

MA4EX600M-1225T

Silicon Double Balanced HMIC Mixer
4200 – 6000 MHz

Rev. V1

Features

- Low Cost SOT-25 Miniature Plastic Package
- 6.5 dB Typical Conversion Loss at 5000 MHz
- +7 to +13 dBm LO Drive
- Silicon Medium Barrier Schottky Diodes
- Double Balanced Passive Mixer
- NO External Matching Required

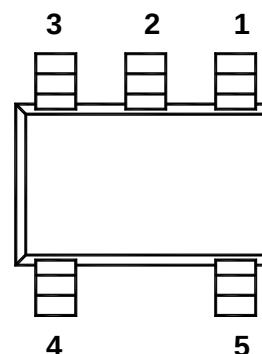
Description

M/A-COM's MA4EX600M-1225T is a silicon monolithic 4.2 – 6.0 GHz 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 medium 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 Outline (Top view)



PIN CONFIGURATION

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

Ordering Information

Model No.	Package
MA4EX600M-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 = +10 dBm RF = -10 dBm, IF = 60 MHz	dB	-	6.5 6.8	7.5 9.5
L - R Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm	dB	-	27 26	-
L - I Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm	dB	-	27 26	-
R - I Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm RF Level = -10 dBm	dB	-	12 13	-
RF VSWR	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm RF Level = -10 dBm	Ratio	-	1.16:1 1.62:1	-
LO VSWR	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm	Ratio	-	2.20:1 2.19:1	-
IF VSWR	1000MHz 50 - 2000 MHz	LO Drive = +10 dBm IF Level = 0 dBm	Ratio	-	1.63:1 1.64:1	-
Input IP3	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm RF = -10 dBm, IF = 60 MHz	dBm	-	10.1 12.0	-
Input 1 dB Compression Power	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm IF = 60 MHz	dBm	-	2.7 2.8	-
IF 1 dB Bandwidth	DC - 2000 MHz	LO = 5000 MHz @+10dBm	MHz	-	-	2000

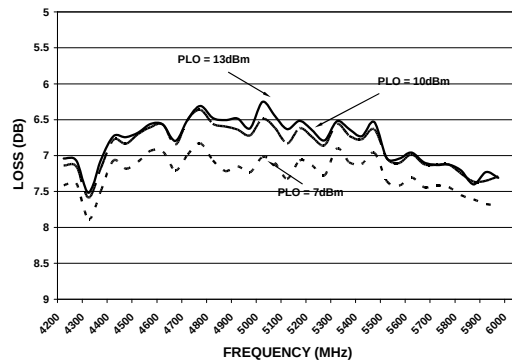
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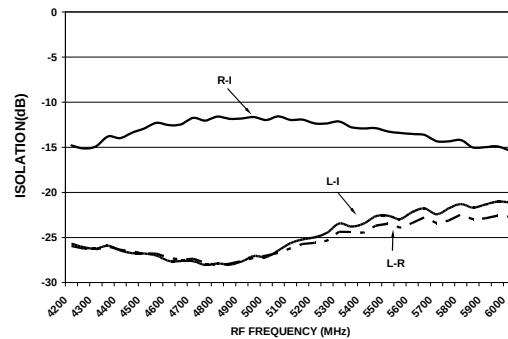
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Typical Performance Curves (LO Drive = +10 dbm, RF = -10 dBm, IF = 60 MHz)

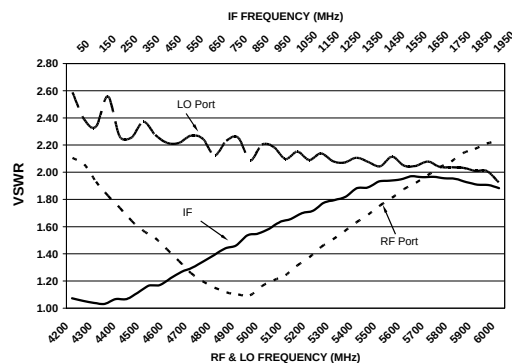
CONVERSION LOSS



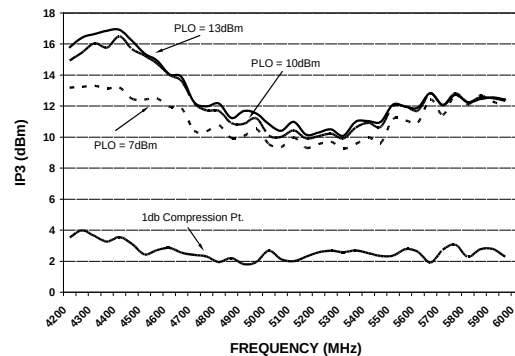
ISOLATION



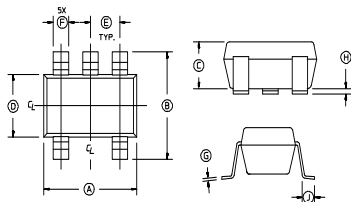
VSWR



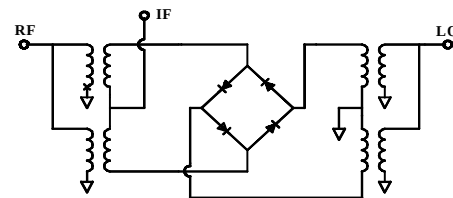
INPUT IP3 & 1dB Compression Power



Case Style – SOT- 25



Schematic



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.

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 C.W.
Incident RF Power	+ 20 dBm C.W.

1. Exceeding these limits may cause permanent damage.