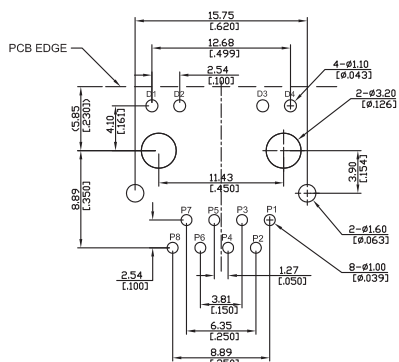
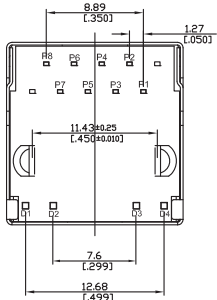
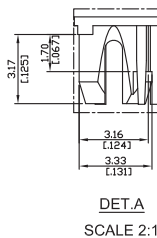
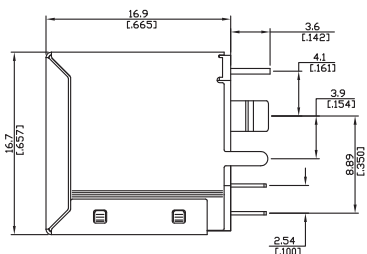
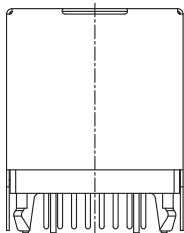
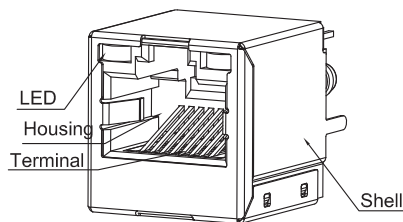
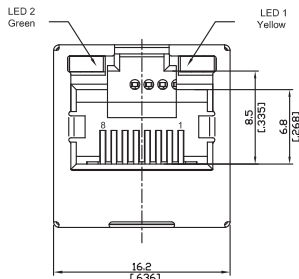
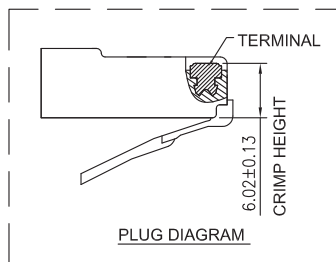


1. MECHANICAL DIMENSIONS:



RECOMMENDED PCB LAYOUT
TOP VIEW
TOLERANCE: ±0.05mm
PCB THICKNESS: 1.60±0.05mm



Material:

- 1.Housing: Thermoplastic UL 94V-0
- 2.Contact : Selective Gold Plating
- 3.Terminal: 0.35mm Thickness Phosphor Bronze Plated With Gold And Tin In Solder Area.
- 4.Shielded: Brass,Nickel Plating
- 5.Operating Temperature Range : 0℃~70℃

PART NO : H A 8 8 PA - B * 1 * - D * *

Positions
Contacts
Extender Series
Housing Color
B : Black
Gold Plated
0 : Gold Flash
1 : 6u"
2 : 15u"
3 : 30u"
4 : 50u"
Circuit Type
Protocol Type
D: 10/100 Mbps, 4 core
Ports
Led Options

LED ELECTRICAL CHARACTERISTIC



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SYM	DISCRIPTION	DATE	APPROVED



TACLEX

TACLEX ELECTRONICS CO., LTD.

TOLERANCES UNLESS
OTHERWISE SPECIFIED
LINEAR: ±0.30 ANGULAR: ±3°

SIGNATURES

DATE

TITLE

CHK'D

Fed

2009.03.19

NO.

APPV'D

Rex

2009.03.19

HA88PA-Bx1x-Dxx



SCALE

1/1

REVISIONS
A

RJ45 Connector

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1. SCHEMATIC:

CONNECTOR SOLDER SIDE

RJ45 CONTACT SIDE

The schematic shows a transformer-based circuit for signal isolation and impedance matching. It features two identical transformer sections for transmitting and receiving signals. Each section consists of a primary winding connected to the connector pins and a secondary winding connected to the RJ45 contacts through 75 Ohm resistors. A common-mode choke or capacitor network is used to reject common-mode noise, represented by the 1000 pF capacitor and the central connection point.

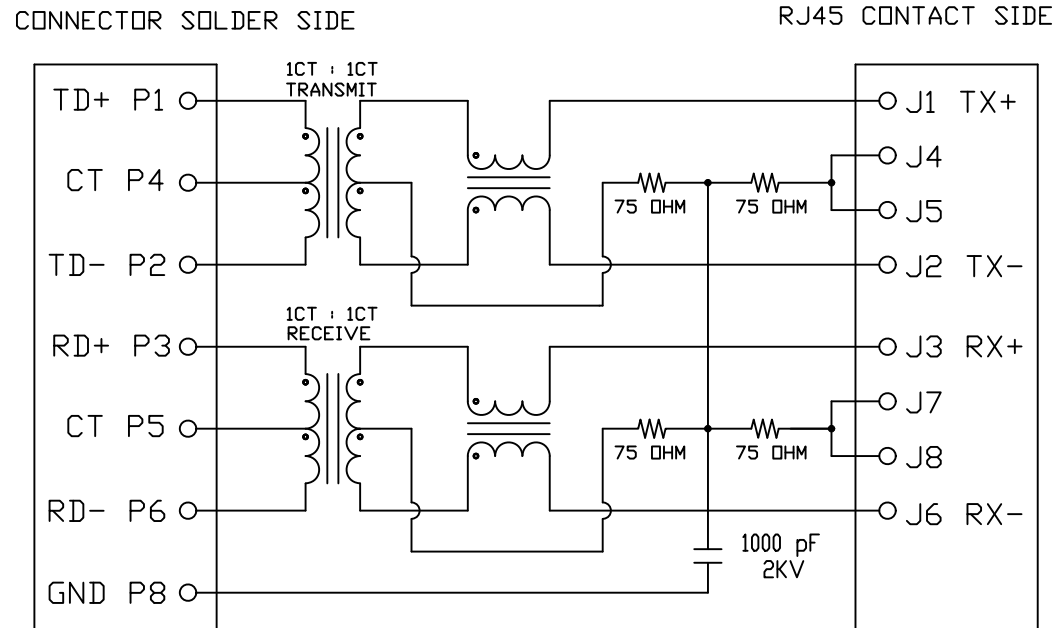
2. ELECTRICAL CHARACTERISTICS :

Test Notes:($25\pm 5^{\circ}\text{C}$)

- TR:(100KHz,0.1V):
Pins:(P1-P2):(J1-J2)= $1:1\pm 3\%$
Pins:(P3-P6):(J3-J6)= $1:1\pm 3\%$
- LX:(100KHz,100mV,8mA, DC Bias)
Pins:(P1-P2),(P3-P6)=350uH Minimum
- DCR:
Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum
- HIPOT:
Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s
Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s
- INSERTION LOSS:
-1.0dB Maximum At 1 MHz To 100MHz
- RETURN LOSS:
-18dB Minimum At 1MHz To 30MHz,load 100 Ω ;
-16dB Minimum At 30MHz To 60MHz,load 100 Ω ;
-12dB Minimum At 60MHz To 80MHz,load 100 Ω .
- CROSS TALK:
-30dB Minimum At 1MHz To 100MHz
- COMMON TO COMMON MODE REJECTION:
-30dB Minimum At 1MHz To 100MHz

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SYM	DISCIPTION	DATE	APPROVED

TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR: ± 0.30 ANGULAR: $\pm 3^{\circ}$	SIGNATURES	DATE	TITLE
REVISIONS A	DRAWN Eric	2009.03.19	Transformer Type NO. D22
	CHK'D Fed	2009.03.19	
	APPV'D Rex	2009.03.19	
SCALE 1/1			



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1. SCHEMATIC:			
CONNECTOR SOLDER SIDE		RJ45 CONTACT SIDE	
The schematic shows two transformers labeled "1CT : 1CT TRANSMIT" and "1CT : 1CT RECEIVE". The transmit side has pins TD+ P1, CT P4, TD- P2 connected to J1 TX+, J4, and J5 respectively. The receive side has pins RD+ P3, CT P5, RD- P6 connected to J3 RX+, J7, and J8 respectively. A GND P8 pin is also shown. Resistors of 75 OHM are placed between J4/J5 and J7/J8. A capacitor of 1000 pF 2KV is connected from the bottom line to ground.			

2. ELECTRICAL CHARACTERISTICS :			
Test Notes:(25±5°C)			
1.TR:(100KHz,0.1V):			
		Pins:(P1-P2):(J1-J2)=1:1±3%	
		Pins:(P3-P6):(J3-J6)=1:1±3%	
2.LX:(100KHz,100mV,8mA, DC Bias)			
		Pins:(P1-P2),(P3-P6)=350uH Minimum	
3.DCR:			
		Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum	
4.HIPOT:			
		Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s	
		Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s	
5.INSERTION LOSS:			
		-1.0dB Maximum At 1 MHz To 100MHz	
6.RETURN LOSS:			
		-18dB Minimum At 1MHz To 30MHz,load 100 Ω;	
		-16dB Minimum At 30MHz To 60MHz,load 100 Ω;	
		-12dB Minimum At 60MHz To 80MHz,load 100 Ω.	
7.CROSS TALK:			
		-30dB Minimum At 1MHz To 100MHz	
8.COMMON TO COMMON MODE REJECTION:			
		-30dB Minimum At 1MHz To 100MHz	

	TACLEX TACLEX ELECTRONICS CO., LTD.		
REVISIONS A	TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR: ±0.30 ANGULAR: ±3°		NO. D22
	SIGNATURES		
	DRAWN Eric	DATE 2009.03.19	
	CHK'D Fed	DATE 2009.03.19	
SCALE 1/1		APPV'D Rex	DATE 2009.03.19

SYM	DISCRIPTION	DATE	APPROVED
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1. SCHEMATIC:

CONNECTOR SOLDER SIDE

RJ45 CONTACT SIDE

2. ELECTRICAL CHARACTERISTICS :

Test Notes:($25\pm 5^{\circ}\text{C}$)

1.TR:(100KHz,0.1V):

Pins:(P1-P2):(J1-J2)= $1:1\pm 3\%$

Pins:(P3-P6):(J3-J6)= $1:1\pm 3\%$

2.LX:(100KHz,100mV,8mA, DC Bias)

Pins:(P1-P2),(P3-P6)=350uH Minimum

3.DCR:

Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum

4.HIPOT:

Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s

Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s

5.INSERTION LOSS:

-1.0dB Maximum At 1 MHz To 100MHz

6.RETURN LOSS:

-18dB Minimum At 1MHz To 30MHz,load 100 Ω;

-16dB Minimum At 30MHz To 60MHz,load 100 Ω;

-12dB Minimum At 60MHz To 80MHz,load 100 Ω.

7.CROSS TALK:

-30dB Minimum At 1MHz To 100MHz

8.COMMON TO COMMON MODE REJECTION:

-30dB Minimum At 1MHz To 100MHz

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SYM	DISCRIPTION	DATE	APPROVED

TOLERANCES UNLESS OTHERWISE SPECIFIED LINEAR: ±0.30 ANGULAR: ±3°		SIGNATURES	DATE	TITLE
REVISIONS A		DRAWN Eric	2009.03.19	Transformer Type NO. D22
		CHK'D Fed	2009.03.19	
		APPV'D Rex	2009.03.19	
SCALE 1/1				

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1. SCHEMATIC:

CONNECTOR SOLDER SIDE

TD+ P1

CT P4

TD- P2

RD+ P3

CT P5

RD- P6

GND P8

1CT : 1CT
TRANSMIT

1CT : 1CT
RECEIVE

RJ45 CONTACT SIDE

J1 TX+

J4

J5

J2 TX-

J3 RX+

J7

J8

J6 RX-

75 OHM

75 OHM

75 OHM

75 OHM

1000 pF
2KV

2. ELECTRICAL CHARACTERISTICS :

Test Notes:(25±5°C)

1.TR:(100KHz,0.1V):

Pins:(P1-P2):(J1-J2)=1:1±3%

Pins:(P3-P6):(J3-J6)=1:1±3%

2.LX:(100KHz,100mV,8mA, DC Bias)

Pins:(P1-P2),(P3-P6)=350uH Minimum

3.DCR:

Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum

4.HIPOT:

Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s

Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s

5.INSERTION LOSS:

-1.0dB Maximum At 1 MHz To 100MHz

6.RETURN LOSS:

-18dB Minimum At 1MHz To 30MHz,load 100 Ω;

-16dB Minimum At 30MHz To 60MHz,load 100 Ω;

-12dB Minimum At 60MHz To 80MHz,load 100 Ω.

7.CROSS TALK:

-30dB Minimum At 1MHz To 100MHz

8.COMMON TO COMMON MODE REJECTION:

-30dB Minimum At 1MHz To 100MHz

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DISCRIPTION

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TACLEX

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TOLERANCES UNLESS
OTHERWISE SPECIFIED
LINEAR: ±0.30 ANGULAR: ±3°

REVISIONS
A

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SCALE
1/1

SIGNATURES

DATE

TITLE

DRAWN
Eric

2009.03.19

Transformer Type

CHK'D
Fed

2009.03.19

NO.

APPV'D
Rex

2009.03.19

D22

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1. SCHEMATIC:

CONNECTOR SOLDER SIDE

TD+ P1

CT P4

TD- P2

RD+ P3

CT P5

RD- P6

GND P8

1CT : 1CT
TRANSMIT

1CT : 1CT
RECEIVE

RJ45 CONTACT SIDE

J1 TX+

J4

J5

J2 TX-

J3 RX+

J7

J8

J6 RX-

75 OHM

75 OHM

75 OHM

75 OHM

1000 pF
2KV

2. ELECTRICAL CHARACTERISTICS :

Test Notes:(25±5°C)

1.TR:(100KHz,0.1V):

Pins:(P1-P2):(J1-J2)=1:1±3%

Pins:(P3-P6):(J3-J6)=1:1±3%

2.LX:(100KHz,100mV,8mA, DC Bias)

Pins:(P1-P2),(P3-P6)=350uH Minimum

3.DCR:

Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum

4.HIPOT:

Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s

Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s

5.INSERTION LOSS:

-1.0dB Maximum At 1 MHz To 100MHz

6.RETURN LOSS:

-18dB Minimum At 1MHz To 30MHz,load 100 Ω;

-16dB Minimum At 30MHz To 60MHz,load 100 Ω;

-12dB Minimum At 60MHz To 80MHz,load 100 Ω.

7.CROSS TALK:

-30dB Minimum At 1MHz To 100MHz

8.COMMON TO COMMON MODE REJECTION:

-30dB Minimum At 1MHz To 100MHz

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TACLEX

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TOLERANCES UNLESS
OTHERWISE SPECIFIED
LINEAR: ±0.30 ANGULAR: ±3°

REVISIONS
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SIGNATURES

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DRAWN
Eric

2009.03.19

Transformer Type

CHK'D
Fed

2009.03.19

NO.

APPV'D
Rex

2009.03.19

D22

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1. SCHEMATIC:

CONNECTOR SOLDER SIDE

TD+ P1

CT P4

TD- P2

RD+ P3

CT P5

RD- P6

GND P8

1CT : 1CT
TRANSMIT

1CT : 1CT
RECEIVE

RJ45 CONTACT SIDE

J1 TX+

J4

J5

J2 TX-

J3 RX+

J7

J8

J6 RX-

75 OHM

75 OHM

75 OHM

75 OHM

1000 pF
2KV

2. ELECTRICAL CHARACTERISTICS :

Test Notes:(25±5°C)

1.TR:(100KHz,0.1V):

Pins:(P1-P2):(J1-J2)=1:1±3%

Pins:(P3-P6):(J3-J6)=1:1±3%

2.LX:(100KHz,100mV,8mA, DC Bias)

Pins:(P1-P2),(P3-P6)=350uH Minimum

3.DCR:

Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum

4.HIPOT:

Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s

Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s

5.INSERTION LOSS:

-1.0dB Maximum At 1 MHz To 100MHz

6.RETURN LOSS:

-18dB Minimum At 1MHz To 30MHz,load 100 Ω;

-16dB Minimum At 30MHz To 60MHz,load 100 Ω;

-12dB Minimum At 60MHz To 80MHz,load 100 Ω.

7.CROSS TALK:

-30dB Minimum At 1MHz To 100MHz

8.COMMON TO COMMON MODE REJECTION:

-30dB Minimum At 1MHz To 100MHz

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TACLEX

TACLEX ELECTRONICS CO., LTD.

TOLERANCES UNLESS
OTHERWISE SPECIFIED
LINEAR: ±0.30 ANGULAR: ±3°

REVISIONS
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SCALE
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SIGNATURES

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TITLE

DRAWN
Eric

2009.03.19

Transformer Type

CHK'D
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D22

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1. SCHEMATIC:

CONNECTOR SOLDER SIDE

TD+ P1

CT P4

TD- P2

RD+ P3

CT P5

RD- P6

GND P8

1CT : 1CT
TRANSMIT

1CT : 1CT
RECEIVE

RJ45 CONTACT SIDE

J1 TX+

J4

J5

J2 TX-

J3 RX+

J7

J8

J6 RX-

75 OHM

75 OHM

75 OHM

75 OHM

1000 pF
2KV

2. ELECTRICAL CHARACTERISTICS :

Test Notes:(25±5°C)

1.TR:(100KHz,0.1V):

Pins:(P1-P2):(J1-J2)=1:1±3%

Pins:(P3-P6):(J3-J6)=1:1±3%

2.LX:(100KHz,100mV,8mA, DC Bias)

Pins:(P1-P2),(P3-P6)=350uH Minimum

3.DCR:

Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum

4.HIPOT:

Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s

Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s

5.INSERTION LOSS:

-1.0dB Maximum At 1 MHz To 100MHz

6.RETURN LOSS:

-18dB Minimum At 1MHz To 30MHz,load 100 Ω;

-16dB Minimum At 30MHz To 60MHz,load 100 Ω;

-12dB Minimum At 60MHz To 80MHz,load 100 Ω.

7.CROSS TALK:

-30dB Minimum At 1MHz To 100MHz

8.COMMON TO COMMON MODE REJECTION:

-30dB Minimum At 1MHz To 100MHz

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DISCRIPTION

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TOLERANCES UNLESS
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2009.03.19

Transformer Type

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NO.

APPV'D
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2009.03.19

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1. SCHEMATIC:

CONNECTOR SOLDER SIDE

TD+ P1

CT P4

TD- P2

RD+ P3

CT P5

RD- P6

GND P8

1CT : 1CT
TRANSMIT

1CT : 1CT
RECEIVE

RJ45 CONTACT SIDE

J1 TX+

J4

J5

J2 TX-

J3 RX+

J7

J8

J6 RX-

75 OHM

75 OHM

75 OHM

75 OHM

1000 pF
2KV

2. ELECTRICAL CHARACTERISTICS :

Test Notes:(25±5°C)

1.TR:(100KHz,0.1V):

Pins:(P1-P2):(J1-J2)=1:1±3%

Pins:(P3-P6):(J3-J6)=1:1±3%

2.LX:(100KHz,100mV,8mA, DC Bias)

Pins:(P1-P2),(P3-P6)=350uH Minimum

3.DCR:

Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum

4.HIPOT:

Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s

Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s

5.INSERTION LOSS:

-1.0dB Maximum At 1 MHz To 100MHz

6.RETURN LOSS:

-18dB Minimum At 1MHz To 30MHz,load 100 Ω;

-16dB Minimum At 30MHz To 60MHz,load 100 Ω;

-12dB Minimum At 60MHz To 80MHz,load 100 Ω.

7.CROSS TALK:

-30dB Minimum At 1MHz To 100MHz

8.COMMON TO COMMON MODE REJECTION:

-30dB Minimum At 1MHz To 100MHz

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SYM

DISCRIPTION

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TACLEX

TACLEX ELECTRONICS CO., LTD.

TOLERANCES UNLESS
OTHERWISE SPECIFIED
LINEAR: ±0.30 ANGULAR: ±3°

REVISIONS
A

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SCALE
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SIGNATURES

DATE

TITLE

DRAWN
Eric

2009.03.19

Transformer Type

CHK'D
Fed

2009.03.19

NO.

APPV'D
Rex

2009.03.19

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C	1. SCHEMATIC:									
D	CONNECTOR SOLDER SIDE RJ45 CONTACT SIDE									
E										
F	2. ELECTRICAL CHARACTERISTICS :									
G	Test Notes:(25±5°C)									
H	1.TR:(100KHz,0.1V): Pins:(P1-P2):(J1-J2)=1:1±3% Pins:(P3-P6):(J3-J6)=1:1±3%									
I	2.LX:(100KHz,100mV,8mA, DC Bias) Pins:(P1-P2),(P3-P6)=350uH Minimum									
J	3.DCR: Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum									
K	4.HIPOT: Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s									
L	5.INSERTION LOSS: -1.0dB Maximum At 1 MHz To 100MHz									
M	6.RETURN LOSS: -18dB Minimum At 1MHz To 30MHz,load 100 Ω; -16dB Minimum At 30MHz To 60MHz,load 100 Ω; -12dB Minimum At 60MHz To 80MHz,load 100 Ω.									
N	7.CROSS TALK: -30dB Minimum At 1MHz To 100MHz									
O	8.COMMON TO COMMON MODE REJECTION: -30dB Minimum At 1MHz To 100MHz									
P										
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A																											
B	1. SCHEMATIC:																										
C	CONNECTOR SOLDER SIDE RJ45 CONTACT SIDE																										
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1. SCHEMATIC:

CONNECTOR SOLDER SIDE

TD+ P1

CT P4

TD- P2

RD+ P3

CT P5

RD- P6

GND P8

1CT : 1CT
TRANSMIT

1CT : 1CT
RECEIVE

RJ45 CONTACT SIDE

J1 TX+

J4

J5

J2 TX-

J3 RX+

J7

J8

J6 RX-

75 OHM

75 OHM

75 OHM

75 OHM

1000 pF
2KV

2. ELECTRICAL CHARACTERISTICS :

Test Notes:(25±5°C)

1.TR:(100KHz,0.1V):

Pins:(P1-P2):(J1-J2)=1:1±3%

Pins:(P3-P6):(J3-J6)=1:1±3%

2.LX:(100KHz,100mV,8mA, DC Bias)

Pins:(P1-P2),(P3-P6)=350uH Minimum

3.DCR:

Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum

4.HIPOT:

Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s

Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s

5.INSERTION LOSS:

-1.0dB Maximum At 1 MHz To 100MHz

6.RETURN LOSS:

-18dB Minimum At 1MHz To 30MHz,load 100 Ω;

-16dB Minimum At 30MHz To 60MHz,load 100 Ω;

-12dB Minimum At 60MHz To 80MHz,load 100 Ω.

7.CROSS TALK:

-30dB Minimum At 1MHz To 100MHz

8.COMMON TO COMMON MODE REJECTION:

-30dB Minimum At 1MHz To 100MHz

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TACLEX

TACLEX ELECTRONICS CO., LTD.

TOLERANCES UNLESS
OTHERWISE SPECIFIED
LINEAR: ±0.30 ANGULAR: ±3°

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SIGNATURES

DATE

TITLE

DRAWN
Eric

2009.03.19

Transformer Type

CHK'D
Fed

2009.03.19

NO.

APPV'D
Rex

2009.03.19

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1. SCHEMATIC:

CONNECTOR SOLDER SIDE

TD+ P1

CT P4

TD- P2

RD+ P3

CT P5

RD- P6

GND P8

1CT : 1CT
TRANSMIT

1CT : 1CT
RECEIVE

75 OHM

75 OHM

75 OHM

75 OHM

1000 pF
2KV

RJ45 CONTACT SIDE

J1 TX+

J4

J5

J2 TX-

J3 RX+

J7

J8

J6 RX-

2. ELECTRICAL CHARACTERISTICS :

Test Notes:(25±5°C)

1.TR:(100KHz,0.1V):

Pins:(P1-P2):(J1-J2)=1:1±3%

Pins:(P3-P6):(J3-J6)=1:1±3%

2.LX:(100KHz,100mV,8mA, DC Bias)

Pins:(P1-P2),(P3-P6)=350uH Minimum

3.DCR:

Pins:(J1-J2),(J3-J6)=1.2 Ω Maximum

4.HIPOT:

Pins:(P1,P2)To(J1,J2)=1500VAC 60s or 2250VDC 60s

Pins:(P3,P6)To(J3,J6)=1500VAC 60s or 2250VDC 60s

5.INSERTION LOSS:

-1.0dB Maximum At 1 MHz To 100MHz

6.RETURN LOSS:

-18dB Minimum At 1MHz To 30MHz,load 100 Ω;

-16dB Minimum At 30MHz To 60MHz,load 100 Ω;

-12dB Minimum At 60MHz To 80MHz,load 100 Ω.

7.CROSS TALK:

-30dB Minimum At 1MHz To 100MHz

8.COMMON TO COMMON MODE REJECTION:

-30dB Minimum At 1MHz To 100MHz

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TACLEX

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TOLERANCES UNLESS
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LINEAR: ±0.30 ANGULAR: ±3°

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SIGNATURES

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TITLE

DRAWN
CHK'D
APPV'D

Eric
Fed
Rex

2009.03.19
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Transformer Type

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		APPV'D		Rex	2009.03.19	