MA4EX580L1-1225T

Silicon Double Balanced HMIC Mixer
4.7 - 6.0 GHz

M/A-COM Products
Rev. V1

Features

- 7.6 dB Typical Conversion Loss
- +3 to +7 dBm LO Drive
- HMIC™ Patented Process
- Silicon Low Barrier Schottky Diodes
- DC - 1050 MHz IF Bandwidth
- Low Cost Miniature Plastic Package
- **Lead Free and RoHS Compliant**

Description and Applications

M/A-COM's MA4EX580L1-1225T is a silicon monolithic 4.7 to 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 achieve low loss passive elements while retaining the advantages of low barrier silicon Schottky diodes.

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 in wireless receivers and transmitters.

Ordering Information

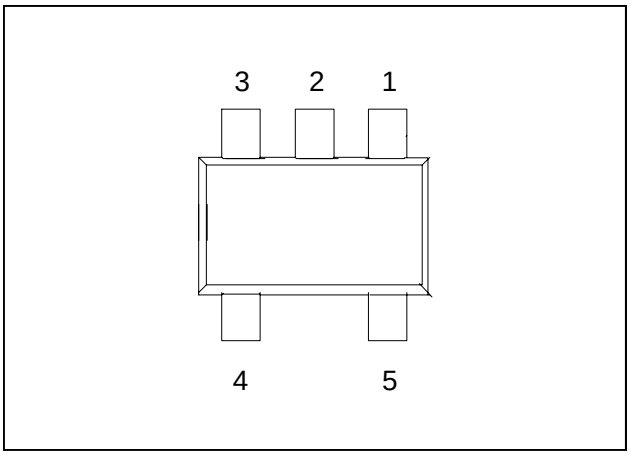
Standard Part Number	Package
MA4EX580L1-1225T	Tape and Reel

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

1. Exceeding these limits may cause permanent damage.
2. Refer to application note M538 for surface mounting instructions.

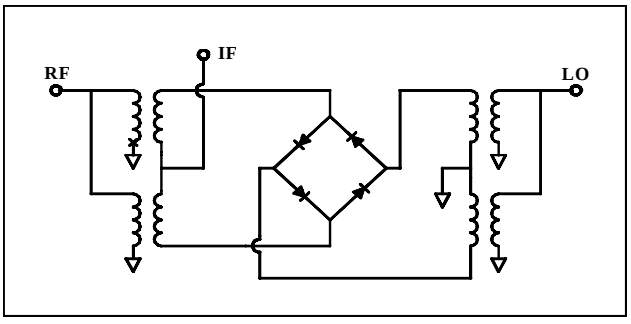
Package Outline (Topview)



PIN Configuration

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

Schematic

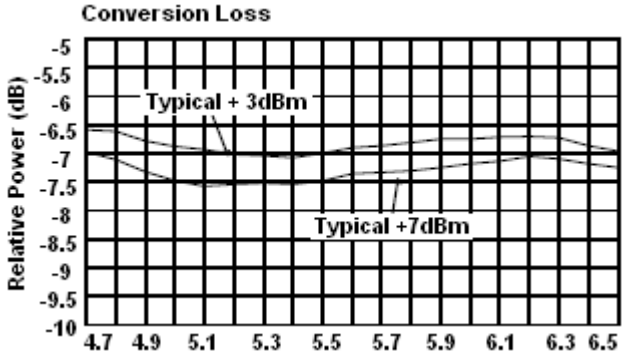


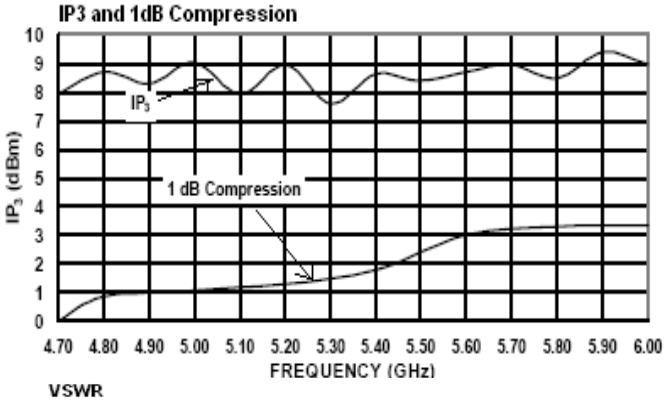
• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

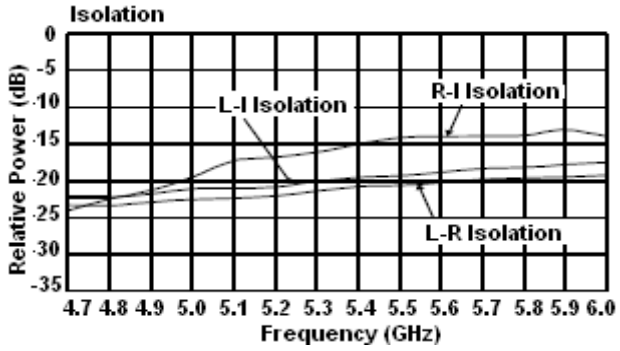
Electrical Specifications @ +25 °C

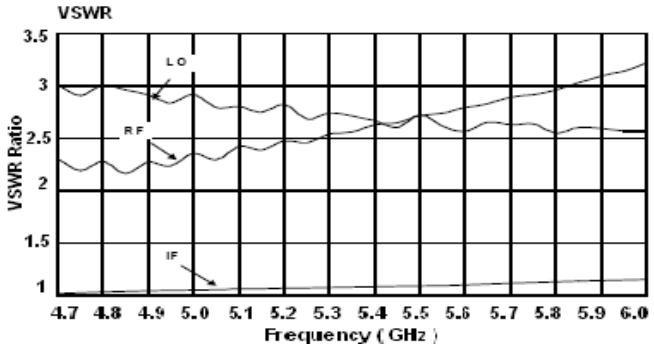
Parameter	Frequency Range	Test Conditions	Units	Typ.	Max.
Conversion Loss	4700 MHz 4.7—6.0 GHz	LO Drive = +3 -> +7 dBm RF = -10 dBm, IF = 60 MHz	dB dB	7.6 8.5	8.0 9.5
L - R Isolation	4700 MHz 4.7—6.0 GHz	LO Drive = +5 dBm RF Level = -10 dBm	dB dB	23.0 20.0	
L - I Isolation	4700 MHz 4.7—6.0 GHz	LO Drive = +5 dBm RF Level = -10 dBm	dB dB	22.0 20.0	
R - I Isolation	4700 MHz 4.7—6.0 GHz	LO Drive = +5 dBm RF Level = -10 dBm	dB dB	9.4 7.5	
LO VSWR	4700 MHz 4.7—6.0 GHz	LO Drive = +5 dBm RF Level = -10 dBm		2.7 2.8	- -
RF VSWR	4700 MHz 4.7—6.0 GHz	LO Drive = +5 dBm RF Level = -10 dBm		2.3 3.1	- -
IF VSWR	DC - 1050 MHz	LO Drive = +5 dBm RF Level = -10 dBm		1.1	-
Input IP3	4700 MHz 4.7—6.0 GHz	LO Drive = +3 -> +7 dBm RF = -10 dBm, IF = 60 MHz	dBm dBm	7.5 8.1	
Input 1 dB Compression	4700 MHz 4.7—6.0 GHz	LO Drive = +3 -> +7 dBm RF = -10 dBm, IF = 60 MHz	dBm dBm	+1.6 +1.5	- -
IF 1 dB Bandwidth	DC - 1050 MHz	LO = 4650 MHz @+5dBm	MHz	1050	-

Typical Performance Curves







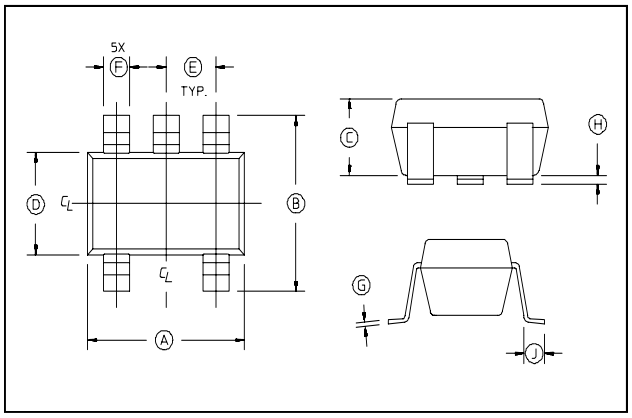


*** Specifications subject to change without notice.**

- **North America** Tel: 800.366.2266
- **Europe** Tel: +353.21.244.6400
- **India** Tel: +91.80.43537383
- **China** Tel: +86.21.2407.1588

Visit www.macomtech.com for additional data sheets and product information.

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.	

2. Leads Coplanarity should be 0.003 (0.08) max.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.