

Silicon Double Balanced HMIC Mixer 4200 - 6000 MHz

**MA4EX600L1-1225T
V1**

Features

- SOT-25 Low Cost Miniature Plastic Package
- 6.4 dB Typical Conversion Loss @ 5000 MHz
- + 3 to + 7 dBm LO Drive
- HMIC™ Patented Process
- NO External Matching Required
- Double Balanced Passive Mixer
- Lead Free (RoHS Compliant) with 260 °C Reflow Capability
- 100 % Matte Tin Plating

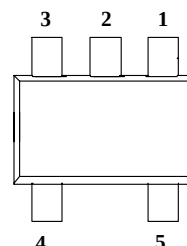
Description

M/A-COM's MA4EX600L1-1225T is a silicon monolithic 4.2 – 6.0GHz 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 realize low loss passive elements while retaining the advantages of low barrier silicon Schottky diodes.

Applications

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

SOT-25 Package Outline (Topview)



PIN Configuration

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

Ordering Information

Model No.	Package
MA4EX600L1-1225T	Tape and Reel

Electrical Specifications @ +25°C

Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	5000 MHz 4.2 - 6.0 GHz	LO Drive = +5 dBm RF = -10 dBm, IF = 60 MHz	dB	-	6.4 6.8	8.0 9.5
L - R Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +5 dBm	dB	-	26 25	-
L - I Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +5 dBm	dB	-	24 23	-
R - I Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +5 dBm RF Level = - 10 dBm	dB	-	13 15	-
RF VSWR	5000 MHz 4.2 - 6.0 GHz	LO Drive = +5 dBm RF Level = - 10 dBm	Ratio	-	1.18:1 1.67:1	-
LO VSWR	5000 MHz 4.2 - 6.0 GHz	LO Drive = +5 dBm	Ratio	-	1.87:1 1.89:1	-
IF VSWR	10 - 2000 MHz	LO Drive = +5 dBm IF Level = 0 dBm	Ratio	-	1.55:1	-
Input IP3	5000 MHz 4.2 - 6.0 GHz	LO Drive = +5 dBm RF = -10 dBm, IF = 60 MHz	dBm	-	5.7 7.6	-
Input 1 dB Compression Power	5000 MHz 4.2 - 6.0 GHz	LO Drive = +5 dBm IF = 60 MHz	dBm	-	0.3 0.8	-
IF 1 dB Bandwidth	DC - 2000 MHz	LO = 5000 MHz @+5dBm	MHz	0	-	2000

The Preliminary Specifications Data Sheet Contains Typical Electrical Specifications Which May Change Prior to Final Introduction.

M/A-COM, Inc.
1

North America: Tel. (800) 366-2266
Fax (800) 618-8883

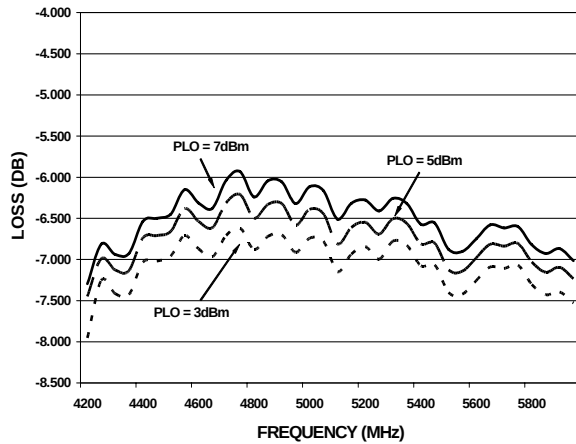
Asia/Pacific: Tel. +85 2 2111 8088
Fax +85 2 2111 8087

Europe: Tel. +44 (1344) 869 595
Fax +44 (1344) 300 020

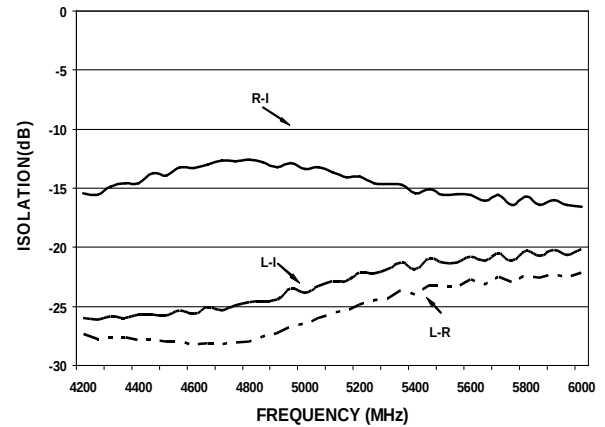
Typical Performance Curves

(LO Drive = + 5 dBm, RF = -10dBm, IF = 60MHz)

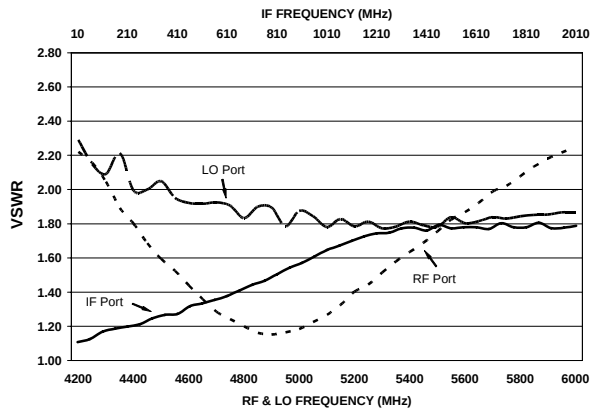
Conversion Loss



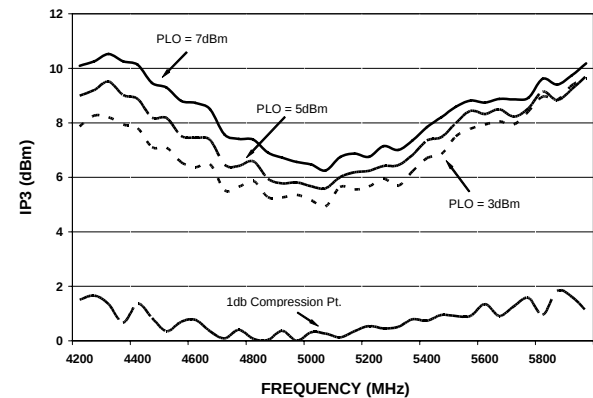
Isolation



VSWR



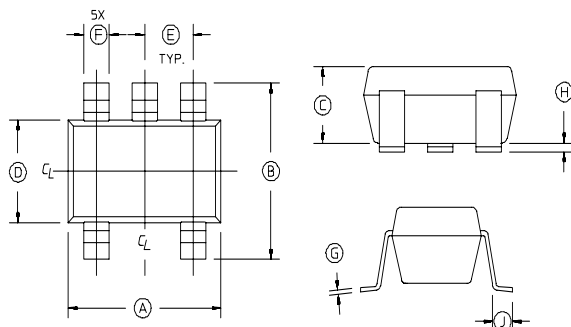
Input IP3 & 1dB Compression Power



The Preliminary Specifications Data Sheet Contains Typical Electrical Specifications Which May Change Prior to Final Introduction.

Case Style

SOT-25



SOT-25

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.1103	.1181	2.80	3.10
B	.1023	.1181	2.6	3.00
C	0.0355	.0512	0.9	1.30
D	0.0591	.0669	1.5	1.70
E	.0374 REF.		0.95 REF.	
F	.0138	.0197	.35	.50
G	.0031	0.0079	.08	0.2
H	.0002	.0059	.05	.15
J	.0138	.0216	.35	.55

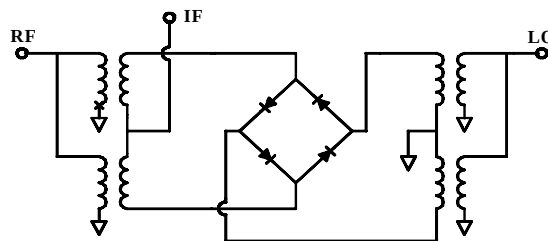
1. Dimensions do not include mold fls, protrusion or gate burrs which shall not exceed 0.0098 in (.25mm) per side.
2. Leads Coplanarity should be 0.003 (0.08) max.

Absolute Maximum Ratings 1

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°C max.

1. Exceeding these limits may cause permanent damage.
- * Please refer to application note M538 for surface mounting instructions.

Schematic



Specification Subject to Change Without Notice

M/A-COM, Inc.

3

North America: Tel. (800) 366-2266
Fax (800) 618-8883

Asia/Pacific: Tel. +85 2 2111 8088
Fax +85 2 2111 8087

Europe: Tel. +44 (1344) 869 595
Fax +44 (1344) 300 020