

MA4EX240H-1225T

Silicon Double Balanced HMIC Mixer 1700 – 2500 MHz

Rev. V2

Features

- Low Cost Miniature Plastic Package
- 6.5 dB Typical Conversion Loss at 2100 MHz
- +13 to +17 dBm LO Drive
- HMIC™ Process
- Silicon Low Barrier Schottky Diodes
- DC - 500 MHz IF Bandwidth

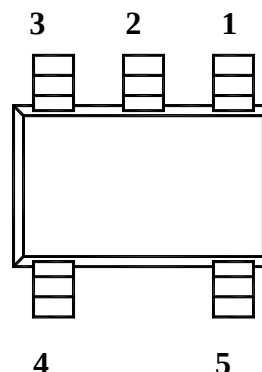
Description

M/A-COM's MA4EX240H-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 high 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
MA4EX240H-1225T	Tape and Reel

Electrical Specifications @ +25°C

Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm RF = -10 dBm, IF = 60 MHz	dB dB		6.5 7.0	7.5 9.0
L - R Isolation	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm RF Level = -10 dBm	dB dB		17 16	
L - I Isolation	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm RF Level = -10 dBm	dB dB		21 21	
R - I Isolation	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm RF Level = -10 dBm	dB dB		13 14	
RF VSWR	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm RF Level = -10 dBm			1.3:1 1.9:1	
IF VSWR	DC - 400 MHz	LO Drive = +15 dBm IF Level = -10 dBm			1.8:1	
Input IP3	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm IF = 60 MHz	dBm dBm	18 17	21.5 21	
Input 1 dB Compression	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm IF = 60 MHz	dBm dBm		+8.5 +8.7	
IF 1 dB Bandwidth			MHz	0		500

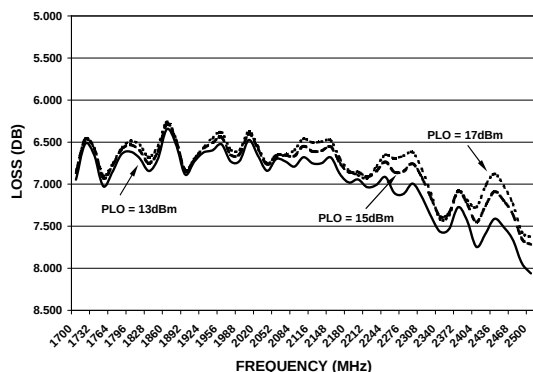
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Silicon Double Balanced HMIC Mixer
1700 – 2500 MHz

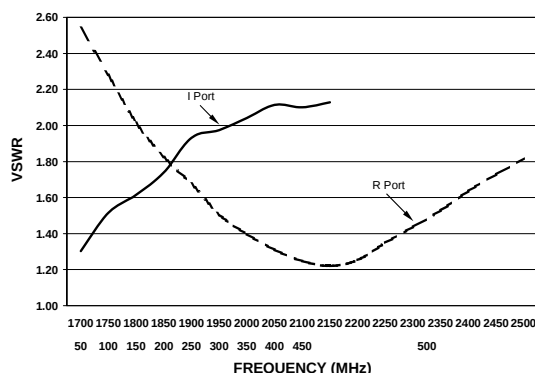
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Typical Performance Curves (LO Drive = +15dBm, RF = -10dBm, IF = 60MHz)

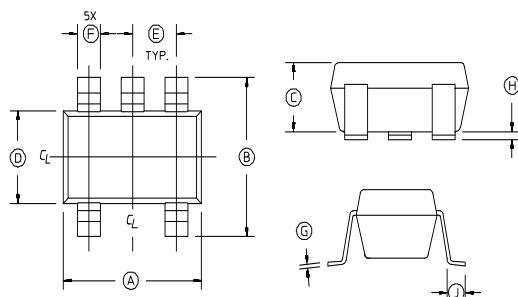
CONVERSION LOSS



VSWR



Case Style – SOT-25

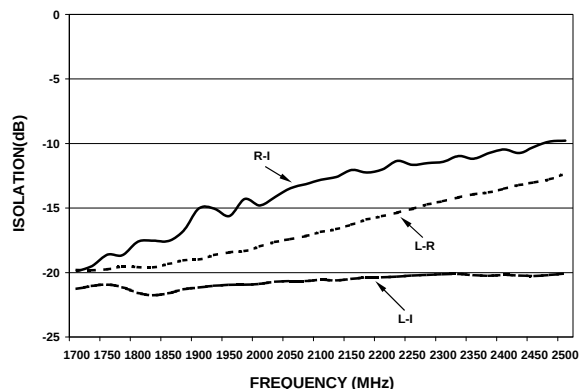


Absolute Maximum Ratings¹

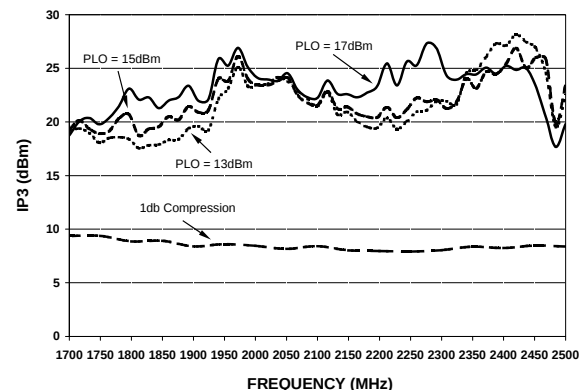
Parameter	Maximum Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Incident LO Power	+20 dBm
Incident RF Power	+20 dBm

1. Exceeding these limits may cause permanent damage.

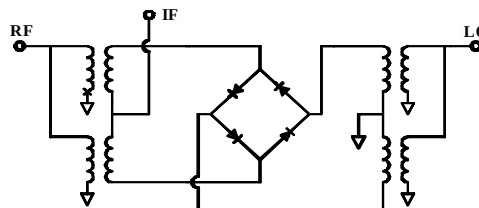
ISOLATION



INPUT IP3 & 1dB Compression Point



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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