## Auto Transformer 1:1.77 40 - 1215 MHz



#### Rev. V1

MACOM

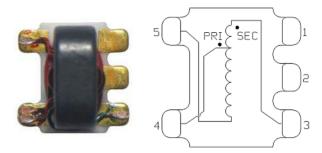
#### Features

- 1:1.77 Impedance
- Surface Mount Package
- Excellent Temperature Stability
- Available on Tape and Reel
- 260° Reflow Compatible
- RoHS Compliant and Pb Free
- Suitable for all CATV, Broadband and FTTX applications

#### Description

The MABA-011103 is a 1:1.77 auto transformer. This transformer is ideally suited for CATV broadband applications.

### Functional Schematic



## Pin Configuration<sup>3</sup>

| Pin # | Function               |
|-------|------------------------|
| 1, 2  | Not Connected (ground) |
| 3     | Secondary Dot          |
| 4     | Primary Dot            |
| 5     | Ground                 |
|       |                        |

3. MACOM recommends connecting unused package pins to ground.

## Electrical Specifications: Freq = 40 - 1215 MHz, $T_A = 25^{\circ}C$ , $Z_0 = 75 \Omega$ , $P_{IN} = 0 \text{ dBm}$

| Parameter                         | Test Conditions                                 | Units | Min. | Тур.              | Max.              |
|-----------------------------------|---|-------|------|-------------------|-------------------|
| Impedance Ratio                   | -   | -     |      | 1:1.77            | _                 |
| Insertion Loss<br>(Pin 4 - Pin 3) | 40 - 150 MHz<br>150 - 750 MHz<br>750 - 1215 MHz | dB    | _    | 2.4<br>2.8<br>2.6 | 3.0<br>3.1<br>3.0 |
| Input Return Loss<br>(Pin 4)      | 40 - 1215 MHz                                   | dB    |      | 9                 | 8                 |
| Output Return Loss<br>(Pin 3)     | 40 - 1215 MHz                                   | dB    | 13   | 16                | _                 |

## **Ordering Information**<sup>1,2</sup>

| Part Number    | Package               |
|----------------|-----------------------|
| MABA-011103    | Tape & Reel           |
| MABA-011103-TB | Customer Sample Board |

1. Reference Application Note M513 for reel size information.

2. All sample boards include 5 loose parts.

### **Recommended Maximum Ratings**<sup>4,5</sup>

| Parameter                | Rating         |
|--------------------------|----------------|
| Input Power <sup>6</sup> | 2 W            |
| DC Current               | 200 mA         |
| Operating Temperature    | -40°C to +85°C |

4. Exceeding anyone or combination of these limits may cause permanent damage to this device.

 MACOM does not recommend sustained operation near these survivability limits.

6. Specified at +25°C only.

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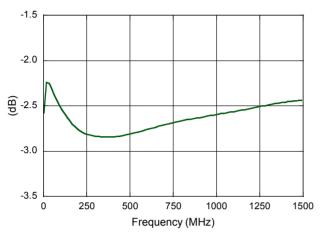


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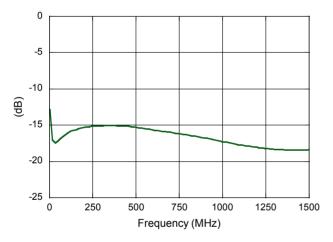
## Auto Transformer 1:1.77 40 - 1215 MHz

# Typical Performance Curves<sup>7</sup>: $T_A = 25^{\circ}C$ , $Z_0 = 75 \Omega$ , $P_{IN} = 0 \text{ dBm}$

#### Insertion Loss (pin 3)

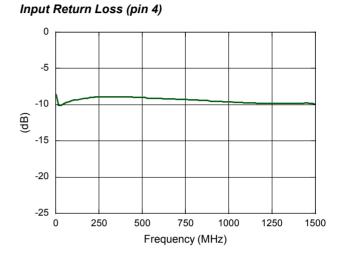


Output Return Loss (pin 3)



7. Full temperature plots available on request.

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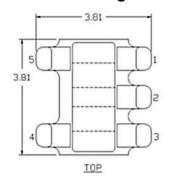


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# Outline Drawing<sup>8,9,10,11</sup>



2.79

0.64

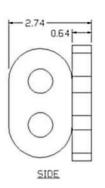
1.27 )\_

1.27

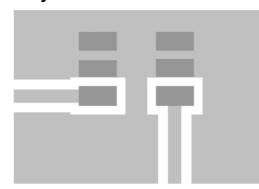
0.51

0.76

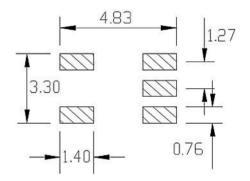
9.



# PCB Layout<sup>12</sup>

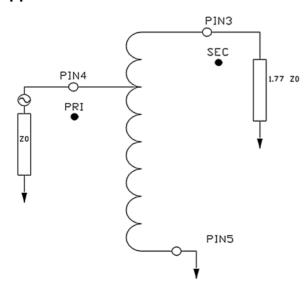


 Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.



# 11. Finish: Electroless nickel immersion gold (ENIG).

8. Dimensions in mm.



### **Application Schematic**

BOTTOM

Tolerance: ±0.2 mm unless otherwise noted.

10. Model number and lot code are printed on the reel.

### **Tape & Reel Information**

| Parameter  | Units | Value |  |
|--|-------|-------|--|
| Qty per reel                                       | -     | 2000  |  |
| Reel Size  | mm    | 330   |  |
| Tape Width   | mm    | 12.00 |  |
| Pitch  | mm    | 8.00  |  |
| Orientation  | -     | F5    |  |
| Reference Application Note ANI-019 for orientation |       |       |  |

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<sup>3</sup> 

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