Silicon Double Balanced HMIC™ Mixer, 2000 - 2300 MHz

V 2.00

MA4EXP190H-1225

Features

- Low Cost SOT-25 Miniature Plastic Package
- +29 dBm Typical Input IP3
- 8.1 dB Typical Conversion Loss
- +15 to +19 dBm LO Drive
- Double Balanced Passive Mixer
- NO External Matching Required

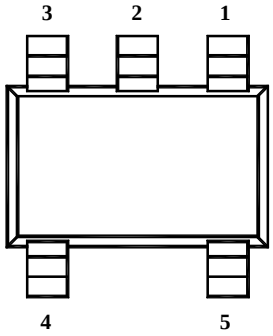
Description

M/A-COM's MA4EXP190H-1225T is a silicon monolithic 2000-2300 MHz 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 high barrier silicon Schottky diodes to produce a compact device.

Applications

These mixers are well suited for WCDMA & UMTS applications where high intermodulation suppression is required. Typical applications include frequency conversion, modulation, and demodulation for receivers and transmitters in base station applications.

Outline SOT 25 - Top View



PIN Configuration

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

Ordering Information

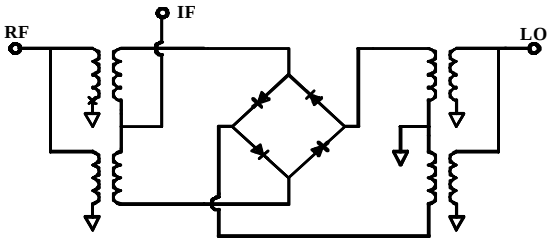
Part Number	Package
MA4EXP190H-1225T	Tape and Reel

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.

Schematic



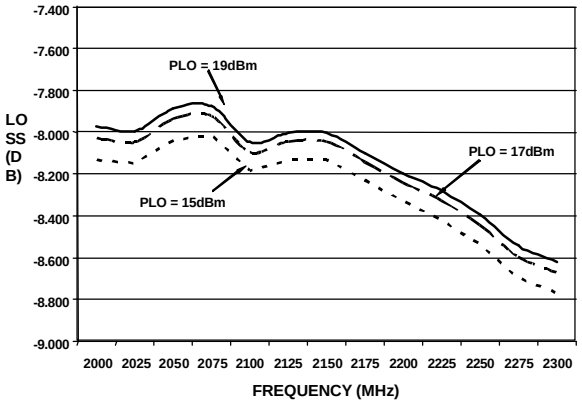
Electrical Specifications: @ + 25 °C

Parameter	Frequency Range	Test Conditions	Units	Min.	Avg.	Max.
Conversion Loss	2150 MHz 2000-2300 MHz	LO Drive = +17 dBm RF = -10 dBm, IF = 60 MHz	dB dB	- -	8.1 8.2	9.0 9.5
L - R Isolation	2150 MHz 2000-2300 MHz	LO Drive = +17 dBm RF Level = -10 dBm	dB dB	- -	27.0 27.0	- -
L - I Isolation	2150 MHz 2000-2300 MHz	LO Drive = +17 dBm RF Level = -10 dBm	dB dB	- -	28.0 28.0	- -
R - I Isolation	2150 MHz 2000-2300 MHz	LO Drive = +17 dBm RF Level = -10 dBm	dB dB	- -	17.0 17.0	- -
LO VSWR	2150 MHz 2000-2300 MHz	LO Drive = +17 dBm RF Level = -10 dBm	Ratio	- -	1.8:1 1.8:1	- -
RF VSWR	2150 MHz 2000-2300 MHz	LO Drive = +17 dBm RF Level = -10 dBm	Ratio	- -	2.5:1 2.5:1	- -
IF VSWR	DC - 300 MHz	LO Drive = +17 dBm RF Level = -10 dBm	Ratio	- -	1.4:1 -	-
Input IP3	2150 MHz 2000-2300 MHz	LO Drive = +17 dBm IF = 60 MHz	dBm dBm	25 25	29.0 29.0	- -
Input 1 dB Compression	2150 MHz 2000-2300 MHz	LO Drive = +17 dBm IF = 60 MHz	dBm dBm	- -	13.0 13.0	- -
IF 1 dB Bandwidth	DC-300 MHz	LO = 2150 MHz @ +17 dBm	MHz	0	-	300

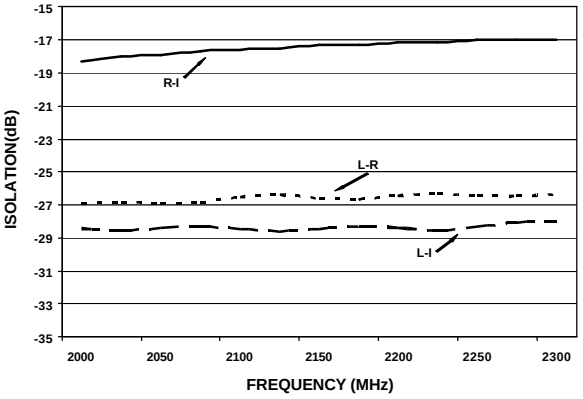
- **North America:** Tel. (800) 366-2266
- **Asia/Pacific:** Tel.+81-44-844-8296, Fax +81-44-844-8298
- **Europe:** Tel. +44 (1908) 574 200, Fax+44 (1908) 574 300

Typical Performance Curves (LO Drive = +17 dBm, RF = -10 dBm, IF = 60 MHz)

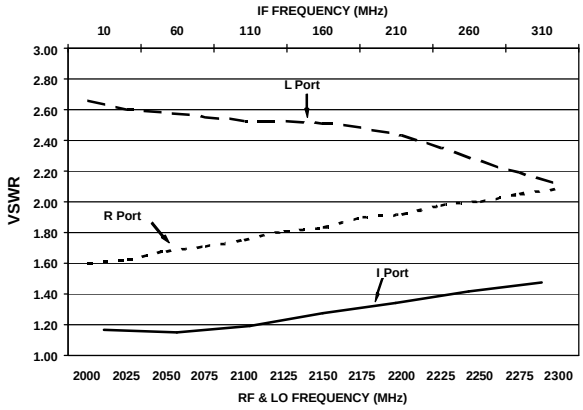
Conversion Loss



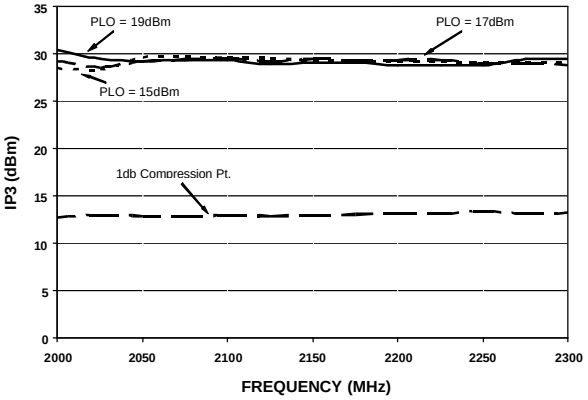
Isolation



VSWR



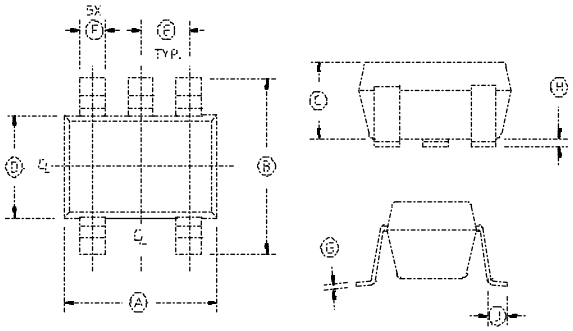
INPUT IP3 & 1 dB Compression Power



- **North America:** Tel. (800) 366-2266
- **Asia/Pacific:** Tel.+81-44-844-8296, Fax +81-44-844-8298
- **Europe:** Tel. +44 (1908) 574 200, Fax+44 (1908) 574 300

Case Style - SOT-25

SOT-25



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.