

## Features

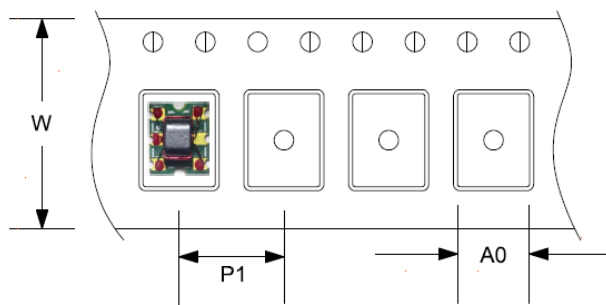
- 20 dB Coupling Ratio
- Surface Mount
- Available on Tape and Reel
- Excellent Temperature Stability
- RoHS Compliant and lead free
- 260°C Reflow Compatible

## Description

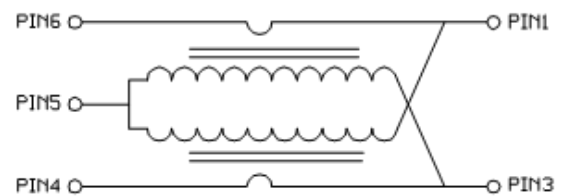
The MACP-011013 is a 20 dB coupler in a low cost, surface mount package. Ideally suited for broadband CATV applications.



## Carrier Tape Orientation



## Functional Schematic



## Ordering Information

Part Number	Description
MACP-011013	900 piece reel
MACP-011013-TB	Sample Test Board

## Pin Configuration

Pin No.	Function
1	Output
2	Not Connected
3	Isolated
4	Coupled
5	Ground
6	Input

## 20 dB Coupler 5 - 1500 MHz

Rev. V2

**Electrical Specifications:**  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75\ \Omega$ ,  $P_{in} = 0\ \text{dBm}$

Parameter	Conditions	Units	Min.	Typ.	Max.
Frequency Range	—	MHz	5	—	1500
Impedance	—	$\Omega$	—	75	—
Coupling Ratio	—	dB	—	20	—
Coupling (Pin 6, Pin 4)	5 - 700 MHz 700 - 1200 MHz 1200 - 1500 MHz	dB	20.5 20.5 20.5	20.0 20.0 20.0	19.5 18.5 17.7
Coupling Flatness	5 - 1218 MHz 5 - 1500 MHz	dB	—	0.5 0.7	0.7 0.9
Coupling Tilt	5 - 1218 MHz 5 - 1500 MHz	dB	—	1.55 2.00	1.7 2.3
Main Line Loss (Pin 6, Pin 1)	5 - 1250 MHz 1250 - 1500 MHz	dB	0.4 0.4	0.57 0.93	0.85 1.20
Isolation (Pin 6, Pin 3)	5 - 1250 MHz 1250 - 1500 MHz	dB	26 23	27 24	—
Input Return Loss (Pin 6)	5 - 1250 MHz 1250 - 1500 MHz	dB	20 17	22 19	—
Output Return Loss (Pin 1)	5 - 1250 MHz 1250 - 1500 MHz	dB	20 17	22 19	—
Coupling Return Loss (Pin 4)	5 - 1250 MHz 1250 - 1500 MHz	dB	19 17	22 19	—

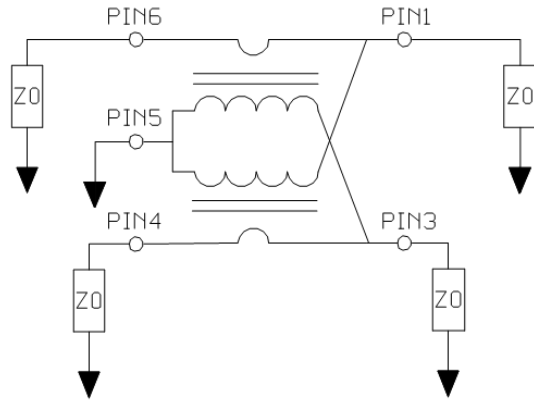
## Absolute Maximum Ratings

Parameter	Absolute Maximum
Input Power	0.5 W
DC Current	500 mA
Operating Temperature	$-40^\circ\text{C}$ to $+85^\circ\text{C}$

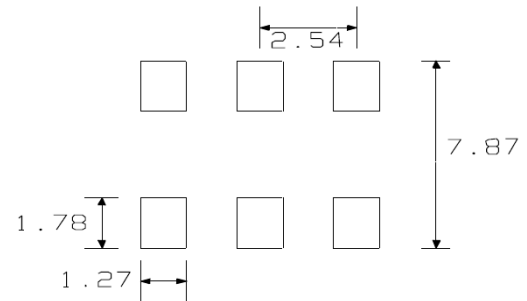
## 20 dB Coupler 5 - 1500 MHz

Rev. V2

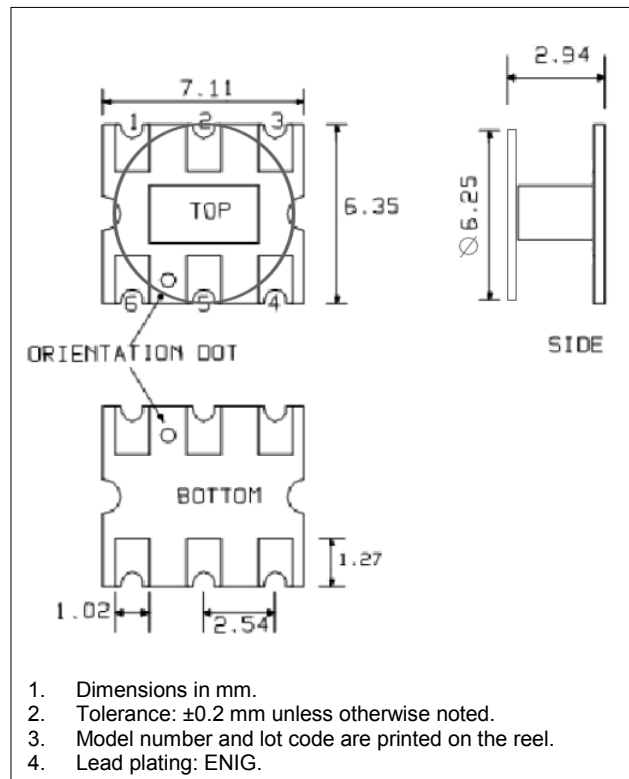
### Application Circuit



### PCB Layout



### Outline Drawing



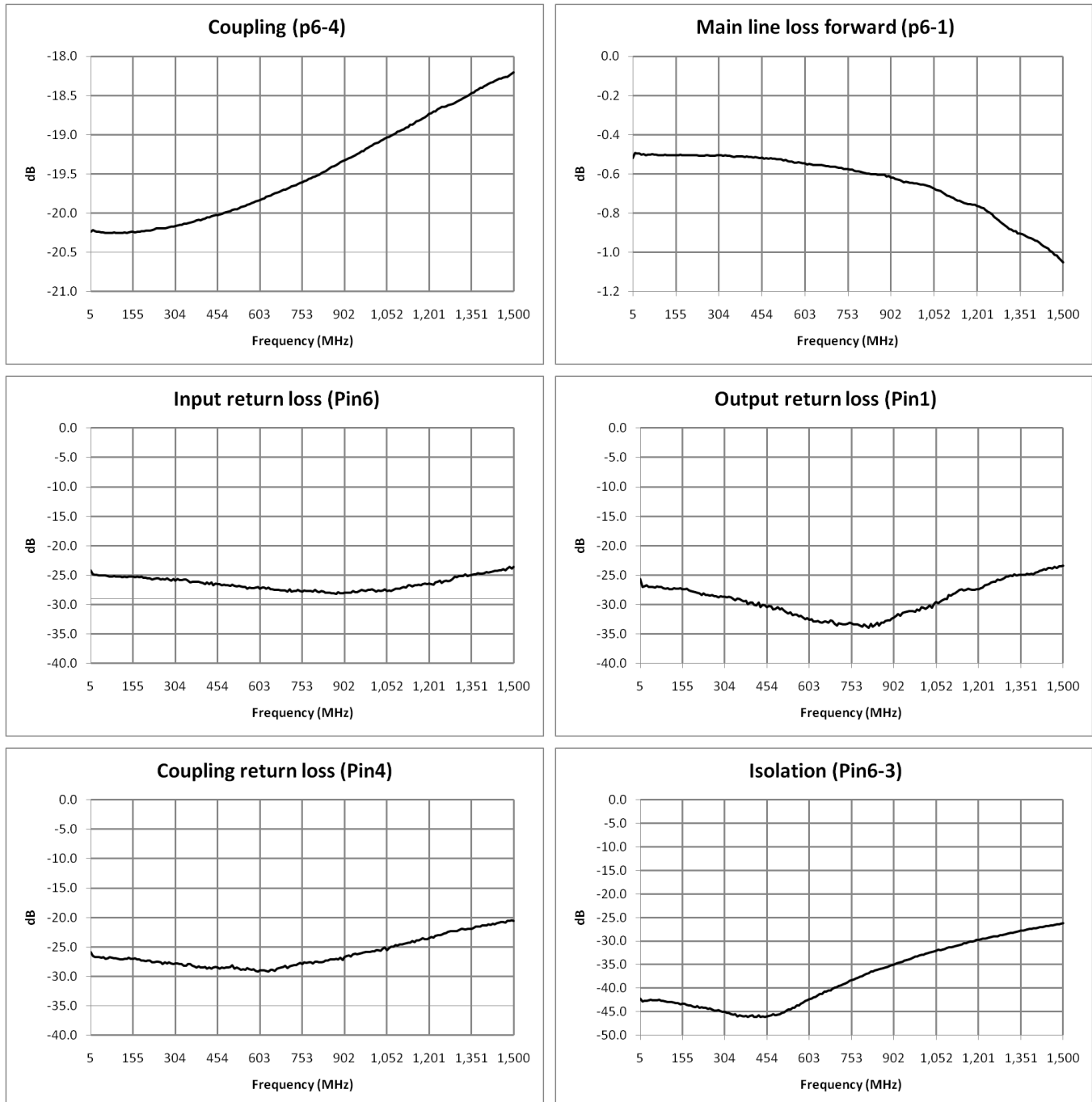
### Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	900
Reel Size	mm	330
Tape Width	mm	16.0
Pitch	mm	12.0
Ao	mm	6.7
Bo	mm	7.4
Ko	mm	3.1
Orientation	-	F33
Reference Application Note ANI-019 for orientation		

## 20 dB Coupler 5 - 1500 MHz

Rev. V2

### Typical Performance Curves<sup>1</sup>



1. Full temperature plots available on request.

## 20 dB Coupler 5 - 1500 MHz

Rev. V2

### “Application Section for Alternative Pin Configuration”

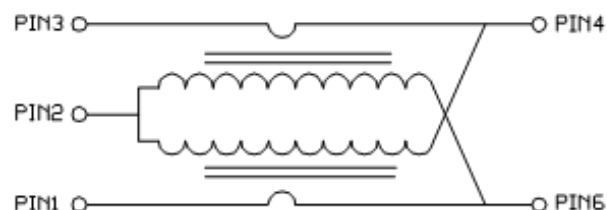
Electrical Specifications:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75\ \Omega$ ,  $P_{in} = 0\ \text{dBm}$

Parameter	Conditions	Units	Min.	Typ.	Max.
Frequency Range	-	MHz	5	—	1500
Impedance	-	$\Omega$	-	75	-
Coupling Ratio	-	dB	-	20	-
Coupling (Pin 1 - Pin 3)	5 - 700 MHz 700 - 1200 MHz 1200 - 1500 MHz	dB	- - -	20.0 20.0 20.0	- - -
Coupling Flatness	5 - 1218 MHz 5 - 1500 MHz	dB	-	0.5 0.7	- -
Coupling Tilt	5 - 1218 MHz 5 - 1500 MHz	dB	-	1.55 2.00	- -
Main Line Loss (Pin 1 - Pin 6)	5 - 1250 MHz 1250 - 1500 MHz	dB	- -	0.57 0.93	- -
Isolation (Pin 1 - Pin 4)	5 - 1250 MHz 1250 - 1500 MHz	dB	- -	27 24	-
Input Return Loss (Pin 1)	5 - 1250 MHz 1250 - 1500 MHz	dB	- -	22 19	-
Output Return Loss (Pin 6)	5 - 1250 MHz 1250 - 1500 MHz	dB	- -	22 19	-
Coupling Return Loss (Pin 3)	5 - 1250 MHz 1250 - 1500 MHz	dB	- -	22 19	-

### Pin Configuration

Pin No.	Function
1	Input
2	Ground
3	Coupled
4	Isolated
5	Not Connected
6	Output

### Functional Schematic

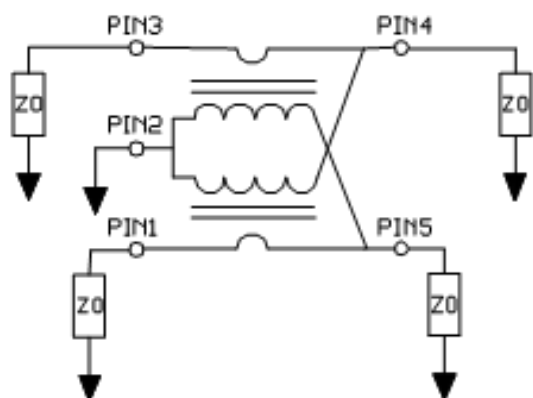


20 dB Coupler  
5 - 1500 MHz

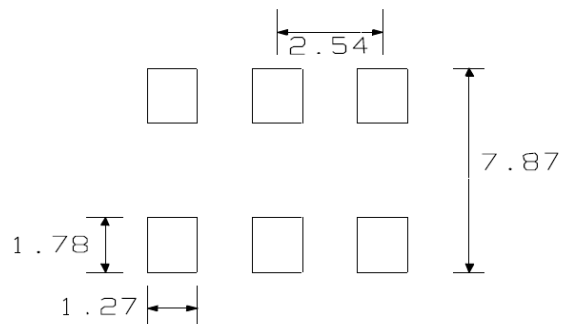
Rev. V2

## “Application Section for Alternative Pin Configuration”

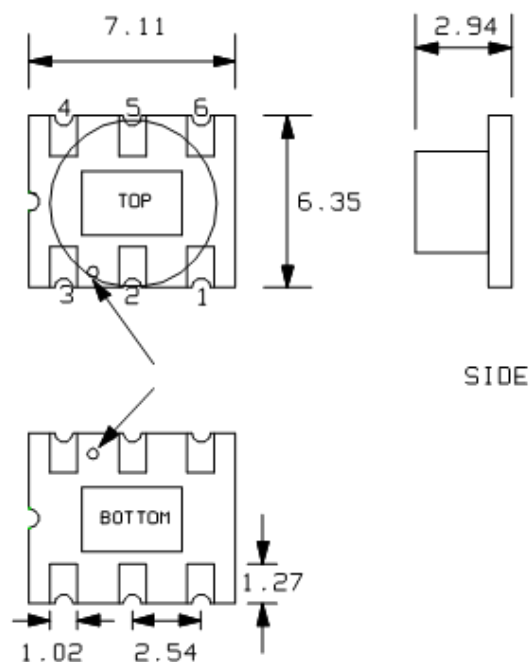
### Application Circuit



### PCB Layout



### Outline Drawing



1. Dimensions in mm.
2. Tolerance:  $\pm 0.2$  mm unless otherwise noted.

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