

1:1 Transformer Balun 5 - 8000 MHz

Rev. V2

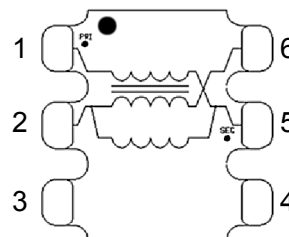
Features

- Wide Bandwidth
- Suitable for all Telecommunication Bands
- Excellent RF Performance & Temperature Stability
- Surface Mount Package
- Available on Tape and Reel
- RoHS* Compliant and Lead Free
- 260°C Reflow Compatible

Description

The MABA-011082 is a 1:1 balun transformer in a low cost surface mount package. Ideally suited for 2G, 3G, 4G, LTE, WiFi, WiMax, wide band amplifiers, mixers & modulators

Functional Schematic



Pin Configuration¹

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

1. MACOM recommends connecting unused package pins to ground.

Electrical Specifications: Freq. = 5 - 8000 MHz, T_A = +25°C, Z₀ = 50 Ω, P_{IN} = 0 dBm

Parameter	Test Conditions Frequency (MHz)	Units	Min	Typ	Max
Impedance Ratio	—	ratio	—	1:1	—
Balanced Insertion Loss	5 - 500	dB	—	1.6	1.9
	500 - 1000			1.4	1.6
	1000 - 6000			1.3	1.7
	6000 - 8000			1.7	2.6
Amplitude Balance	5 - 3000	dB	—	-0.3	±0.8
	3000 - 8000			1.0	±3.1
Phase Balance	5 - 500	°	—	-3	±8
	500 - 8000			-15	±20
Input Return Loss (Pin 1)	5 - 500	dB	13	17	—
	500 - 3000		10	15	
	3000 - 7000		6	15	
	7000 - 8000		5	10	
Output Return Loss (Pin 5-6)	5 - 5500	dB	9	14	—
	5500 - 8000		5	13	

Ordering Information^{2,3}

Part Number	Description
MABA-011082	2000 piece reel
MABA-011082-TB	Customer test board

2. Reference Application Note M513 for reel size information.

3. All sample boards include 5 loose parts.

Absolute Maximum Ratings^{4,5}

Parameter	Absolute Maximum
Input RF Power ⁶	1 W
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.

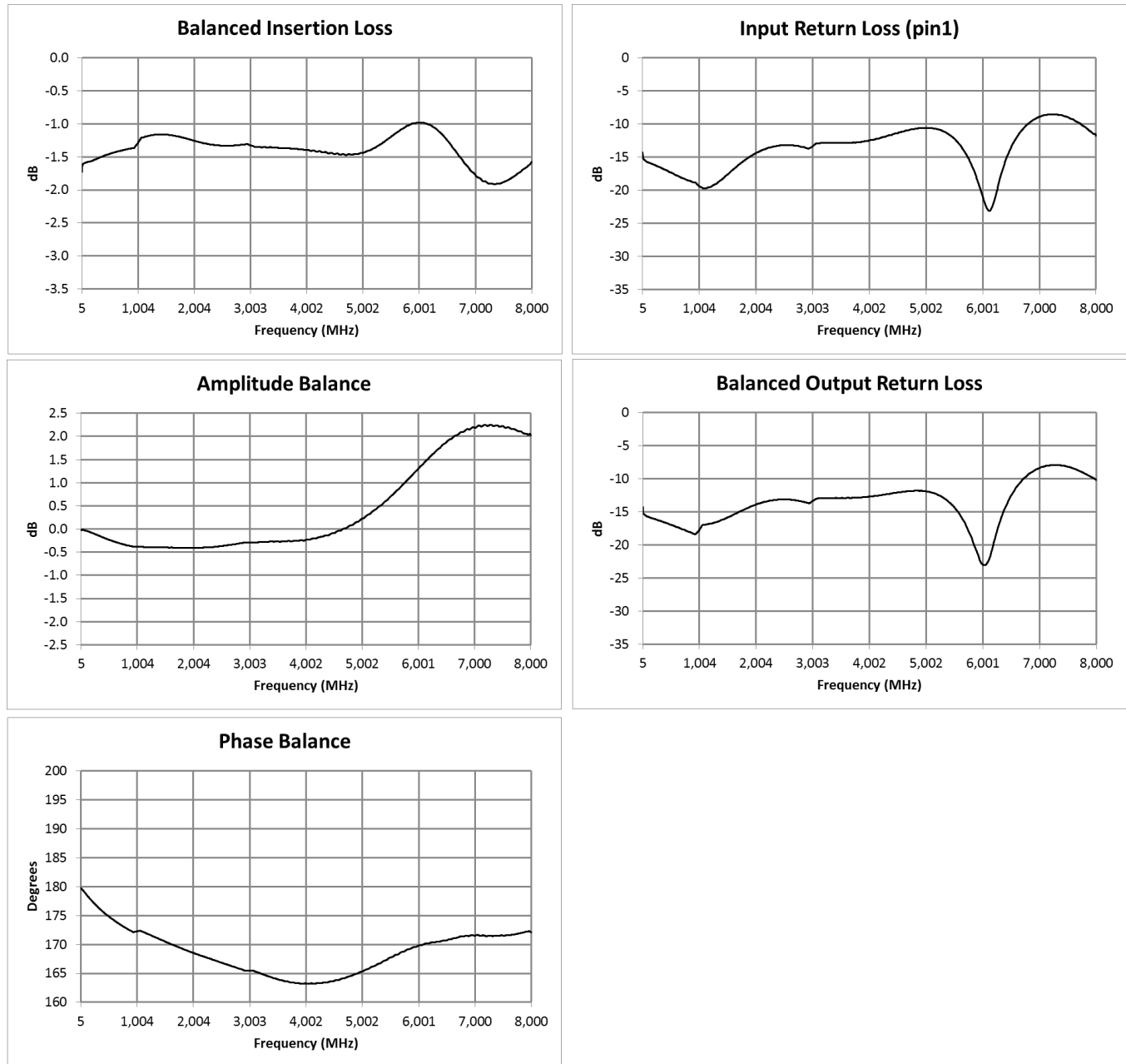
5. MACOM does not recommend sustained operation near these survivability limits.

6. Specified at +25°C only.

1:1 Transformer Balun 5 - 8000 MHz

Rev. V2

Typical Performance Curves⁷

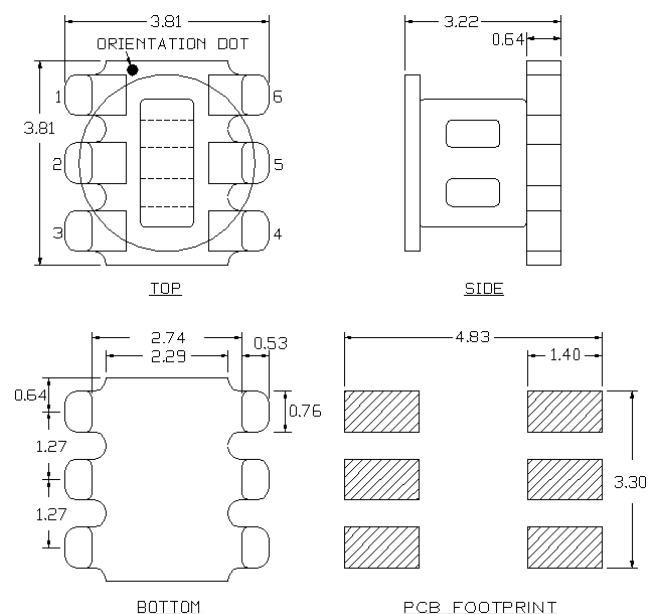


7. Temperature plots available on request.

1:1 Transformer Balun 5 - 8000 MHz

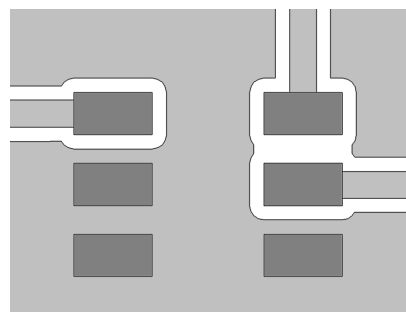
Rev. V2

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



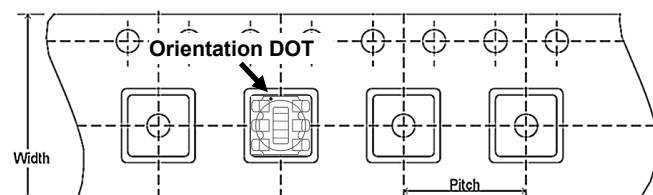
8. Dimensions in mm.
9. Tolerance: ± 0.2 mm unless otherwise noted.
10. Model number and lot code are printed on the reel.
11. Plating finish: ENIG.

Recommended Board Layout^{12,13}



12. Recommended PCB layout shown above uses Roger-RO4350B substrate, thickness 0.254 mm.
13. Grounded coplanar wave guide trace, width 0.48 mm and Gap 0.25 mm.

Carrier Tape Orientation



Tape & Reel Information¹⁴

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

14. 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 estoppel 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.