

1:1 Transmission Line Transformer with Tertiary Winding 50 - 1200 MHz



MABA-009057-CT19E0

Rev. V5

Features

- 1:1 Impedance Ratio
- 75 Ω
- Surface Mount Package
- 260°C Reflow Compatible
- RoHS Compliant, Lead Free
- Available on Tape & Reel

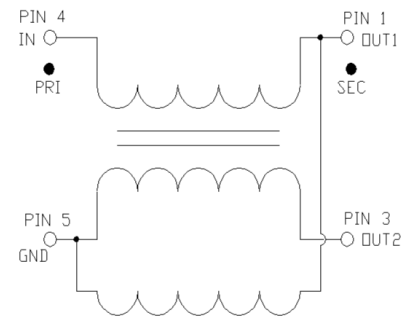
Applications

- CATV

Description

MABA-009057-CT19E0 is a 1:1 RF transmission line transformer with tertiary winding in a surface mount package. Ideally suited for high volume CATV application.

Functional Schematic



Pin Configuration³

Pin #	Function	Pin #	Function
1	Secondary Dot	4	Primary Dot
2	Not Connected	5	Primary
3	Secondary		

3. MACOM recommends connecting unused package pins to ground.

Electrical Specifications: Freq. = 50 - 1200 MHz, T_A = 25°C, Z₀ = 75 Ω , P_{IN} = 0 dBm

Parameter	Test Conditions Frequency (MHz)	Units	Min.	Typ.	Max.
Insertion Loss 1: pin 4-1 (Through)	50 - 600	dB	—	0.4	0.8
	600 - 1000			0.8	1.1
	1000 - 1200			1.2	1.5
Insertion Loss 2: pin 4-3 (Coupled)	50 - 600	dB	—	0.5	0.7
	600 - 1200			0.5	1.0
Amplitude Un-Balance (Nominal 0 dB)	50 - 600	dB	—	±0.1	±0.3
	600 - 1200			±0.4	±0.9
Phase Un-Balance (Nominal 180°)	50 - 870	°	—	±1.0	±3.0
	870 - 1000			±1.5	±5.0
	1000 - 1200			±4.5	±10.0
Input Return Loss: pin 4	50 - 1200	dB	12	16	—

Ordering Information^{1,2}

Part #	Description
MABA-009057-CT19E0	1500 piece reel
MABA-009057-CT19TB	Customer Test Board

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

Absolute Maximum Ratings^{4,5}

Parameter	Absolute Maximum
RF Input Power	250 mW
DC Current	30 mA
Operating Temperature	-40°C to +85°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.

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

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DS-MABA-009057-CT19E0

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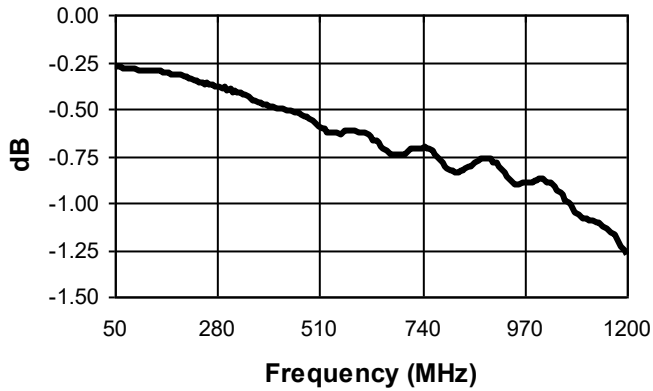


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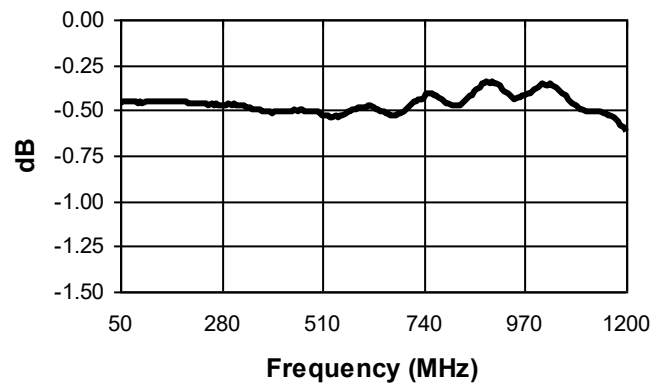
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Typical Performance Curves⁶

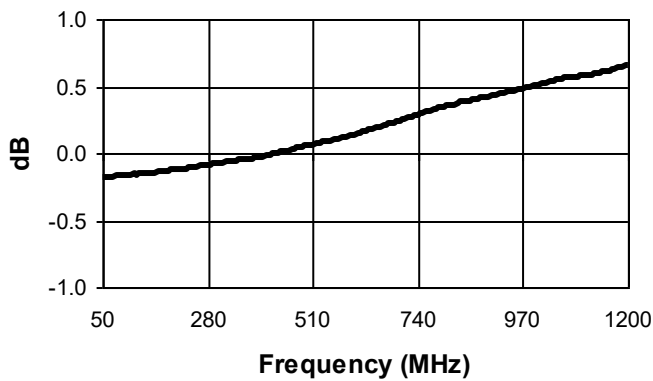
Insertion Loss 1 (Through pin 4 to pin 1)



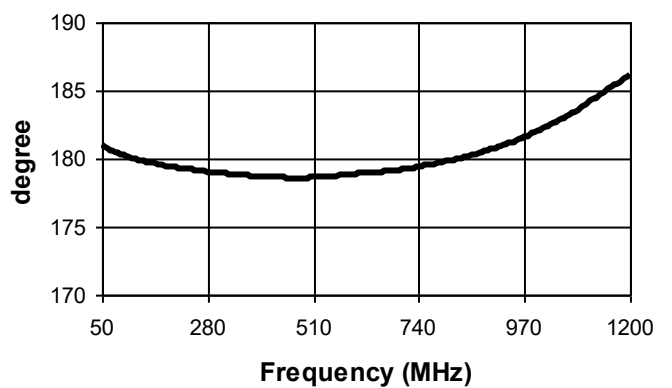
Insertion Loss 2 (Coupled pin 4 to pin 3)



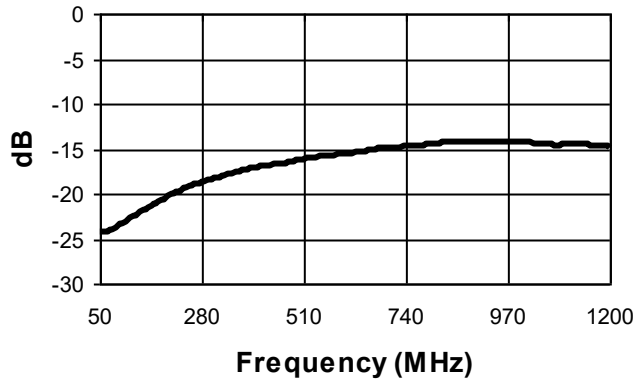
Amplitude Balance



Phase Balance



Return Loss: Input (pin 4)



6. Full temperature plots available on request.

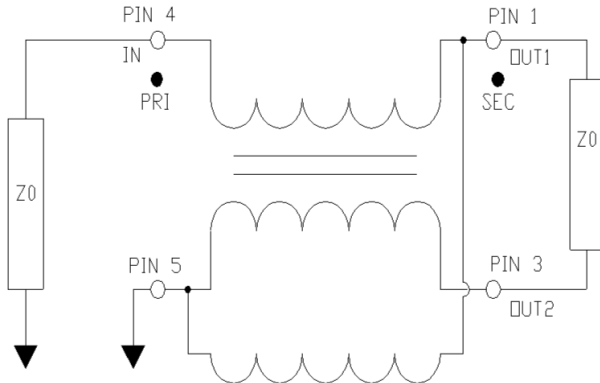
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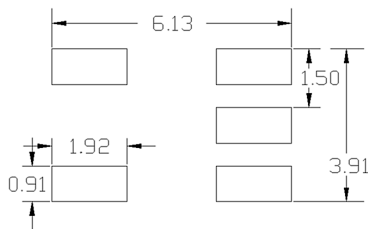
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Application Schematic

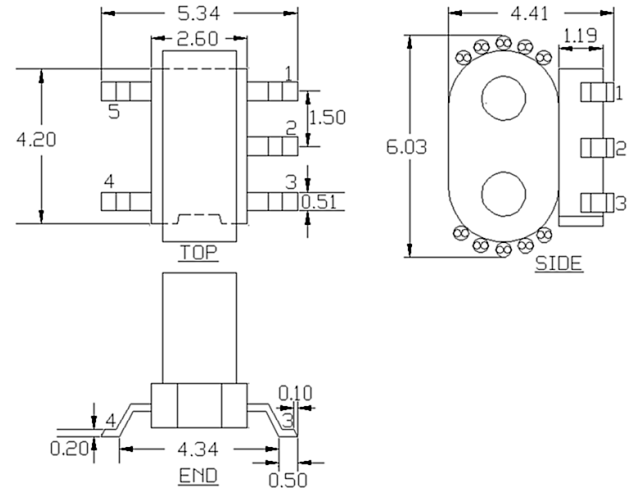


Recommended Board Layout⁷



7. Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

Outline Drawing^{8,9,10,11}



- 8. Dimensions in mm.
- 9. Tolerance: ± 0.2 mm unless otherwise noted.
- 10. Model number and lot code are printed on the reel.
- 11. Plating finish: CuSn6

Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	1500
Reel Size	mm	330
Tape Width	mm	16.00
Pitch	mm	12.00
Orientation	-	F33
Reference Application Note ANI-019 for orientation		

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