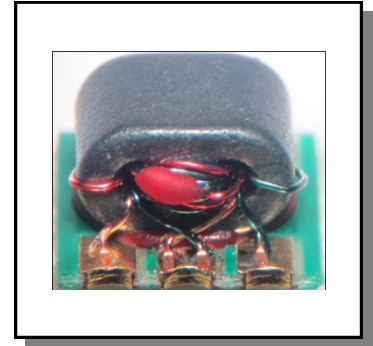


1:1 Flux Coupled Balun Transformer
5 - 300 MHz

Rev. V7

Features

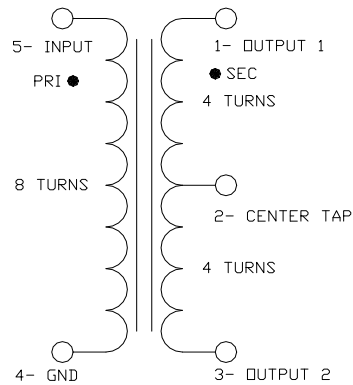
- 1:1 impedance
- Surface mount
- Available on tape and reel
- 260° reflow compatible
- RoHS Compliant and Pb free
- Excellent temperature stability
- Suitable for all CATV, Broadband and FTTX applications



Description

MACOM's MABA-009852-CF1A40 is a 1:1 Flux coupled transformer. This Transformer is ideally suited for CATV and Broadband applications.

Functional Schematic



Ordering Information

Part Number	Description
MABA-009852-CF1A40	Tape & Reel
MABA-009852-CF1ATB	Customer Test Board

Pin Configuration

Function	Pin Number
Secondary Dot (Output 1)	1
Secondary Centre Tap	2
Secondary (Output 2)	3
Primary (Ground)	4
Primary Dot (Input)	5

1:1 Flux Coupled Balun Transformer 5 - 300 MHz

Rev. V7

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

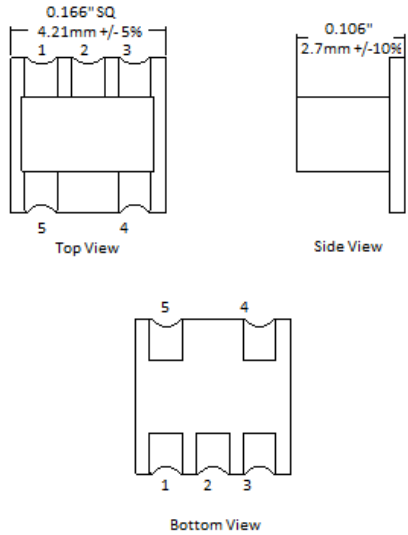
Parameter	Test Conditions	Units	Min.	Typ.	Max.
Frequency Range		MHz	5		300
Insertion Loss 1 (Pin 5 - Pin 1)	5 – 75 MHz	dB	–	0.1	0.4
	75 – 120 MHz	dB	–	0.3	0.6
	120 – 204 MHz	dB	–	0.63	0.8
	204 – 300 MHz	dB	–	1.0	1.2
Insertion Loss 2 (Pin 5 - Pin 3)	5 – 75 MHz	dB	–	0.26	0.4
	75 – 120 MHz	dB	–	0.30	0.5
	120 – 204 MHz	dB	–	0.31	0.6
	204 – 300 MHz	dB	–	0.32	0.6
Amplitude Balance	5 – 75 MHz	dB	–	0.03	0.17
	75 – 120 MHz	dB	–	0.12	0.38
	120 – 204 MHz	dB	–	0.30	0.50
	204 – 300 MHz	dB	–	0.70	1.00
Phase Balance (Nominal phase difference is 180 degrees)	5 – 75 MHz	°	–	0.05	2.0
	75 – 120 MHz	°	–	0.10	3.0
	120 – 204 MHz	°	–	1.53	3.9
	204 – 300 MHz	°	–	3.0	6.1
Input Return Loss (Pin 5)	5 – 20 MHz	dB	25	30	–
	20 – 75 MHz	dB	20	28	–
	75 – 120 MHz	dB	15	19	–
	120 – 204 MHz	dB	15	20	–
	204 – 300 MHz	dB	12	17	–

Recommended Maximum Ratings

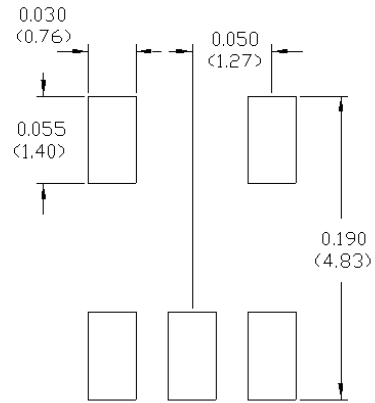
Parameter	Units	Min	Max
Input Power	W		0.5
DC Current	mA		500
Operating Temperature Range	°C	-40	+100

Full temperature plots available on request

Outline Drawing



PCB Layout

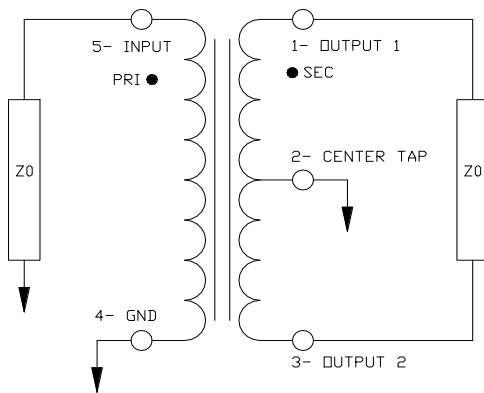


1. Dimensions in mm.
2. Tolerance: ± 0.2 mm unless otherwise noted.
3. Model number and lot code are printed on the reel.
4. Lead plating: ENIG.

Tape & Reel Information

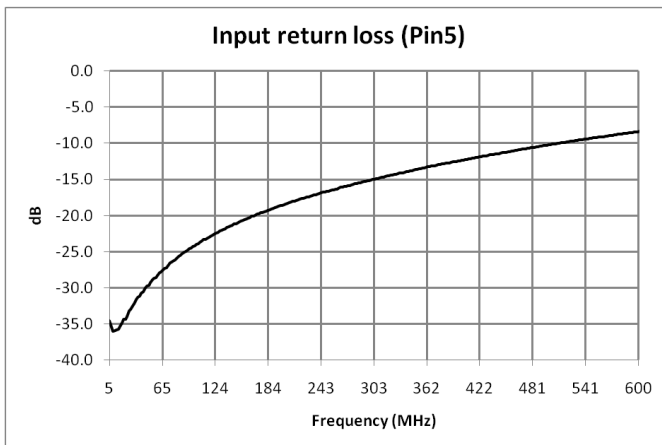
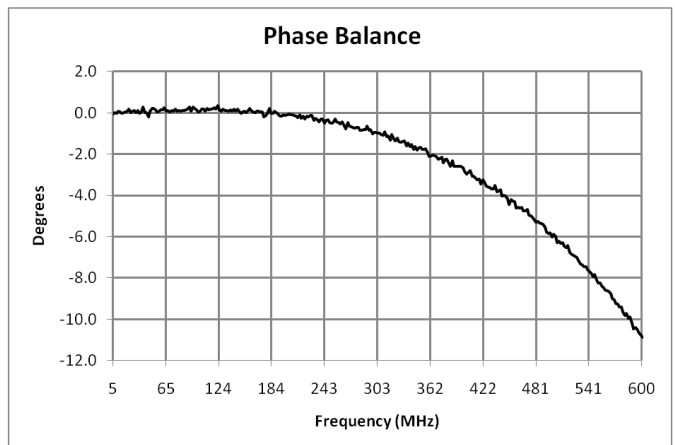
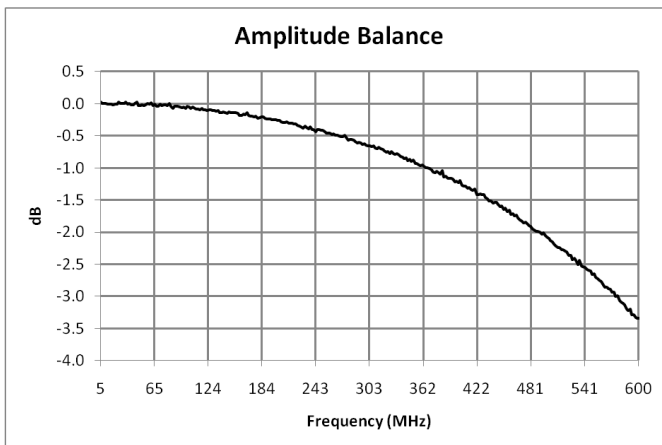
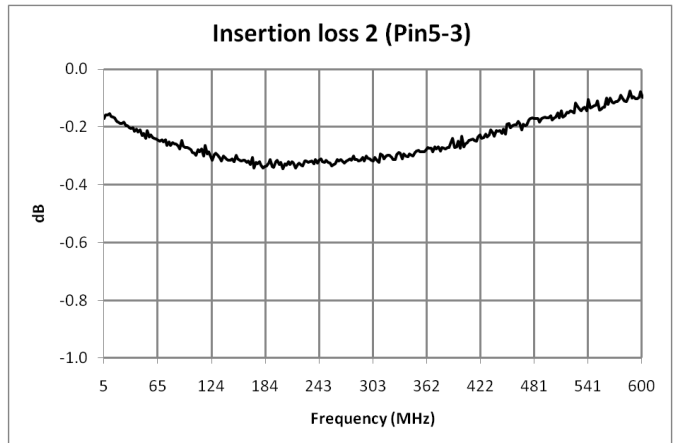
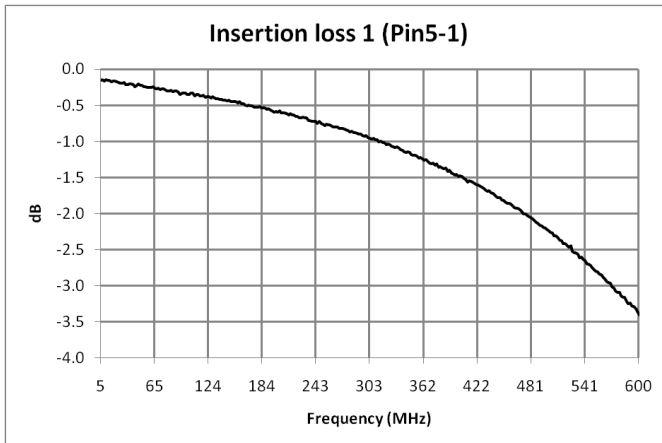
Parameter	Units	Value
Qty per reel	-	2000
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Ao	mm	4.50
Bo	mm	4.50
Ko	mm	2.73
Orientation	-	F31
Reference Application Note ANI-019 for orientation		

Application Circuit



1:1 Flux Coupled Balun Transformer 5 - 300 MHz

Rev. V7



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

1:1 Flux Coupled Balun Transformer
5 - 300 MHz

Rev. V7

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

Parameter	Conditions	Units	Min	Typ	Max
Frequency Range		MHz	5		300
Impedance		Ω		75	
Impedance Ratio				1:1	
Insertion Loss 1 (Pin5 - Pin3)	5 - 75 MHz	dB	-	0.26	0.35
	75 - 120 MHz	dB	-	0.31	0.40
	120 - 204 MHz	dB	-	0.38	0.45
	204 - 300 MHz	dB	-	0.43	0.55
Phase (Pin5 - Pin3) (Nominal phase difference is 180 degrees)	5 - 75 MHz	$^\circ$	17	13	-
	75 - 120 MHz	$^\circ$	25	22	-
	120 - 204 MHz	$^\circ$	40	37	-
	204 - 300 MHz	$^\circ$	-57	53	-
Input Return Loss (Pin5)	5 - 75 MHz	dB	27	36	-
	75 - 120 MHz	dB	23	31	-
	120 - 204 MHz	dB	19	28	-
	204 - 300 MHz	dB	16	25	-
Output Return Loss (Pin3)	5 - 75 MHz	dB	27	37	-
	75 - 120 MHz	dB	24	31	-
	120 - 204 MHz	dB	19	27	-
	204 - 300 MHz	dB	16	23	-

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

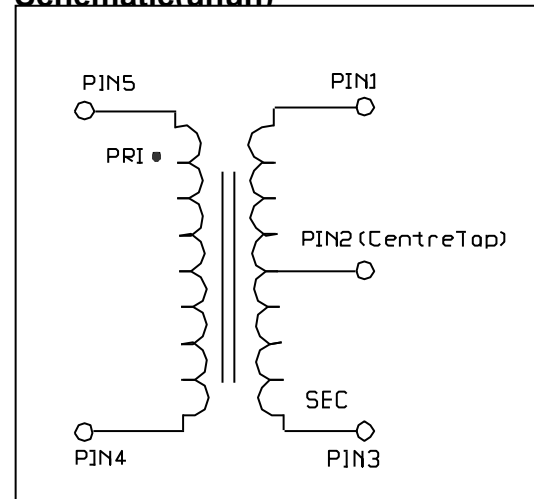
1:1 Flux Coupled Balun Transformer
5 - 300 MHz

Rev. V7

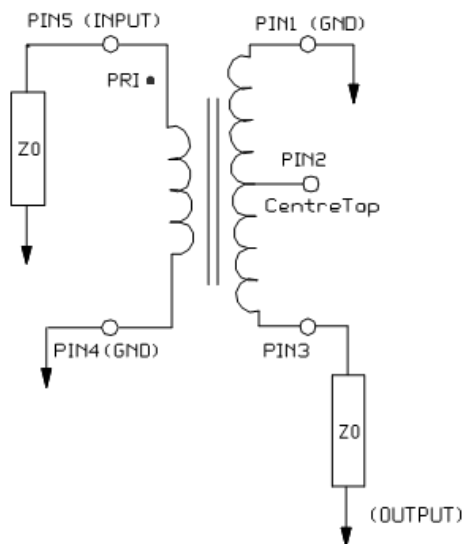
Pin Configuration(unun)

Function	Pin Number
Ground	1
Centre Tap(not connected)	2
Output	3
Ground	4
Input	5

Schematic(unun)

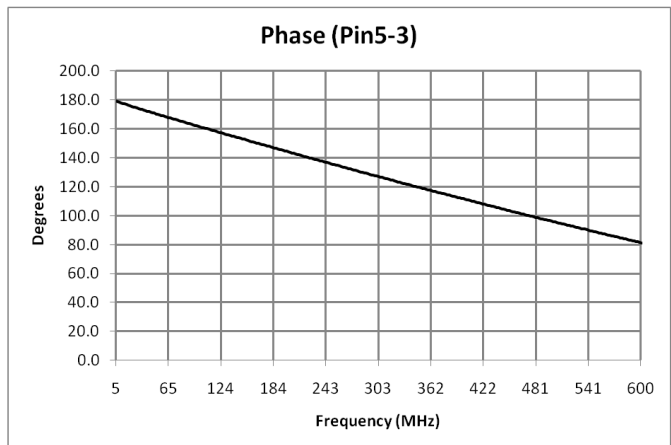
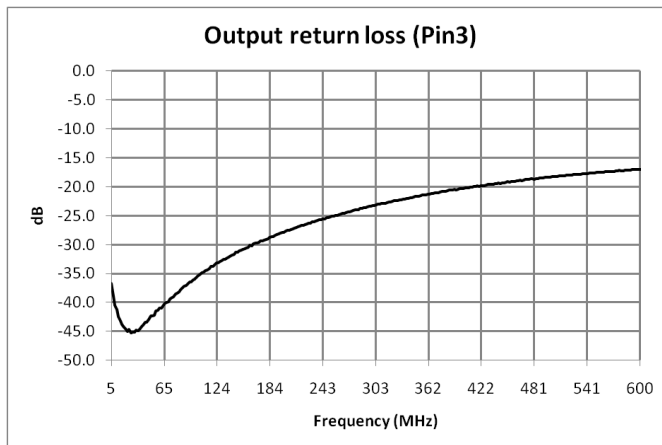
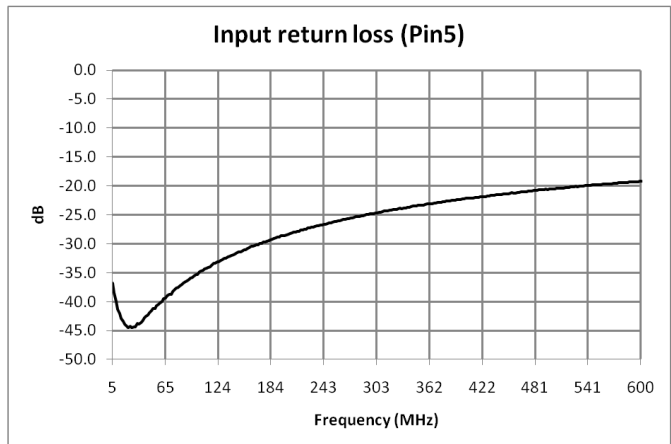
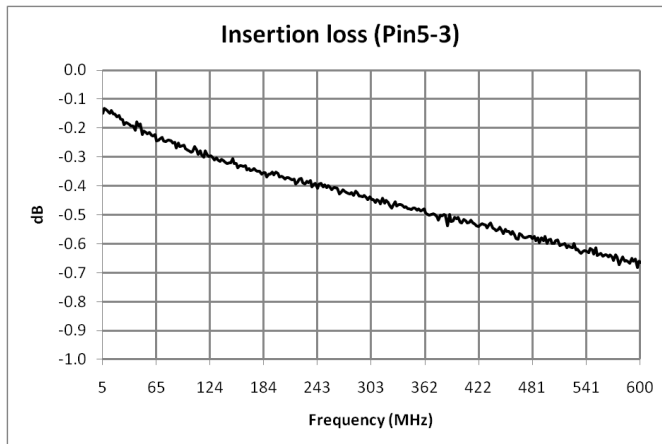


Application Circuit(unun)



1:1 Flux Coupled Balun Transformer 5 - 300 MHz

Rev. V7



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 estoppel 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.