

1:1 Transmission Line Balun with Tertiary Winding 5 - 1225 MHz

Rev. V2

Features

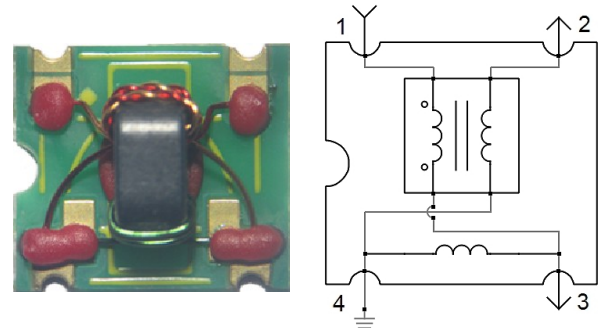
- Surface Mount
- 1:1 Impedance
- Available on Tape and Reel
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible
- Excellent Temperature Stability

Description

The MABA-011085 is a 1:1 transmission line balun with tertiary winding in a low cost surface mount package.

Ideally suited for all CATV Broadband and FTTx applications.

Functional Schematic



Pin Configuration

Pin No.	Function
1	Primary (input)
2	Secondary Dot (Output 2)
3	Secondary (Output 1)
4	Primary (ground)

Electrical Specifications: Freq. = 5 - 1225 MHz, $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{in} = 0 \text{ dBm}$

Parameter	Conditions	Units	Min.	Typ.	Max.
Impedance Ratio	—	—	—	1:1	—
Insertion Loss 1 (Pin 1 - Pin 3)	5 - 300 MHz	dB	—	0.2	0.3
	300 - 1000 MHz			0.4	0.8
	1000 - 1225 MHz			0.7	1.0
Insertion Loss 2 (Pin 1 - Pin 2)	5 - 300 MHz	dB	—	0.3	0.5
	300 - 1000 MHz			0.5	0.7
	1000 - 1225 MHz			0.4	0.8
Amplitude Balance	5 - 300 MHz	dB	—	0.2	± 0.3
	300 - 1225 MHz			0.4	± 0.7
Phase Balance (ref value 180°)	5 - 300 MHz	dB	—	1.0	± 3.0
	300 - 1225 MHz			2.0	± 9.0
Input Return Loss (Pin 1)	5 - 300 MHz	dB	25	30	—
	300 - 1225 MHz		15	25	

Ordering Information¹

Part Number	Description
MABA-011085-PPR	900 piece reel
MABA-011085-TB	sample board

1. All sample boards include 5 loose parts.

Absolute Maximum Ratings

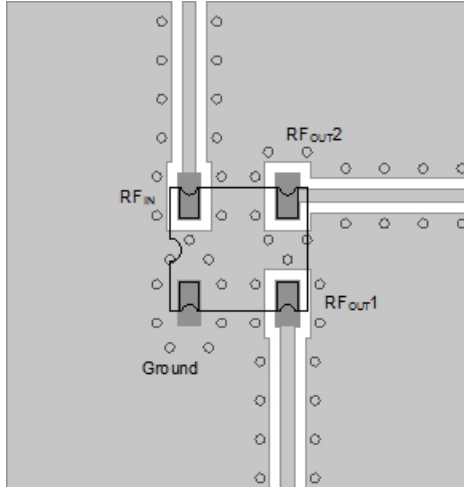
Parameter	Absolute Maximum
Input RF Power	2000 mW
DC Current	1500 mA
Operating Temperature	-40°C to $+125^\circ\text{C}$

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 for additional data sheets and product information.

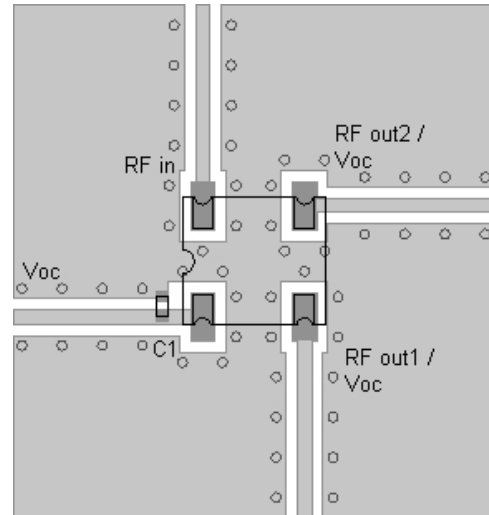
For further information and support please visit:
<https://www.macom.com/support>

DC-0012064

Recommended PCB Layout



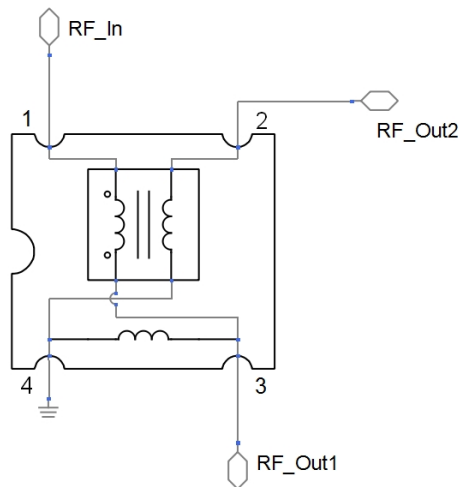
Layout Option 1 - no dc voltage on tertiary winding



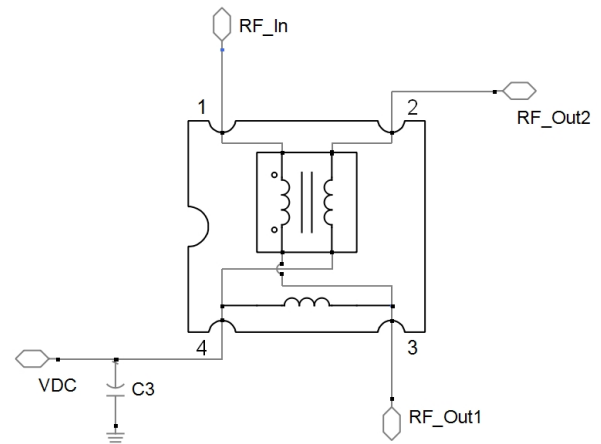
Layout Option 2 - dc voltage on tertiary winding

1. Recommended PCB layout shown above uses 1.6 mm FR4
2. Grounded coplanar wave guide transmission line
3. Trace width 0.70 mm
4. Gap 0.57 mm

Application Schematics



Option 1 - no dc voltage on tertiary winding



Option 2 - dc voltage on tertiary winding

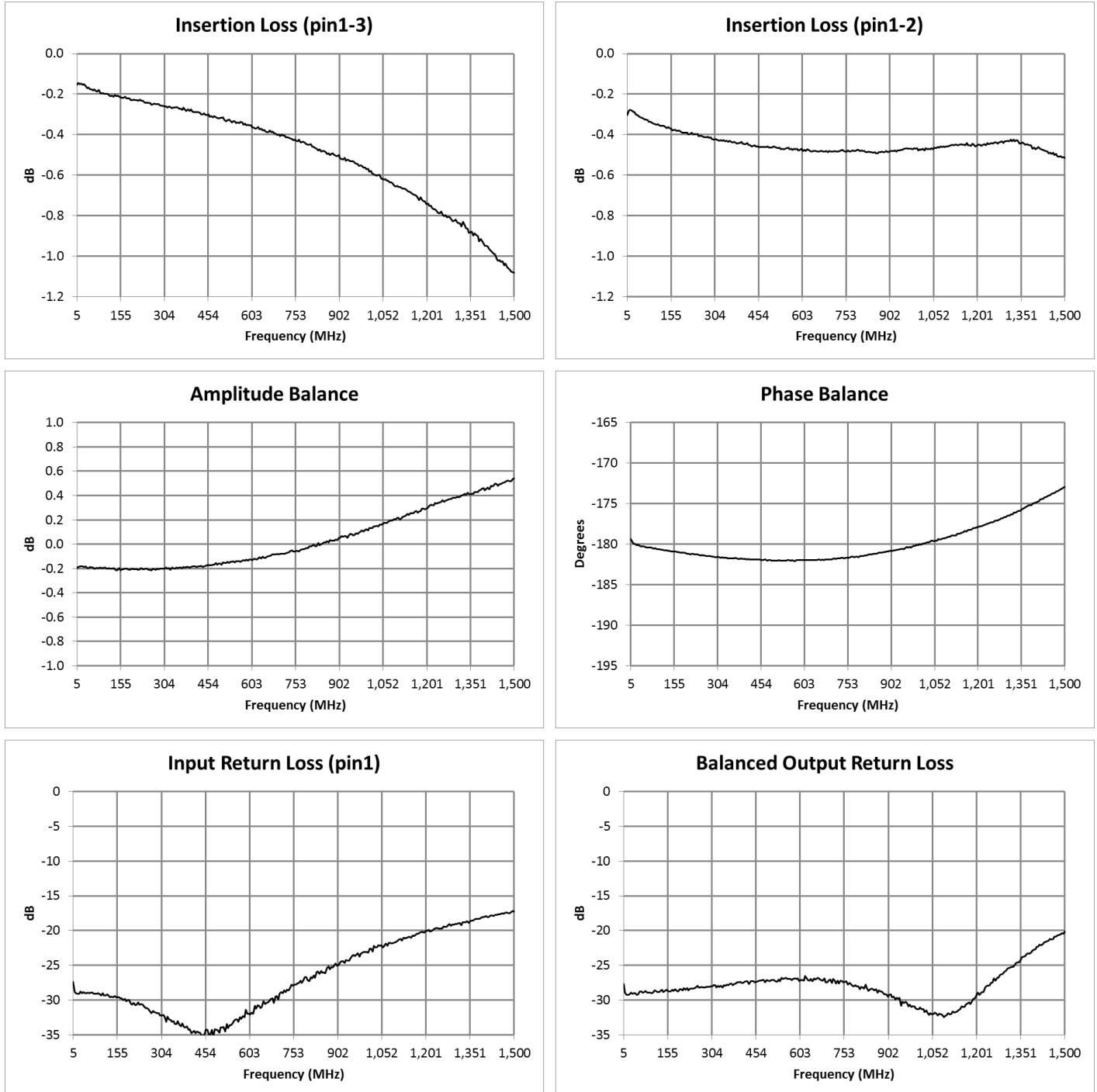
Parts List

Component	Value	Package
C1	10 nF	0402

1:1 Transmission Line Balun with Tertiary Winding 5 - 1225 MHz

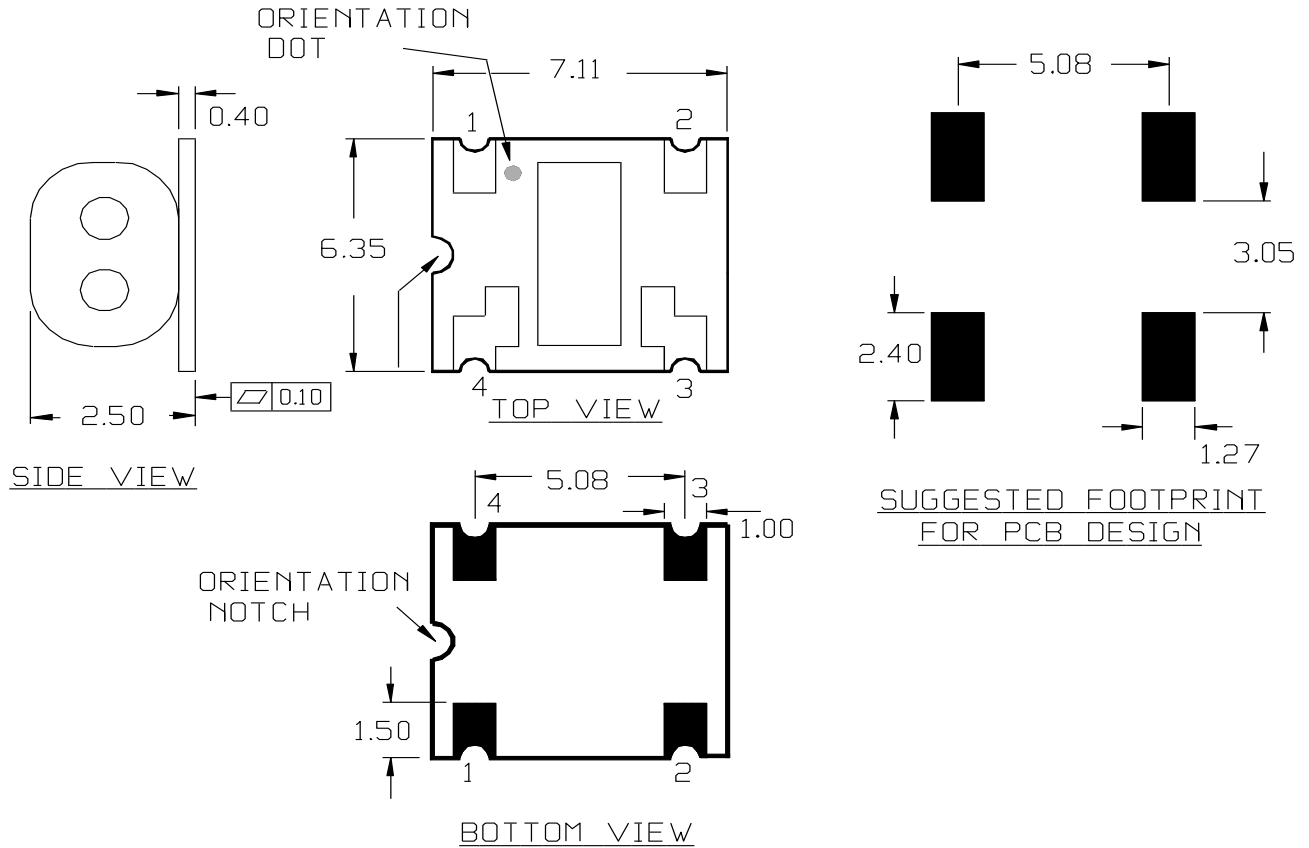
Rev. V2

Typical Performance Curves: $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$



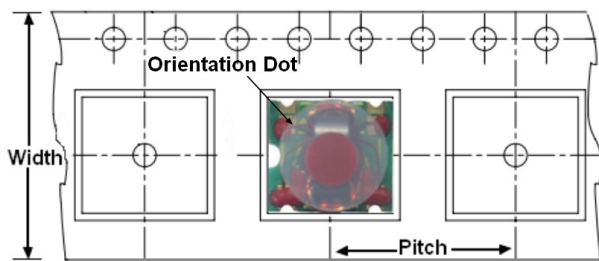
Full temperature plots available on request

Part Outline Drawing



1. Dimensions in mm
2. Tolerance: ± 0.2 mm unless otherwise noted
3. Model number and lot code are printed on the reel
4. Plating finish: ENIG

Carrier Tape Orientation



Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	900
Reel Size	mm	330
Tape Width	mm	16.00
Pitch	mm	12.00
Orientation	-	F60
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.

Mouser Electronics

Authorized Distributor

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

[MACOM:](#)

[MABA-011085](#)