

MA4EX240M-1225T



Silicon Double Balanced HMIC Mixer
1700 – 2500 MHz

Rev. V1

Features

- Low Cost Miniature Plastic Package
- 6.7 dB Typical Conversion Loss at 2100 MHz
- +7 to +13 dBm LO Drive
- HMIC™ Process
- Silicon Medium Barrier Schottky Diodes
- DC - 500 MHz IF Bandwidth

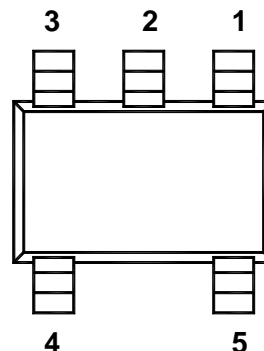
Description

M/A-COM's MA4EX240M-1225 is a silicon monolithic 1700-2500 MHz 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 WLAN and cellular applications where small size and repeatability are required. Typical applications include frequency conversion, modulation, and demodulation for receivers and transmitters in both portable cellular and base station applications.

Package Outline



PIN CONFIGURATION

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

Ordering Information

Model No.	Package
MA4EX240M-1225T	Tape and Reel

Electrical Specifications @ +25°C

Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	2100 MHz	LO Drive = +10 dBm	dB		6.7	7.5
	1700-2500 MHz	RF = -10 dBm, IF = 60 MHz	dB		7.2	8.5
L - R Isolation	2100 MHz	LO Drive = +10 dBm	dB		17	
	1700-2500 MHz	RF Level = -10 dBm	dB		16	
L - I Isolation	2100 MHz	LO Drive = +10 dBm	dB		22	
	1700-2500 MHz	RF Level = -10 dBm	dB		22	
R - I Isolation	2100 MHz	LO Drive = +10 dBm	dB		12	
	1700-2500 MHz	RF Level = -10 dBm	dB		13	
LO VSWR	2100 MHz	LO Drive = +10 dBm			2.3:1	
	1700-2500 MHz				2.5:1	
RF VSWR	2100 MHz	LO Drive = +10 dBm			1.2:1	
	1700-2500 MHz	RF Level = -10 dBm			1.7:1	
IF VSWR	DC - 400 MHz	LO Drive = +10 dBm IF Level = -10 dBm			1.6:1	
Input IP3	2100 MHz	LO Drive = +10 dBm	dBm	15	18	
	1700-2500 MHz	IF = 60 MHz	dBm	12	15.5	
Input 1 dB Compression	2100 MHz	LO Drive = +10 dBm	dBm		5.3	
	1700-2500 MHz	IF = 60 MHz	dBm		6.0	
IF 1 dB Bandwidth			MHz	0		500

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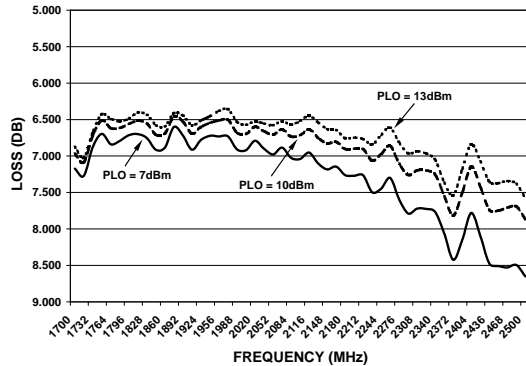


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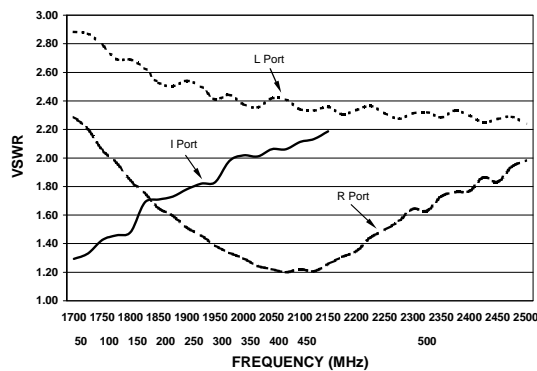
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Typical Performance Curves (LO Drive = +10dBm, RF = -10dBm, IF = 60MHz)

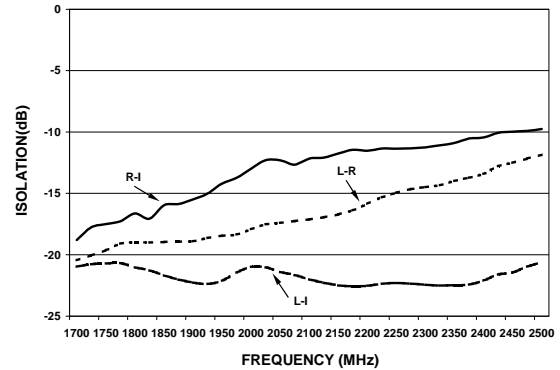
CONVERSION LOSS



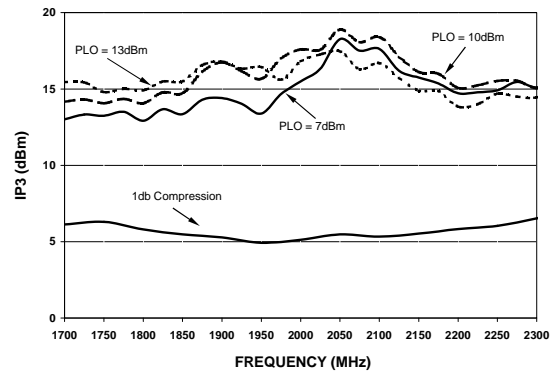
VSWR



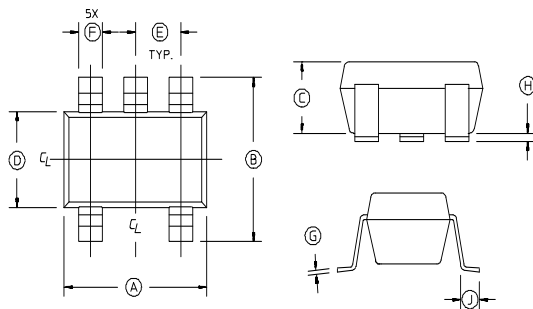
ISOLATION



INPUT IP3 & 1dB Compression Point



Case Style – SOT-25

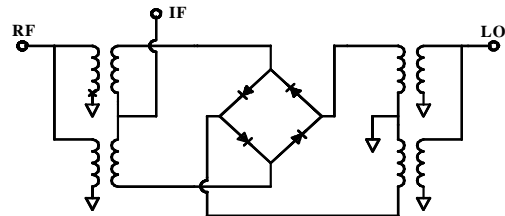


Absolute Maximum Ratings¹

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.

Schematic



SOT-25

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.

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