

网络变压器

LAN Transformers



特性

Characteristics

可提供百兆到万兆的全系列产品

Available for 100BASE-TX up to 10GBASE-T data rates

兼容IEEE802.3国际标准

Compliant with standards: IEEE 802.3u, IEEE 802.3ab, IEEE 802.3af, IEEE 802.3at, IEEE 802.3bt

两口/四口POE，最大功率达100瓦

2P/4P PoE/PoE+PoE++ Capable up to 100W max.

适用与-40度到+85度的工业以太网应用

Ideal for Industrial Ethernet applications with operating temperature of -40C to

1.50KV的高压隔离

High Isolation up to 1.50KV

应用

Application

工业以太网

Compatible to Industrial Ethernet

兼容绝大多数以太网芯片

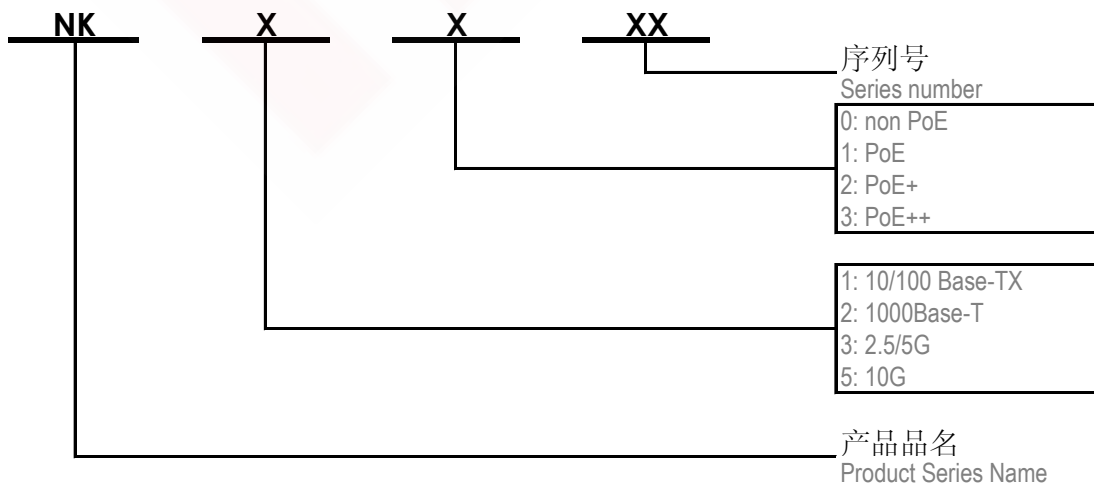
Compliant with most IC's for Ethernet applications

集线器，路由器，交换机，网络摄像头，物

Hubs, Routers, Switches, IP cameras, IoT applications

产品品名介绍

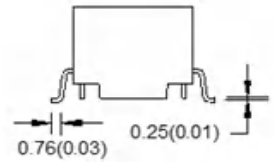
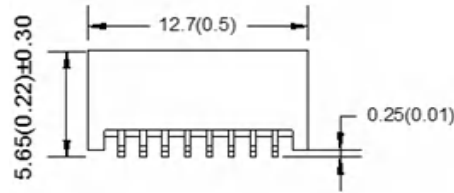
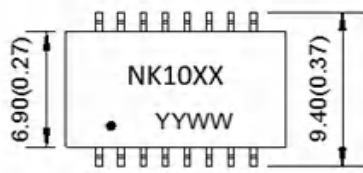
Product Number Structure





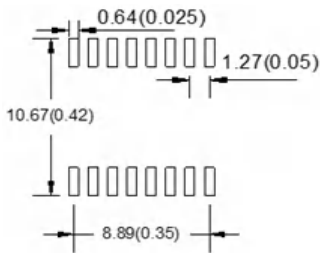
尺寸

Dimension (mm)



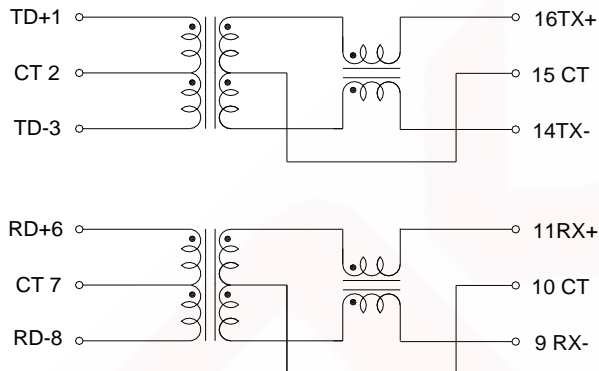
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

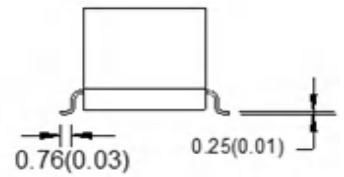
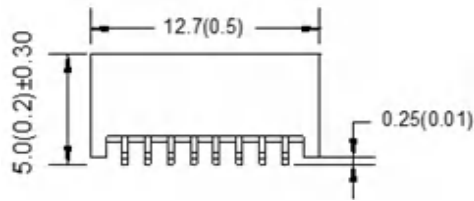
Electrical Specification@25°C						
Part No	Turn Ratio (±3.0%)		OCL @ 100kHz,0.1Vrms, 8mADC bias	Leakage primary @ 100kHz,0.1Vrms	Cww (Pri.:Sec.)	Operating Temperature
	TX	RX				
NK1010	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	35pF Max	0 to 70°C

Part No	Insertion loss (dB max) 0.1- 100MHz	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min) 1-100MHz	Isolation Voltage (Vrms min)
		1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz	60-100MHz		
NK1010	-1.00	-18.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1500



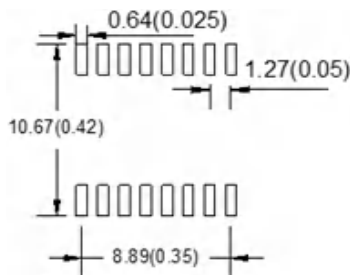
尺寸

Dimension (mm)



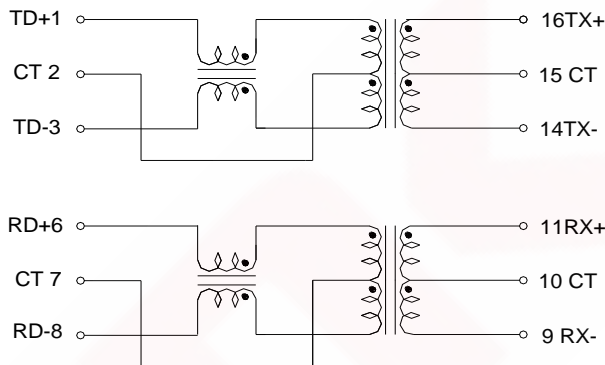
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

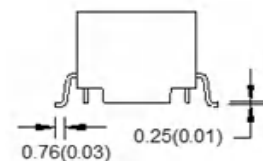
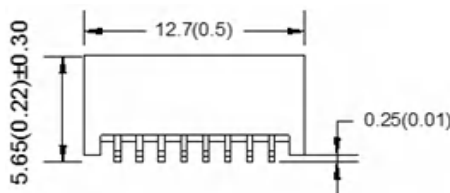
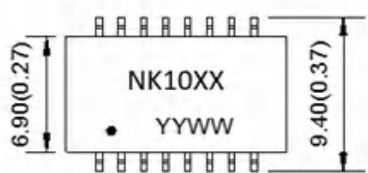
Electrical Specification@25°C						
Part No	Turn Ratio (±3.0%)		OCL @ 100kHz,0.1Vrms, 8mADC bias	Leakage primary @ 100kHz,0.1Vrms	Cww (Pri.:Sec.)	Operating Temperature
	TX	RX				
NK1011	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	35pF Max	-40 to +85°C

Part No	Insertion loss (dB max) 0.1-100MHz	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min) 1-100MHz	Isolation Voltage (Vrms min)
		1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz	60-100MHz		
NK1011	-1.00	-18.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1500



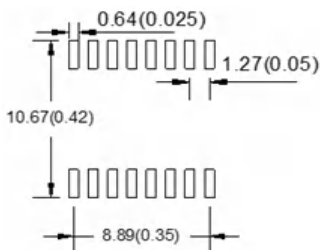
尺寸

Dimension (mm)



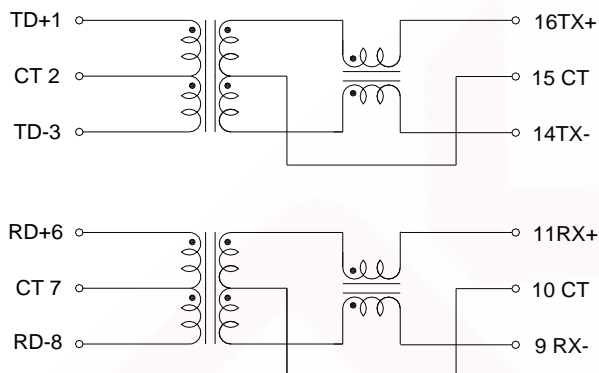
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

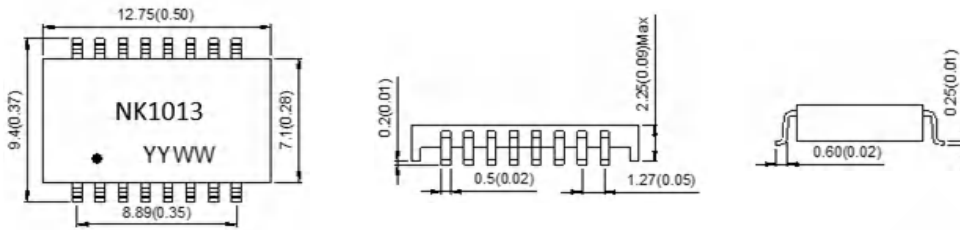
Electrical Specification@25°C						
Part No	Turn Ratio (±3.0%)		OCL @ 100kHz,0.1Vrms, 8mADC bias	Leakage primary @ 100kHz,0.1Vrms	Cww (Pri.:Sec.)	Operating Temperature
	TX	RX				
NK1012	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	35pF Max	-40 to +85°C

Part No	Insertion loss (dB max) 0.1-100MHz	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min) 1-100MHz	Isolation Voltage (Vrms min)
		1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz	60-100MHz		
NK1012	-1.00	-18.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1500



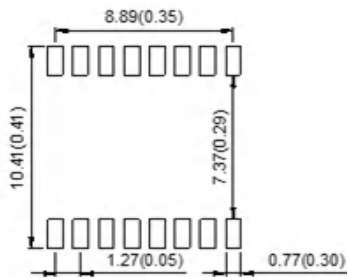
尺寸

Dimension (mm)



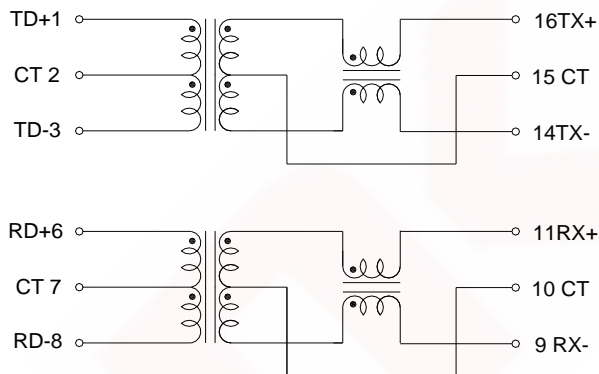
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

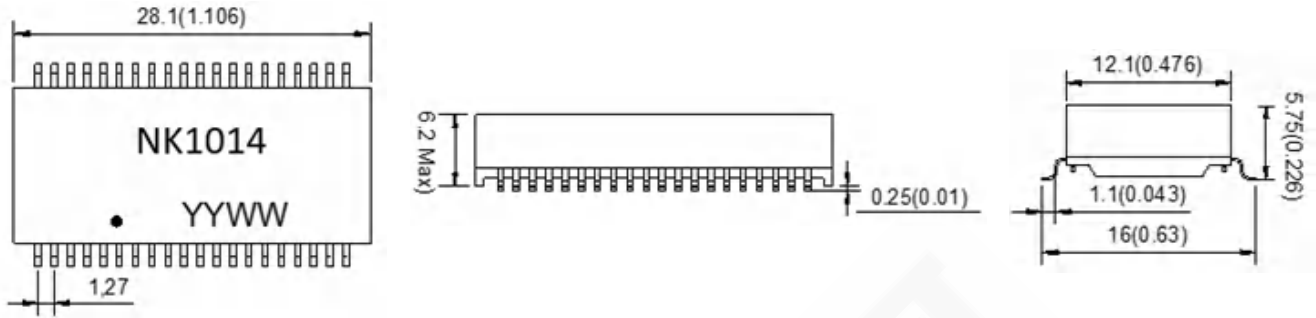
Electrical Specification@25°C						
Part No	Turn Ratio (±3.0%)		OCL @ 100kHz,0.1Vrms, 8mADC bias	Leakage primary @ 100kHz,0.1Vrms	Cww (Pri.:Sec.)	Operating Temperature
	TX	RX				
NK1013	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	35pF Max	0 to 70°C

Part No	Insertion loss (dB max) 0.1- 100MHz	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min) 1-100MHz	Isolation Voltage (Vrms min)
		1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz	60-100MHz		
NK1013	-1.00	-18.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1500



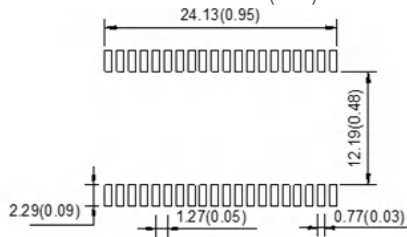
尺寸

Dimension (mm)



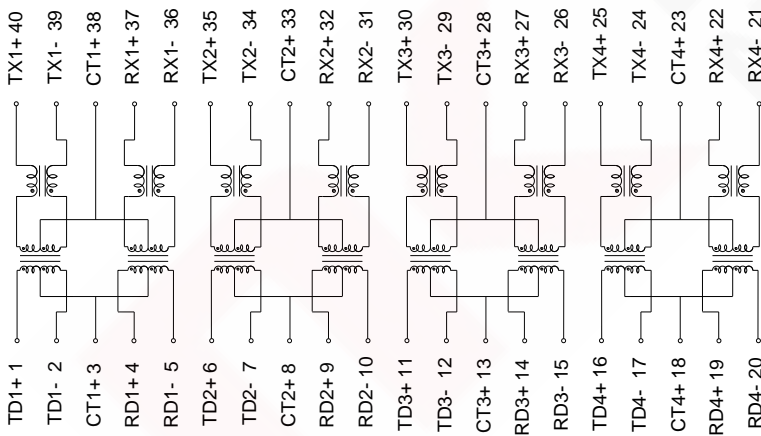
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

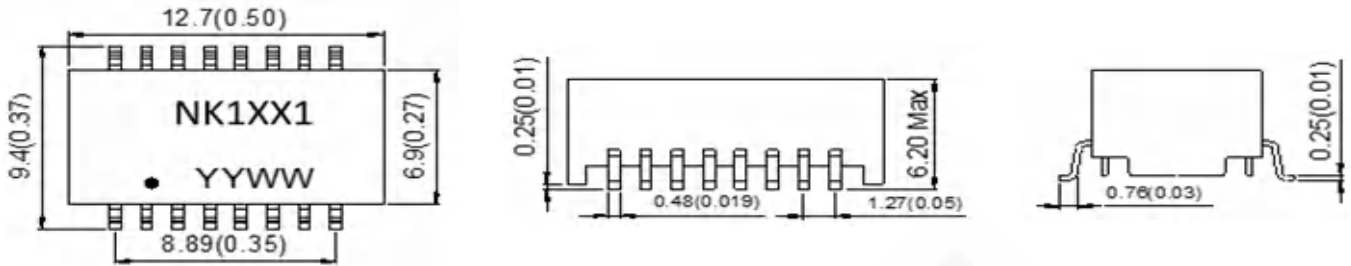
Electrical Specification@25°C						
Part No	Turn Ratio (±3.0%)		OCL @ 100kHz,0.1Vrms, 8mADC bias	Leakage primary @ 100kHz,0.1Vrms	Cww (Pri.:Sec.)	Operating Temperature
	TX	RX				
NK1014	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	35pF Max	-40 to +85°C

Part No	Insertion loss (dB max) 0.1- 100MHz	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min) 1-100MHz	Isolation Voltage (Vrms min)
		1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz	60-100MHz		
NK1014	-1.00	-18.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1500



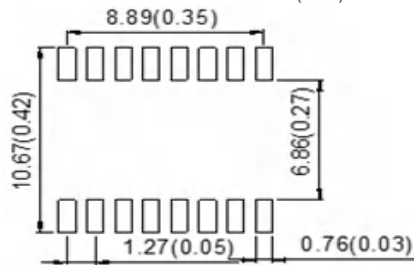
尺寸

Dimension (mm)



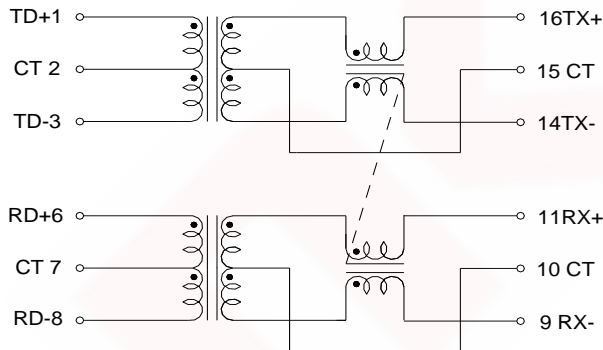
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

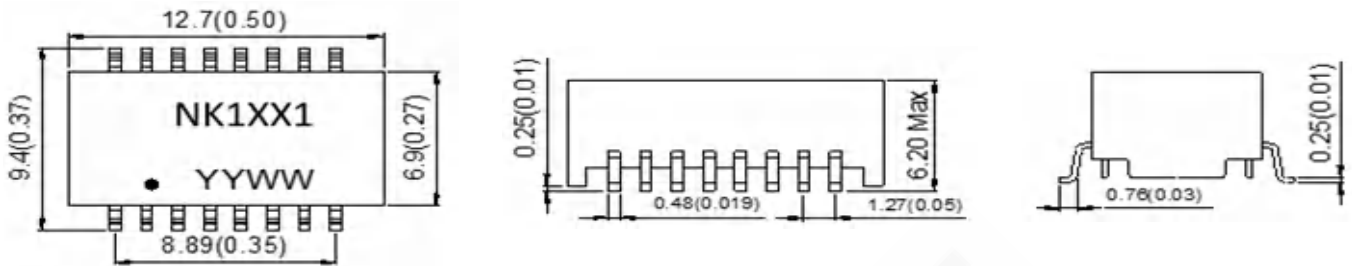
Electrical Specification@25°C Operating Temperature -40°C+85°C						
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms	Leakage primary @ 100KHz,0.1Vrms	Cww (Pri.:Sec.)	PoE Current
	TX	RX				
NK1101	1CT:1CT	1CT:1CT	350uH Min @8mA	0.50uH max	35pF Max	350mA

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK1101	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



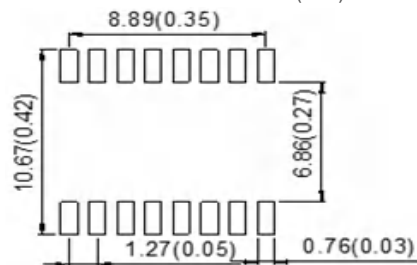
尺寸

Dimension (mm)



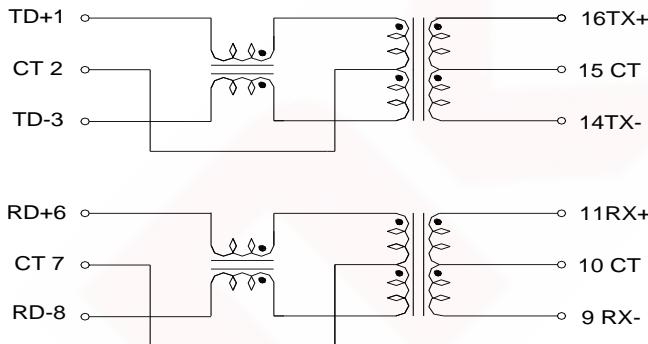
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

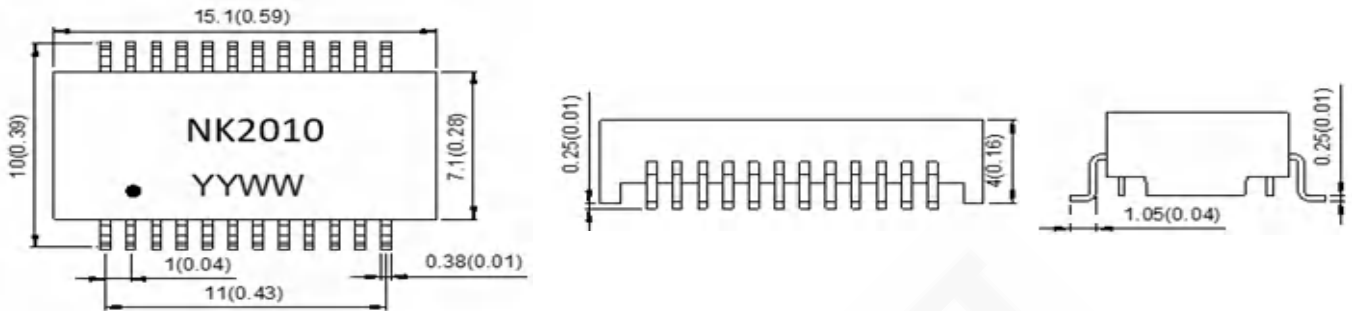
Electrical Specification@25°C Operating Temperature -40°C+85°C						
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms	Leakage primary @ 100KHz,0.1Vrms	Cww (Pri.:Sec.)	PoE Current
	TX	RX				
NK1201	1CT:1CT	1CT:1CT	350uH Min @15mA	0.5uH max	35pF Max	720mA

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK1201	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



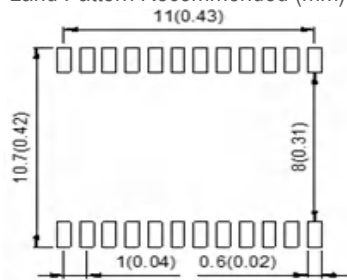
尺寸

Dimension (mm)



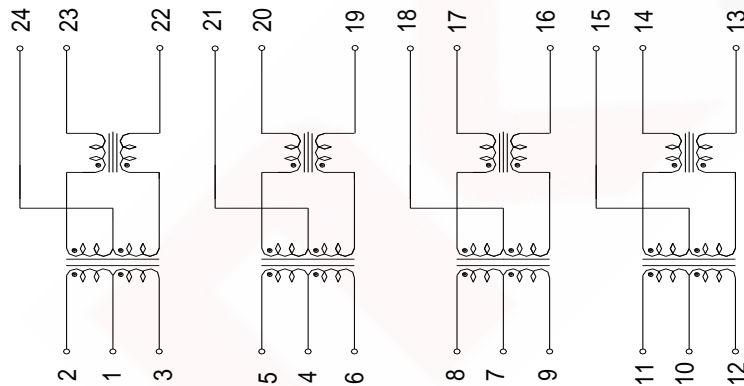
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

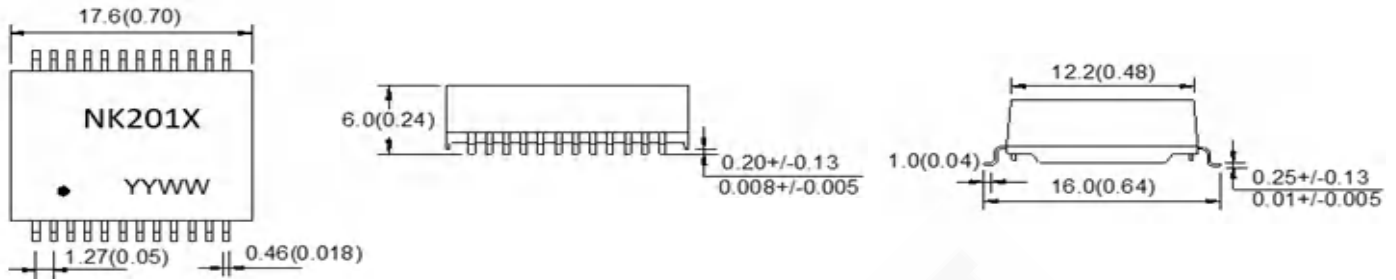
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms, 8mADC bias	Leakage primary @ 100KHz,0.1Vrms	Number of ports	Operating Temperature
	TX	RX				
NK2010	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	1.00	-40 to +85°C

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK2010	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



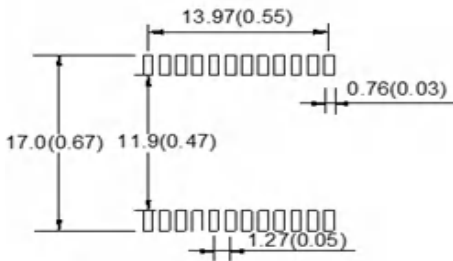
尺寸

Dimension (mm)



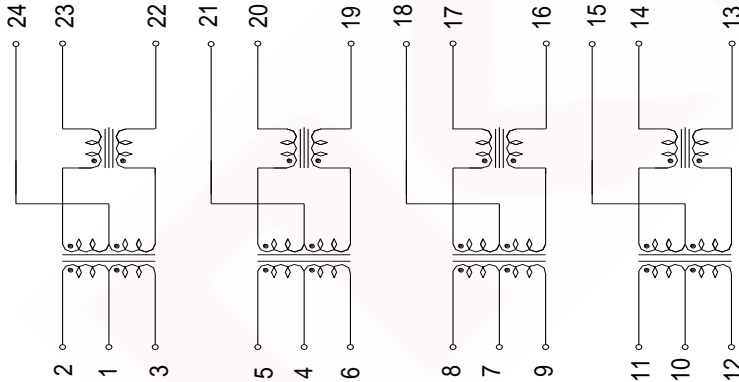
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

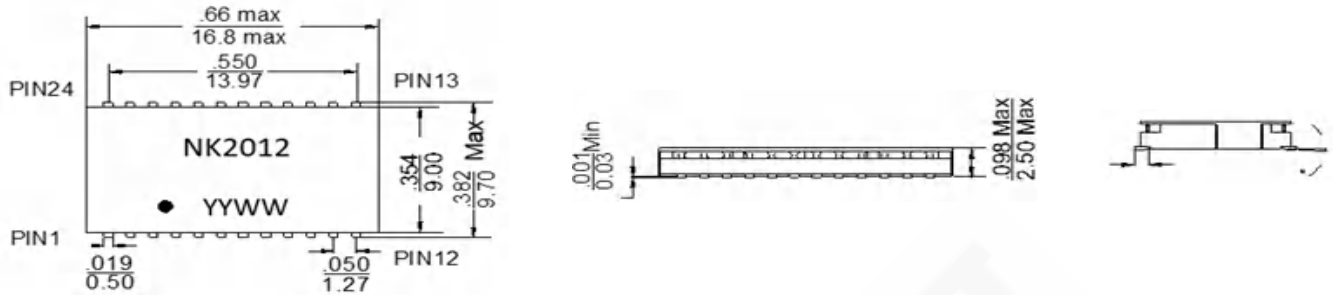
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms, 8mADC bias	Leakage primary @ 100KHz,0.1Vrms	Number of ports	Operating Temperature
	TX	RX				
NK2011	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	1.00	-40 to +85°C

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK2011	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



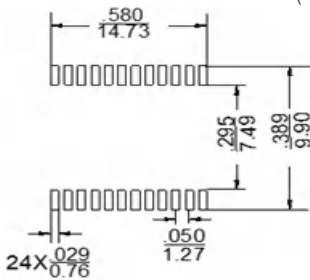
尺寸

Dimension (mm)



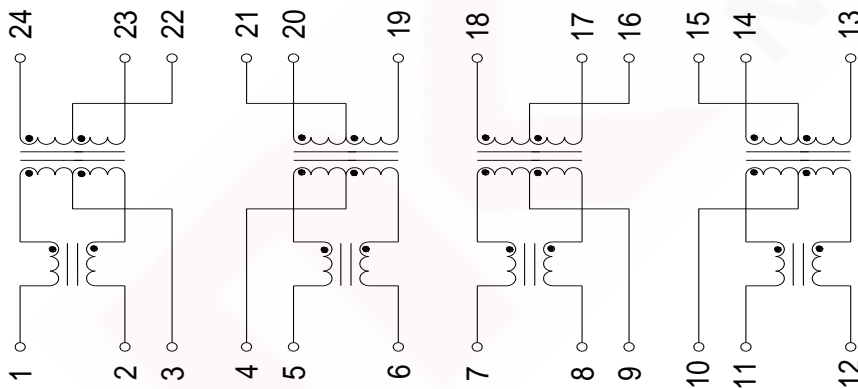
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

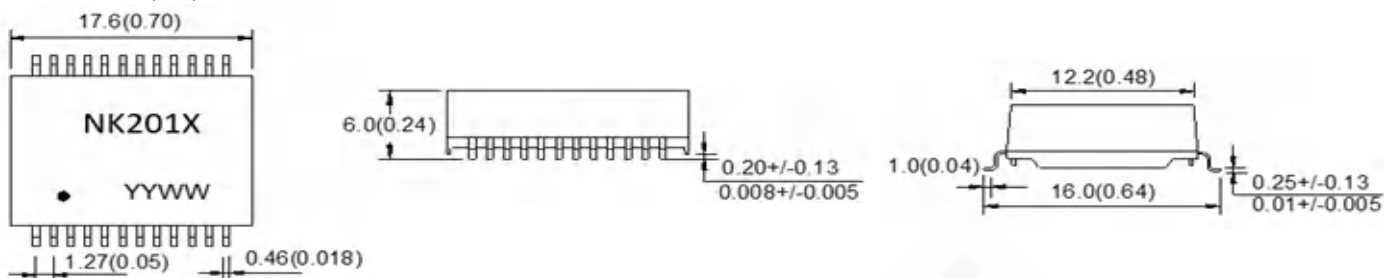
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms, 8mADC bias	Leakage primary @ 100KHz,0.1Vrms	Number of ports	Operating Temperature
	TX	RX				
NK2012	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	1.00	0 to 70°C

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK2012	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



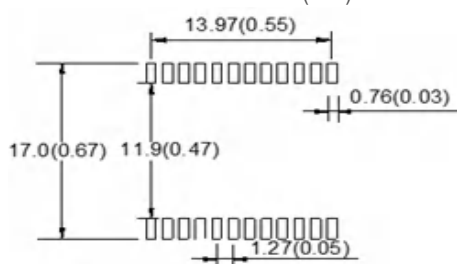
尺寸

Dimension (mm)



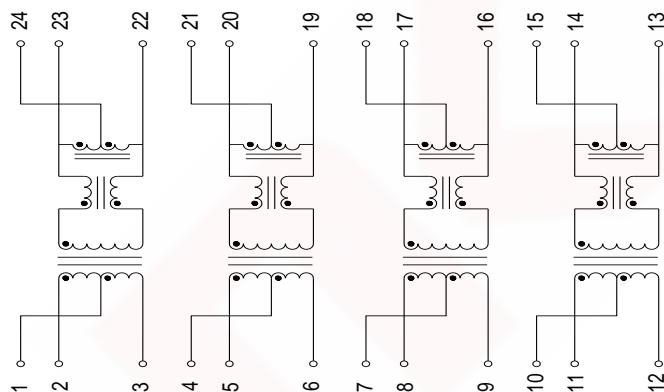
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

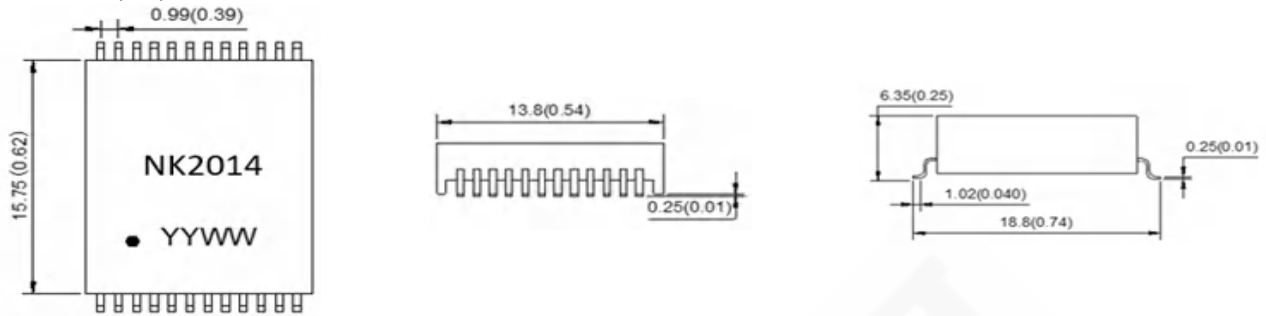
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms, 8mADC bias	Leakage primary @ 100KHz,0.1Vrms	Number of ports	Operating Temperature
	TX	RX				
NK2013	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	1.00	-40 to +85°C

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK2013	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



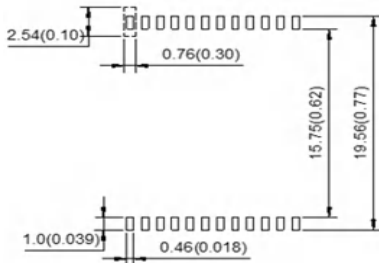
尺寸

Dimension (mm)



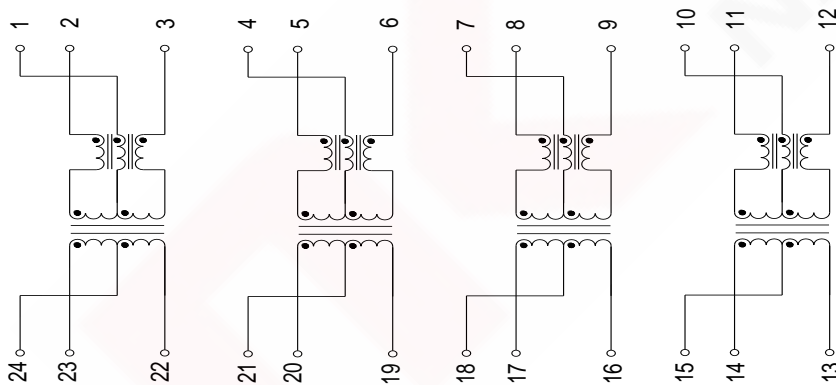
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

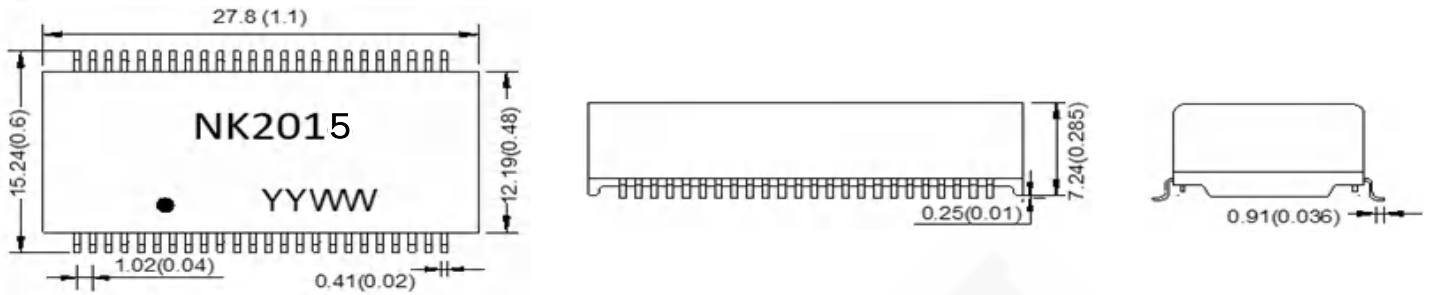
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms, 8mADC bias	Leakage primary @ 100KHz,0.1Vrms	Number of ports	Operating Temperature
	TX	RX				
NK2014	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	1.00	-40 to +85°C

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK2014	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



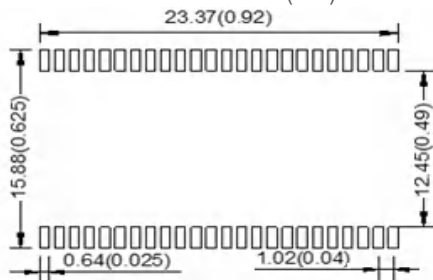
尺寸

Dimension (mm)



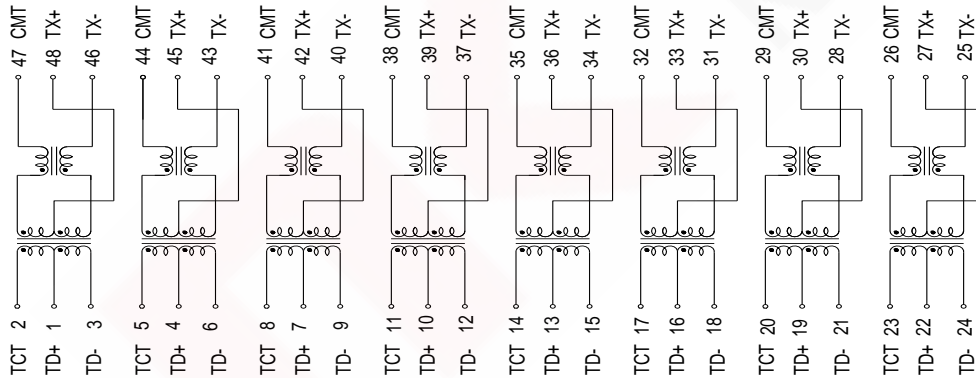
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

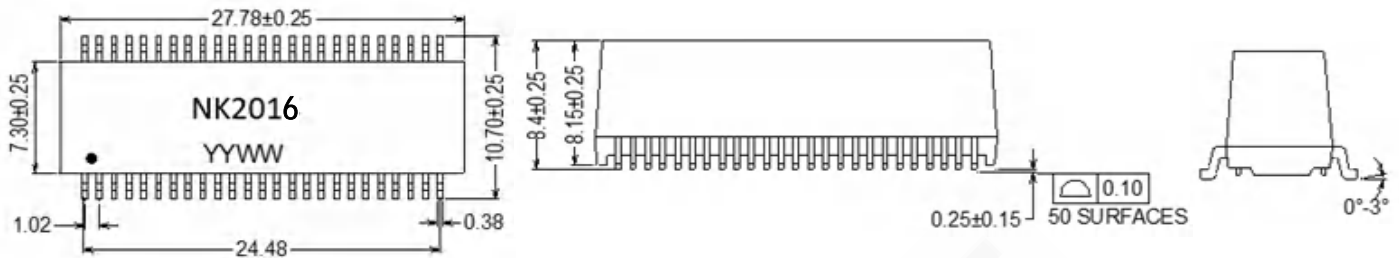
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms, 8mADC bias	Leakage primary @ 100KHz,0.1Vrms	Number of ports	Operating Temperature
	TX	RX				
NK2015	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	2.00	-40 to +85°C

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK2015	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



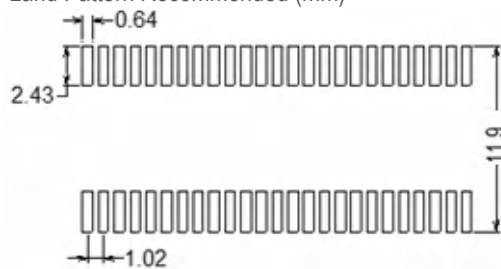
尺寸

Dimension (mm)



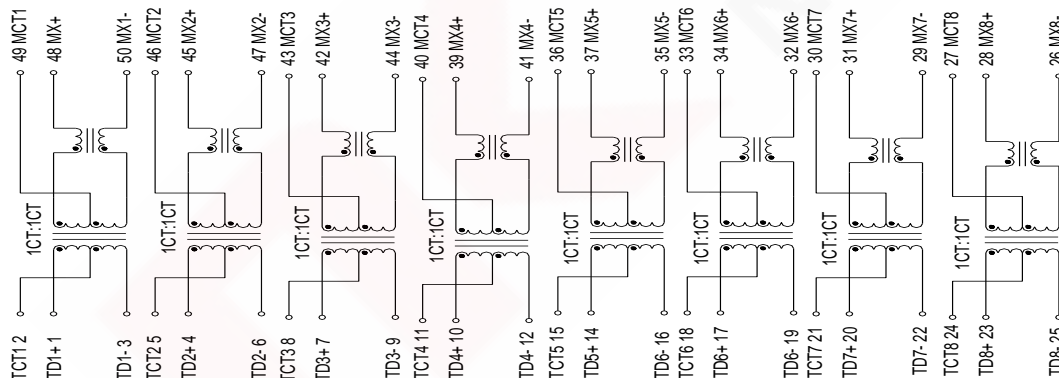
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

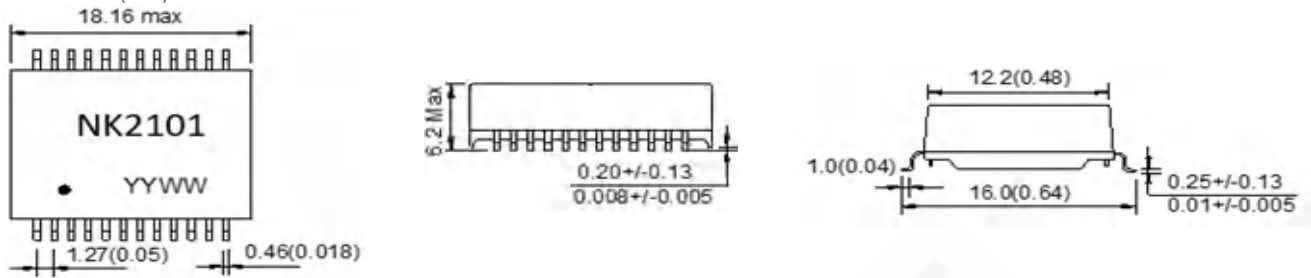
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms, 8mADC bias	Leakage primary @ 100KHz,0.1Vrms	Number of ports	Operating Temperature
	TX	RX				
NK2016	1CT:1CT	1CT:1CT	350uH Min	0.50uH max	2.00	-40 to +85°C

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK2016	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



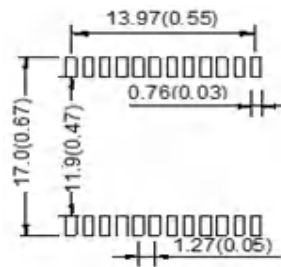
尺寸

Dimension (mm)



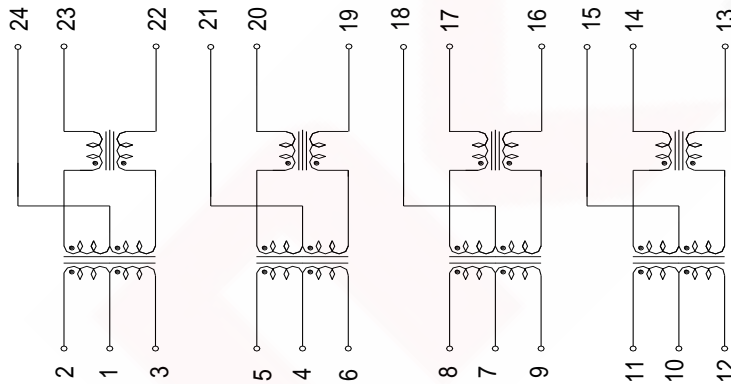
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

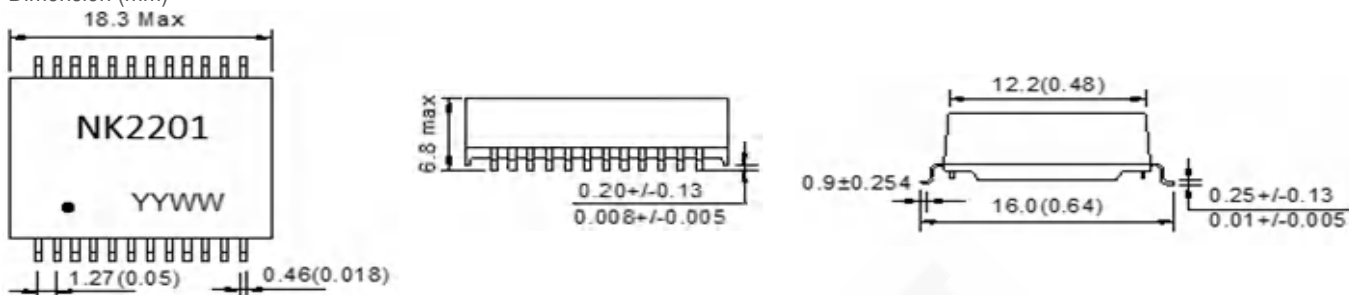
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL @ 100KHz,0.10Vrms	Leakage primary @ 100KHz,0.1Vrms	Cww (Pri.:Sec.)	PoE Current (mA)
	TX	RX				
NK2101	1CT:1CT	1CT:1CT	350uH Min @8mADC	0.5uH max	35pF Max	350

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK2101	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



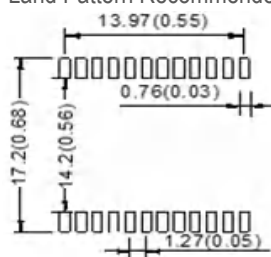
尺寸

Dimension (mm)



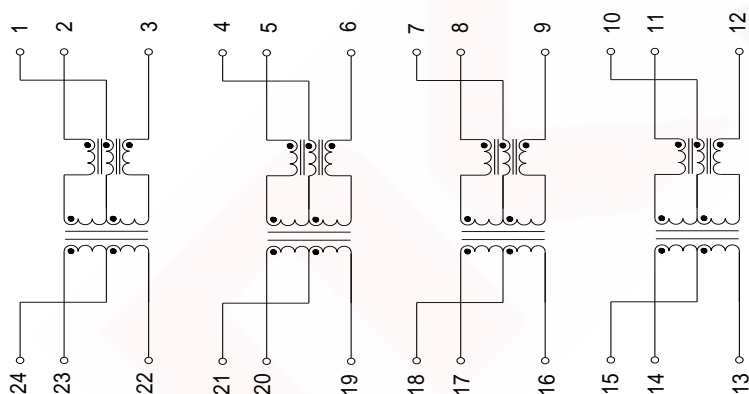
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

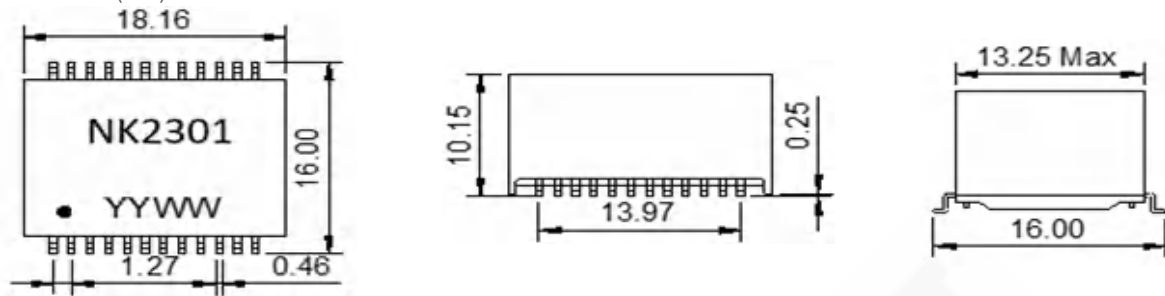
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL @ 100KHz,0.10Vrms	Leakage primary @ 100KHz,0.1Vrms	Cww (Pri.:Sec.)	PoE Current (mA)
	TX	RX				
NK2201	1CT:1CT	1CT:1CT	350uH Min @24mADC	0.50uH max	35pF Max	720

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		0.1-100MHz	1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz		
NK2201	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



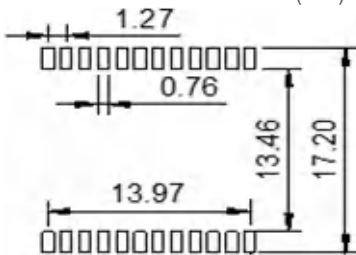
尺寸

Dimension (mm)



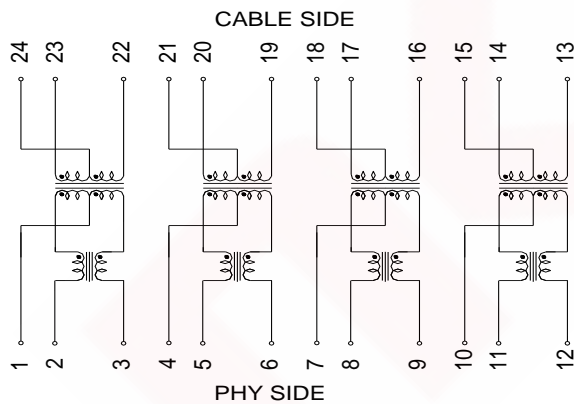
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

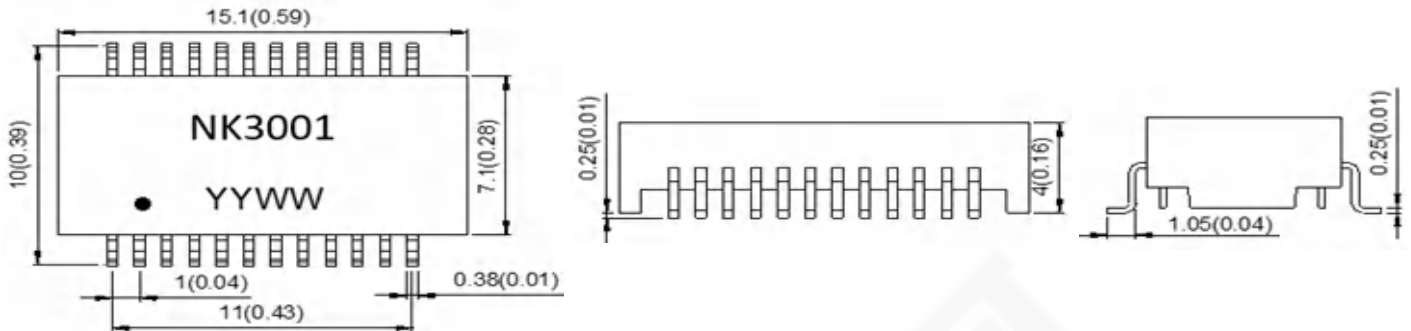
Electrical Specification@25°C						
Part No	Trun Ratio (±3%)		OCL @ 100KHz,0.10Vrms	Leakage primary @ 100KHz,0.1Vrms	Cww (Pri.:Sec.)	PoE Current (mA)
	TX	RX				
NK2301	1CT:1CT	1CT:1CT	350uH Min @35mADC	0.50uH max	35pF Max	1,200

Part No	Insertion loss (dB max)	Return loss(dB min) MHz				CMRR (dB min)		Crosstalk (dB min)	Isolation Voltage (Vrms min)
		1-30MHz	30-60MHz	60-80MHz	80-100MHz	1-60MHz	60-100MHz		
NK2301	-1.00	-16.00	-13.50	-12.00	-10.00	-35.00	-30.00	-33.00	1,500



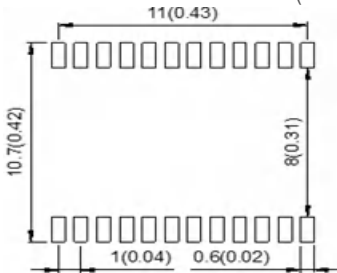
尺寸

Dimension (mm)



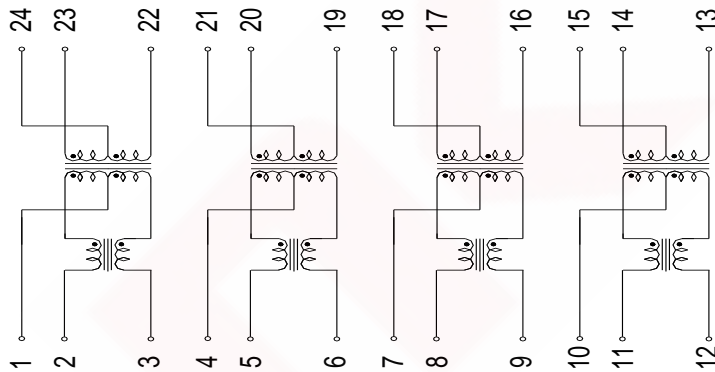
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

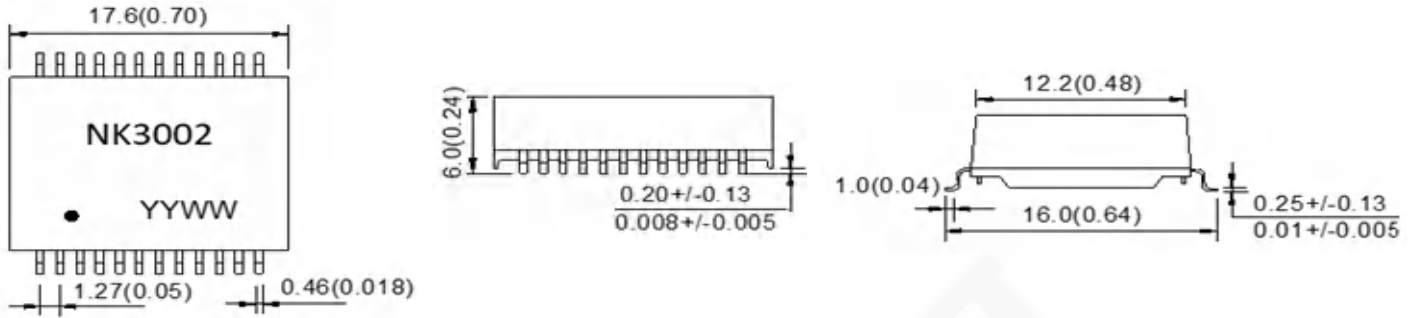
Electrical Specification@25°C					
Part No	Trun Ratio (±3%)		OCL @ 100KHz,0.1Vrms	Crosstalk (dB min) 1≤f≤250MHz	Operating Temperature
	TX	RX			
NK3001	1CT:1CT	1CT:1CT	180uH Min	-(43.1-20log10(f/100))	-40 to +85°C

Part No	Insertion loss (dB max)		Return loss (dB min)		CMRR (dB min)		Isolation Voltage (Vrms min)
	1-100MHz	100-250MHz	1-40MHz	40-250MHz	1≤f≤30MHz	30≤f≤250MHz	
NK3001	-1.00	-2.00	-20.00	-(16-10log10(f/40))	-48.00	-(44-19.2log10(f/50))	1,500



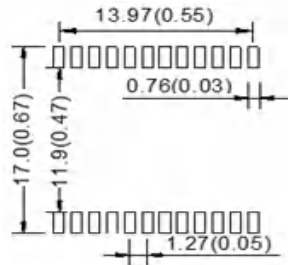
尺寸

Dimension (mm)



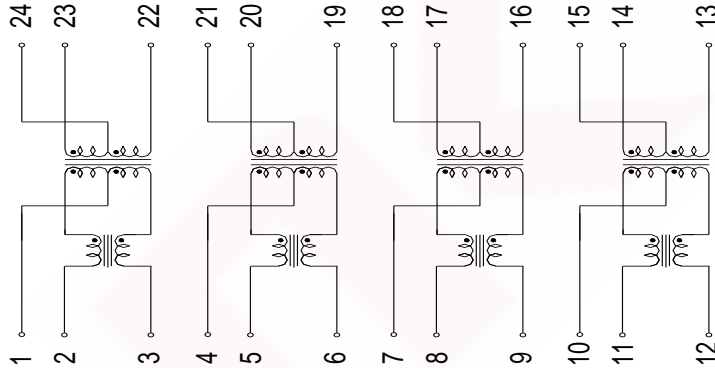
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



电性特性

Electrical Properties

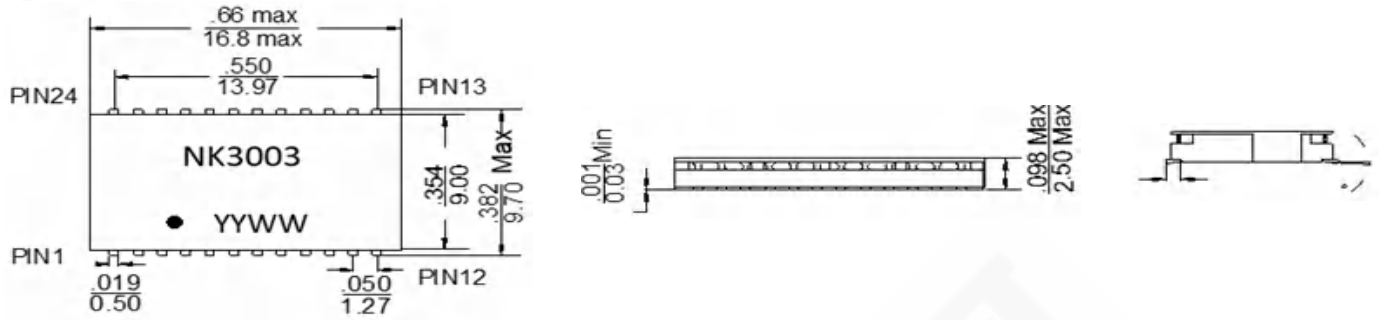
Electrical Specification@25°C					
Part No	Trun Ratio (±3%)		OCL @ 100KHz,0.1Vrms	Crosstalk (dB min) 1≤f≤250MHz	Operating Temperature
	TX	RX			
NK3002	1CT:1CT	1CT:1CT	180uH Min	-(43.1-20log10(f/100))	-40 to +85°C

Part No	Insertion loss (dB max)		Return loss (dB min)		CMRR (dB min)		Isolation Voltage (Vrms min)
	1-100MHz	100-250MHz	1-40MHz	40-250MHz	1≤f≤30MHz	30≤f≤250MHz	
NK3002	-1.00	-2.00	-20.00	-(16-10log10(f/40))	-48.00	-(44-19.2log10(f/50))	1,500



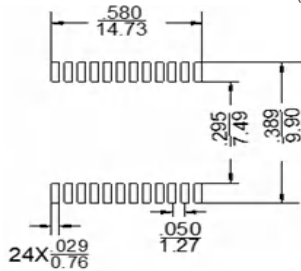
尺寸

Dimension (mm)



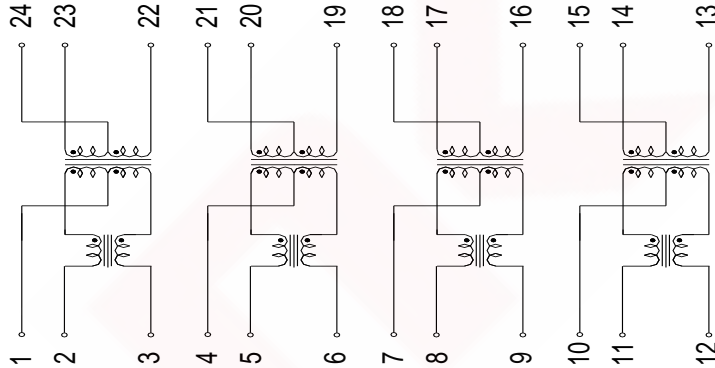
焊盘推荐

Land Pattern Recommended (mm)



示意图

Schematics



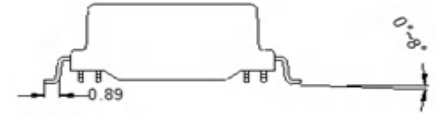
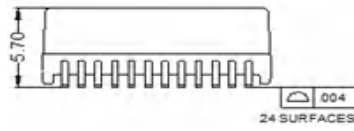
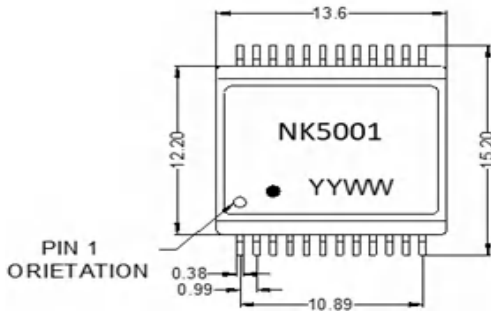
电性特性

Electrical Properties

Electrical Specification@25°C					
Part No	Trun Ratio (±3%)		OCL @ 100KHz,0.1Vrms	Crosstalk (dB min) 1≤f≤250MHz	Operating Temperature
	TX	RX			
NK3003	1CT:1CT	1CT:1CT	180uH Min	-(43.1-20log10(f/100))	-40 to +85°C

Part No	Insertion loss (dB max)		Return loss (dB min)		CMRR (dB min)		Isolation Voltage (Vrms min)
	1-100MHz	100-250MHz	1-40MHz	40-250MHz	1≤f≤30MHz	30≤f≤250MHz	
NK3003	-1.00	-2.00	-20.00	-(16-10log10(f/40))	-48.00	-(44-19.2log10(f/50))	1,500

尺寸 Dimension (mm)



焊盘推荐 Land Pattern Recommended (mm)

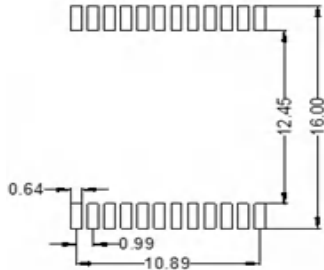
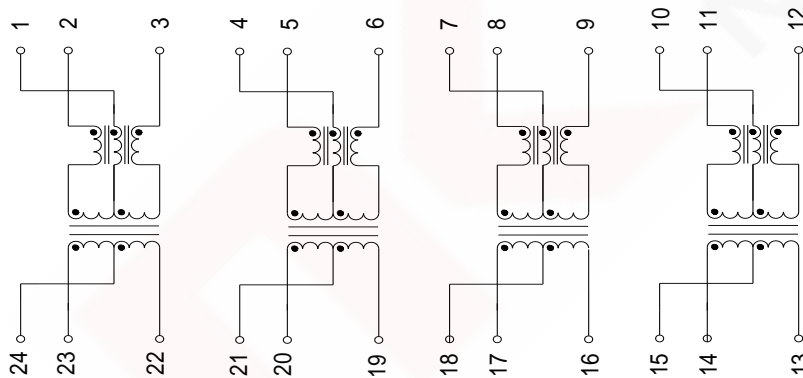


示意图 Schematics



电性特性 Electrical Properties

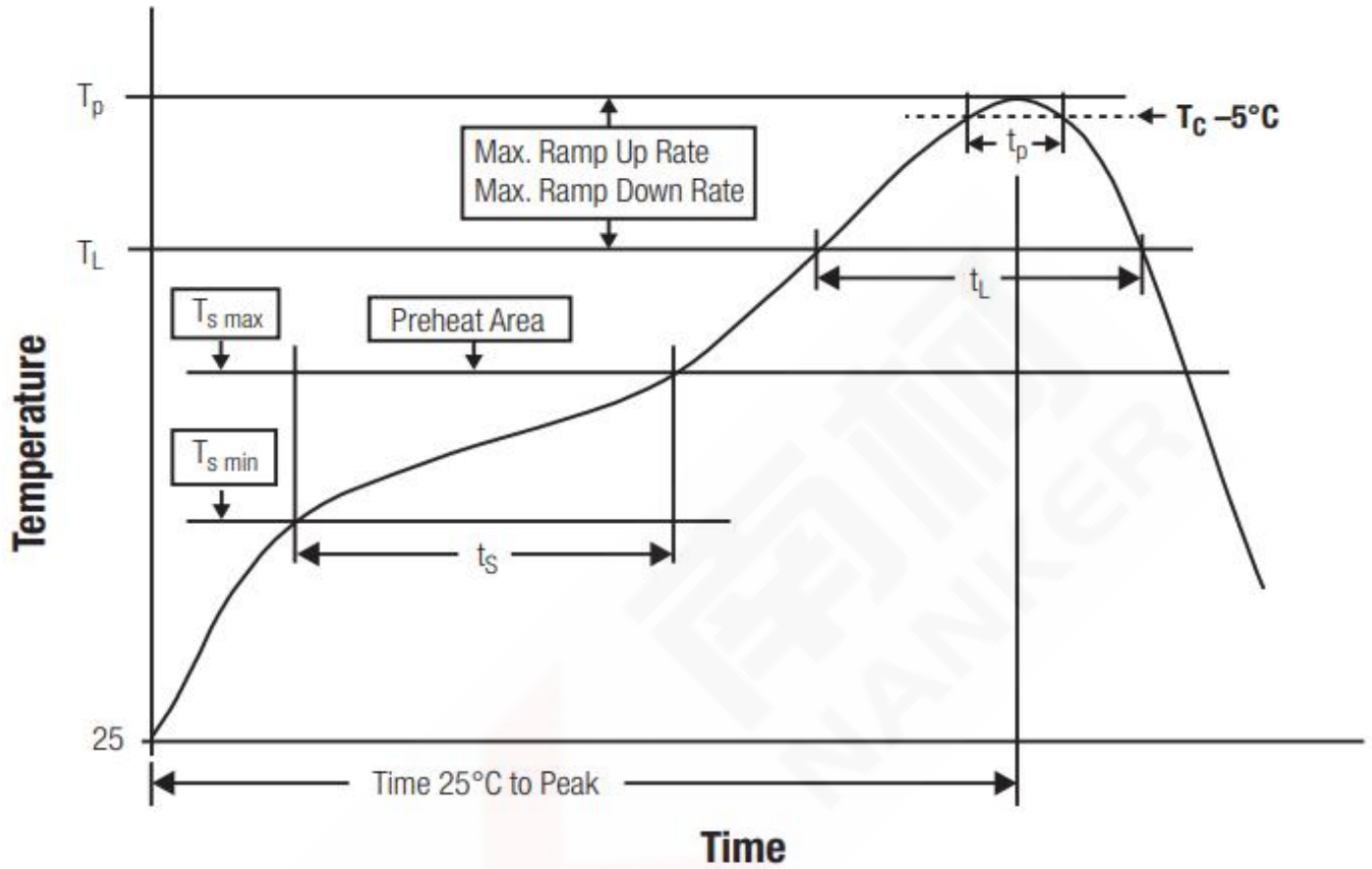
Electrical Specification@25°C, Operating Temperature 0 to 70°C							
Part No	Trun Ratio (±3%)		OCL primary @ 100KHz,0.1Vrms	Crosstalk (dB min)		CDMR (dB min)	
	TX	RX		1-100MHz	100-500MHz	1-250MHz	250-500MHz
NK5001	1CT:1CT	1CT:1CT	120uH Min	-40.00	-30.00	-30.00	-22.00

Part No	Insertion loss (dB max)		Return loss (dB min)		CMRR (dB min)			Isolation Voltage (Vrms min)
	1-400MHz	400-500MHz	1-40MHz	40-500MHz	1-100MHz	100-300MHz	300-500MHz	
NK5001	-2.00	-3.00	-18.00	-17+10*log(f/40)	-35.00	-30.00	-25.00	1,500



回流焊曲线图

Classification Reflow Profile for SMT Components



	封装厚度 Package Thickness	封装体积 Package Volume		
		<350 mm ³	350~2,000 mm ³	>2,000 mm ³
无铅装配 PB-Free Assembly	<1.60mm	260°C	260°C	260°C
	1.60~2.50mm	260°C	250°C	245°C
	>2.50mm	260°C	245°C	245°C

- ◆ 回流焊参照标准 IPC/JEDEC J-STD-020D。
Reflow is refer to standard IPC/JEDEC J-STD-020D.