

**Silicon Double Balanced HMIC  
Mixer 700 – 1000 MHz**

**MA4EX900L-MOT  
V1**

**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
- **Lead Free ( RoHS Compliant ) With 260 °C Reflow Capability**
- 100 % MATTE Tin Plating

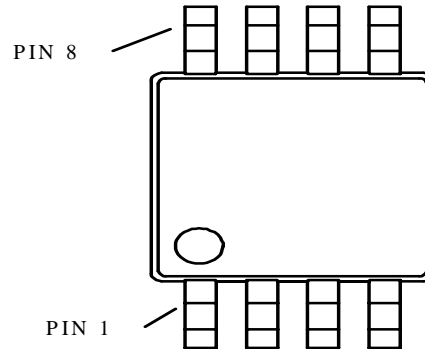
**Description**

M/A-COM's MA4EX900L-MOT 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.

**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

**Ordering Information**

Model No.	Package
MA4EX900L-MOT	Tape and Reel

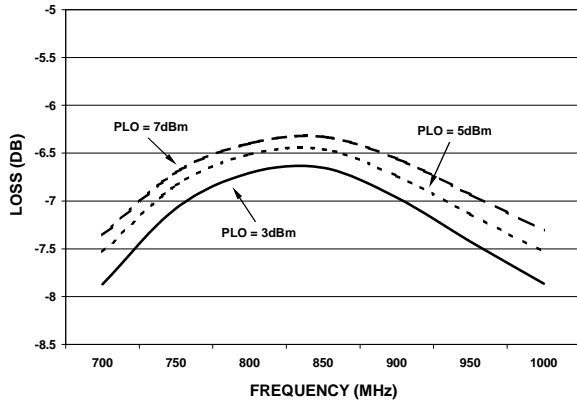
**Electrical Specifications @ +25°C**

Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	940 MHz	LO Drive = +4 dBm	dB		7.5	8.5
	700-1000 MHz	RF = -10 dBm, IF = 400 MHz	dB			
L - R Isolation	850 MHz	LO Drive = +5 dBm	dB		26	
	700-1000 MHz	RF Level = -10 dBm	dB		23	
L - I Isolation	850 MHz	LO Drive = +5 dBm	dB		31	
	700-1000 MHz	RF Level = -10 dBm	dB		30	
R - I Isolation	850 MHz	LO Drive = +5 dBm	dB		23	
	700-1000 MHz	RF Level = -10 dBm	dB		21	
LO VSWR	850 MHz	LO Drive = +5 dBm			1.6	
	700-1000 MHz	RF Level = -10 dBm			1.6	
RF VSWR	850 MHz	LO Drive = +5 dBm			1.1	
	700-1000 MHz	RF Level = -10 dBm			1.8	
IF VSWR	DC - 300 MHz	LO Drive = +5 dBm IF Level = -10 dBm			1.9	
Input IP3	940 MHz	LO Drive = +4 dBm	dBm	7.0	9.0	
	700-1000 MHz	IF = 400 MHz	dBm			
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	

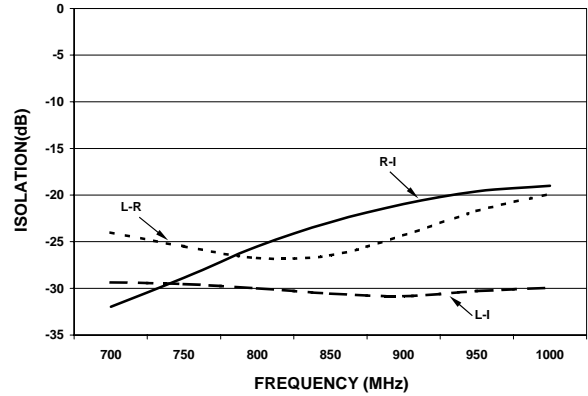
Specification Subject to Change Without Notice

**Typical Performance Curves**  
(LO Drive = +5dbm, RF = -10dBm, IF = 60MHz)

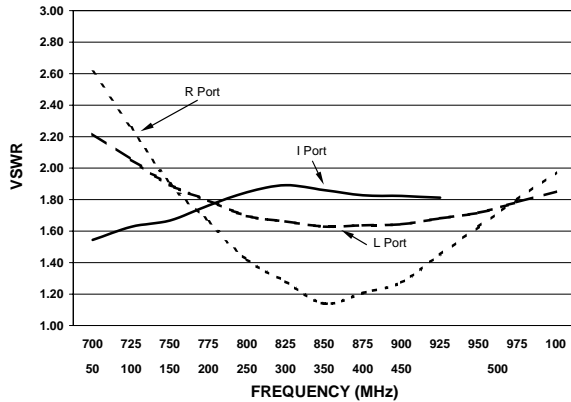
**CONVERSION LOSS**



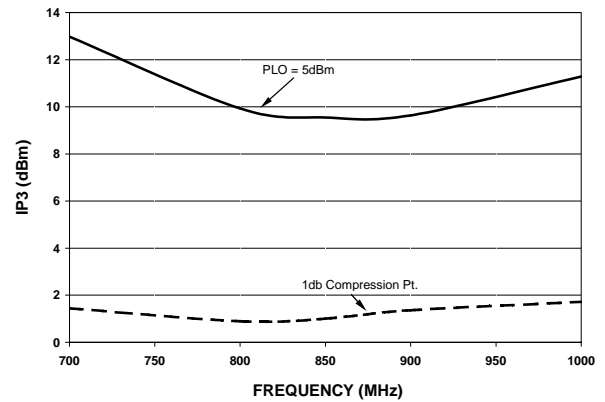
**ISOLATION**



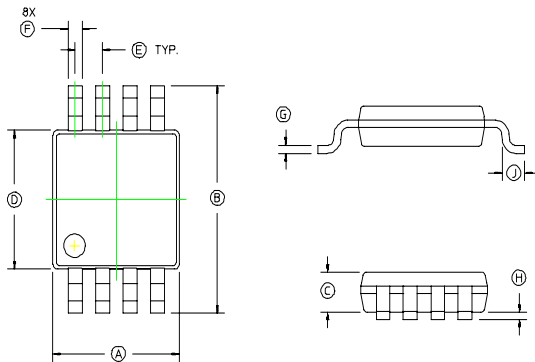
**VSWR**



**INPUT IP3 & 1dB Compression Point**



**Case Style – MSOP- 8 / ODS-1226**

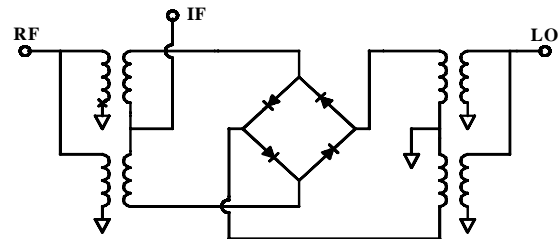


**Absolute Maximum Ratings<sup>1</sup>**

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
Soldering Temperature	+ 260 Deg C.

1. Exceeding these limits may cause permanent damage.

**Schematic**



**MSOP- 8 / ODS-1226**

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.

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