

# MABA-007681-CT2010



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

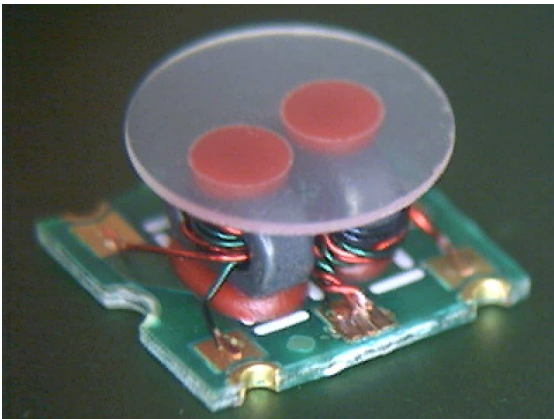
Rev. V4

### 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 50Ω and 75Ω systems

### Description

M/A-COM’s 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.



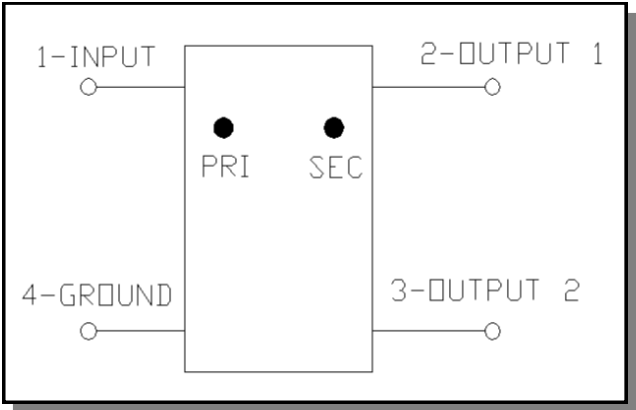
### Ordering Information

| Part Number        | Description               |
|--------------------|---------------------------|
| MABA-007681-CT2010 | Tape & Reel               |
| MABA-007681-CT20TB | Customer Evaluation Board |

### Pin Configuration

| Pin No. | Function           |
|---------|--------------------|
| 1       | Input (PRI dot)    |
| 2       | Output 1 (SEC dot) |
| 3       | Output 2 (SEC)     |
| 4       | Ground (PRI)       |
|         |                    |

### Schematic



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

| Parameter                            | Conditions      | Units    | Min | Typ        | Max        |
|--------------------------------------|-----------------|----------|-----|------------|------------|
| Frequency Range                      |                 | MHz      | 5   |            | 1200       |
| Impedance                            |                 | $\Omega$ |     | 75         |            |
| Impedance Ratio                      |                 |          |     | 1:2        |            |
| Insertion Loss 1<br>(Pin 1 to pin 2) | 5 - 50 MHz      | dB       | -   | 0.35       | 0.50       |
|                                      | 50 - 1000 MHz   | dB       | -   | 0.60       | 1.10       |
|                                      | 1000 - 1200 MHz | dB       | -   | 0.60       | 1.40       |
| Insertion Loss 2<br>(Pin 1 to pin 3) | 5 - 50 MHz      | dB       | -   | 0.5        | 0.70       |
|                                      | 50 - 1000 MHz   | dB       | -   | 0.9        | 1.50       |
|                                      | 1000 - 1200 MHz | dB       | -   | 1.8        | 2.20       |
| Amplitude Balance                    | 5 - 50 MHz      | dB       | -   | $\pm 0.10$ | $\pm 0.40$ |
|                                      | 50 - 1000 MHz   | dB       | -   | $\pm 0.30$ | $\pm 1.50$ |
|                                      | 1000 - 1200 MHz | dB       | -   | $\pm 0.60$ | $\pm 1.80$ |
| Phase Balance                        | 5 - 50 MHz      | $^\circ$ | -   | $\pm 0.2$  | $\pm 1.50$ |
|                                      | 50 - 1200 MHz   | $^\circ$ | -   | $\pm 3.0$  | $\pm 7.00$ |
| Input Return Loss<br>(Pin 1)         | 5 - 50 MHz      | dB       | 22  | 25         | -          |
|                                      | 50 - 1000 MHz   | dB       | 14  | 22         | -          |
|                                      | 1000 - 1200 MHz | dB       | 8   | 17         | -          |

## Absolute Maximum Ratings

| Parameter                   | Units            | Min | Max  |
|-----------------------------|------------------|-----|------|
| Input Power                 | mW               |     | 250  |
| DC Current                  | mA               |     | 600  |
| Operating Temperature Range | $^\circ\text{C}$ | -40 | +85  |
| Storage Temperature Range   | $^\circ\text{C}$ | -55 | +125 |

## 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 orienta- |       |       |

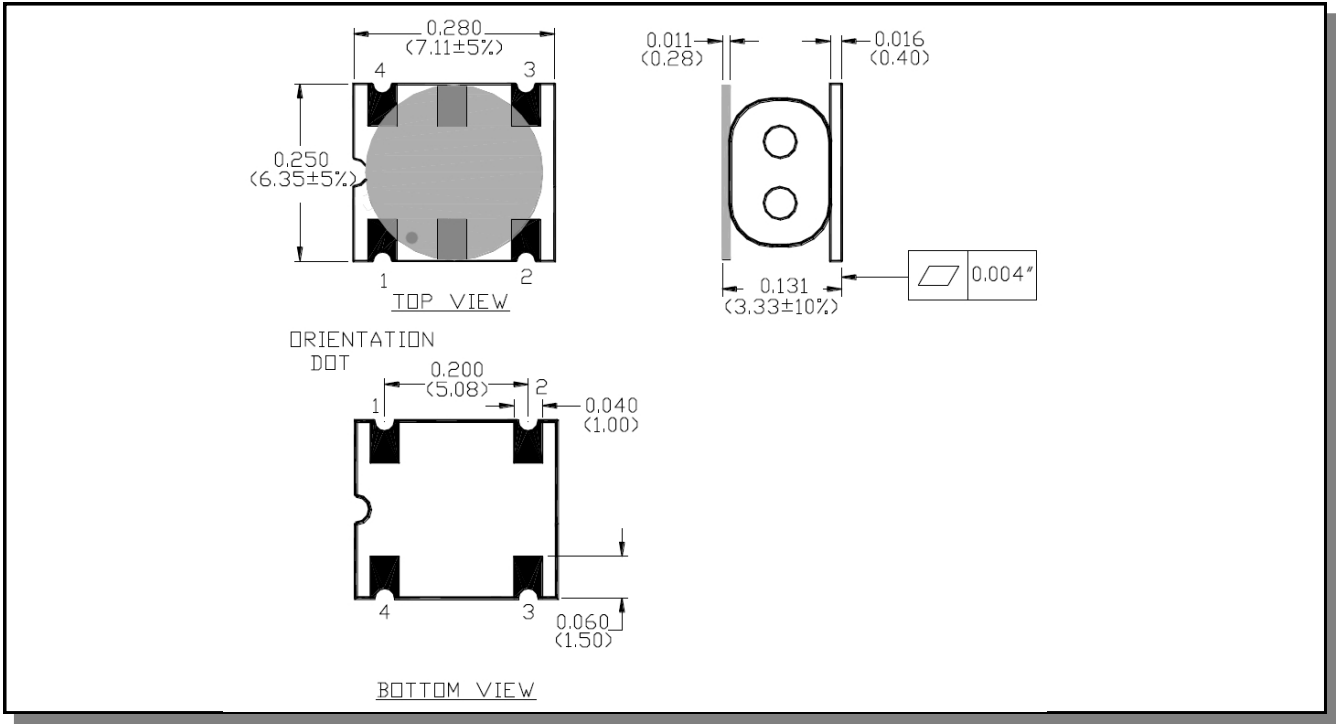
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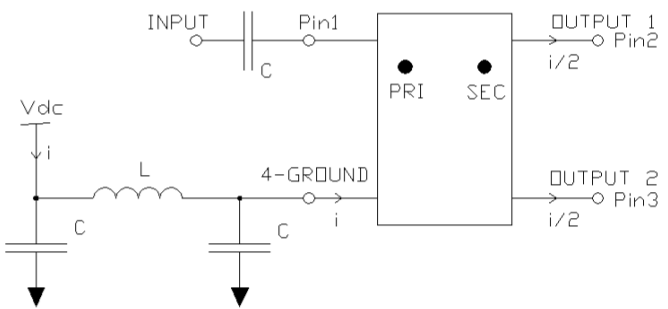
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## Outline Drawing



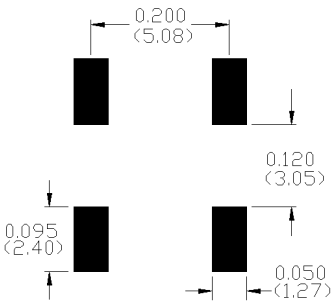
- 1. Dimensions in mm.
- 2. Tolerance: ±0.2mm unless otherwise noted.
- 3. Model number and lot code are printed on the reel.
- 4. Plating finish: ENIG on both sides, 0.05 to 0.1 µm gold over 3 to 6 µm nickel

## Recommended DC bias circuit

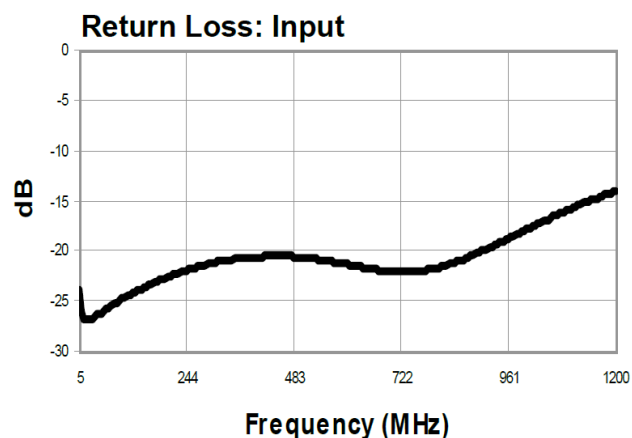
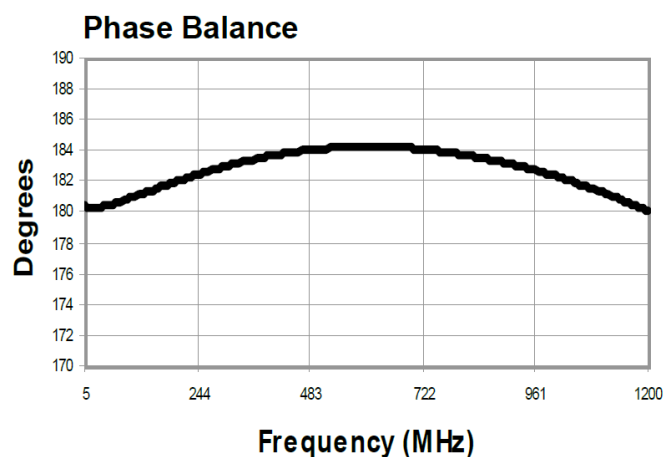
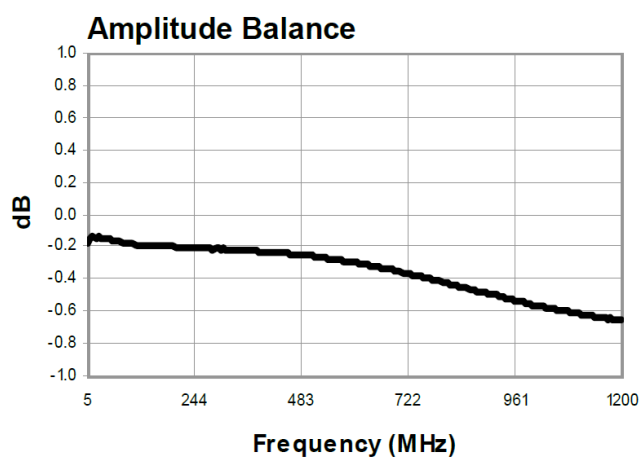
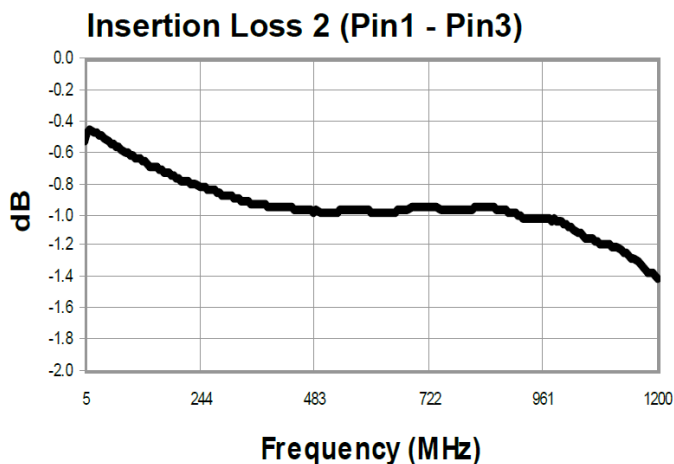
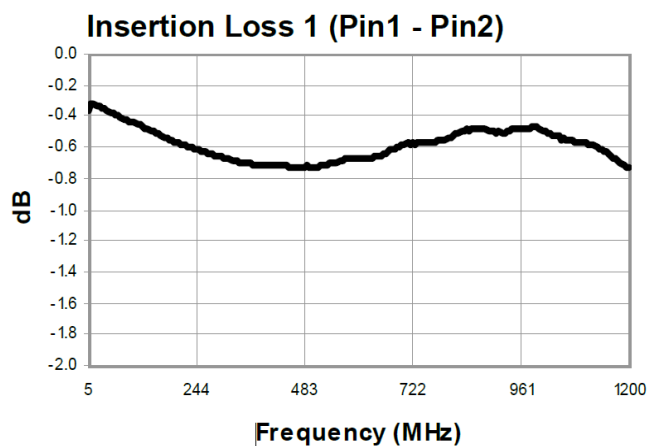


| Cap/Ind | 5-50MHz | 50-1200MHz |
|---------|---------|------------|
| C       | 100nF   | 10nF       |
| L       | 10µH    | 1µH        |

## Recommended Footprint



## Typical Performance Curves



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