

1:1 Transmission Line Balun Transformer  
50 - 1200 MHz

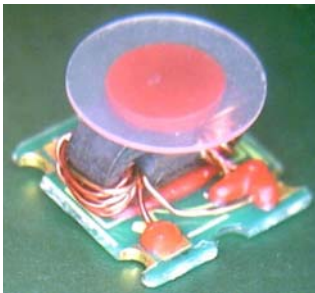
M/A-COM Products  
Part Status: Released Rev V1

## Features

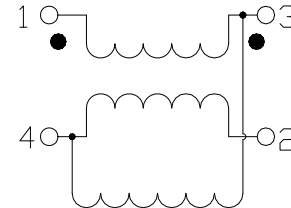
- Surface Mount
- 1:1 Impedance
- Excellent temperature stability
- RoHS Compliant
- 260°C Reflow compatible

## Description

M/A-COM's MABA-009210-CT1760 is a 1:1 RF transmission line Transformer in a low cost surface mount package. Ideally suited for high volume CATV/Broadband application. Suitable for use in 50 Ohm and 75 Ohm systems



## Schematic



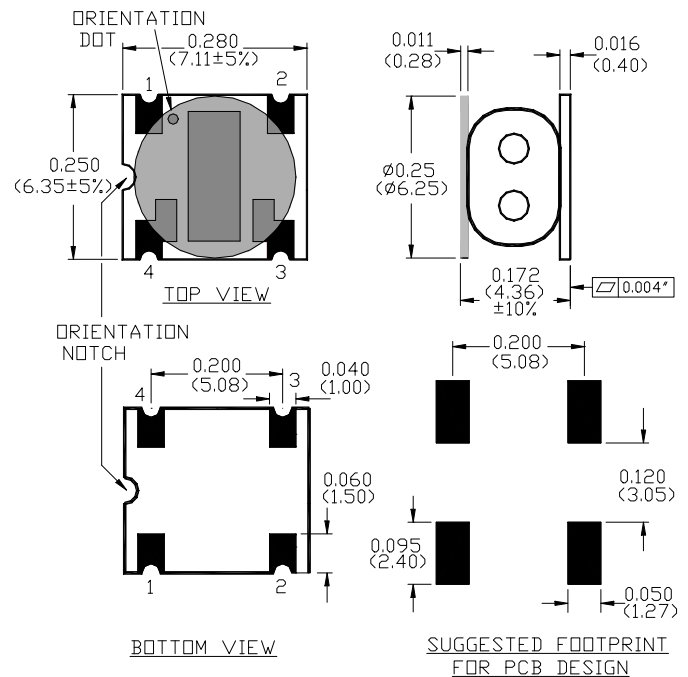
## Pin Configuration

| Pin Number | Function                    |
|------------|-----------------------------|
| 1          | Primary Dot (input)         |
| 2          | Secondary (o/p coupled)     |
| 3          | Secondary Dot (o/p through) |
| 4          | Primary (ground)            |

## Ordering Information

| Part Number        | Package             |
|--------------------|---------------------|
| MABA-009210-CT1760 | 900                 |
| MABA-009210-CT17TB | Customer Test Board |

## Case Style SM-118A



Dimensions in inches [mm] Tolerance: .xx ± .02, .xxx ± .010

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

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

1

**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
• **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588  
Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

1:1 Transmission Line Balun Transformer  
50 - 1200 MHz

M/A-COM Products  
Part Status: Released Rev V1

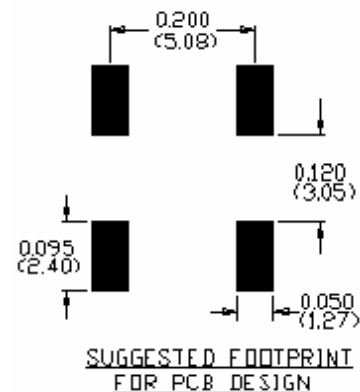
**Electrical Specifications:  $T_A = 25^\circ\text{C}$ , 0dBm,  $Z_0 = 75\Omega$**

| Parameter                                    | Test Conditions | Units | Min. | Typ. | Max.      |
|----------------------------------------------|-----------------|-------|------|------|-----------|
| Frequency Range: 50-1200 MHz                 |                 |       |      |      |           |
| Insertion Loss 1<br>(Through) Pin 3 to pin 1 | 50 MHz          | dB    | —    | 0.13 | 0.33      |
|                                              | 870 MHz         | dB    | —    | 0.53 | 0.93      |
|                                              | 1002 MHz        | dB    | —    | 0.63 | 1.18      |
|                                              | 1200 MHz        | dB    | —    | 0.83 | 1.93      |
| Insertion Loss 2<br>(Coupled) Pin 2 to pin 1 | 50 MHz          | dB    | —    | 0.43 | 0.62      |
|                                              | 870 MHz         | dB    | —    | 0.33 | 0.63      |
|                                              | 1002 MHz        | dB    | —    | 0.43 | 0.78      |
|                                              | 1200 MHz        | dB    | —    | 0.63 | 1.33      |
| Amplitude Balance                            | 50 MHz          | dB    | —    | 0.3  | -0.6      |
|                                              | 870 MHz         | dB    | —    | -0.1 | +0.7      |
|                                              | 1002 MHz        | dB    | —    | -0.2 | +0.7      |
|                                              | 1200 MHz        | dB    | —    | -0.2 | +0.8      |
| Phase Balance                                | 50 - 1002 MHz   | °     | —    | 1.2  | $\pm 4.0$ |
|                                              | 1002 - 1200 MHz | °     | —    | 3.2  | $\pm 8.0$ |
| Input Return Loss                            | 50 - 500 MHz    | dB    | 18.0 | 23.0 | —         |
|                                              | 500 - 1002 MHz  | dB    | 17.5 | 19.0 | —         |
|                                              | 1002 - 1200 MHz | dB    | 11.0 | 18.0 | —         |

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

| Parameter                     | Absolute Maximum |
|-------------------------------|------------------|
| RF Power                      | 250 mW           |
| DC Current                    | 30 mA            |
| Operating/Storage Temperature | -40°C to +85°C   |

### Recommended PCB Configuration



- 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.

**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
• **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588  
Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

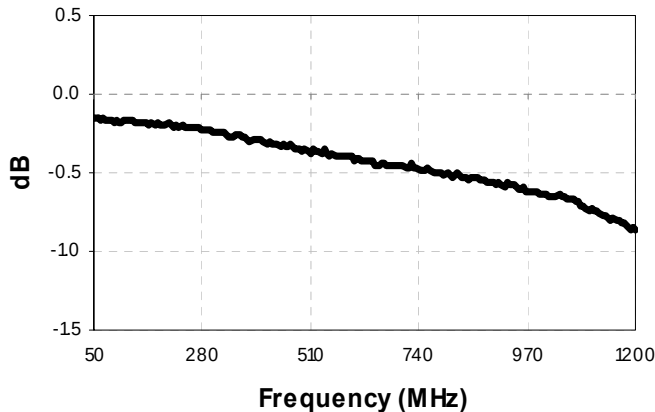
M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

1:1 Transmission Line Balun Transformer  
50 - 1200 MHz

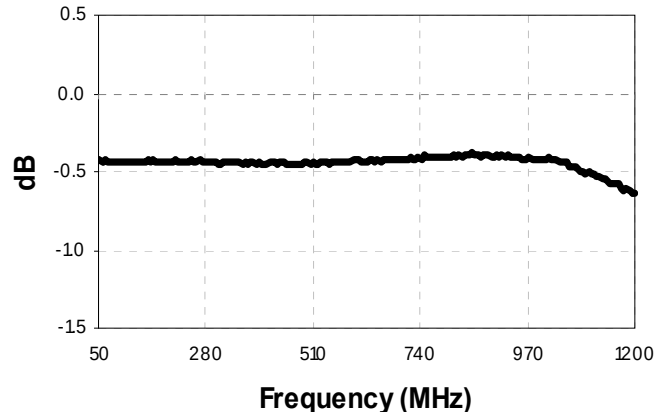
M/A-COM Products  
Part Status: Released Rev V1

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

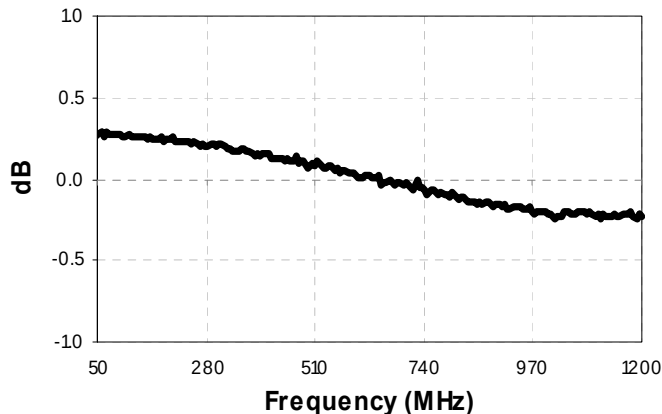
Insertion Loss 1: (through Pin 3-1)



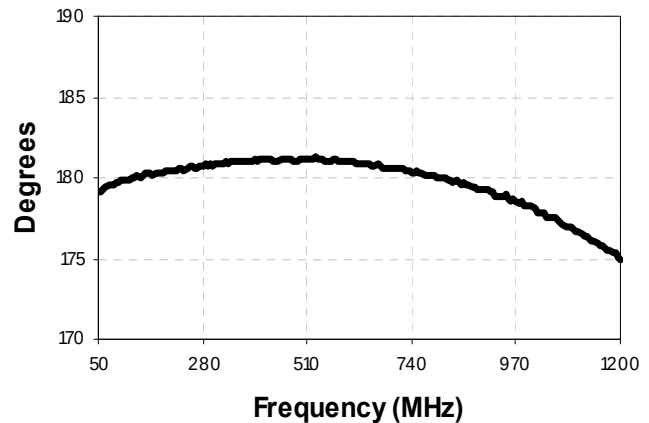
Insertion Loss 2: (coupled Pin 2-1)



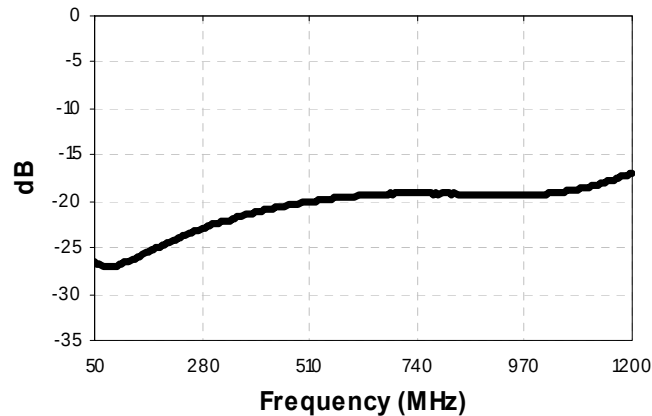
Amplitude Balance



Phase Balance



Return Loss: Input (Pin 1)



**Note:** The insertion loss graphs have minimum loss pad loss value subtracted from data. Loss value = -10.67dB.

**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
• **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588  
Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.