

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

Rev. V6

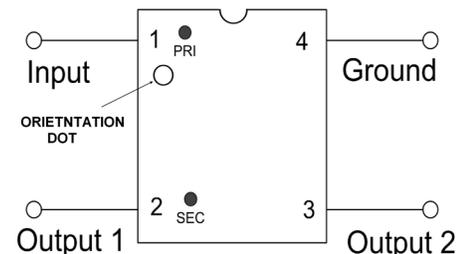
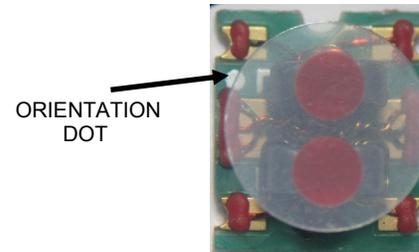
Features

- 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, $T_A = 25^\circ\text{C}$, $P_{IN} = 0 \text{ dBm}$, $Z_0 = 75 \Omega$

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	

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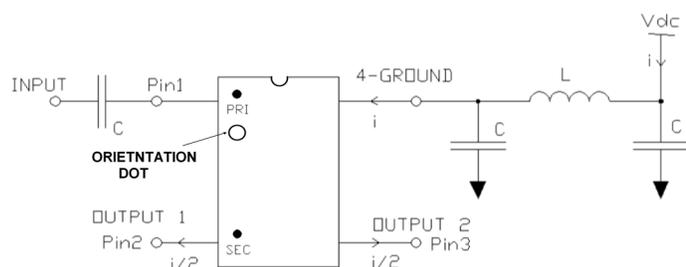
Absolute Maximum Ratings^{3,4}

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

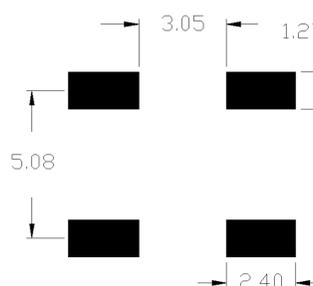
3. Exceeding any one or combination of these limits may cause permanent damage to this device.

4. MACOM does not recommend sustained operation near these survivability limits.

Recommended DC Bias Circuit



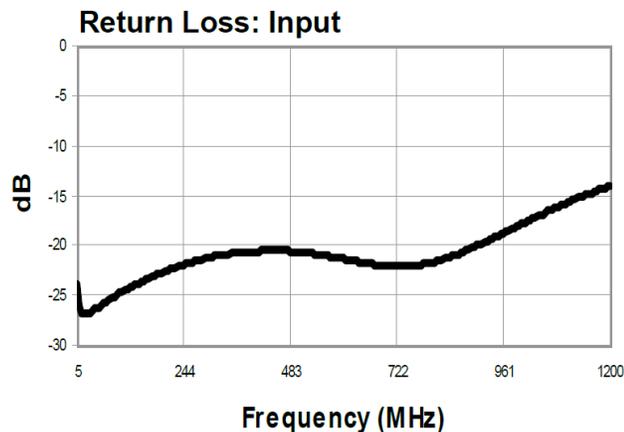
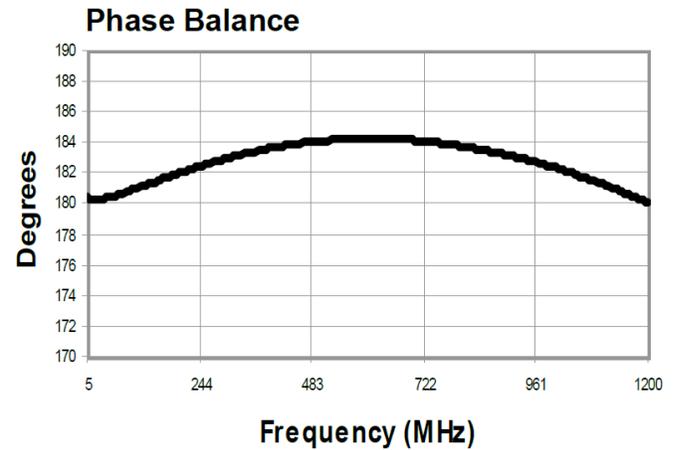
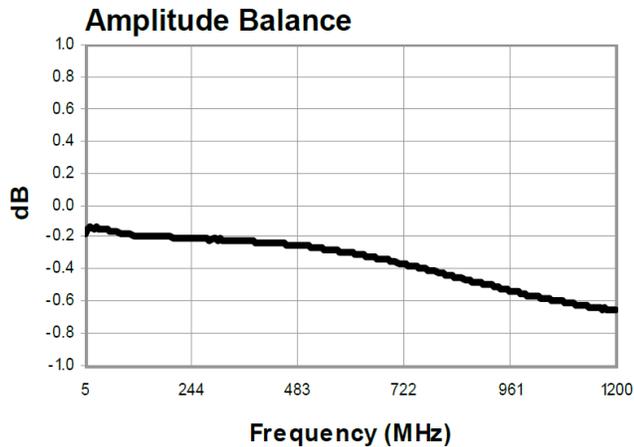
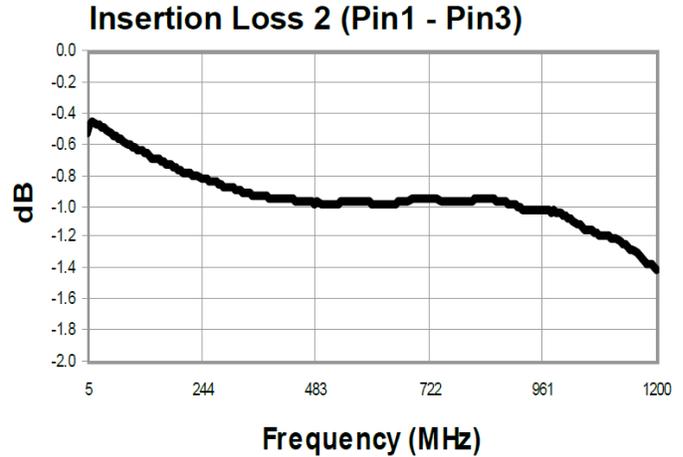
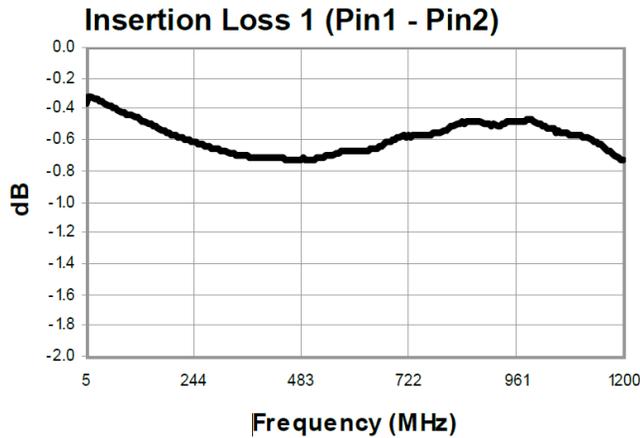
Recommended Footprint



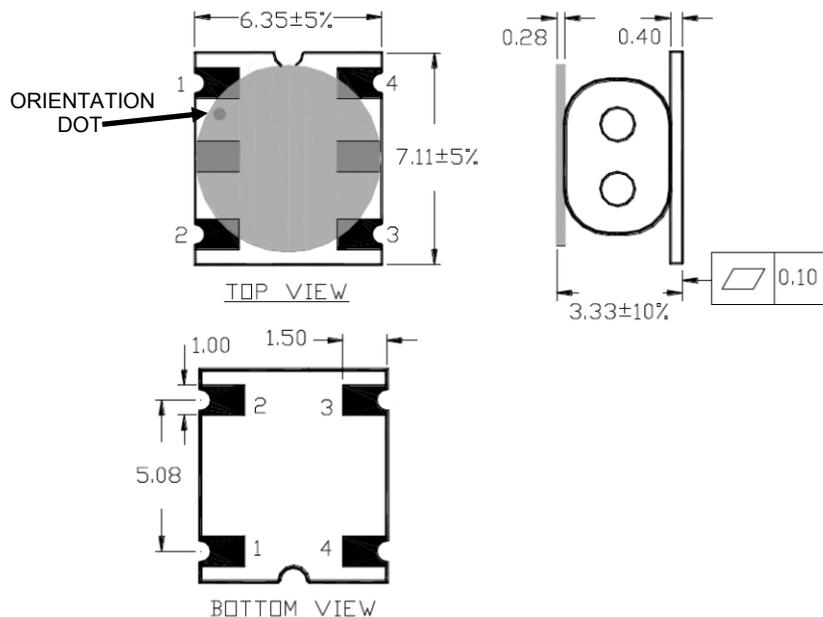
Parts List

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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