

## Step Down Auto Transformer 1.5:1 5 - 1218 MHz

Rev. V2

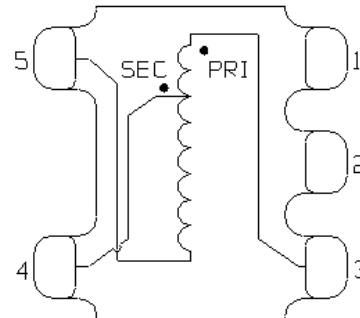
### Features

- 1.5:1 Impedance
- Surface mount
- Available on tape and reel
- 260° reflow compatible
- RoHS compliant and Pb free
- Excellent temperature stability
- Suitable for all CATV, Broadband and FTTX applications

### Description

The MABA-011104 is a 1.5:1 RF step-down auto-transformer offered in a surface mount package. Ideally suited for single ended 75 to 50 Ohm impedance matching in CATV DOCSIS 3.1 nodes and line extenders.

### Functional Schematic



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

Pin #	Function
1, 2	Not Connected (ground)
3	Primary Dot
4	Secondary Dot
5	Ground

3. MACOM recommends connecting unused package pins to ground.

### Electrical Specifications: Freq = 5 - 1218 MHz, T<sub>A</sub> = 25°C, Z<sub>0</sub> = 75 Ω, P<sub>IN</sub> = 0 dBm

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Impedance Ratio	—	-	—	1.5:1	—
Insertion Loss (Pin 3 - Pin 4)	5 - 200 MHz 200 - 1218 MHz	dB	—	0.2 0.5	0.6 1.09
Input Return Loss (Pin 3)	75 Ω, 5 - 1218 MHz	dB	19	29	—
Output Return Loss (Pin 4)	50 Ω, 5 - 870 MHz 50 Ω, 870 - 1218 MHz	dB	20 15	28 23	—

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

Part Number	Package
MABA-011104	Tape & Reel
MABA-011104-TB	Customer Sample Board

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

### Recommended Maximum Ratings<sup>4,5,6</sup>

Parameter	Rating
Input Power <sup>6</sup>	2 W
DC Current	200 mA
Operating Temperature	-40°C to +85°C

4. Exceeding anyone or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.
6. Specified at +25°C only.

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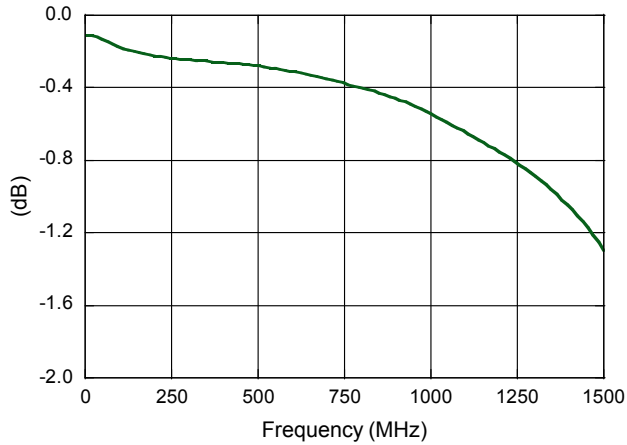
**PRELIMINARY:** Data Sheets contain information regarding a product MACOM has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

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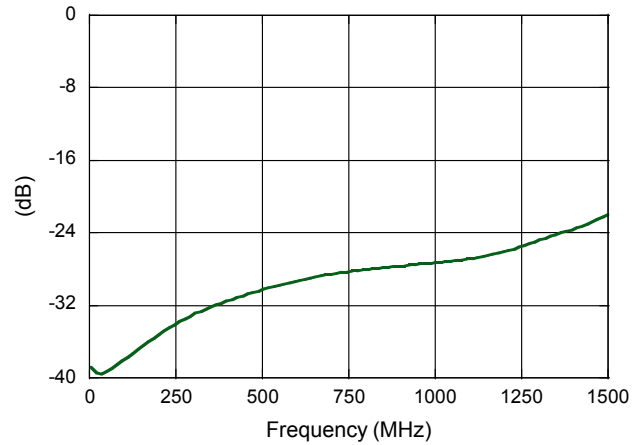
For further information and support please visit: <https://www.macom.com/support>

**Typical Performance Curves<sup>7</sup>:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75 \Omega$ ,  $P_{IN} = 0 \text{ dBm}$**

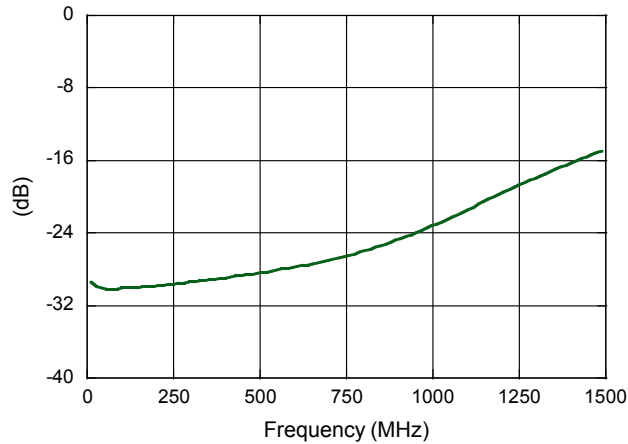
**Insertion Loss (pin 3-4)**



**Input Return Loss, 75  $\Omega$  (pin 3)**



**Output Return Loss, 50  $\Omega$  (pin 4)**

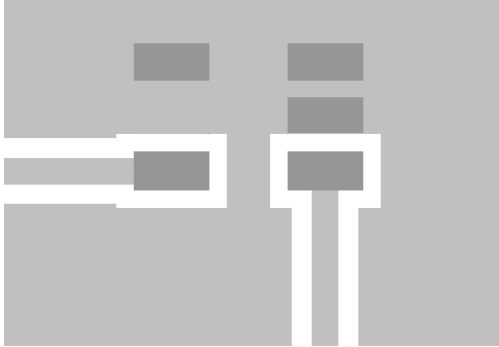


7. Full temperature plots available on request.

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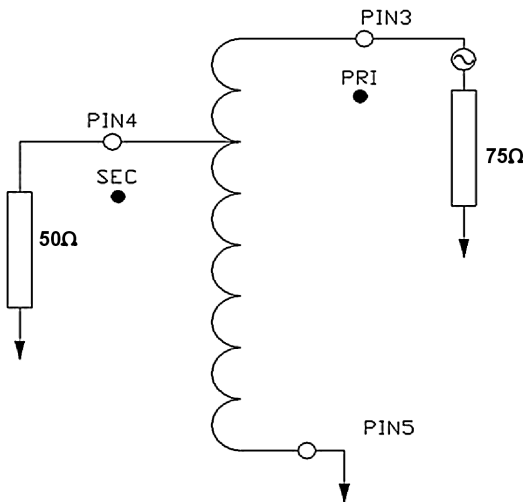
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### PCB Layout<sup>8</sup>

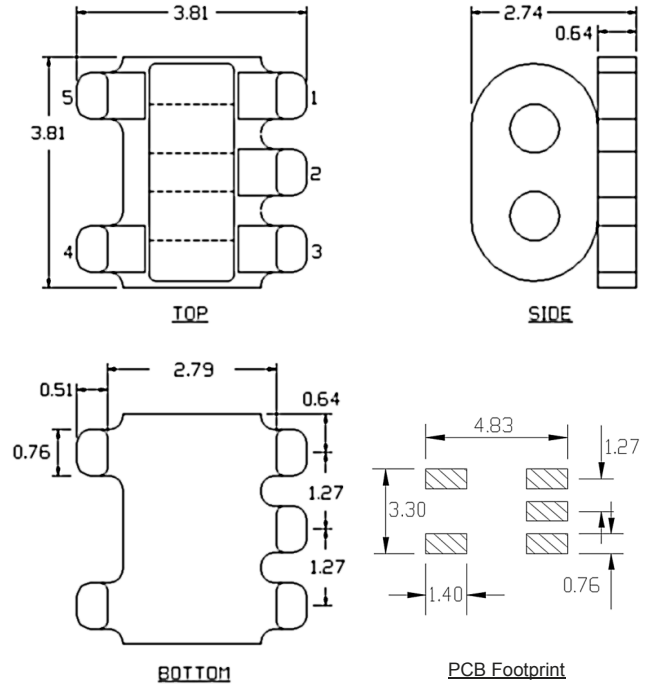


8. Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

### Application Schematic

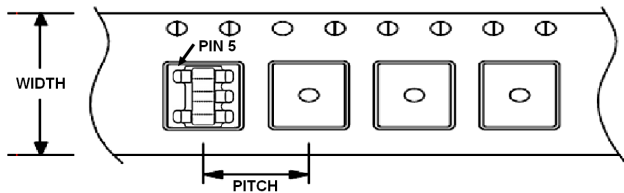


### Outline Drawing<sup>9,10,11,12</sup>



- 9. Dimensions in mm.
- 10. Tolerance:  $\pm 0.2$  mm unless otherwise noted.
- 11. Model number and lot code are printed on the reel.
- 12. Finish: Electroless nickel immersion gold (ENIG).

### 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	-	F5
Reference Application Note ANI-019 for orientation		

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