

# 1:2 Transmission Line Balun

## 10 - 10000 MHz



MABA-011118

Rev. V4

### 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

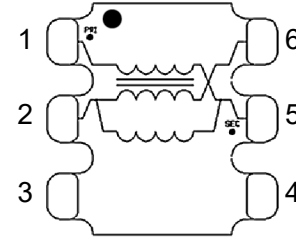
The MABA-011118 is a 1:2 balun transformer in a surface mount package. Ideally suited for 2G, 3G, 4G, LTE, WiFi, WiMax, wide band amplifiers, mixers & modulators

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

Part Number	Description
MABA-011118	500 piece reel
MABA-011118-TB	Customer test board

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

### Functional Schematic



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

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

3. MACOM recommends connecting unused package pins to ground.

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**Electrical Specifications: Freq. = 10 - 10000 MHz, T<sub>A</sub> = +25°C, Z<sub>0</sub> = 50 Ω, P<sub>IN</sub> = 0 dBm**

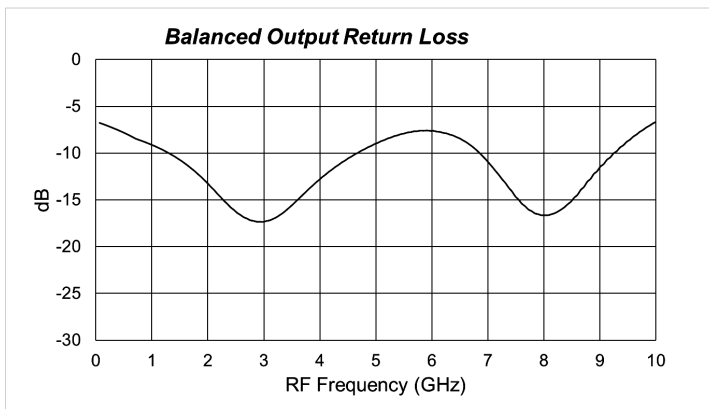
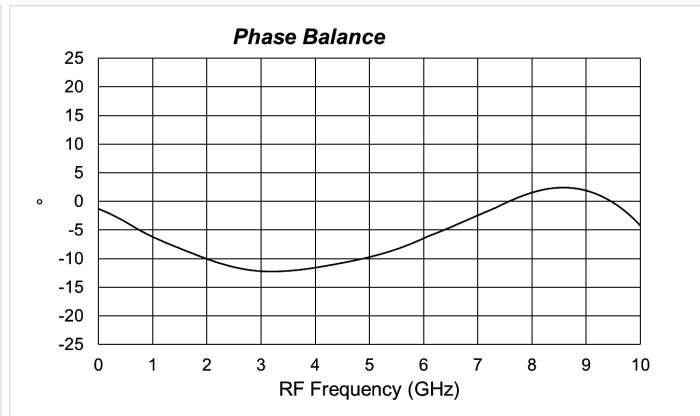
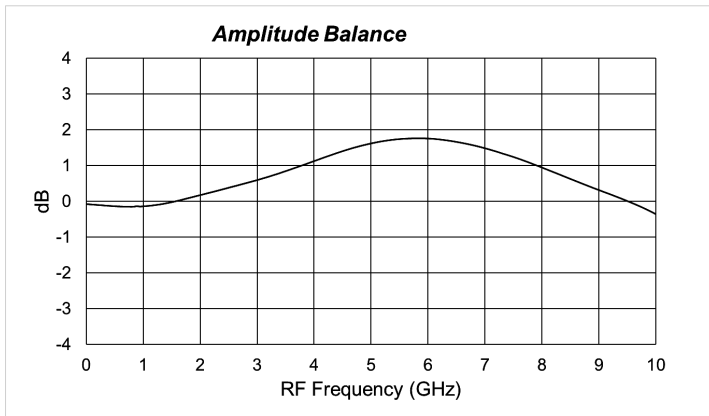
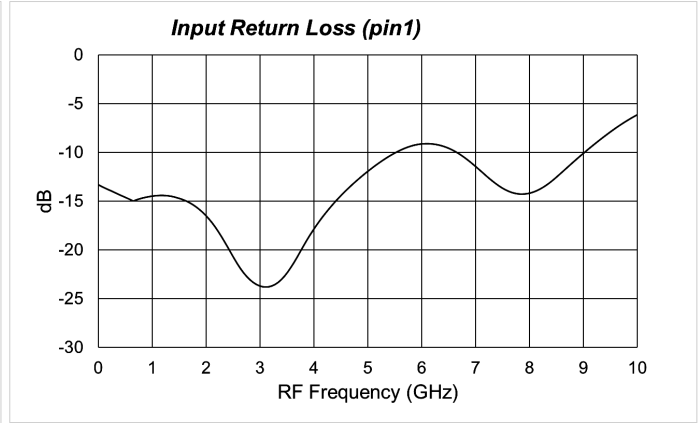
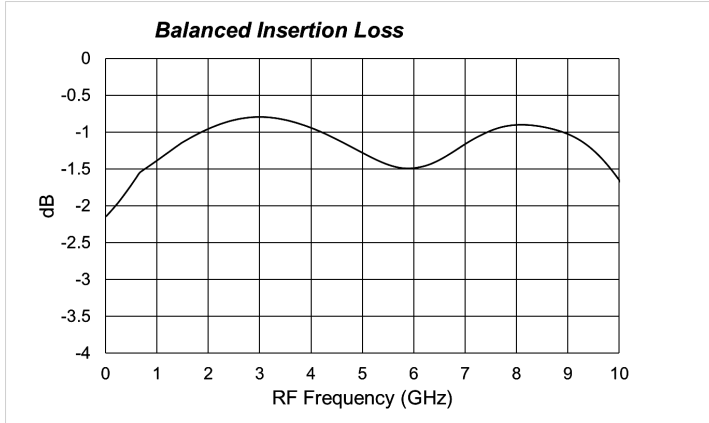
Parameter	Test Conditions Frequency (MHz)	Units	Min.	Typ.	Max.
Impedance Ratio	—	ratio	—	1:2	—
Balanced Insertion Loss	10 - 1000	dB	—	2.0	2.4
	1000 - 4000			1.2	1.7
	4000 - 7000			1.9	2.3
	7000 - 8500			1.6	2.0
	8500 - 10000			2.1	—
Amplitude Balance	10 - 2000	dB	—	0.3	±0.8
	2000 - 4000			1.0	±1.8
	4000 - 8500			1.5	±2.5
	8500 - 10000			0.6	-
Phase Balance	10 - 2000	°	—	8	±15
	2000 - 7000			12	±16
	7000 - 8500			5	±10
	8500 - 10000			5	—
Input Return Loss (Pin 1)	10 - 2000	dB	12	15	—
	2000 - 4000		13	20	
	4000 - 7000		7	9	
	7000 - 8500		8	11	
	8500 - 10000		—	8	
Output Return Loss (Pin 5-pin 6)	10 - 1000	dB	6	8	—
	1000 - 4000		8	14	
	4000 - 7000		5	8	
	7000 - 8500		8	12	
	8500 - 10000		—	8	

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

Parameter	Absolute Maximum
Input RF Power <sup>6</sup>	1 W
DC Current	1 A
Operating Temperature	-40°C to +125°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 +25C only.

Typical Performance Curves<sup>7</sup>



7. Temperature plots available on request.

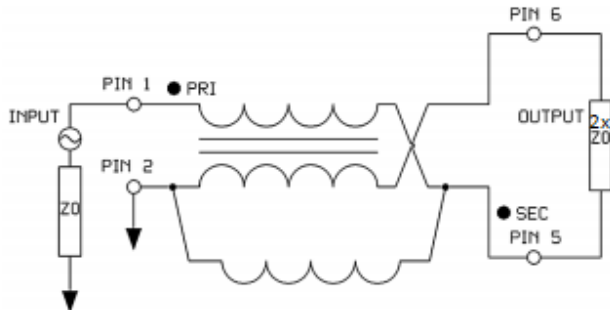
# 1:2 Transmission Line Balun 10 - 10000 MHz



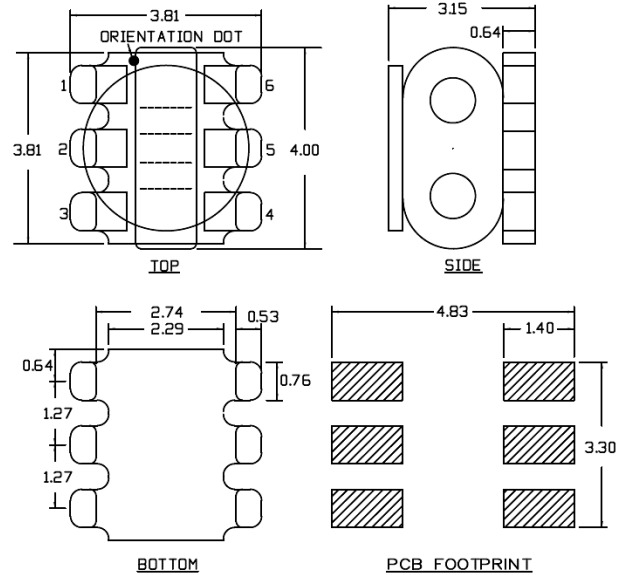
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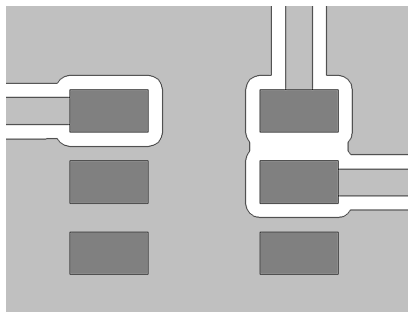
## Application Schematic



## Outline Drawing<sup>10,11,12,13</sup>



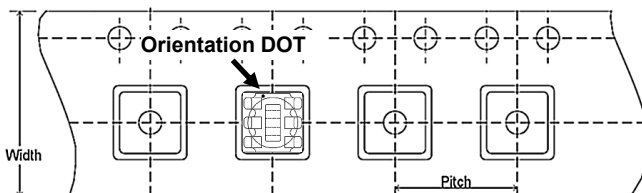
## Recommended Board Layout<sup>8,9</sup>



8. Recommended PCB layout shown above uses RogerRO4350B substrate, thickness 0.254 mm.
9. Grounded coplanar wave guide trace, width 0.48 mm and Gap 0.25 mm.

10. Dimensions in mm.
11. Tolerance:  $\pm 0.2$  mm unless otherwise noted.
12. Model number and lot code are printed on the reel.
13. Plating finish: ENIG.

## Carrier Tape Orientation



## Tape & Reel Information<sup>14</sup>

Parameter	Units	Value
Qty per Reel	-	500
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Orientation	-	F33

14. Reference Application Note ANI-019 for orientation.

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