

Step Down Auto Transformer 1.5:1 5 - 1218 MHz

Rev. V2

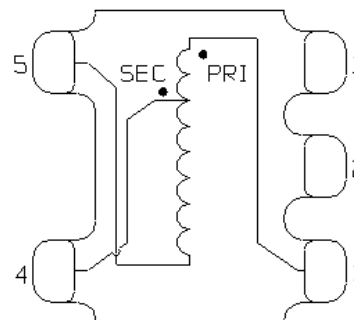
Features

- 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 Configuration³

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_A = 25°C, Z₀ = 75 Ω, P_{IN} = 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^{1,2}

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^{4,5,6}

Parameter	Rating
Input Power ⁶	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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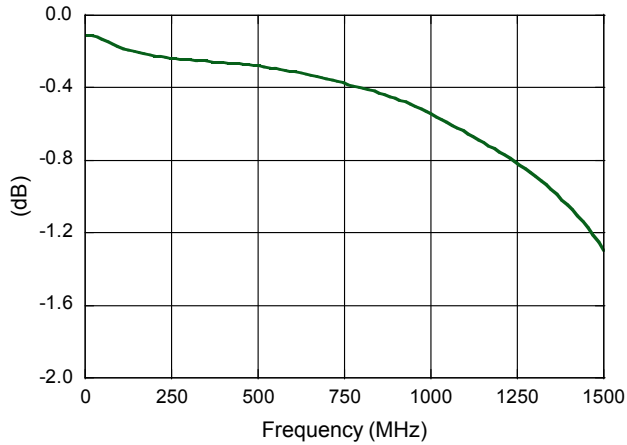
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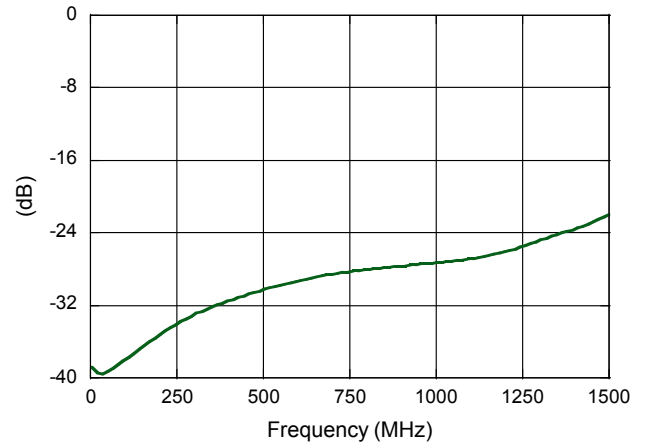
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Typical Performance Curves⁷: $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$

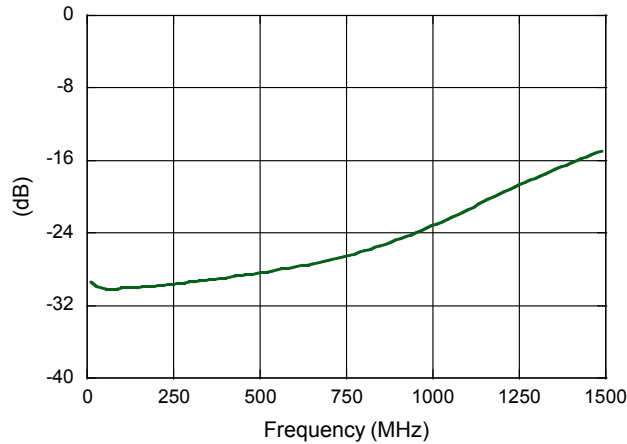
Insertion Loss (pin 3-4)



Input Return Loss, 75 Ω (pin 3)

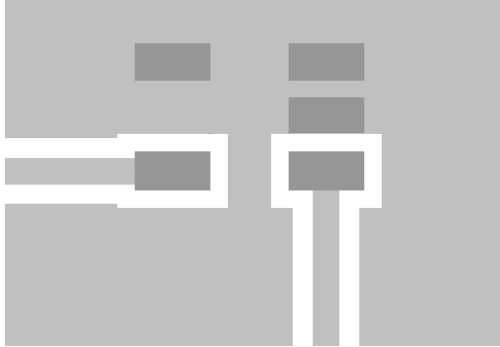


Output Return Loss, 50 Ω (pin 4)



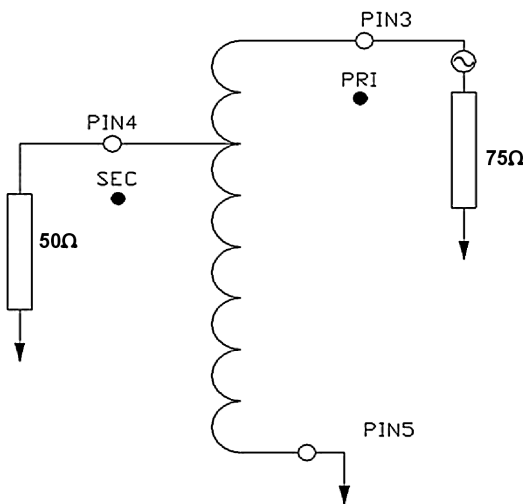
7. Full temperature plots available on request.

PCB Layout⁸

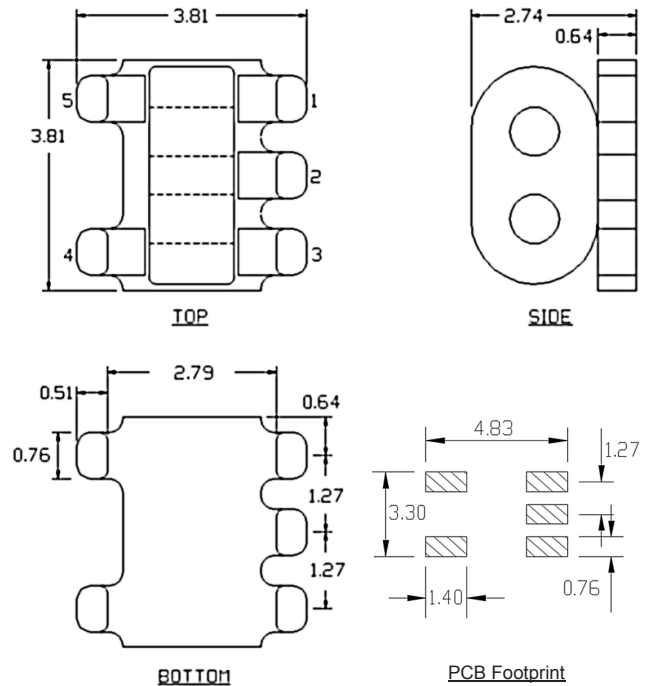


8. Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

Application Schematic

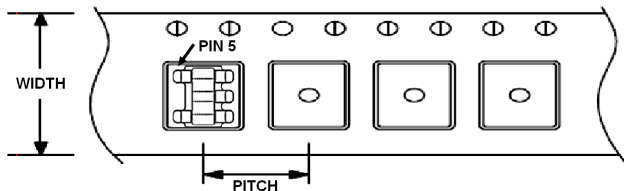


Outline Drawing^{9,10,11,12}



- 9. Dimensions in mm.
- 10. Tolerance: ± 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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