MABACT0043

1:1 Transmission Line Balun Transformer
5 - 1200 MHz

Rev. V5

Features

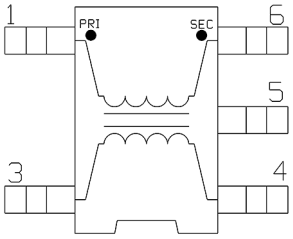
- 1:1 Impedance Ratio
- Surface Mount Package
- Excellent Amplitude and Phase Balance
- Can be used in both 50 Ω & 75 Ω Systems
- 260°C Reflow Compatible
- RoHS Compliant
- Available on Tape & Reel

Description

The MABACT0043 is a 1:1 transmission line transformer in a surface mount package.

Ideally suited for broadband CATV applications.

Schematic



Pin Configuration

Pin #	Function
1	Primary Dot (input)
3	Primary (ground)
4	Secondary (output 2)
5	Not used (ground)
6	Secondary Dot (output 1)

Electrical Specifications: T_A = 25°C, Z_0 = 75 Ω, P_{IN} = 0 dBm

Parameter	Frequency Test Condition (MHz)	Units	Min.	Typ.	Max.
Insertion Loss	5 - 700 700 - 870 870 - 1000 1000 - 1200	dB	—	0.56 0.51 0.55 0.79	0.70 1.10 1.50 2.40
Amplitude Unbalance	5 - 870 870 - 1200	dB	—	±0.33 ±0.47	±1.0 ±1.3
Phase Unbalance	5 - 450 450 - 1200	°	—	1.6 4.2	±5 ±7
Input Return Loss	5 - 90 90 - 550 550 - 1200	dB	30 15 5	38 22 11	—

Ordering Information[1,2]

Part #	Description
MABACT0043	2000 piece reel
MABACT0043-TB	Customer Test Board

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

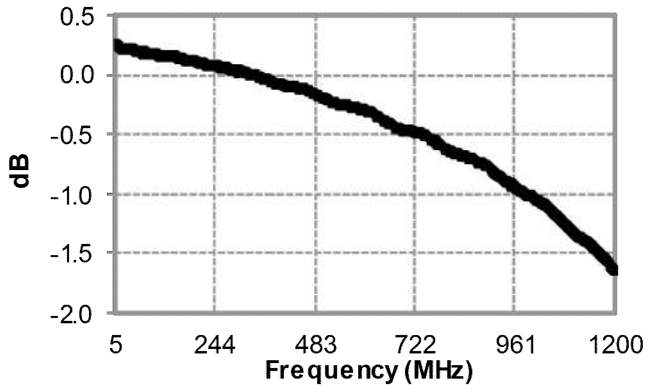
Recommended Maximum Ratings[3]

Parameter	Value
Input Power	+24 dBm (250 mW)
DC Current	40 mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C

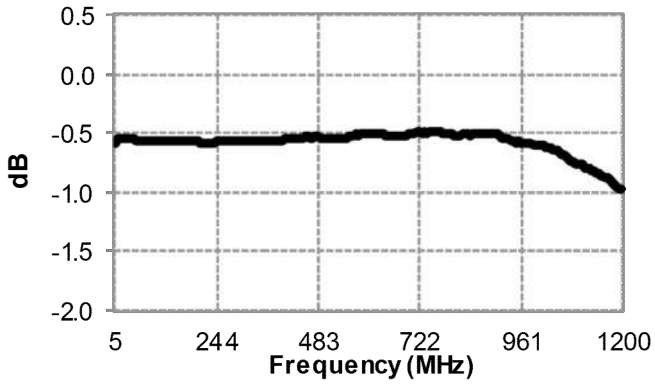
3. Exceeding any one or combination of these limits may cause permanent damage to this device.

Typical Performance Curves: T_A = 25°C, Z_0 = 75 Ω P_{IN} = 0 dBm[4]

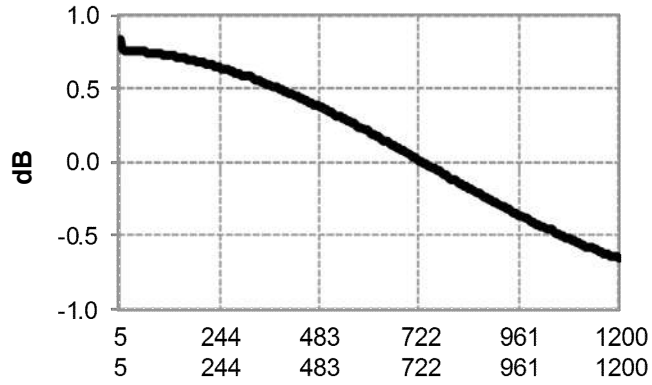
Insertion Loss 1: (Pin 1 to 6)



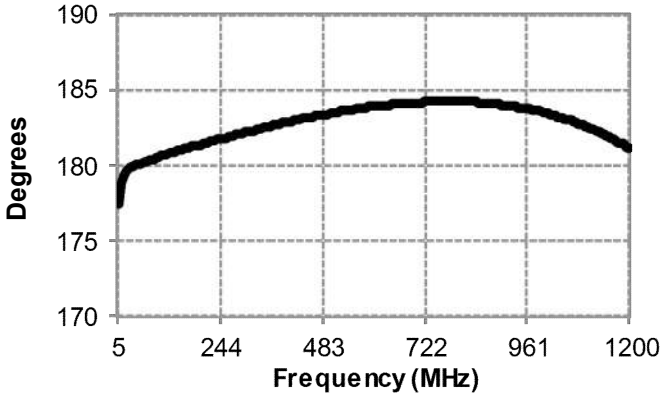
Insertion Loss 2: (Pin 1 to 4)



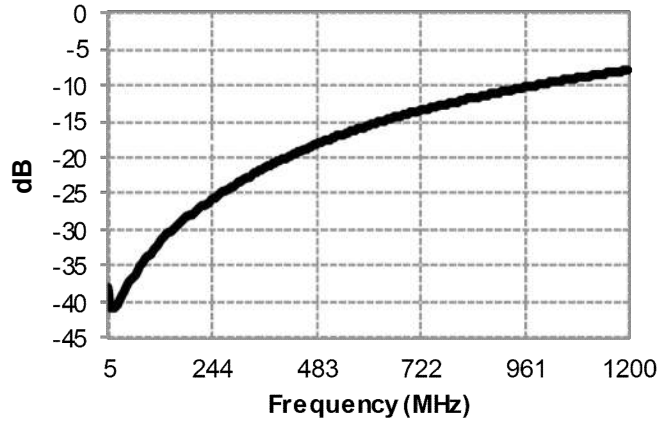
Amplitude Balance



Phase Balance

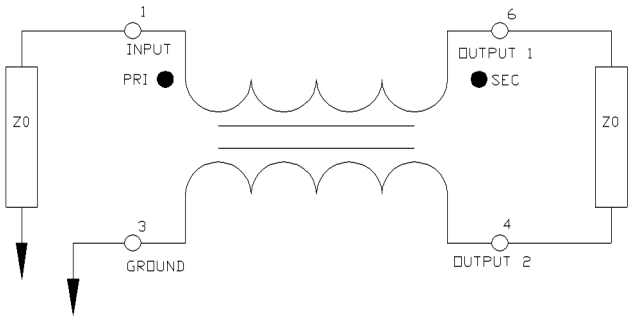


Return Loss: Input

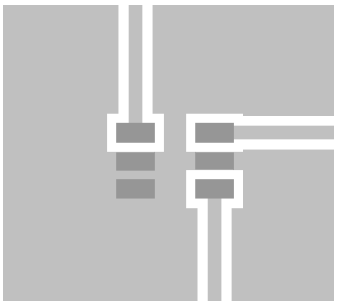


4. Temperature plots available on request.

Application Circuit

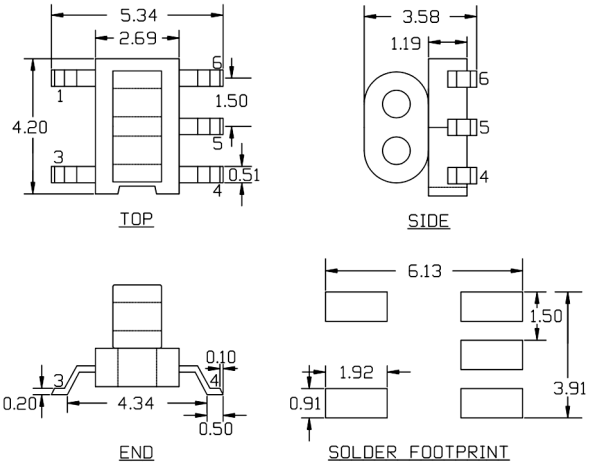


Recommended Board Layout[5]



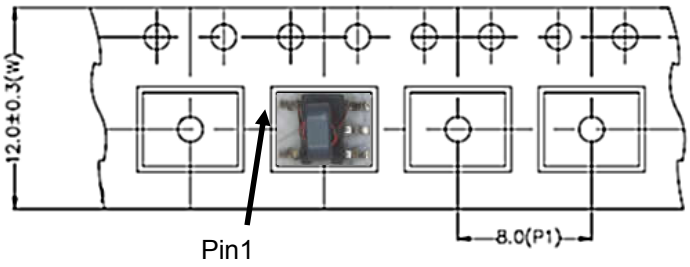
5. Recommended PCB layout shown above uses 1.6 mm FR4, Grounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

Outline Drawing[6,7,8,9]



6. Dimensions in mm.
7. Tolerance: ±0.2mm unless otherwise noted.
8. Model number and lot code are printed on the reel.
9. Finish: Pin material CuSn6.

Reel Orientation



Tape & Reel Information

Item	Dimension
W	12.0 mm, +/-0.3 mm
P1	8.0 mm, +/-0.1 mm