

1:1 Transmission Line Transformer with Tertiary Winding 50 - 1200 MHz

Rev. V5

Features

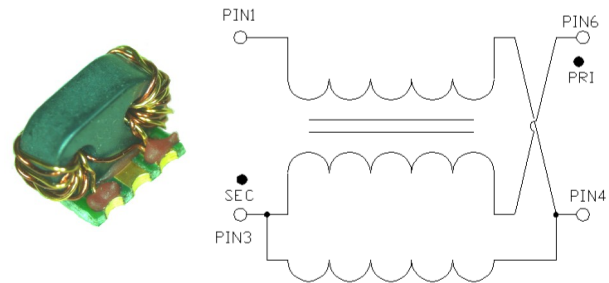
- 1:1 Impedance Ratio
- Surface Mount Package
- Excellent Amplitude & Phase Balance
- Suitable for all CATV, Broadband and FTTx Applications
- Available on Tape & Reel
- RoHS Compliant & Lead Free
- 260°C Reflow Compatible

Description

The MABA-010321-CT1A42 is a 1:1 transmission line transformer in a surface mount package.

Ideally suited for all CATV Broadband and FTTx applications.

Functional Schematic



Pin Configuration

Pin #	Function
1	Output 2
2,5	Not Used (ground)
3	Output 1
4	Ground
6	Input

Electrical Specifications: Freq. = 50 - 1200 MHz, T_A = 25°C, Z₀ = 75 Ω, P_{IN} = 0 dBm

Parameter	Frequency (MHz)	Units	Min.	Typ.	Max.
Impedance Ratio	—	dB	—	1:1	—
Insertion Loss 1: (Pin 6-3 (Through))	50 - 150	dB	—	0.2	0.4
	150 - 500			0.5	0.6
	500 - 870			0.8	0.95
	870 - 1200			1.3	1.65
Insertion Loss 1: (Pin 6-1 (Coupled))	50 - 350	dB	—	0.5	0.6
	350-1200			0.7	1.1
Amplitude Balance	50 - 500	dB	—	0.2	±0.35
	500-1000			0.4	±0.65
	1000-1200			0.6	±0.95
Phase Balance	50 - 500	°	—	0.9	±2.0
	500-1000			3.1	±6.0
	1000-1200			6.7	±10.0
Input Return Loss (Pin 6)	50 - 150	dB	20	22	—
	150 - 700		13	16	
	700 - 1200		8	11	

Ordering Information

Part number	Description
MABA-010321-CT1A42	2000 piece reel

Recommended Maximum Ratings

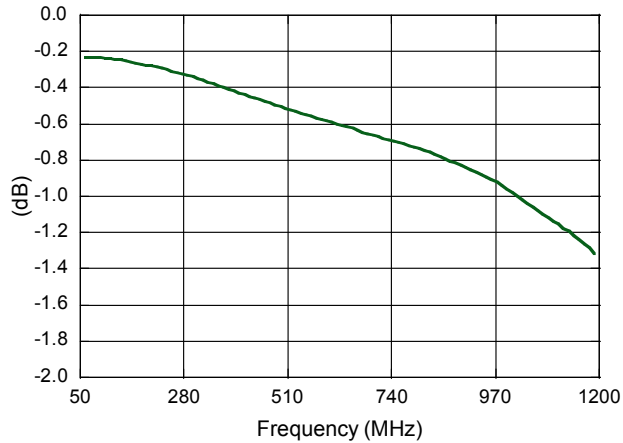
Parameter	Value
Input Power	250 mW
DC Current	500 mA
Operating Temperature	-40°C to +85°C

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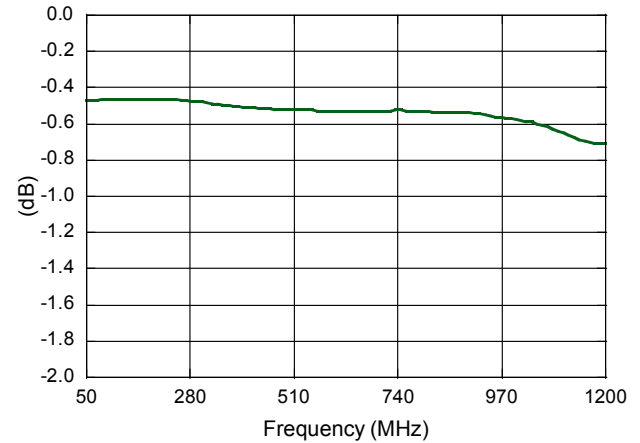
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Typical Performance Curves: $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$

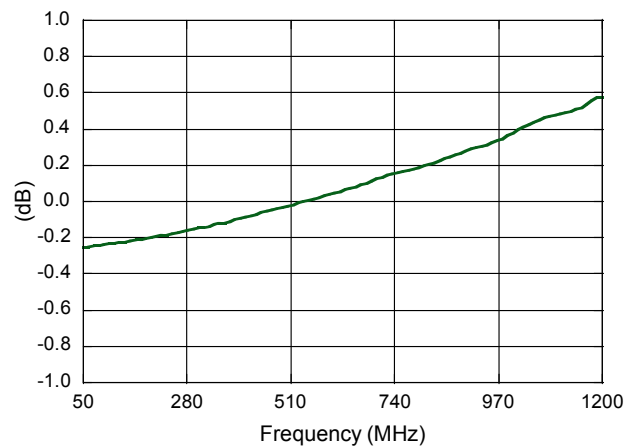
Insertion Loss 1: (Pin 6 to 3)



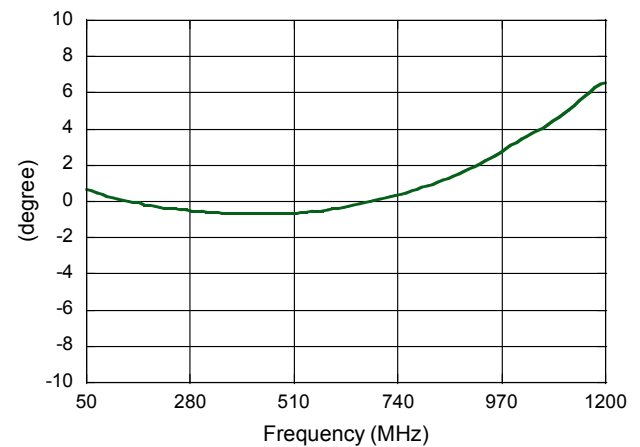
Insertion Loss 2: (Pin 6 to 1)



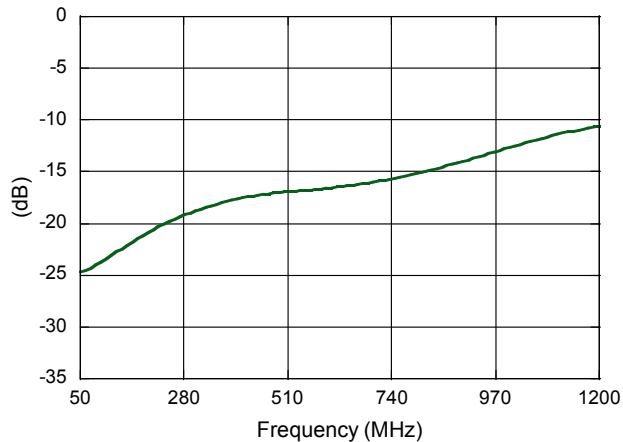
Amplitude Balance



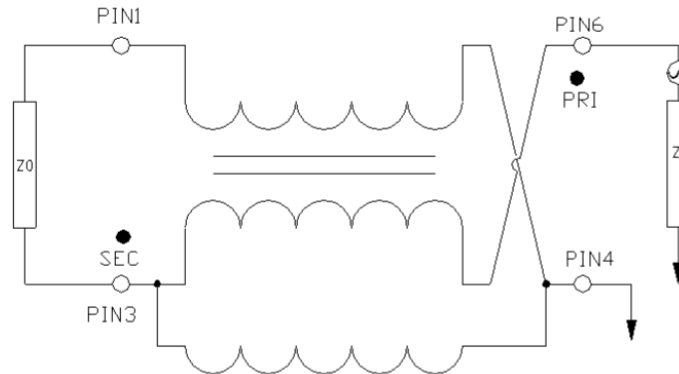
Phase Balance



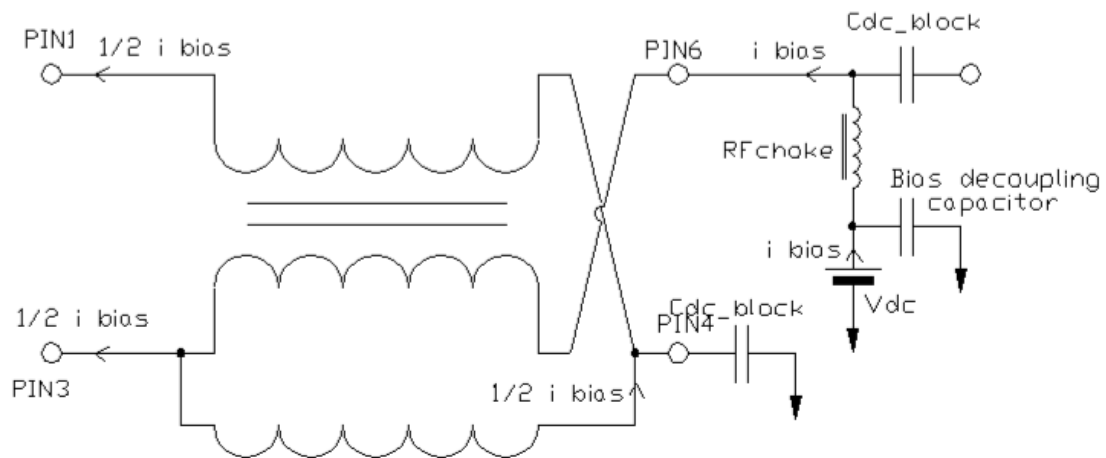
Return Loss: Input (Pin 6)



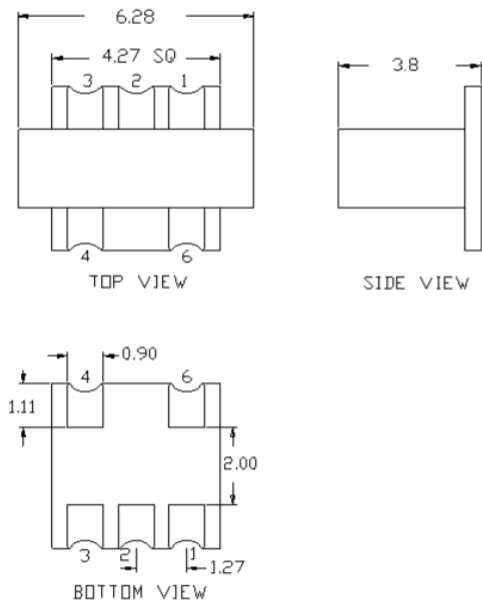
Application Circuit



DC Bias Application Circuit

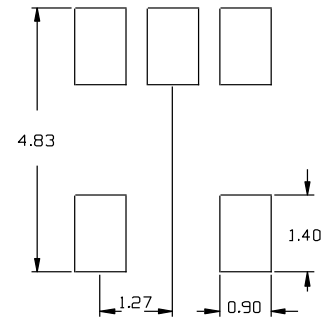


Outline Drawing

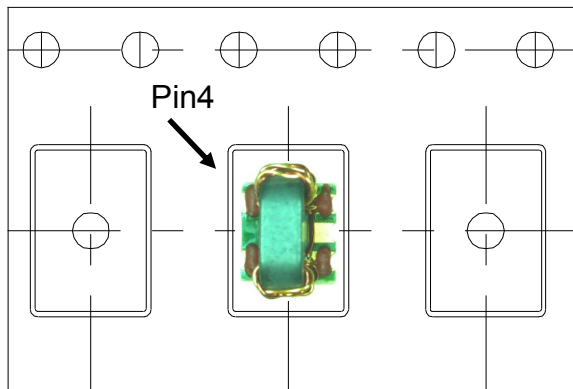


1. Dimensions in mm.
2. Tolerance: ± 0.2 mm unless otherwise noted.
3. Model number and lot code are printed on the reel.
4. Lead plating: ENIG on both sides, 0.05 to 0.1 μm gold over 3 to 6 μm nickel.

PCB Layout



Carrier Tape Orientation



Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	2000
Reel Size	mm	330
Tape Width	mm	16.00
Pitch	mm	8.00
Ao	mm	4.5
Bo	mm	6.7
Ko	mm	3.8
Orientation	-	F5
Reference Application Note ANI-019 for orientation		

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