

1:2 Transformer Balun 20 - 4000 MHz

Rev. V1

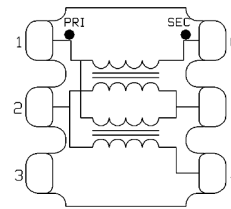
Features

- Wide Bandwidth
- Suitable for multiple wideband applications
- 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-011100 is a 1:2 balun transformer in a surface mount package. Ideally suited multiple wide band applications.

Functional Schematic



Pin Configuration¹

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

1. MACOM recommends connecting unused package pins to ground.

Electrical Specifications: Freq. = 20 - 4000 MHz, T_A = +25°C, Z₀ = 50 Ω, P_{IN} = 0 dBm

| Parameter | Conditions | Units | Min | Typ | Max |
|---------------------------------|----------------------------------|-------|---------|----------|------|
| Impedance Ratio | — | ratio | — | 1:2 | — |
| Balanced Insertion Loss | 20 - 4000 MHz | dB | — | 1.5 | 2.0 |
| Amplitude Balance | 20 - 4000 MHz | dB | — | 0.5 | ±2.0 |
| Phase Balance | 20 - 4000 MHz | ° | — | 7.0 | ±15 |
| Input Return Loss (Pin 1) | 20 - 2000 MHz 2000 - 4000 MHz | dB | 7 12 | 10 15 | — |
| Output Return Loss (Pin 4-6) | 20 - 4000 MHz | dB | 11 | 14 | — |

Ordering Information^{2,3}

| Part Number | Description |
|----------------|---------------------|
| MABA-011100 | 2000 piece reel |
| MABA-011100-TB | Customer test board |

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

Absolute Maximum Ratings^{4,5}

| Parameter | Absolute Maximum |
|-----------------------------|------------------|
| Input RF Power ⁶ | 1 W |
| DC Current | 1 A |
| Operating Temperature | -55°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 +25C only, measured at 2GHz

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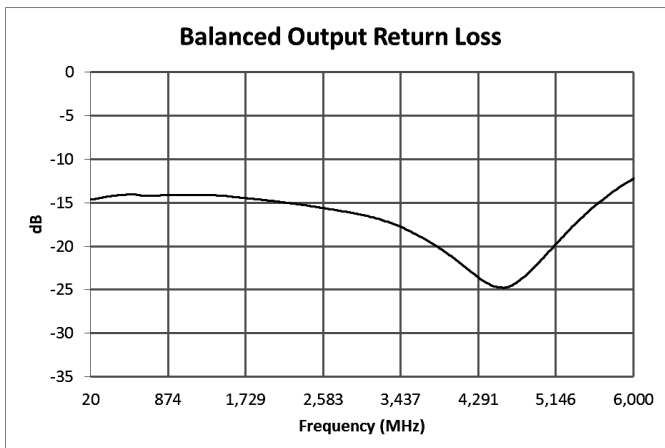
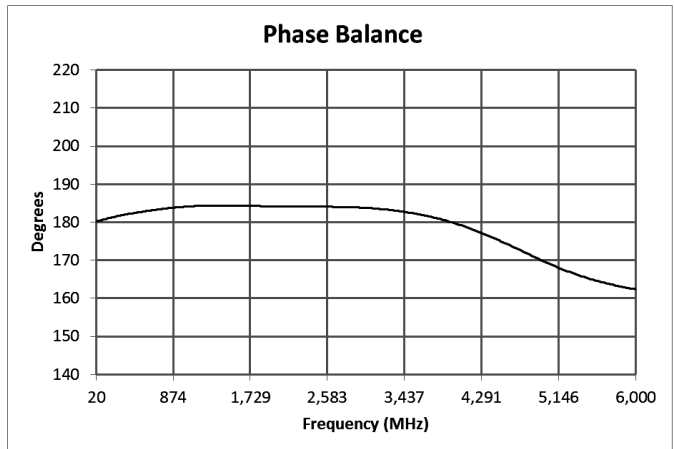
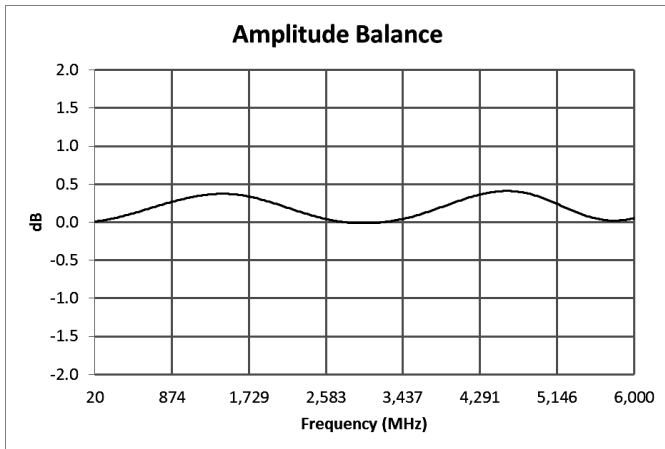
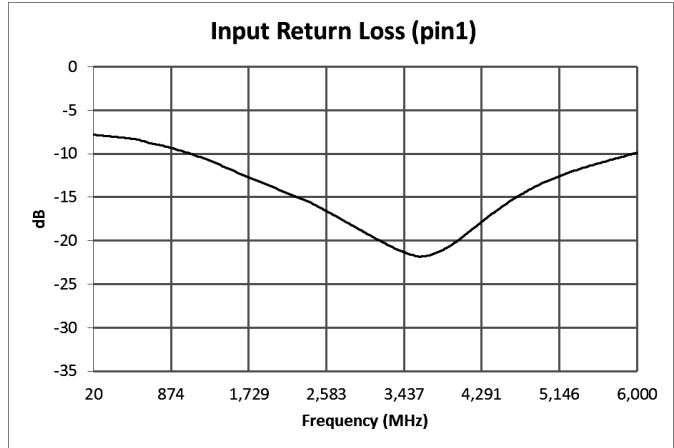
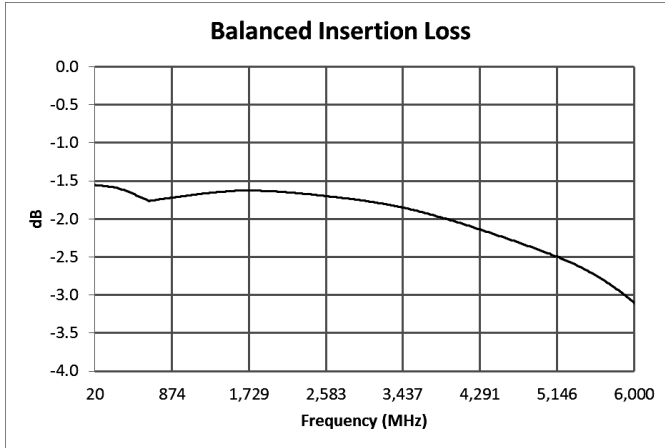
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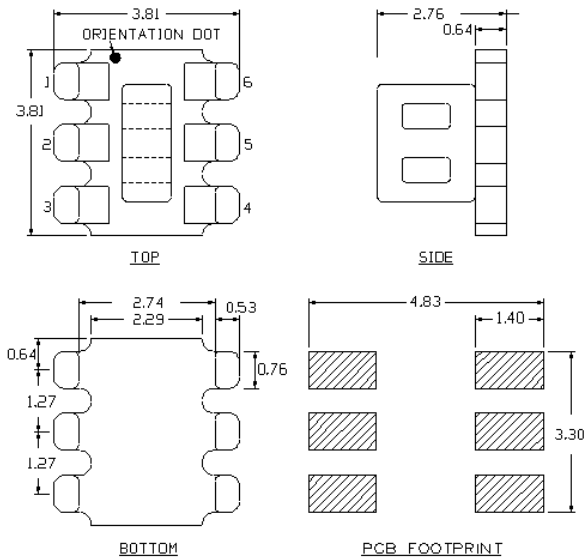
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Typical Performance Curves⁶



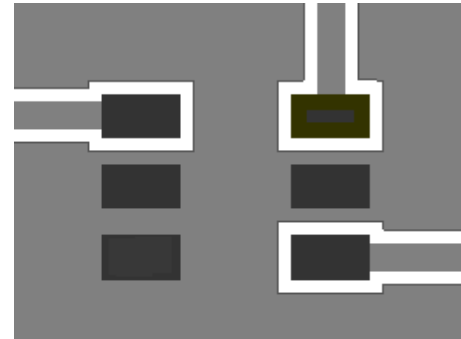
6. Temperature plots available on request.

Outline Drawing^{7,8,9,10}



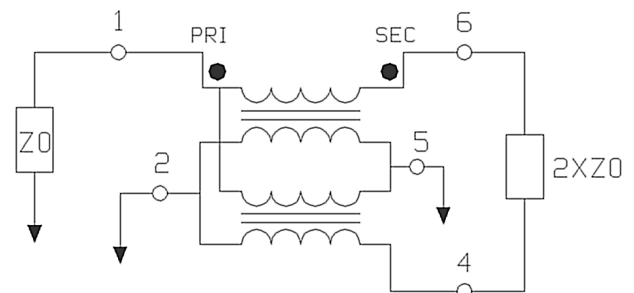
7. Dimensions in mm.
8. Tolerance: ± 0.2 mm unless otherwise noted.
9. Model number and lot code are printed on the reel.
10. Plating finish: ENIG.

Recommended Board Layout^{11,12}



11. Recommended PCB layout shown above uses Roger RO4350B substrate, thickness 0.254 mm.
12. Grounded coplanar wave guide trace, width 0.48 mm and Gap 0.25 mm.

Application Schematic



Tape & Reel Information¹³

| Parameter | Units | Value |
|--------------|-------|-------|
| Qty per Reel | - | 2000 |
| Reel Size | mm | 330 |
| Tape Width | mm | 12.00 |
| Pitch | mm | 8.00 |
| Orientation | - | F33 |

13. Reference Application Note ANI-019 for orientation.