

1:1 Flux Coupled Transformer 3 - 200 MHz

Rev. V6

Features

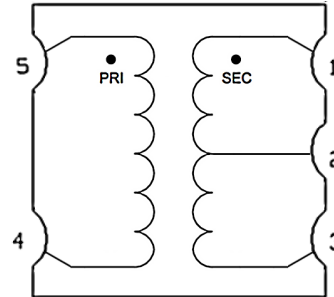
- 1:1 Flux Coupled Transformer
- Surface Mount Package
- Centre Tap on Secondary
- Tape and Reel Packaging Available
- 260° Reflow Compatible

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, $T_A = 25^\circ\text{C}$, $Z_0 = 75 \Omega$, $P_{IN} = 0 \text{ dBm}$

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	$^\circ$	—	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.

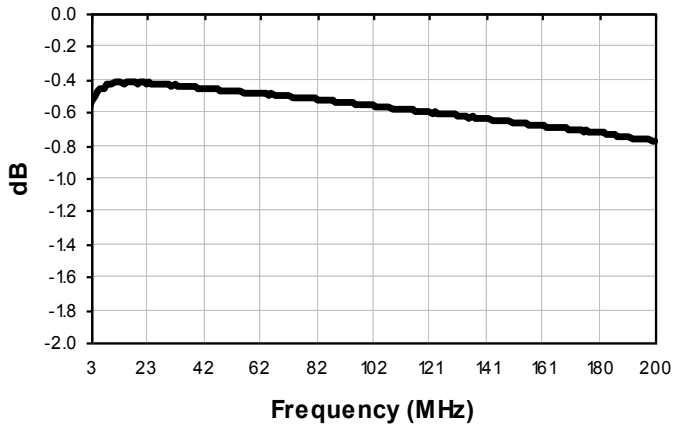
Absolute Maximum Ratings^{4,5}

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

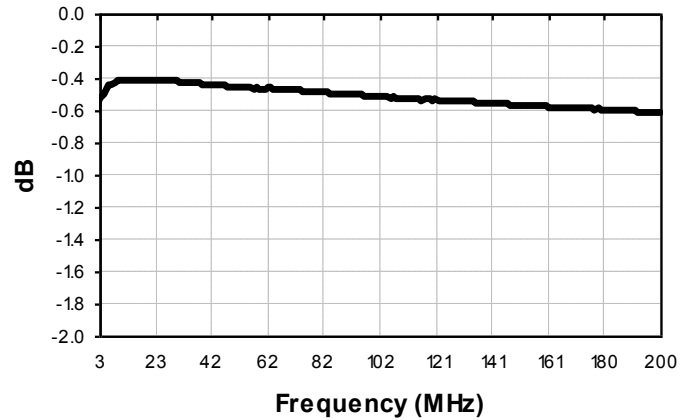
4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.
6. Specified at 25°C only.

Typical Performance Curves⁷

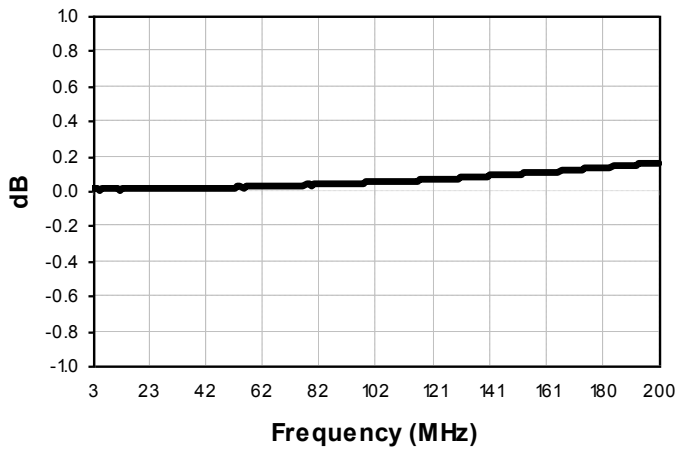
Insertion Loss: (pin5 - pin1)



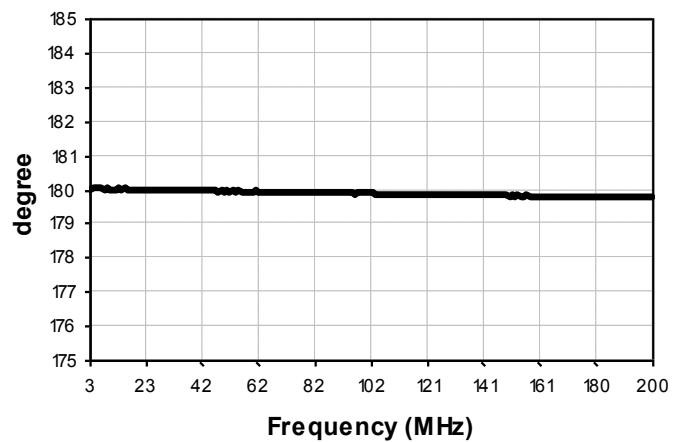
Insertion Loss: (pin5 - pin3)



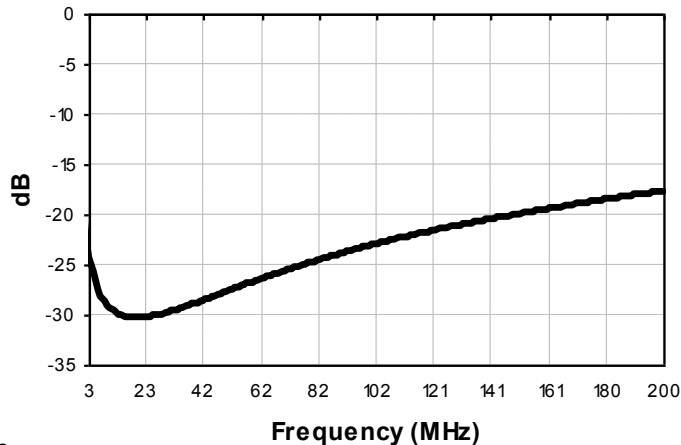
Amplitude Balance



Phase Balance

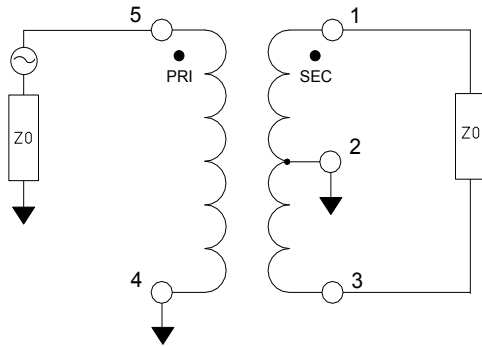


Return Loss: Input (pin5)

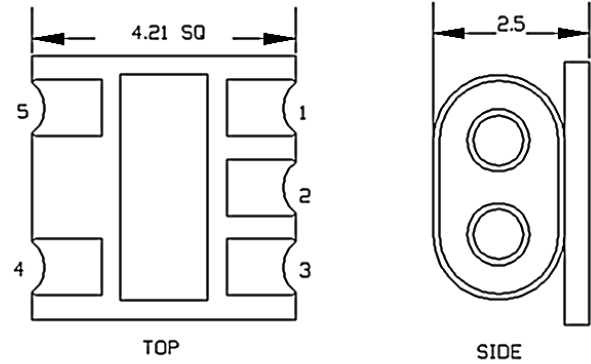


7. Temperature plots available on request.

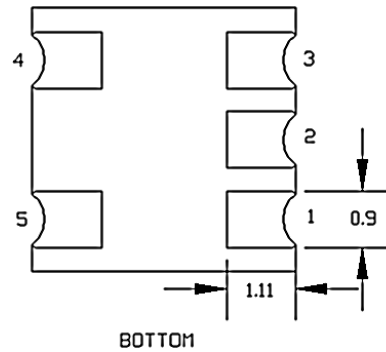
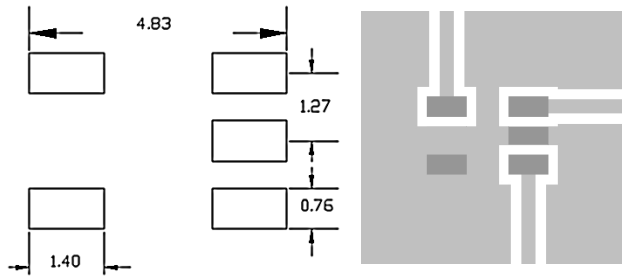
Application Circuit



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



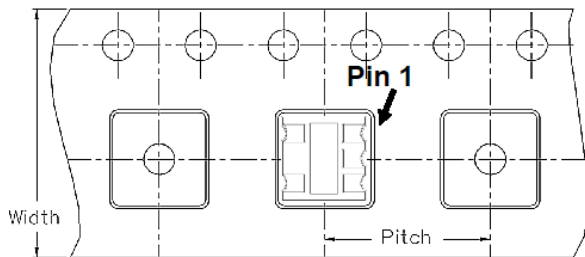
PCB Layout^{8,9}



- 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	