

Silicon Double Balanced HMIC™ Mixer, 4200 - 6000 MHz

MA4EX600M-1225T
V1

Features

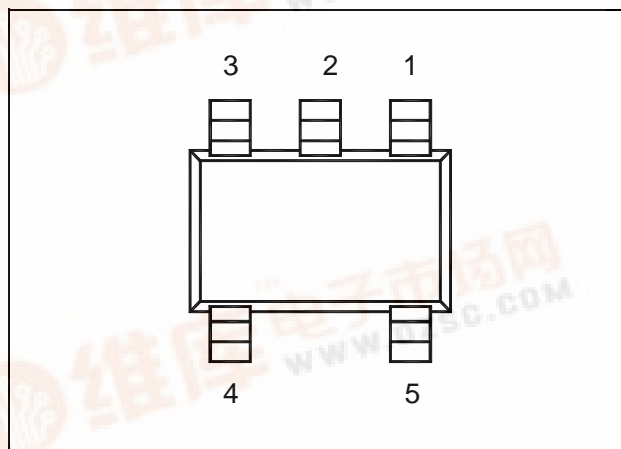
- Low Cost SOT-25 Miniature Plastic Package
- 6.5 dB Typical Conversion Loss at 5000 MHz
- +7 to +13 dBm LO Drive
- Silicon Medium Barrier Schottky Diodes
- Double Balanced Passive Mixer
- NO External Matching Required

Description and Applications

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.

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 (Topview)



PIN Configuration

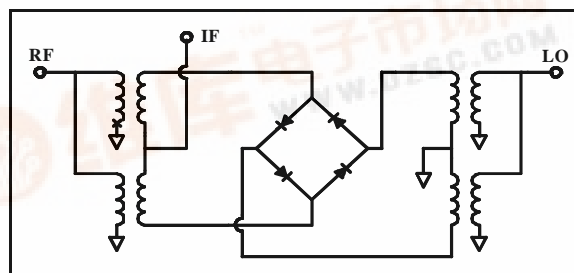
PIN	Function	PIN	Function
1	RF	4	GND
2	GND	5	IF
3	LO		

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.

Functional Schematic

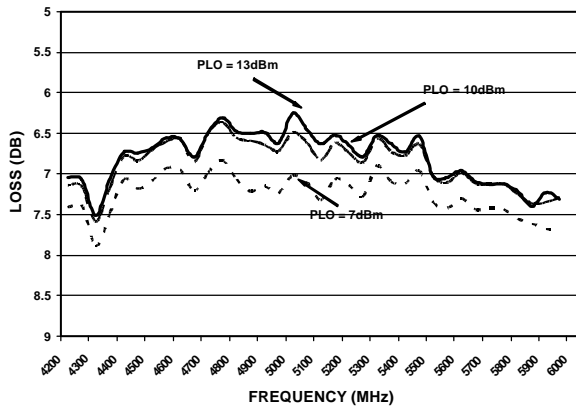


Electrical Specifications @ +25 °C

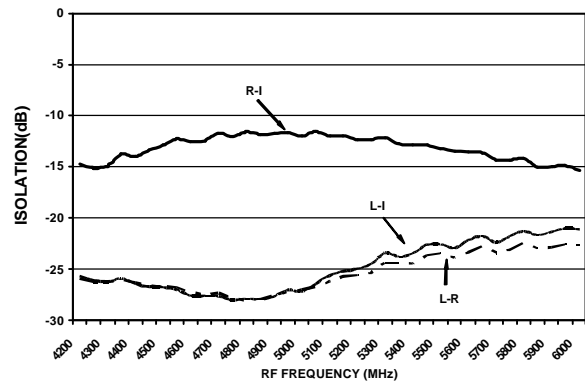
Parameter	Frequency Range	Test Conditions	Units	Min.	Avg.	Max.
Conversion Loss	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm RF = -10 dBm, IF = 60 MHz	dB	-	6.5 6.8	7.5 9.5
L - R Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm	dB	-	27.0 26.0	-
L - I Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm	dB	-	27.0 26.0	-
R - I Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm RF Level = -10 dBm	dB	- -	12.0 13.0	- -
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	1000 MHz 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 @ +10 dBm	MHz	0	-	2000

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

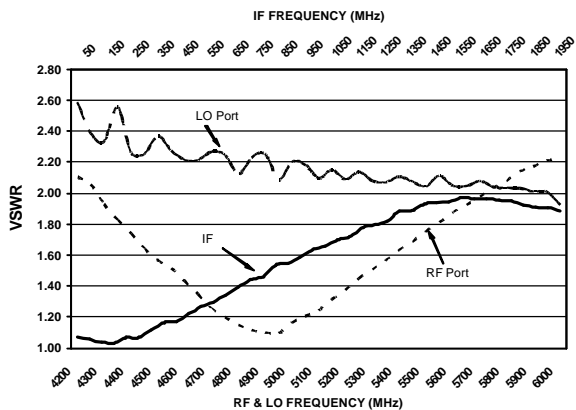
Conversion Loss



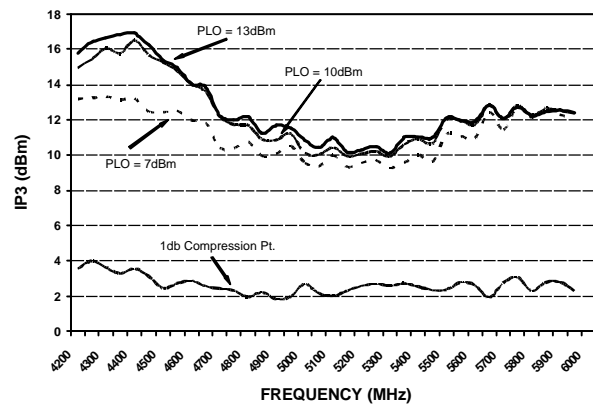
Isolation



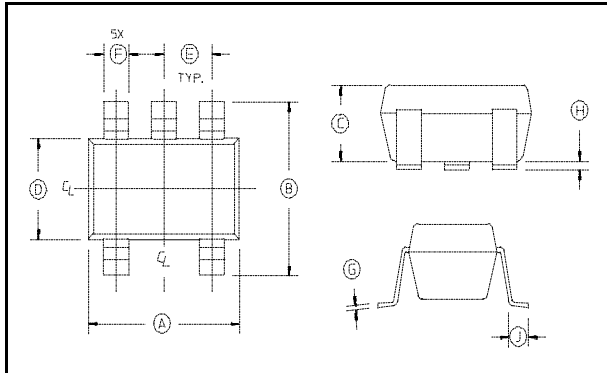
VSWR



Input IP3 & 1 dB Compression Point



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
MA4EX600M-1225T	Tape and Reel