

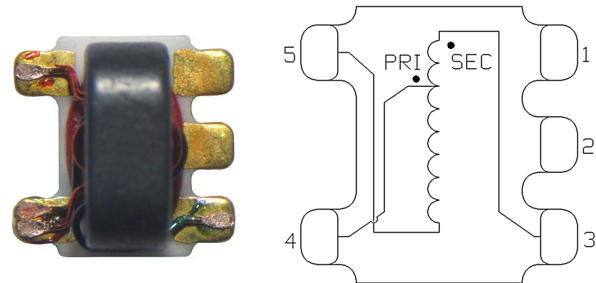
## Features

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

| Parameter                         | Test Conditions | Units | Min. | Typ.   | Max. |
|-----------------------------------|-----------------|-------|------|--------|------|
| Impedance Ratio                   | -               | -     | —    | 1:1.77 | —    |
| Insertion Loss<br>(Pin 4 - Pin 3) | 40 - 150 MHz    | dB    | —    | 2.4    | 3.0  |
|                                   | 150 - 750 MHz   |       |      | 2.8    | 3.1  |
|                                   | 750 - 1215 MHz  |       |      | 2.6    | 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.

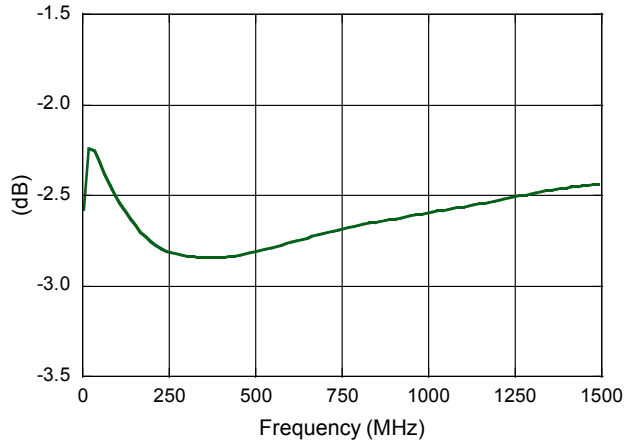
## Recommended Maximum Ratings<sup>4,5</sup>

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

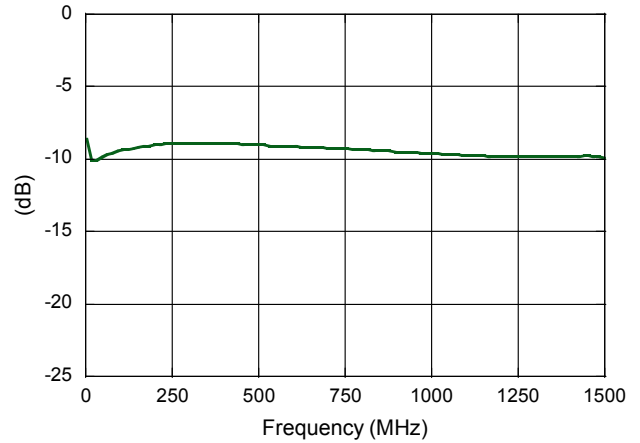
4. Exceeding anyone or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.
6. Specified at +25°C only.

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

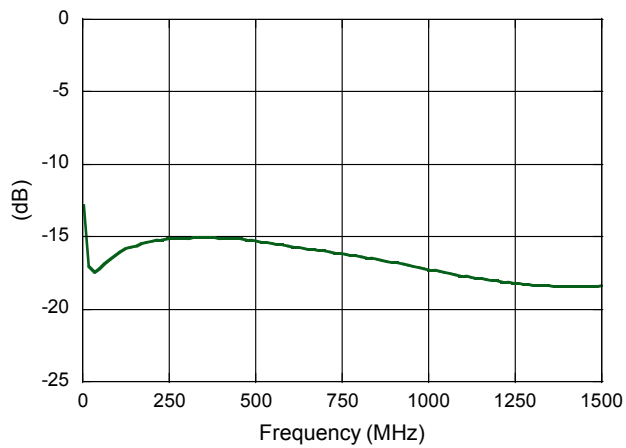
**Insertion Loss (pin 3)**



**Input Return Loss (pin 4)**

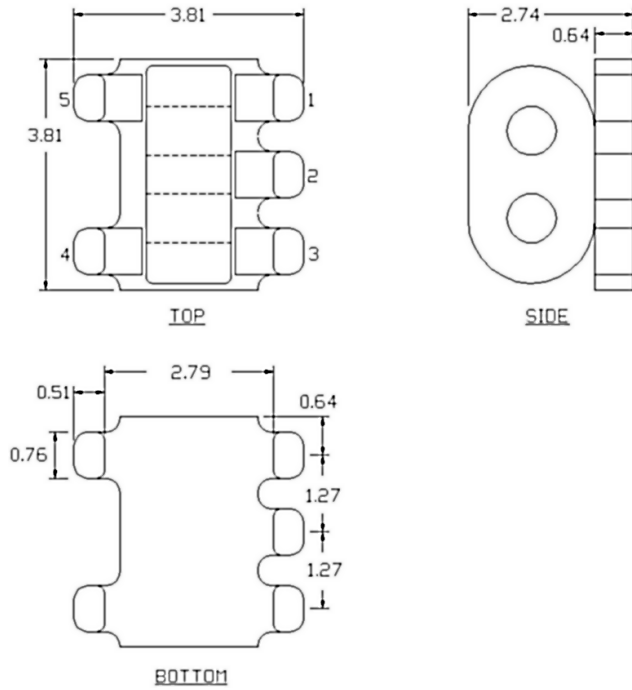


**Output Return Loss (pin 3)**



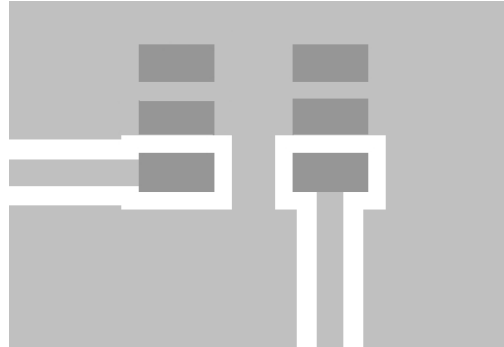
7. Full temperature plots available on request.

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

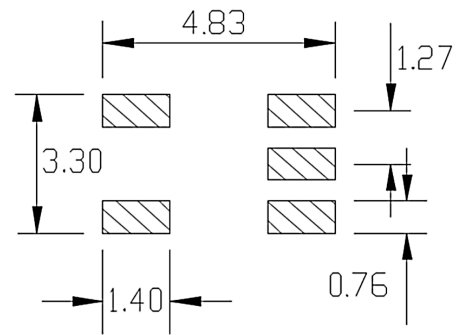


- 8. Dimensions in mm.
- 9. Tolerance:  $\pm 0.2$  mm unless otherwise noted.
- 10. Model number and lot code are printed on the reel.
- 11. Finish: Electroless nickel immersion gold (ENIG).

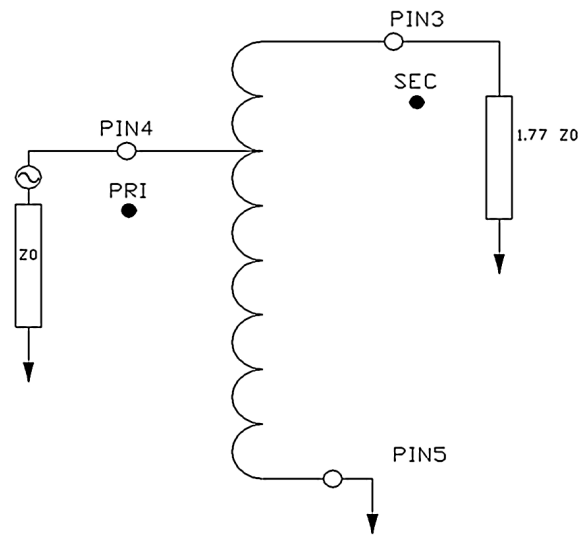
## PCB Layout<sup>12</sup>



12. 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.



## Application Schematic



## 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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