

Silicon Double Balanced HMIC™ Mixer, 700 - 1200 MHz

MA4EX950H-1225

Features

- Low Cost Miniature Plastic Package
- 7.0 dB Typical Conversion Loss
- +13 to +17 dBm LO Drive
- HMIC™ IC Process
- Silicon High Barrier Schottky Diodes
- DC - 1050 MHz IF Bandwidth

Description

M/A-COM's MA4EX950H-1225 is a silicon monolithic 700-1200 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

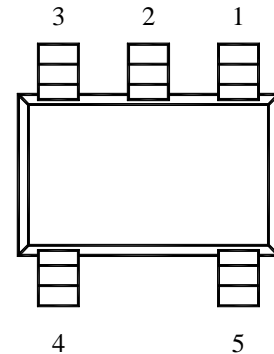
These mixers are well suited for high volume wireless and cellular applications where small size and repeatability are required. Typical applications include frequency conversion, modulation, and demodulation in wireless receivers and transmitters.

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.

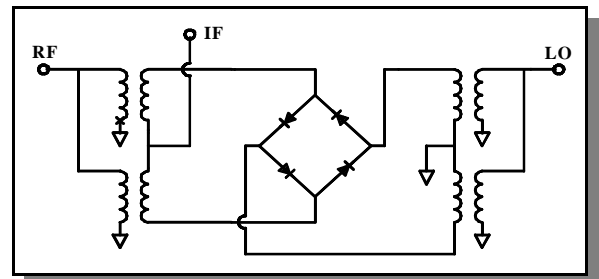
Package Outline



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	800 MHz 0.7-1.2 GHz	LO Drive = +15 dBm RF = -10 dBm, IF = 60 MHz	dB		6.6 8.1	7.5 10.5
L - R Isolation	800 MHz 0.7-1.2 GHz	LO Drive = +15 dBm RF Level = -10 dBm	dB		27.5 23.0	
L - I Isolation	800 MHz 0.7-1.2 GHz	LO Drive = +15 dBm RF Level = -10 dBm	dB		28.5 28.5	
R - I Isolation	800 MHz 0.7-1.2 GHz	LO Drive = +15 dBm RF Level = -10 dBm	dB		25.0 22.5	
RF VSWR	800 MHz 0.7-1.2 GHz	LO Drive = +15 dBm RF Level = -10 dBm			1.20:1 1.50:1	
IF VSWR	DC - 400 MHz	LO Drive = +15 dBm RF Level = -10 dBm			1.55:1	
Input IP3	850 MHz 0.7-1.2 GHz	LO Drive = +15 dBm RF = -5 dBm, IF = 60 MHz	dBm	21.0 20.0	23.8 25.0	
Input 1 dB Compression	850 MHz 0.7-1.2 GHz	LO Drive = +15 dBm RF = -5 dBm, IF = 60 MHz	dBm		8.3 9.1	
IF 1 dB Bandwidth	DC - 400 MHz	LO = 850 MHz @ +15 dBm	MHz			400

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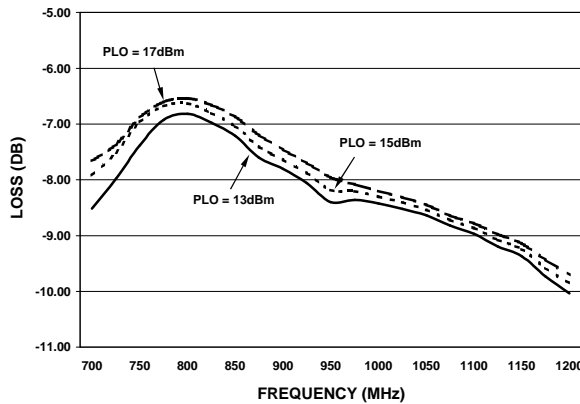
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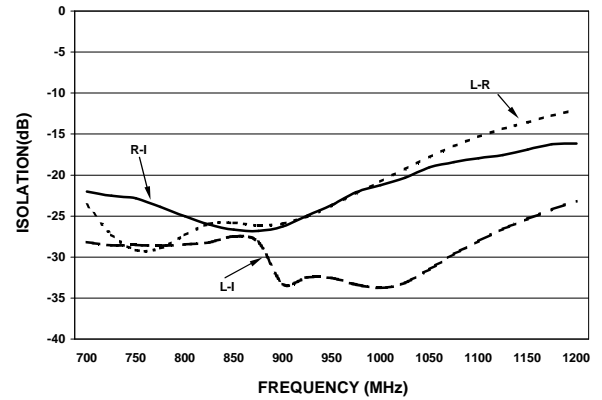
M/A-COM

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

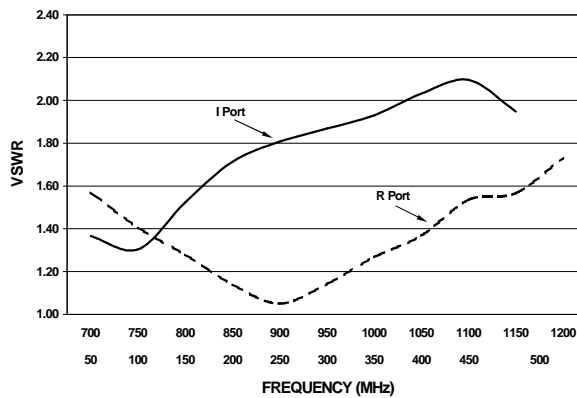
Conversion Loss



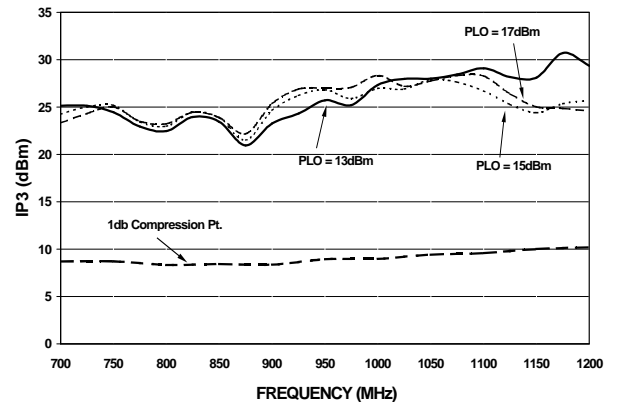
Isolation



VSWR



Input IP3 & 1 dB Compression Point

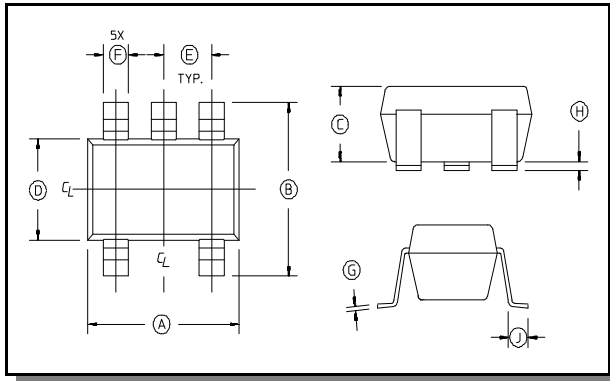


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Case Style - SOT-25



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
MA4EX950H-1225	Tube
MA4EX950H-1225T	Tape and Reel

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