

1:2 Transmission Line Balun 5 - 1800 MHz



MABA-011113

Rev. V1

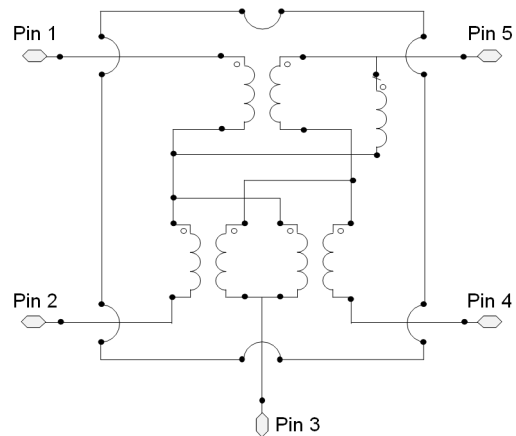
Features

- Surface Mount Package
- 1:2 Impedance
- Excellent Temperature Stability
- Available on Tape and Reel
- RoHS* Compliant and Lead Free
- 260°C Reflow Compatible

Description

The MABA-011113 is a 1:2 transmission line balun in a surface mount package. Ideally suited for all CATV Broadband and FTTx applications.

Functional Schematic



Ordering Information^{1,2}

Part #	Description
MABA-011113	900 piece reel
MABA-011113-TB	Customer test board

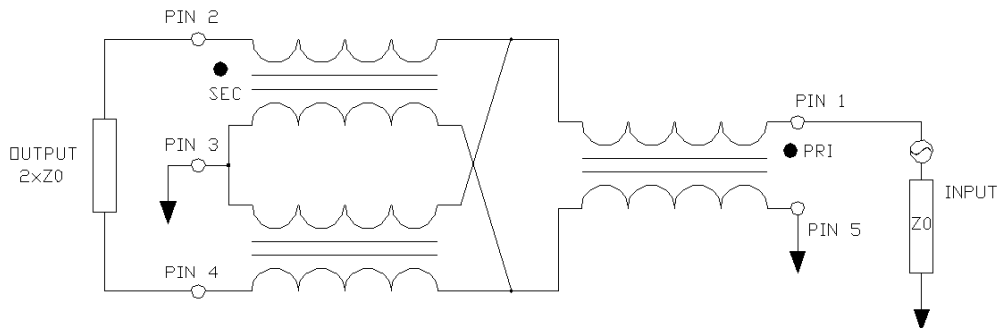
1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

Pin Configuration³

Pin #	Function	Pin #	Function
1	Input (PRI dot)	4	Output 2 (SEC)
2	Output 1 (SEC dot)	5	Ground (PRI)
3	Centre tap (RF Ground)		

3. MACOM recommends connecting unused package pins to ground.

Application Schematic



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

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Electrical Specifications: Freq. = 5 - 1800 MHz, T_A = 25°C, Z₀ = 75 Ω, P_{IN} = 0 dBm

Parameter	Test Frequency (MHz)	Units	Min.	Typ.	Max.
Impedance Ratio	—	Ratio	—	1:2	—
Insertion Loss 1 (pin 1 to pin 2)	5 - 500	dB	—	1.1	1.4
	500 - 1218			2.0	3.0
	1218 - 1800			4.2	5.4
Insertion Loss 2 (pin 1 to pin 4)	5 - 500	dB	—	1.0	1.4
	500 - 1218			2.0	2.8
	1218 - 1800			4.2	5.4
Balance Insertion Loss	5 - 500	dB	—	1.0	1.3
	500 - 1218			2.0	2.7
	1218 - 1800			4.1	5.3
Amplitude Balance	5 - 500	dB	-0.6	0.2	0.6
	500 - 1218		-0.9	0.2	0.9
	1218 - 1800		-1.7	0.9	1.7
Phase Balance	5 - 500	°	-5	2.0	5
	500 - 1218		-15	5.0	15
	1218 - 1800		-20	7.0	20
Input Return Loss (pin 1)	5 - 50	dB	8	14	—
	50 - 500		19	22	
	500 - 1218		13	18	
	1218 - 1800		6	9	
Balance Output Return Loss	5 - 50	dB	8	14	—
	50 - 500		19	22	
	500 - 1218		13	18	
	1218 - 1800		7	9	

Absolute Maximum Ratings^{4,5}

Parameter	Absolute Maximum
Input RF Power	1.5 W
DC Current	600 mA
Operating Temperature	-40°C to +85°C

- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

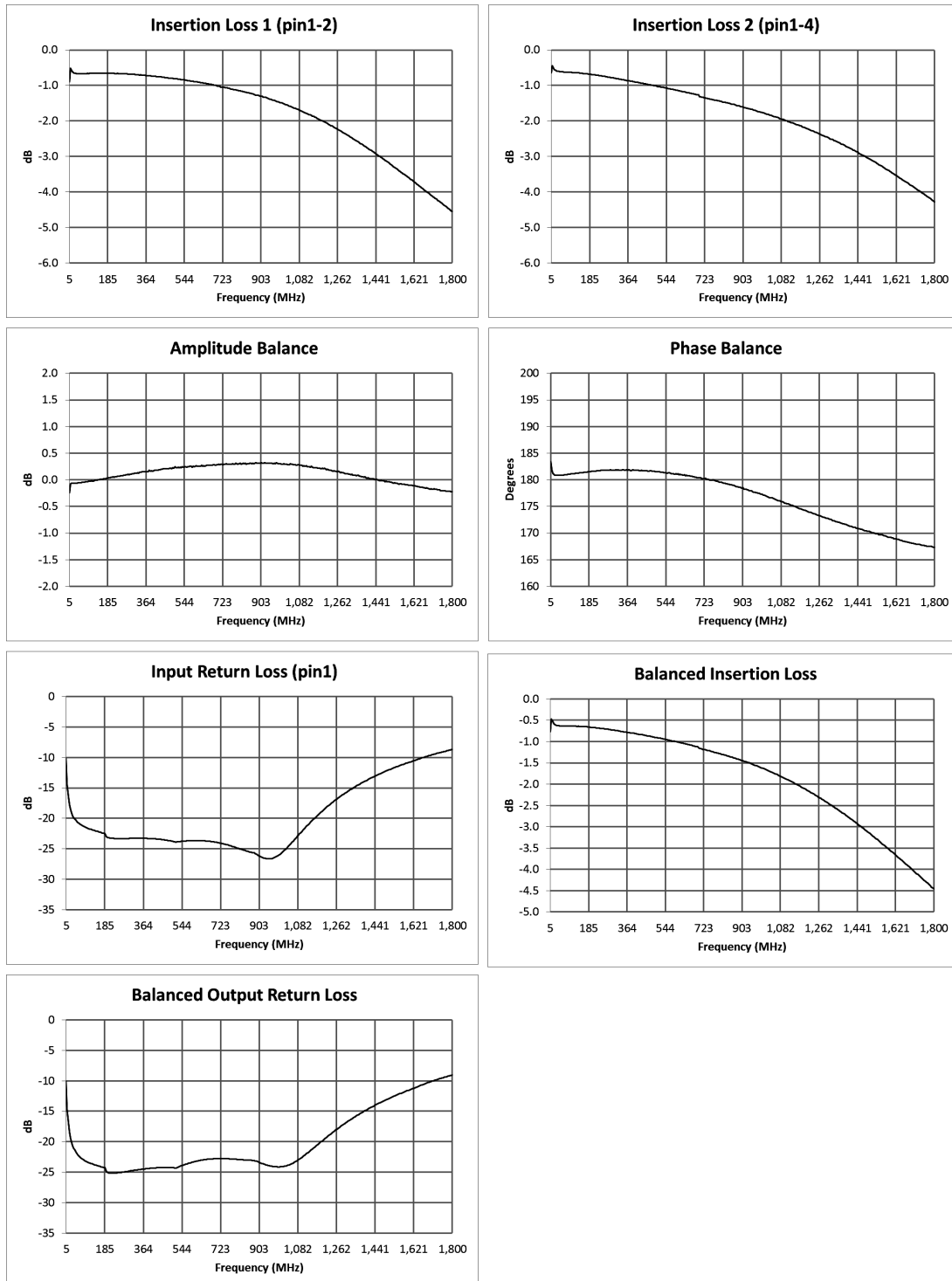
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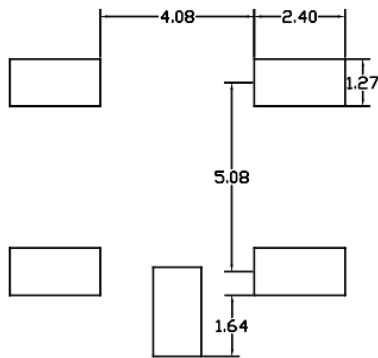
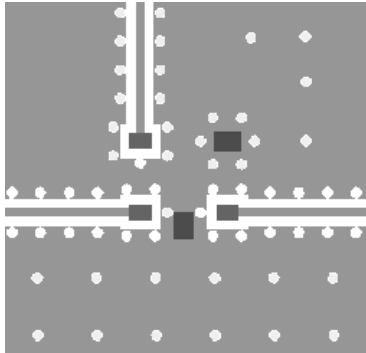
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Typical Performance Curves⁶



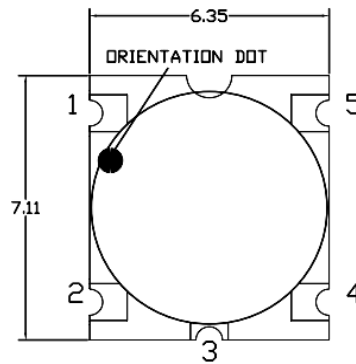
6. Full temperature plots available on request.

Recommended Board Layout⁷

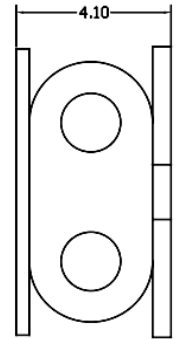


7. Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

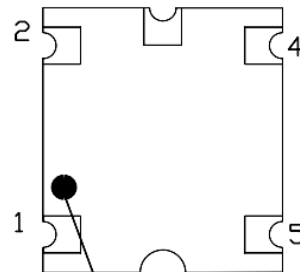
Outline Drawing^{8,9,10,11}



TOP VIEW



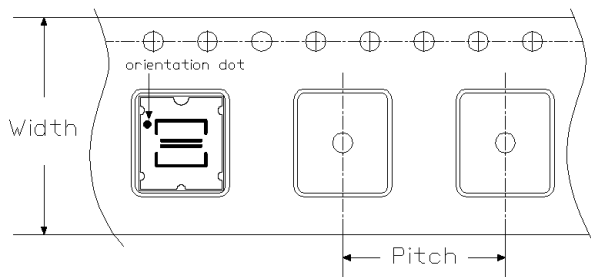
END VIEW



BOTTOM VIEW

- 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.

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	-	F33
Reference Application Note ANI-019 for orientation		

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