

Transformer, 1:2 Transmission Line Balun 5 - 1200 MHz

Rev. V6

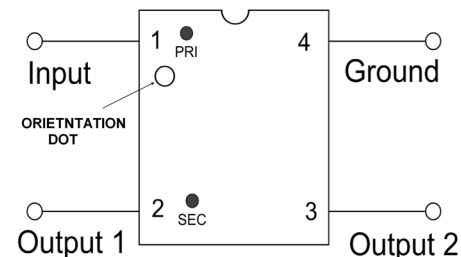
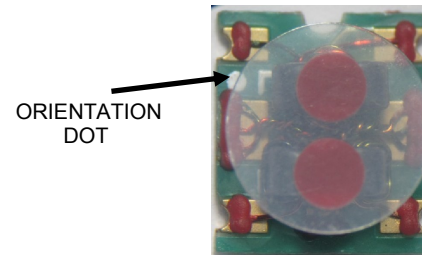
Features

- 1:2 Impedance Ratio
- Transmission Line Transformer
- Surface Mount
- Available on Tape and Reel
- 260°C Reflow Compatible
- RoHS Compliant and Pb Free
- Excellent Temperature Stability
- Can be used on 50 Ω and 75 Ω systems

Description

The MABA-007681-CT2010 is a 1:2 RF transmission line transformer in a low cost surface mount package. Ideally suited for high volume CATV/ Broadband application.

Schematic



Ordering Information^{1,2}

| Part Number | Description |
|--------------------|---------------------------|
| MABA-007681-CT2010 | Tape & Reel |
| MABA-007681-CT20TB | Customer Evaluation Board |

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

Pin Configuration

| Pin No. | Function |
|---------|--------------------|
| 1 | Input (PRI dot) |
| 2 | Output 1 (SEC dot) |
| 3 | Output 2 (SEC) |
| 4 | Ground (PRI) |

Electrical Specifications: Freq. = 5 - 1200 MHz, T_A = 25°C, P_{IN} = 0 dBm, Z₀ = 75 Ω

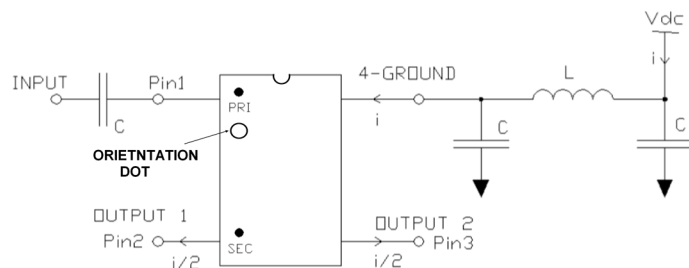
| Parameter | Conditions | Units | Min. | Typ. | Max. |
|--------------------------------------|-----------------|-------|------|------------|------------|
| Impedance Ratio | — | Ratio | — | 1:2 | — |
| Insertion Loss 1 (pin 1 to pin 2) | 5 - 50 MHz | dB | — | 0.35 | 0.50 |
| | 50 - 1000 MHz | | | 0.60 | 1.10 |
| | 1000 - 1200 MHz | | | 0.60 | 1.40 |
| Insertion Loss 2 (pin 1 to pin 3) | 5 - 50 MHz | dB | — | 0.5 | 0.70 |
| | 50 - 1000 MHz | | | 0.9 | 1.50 |
| | 1000 - 1200 MHz | | | 1.8 | 2.20 |
| Amplitude Balance | 5 - 50 MHz | dB | — | ± 0.10 | ± 0.40 |
| | 50 - 1000 MHz | | | ± 0.30 | ± 1.50 |
| | 1000 - 1200 MHz | | | ± 0.60 | ± 1.80 |
| Phase Balance | 5 - 50 MHz | ° | — | ± 0.2 | ± 1.50 |
| | 50 - 1200 MHz | | | ± 3.0 | ± 7.00 |
| Input Return Loss (pin 1) | 5 - 50 MHz | dB | 22 | 25 | — |
| | 50 - 1000 MHz | | 14 | 22 | |
| | 1000 - 1200 MHz | | 8 | 17 | |

Absolute Maximum Ratings^{3,4}

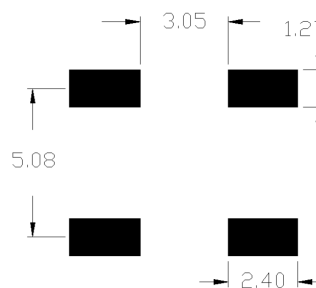
| Parameter | Units |
|-----------------------|-----------------|
| Input Power | 250 mW |
| DC Current | 600 mA |
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -55°C to +125°C |

- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

Recommended DC Bias Circuit



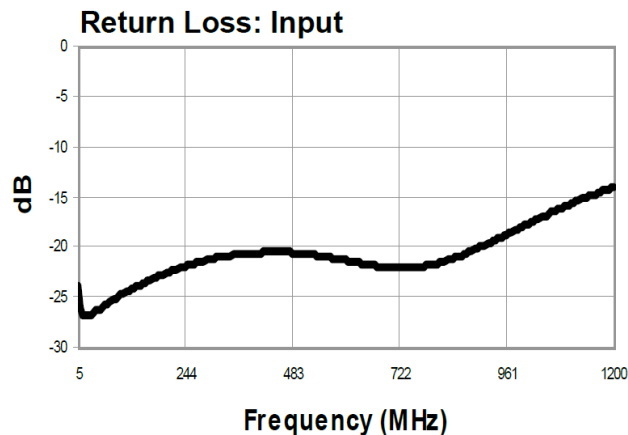
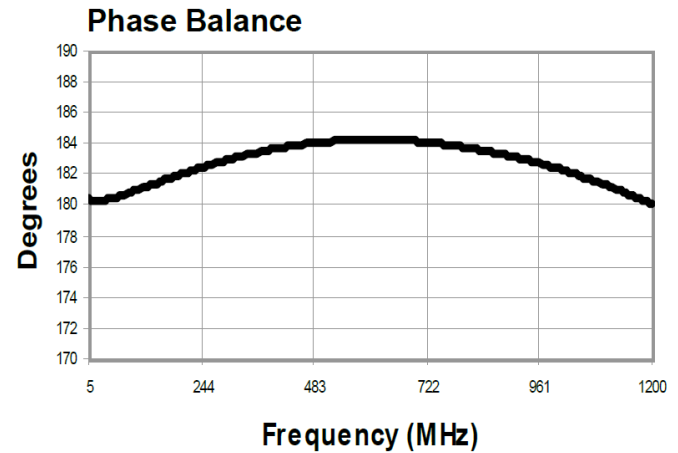
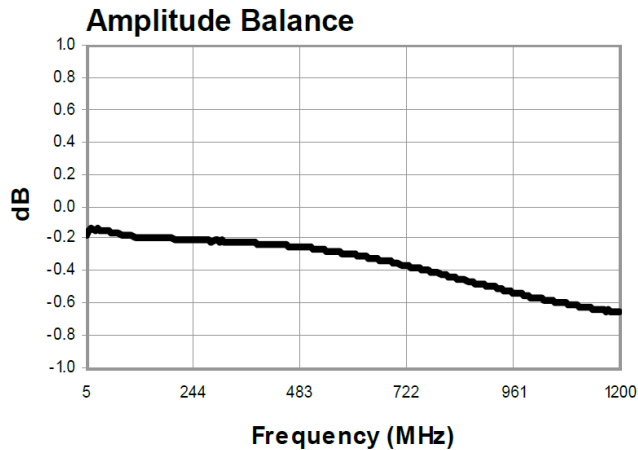
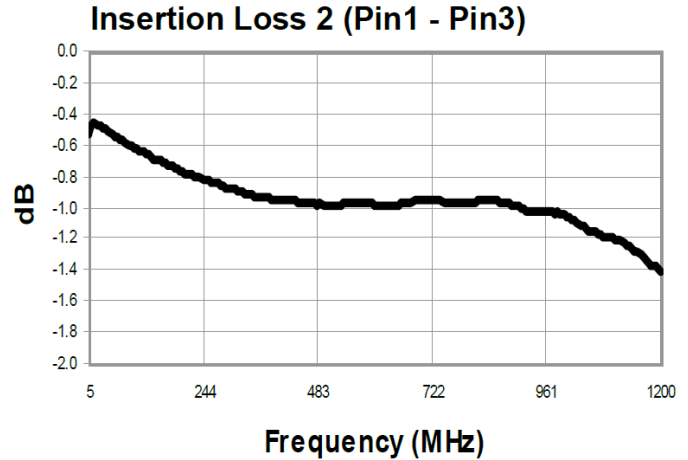
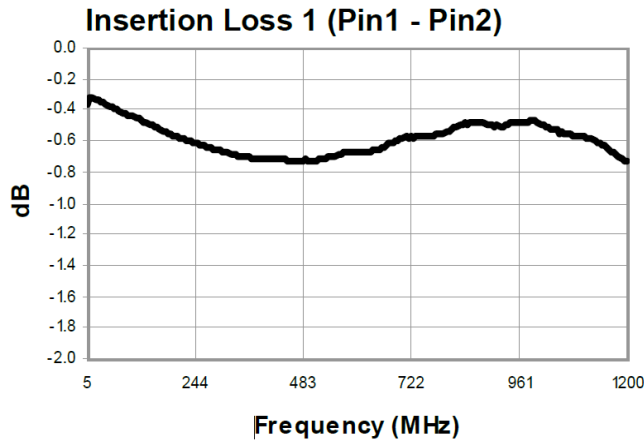
Recommended Footprint



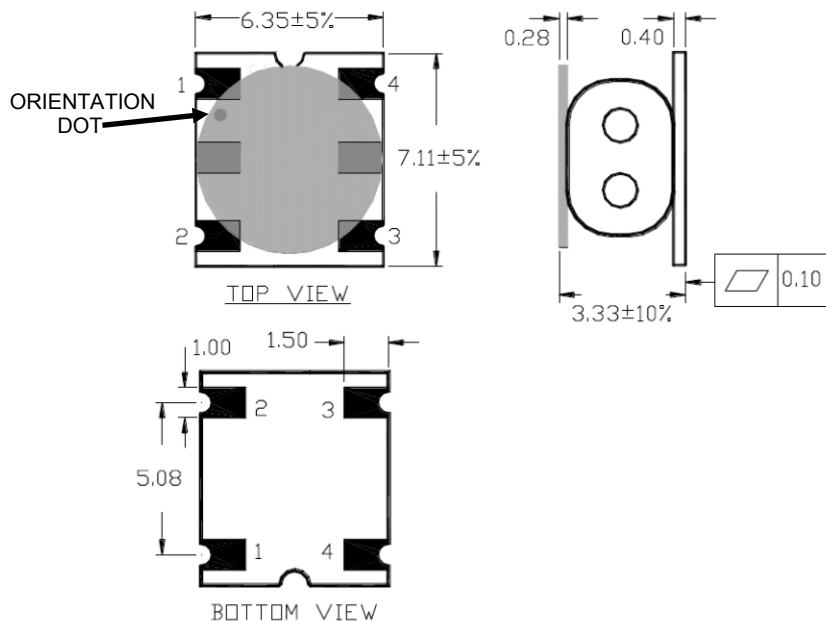
Parts List

| Designator | 5 - 50 MHz | 50 - 1200 MHz |
|---------------|------------|---------------|
| C = capacitor | 100 nF | 10 nF |
| L = inductor | 10 μ H | 1 μ H |

Typical Performance Curves: $T_A = 25^\circ\text{C}$, $P_{IN} = 0\text{ dBm}$, $Z_0 = 75\ \Omega$



Outline Drawing ^{5, 6, 7, 8}



5. Dimensions in mm.
6. Tolerance: ± 0.2 mm unless otherwise noted.
7. Model number and lot code are printed on the reel.
8. Plating finish: ENIG on both sides, 0.05 to $0.1 \mu\text{m}$ gold over 3 to $6 \mu\text{m}$ nickel.

Tape & Reel Information

| Parameter | Units | Value |
|--|-------|-------|
| Qty per reel | - | 900 |
| Reel Size | mm | 330 |
| Tape Width | mm | 16.00 |
| Pitch | mm | 12.00 |
| Ao | mm | 6.70 |
| Bo | mm | 7.50 |
| Ko | mm | 3.60 |
| Orientation | - | F33 |
| Reference Application Note ANI-019 for orientation | | |

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