

Silicon Double Balanced HMIC™ Mixer, 1700 - 2500 MHz

**MA4EX240H-1225T
V2**

Features

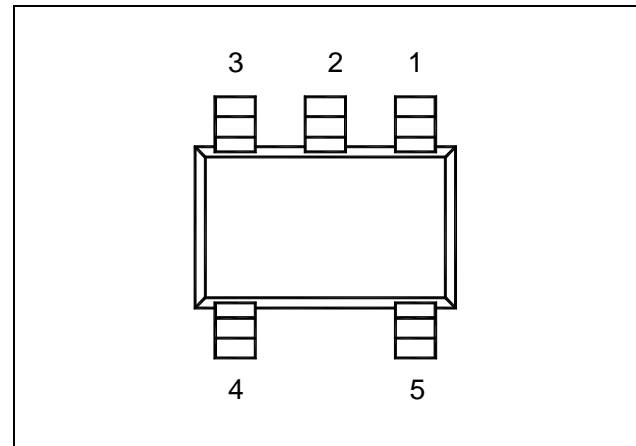
- Low Cost Miniature Plastic Package
- 6.5 dB Typical Conversion Loss at 2100 MHz
- +13 to +17 dBm LO Drive
- HMIC™ Patented Process
- Silicon Medium Barrier Schottky Diodes
- DC - 500 MHz IF Bandwidth

Description and Applications

M/A-COM's MA4EX240H-1225T 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.

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
(Topview)**



PIN Configuration

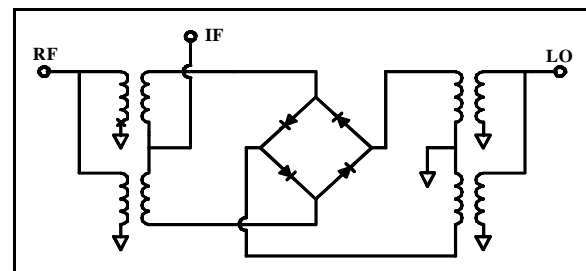
PIN	Function	PIN	Function
1	GND	4	RF
2	GND	5	LO
3	IF		

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.

Functional Schematic



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Electrical Specifications @ +25 °C

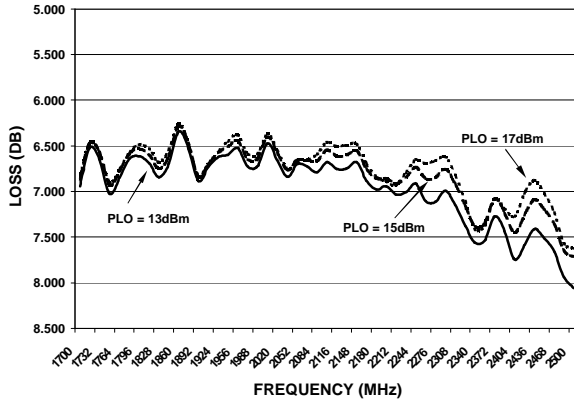
Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm RF = -10 dBm, IF = 60 MHz	dB dB		6.5 7.0	7.5 9.0
L - R Isolation	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm RF Level = -10 dBm	dB dB		17.0 16.0	
L - I Isolation	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm RF Level = -10 dBm	dB dB		21.0 21.0	
R - I Isolation	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm RF Level = -10 dBm	dB dB		13.0 14.0	
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 RF Level = -10 dBm			1.8:1	
Input IP3	2100 MHz 1700-2500 MHz	LO Drive = +15 dBm IF = 60 MHz	dBm dBm	18.0 17.0	+21.5 +21.0	
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		500.0

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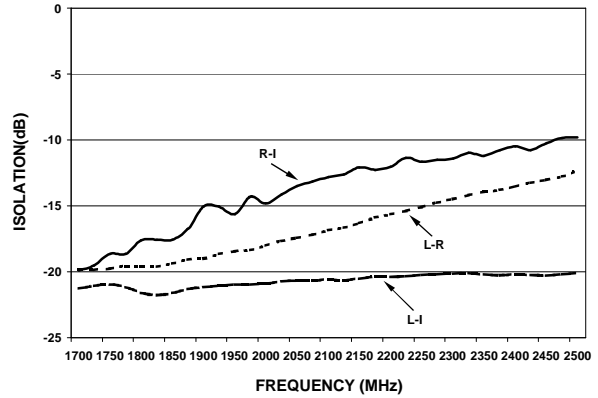
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Typical Performance Curves (LO Drive = +15 dBm, RF = -10 dBm, IF = 60 MHz)

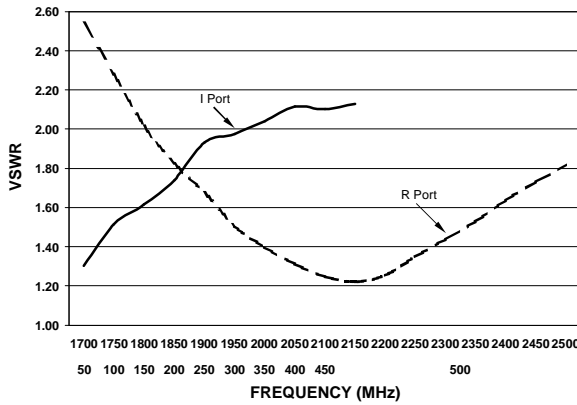
Conversion Loss



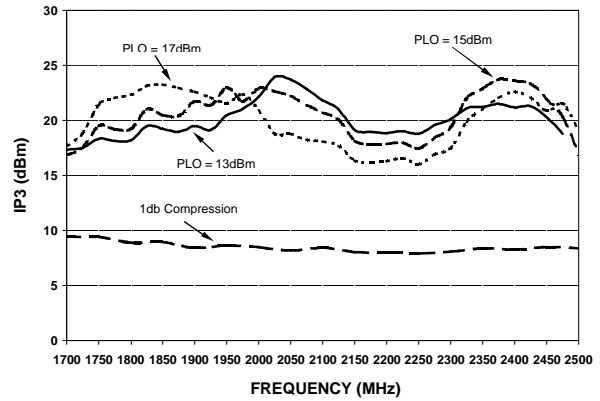
Isolation



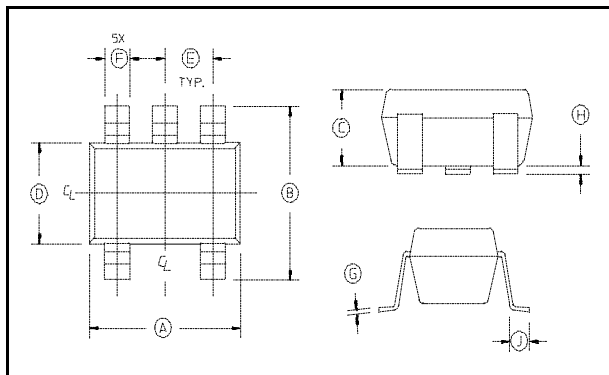
IF VSWR



Input IP3 & 1 dB Compression Point



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
MA4EX240H-1225T	Tape and Reel