

## 1:1 Transmission Line Balun 5 MHz - 10GHz

Rev. V1

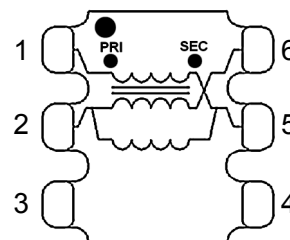
### Features

- Wide Bandwidth
- Low Insertion Loss
- Excellent Amplitude balance
- Small Surface Mount assembly
- Available on Tape and Reel
- RoHS\* Compliant and Lead Free
- 260°C Reflow Compatible

### Description

The MABA-011108 is a 1:1 balun transformer covering a very wide bandwidth. Appropriate for many applications including Cellular, Wideband Differential Amplifiers, Analog-to-digital Converters, Mixers, and Differential Modulators.

### Functional Schematic



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

Pin	Function	Pin	Function
1	Primary Dot (Input)	4	Not used (Ground)
2	Primary (Ground)	5	Secondary Dot (Output 2)
3	Not used (Ground)	6	Secondary (Output 1)

3. MACOM recommends connecting unused package pins to ground.

### Electrical Specifications: Freq. = 5 MHz - 10 GHz, T<sub>A</sub> = +25°C, Z<sub>0</sub> = 50 Ω, P<sub>IN</sub> = 0 dBm

Parameter	Test Conditions Frequency (MHz)	Units	Min	Typ	Max
Impedance Ratio	-	ratio	—	1:1	—
Balanced Insertion Loss	5 - 500 500 - 1000 1000 - 6000 6000 - 8000 8000 - 10000	dB	—	1.7 1.5 1.4 1.4 2.2	1.9 1.6 1.7 2.9 —
Amplitude Balance	5 - 3000 3000 - 8000 8000 - 10000	dB	—	0.0 1.5 2.0	±0.8 ±3.1 —
Phase Balance	5 - 500 500 - 8000 8000 - 10000	°	—	3 14 5	±8.0 ±20 —
Input Return Loss (Pin 1)	5 - 500 500 - 3000 3000 - 7000 7000 - 8000 8000 - 10000	dB	13 10 6 5 —	17 15 15 9 7	—
Output Return Loss (Pin 5-6)	5 - 5500 5500 - 8000 8000 - 10000	dB	9 5 —	14 13 7	—

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

Part Number	Description
MABA-011108	2000 piece reel
MABA-011108-TB	Sample Board

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

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

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

Parameter	Absolute Maximum
Input RF Power	1 W, @ +25°C, 1 GHz
DC Current	1 A
Operating Temperature	-55°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.

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

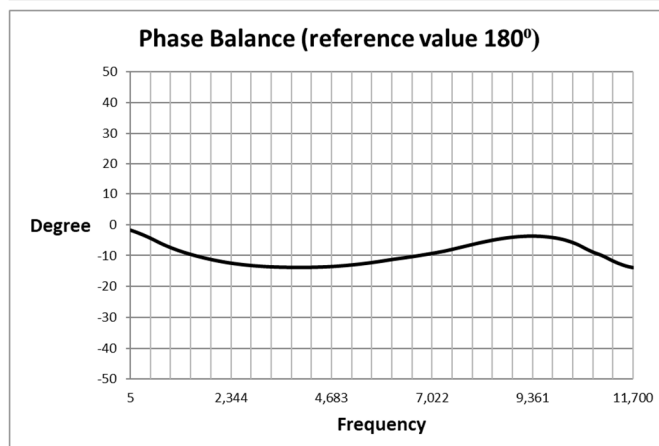
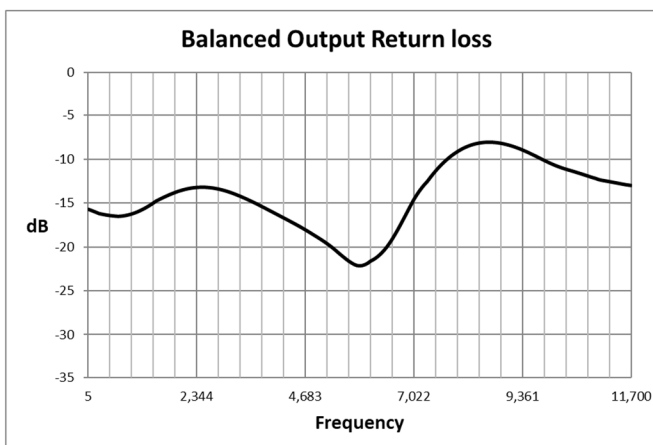
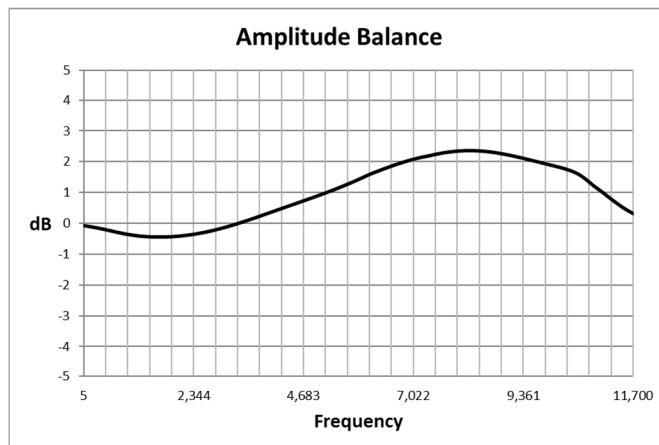
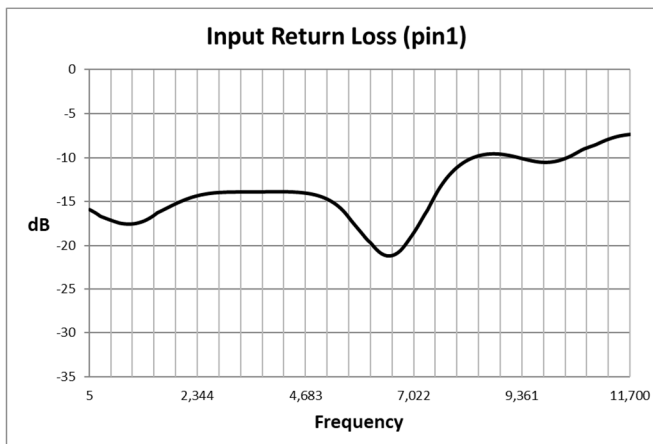
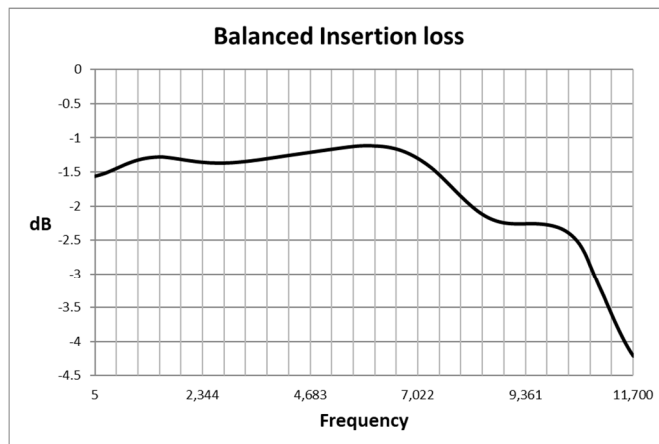
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

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

## 1:1 Transmission Line Balun 5 MHz - 10GHz

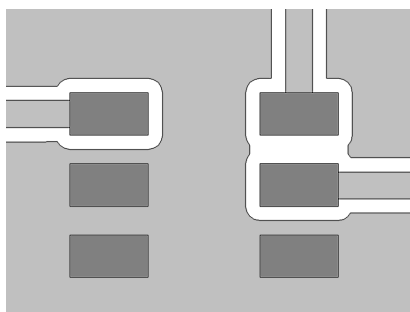
Rev. V1

Typical Performance Curves<sup>6</sup>: Freq. = 5 MHz - 10 GHz,  $T_A = +25^\circ\text{C}$ ,  $Z_0 = 50\ \Omega$ ,  $P_{IN} = 0\ \text{dBm}$



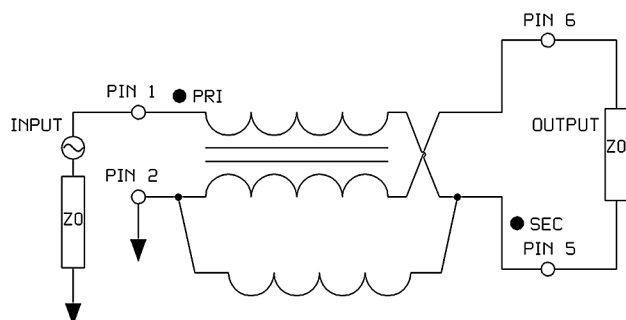
6. Temperature plots available on request.

### Recommended Board Layout<sup>7,8</sup>

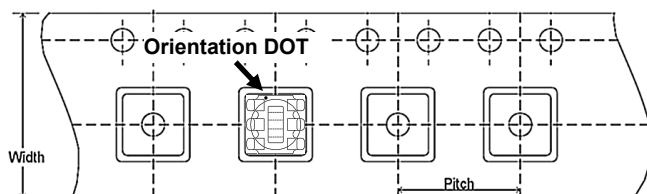


7. Recommended PCB layout shown above uses Rogers RO4350B substrate, thickness 0.254 mm.
8. Grounded coplanar wave guide trace, width 0.48 mm and Gap 0.25 mm.

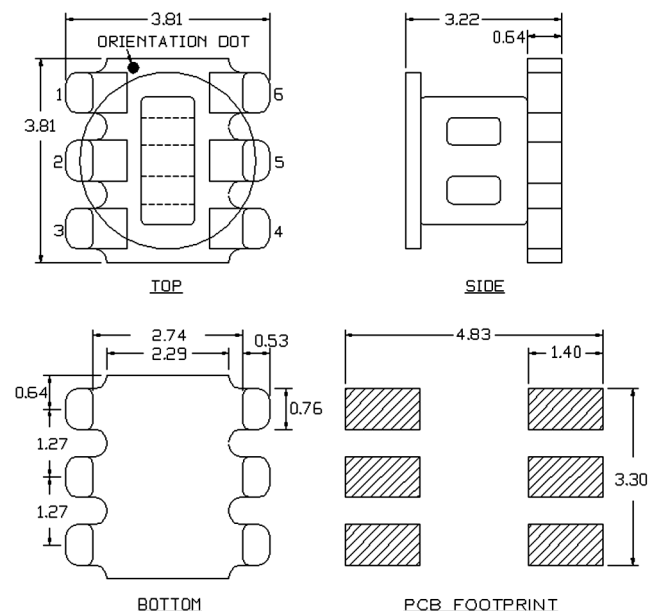
### Application Schematic



### Carrier Tape Orientation



### 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. Plating finish: ENIG.

### Tape & Reel Information<sup>13</sup>

Parameter	Units	Value
Qty per Reel	-	2000
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Orientation	-	F33

13. Reference Application Note ANI-019 for orientation.

MACOM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with MACOM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

MACOM:

MABA-011108