

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

Rev. V6

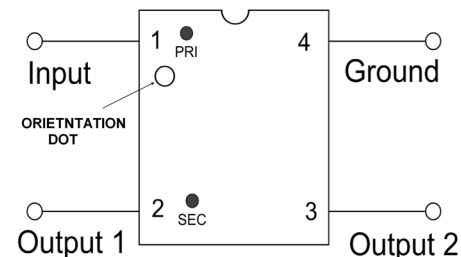
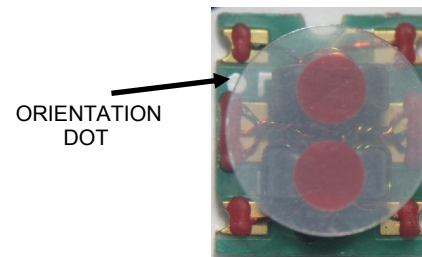
Features

- 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	

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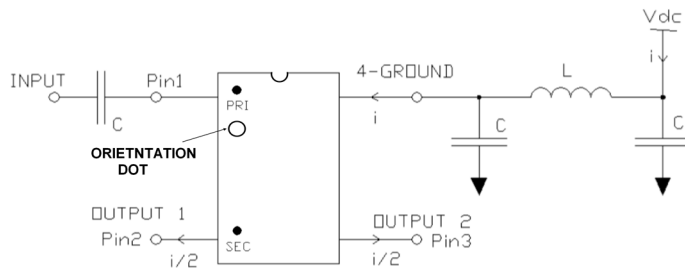
DS-MABA-007681-CT2010

Absolute Maximum Ratings^{3,4}

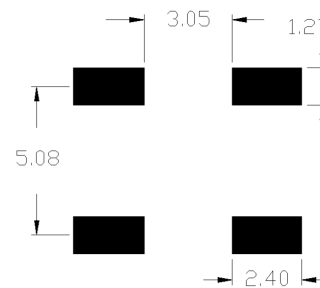
Parameter	Units
Input Power	250 mW
DC Current	600 mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +125°C

- 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



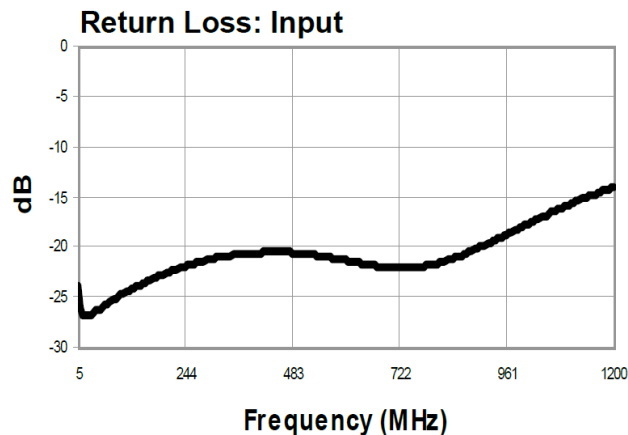
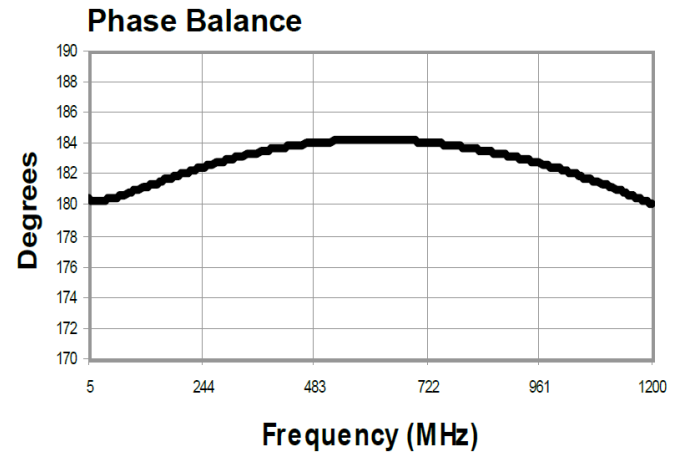
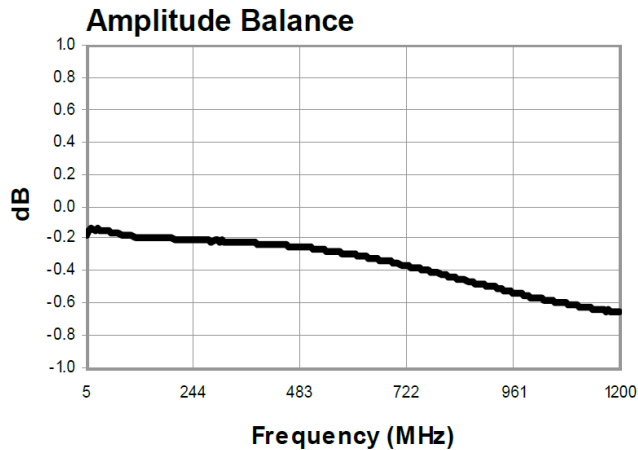
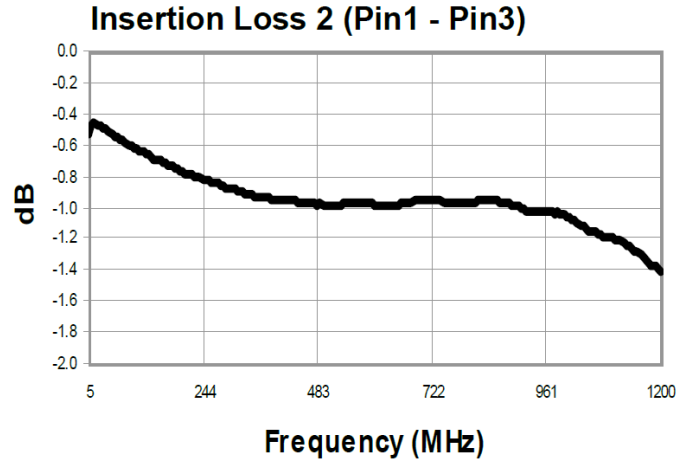
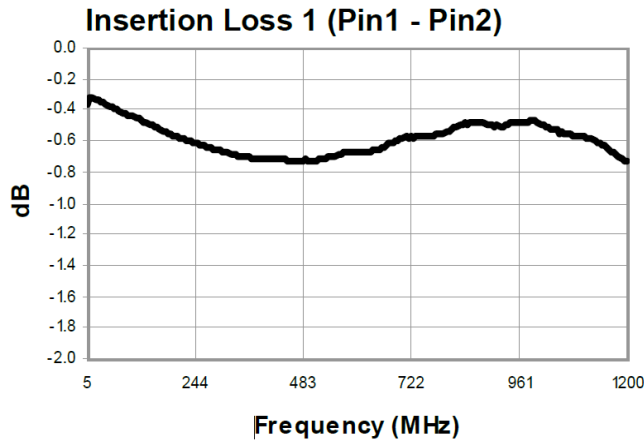
Recommended Footprint



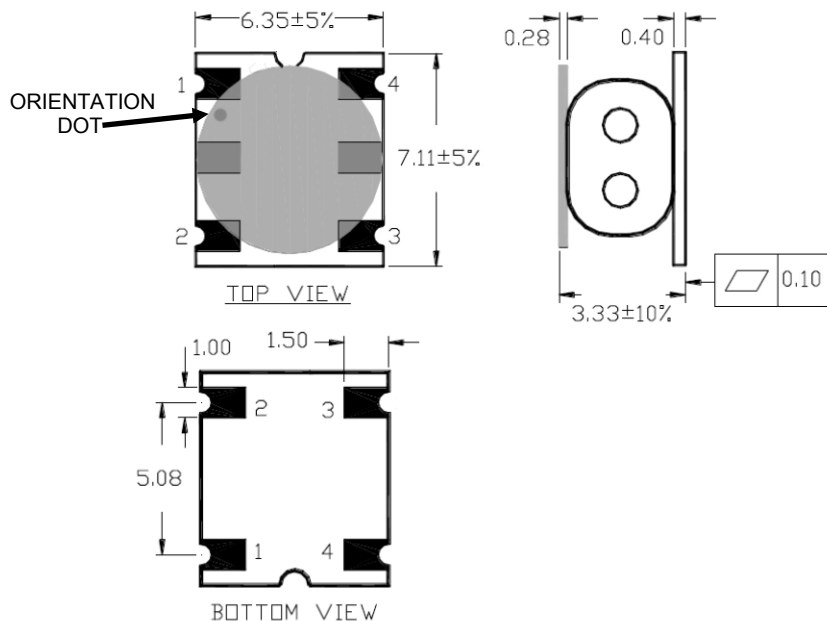
Parts List

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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