



THE DATASHEET OF MACP-011045

23 dB Coupler 5 - 1225 MHz

Rev. V1

Features

- 23 dB Coupling Ratio
- Surface Mount Package
- Available on Tape and Reel
- Excellent Temperature Stability
- RoHS Compliant and Pb Free
- 260°C Reflow Compatible

Description

The MACP-011045 is a 23 dB coupler in a low cost, surface mount package.

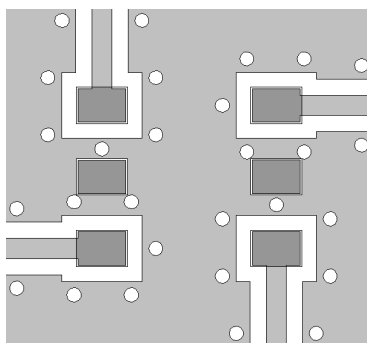
Ideally suited for wireless applications.

Ordering Information^{1,2}

Part #	Package
MACP-011045	900 piece reel
MACP-011045-TB	Sample Board

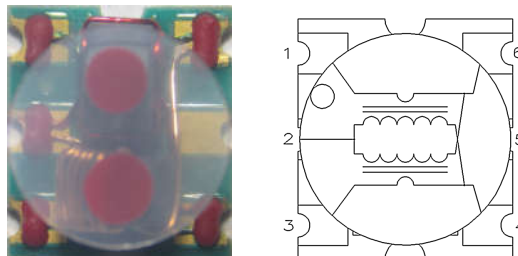
1. Reference Application Note M513 for reel size information.
2. All sample boards include 5 loose parts.

PCB Layout³



3. 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.

Functional Schematic

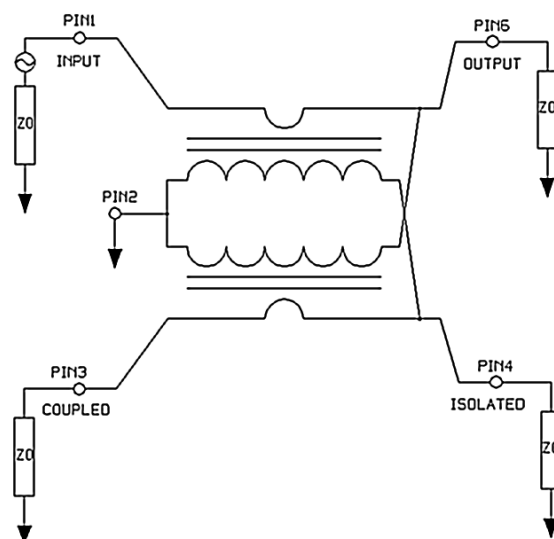


Pin Configuration⁴

Pin#	Function
1	Input
2	Ground
3	Coupled
4	Isolated
5	Ground (Not Connected)
6	Output

4. MACOM recommends connecting unused package pins to ground.

Application Schematic



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Electrical Specifications: Freq. = 5 - 1225 MHz, $T_A = 25^\circ\text{C}$, $Z_0 = 50\ \Omega$, $P_{IN} = 0\ \text{dBm}$

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Coupling Ratio	—	dB	—	23	—
Coupling (Pin1-3)	5 - 30 MHz 30 - 88 MHz 88 - 512 MHz 512 - 1225 MHz	dB	24.2 24.2 25.0 27.5	23.8 23.8 23.6 23.4	23.0 23.5 22.0 20.5
Main Line Loss (Pin1-6)	5 - 30 MHz 30 - 88 MHz 88 - 512 MHz 512 - 1000 MHz 1000 - 1225 MHz	dB	—	0.10 0.10 0.14 0.74 0.80	0.4 0.2 0.3 1.0 1.2
Isolation (Pin1-4)	5 - 30 MHz 30 - 88 MHz 88 - 512 MHz 512 - 1000 MHz 1000 - 1225 MHz	dB	35 45 33 23 20	45 50 42 36 27	—
Input Return Loss (Pin1)	5 - 30 MHz 30 - 88 MHz 88 - 512 MHz 512 - 1000 MHz 1000 - 1225 MHz	dB	10 20 22 18 16	23 35 34 30 27	—
Output Return Loss (Pin6)	5 - 30 MHz 30 - 88 MHz 88 - 512 MHz 512 - 1000 MHz 1000 - 1225 MHz	dB	10 20 20 11 10	22 35 28 19 17	—
Coupling Return Loss (Pin3)	5 - 30 MHz 30 - 88 MHz 88 - 512 MHz 512 - 1000 MHz 1000 - 1225 MHz	dB	10 20 21 12 10	22 37 34 20 17	—

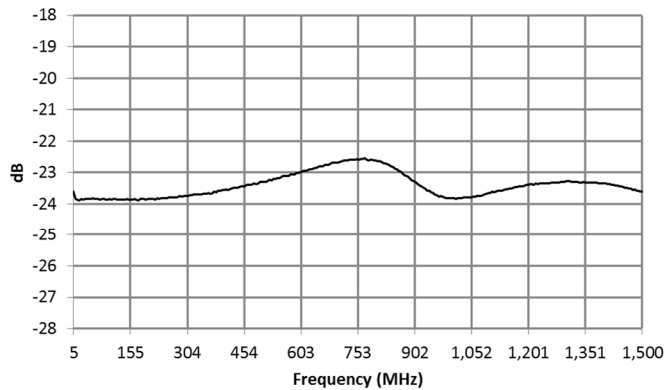
Absolute Maximum Ratings

Parameter	Absolute Maximum
Input Power ⁵	10 W
DC Current	500 mA
Operating Temperature	-40°C to +125°C

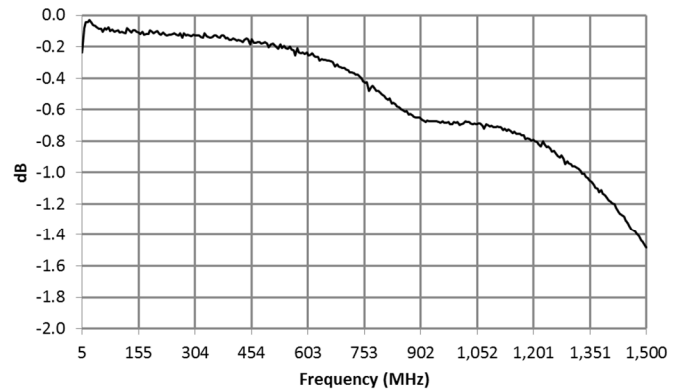
5. Appropriate thermal design is necessary for high power operation.

Typical Performance Curves⁶

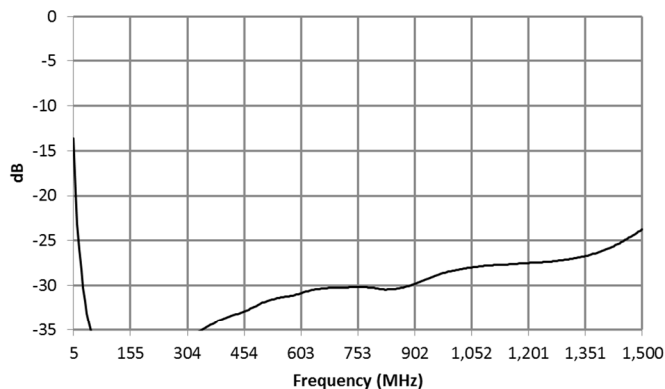
Coupling (Pin1-3)



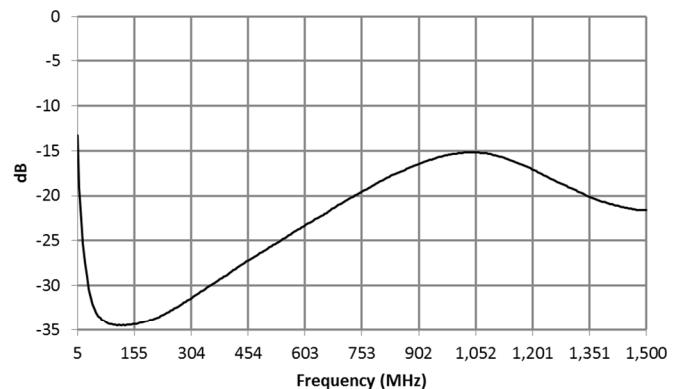
Main Line Loss (Pin1-6)



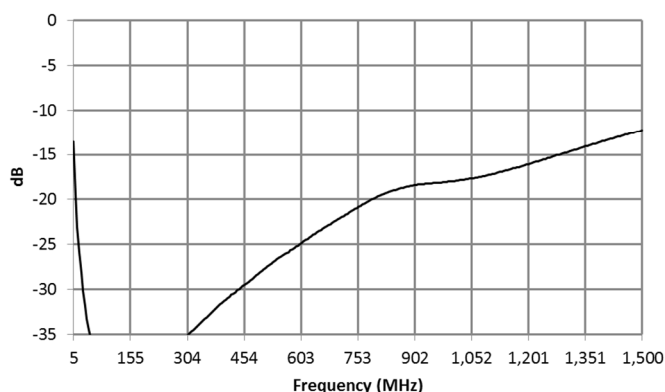
Return Loss: Input (Pin1)



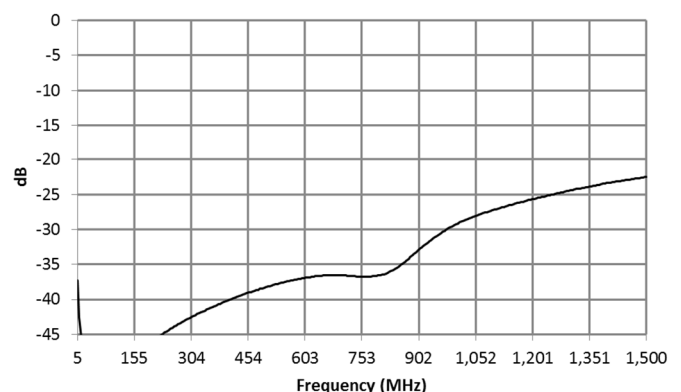
Return Loss: Output (Pin6)



Return Loss: Coupling (Pin3)

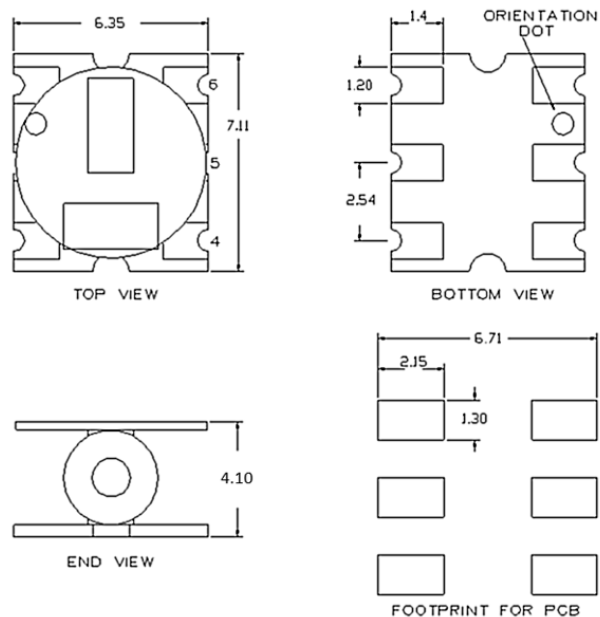


Isolation (Pin1-4)



6. Full temperature plots available on request.

Outline drawing^{7,8,9,10}

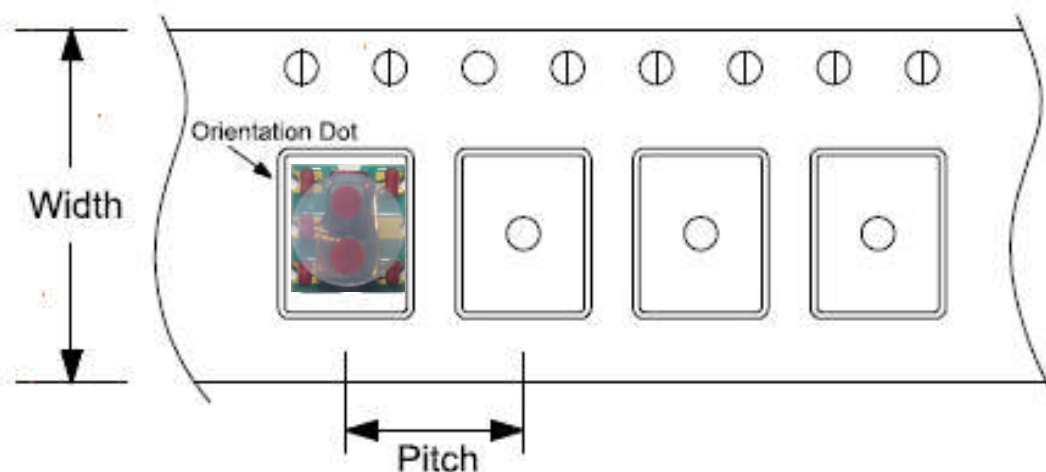


Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	900
Reel Size	mm	330
Tape Width	mm	16.0
Pitch	mm	12.0
Ao	mm	6.65
Bo	mm	7.4
Ko	mm	4.4
Orientation	-	F33
Reference Application Note ANI-019 for orientation		

- 7. Dimensions in mm.
- 8. Tolerance: ± 0.2 mm unless otherwise noted.
- 9. Model number and lot code printed on reel.
- 10. Finish: Electroless Nickel Immersion Gold.

Carrier Tape Orientation



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