1:1 Tx Line Balun with Tertiary Winding
30 - 1800 MHz

MABA-011164
Rev. V1

Features

- 1:1 Impedance Ratio
- Capable of Withstanding 20 W CW @ 200 MHz
- Operating Temperature 125°C max.
- Surface Mount Package
- Tape & Reel Packaging Available
- RoHS* Compliant & 260°C Reflow Compatible

Applications

- Multi Markets
- MMIC

Description

The MABA-011164 is a 1:1 RF transmission line transformer in a surface mount package. Offering class leading power handling in an extremely small footprint.

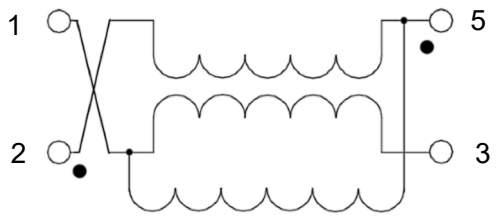
Typical applications include single to balanced mode conversion. This balun is ideally suited for high power amplifier applications.

Ordering Information[1,2]

Part Number	Package
MABA-011164	500 piece reel
MABA-011164-TB	Sample Board

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

Functional Schematic



Pin Function[3,4]

Pin #	Function
1	Ground
2	Input (Dot)
3	Output Coupled
4	Not used (Ground)
5	Output Thru (Dot)

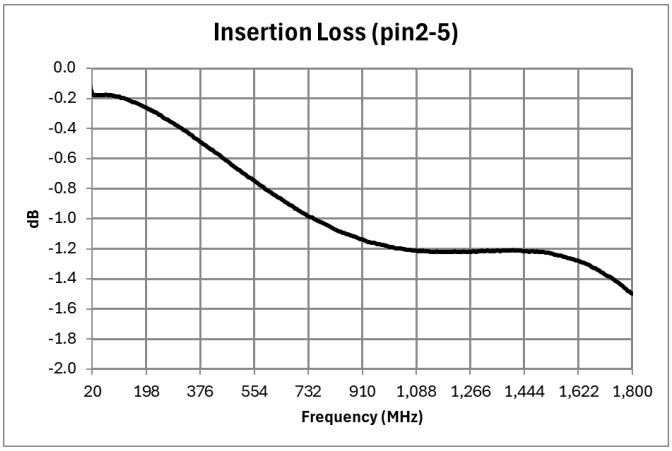
3. MACOM recommends connecting unused package pins to ground.
4. The exposed pad centered on the package bottom must be connected to RF, DC and thermal ground.

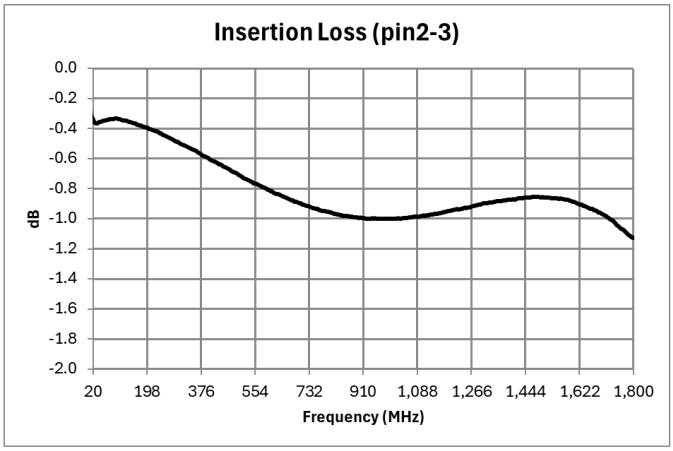
* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

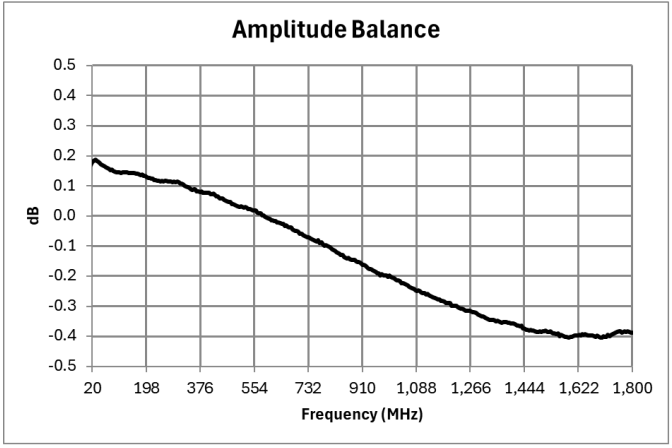
Electrical Specifications: Freq. = 30 - 1800 MHz, T_A = 25°C, Z_0 = 50 Ω, P_{IN} = 0 dBm

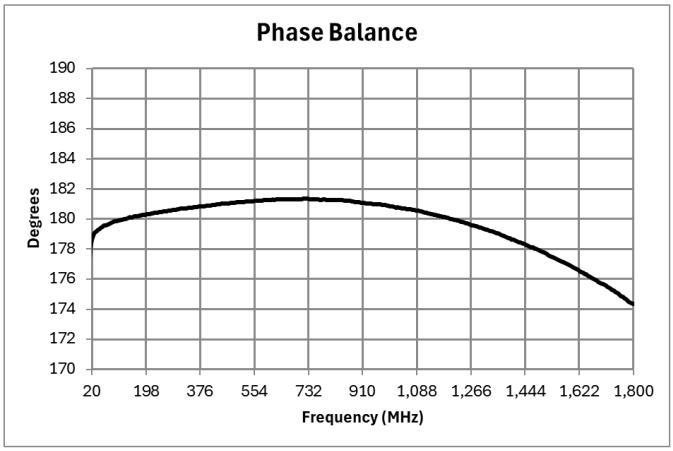
Parameter	Freq. Test Conditions (MHz)	Units	Min.	Typ.	Max.
Insertion Loss 1 (pin 2-5)	30 - 600 600 - 1800	dB	—	0.5 1.2	1.0 1.9
Insertion Loss 2 (pin 2-3)	30 - 600 600 - 1800	dB	—	0.5 1.0	1.0 1.6
Balanced Insertion Loss	30 - 600 600 - 1800	dB	—	0.5 1.0	1.0 1.7
Amplitude Balance	30 - 600 600 - 1800	dB	—	0.1 0.4	±0.3 ±0.7
Phase Balance	30 - 600 600 - 1200	°	—	1.0 4.0	±3.0 ±8.0
Return Loss: Input (pin2)	30 - 1800	dB	8.0	12	—
Return Loss: Balanced Output	30 - 1800	dB	8.0	12	—

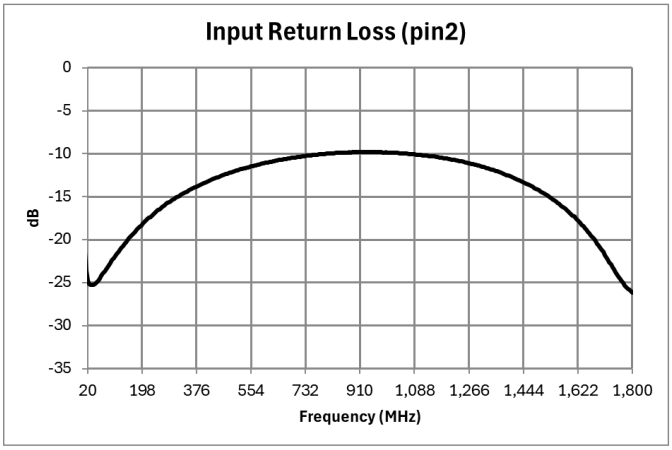
Typical Performance Curves

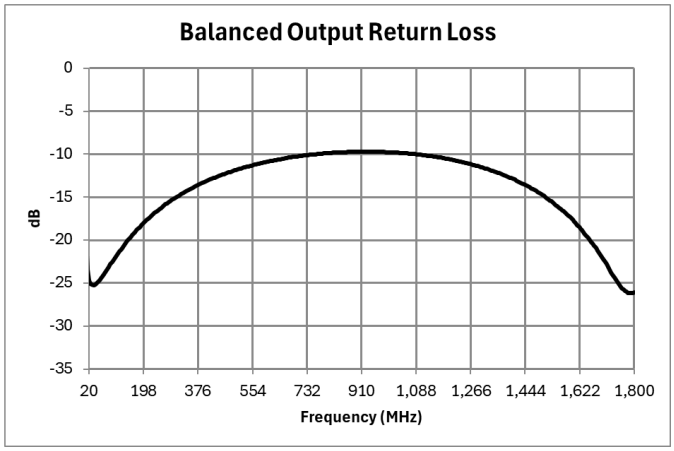












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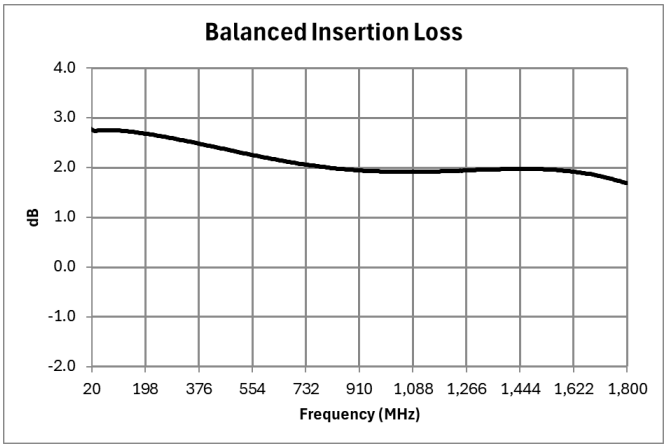
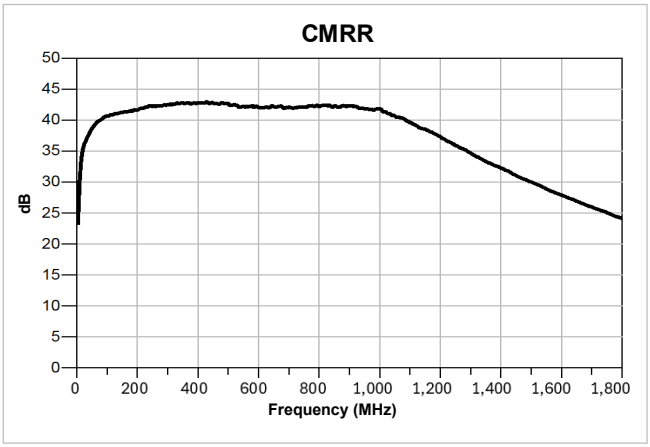
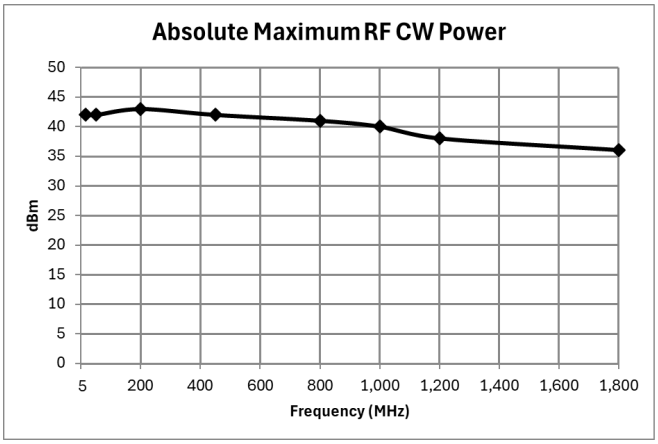
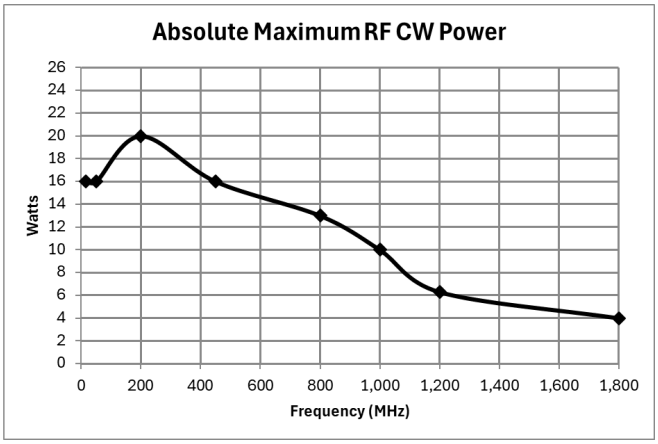








Absolute Maximum Ratings[5,6,7]

Parameter	Absolute Maximum
RF Power	As per chart
DC Current	TBD
Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C

5. Exceeding any one or combination of these limits may cause permanent damage to this device.
6. MACOM does not recommend sustained operation near these survivability limits.
7. The markers represent the measurement points. Data is interpolated between those points.

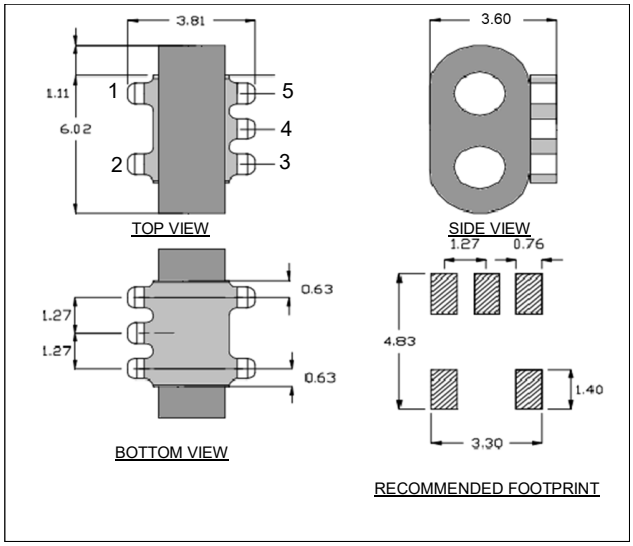
Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

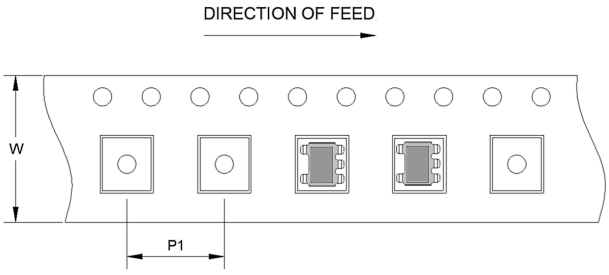
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

Outline Drawing [8,9,10,11,12,13]



8. Dimensions in mm.
9. Tolerance: ±0.2 mm unless otherwise noted.
10. Model number and lot code are printed on the reel.
11. Lead plating: ENIG
12. Reference Application Note J-STD-020E for lead-free solder reflow recommendations.
13. Meets JEDEC moisture sensitivity level 1 requirements.

Tape & Reel Information



Parameter	Units	Value
Qty per reel	-	500
Reel Size	mm	330
Tape Width	mm	16
Pitch	mm	8
Orientation	-	TBD
Reference Application Note ANI-019 for orientation		