

Silicon Double Balanced HMIC™ Mixer, 700 - 1000 MHz

MA4EX900L-1226

Features

- Low Cost Miniature Plastic Package
- 6.5 dB Typical Conversion Loss at 850 MHz
- +3 to +7 dBm LO Drive
- HMIC™ Process
- Silicon Low Barrier Schottky Diodes
- DC - 400 MHz IF Bandwidth

Description

M/A-COM's MA4EX900L-1226 is a silicon monolithic double balanced low barrier mixer in a low cost surface mount 8 lead plastic MSOP package. The die uses M/A-COM's unique HMIC™ silicon/glass process to achieve low loss passive elements while retaining the advantages of low barrier silicon Schottky diodes.

Applications

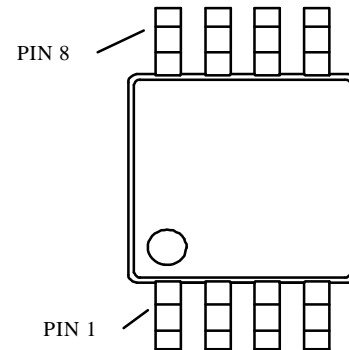
These mixers are well suited for high volume wireless and cellular applications where small size and repeatability are required. Typical applications include frequency conversion, modulation, and demodulation for receivers and transmitters in both portable cellular and base station applications.

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.

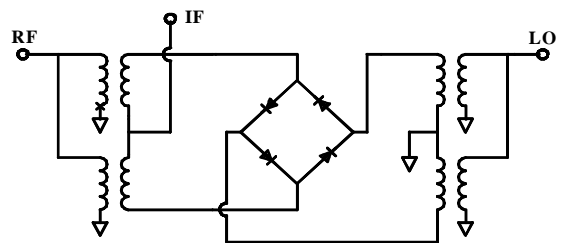
MSOP-8 Package Outline



PIN Configuration

PIN	Function	PIN	Function
1	GND	5	LO
2	IF	6	GND
3	GND	7	GND
4	GND	8	RF

Functional Schematic



Electrical Specifications: @ + 25 °C

Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	850 MHz	LO Drive = +5 dBm	dB		6.5	7.0
	700-1000 MHz	RF = -10 dBm, IF = 60 MHz	dB		7.0	9.0
L - R Isolation	850 MHz	LO Drive = +5 dBm	dB		26.0	
	700-1000 MHz	RF Level = -10 dBm	dB		23.0	
L - I Isolation	850 MHz	LO Drive = +5 dBm	dB		31.0	
	700-1000 MHz	RF Level = -10 dBm	dB		30.0	
R - I Isolation	850 MHz	LO Drive = +5 dBm	dB		23.0	
	700-1000 MHz	RF Level = -10 dBm	dB		21.0	
LO VSWR	850 MHz	LO Drive = +5 dBm			1.60	
	700-1000 MHz	RF Level = -10 dBm			1.60	
RF VSWR	850 MHz	LO Drive = +5 dBm			1.10	
	700-1000 MHz	RF Level = -10 dBm			1.80	
IF VSWR	DC - 300 MHz	LO Drive = +5dBm RF Level = -10 dBm			1.90	
Input IP3	850 MHz	LO Drive = +5 dBm	dBm	8.0	+9.50	
	700-1000 MHz	IF = 60 MHz	dBm	8.0	+11.0	
Input 1 dB Compression	850 MHz	LO Drive = +5 dBm	dBm		+1.0	
	700-1000 MHz	IF = 60 MHz	dBm		+1.0	
IF 1 dB Bandwidth			MHz	0	400.0	

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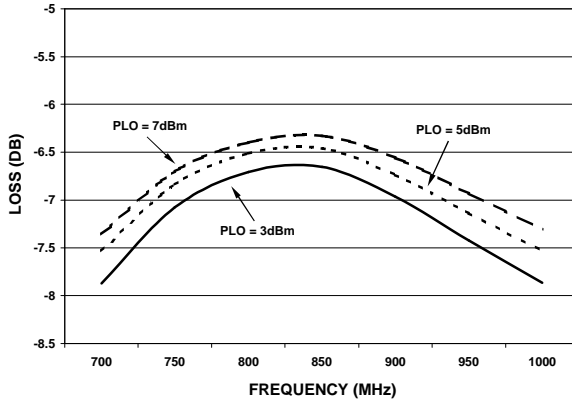
- North America: Tel. (800) 366-2266 2
- Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298
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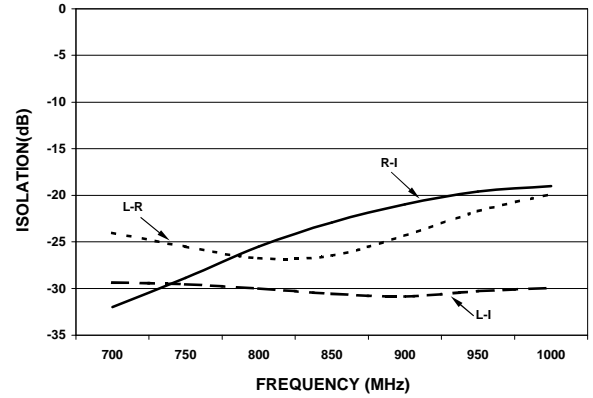
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Typical Performance Curves (LO Drive = +5 dBm, RF = -10 dBm, IF = 60 MHz)

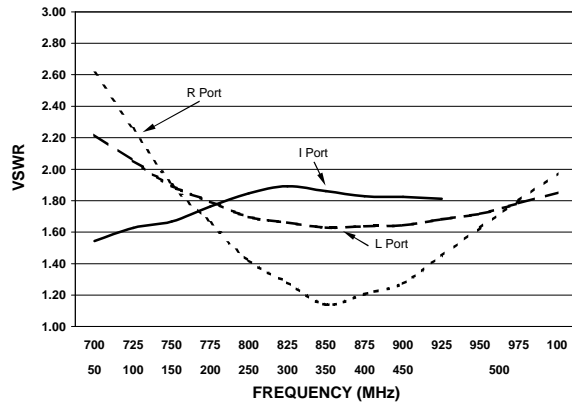
Conversion Loss



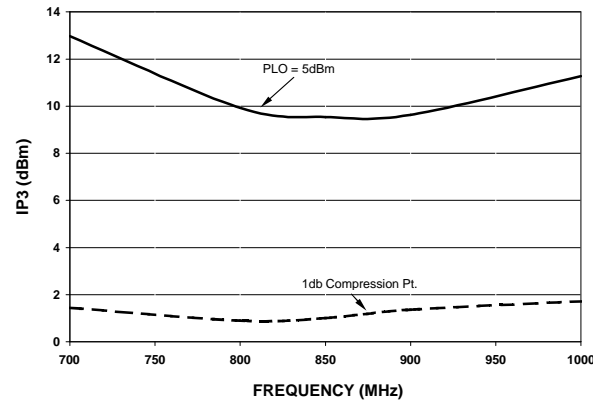
Isolation



VSWR



Input IP3 & 1 dB Compression Point

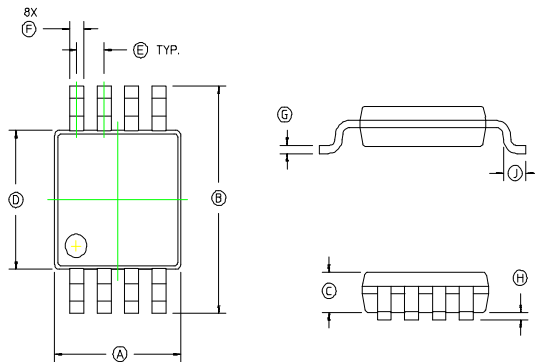


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Case Style - MSOP-8 / ODS-1226



MSOP-8 / ODS-1226 Dimensions

Dim	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	.110	.126	2.80	3.20
B	.184	.202	4.67	5.13
C	—	.040	—	1.02
D	.118 REF.		3.00 REF.	
E	.020	.031	.50	.80
F	.008	.016	.20	.40
G	.003	—	.08	—
H	.000	.006	.00	.15
J	.022 REF.		.55 REF.	

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

Ordering Information

Part Number	Package
MA4EX900L-1226	Tube
MA4EX900L-1226T	Tape and Reel

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