

# Silicon Double Balanced HMIC™ Mixer, 3000 - 4000 MHz

MA4EX370M-1225

## Features

- Low Cost Miniature Plastic Package
- 7.0 dB Typical Conversion Loss
- +7 to +13 dBm LO Drive
- HMIC™ IC Process
- Silicon Medium Barrier Schottky Diodes
- DC - 1050 MHz IF Bandwidth

## Description

M/A-COM's MA4EX370M-1225 is a silicon monolithic 3.0-4.0 GHz double balanced mixer in a low cost miniature surface mount SOT-25 package. The die uses M/A-COM's unique HMIC™ silicon/glass process to achieve low loss passive elements while retaining the advantages of medium barrier silicon Schottky diodes.

## Applications

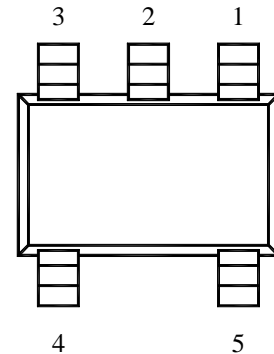
These mixers are well suited for high volume WLL and WLAN applications where small size and repeatability are required. Typical applications include frequency conversion, modulation, and demodulation in wireless receivers and transmitters.

## Absolute Maximum Ratings<sup>1</sup>

Parameter	Maximum Ratings
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-65 °C to +150 °C
Incident LO Power	+20 dBm
Incident RF Power	+20 dBm

1. Exceeding these limits may cause permanent damage.

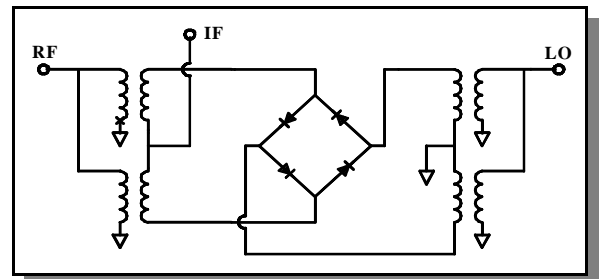
## Package Outline



## PIN Configuration

PIN	Function	PIN	Function
1	RF	4	GND
2	GND	5	IF
3	LO		

## Functional Schematic



## Electrical Specifications: @ + 25 °C

Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	3500 MHz	LO Drive = +10 dBm	dB		6.3	7.5
	3.0-4.0 GHz	RF = -10 dBm, IF = 60 MHz	dB		7.0	9.0
L - R Isolation	3500 MHz	LO Drive = +10 dBm	dB		27.0	
	3.0-4.0 GHz	RF Level = -10 dBm	dB		22.0	
L - I Isolation	3500 MHz	LO Drive = +10 dBm	dB		31.0	
	3.0-4.0 GHz	RF Level = -10 dBm	dB		27.0	
R - I Isolation	3500 MHz	LO Drive = +10 dBm	dB		11.0	
	3.0-4.0 GHz	RF Level = -10 dBm	dB		13.0	
RF VSWR	3500 MHz	LO Drive = +10 dBm			1.10	
	3.0-4.0 GHz	RF Level = -10 dBm			1.80	
IF VSWR	DC - 500 MHz	LO Drive = +10 dBm RF Level = -10 dBm			1.90	
Input IP3	3500 MHz	LO Drive = +10 dBm	dBm	16.0	15.0	
	3.0-4.0 GHz	RF = -10 dBm, IF = 60 MHz		12.0	13.0	
Input 1 dB Compression	3500 MHz	LO Drive = +10 dBm	dBm		5.0	
	3.0-4.0 GHz	RF = -10 dBm, IF = 60 MHz			5.0	
IF 1 dB Bandwidth	DC - 500 MHz	LO = 3650 MHz @ +10 dBm	MHz	0		1050

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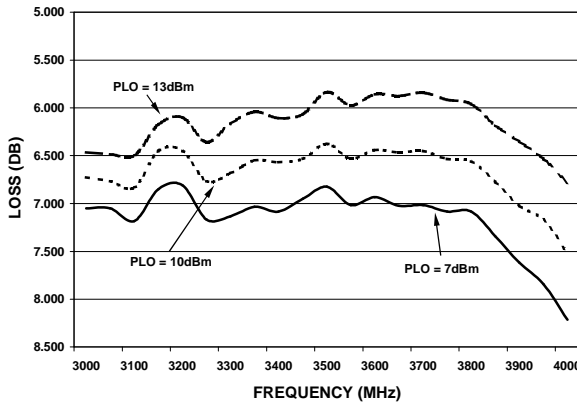
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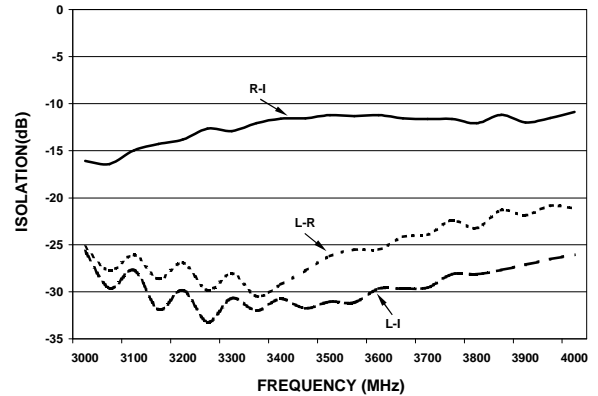
**M/A-COM**

Typical Performance Curves (LO Drive = +10 dBm, RF = -10 dBm, IF = 60 MHz)

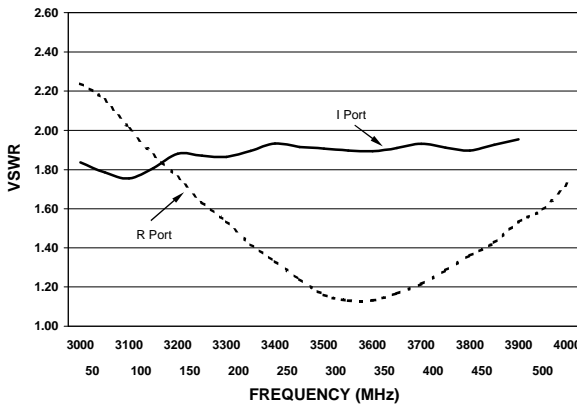
Conversion Loss



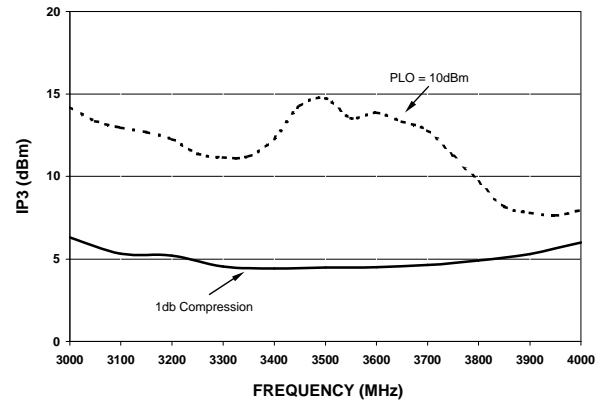
Isolation



VSWR



Input IP3 & 1 dB Compression Point

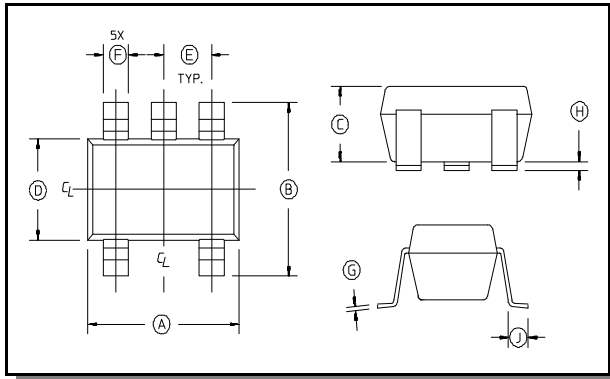


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Case Style - SOT-25



SOT-25 Dimensions

Dim	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	.106	.122	2.70	3.10
B	.100	.118	2.54	3.00
C	—	.051	—	1.30
D	.063 REF.		1.60 REF.	
E	.032	.043	.80	1.10
F	.014	.020	.35	.50
G	.003	—	.08	—
H	.000	.006	.00	.15
J	.018 REF.		.45 REF.	

Notes: 1. Leads Coplanarity should be 0.003 (0.08) max.

Ordering Information

Part Number	Package
MA4EX370M-1225	Tube
MA4EX370M-1225T	Tape and Reel

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