

Transformer 1:1 transmission line balun  
5 to 3000 MHz

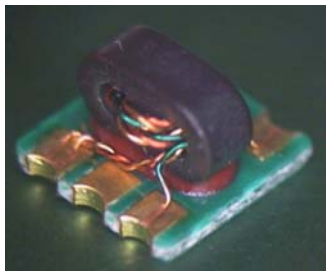
M/A-COM Products  
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## Features

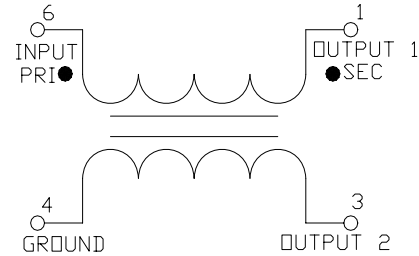
- Surface Mount
- 1:1 Impedance
- Excellent **MoCA** band performance
- Excellent amplitude and phase balance
- Can be used in both 50Ω and 75Ω systems
- 260°C Reflow Compatible and lead free
- RoHS\* Compliant
- Available on Tape and Reel.

## Description

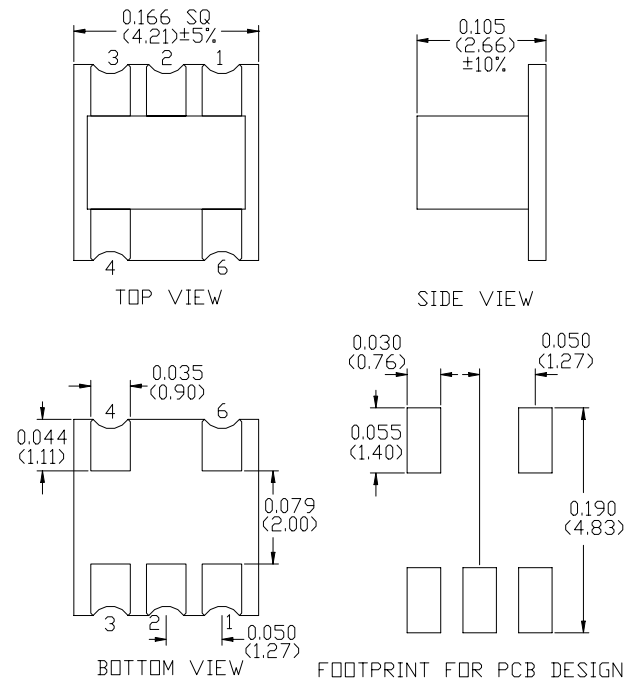
M/A Com's MABA-007871-CT1A40 is a 1:1 RF Transmission Line step up transformer in a low cost, surface mount package. Ideally suited for MoCA band applications.



## Schematic



## Case Style: SM-164



## Pin Configuration

Pin No.	Function
1	Secondary Dot (Output 1)
2	Not used (Ground)
3	Secondary (Output 2)
4	Primary (Ground)
6	Primary Dot (Input)

Dimensions in inches [mm] Tolerance: .xx ± .02, .xxx ± .010, except where otherwise stated

## Ordering Information

Part Number	Description
MABA-007871-CT1A40	2000 piece reel
MABA-007871-CT1ATB	Customer Test Board

Note: Reference Application Note **M513** for reel size information.

\* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

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## Electrical Specifications: $T_A = 25^\circ\text{C}$ , $Z_0 = 50\Omega$

Parameter	Test Conditions	Units	Min	Typ	Max
Insertion Loss	5 - 50 MHz	dB	-	0.35	2.50
	50 - 975 MHz	dB	-	0.4	0.60
	<b>975 - 1525 MHz</b>	<b>dB</b>	-	<b>0.3</b>	<b>1.00</b>
	1525 - 2150 MHz	dB	-	0.65	2.30
	2150 - 3000 MHz	dB	-	2.5	6.00
Input Return Loss	5 - 50 MHz	dB	12	28	-
	50 - 975 MHz	dB	15	23	-
	<b>975 - 1525 MHz</b>	<b>dB</b>	<b>13</b>	<b>21</b>	-
	1525 - 2150 MHz	dB	6	12	-
	2150 - 3000 MHz	dB	3	6	-
Amplitude Unbalance (Nominal 0dB)	5 - 50 MHz	dB	-	0.45	$\pm 3.8$
	50 - 975 MHz	dB	-	0.15	$\pm 0.7$
	<b>975 - 1525 MHz</b>	<b>dB</b>	-	<b>0.15</b>	<b><math>\pm 0.7</math></b>
	1525 - 2150 MHz	dB	-	0.38	$\pm 0.9$
	2150 - 3000 MHz	dB	-	0.05	1.6
Phase Unbalance (Nominal 180°)	5 - 50 MHz	°	-	6.5	$\pm 50$
	50 - 975 MHz	°	-	0.1	$\pm 5$
	<b>975 - 1525 MHz</b>	<b>°</b>	-	<b>0.1</b>	<b><math>\pm 4</math></b>
	1525 - 2150 MHz	°	-	3	$\pm 12$
	2150 - 3000 MHz	°	-	13	35

## Absolute Maximum Ratings <sup>1,2</sup>

Parameter	Absolute Maximum
Max Input Power	250mW
DC current	200mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C

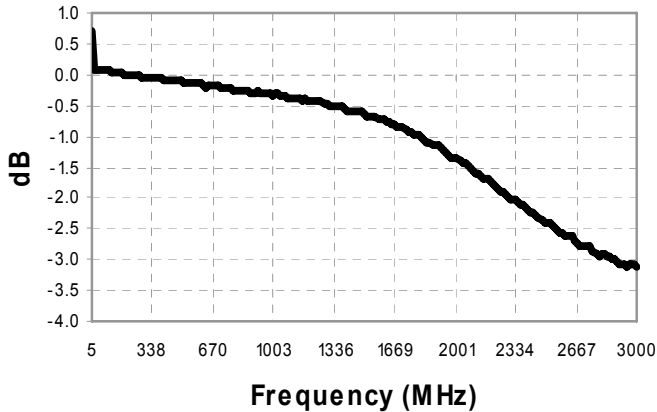
- Exceeding any one or combination of these limits may cause permanent damage to this device.
- M/A-COM does not recommend sustained operation near these survivability limits.

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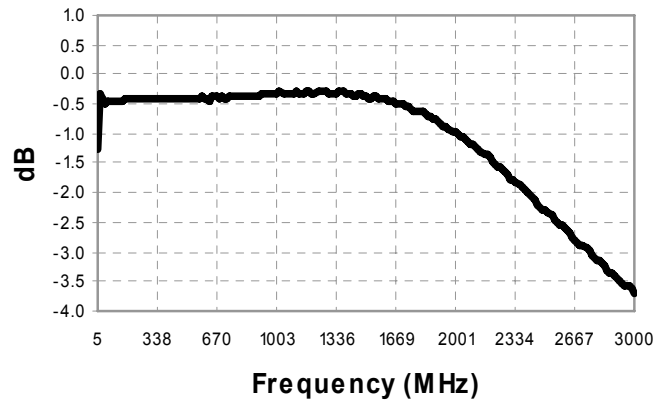
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Typical Performance Curves:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 50\Omega$

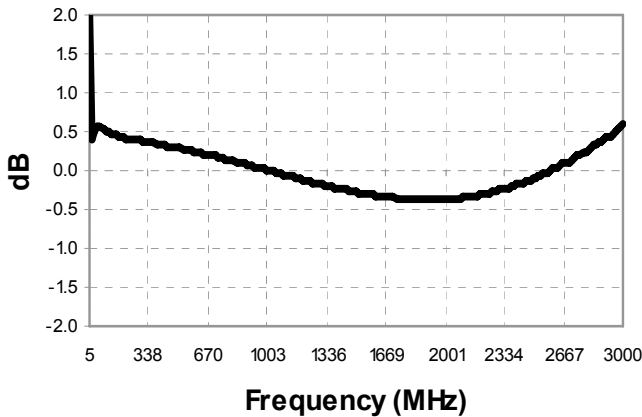
Insertion Loss 1: through pin 6 to pin 1



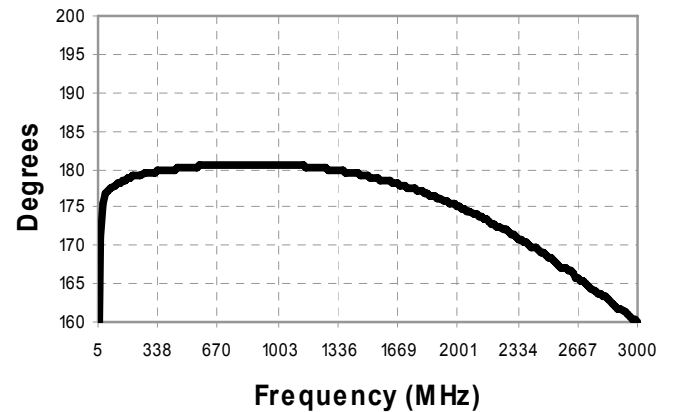
Insertion Loss 2: coupled pin 6 to pin 3



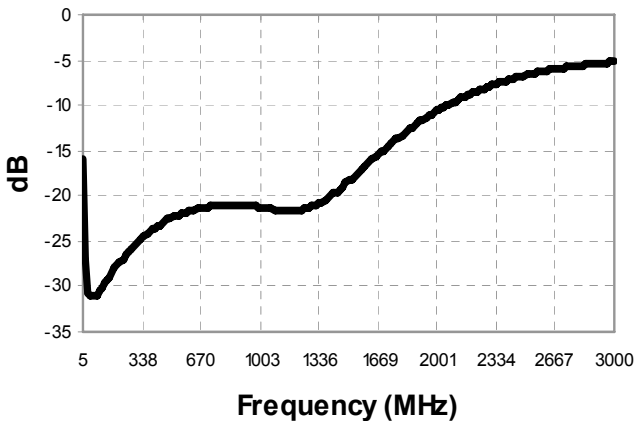
Amplitude Balance



Phase Balance



Input Return Loss



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