

1:1.33 Transmission Line Balun 5 - 1800 MHz



MABA-011120
Rev. V2

Features

- Surface Mount Package
- 1:1.33 Impedance
- Excellent Temperature Stability
- Available on Tape and Reel
- RoHS* Compliant and Lead Free
- 260°C Reflow Compatible

Applications

- CATV Broadband

Description

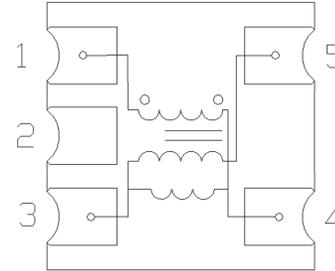
The MABA-011120 is a 1:1.33 transmission line balun featuring excellent temperature stability in a surface mount package.

Ordering Information^{1,2}

Part #	Description
MABA-011120	2000 pieces reel
MABA-011120-TB	sample board

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

Functional Schematic

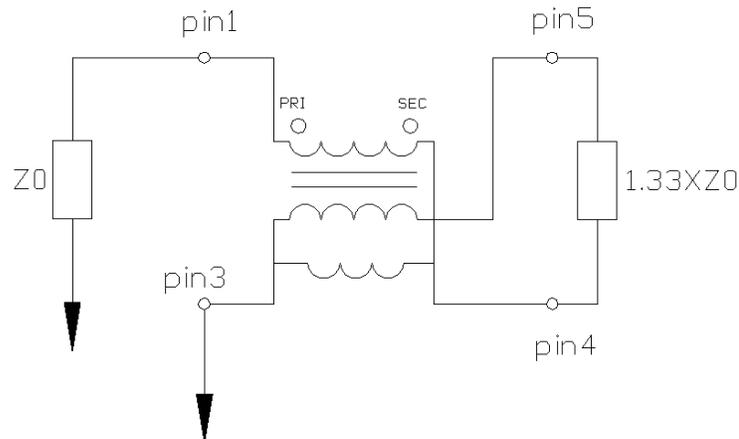


Pin Configuration³

Pin #	Function
1	Input (PRI dot)
2	Not used
3	Ground (PRI)
4	Output 1 (SEC dot)
5	Output 2 (SEC)

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	—	1:1.33	—
Insertion Loss (pin 1 to pin 5)	5 - 500	dB	—	0.9	1.1
	500 - 1218			1.1	1.4
	1218 - 1800			1.3	1.7
Insertion Loss (pin 1 to pin 4)	5 - 500	dB	—	0.7	0.9
	500 - 1218			0.8	1.1
	1218 - 1800			1.5	2.0
Balance Insertion Loss	5 - 500	dB	—	0.7	0.9
	500 - 1218			0.9	1.2
	1218 - 1800			1.4	1.7
Amplitude Balance	5 - 1218 1218 - 1800	dB	—	0.5	±0.7
				0.5	±1.0
Phase Balance	5 - 1218 1218 - 1800	°	7.0	5.0	5.0
			7.0	4.0	10.0
Input Return Loss (pin 1)	5 - 1218 1218 - 1800	dB	18.0	20	—
			15.0	23	—
Balance Output Return Loss	50 - 1000 1000 - 1218 1218 - 1800	dB	13	15	—
			15	20	—
			13	21	—

Absolute Maximum Ratings^{4,5,6}

Parameter	Absolute Maximum
Input RF Power	1.0 W
DC Current	600 mA
Operating Temperature	-40°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 and measured at 900 MHz & 1800 MHz

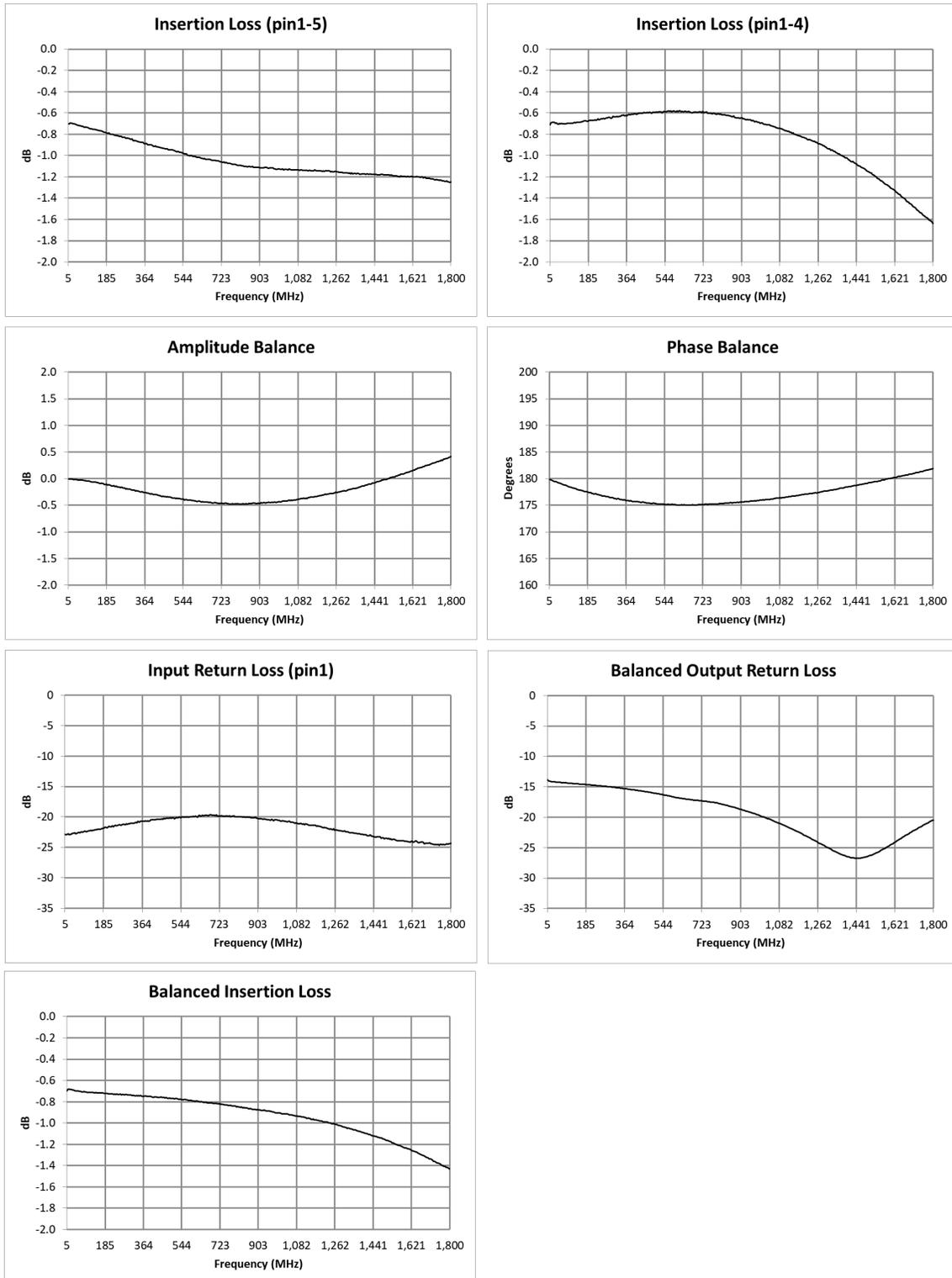
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Typical Performance Curves⁶



6. Full temperature plots available on request.

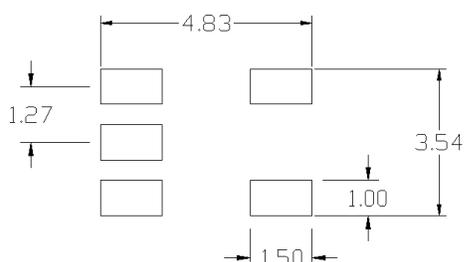
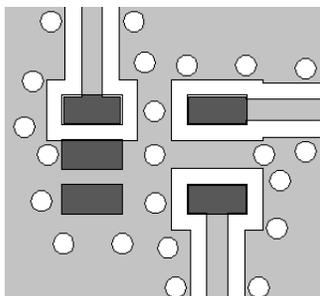
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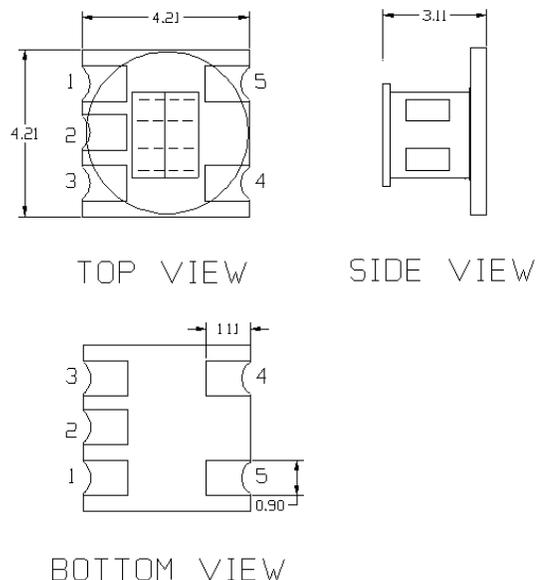
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Recommended Board Layout⁷



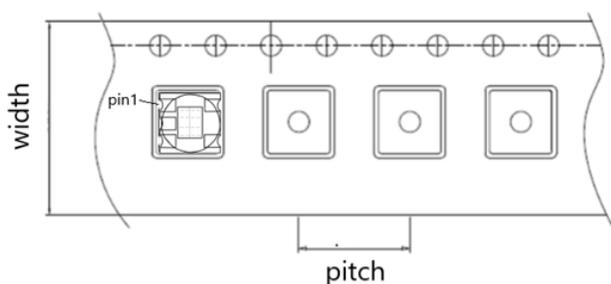
7. Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

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



- 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	-	2000
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Orientation	-	F59
Reference Application Note ANI-019 for orientation		

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