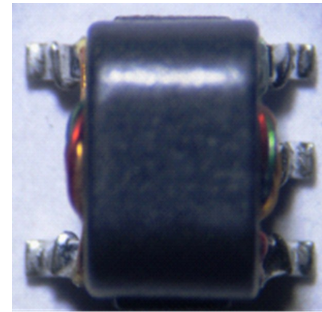


4:1 Step down Flux Coupled Balun Transformer 5 – 300 MHz

Rev. V2

Features

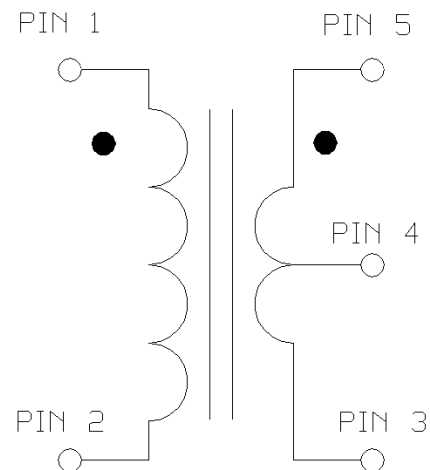
- 4:1 impedance
- Surface mount
- Available on tape and reel
- 260° reflow compatible
- RoHS compliant and Pb free
- Excellent temperature stability
- Suitable for all CATV, Broadband and FTTX applications



Description

MABA-011064 is a 4:1 flux coupled transformer. This transformer is ideally suited for DOCSIS 3.x upstream applications due to its high power and temperature performance.

Functional Schematic



Ordering Information

| Part Number | Package |
|----------------|---------------------|
| MABA-011064 | Tape & Reel |
| MABA-011064-TB | Customer Test Board |

Pin Configuration

| Pin No. | Function |
|---------|-------------------------|
| 1 | Primary Dot (input) |
| 2 | Primary (ground) |
| 3 | Secondary (output2) |
| 4 | Center tap (ground) |
| 5 | Secondary Dot (output1) |

4:1 Step down Flux Coupled Balun Transformer 5 – 300 MHz

Rev. V2

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

| Parameter | Test Conditions | Units | Min. | Typ. | Max. |
|---|-----------------|----------|------|------|------------|
| Frequency Range | - | MHz | 5 | - | 300 |
| Impedance | - | Ω | - | 75 | - |
| Impedance Ratio | - | - | - | 4:1 | - |
| Insertion Loss 1 (Pin1 - Pin5) | 5 - 50 MHz | dB | - | 0.4 | 0.7 |
| | 50 - 150 MHz | dB | - | 0.9 | 2.0 |
| | 150 - 300 MHz | dB | - | 2.2 | 4.5 |
| Insertion Loss 2 (Pin1 - Pin3) | 5 - 50 MHz | dB | - | 0.5 | 0.9 |
| | 50 - 150 MHz | dB | - | 1.1 | 2.2 |
| | 150 - 300 MHz | dB | - | 2.8 | 4.9 |
| Amplitude Balance | 5 - 50 MHz | dB | - | 0.1 | ± 0.5 |
| | 50 - 150 MHz | dB | - | 0.2 | ± 0.8 |
| | 150 - 300 MHz | dB | - | 0.5 | ± 1.6 |
| Phase Balance (ref value 180°) | 5 - 50 MHz | $^\circ$ | - | 0.8 | ± 3.0 |
| | 50 - 150 MHz | $^\circ$ | - | 2.4 | ± 7.0 |
| | 150 - 300 MHz | $^\circ$ | - | 3.5 | ± 10.0 |
| Input Return Loss (Pin1) | 5 - 50 MHz | dB | 14 | 21 | - |
| | 50 - 150 MHz | dB | 7 | 12 | - |
| | 150 - 300 MHz | dB | 3 | 7 | - |

Recommended Maximum Ratings

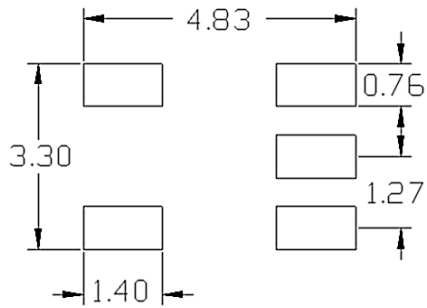
| Parameter | Units | Min | Max |
|-----------------------------|------------------|-----|------|
| Input Power | mW | - | 2000 |
| DC Current | mA | - | 1500 |
| Operating Temperature Range | $^\circ\text{C}$ | -40 | +125 |

Full temperature plots available on request

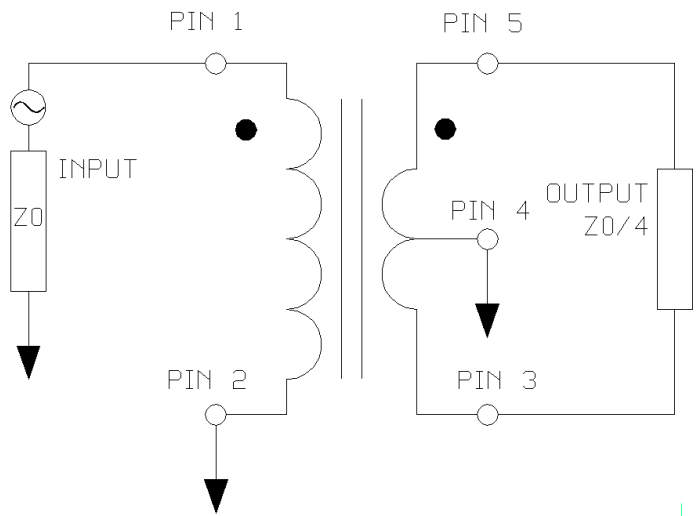
4:1 Step down Flux Coupled Balun Transformer 5 – 300 MHz

Rev. V2

PCB Layout



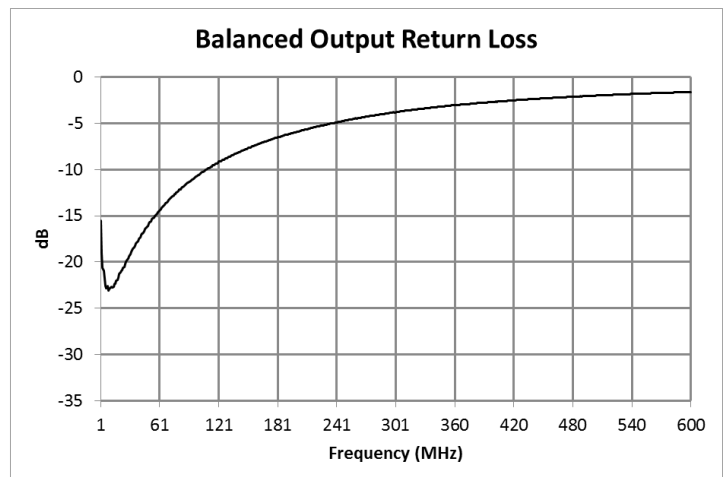
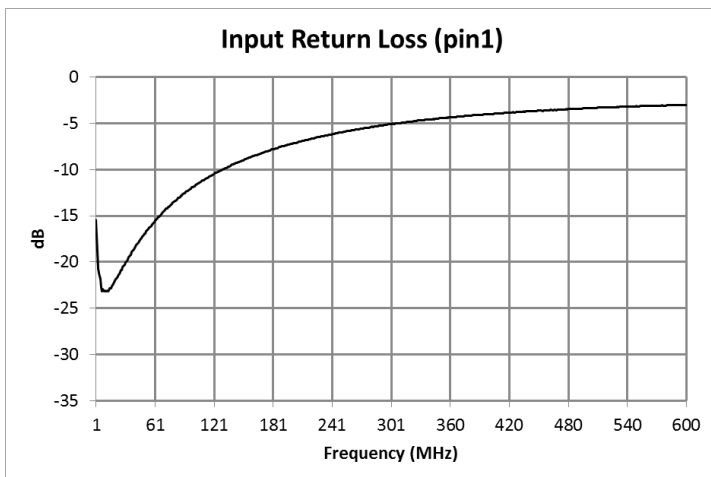
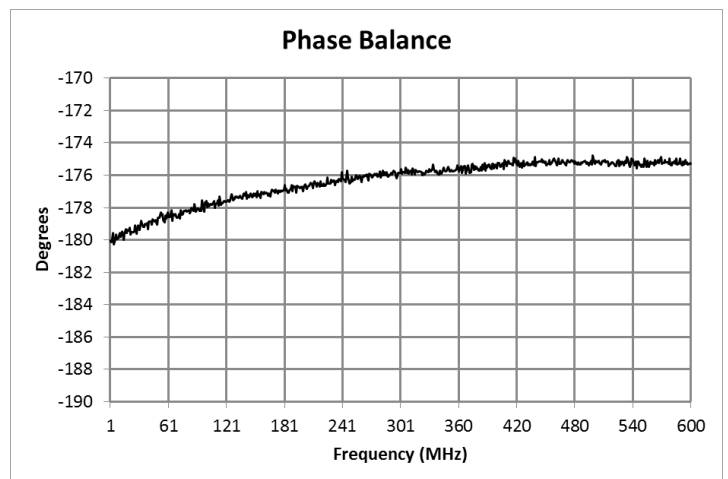
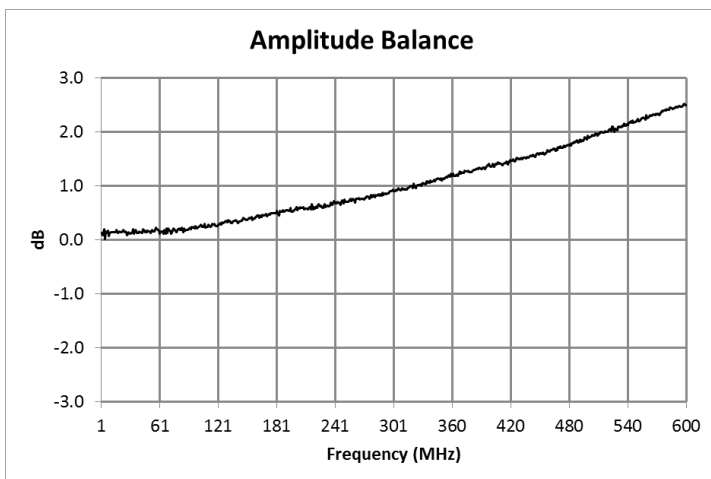
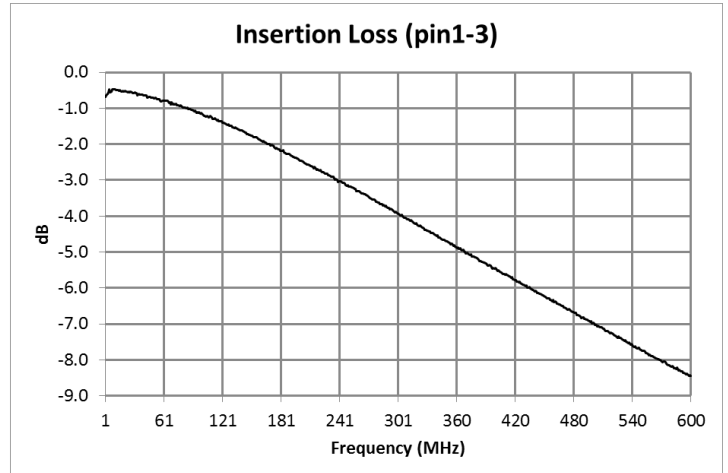
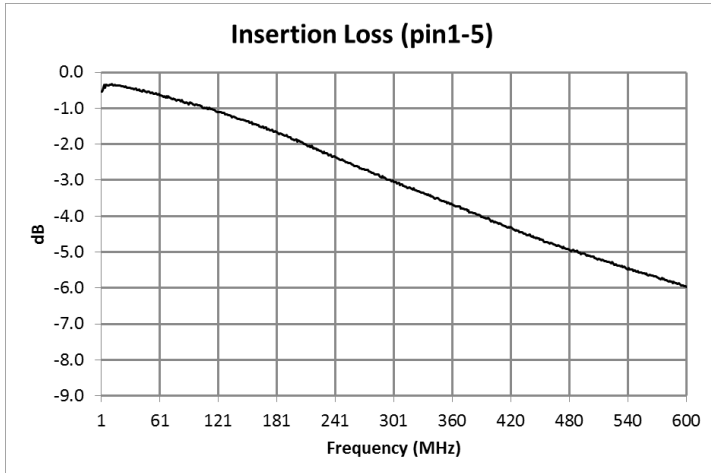
Application Schematic



4:1 Step down Flux Coupled Balun Transformer 5 – 300 MHz

Rev. V2

Typical Performance Curves

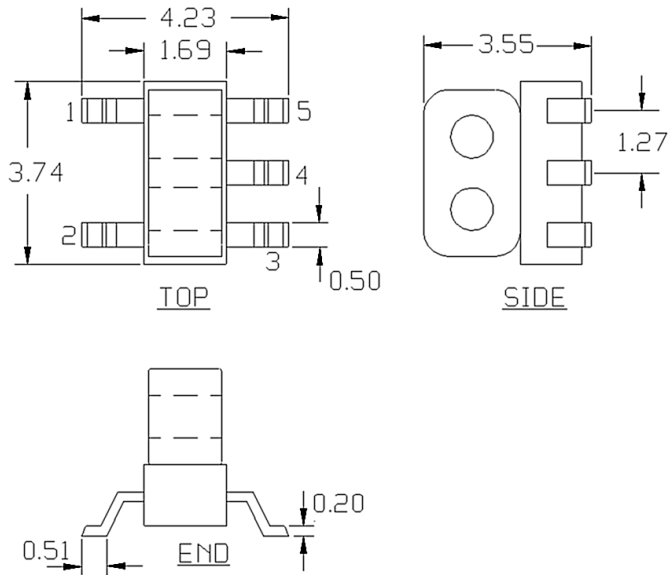


Electrical Specifications: $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{in} = 0\text{dBm}$

4:1 Step down Flux Coupled Balun Transformer 5 – 300 MHz

Rev. V2

Outline Drawing

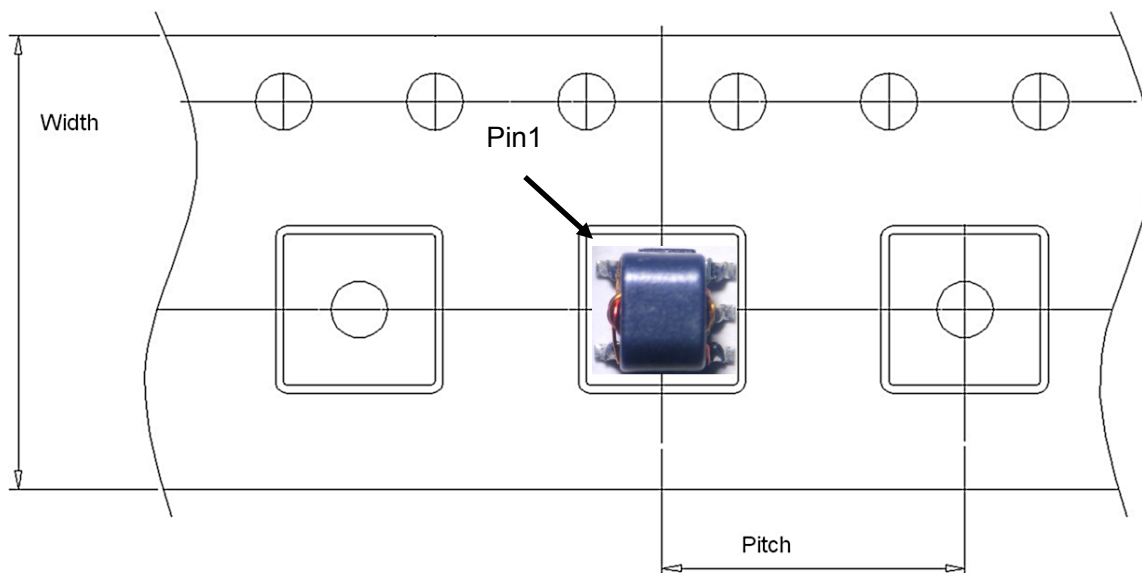


Tape & Reel Information

| Parameter | Units | Value |
|--|-------|-------|
| Qty per reel | - | 2000 |
| Reel Size | mm | 330 |
| Tape Width | mm | 12.00 |
| Pitch | mm | 8.00 |
| Ao | mm | 4.40 |
| Bo | mm | 4.00 |
| Ko | mm | 3.90 |
| Orientation | - | F26 |
| Reference Application Note ANI-019 for orientation | | |

1. Dimensions in mm.
2. Tolerance: ± 0.2 mm unless otherwise noted.
3. Model number and lot code are printed on the reel.
4. Lead plating (CuSn6) Lead finish SAC-305.

Carrier Tape Orientation



4:1 Step down Flux Coupled Balun Transformer 5 – 300 MHz

Rev. V2

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.