

1:1 Transmission Line Balun

4.5 - 3000 MHz



MABACT0059

Rev. V9

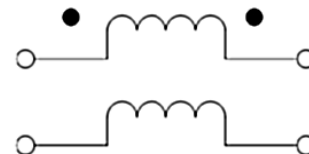
Features

- Surface Mount
- Wide Frequency Range
- 1:1 Impedance
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

Description

The MABACT0059 1:1 transmission line transformer. The windings are welded to the package substrate for improved reliability and to eliminate lead content. This transformer is ideally suited for CATV and Satellite STB/Subscriber applications.

Functional Schematic



Pin Configuration

Pin #	Function	Pin #	Function
1	Secondary Dot	4	Primary
2	Not Connected	5	Primary Dot
3	Secondary		

Electrical Specifications: Freq. = 4.5 - 3000 MHz, T_A = +25°C, Z₀ = 75 Ω

Parameter	Test Conditions Frequency (MHz)	Units	Min.	Typ.	Max.
Insertion Loss 1 (pin 4 to pin 3)	4.5 - 1000	dB	-	0.07	1.0
	1000 - 2000			0.63	2.0
	2000 - 2500			1.93	5.0
	2500 - 3000			4.20	6.5
Insertion Loss 2 (pin 4 to pin 1)	4.5 - 1000	dB	-	0.29	1.0
	1000 - 2000			0.08	2.0
	2000 - 2500			2.00	6.0
	2500 - 3000			5.30	8.4
Amplitude Balance (Nominal 0 dB)	4.5 - 20 20 - 1000	dB	-	±1.0 ±0.3	±1.2 ±1.0
Phase Balance (Nominal 180°)	4.5 - 1000	°	-	±0.03	±20
Input Return Loss (pin 4)	4.5 - 1000	dB	15	26.30	-

Ordering Information

Part Number	Package
MABACT0059	2000 piece reel
MABACT0059TB	Sample Board

Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Power	500 mW
DC Current	500 mA
Operating/Storage Temperature	-40°C to +95°C

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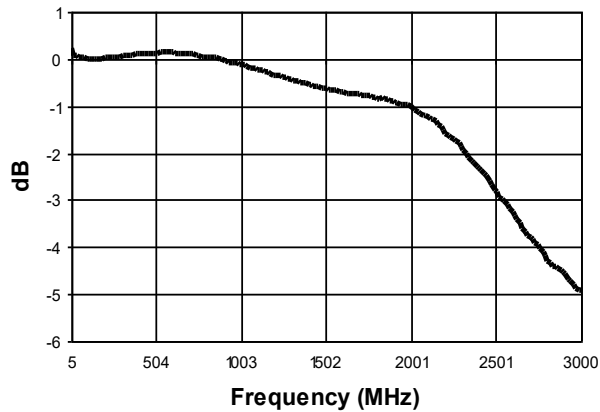


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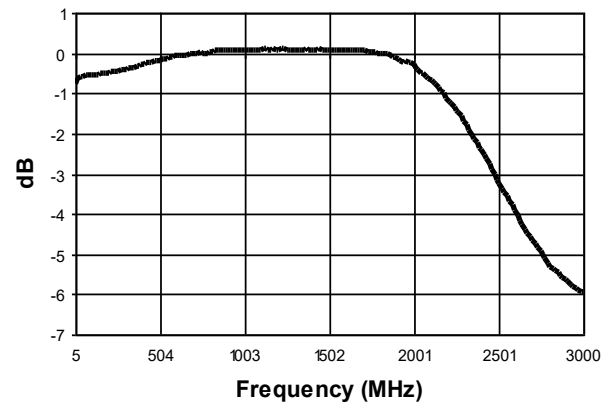
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Typical Performance Curves: Electrical Specifications: $Z_0 = 75 \Omega$, $T_A = 25^\circ\text{C}$, $P_{IN} = 0 \text{ dBm}$

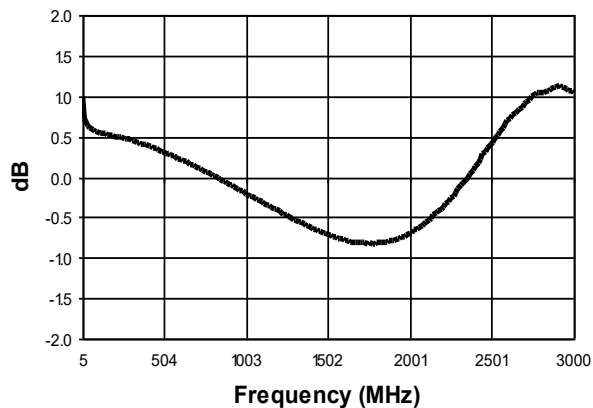
Insertion Loss 1 (Pin4 - Pin3)



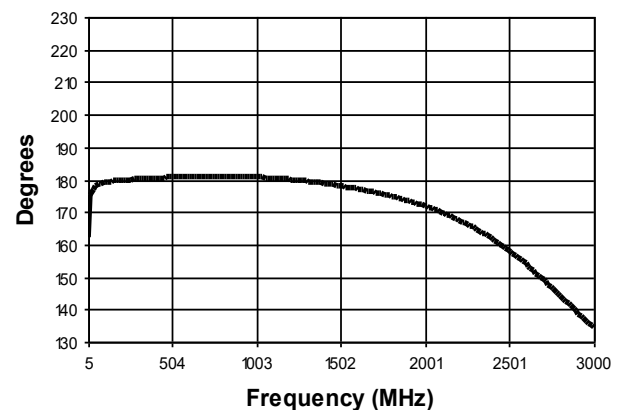
Insertion Loss 2 (Pin4 - Pin1)



Amplitude Balance



Phase Balance



Full temperature plots available on request

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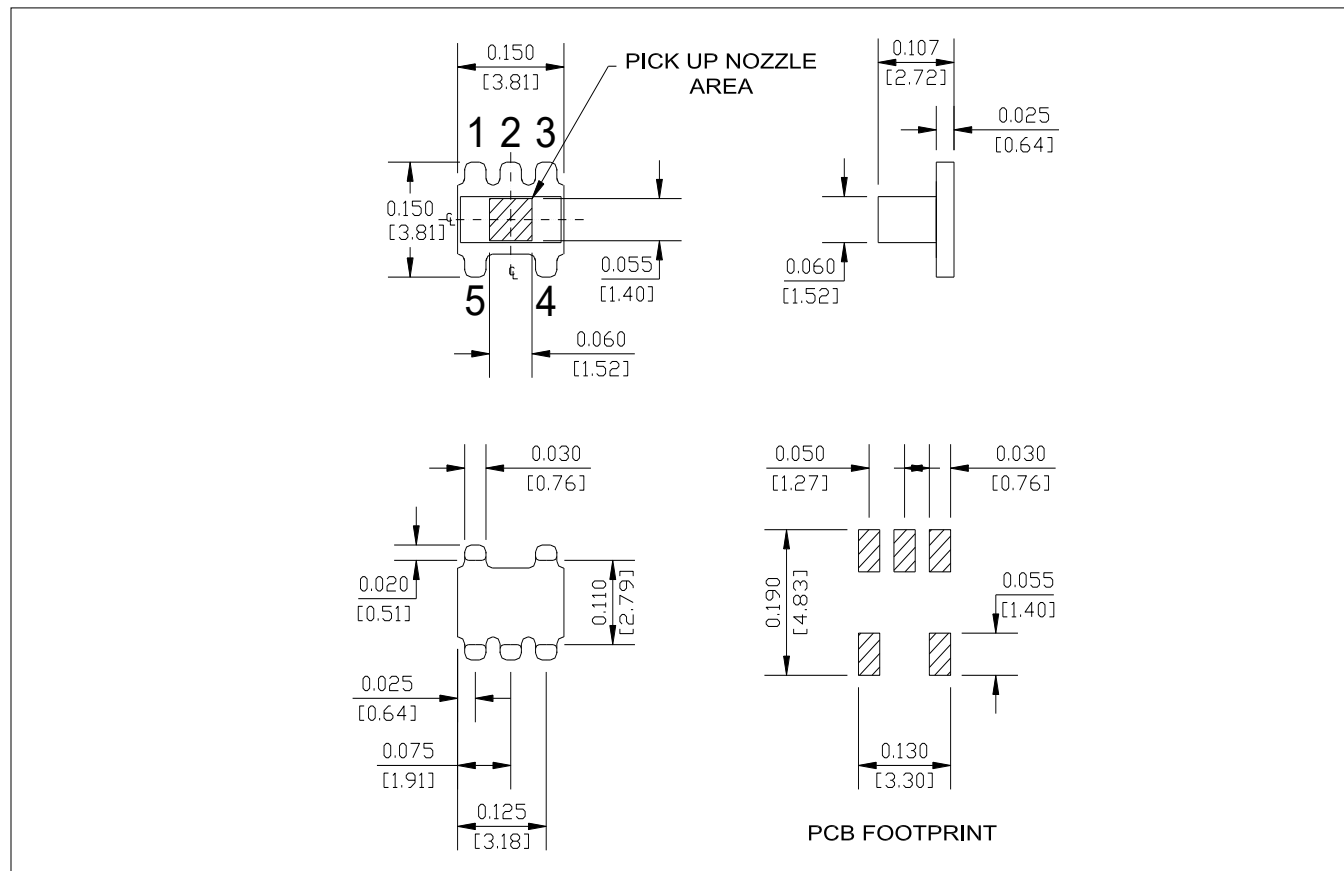
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Outline Drawing



1. Dimensions in inches [mm].
2. Tolerance: ± 0.2 mm unless otherwise noted.
3. Model number and lot code are printed on the reel.
4. Plating finish: Au finish, 0.1 - 0.5 μ m

Tape & Reel Information

Parameter	Units	Value
Qty per reel	—	2000
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Orientation	—	F5
Reference Application Note ANI-019 for orientation		

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