Balun 1:2
2 - 20 GHz

MABA-011125
Rev. V6

Features

- Broadband: 2 - 20 GHz
- Impedance Ratio 1:2
- Low insertion Loss: 2 dB
- Lead-Free 3 mm 16 Lead QFN Package
- RoHS* Compliant

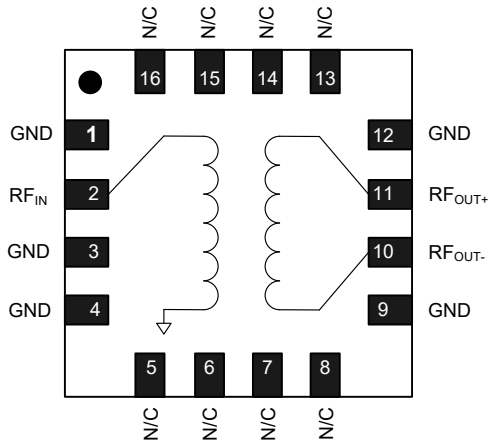
Applications

- Test and Measurement
- Mil Comms
- Multi-band Radios
- Clock Distribution
- High Frequency ADC & DAC's

Description

The MABA-011125 is a full integrated 2 - 20 GHz 1:2 balun. Offering best in class insertion loss performance in a miniature package. Ideally suited to wideband applications including balanced amplifiers, high frequency analog to digital converter circuits, high frequency digital to analog converter circuits and clock distribution.

Functional Block



Ordering Information[1,2]

Part Number	Package
MABA-011125-TR0500	500 Piece Reel
MABA-011125-SB1	Sample Board

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

Pin Configuration[3,4]

Pin #	Function
1,3,4,9,12	Ground
2	Input
5 - 8, 13 - 16	No Connection
10	Output 1
11	Output 2
17	paddle

3. MACOM recommends connecting N/C pin to ground.
4. The exposed pad centered on the package bottom must be connected to PCB ground with low electrical and thermal resistances.

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

Electrical Specifications: T_A = 25°C, Z_0 = 50 Ω, P_{IN} = 0 dBm

Parameter	Test Condition Frequency	Units	Min.	Typ.	Max.
Balanced Insertion Loss	2 - 20 GHz	dB	—	2	4
Amplitude Balance	2 - 18 GHz 18 - 20 GHz	dB	—	0	0.8 1.25
Phase Balance	2 - 19 GHz 19 - 20 GHz	°	—	0	5 6
Input Return Loss	2 - 20 GHz	dB	—	13	—
Output Return Loss	2 - 20 GHz	dB	—	12	—

Absolute Maximum Ratings[5,6]

Parameter	Absolute Maximum
Input RF Power[7]	3 W
DC Current	500 mA
Operating Temperature	-55°C to +105°C
Storage Temperature	-65°C to +150°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. Specified at +25°C only.

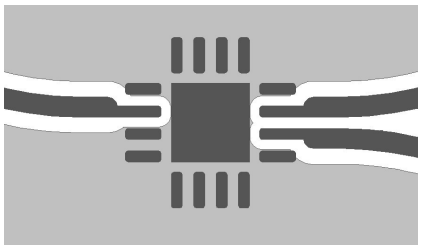
Handling Procedures

Please observe the following precautions to avoid damage:

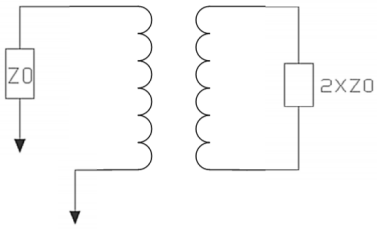
Static Sensitivity

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 HBM Class 1A devices.

PCB Layout

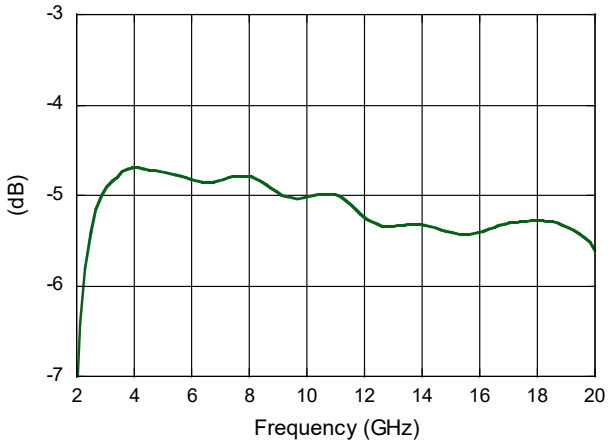


Application Schematic

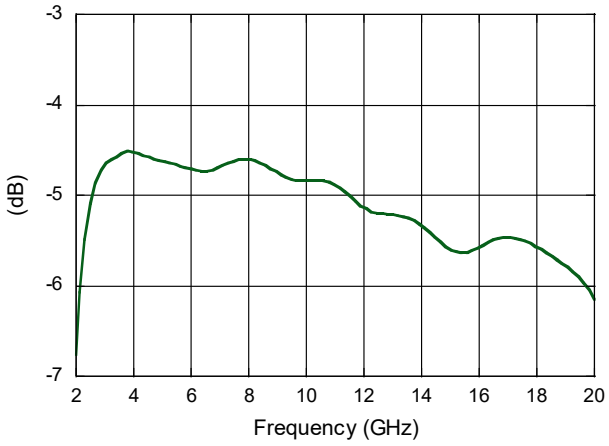


Typical Performance Curves

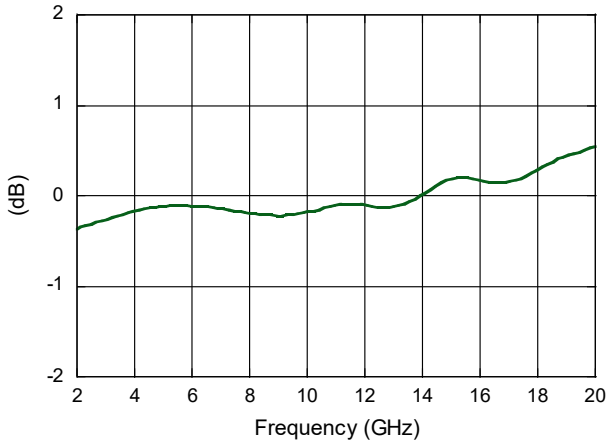
Insertion Loss 1 (ref. level -3 dB)



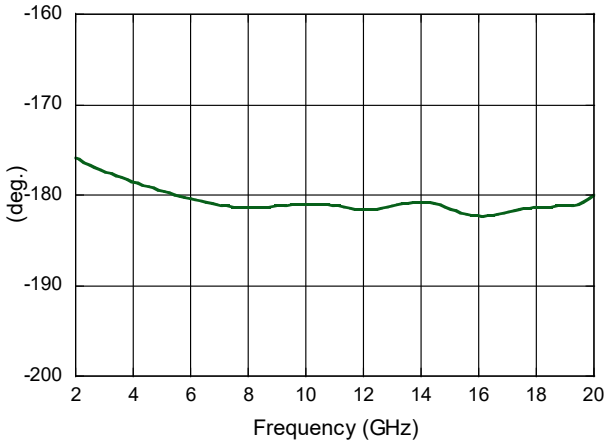
Insertion Loss 2 (ref. level -3 dB)



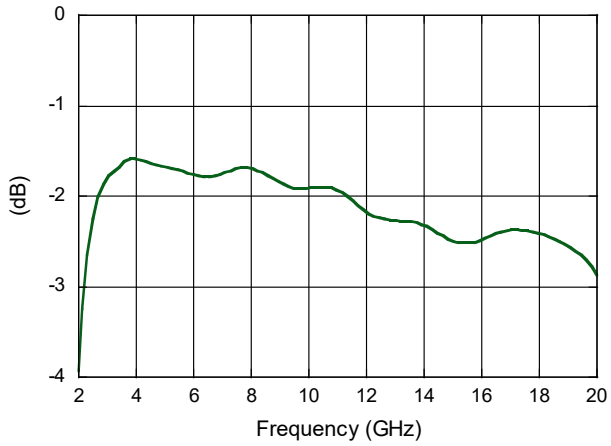
Amplitude Balance



Phase Balance

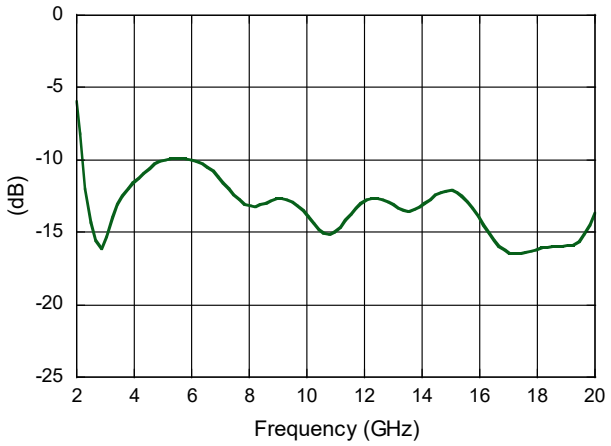


Balanced Insertion Loss

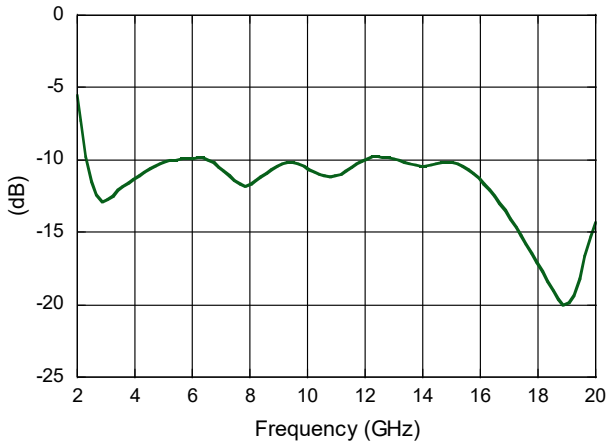


Typical Performance Curves

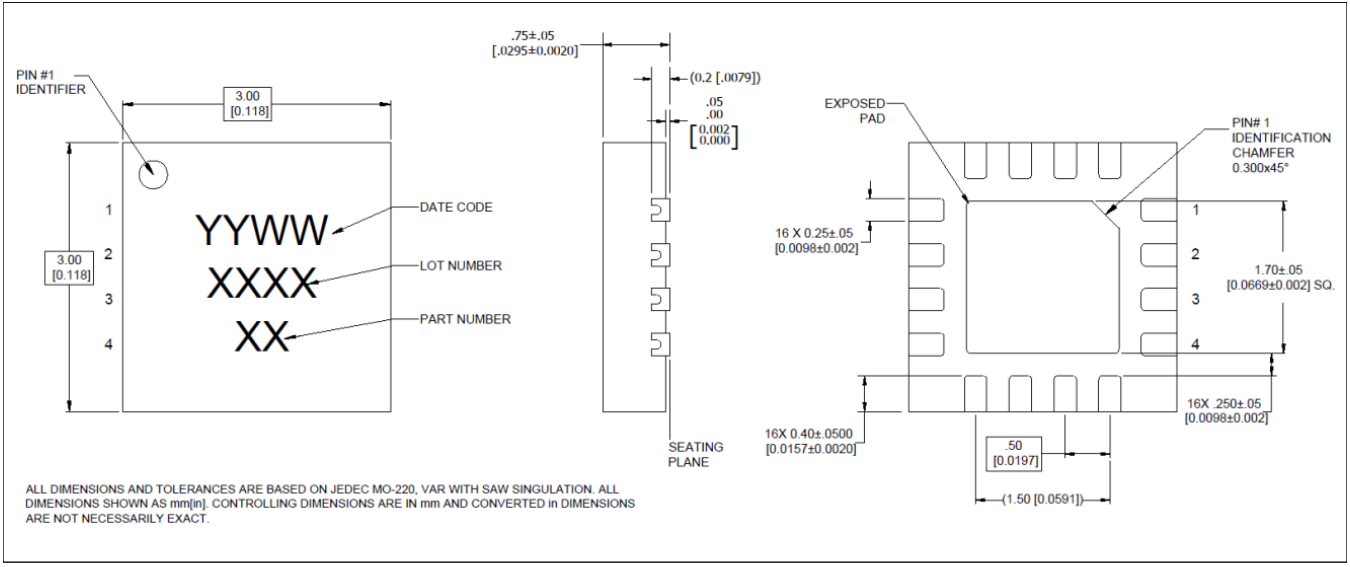
Input Return Loss



Output Return Loss



Lead-Free 3 mm 16-Lead PQFN†



† Reference Application Note S2083 for lead-free solder reflow recommendations.
Meets JEDEC moisture sensitivity level (MSL) 1 requirements in accordance to JEDEC J-STD-020D.
Plating is 100% matte tin over copper.
Tolerance is ±0.05 mm unless otherwise noted.