

# 1:1.33 Transmission Line Balun Transformer

## 5 - 1000 MHz



MABA-009092-CT1A40

Rev. V3

### Features

- Surface Mount Technology
- 1:1.33 Impedance
- 75  $\Omega$  Single Ended to 100  $\Omega$  Balance
- RoHS Compliant
- Available on Tape & Reel

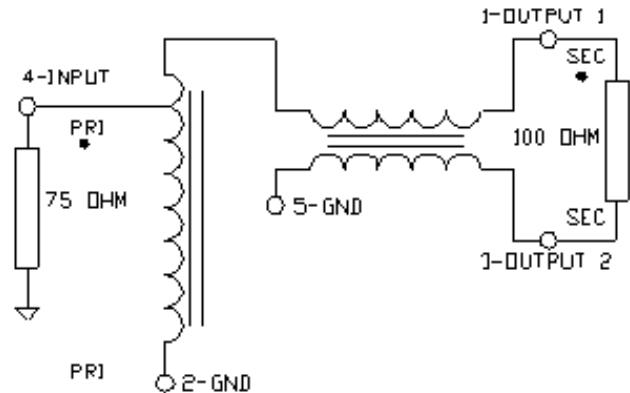
### Applications

- CATV / Broadband

### Description

MABA-009092-CT1A40 is a 1:1.33 RF Transmission Line Transformer in a low cost surface mount package. Ideally suited for high volume CATV/Broadband applications.

### Functional Schematic



### Pin Configuration<sup>3</sup>

Pin #	Function
1	Secondary Dot (op1)
2	Primary (ground)
3	Secondary (op2)
4	Primary Dot (Input)
5	(ground)

### Ordering Information<sup>1,2</sup>

Part Number	Package
MABA-009092-CT1A40	2000 piece reel
MABA-009092-CT1ATB	Customer Test Board

1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

3. MACOM recommends connecting unused package pins to ground.

\* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

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**Electrical Specifications: Freq. = 5 - 1000 MHz,  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75 \Omega$**

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Insertion Loss 1 (Pin 4 to Pin 1)	5 - 50 MHz 50 - 870 MHz 870 - 1000 MHz	dB	—	0.3 0.6 1.75	0.4 1.8 2.4
Insertion Loss 2 (Pin 4 to Pin 3)	5 - 50 MHz 50 - 870 MHz 870 - 1000 MHz	dB	—	0.94 0.7 1.0	1.4 1.2 1.5
Amplitude Balance	5 - 50 MHz 50 - 870 MHz 870 - 1000 MHz	dB	—	0.7 0.13 0.74	$\pm 1.3$ $\pm 1.0$ $\pm 1.4$
Phase Balance	5 - 50 MHz 50 - 1000 MHz	$^\circ$	—	4 5	$\pm 16$ $\pm 9$
Input Return Loss (Pin 4)	5 - 50 MHz 50 - 400 MHz 400 - 870 MHz 870 - 1000 MHz	dB	13 20 9 8	23 27 17 12	—

### Absolute Maximum Ratings<sup>4,5</sup>

Parameter	Absolute Maximum
RF Power	250 mW
DC Current	30 mA
Operating Temperature	$-40^\circ\text{C}$ to $+85^\circ\text{C}$

4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.

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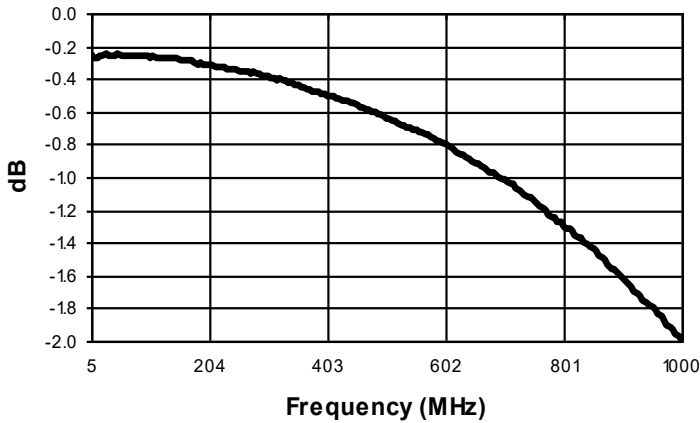


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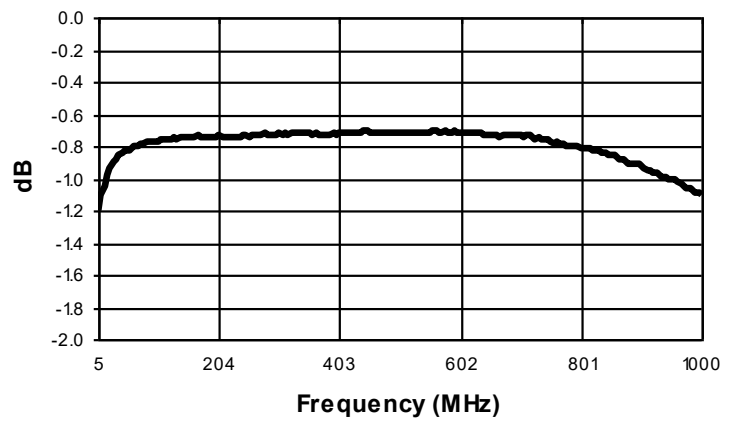
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### Typical Performance Curves<sup>6</sup>

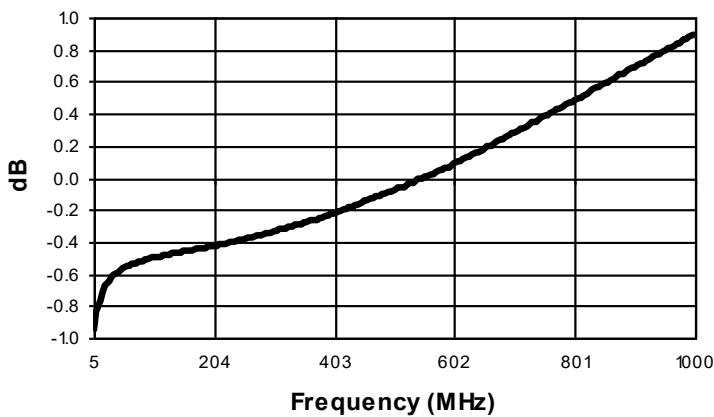
Insertion Loss 1 (Pin4 - Pin1)



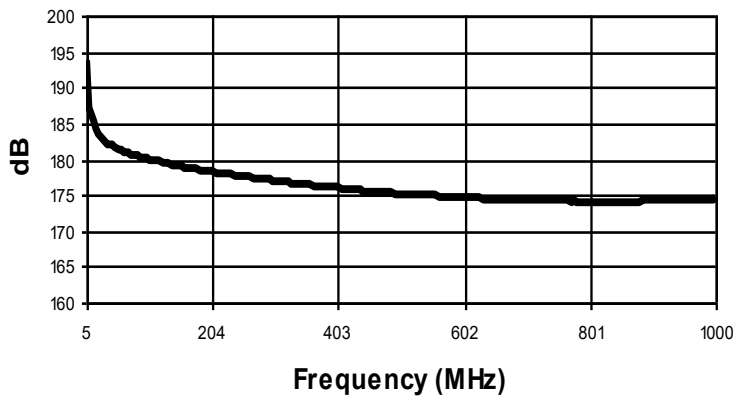
Insertion Loss 2 (Pin4 - Pin3)



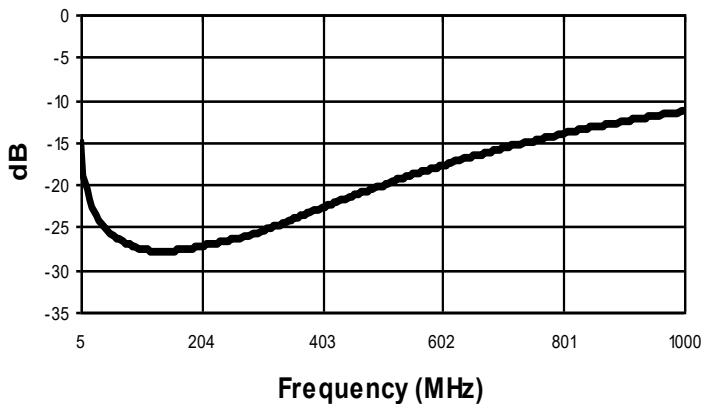
Amplitude Balance



Phase Balance



Return Loss: Input (Pin4)



3 6. Temperature plots available on request.

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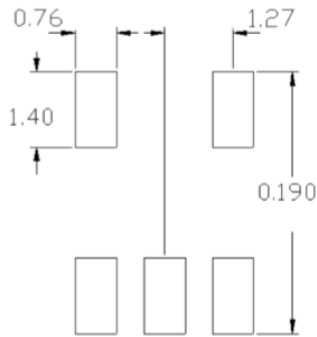
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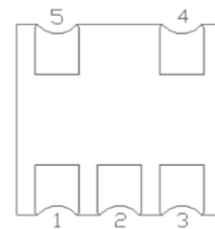
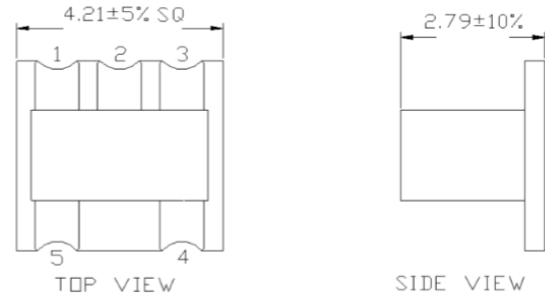
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### Recommended PCB Layout<sup>7</sup>



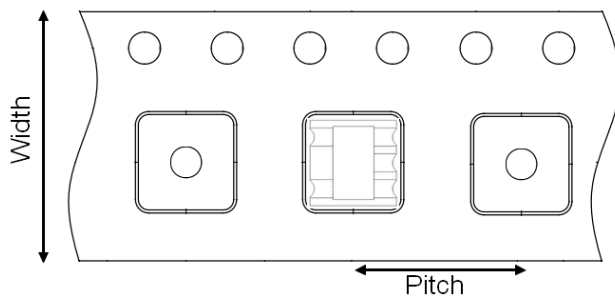
7. Dimensions are mm  $\pm 0.38$  unless otherwise specified.

### Outline Drawing<sup>8,9,10,11</sup>



- 8. Dimensions in mm.
- 9. Tolerance:  $\pm 0.2$  mm unless otherwise noted.
- 10. Model number and lot code printed on reel.
- 11. Plating finish: ENIG on both sides, 0.05 to 0.1  $\mu\text{m}$  gold over 3 to 6  $\mu\text{m}$  nickel

### Carrier Tape Orientation



### Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	2000
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Orientation	-	F31
Reference Application Note ANI-019 for orientation		

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