19-20	24-25,29-30,34-35,39-40
LPB81066	LPB81106	1:2	1:2CT	1.2	1.2	.6	.6	35	35	TE9/4	1-2,9-10,11-12,19-20	23-25,26-28,33-35,36-38
LPB81067	LPB81107	1:1.36CT	1:2CT	1.2	1.2	.6	.6	35	35	TE9/3	24-25,29-30,34-35,39-40	4-5,9-10,14-15,19-20
LPB81068	LPB81108	1:2CT	1:1CT	1.2	1.2	.6	.6	35	35	TE9/2	1-2,6-7,11-12,16-17	21-22,26-27,31-32,36-37
LPB81069	LPB81109	1CT:1.41	1CT:1.41	1.2	1.2	.6	.6	35	35	TE9/3	1-3,6-8,11-13,16-18	21-23,26-28,31-33,36-38
LPB81070	LPB81110	1:1.15	1:2CT	1.2	1.2	.6	.6	35	35	TE9/1	1-2,6-7,11-12,16-17	21-23,26-28,31-33,36-38
LPB81071	LPB81111	1:1/1.26	1:2CT	1.2	1.2	.6	.6	35	35	TE9/2	1-2,6-7,11-12,16-17	21-22,26-27,31-32,36-37
LPB81072	LPB81112	1:1.15	1:1.15	1.2	1.2	.6	.6	35	35	TE9/5	1-3,6-8,11-13,16-18	4-5,9-10,14-15,19-20
LPB81073	LPB81113	1:2	1:2	1.2	1.2	.6	.6	35	35	TE9/5	1-3,6-8,11-13,16-18	4-5,9-10,14-15,19-20
LPB81078	-	1:1.08	1.08CT:1	1.2	1.2	.4	.5	35	35	TE9/1	1-2,6-7,11-12,16-17	38-36,33-31,28-26,23-21
LPB81124	LPB81114	1:2CT	1CT:2	1.2	1.2	.6	.6	35	35	TE9/3	4-5,9-10,14-15,19-20	1-3,6-8,11-13,16-18
LPB81125	-	1:1.70	1:1.36CT	1.2	1.2	.8	.6	35	35	TE9/1	1-2,6-7,11-12,16-17	21-23,26-28,31-33,36-38
LPB81129	-	1:1.36CT	1:1CT	1.2	1.2	.6	.6	35	35	TE9/3	24-25,29-30,34-35,39-40	4-5,9-10,14-15,19-20
LPB81142	LPB81231	1:2.4	1:1	1.0	1.0	.5	.5	35	35	TE9/6	1-2,8-9,11-12,18-19	24-25,27-28,34-35,37-38
-	LPB81226	1:1.5	1.41:1	1.0	1.0	.5	.5	35	35	TE9/6	1-2,8-9,11-12,18-19	24-25,27-28,34-35,37-38
LPB81145	-	1:2/2.4	1:0.79/1	1.0	1.0	1.0	1.0	35	35	TE9/7	1-2,9-10,11-12,19-20	37-36,35-34,27-26,25-24
LPB81180	-	1:2.42	1:2.42	1.2	1.2	.6	.6	35	35	TE9/5	1-3,6-8,11-13,16-18	4-5,9-10,14-15,19-20
LPB81181	-	1:2.1CT	1:2.1CT	1.2	1.2	.6	.6	35	35	TE9/2	1-2,6-7,11-12,16-17	21-22,26-27,31-32,36-37
LPB81182	-	1:2.45CT	1:2.45CT	1.2	1.2	.6	.6	35	35	TE9/2	1-2,6-7,11-12,16-17	21-22,26-27,31-32,36-37
-	LPB81262	1:2	1:2	1.2	1.2	.7	.7	35	35	TE9/6	1-2,6-7,11-12,16-17	3-4,8-9,13-14,18-19
-	LPB81264	1:2CT	1CT:1	1.2	1.2	.6	.6	35	35	TE9/3	4-5,9-10,14-15,19-20	1-3,6-8,11-13,16-18
-	LPB81292	1:1.36	1:1	1.2	1.2	.6	.6	40	40	TE9/5	1-3,6-8,11-13,16-18	4-5,9-10,14-15,19-20
-	LPB81294	1:1CT	1:1CT	1.2	1.2	.6	.6	35	35	TE9/3	4-5,9-10,14-15,19-20	24-25,29-30,34-35,39-40
-	LPB81295	1:1.26	1:1.26CT	1.2	1.2	.6	.6	35	35	TE9/3	4-5,9-10,14-15,19-20	24-25,29-30,34-35,39-40
-	LPB81298	1:1	1:1	1.2	1.2	.7	.7	35	35	TE9/5	1-3,6-8,11-13,16-18	4-5,9-10,14-15,19-20

1. Add suffix NL RoHS compliant parts, eg: LPB81063 changes to LPB81063NL

## Mechanical

TE9



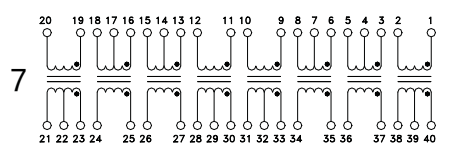
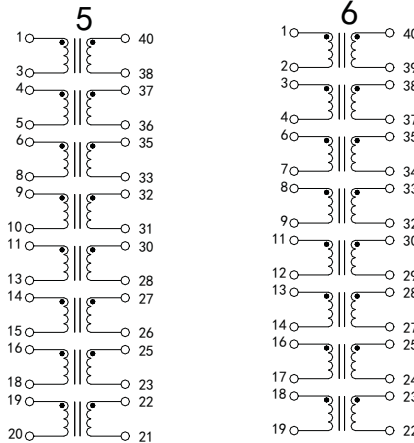
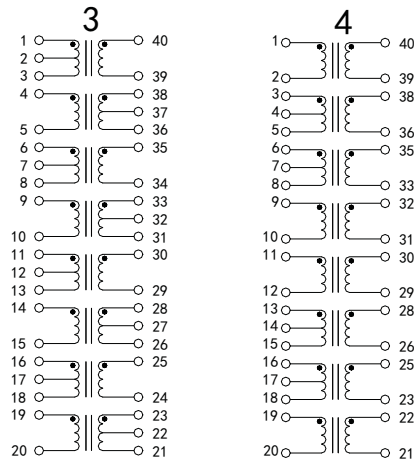
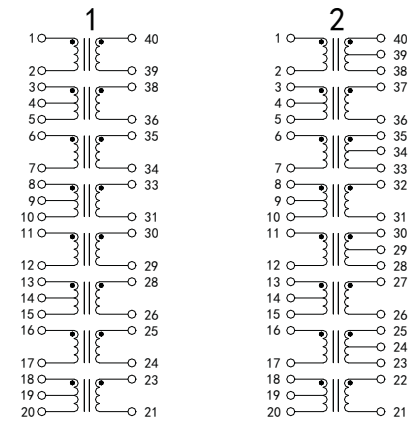


※Quad Port T1/E1 with 8 Transformers ,1500 Vrms

## Transformer Selection Guide

## Schematics

IC Mfr.	IC P/N	Comments	Octal SMT	
			STD temp	EXT temp
Mindspeed (Conexant)	BT8510	T1/E1	LPB81071	LPB81111
	BT8510	T1/E1	LPB81071	LPB81111
	CN8380		LPB81124	LPB81114
	BT8370/5/6	Better RI	LPB81067	LPB81107
	BT8370/5/6	Low Power	LPB81070	LPB81110
Cirrus Logic (Crystal)	61318	120 E1	LPB81068	LPB81108
	61577	T1&E1	LPB81065	LPB81105
	61304A/5A/535A/574A,/75	T1	LPB81070	LPB81110
	61304A/5A/535A/574A,/75	75 E1	LPB81068	LPB81108
	61304A/5A/535A/574A,/75	120 E1	LPB81071	LPB81111
	61582,61583		LPB81064	LPB81104
	61310,61581		LPB81068	LPB81108
	61881		LPB81070	LPB81110
	61584/84A	IQ3	LPB81065	LPB81105
	61584/82/83/A	IQ5	LPB81064	LPB81104
Maxim (Dallas)	DS2196		LPB81068	LPB81108
	DS2151/2152/2153/2154		LPB81070	LPB81110
	DS2151/2152/2153/2154		LPB81067	LPB81107
	DS2148/Q48	3V	LPB81068	LPB81108
	DS2148/Q48	5V	LPB81067	LPB81107
	DS21352/Q352,DS21354/Q354		LPB81068	LPB81108
	DS21552/Q552,DS21554/Q554		LPB81070	LPB81110
DS21552/Q552,DS21554/Q554		LPB81067	LPB81107	
Exar	T5683A,59L91		LPB81065	LPB81105
	T5894,T5897,T5997		LPB81065	LPB81105
	T5791/93/94/95		LPB81071	LPB81111
	81L27,82L24,82D20		LPB81067	LPB81107
	83L30/34/38		LPB81065	LPB81105
	T5684,T7288,82D20		LPB81067	LPB81107
Infineon Technologies (Siemens)	PEB 2254/55	E1/T1&J1	LPB81069	LPB81109
	PEB 2254/55	E1/T1&J1	LPB81069	LPB81109
	PEB 22504	3.3V	LPB81142	LPB81231
	PEB 22504	5V	LPB81226	LPB81226
	PEB 22554	3.3V	LPB81142	LPB81231
	PEB 2256 3.3V	E1/T1/J1	LPB81142	LPB81231
Intel (Level One)	LXT300/301		LPB81065	LPB81105
	LXT304/305/307	T1,E1	LPB81065	LPB81105
	LXT304/305/307	T1	LPB81070	LPB81110
	LXT304/305/307	75E1,120E1	LPB81071	LPB81111
	LXT310/317/318		LPB81068	LPB81108
	LXT331	T1,E1	LPB81068	LPB81108
	LXT331,LXT332		LPB81065	LPB81105
	LXT331,LXT332		LPB81070	LPB81110
	LXT334,LXT335	T1/E1	LPB81065	LPB81105
	LXT334,LXT335	120/75 E1	LPB81067	LPB81107
	LXT334,LXT335	75 E1	LPB81071	LPB81111
	LXT336		LPB81065	LPB81105
	LXT350,LXT351,LXT359	T1,E1	LPB81068	LPB81108
	LXT350,LXT351		LPB81070	LPB81110
	LXT360/361/362/363	T1,E1	LPB81068	LPB81108
LXT360/361/362/363		LPB81070	LPB81110	
LXT380/381/384/386/388	T1,E1	LPB81068	LPB81108	
LXT380/381/384/386/388	T1,E1	LPB81124	LPB81114	
LXT3104,LXT3108		LPB81068	LPB81108	
Lucent Technologies	T7288,T290A	CEPT	LPB81067	LPB81107
	T7289A	DS1	LPB81070	LPB81110
	T7688,T7690,T7698	CEPT	LPB81063	LPB81103
	T7689,T7690,T7698	DS1	LPB81064	LPB81104
	T7693,T7697	CEPT	LPB81180	
	TLIU04C1	DS1	LPB81064	LPB81104
	TLIU04C1	CEPT	LPB81063	LPB81103
Zarlink (Mitel)	MT9071,MT9076		LPB81180	
	MT9076,MT9075		LPB81142	LPB81231
	MT9074,MT9075		LPB81068	LPB81108
PMC-Sierra	PM4341/6341/4314		LPB81067	LPB81107
	PM4318		LPB81065	LPB81105
	PM4351/4354	COMET	LPB81180	LPB81299





# Common Mode Chokes For Telecom Application

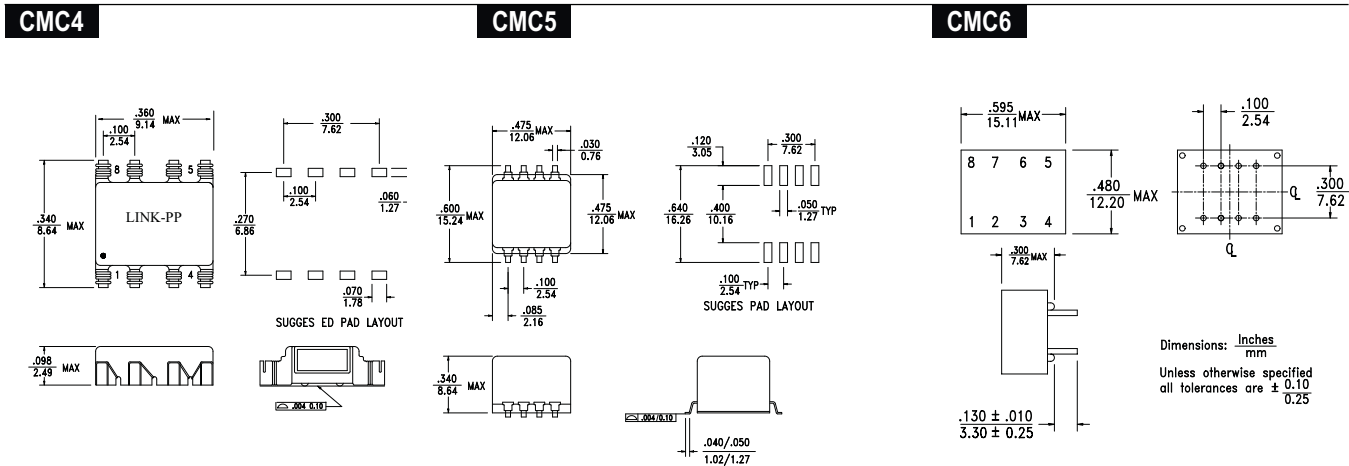
Link-PP Int'l Technology

※Quad Port T1/E1 with 8 Transformers ,1500 Vrms

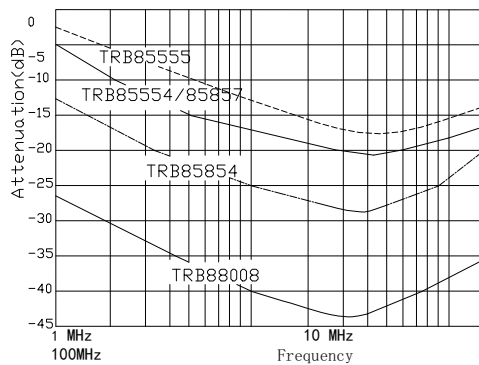
## Electrical Specifications@ 25°C ---- Operating Temperature 0°C to 70°C

Part Number	Number of Lines	Turns Ratio (±5%)	OCL (μH MIN)	C <sub>WW</sub> (pF MAX)	L <sub>L</sub> (μH MAX)	DCR (Ω MAX)	Isolation (Vrms MIN)	Package/ Schematic
<b>HIGH FREQUENCY COMMON MODE CHOKES</b>								
LPB88008	16(8×2line)	1:1(8places)	47.0	25	.18	0.40	500	TE9/B(SMT)
LPB85554	4	1:1:1:1	24.0	15	.20	0.30	500	CMC6/A(THT)
LPB85555	4	1:1:1:1	8.0	10	.20	0.25	500	CMC6/A(THT)
LPB85854	4	1:1:1:1	47.0	16	.20	0.30	500	CMC4/A(SMT)
LPB85857	4	1:1:1:1	24.0	15	.23	0.30	500	CMC5/A(SMT)

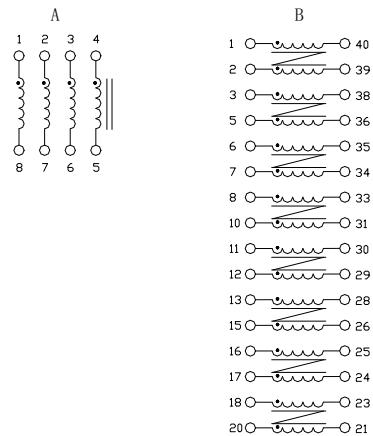
## Mechanicals



## Schematics



Typical common mode attenuation for high frequency common mode chokes based on a 100 Ω system.



# T3/DS3/E3/STS-1 Transformers

Link-PP Int'l Technology

- ※ Designed for T3, DS3 and STS-1 Interfaces
- ※ Through hole and surface mount packages available
- ※ For RoHS part add suffix NL
- ※ RoHS "NL" peak solder rating 235°C



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

Part Number	Turns Ratio (±2%)	OCL Primary (μH MIN)	OCL at -40°C (μH MAX)	L <sub>L</sub> (μH MAX)	C <sub>w/w</sub> (pF MAX)	Bandwidth 75 Ω System (MHz TYP)	Isolation Voltage (Vrms MIN)	Package/Schematic	Primary Pins
LPB85661	1:2CT	35	20	.12	10	-	1500	T3S1/B SMT	2-6
LPB85662	1:1	45	30	.12	13	-	1500	T3S1/A SMT	2-6
LPB85663	1:1	40	30	.12	13	-	1500	T3T1/A THT	2-6
LPB85664	1:2CT	35	20	.12	10	-	1500	T3T1/B THT	2-6
LPB85779	1:4CT	150	-	.30	15	-	1500	T3T1/B THT	2-6
LPB85856	1:1.73CT	50	-	.10	12	.060-300	1500	T3T2/C THT	4-6
LPB85966	1:1	40	-	.10	10	.200-340	1500	T3T3/E THT	4-6
LPB85967	1:1	40	-	.10	10	.200-340	1500	T3S2/E SMT	4-6
LPB85968	1:2CT	19	-	.06	10	.250-500	1500	T3S2/C SMT	4-6
LPB85969	1:2CT	19	-	.06	10	.250-500	1500	T3T2/C THT	4-6
LPB88629	1:1	40	-	.10	5	-	3000 <sup>4</sup>	T3T3/A THT	1-5
LPB88630	1:2CT	19	-	.06	10	-	3000 <sup>4</sup>	T3T3/D THT	1-5

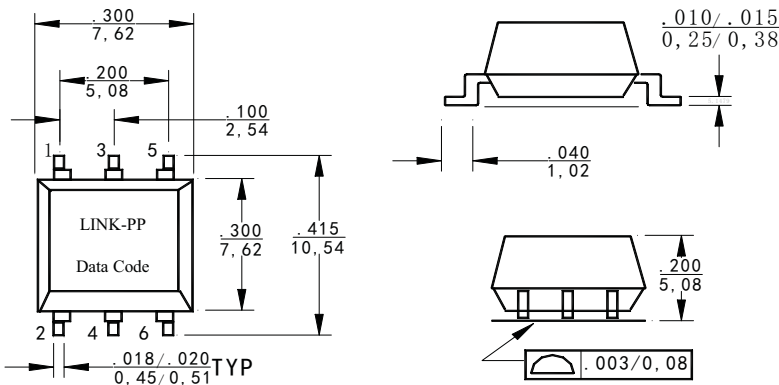
## Electrical Specifications @ 25 °C

Part Number	Turns Ratio (Pri:Sec ±5%)	OCL @ 25°C (mH MIN)	C <sub>w/w</sub> (pF MAX)	L <sub>L</sub> (μH MAX)	DCR Pri (Ω MAX)	DCR Sec (Ω MAX)	Isolation Voltage (Vrms MIN)	Package/Schematic	Primary Pins
LPB84934	1:1	1.20	25	0.50	0.70	0.70	1500	T3T3/F	1-2

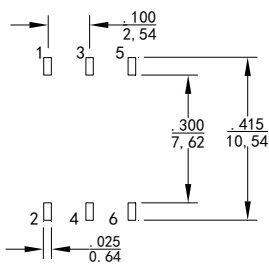
## Mechanicals

## Schematics

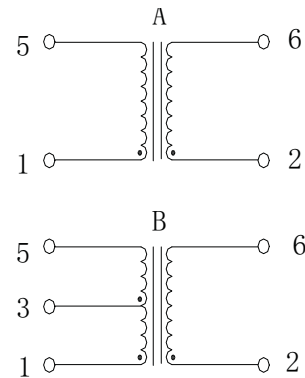
### T3S1



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified  
 all tolerances are  $\pm \frac{.010}{0.25}$



SUGGESTED PAD LAYOUT



# T3/DS3/E3/STS-1 Transformers

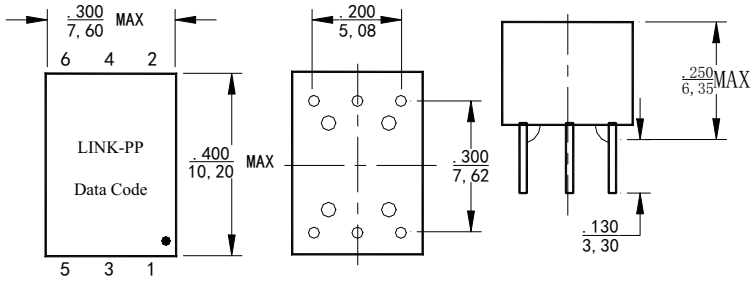
Link-PP Int'l Technology

※ Designed for T3, DS3 and STS-1 Interfaces  
 ※ Through hole and surface mount packages available

## Mechanicals

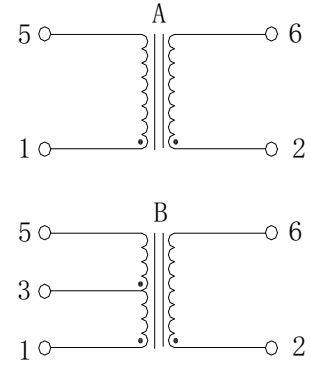
## Schematics

### T3T1

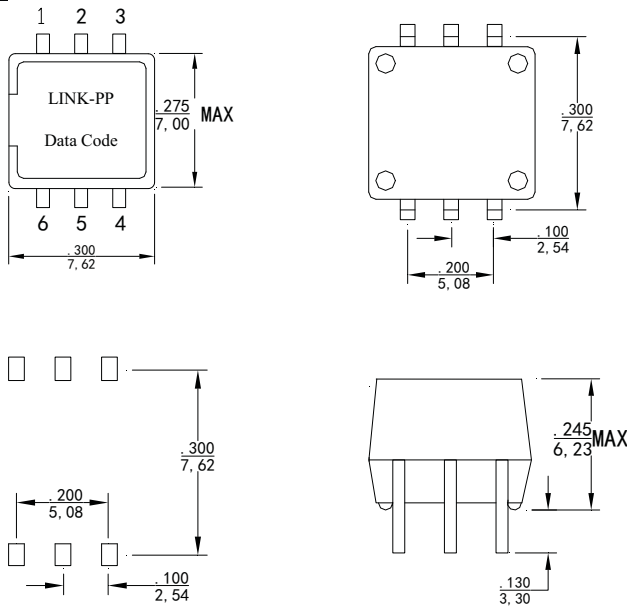


Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified all tolerances are  $\pm 0,25$   $\frac{.010}{.25}$

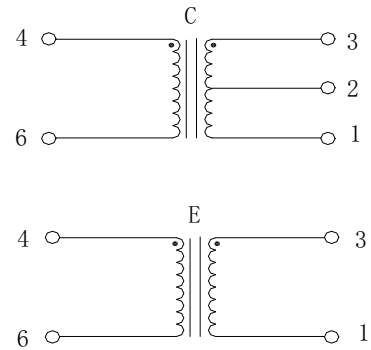


### T3T2



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

Unless otherwise specified all tolerances are  $\pm 0,25$   $\frac{.010}{.25}$

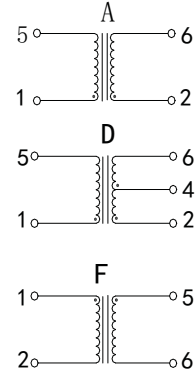
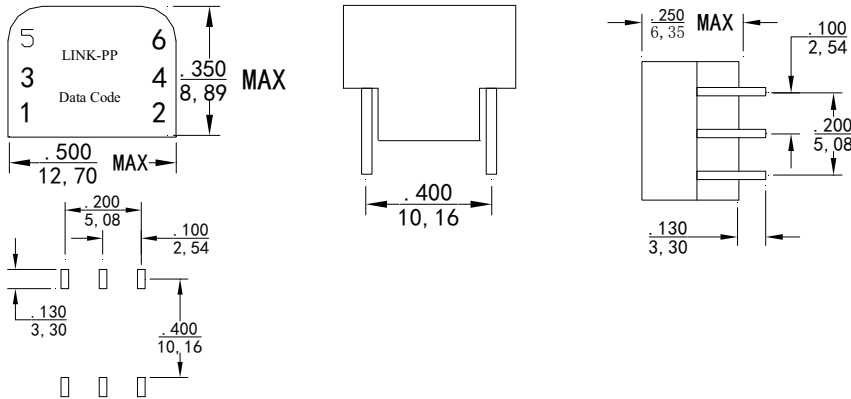


※ Designed for T3, DS3 and STS-1 Interfaces  
 ※ Through hole and surface mount packages available

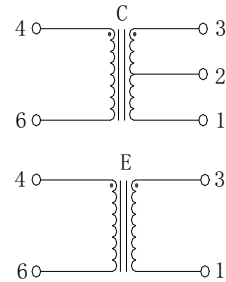
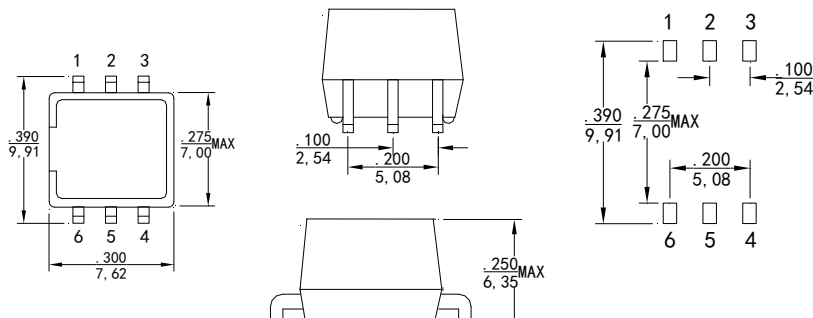
## Mechanicals

## Schematics

### T3T3



### T3S2



## Transformer Selection Guide

Chip Manufacturer	Surface Mount		Through Hole (1500Vrms)		Through hole (3000Vrms)	
	Transmit	Receive	Transmit	Receive	Transmit	Receive
<b>AT&amp;T/Lucent</b>						
T7296	LPB85967	--	LPB85966	--	LPB88629	--
<b>Exar</b>						
XR-T7296	LPB85967	--	LPB85966	--	LPB88629	--
<b>Silicon Systems</b>						
SSI 78P236,DS3	LPB85968	LPB85967	LPB85969	LPB85966	LPB88630	LPB88629
SSI 78P7200,DS3	LPB85968	LPB85967	LPB85969	LPB85966	LPB88630	LPB88629
SSI 78P7200,E3	LPB85968	LPB85968	LPB85969	LPB85969	LPB88630	LPB88630
SSI 78P2361,STS-1	LPB85968	LPB85967	LPB85969	LPB85966	LPB88630	LPB88629
SSI 78P2362,E3	LPB85968	LPB85967	LPB85969	LPB85966	LPB88630	LPB88629
<b>Tran switch</b>						
MRT TXC-02050,E3	LPB85968	LPB85967	LPB85969	LPB85966	LPB88630	LPB88629
ART 02020 DS3, STS-1	LPB85967	LPB85967	LPB85966	LPB85966	LPB88629	LPB88629

# ISDN U-INTERFACE TRANSFORMERS

Link-PP Int'l Technology

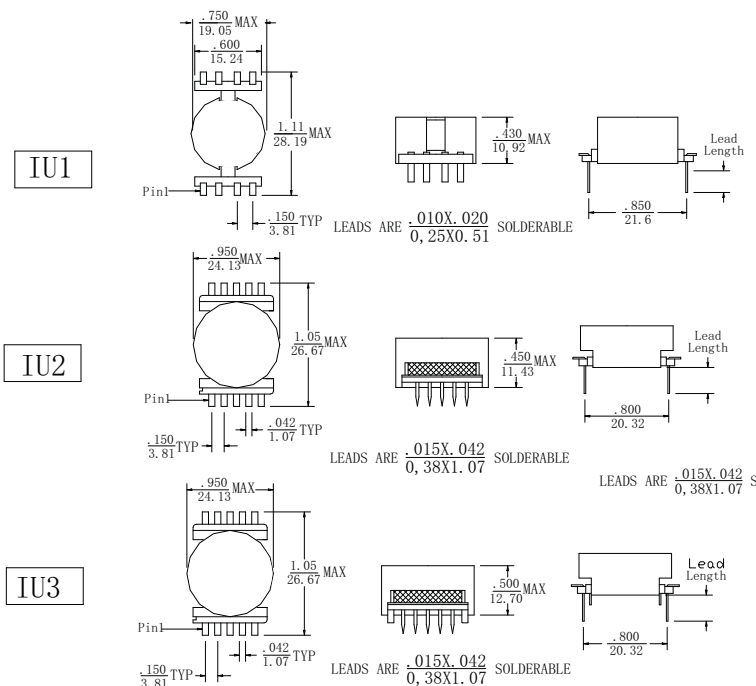
- ✳ For applications with 2B1Q and 4B3T Coding
- ✳ For ROHS part add suffix NL
- ✳ RoHS "NL" peak solder rating 235°C
- ✳ Transformer models with 2000 Vrms to 3000 Vrms minimum isolation



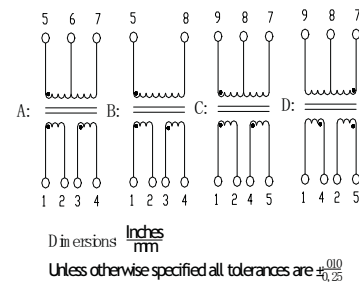
Electrical Specifications @ 25°C --- Operating Temperature 0°C to 70°C									
Isolation Voltage (Vrms MIN)	Part Number	Turns Ratio Line:Chip (±3%)	Line Side Pins	OCL Line side (mH)	DCR Line Side (Ω)	DCR Chip Side (Ω)	IDC (mA)	Lead length	Package/ Schematic
2000 Vrms	LPK85575	1.65:1	(1-4)	13.0-18.0	5.2±15%	3.0±15%	50	0.15±0.03(3,81±0,76)	IU1/A
	LPK85578	1.32:1	(1-4)	7.0-8.3	2.4MAX	2.7MAX	55	0.15±0.03(3,81±0,76)	IU1/B
	LPK85579	2.00:1	(1-5)	25.5-28.5	11.6 MAX	6.4 MAX	60	0.17±0.04(4,32±1,02)	IU2/C
	LPK85581	1.50:1	(4-2)	14.2-15.8	16.0 MAX	2.5 MAX	60	0.17±0.04(4,32±1,02)	IU2/D
	LPK85583	1.50:1	(4-2)	25.6-29.0	20.0 MAX	3.0 MAX	60	0.16±0.03(4,06±0,76)	IU2/D
	LPK85584	1.50:1	(1-5)	25.6-29.0	20.0 MAX	3.0 MAX	60	0.17±0.04(4,32±1,02)	IU2/C
2500 Vrms	LPK88628	1.25:1	(1-5)	26.5-29.5	12.0 MAX	7.0 MAX	80	0.16±0.03(4,06±0,76)	IU2/C
	LPK88631	1.50:1	(4-2)	25.6-29.0	20.0 MAX	3.0 MAX	60	0.13±0.03(3,30±0,76)	IU3/D
	LPK88681	1.50:1	(1-5)	25.6-28.4	20.0 MAX	3.0 MAX	60	0.13±0.03(3,30±0,76)	IU3/C
3000 Vrms	LPK88668	1.25:1	(1-5)	26.5-29.5	13.0 MAX	7.5 MAX	80	0.13±0.03(3,30±0,76)	IU3/C
	LPK88669	1.65:1	(1-4)	13.0-18.0	5.2±15%	3.0±15%	50	0.13±0.03(3,30±0,76)	IU1/A

NOTE: LPK85575,LPK88628,LPK88668,LPK88669 operating temperature range is -40°C to +85°C.

## Mechanicals



## Schematics



## Transformer Selection

Company	Chip	Coding	Transformer 2000 Vrms Isolation	Transformer High Isolation Models
Motorola	MC145472	2B1Q	LPK85579	----
Motorola	MC145572	2B1Q	LPK88628	LPK88668
National	TP 3410	2B1Q	LPK85583 LPK85584	LPK88631 LPK88681
Siemens	PEB 2091	2B1Q	LPK85575	LPK88669
Siemens	PEB 2090 PEB 20901	4B3T	LPK85578	----
Thomson	SD 5411	2B1Q	LPK85581	----

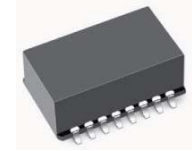
## Additional Specifications

Return Loss (2B1Q) (10 and 25KHz)	Longitudinal Balance (2 B1Q)		Longitudinal Balance (4 B3T)		Surge Voltage Resistibility (ALL)	
20 dB MIN	281 Hz to 40 KHz	55 dB MIN	5 KHz	20dB MIN	Metallic @ 800 V Peak	10/700 μ sec
----	Above 40 KHz	-20 dB/decade	20 KHz-150 KHz	40dB MIN	Long. @ 2400 V peak	10/560 μ sec
----	---	---	1MHz	36dB MIN	---	---

# ISDN S-Interface Transformers

Link-PP Int'l Technology

- ※Surface Mount, Dual
- ※2000 Vrms
- ※For ROHS part add suffix NL
- ※RoHS "NL" peak solder rating 235°C



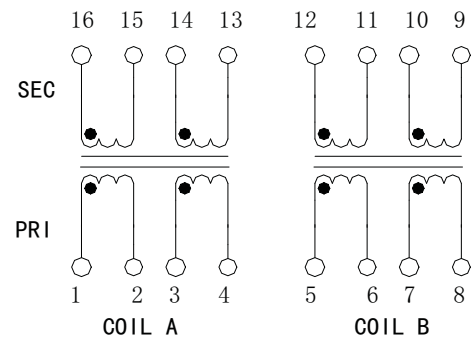
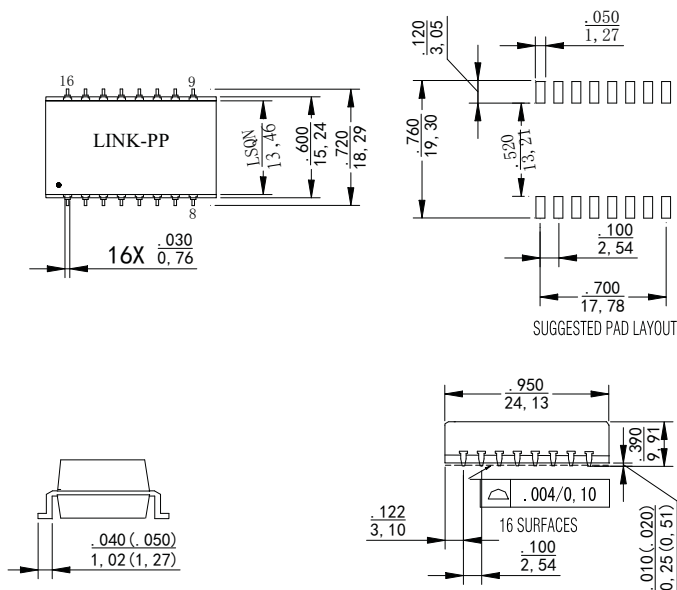
## Electrical Specifications @25°C --- Operating Temperature 0°C to 70°C

Part Number	Ratio <sup>A</sup> (±2%)		OCL Pri <sup>B</sup> (mH MIN)	L <sub>L</sub> Sec (μH MAX)		C <sub>ww</sub> (pF MAX)	CD Pri (pF MAX)		DCR Pri (Ω ±25%)		DCR Sec (Ω ±25%)		ΔIDC <sup>C</sup> (mA MAX)	Package/Schematic
	A	B	A&B	A	B	A&B	A	B	A	B	A	B		
LPK85792	1:1	1:2	22	5	15	100	42	80	2.4	2.3	2.4	4.0	1	IS1
LPK85793	1:1	1:1	22	5	5	100	42	42	2.4	2.4	2.4	2.4	1	IS1
LPK85795	1:2	1:2	22	15	15	100	80	80	2.5	2.5	4.3	4.3	1	IS1
LPK85798	1:2.5	1:2.5	22	8-40	8-40	100	110	110	2.5	2.5	5.8	5.8	1	IS1
LPK85799	1:2	1:2	22	11	11	100	180	180	2.4	2.4	4.4	4.4	1	IS1

### Mechanical

### Schematic

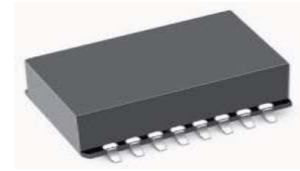
IS1



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

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

- ※Through Hole
- ※Single, 2000 Vrms
- ※For ROHS part add suffix NL
- ※RoHS "NL" peak solder rating 235°C



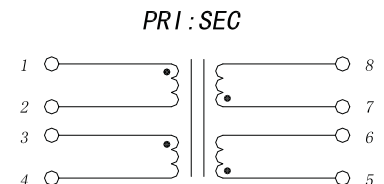
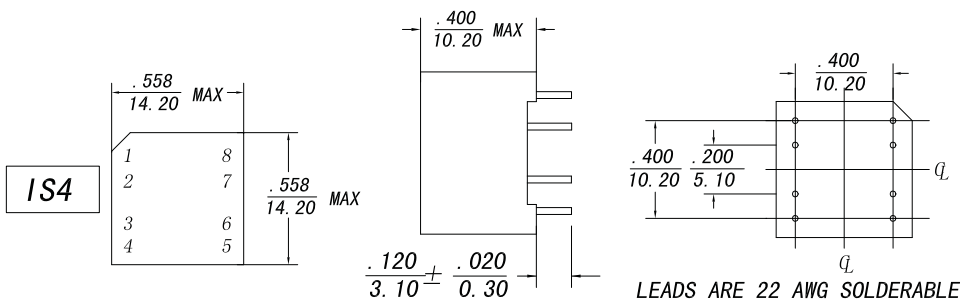
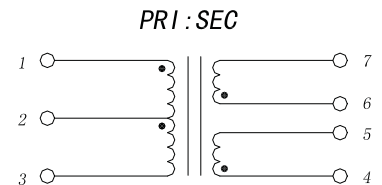
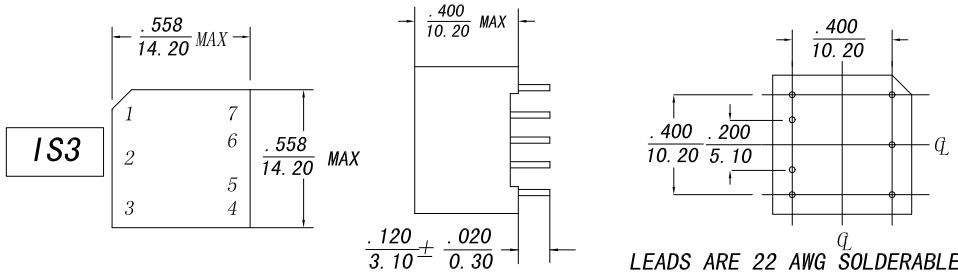
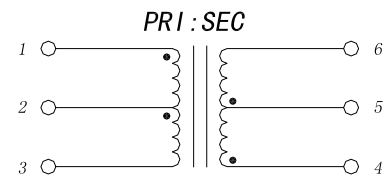
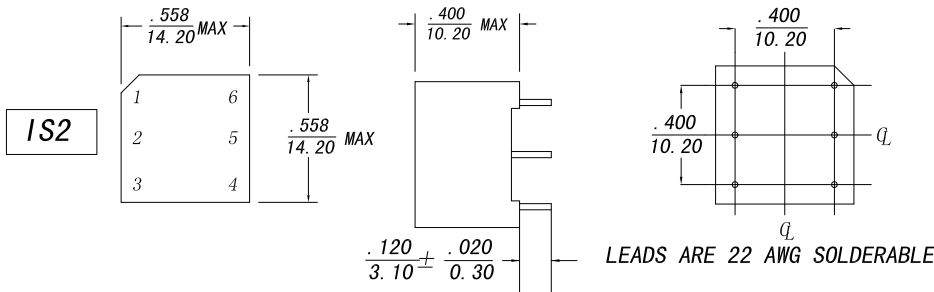
## Electrical Specifications @25°C --- Operating Temperature 0°C to 70°C

### 2KV ISOLATION, THROUGH HOLE, SINGLE TRANSFORMERS

Part Number	Ratio <sup>A</sup> (±2%)	OCL Pri (mH MIN)	L. Sec (μH MAX)	C <sub>ww</sub> (pF MAX)	CD Pri (pF MAX)	DCR Pri (Ω ±25%)	DCR Sec (Ω ±25%)	Isolation (Vrms MIN)	ΔIDC <sup>c</sup> (mA MAX)	Package/ Schematic
LPK84993	1CT: 1CT	22	5	100	42	2.4	2.4	2000	1	IS2
LPK84994	1CT: 1.8CS	22	15	100	160	2.5	4.2	2000	1	IS3
LPK84995	1CT: 2CT	22	15	100	80	2.5	4.3	2000	1	IS2
LPK84996	1CT: 2.SCS	22	30	100	150	2.5	5.8	2000	1	IS3
LPK84998	1CT: 2.SCS	22	15-40	100	110	2.5	5.8	2000	1	IS4
LPK84999	1CT: 2CT	22	11	100	180	2.4	4.4	2000	1	IS2

### Mechanicals

### Schematics



※Dual and Single Through Hole

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

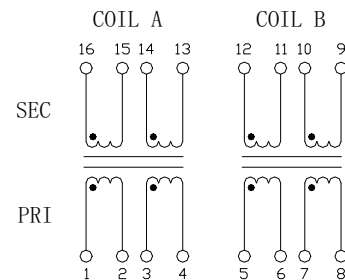
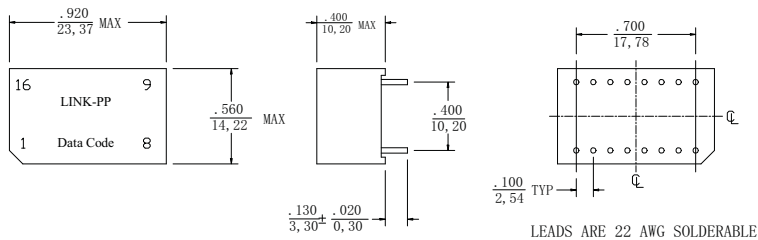
Part Number	COIL A				COIL B				Package/Schematic
	Ratio <sup>A</sup>	Equivalent Single	Primary Pins	Secondary Pins	Ratio <sup>A</sup>	Equivalent Single	Primary Pins	Secondary Pins	
LPK85492	1:1	LPK84993	1-4	16-13	1:2	LPK84995	5-8	12-9	IS5
LPK85493	1:1	LPK84993	1-4	16-13	1:1	LPK84993	5-8	12-9	IS5
LPK85495	1:2	LPK84995	1-4	16-13	1:2	LPK84995	5-8	12-9	IS5
LPK85498	1:2.5	LPK84998	1-4	16-13	1:2.5	LPK84998	5-8	12-9	IS5
LPK85499	1:2	LPK84999	1-4	16-13	1:2	LPK84999	5-8	12-9	IS5

NOTE: Refer to the equivalent single part number for electrical specifications.

### Mechanical

### Schematic

IS5



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

Unless otherwise specified all tolerances are  $\pm \begin{matrix} 0.10 \\ 0.25 \end{matrix}$

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

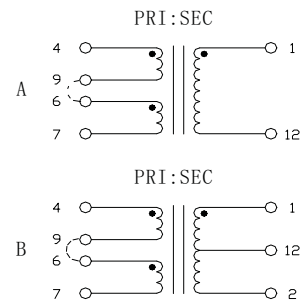
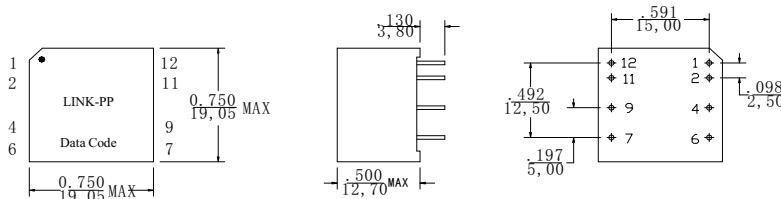
### 3KV REINFORCED ISOLATION, THROUGH HOLE, SINGLE TRANSFORMERS

Part Number	Ratio <sup>A</sup> $\pm 2\%$ (Pri:Sec)	OCL Pri (mH MIN)	L <sub>L</sub> Sec ( $\mu$ H MAX)	C <sub>WW</sub> (pF MAX)	C <sub>D</sub> (pF MAX)	DCR ( $\Omega \pm 25\%$ )		Unbalanced I <sub>dc</sub> <sup>c</sup> (mA MAX)	Package/ Schematic
						Primary	Secondary		
LPK88992	1CS: 2CT	22	15	60	80	3.0	5.5	5	IS6
LPK88993	1CS: 1	22	5	40	40	2.8	2.7	5	IS6
LPK88995	1CS: 2	22	15	60	80	3.0	5.5	5	IS6
LPK88998	1CS: 2.5	22	8-40	60	110	3.0	7.0	5	IS6
LPK88999	1CS: 2	22	11	50	110	2.8	5.5	5	IS6

### Mechanical

### Schematic

IS6



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

Unless otherwise specified all tolerances are  $\pm \begin{matrix} 0.10 \\ 0.25 \end{matrix}$



## ※ Transformer Selection and Guide

IC Manufacturer	IC Part number	Dual	Single		Dual	Single	
		Surface Mount	Through Hole, 2KVrms	Through Hole	Through Hole	Through Hole, 3KVrms	Through Hole
		Trans & Rec	Transmit	Receive	Trans&Rec	Transmit	Receive
AMD	Am79C30A/79C32A	LPK85799	LPK84999	LPK84999	LPK85499	LPK88999	LPK88999
AT&T/Lucent	T7250/7256/7259	LPK85798	LPK84998	LPK84998	LPK85498	LPK88998	LPK88998
	T7903	LPK85795	LPK84995	LPK84995	LPK85495	LPK88995	LPK88995
Mietec	MTC-2072	LPK85795	LPK84995	LPK84995	LPK85495	LPK88995	LPK88995
Zarlink(Mitel)	MT8930	LPK85795	LPK84995	LPK84995	LPK85495	LPK88995	LPK88995
Motorola	MC145474/145475	LPK85793	LPK84993	LPK84993	LPK85493	LPK88993	LPK88993
	MC145574	LPK85798	LPK84998	LPK84998	LPK85498	LPK88998	LPK88998
National	TP3420/3421	LPK85795	LPK84995	LPK84995	LPK85495	LPK88995	LPK88995
SGS Thomson	ST5420,ST5421	LPK85795	LPK84995	LPK84995	LPK85495	LPK88995	LPK88995
Siemens	PEB2080/2081/2085	LPK85795	LPK84995	LPK84995	LPK85495	LPK88995	LPK88995
	PSB2186						
Yamaha	PEB2084/2086	LPK85795	LPK84995	LPK84995	LPK85495	LPK88995	LPK88995
	7405B						

### Common Mode chokes for Telecom Application

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

Part Number	OCL Pri	L <sub>L</sub> Sec (μ H MAX)	C <sub>WW</sub> (pF MAX)	DCR (Ω MAX)	Isolation (Vrms MIN)	Package/Schematic
<b>LOW FREQUENCY</b>						
LPB85541	6.0mH MIN	35	25	1.40	1,500	CMC3/A(Through Hole)
LPB85542	1.0mH MIN	10	10	0.70	1,500	CMC3/A(Through Hole)
LPB85853	4.7mH ± 30%	1	60	1.20	500	CMC2/B(Surface Mount)
LPB85950	4.7mH ± 30%	1	50	1.00	500	CMC3/A(Through Hole)
LPB88613	4.7mH ± 30%	1	60	1.00	500	CMC1/B(Through Hole)

Note: Please see T1/E1 Datasheet for high frequency CMC.

## Mechanicals

### CMC1

### CMC3

### CMC2

### Schematics

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm \frac{0.10}{0.25}$

# 64 KBPS Interface Transformers

Link-PP Int'l Technology

- ※ Single and dual transformer modules for ITU G.703 codirectional applications
- ※ Provide 1500 Vrms minimum isolation
- ※ For RoHS part add suffix NL
- ※ RoHS NL peak solder rating 235°C

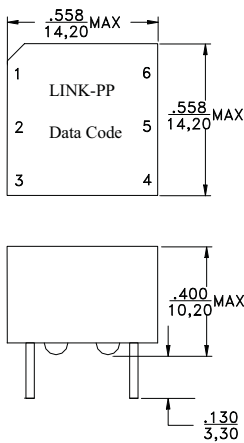


Electrical Specifications @ 25°C --- Operating Temperature 0°C to 70°C								
Part Number	Turns Ratio (±3%)	OCL (mH MIN)	L <sub>L</sub> (μH MAX)	C <sub>WV</sub> (pF MAX)	DCR Pri (Ω MAX)	DCR sec (Ω MAX)	Package/ Schematic	Matched To
LPS85535	1:2CT	20.0	5.0	130	2.65	5.0	A	EXAR XR6164 XR-T6165, XR-T6166
LPS85540	1CT:1	10.0	5.0	100	2.60	2.6	B	--
LPS87015	1:2CT&1:2CT	20.0	5.0	130	2.80	5.6	C	--

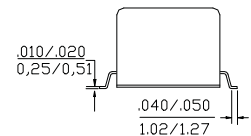
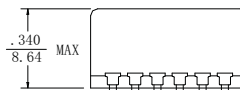
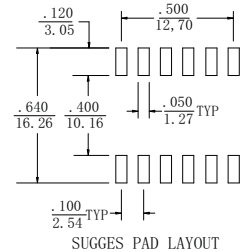
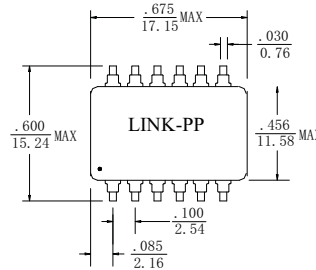
## Mechanicals

### LPS85535 LPS85540

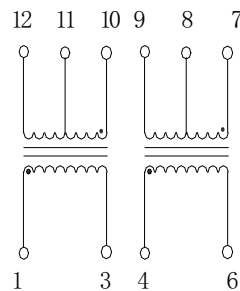
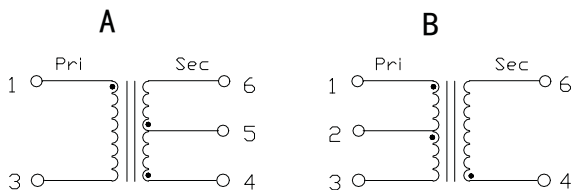
### LPS87015



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm \frac{.010}{0.25}$



## Schematics



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm \frac{.010}{0.25}$

The CCITT recommendations G.703 describe the physical and electrical characteristics of digital interfaces at 64 Kbps. LPS85535 listed above has been designed for the codirectional interface and matches the driver/receiver chips from EXAR

(XR6146, XR-T6165, and XR-T6166). The characteristics of these transformers allow the pulse to comply with the pulse masks in the 120 Ω systems.

# Transformers For Digital Audio Data Transmission

Link-PP Int'l Technology

※Designed for Cirrus Logic's CS8401,CS8402,CS8403 & CS8404 ICs

※High isolation voltage: 2kV MIN

※For RoHS part add suffix NL

※RoHS NL peak solder rating 235°C



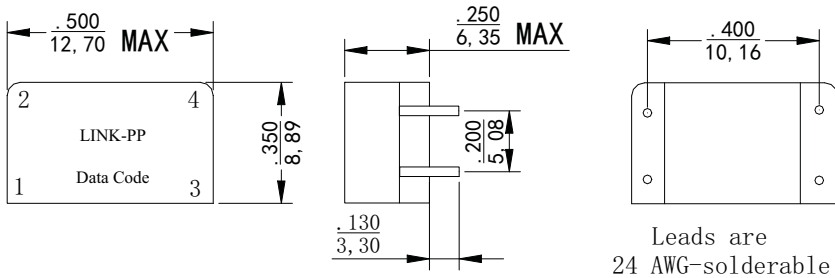
## Electrical Specifications @ 25°C --- Operating Temperature 0°C to 70°C

Part Number	Turns Ratio	Primary Inductance (mH±20%)	L <sub>L</sub> (μH MAX)	Rise Time (nsec) MAX	ET (V-μsec) MAX	Isolation (Vrms) MIN	Bandwidth (100 KHz -55 MHz) TYP	Return Loss (100 kHz-10MHz) MIN	Schematic
LPS85612	1:1(±5%)	2.5	.50	25	20	2000	3dB	20dB	THT
LPS85812	1:1(±5%)	2.5	.50	25	20	2000	3dB	20dB	SMT

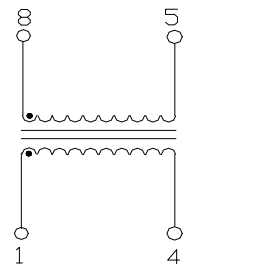
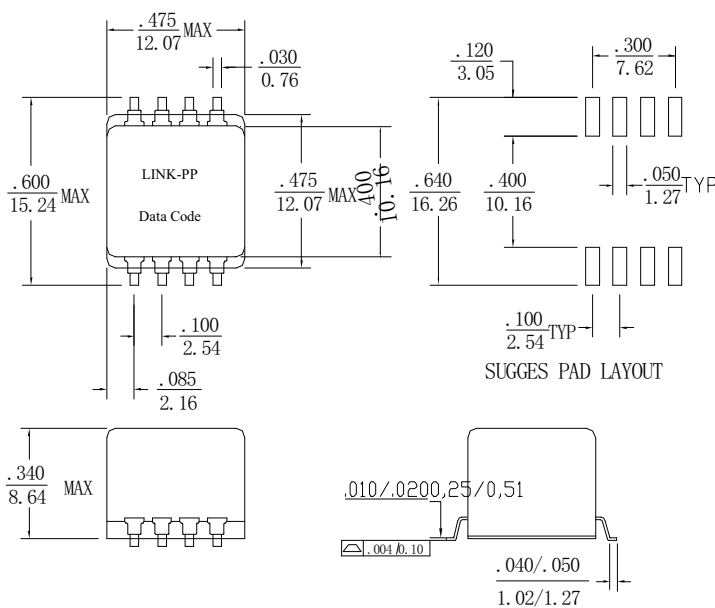
### Mechanicals

### Schematics

#### LPS85612



#### LPS85812



Dimensions: Inches  
 Unless otherwise specified all tolerances are ±0.25

# Audio Transformers Surface Mount Package

Link-PP Int'l Technology

- ✧ Typical applications: telephone sets, PBXs, DLC systems, central office switches
- ✧ Small SMT Footprint
- ✧ For RoHS part add suffix NL
- ✧ RoHS NL peak solder rating 235°C



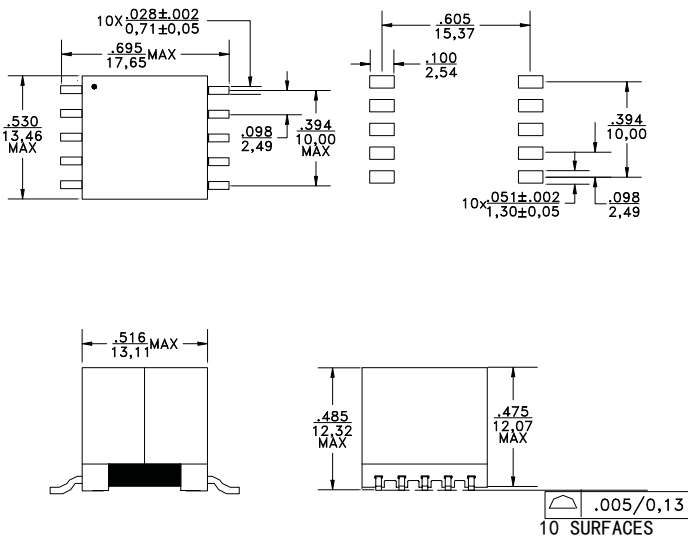
## Electrical Specifications @ 25°C

Part Number	Turns Ratio Pri:Sec (±2%)	DCR Pri Side (Ω MAX)	DCR Sec Side (Ω MAX)	Isolation Voltage (Vrms MIN)	Insertion Loss (dB MAX)				Return Loss (dB MIN)		
					200Hz	1KHz	20KHz	100KHz	200Hz	1KHz	10KHz
LPS86027	1:2	55	390	1500	1.2	1.0	1.0	1.7	18	18	18
LPS86003	1:1	55	70	1500	1.0	1.0	1.0	1.9	20	30	25

## Mechanical

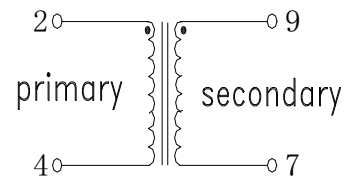
## Schematic

LPS86003, LPS86027



LPS86003: 600 Ω / 600 Ω

LPS86027: 600 Ω / 2400 Ω



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

Unless otherwise specified, all tolerances are  $\pm \frac{.010}{.025}$

# Transformers For Echelon® Neuron® ICS

Link-PP Int'l Technology

- ✳ Developed for Use with 3120™ & 3150™ Chips Produced by Motorola and Toshiba
- ✳ Provides 1500 Vrms isolation for 1 minute
- ✳ For RoHS part add suffix NL
- ✳ RoHS NL peak solder rating 235°C



## Electrical Specifications @ 25°C --- Operating Temperature -40°C to +85°C

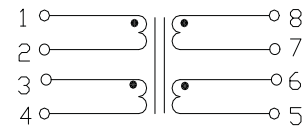
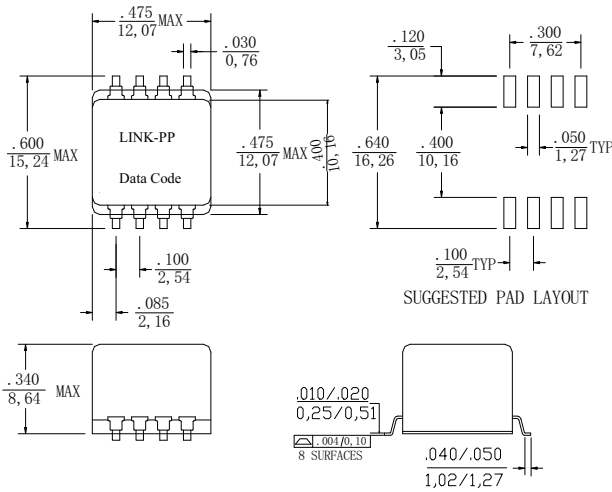
Part Number	Turns Ratio (±2%)	Primary Inductance (mH)	DCR Primary (Ω MAX)	DCR Secondary (Ω MAX)	Primary Pins (Network Side)	Package
LPS85848	ICS:ICS	3.5-6.5	1.0	1.0	8-5	Surface Mount
LPS85948	ICT:ICT	3.5-6.5	1.0	1.0	2-6	Through Hole

\*CS = center split, CT = center tap

### Mechanical

### Schematic

#### LPS85848



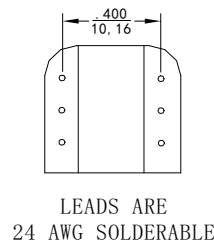
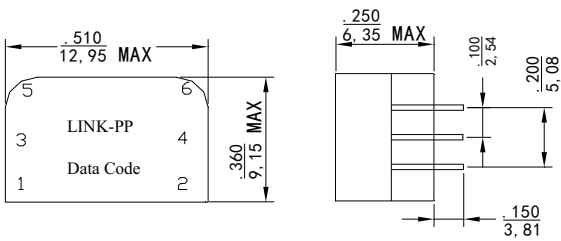
Dimensions: INCHES  
mm

Unless otherwise specified, all tolerances are ± .010  
0,25

### Mechanical

### Schematic

#### LPS85948



Dimensions: Inches  
mm  
Unless otherwise specified all tolerances are ± .010  
0,25

- ※For Use with Virata Chipsets
- ※Matched to Virata's Aluminum™ G.SHDSL chipset
- ※Designed to meet UL 1950 supplementary insulation requirements for working voltages up to 250 Vrms
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C



**Electrical Specifications @25°C --- Operating Temperature -40°C to +85°C**

Part Number	Mounting	Turns Ratio (Line - Chip) (±2%)	Inductance – Line Side @ 10kHz,100mV (9-6) with (8-7) shorted	Leakage Inductance @ 100 kHz,0.1 Vrms (2-4) with (9,8,7,6) shorted	DC Resistance	
					Line Side (9-8)=(7-6)	Chip Side (2-4)
LPA1078	SMT	1CT:2CS	4.0mH±10%	8μH MAX	≥3.8Ω	≤3.6Ω

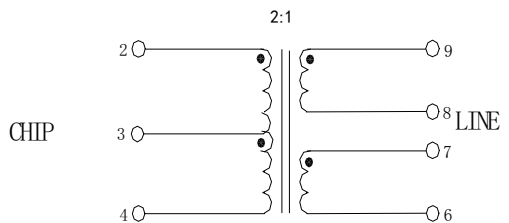
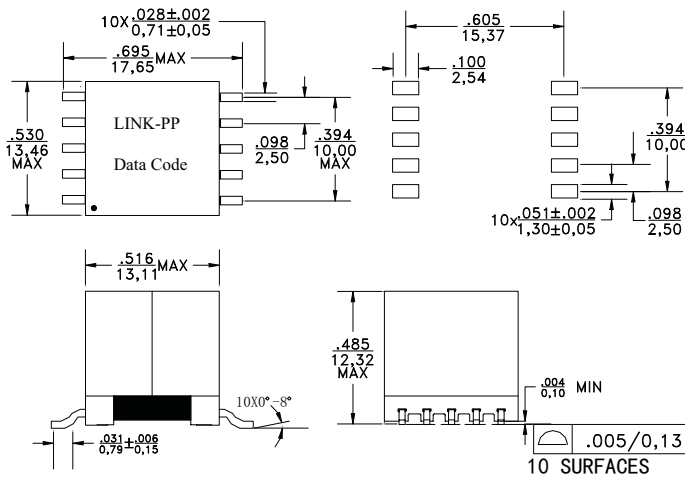
**Additional Electrical Specifications**

Part Number	Longitudinal Balance (300 kHz)	THD (@50 kHz,4 Vpp)	Return Loss (40kHz – 300kHz)	Isolation Voltage (Vrms)
LPA1078	≤-55dB	≤-55dB	≥16.5 dB	1500

**Mechanical**

**Schematic**

**LPA1078**

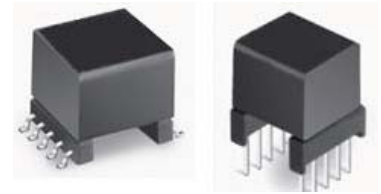


Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are  $\pm \frac{.010}{0.25}$

# ADSL Line LPAnformers

Link-PP Int'l Technology

- ✳ For use with Alcatel's DynaMiTe MTK-20140 ADSL chipset
- ✳ Excellent THD performance
- ✳ Small footprint
- ✳ For RoHS part add suffix NL
- ✳ RoHS NL peak solder rating 235°C



## Electrical Specifications @ 25°C ---- Operating Temperature -40°C to +85°C

Part Number	Application	Mounting	Turns Ratio (±2%) (1-4): (10-7)	OCL @10kHz,0.1V (1-4) with (2-3) shorted	Leakage Inductance @300kHz ,0.1 V (MAX) (1-4)with 2-3 7-10 and 8-9 shorted	Longitudinal Balance (from 30 KHz to 1.1 MHz)
LPA2068	CO	THT	2:1(Line to Chip)	410 μ H (±10%)	6.5 μ H MAX	-40 dB MIN
LPA2064	CPE	SMT	1:1(Line to Chip)	480 μ H (±10%)	10.0 μ H MAX	-40 dB MIN

## Additional Specifications

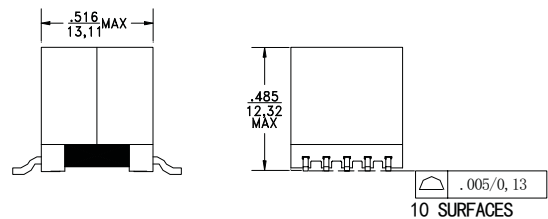
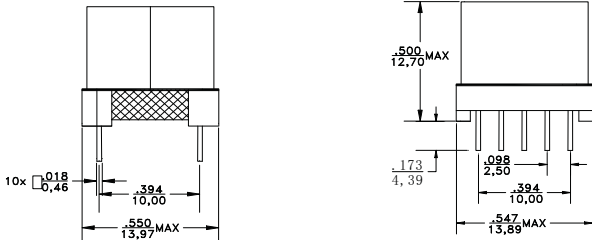
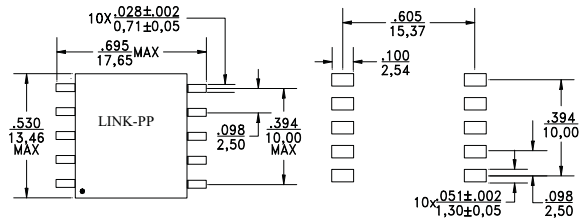
Part Number	THD (Linearity-Typical)	DC Resistance (1-4)(w/2-3 shorted)	Isolation Voltage (Vrms)	Insertion Loss <sup>1</sup> (dB @ 100KHz)
LPA2068	-72dB MIN @ 20KHz	0.6 Ω MAX	1500	<1.0dB
LPA2064	-72dB MIN @20KHz	1.0 Ω MAX	1500	<1.0dB

Frequency Response: ±0.5dB MAX, from 100 KHz to 1.1 MHz; -1.5dB MAX, from 30 KHz to 100 KHz.

## Mechanicals

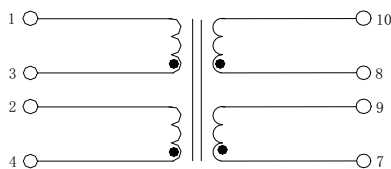
### LPA2068

### LPA2064



## Schematic

### LPA20XX



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

# ADSL Line LPAnformer

Link-PP Int'l Technology

- ※Design exceeds standards for ANSI and ETSI
- ※Excellent THD performance
- ※Isolation voltage: up to 2000 Vrms
- ※Matched to Alcatel Microelectronics MTK-20131 ADSL Chipset
- ※UL 1950 approved to supplementary insulation requirements
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C



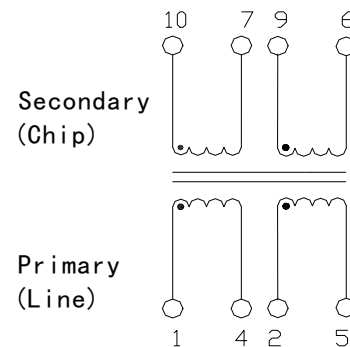
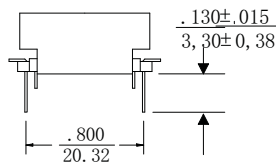
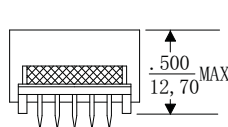
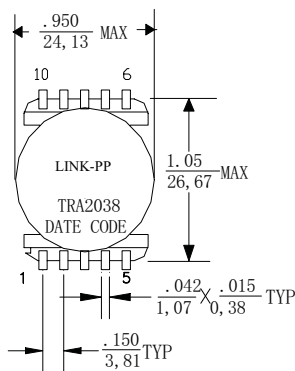
## Electrical Specifications @25°C — Operating Temperature -40°C to 85°C

Part Number	Turns Ratio Chip-Line (±2%)	OCL Primary (1-5)/2-4 shorted (μH ±5%)	Leakage Inductance (μH MAX)	Insertion Loss (MAX)	DC Resistance @ (1-4), (2-5) (Ω MAX)	DC Resistance @ (10-7), (9-6) (Ω MAX)	Insertion Voltage (Vrms)	THD (MAX)	Application	Mounting
LPA2038	1:1:1:1	440	15	3dB@40KHz -2MHz	0.16	1.20	2000	-70dB @ 40 KHz	CPE	THT

### Mechanical

### Schematic

#### LPA2038



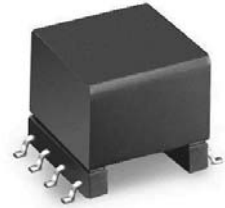
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified,

all tolerances are  $\pm \frac{.010}{0,25}$



- ✘ For Alcatel Dynamite MTK20850 CO chipset and Tripath Line Driver
- ✘ For RoHS part add suffix NL
- ✘ RoHS NL peak solder rating 235°C



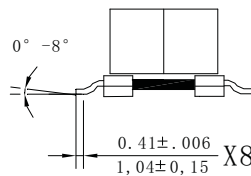
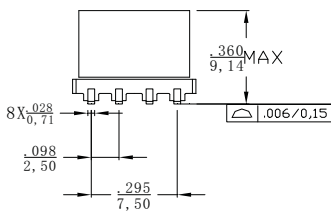
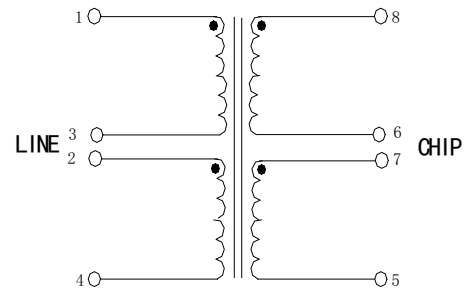
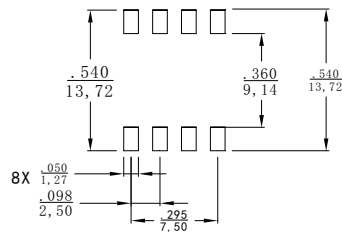
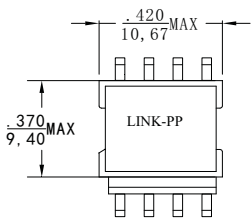
**Electrical Specifications @25°C — Operating Temperature -40°C to +85°C**

Part Number	Turns Ratio (Line:Chip)	OCL Primary (μH ±6%)	Leakage Inductance (μH MAX)	DCR Primary (1-4w/2-3tied) (Ω MAX)	DCR Secondary (8-5w/6-7tied) (Ω MAX)	Isolation Voltage (Vrms)	THD@20Khz 4.5Vp-p (dB MIN)
LPA2332	1.41:1	900	10.0	4.4	3.5	1500	-80

**Mechanical**

**Schematic**

**LPA2332**



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0.25}$

- ✳For Alcatel Dynamite MTK20850 CO chipset and Tripath Line Driver
- ✳Designed optimized for CO Applications
- ✳Compact footprint for high density board layouts
- ✳For RoHS part add suffix NL
- ✳RoHS NL peak solder rating 235°C



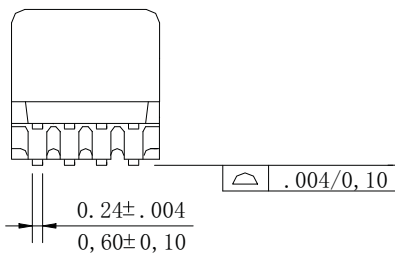
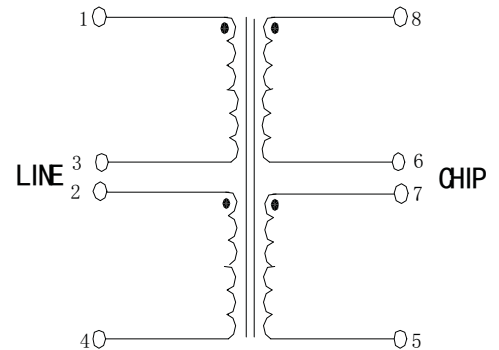
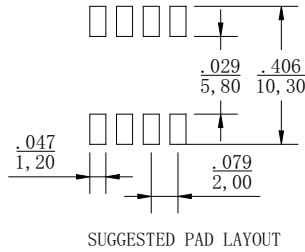
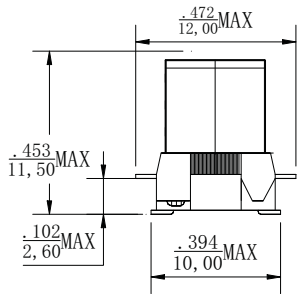
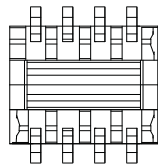
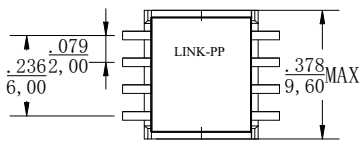
**Electrical Specifications @25°C --- Operating Temperature -40°C to +85°C**

Part Number	Turns Ratio Ratio (Line:Chip)	OCL Primary (μH ±6%)	Leakage Inductance (μH MAX)	DCR Primary (1-4 w/2-3tied) (Ω MAX)	DCR Secondary (8-5 w/6-7tied) (Ω MAX)	Isolation Voltage (Vrms)	THD@20Khz 4.5 Vp-p (dB MIN)
LPA2285	1.41:1	900	7.0	4.0	3.5	1500	-80

**Mechanical1**

**Schematic**

**LPA2285**



Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified, all tolerances are  $\pm \frac{.010}{0.25}$

# ADSL Line LPAnformer

Link-PP Int'l Technology

- ※For Use with STMicro's Dynamite Chipset  
MTK-20140, MTK-20150 and MTK-20450 CO/CPE chipsets
- ※For RoHS part add suffix NL
- ※RoHS NL peak solder rating 235°C



## Electrical Specifications @25°C --- Operating Temperature -40°C to +85°C

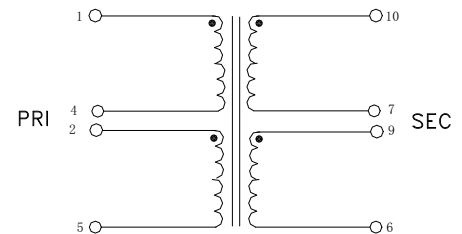
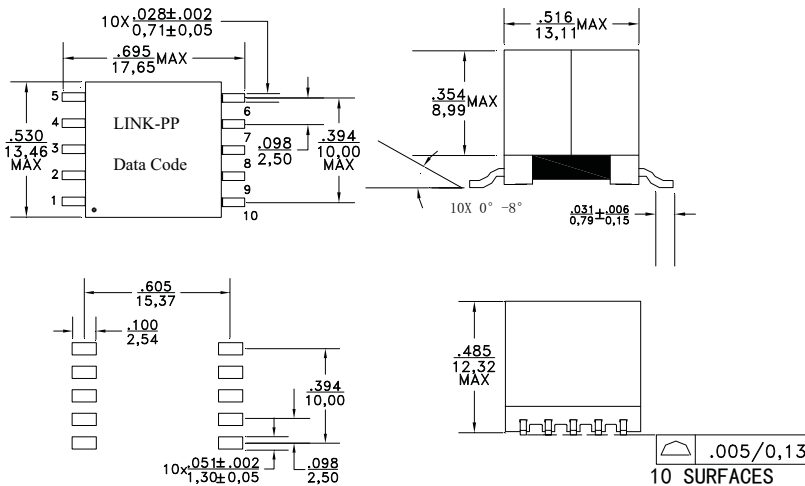
Part Number	Turns Ratio (Line:Chip)	OCL Primary ( $\mu\text{H} \pm 6\%$ )	Leakage Inductance ( $\mu\text{H}$ MAX)	DCR Primary (1-4&2-5) ( $\Omega$ MAX)	DCR Secondary (10-7&9-6) ( $\Omega$ MAX)	Isolation Voltage (Vrms)	THD@30kHz, 1.58 Vp-p (dB MIN)
LPA2232	2:1	409.5	6.5	0.6	0.2	1500	-78

Part Number	Application	Mounting	Turns Ratio ( $\pm 2\%$ )	OCL @ 10KHz, 0.1V (1-4) with (2-3) shorted	DC resistance		Leakage Inductance @ 100KHz, 0.1V (1-4) with (2-3, 7-10, 8-9) shorted	Longitudinal Balance
					1-4	10-7		
LPA2323	CPE	SMT	1CS:1CS	480 $\mu\text{H}$ ( $\pm 10\%$ )	2.0 $\Omega$	2.2 $\Omega$	5.3 $\mu\text{H}$ MAX	dB MAX
								-55

### Mechanical

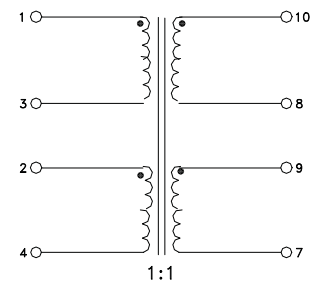
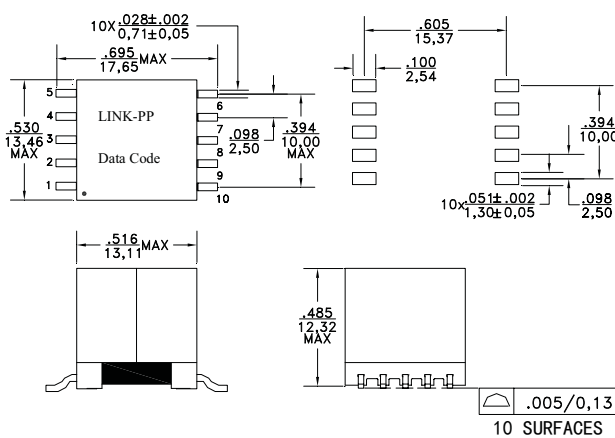
### Schematic

#### LPA2232



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

#### LPA2323



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