MAMX-000600-1225MT

Silicon Doubled Balanced HMIC Mixer
4200 - 6000 MHz

M/A-COM Products
Rev. V1

Features

- SOT-25 Low Cost Miniature Plastic Package
- 6.5 dB Typical Conversion Loss
- +7 to +13 dBm LO Drive
- HMIC™ Patented Process
- Silicon Medium Barrier Schottky Diodes
- Double Balanced Passive Mixer
- RoHS* Compliant with 260 °C Reflow Capability
- 100% Matte Tin Plating

Description and Applications

M/A-COM's MAMX-000600-1225MT is a 4200 –6000 MHz silicon monolithic 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 achieve low loss passive elements while retaining the advantages of medium barrier silicon Schottky barrier diodes.

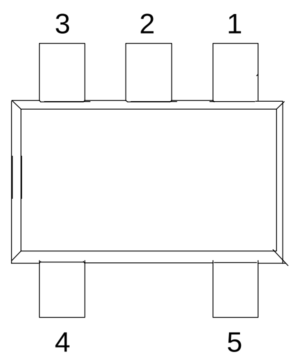
These mixers are well suited for high volume WLL and WLAN applications where small size and repeatability are required. Typical applications include frequency conversion, modulation, and demodulation in wireless receivers and transmitters.

Absolute Maximum Ratings [1,2]

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.
2. Please refer to application note M538 for surface mounting instructions.

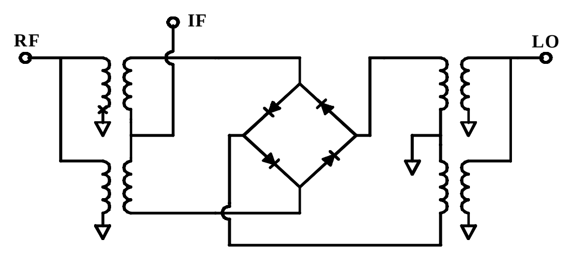
SOT-25 Package Outline (Topview)



PIN Configuration

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

Schematic



* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

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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 RF Level = -10 dBm	dB		27.0 26.0	
L - I Isolation	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm RF Level = -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 13	
LO VSWR	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm RF Level = -10 dBm			2.20:1 2.19:1	- -
RF VSWR	5000 MHz 4.2 - 6.0 GHz	LO Drive = +10 dBm RF Level = -10 dBm			1.16:1 1.62:1	- -
IF VSWR	DC - 400 MHz	LO Drive = +10 dBm RF Level = -10 dBm			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	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	0		2000

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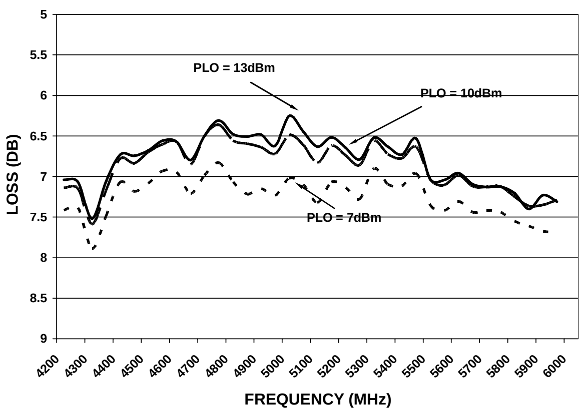
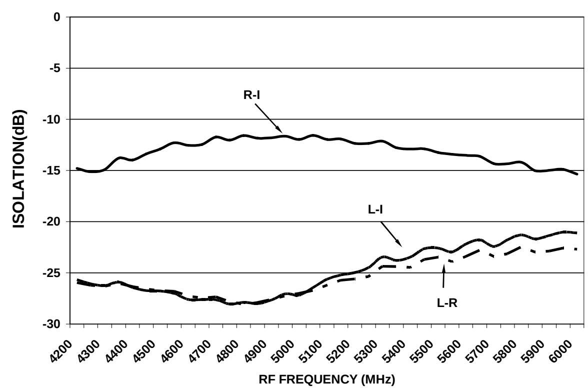
Typical Performance Curves (LO Drive = +10 dBm, RF = -10 dBm, IF = 60 MHz)

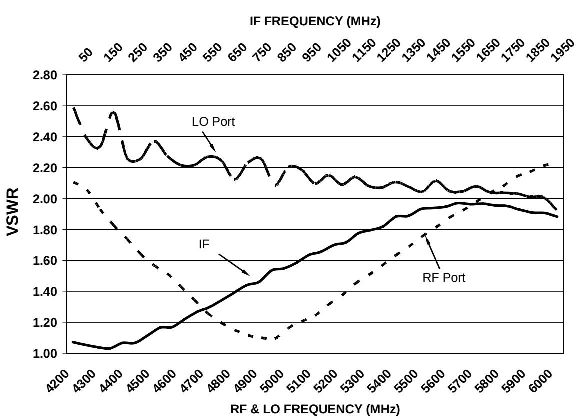
Conversion Loss



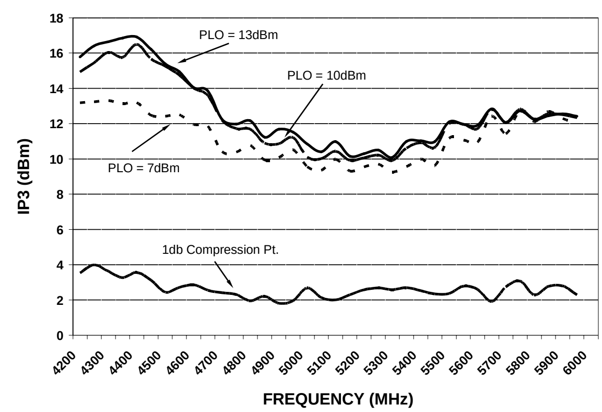
Isolation



VSWR



INPUT IP3 & 1dB Compression Power



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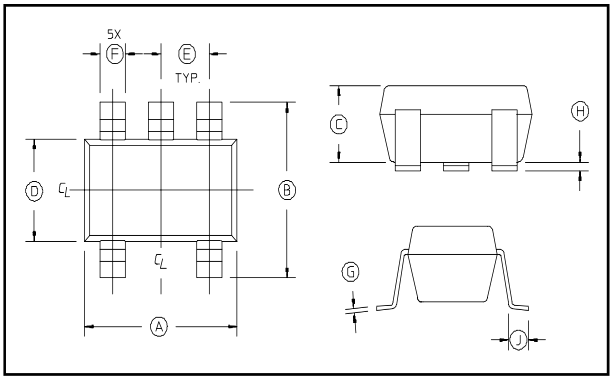
Case Style - SOT-25



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.	

Note: 1. Lead coplanarity should be 0.003 (0.08) max.

Ordering Information

Part Number	Package
MAMX-000600-1225MT	Tape and Reel

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