

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

Rev. V5

### Features

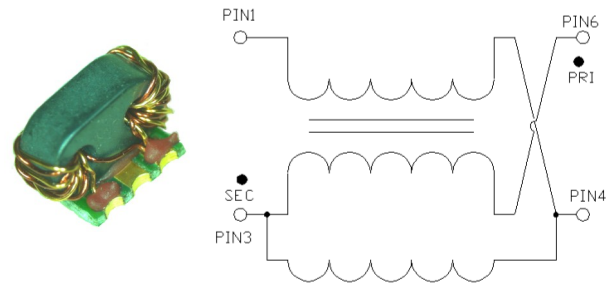
- 1:1 Impedance Ratio
- Surface Mount Package
- Excellent Amplitude & Phase Balance
- Suitable for all CATV, Broadband and FTTx Applications
- Available on Tape & Reel
- RoHS Compliant & Lead Free
- 260°C Reflow Compatible

### 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<sub>A</sub> = 25°C, Z<sub>0</sub> = 75 Ω, P<sub>IN</sub> = 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

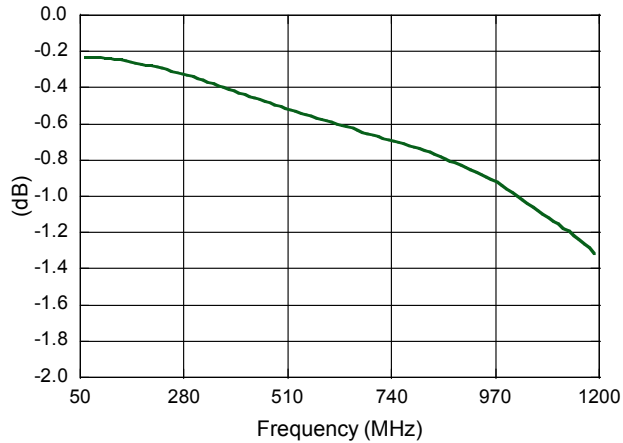
Parameter	Value
Input Power	250 mW
DC Current	500 mA
Operating Temperature	-40°C to +85°C

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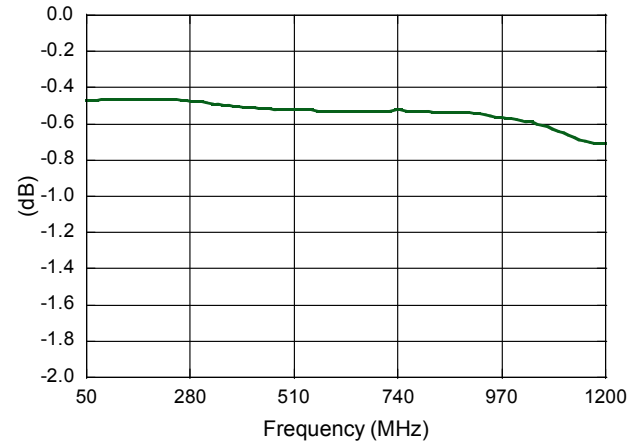
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Typical Performance Curves:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75 \Omega$ ,  $P_{IN} = 0 \text{ dBm}$

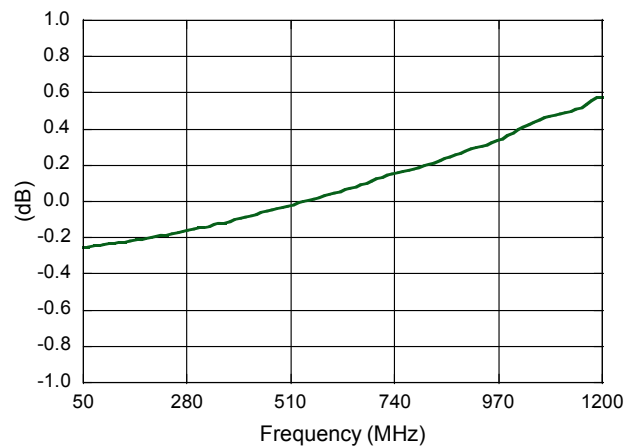
**Insertion Loss 1: (Pin 6 to 3)**



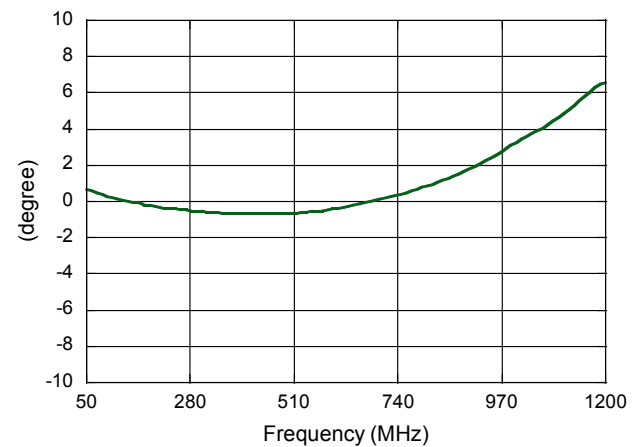
**Insertion Loss 2: (Pin 6 to 1)**



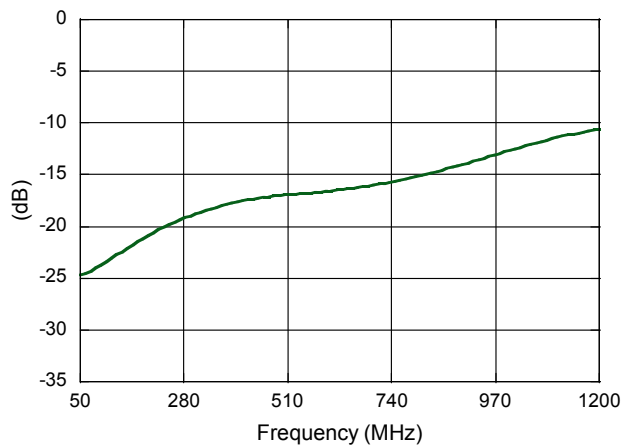
**Amplitude Balance**



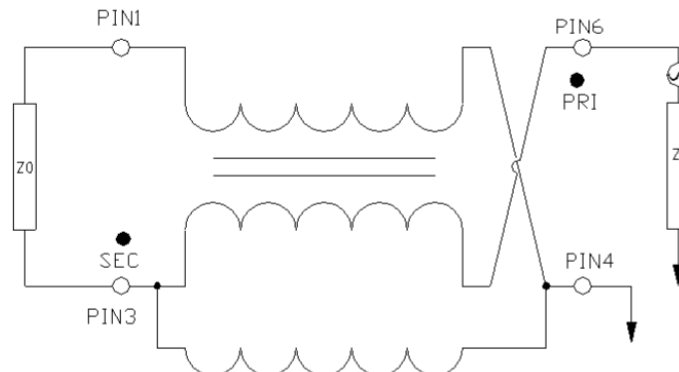
**Phase Balance**



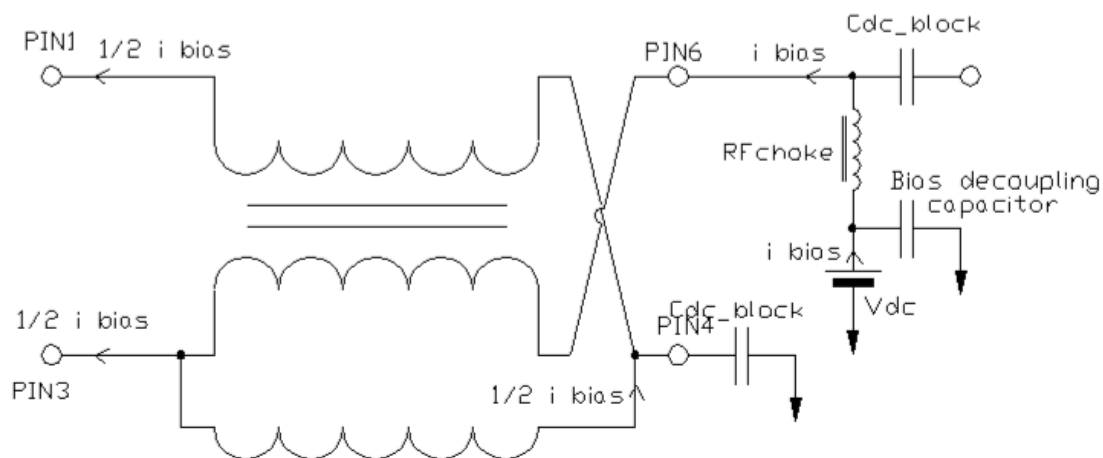
**Return Loss: Input (Pin 6)**



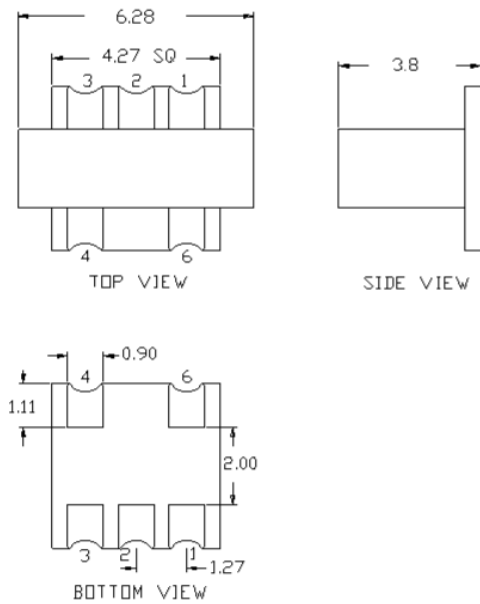
## Application Circuit



## DC Bias Application Circuit

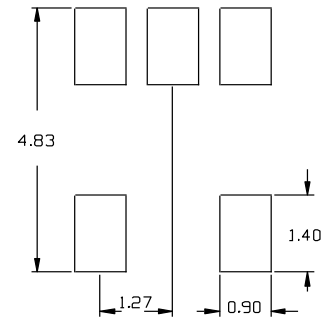


## Outline Drawing

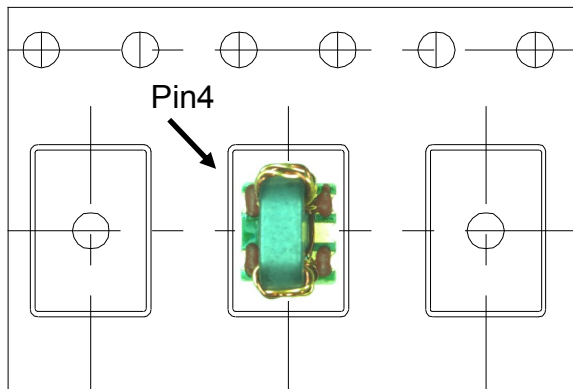


1. Dimensions in mm.
2. Tolerance:  $\pm 0.2$  mm unless otherwise noted.
3. Model number and lot code are printed on the reel.
4. Lead plating: ENIG on both sides, 0.05 to 0.1  $\mu\text{m}$  gold over 3 to 6  $\mu\text{m}$  nickel.

## 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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