

1:1 Flux Coupled Transformer 3 - 200 MHz

Rev. V6

Features

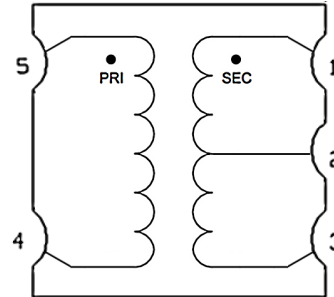
- 1:1 Flux Coupled Transformer
- Surface Mount Package
- Centre Tap on Secondary
- Tape and Reel Packaging Available
- 260° Reflow Compatible

Description

The MABACT0071 is a RoHS compliant 1:1 RF flux coupled transformer in a surface mount package.

Ideally suited for all CATV, Broadband applications.

Schematic



Pin Configuration³

Pin #	Function	Pin #	Function
1	Secondary Dot	4	Primary
2	Secondary CT	5	Primary Dot
3	Secondary		

3. MACOM recommends connecting all No Connection (N/C) pins to ground.

Electrical Specifications: Freq. = 3 - 200 MHz, T_A = 25°C, Z₀ = 75 Ω, P_{IN} = 0 dBm

Parameter	Freq. Test Conditions (MHz)	Units	Min.	Typ.	Max.
Insertion Loss (pin 5-1)	3 - 5	dB	—	1.0	2.6
	5 - 200			0.5	0.9
Insertion Loss (pin 5-3)	3 - 10	dB	—	1.0	2.6
	10 - 200			0.4	0.75
Amplitude Balance	3 - 200	dB	—	0.1	±0.3
Phase Balance	3 - 200	°	—	0.3	±3.0
Input Return Loss	3 - 5	dB	5	13	—
	5 - 120		19	27	
	120 - 200		15	21	

Ordering Information^{1,2}

Parameter	Package
MABACT0071	2000 piece reel
MABACT0071-TB	Sample Board

1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

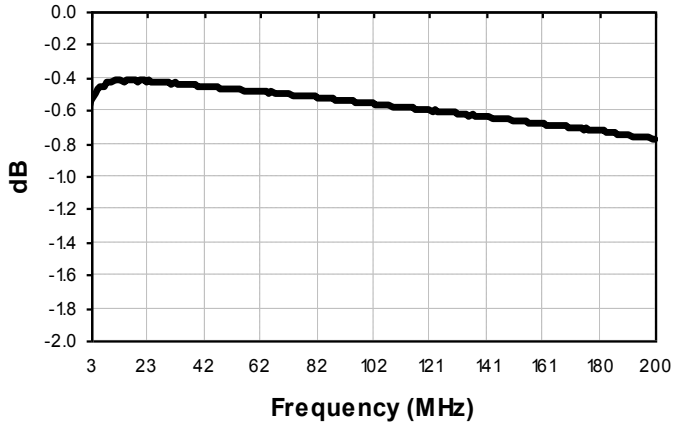
Absolute Maximum Ratings^{4,5}

Parameter	Absolute Maximum
RF Power ⁶	250 mW
DC Current	240 mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C

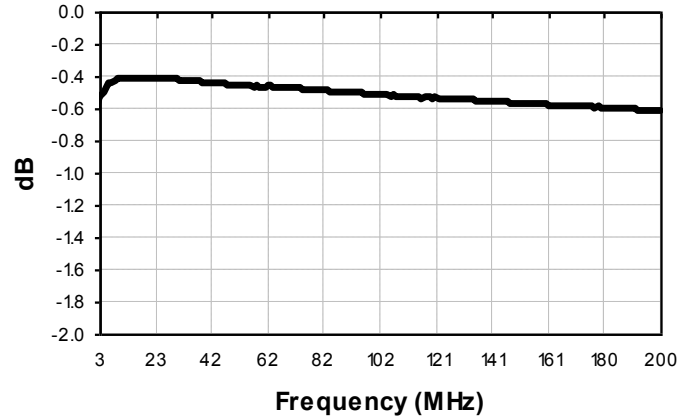
4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.
6. Specified at 25°C only.

Typical Performance Curves⁷

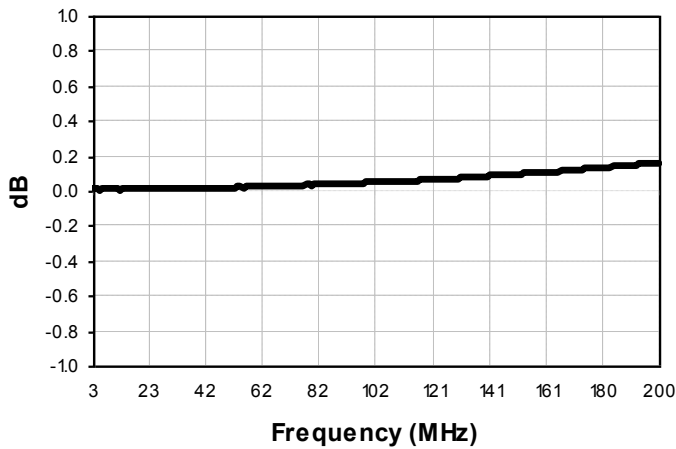
Insertion Loss: (pin5 - pin1)



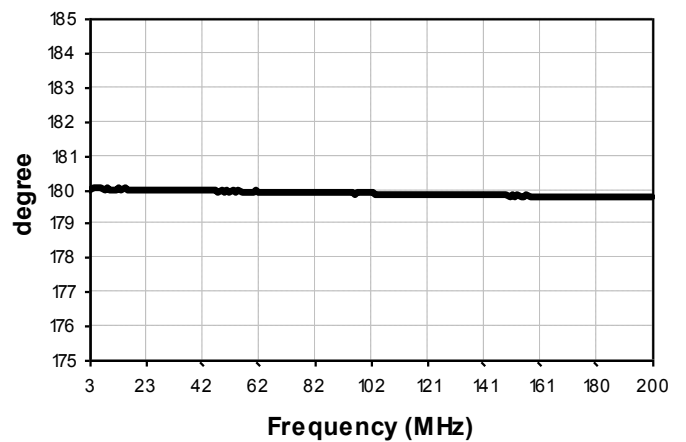
Insertion Loss: (pin5 - pin3)



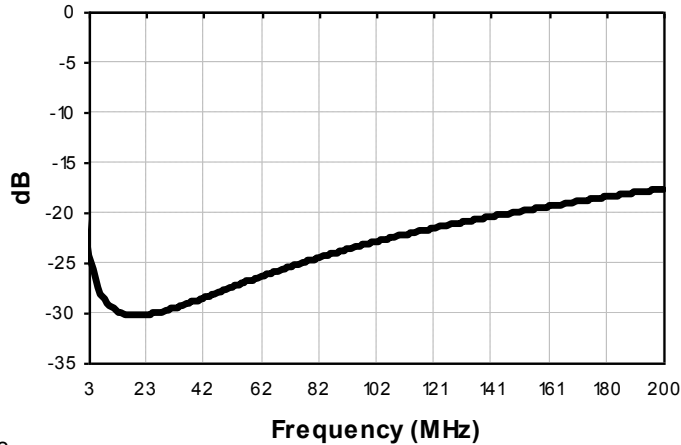
Amplitude Balance



Phase Balance

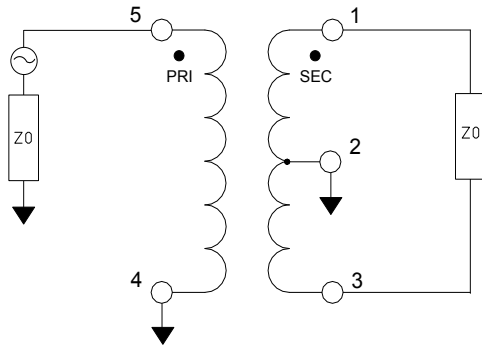


Return Loss: Input (pin5)

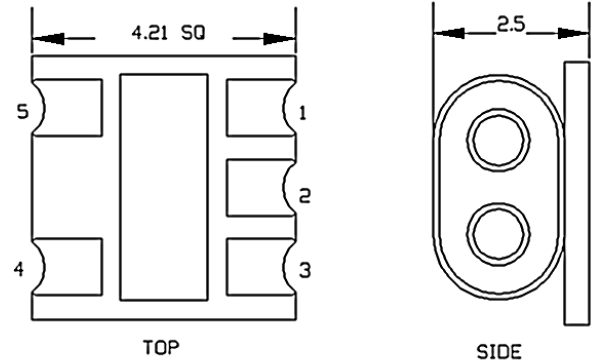


7. Temperature plots available on request.

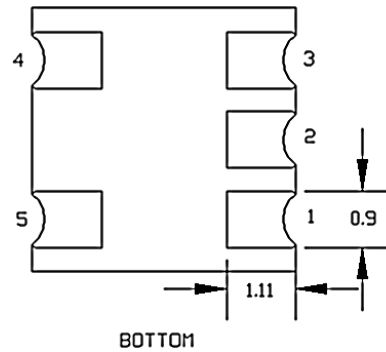
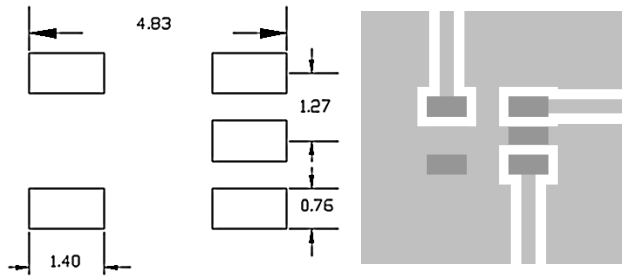
Application Circuit



Outline Drawing^{10,11,12,13}



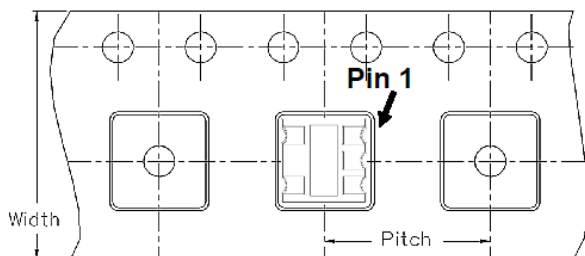
PCB Layout^{8,9}



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

- 10. Dimensions in mm.
- 11. Tolerance: ± 0.2 mm unless otherwise noted.
- 12. Model number and lot code printed on reel.
- 13. Plating finish: ENIG

Carrier Tape Orientation



Tape and Reel Information

Item	Dimension (mm)
Qty Per Reel	2000
Tape Width	12
Pitch	8
Orientation	F5
Reference Application note ANI-019 for orientation	

MACOM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with MACOM 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.