

# GaAs MMIC Double Balanced 24 GHz Mixer

MA4EX2401

## Features

- Useable Bandwidth of Operation : 20 - 26 GHz
- +20 dbm Typical Input IP3
- 8 dB Typical Conversion Loss at 24 GHz
- +13 to +17 dBm LO Drive
- IF Bandwidth : 500 MHz - 6000 MHz
- GaAs Schottky Diodes for Excellent Repeatability

## Description

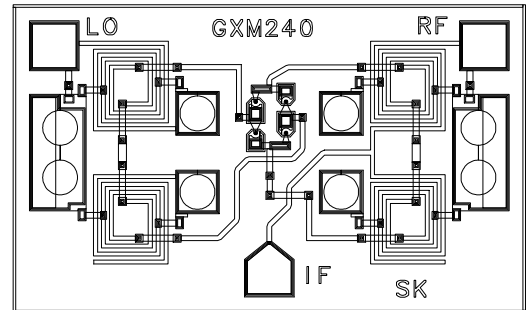
M/A-COM's MA4EX2401 is a Passive GaAs MMIC Schottky Diode Double Balanced Mixer designed for 24 GHz Operation.

The GaAs Quad Schottky diodes are fabricated on OMCVD epitaxial wafers using a process designed for repeatable electrical characteristics and extremely low parasitics. These Diodes are fully passivated with Silicon Nitride and have an additional layer of Polyamide for scratch protection. This protective coating prevents damage to the junction during automated, or manual handling; which makes them suitable for pick and place insertion.

## Applications

These mixers are well suited for high volume Automotive Radar applications where small size and exceptional performance are required. Typical applications include frequency conversion (Up/Down Converters).

## Chip Layout



## Absolute Maximum Ratings<sup>1</sup>

Parameter	Maximum Ratings
Operating Temperature	-65 °C to +125 °C
Storage Temperature	-65 °C to +150 °C
Incident LO Power	+17 dBm
Incident RF Power	+17 dBm

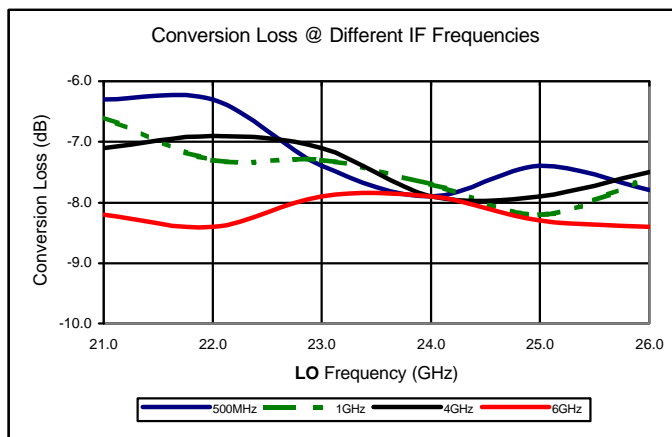
1. Exceeding these limits may cause permanent damage.

## Electrical Specifications: @ + 25 °C

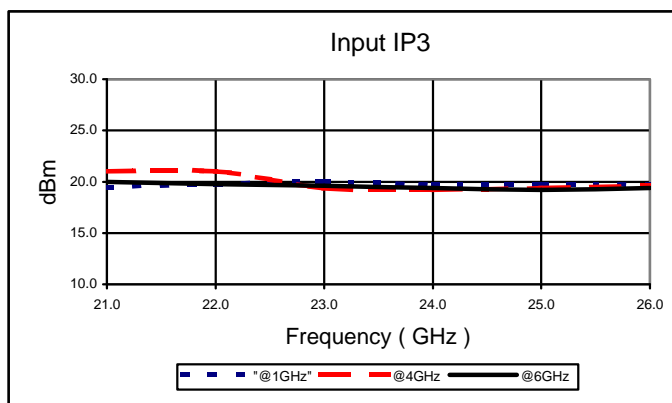
Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	20-26 GHz	LO Drive = +13 dBm IF = 500 MHz - 6000 MHz	dB		8.0	9.0
L - R Isolation	20-26 GHz	LO Drive = +13 dBm IF = 500 MHz - 6000 MHz	dB		30.0	
L - I Isolation	20-26 GHz	LO Drive = +13 dBm IF = 500 MHz - 6000 MHz	dB		25.0	
R - I Isolation	20-26 GHz	LO Drive = +13 dBm IF = 500 MHz - 6000 MHz	dB		9.0	
Input IP3	20-26 GHz	LO Drive = +13 dBm IF = 500 MHz - 6000 MHz	dBm		18.0	
Input 1 dB Compression	20-26 GHz	LO Drive = +13 dBm IF = 500 MHz - 6000 MHz	dBm		10.5	

Typical Performance Curves (LO Drive = +13 dBm, RF = -10 dBm)

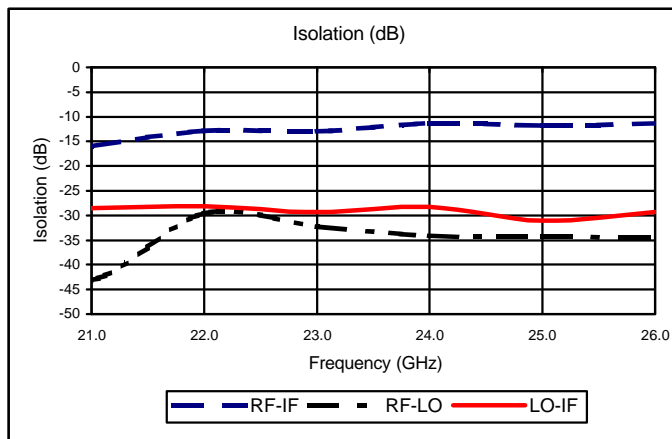
Conversion Loss



Input IP3



Isolation

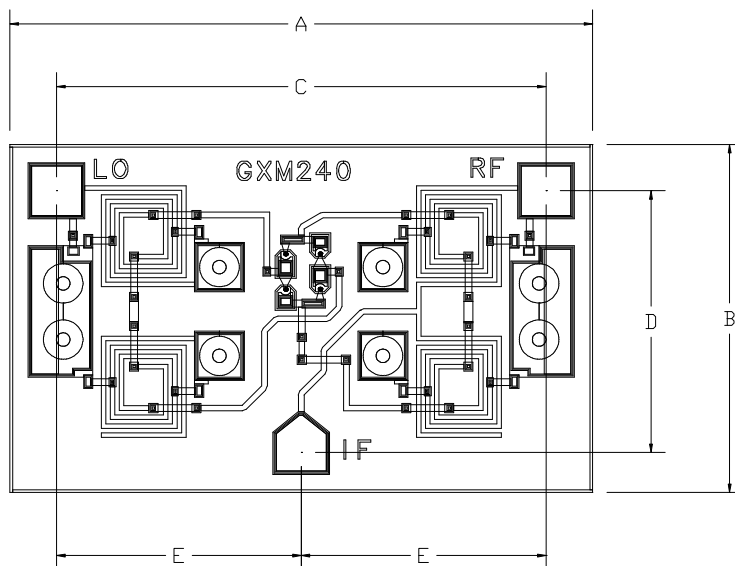


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MA4EX2401 Outline



Dimensions

Dim	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	0.038	0.042	0.98	1.08
B	0.022	0.026	0.57	0.67
C	0.033	0.034	0.860	0.870
D	0.018	0.018	0.461	0.471
E	0.016	0.017	0.427	0.437
Thickness	.004 mils			