

Broadband CATV, 18 dB Coupler 5 - 1200 MHz

Rev. V3

Features

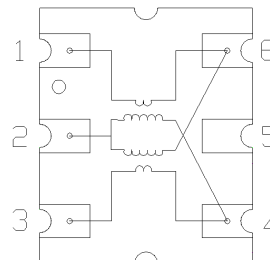
- Surface Mount Package
- Typical Coupling +18 dB
- 260°C Reflow Compatible
- Available on Tape and Reel,
- RoHS Compliant and Pb Free

Description

The MACP-007727-CI07B0 is an 18 dB broadband coupler, surface mount package. It offers low loss, good isolation, good input/output matching and exceptional matching in return loss.

Ideally suited for high volume CATV/Broadband applications.

Functional Schematic



Pin Configuration³

Pin #	Function	Pin #	Function
1	Input	4	External 75 Ω
2	Ground	5	No Connection
3	Coupled	6	Output

3. MACOM recommends connecting unused package pins to ground.

Electrical Specifications: Freq. = 5 - 1250 MHz, T_A = 25°C, Z₀ = 75 Ω, P_{IN} = 0 dBm

Parameter	Test Conditions Frequency (MHz)	Units	Min.	Typ.	Max.
Coupling	5 - 40	dB	—	18.2	18.3
	40 - 1000			18.2	20.0
	1000 - 1200			18.7	22.0
Main Line Loss	5 - 1000	dB	—	1.00	1.25
	1000 - 1200			1.40	1.80
Isolation	5 - 1000	dB	23.0	28.90	—
	1000 - 1200		20.0	26.25	
Input Return Loss	5 - 40	dB	25.0	27.3	—
	40 - 1000		23.0	31.9	
	1000 - 1200		19.0	23.4	
Output Return Loss	5 - 40	dB	25.0	29.20	—
	40 - 1000		23.0	27.10	
	1000 - 1200		19.0	21.24	
Coupling Return Loss	5 - 1000	dB	15.0	21.15	—
	1000 - 1200		10.0	16.70	

Ordering Information^{1,2}

Part Number	Package
MACP-007727-CI07B0	1000 piece reel
MACP-007727-CT30TB	Test Board

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

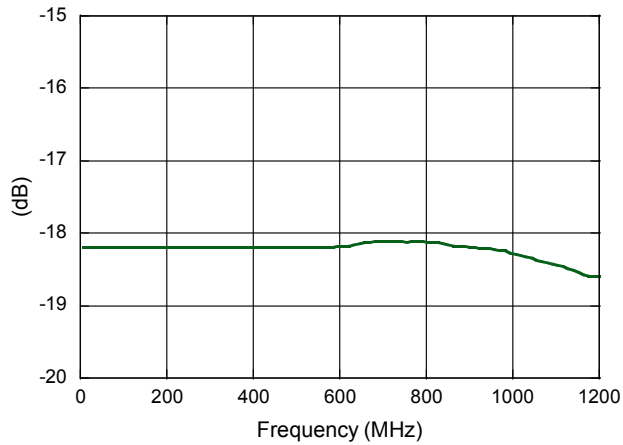
Absolute Maximum Ratings^{4,5}

Parameter	Absolute Maximum
Input Power	250 mW
DC Current	30 mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C

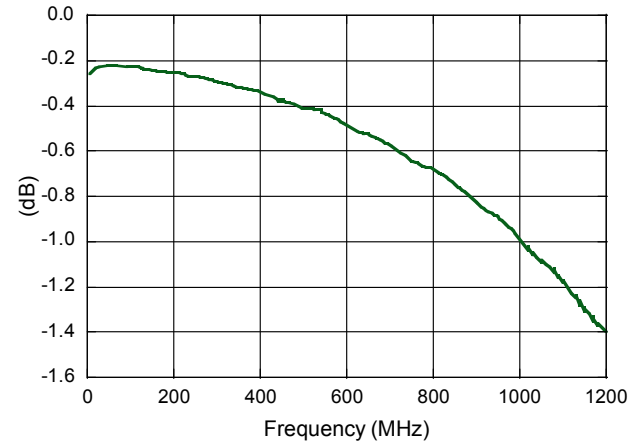
4. Exceeding any one or combination of these limits may cause permanent damage to this device.
5. MACOM does not recommend sustained operation near these survivability limits.

Typical Performance Curves⁶

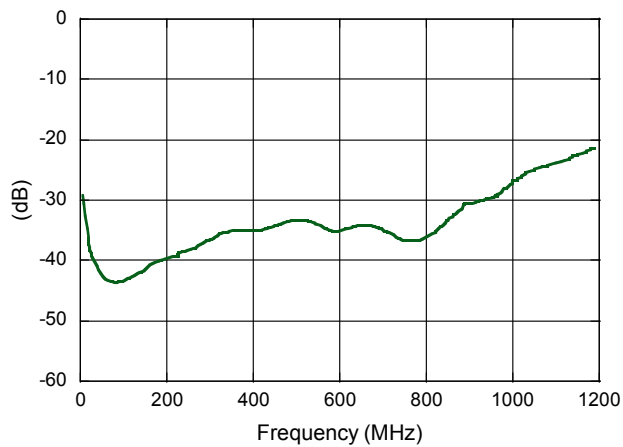
Coupling



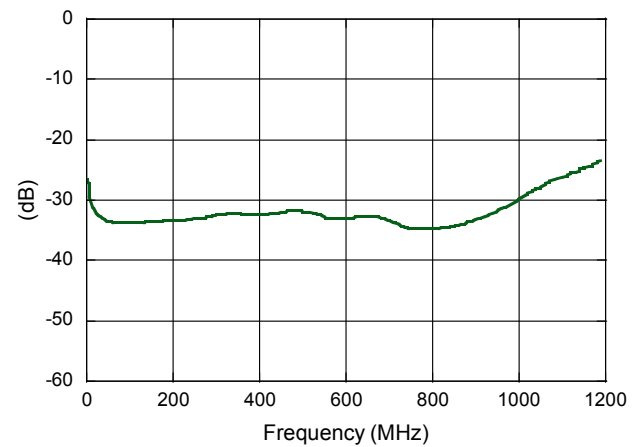
Main Line Loss



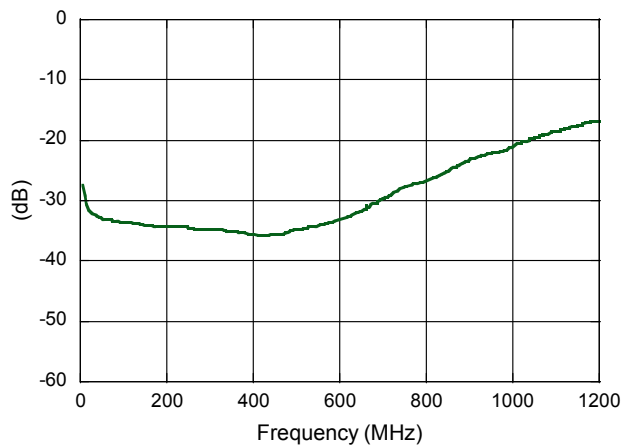
Output Return Loss



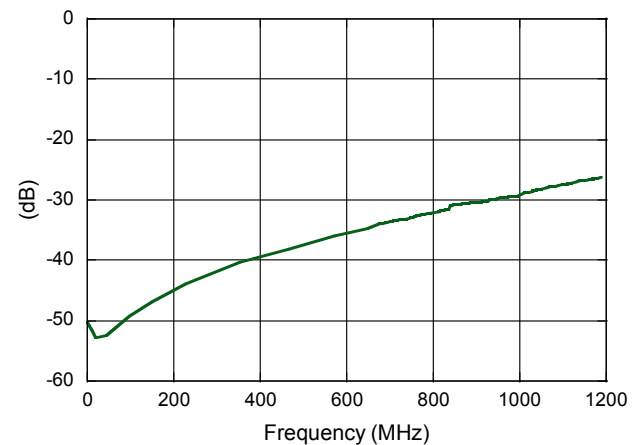
Input Return Loss



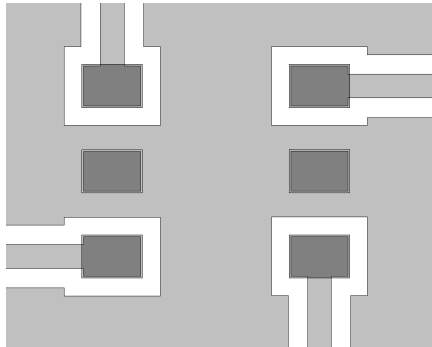
Coupling Return Loss



Isolation

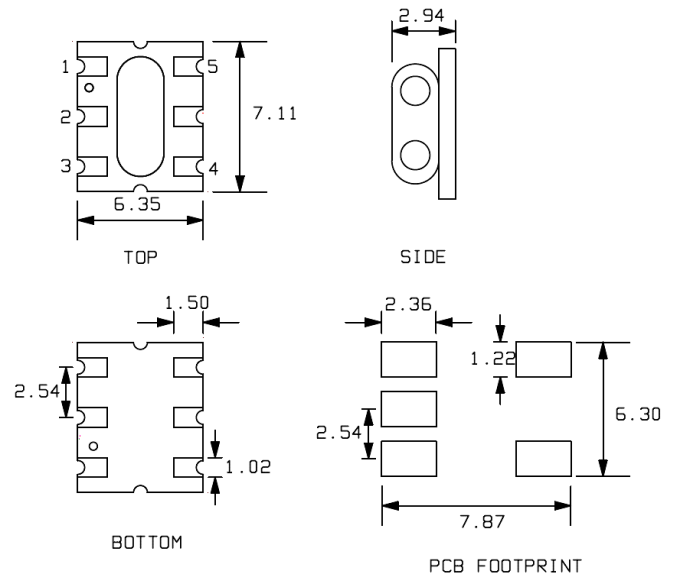


Recommended Board Layout⁷



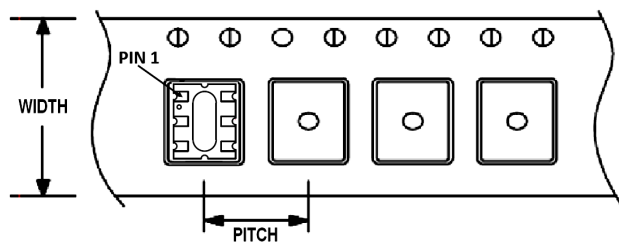
7. Recommended PCB layout shown above uses 1.6 mm FR4, rounded coplanar wave guide, transmission line width 0.70 mm and gap 0.57 mm.

Outline Drawing^{8,9,10,11}



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

Carrier Tape Orientation



Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	1000
Reel Size	mm	330
Tape Width	mm	16.0
Pitch	mm	12.0
Orientation	-	F15
Reference Application Note ANI-019 for orientation		

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