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# HA22039

## GaAs IC Low Distortion Mixer for Micro Wave Application

# HITACHI

ADE-207-271 (Z)  
Preliminary  
1st. Edition  
August 1999

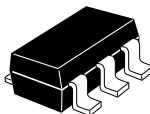
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### Features

- Suitable for low distortion of Micro Wave Application
- Low voltage and low current operation (3V, 7mA typ.)
- Low insertion loss (1.0 dB typ. @800MHz)
- Small surface mount package (MPAK-6)

### Outline

MPAK-6



This Device is sensitive to Electro Static Discharge.  
An Adequate handling procedure is requested.

### CAUTION

This product uses GaAs. Since dust or fume of GaAs is highly poisonous to human body, please do not treat them mechanically in the manner which might expose to the Air. And it should never be thrown out with general industrial or domestic wastes.

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## Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Supply voltage	Vdd	5	V
Maximum current	Idd	60	mA
Power dissipation	Pd	100	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +125	°C
Operation temperature	Topr	-30 to +85	°C

## Electrical Characteristics (Ta = 25°C, Vdd = 3V, Idd = 7mA)

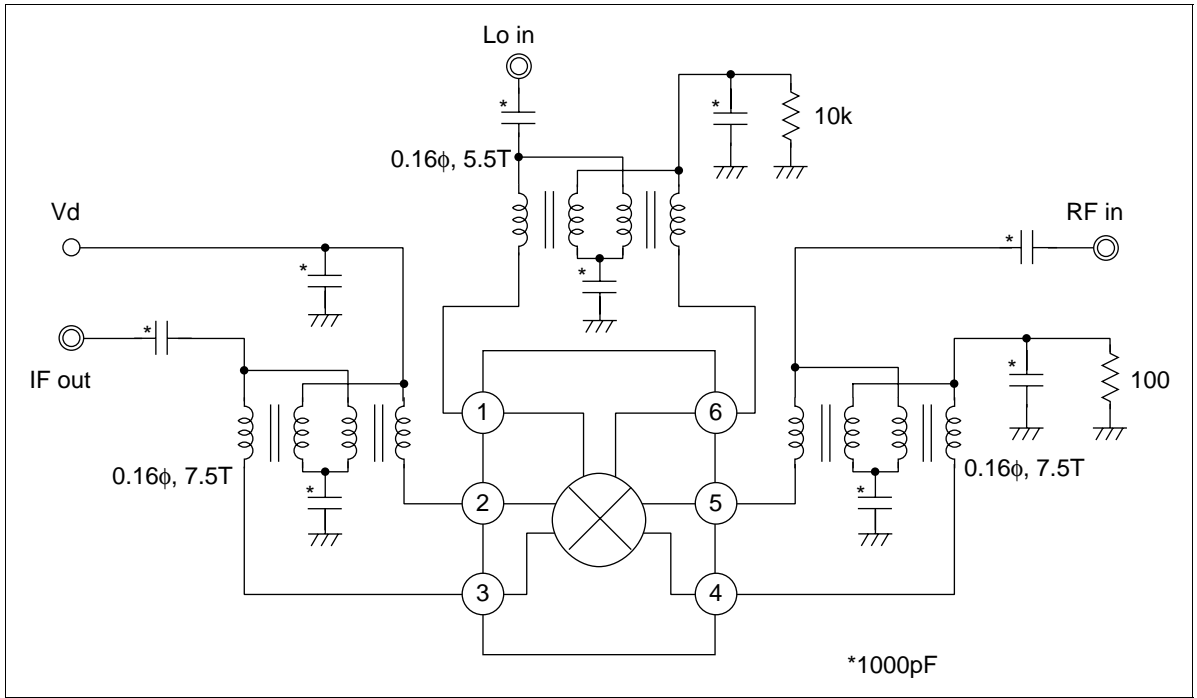
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Insertion loss	CL	0	1	3	dB	f = 800 MHz, PRF = -10dBm, Plo = 0dBm

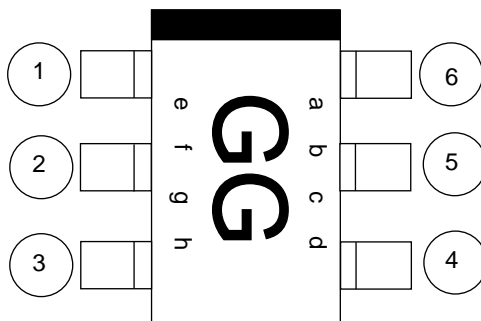
## Typical Performance (Ta = 25°C, Vdd = 3V, Idd = 7mA)

Item	Symbol	Typ	Unit	Test Conditions
3rd order input intercept point	IP3in	12	dBm	f = 800 MHz, PRF = -10dBm, Plo = 0dBm
Noise Figure (DSB)	NF	7	dB	

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Block Diagram



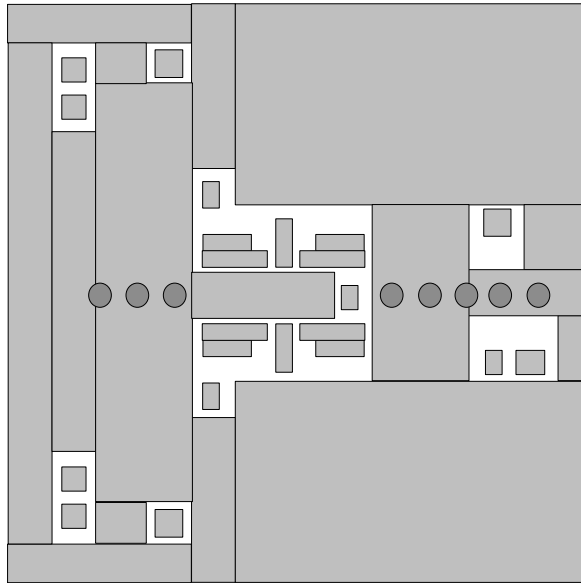
**Pin Arrangement**

Top View

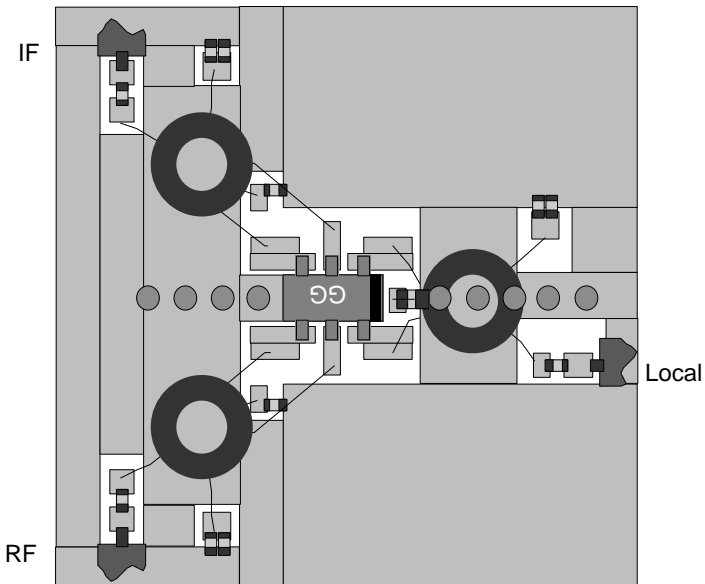
GG : Mark Type  
a to d : Year Code (variable)  
e to f : Monthly Code (variable)

Pin No.	Pin name	Function
1	G1	Gate
2	D1	Drain
3	D2	Drain
4	S2	Source
5	S1	Source
6	G2	Gate

Pattern Layout

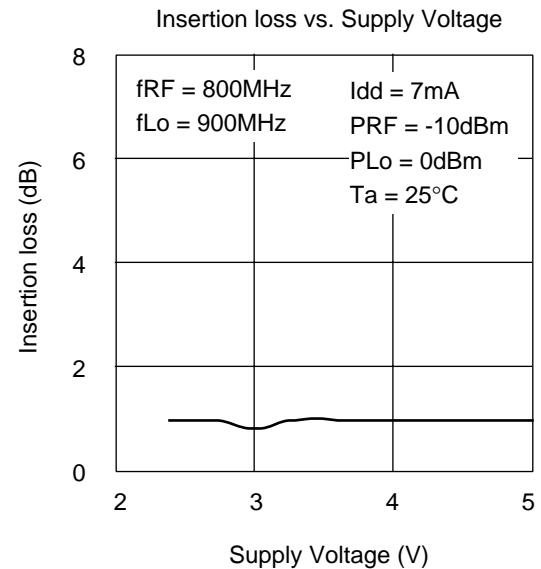
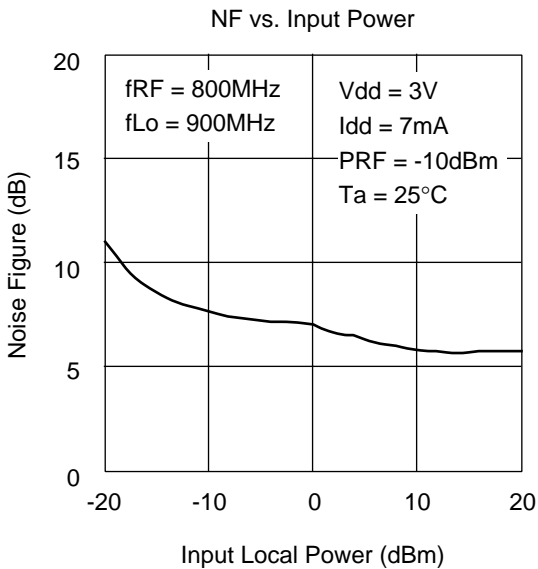
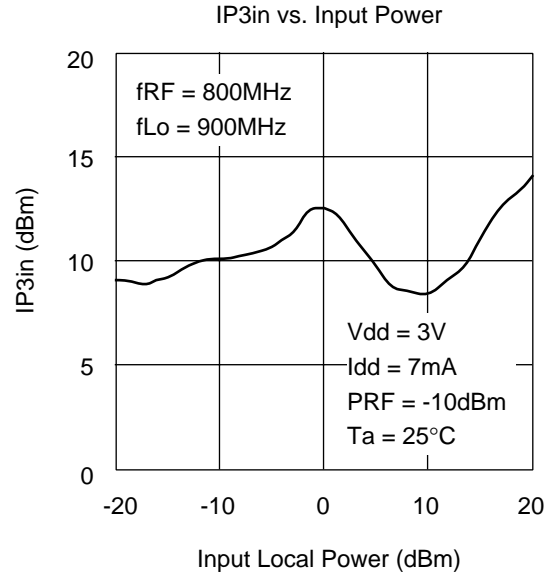
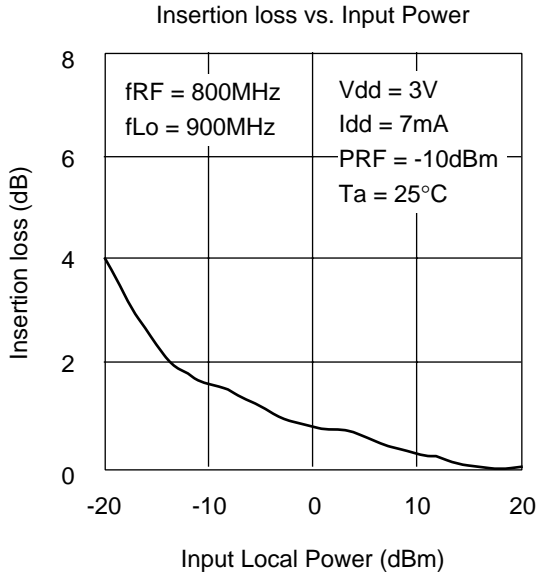


Front Side view of PCB Pattern

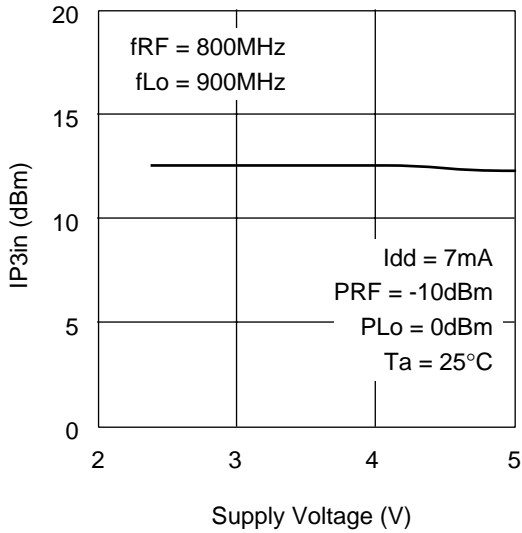


Front Side view of Part Layout

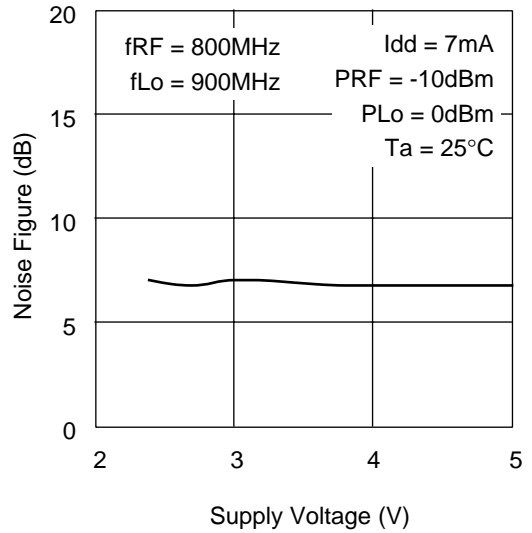
## Main Characteristics



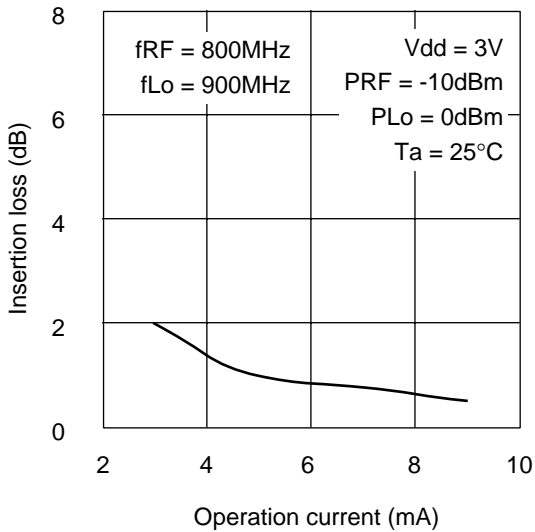
IP3in vs. Supply Voltage



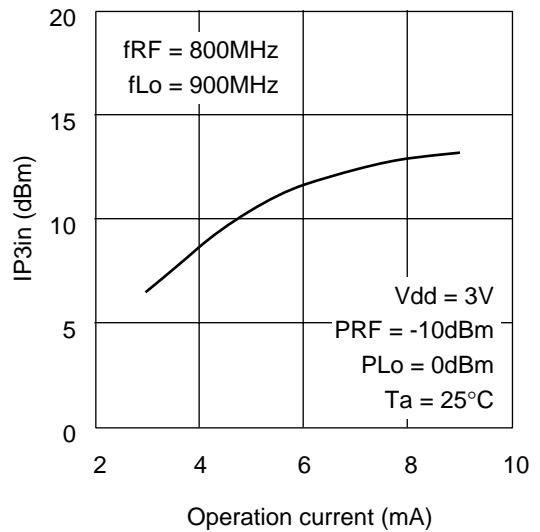
NF vs. Supply Voltage



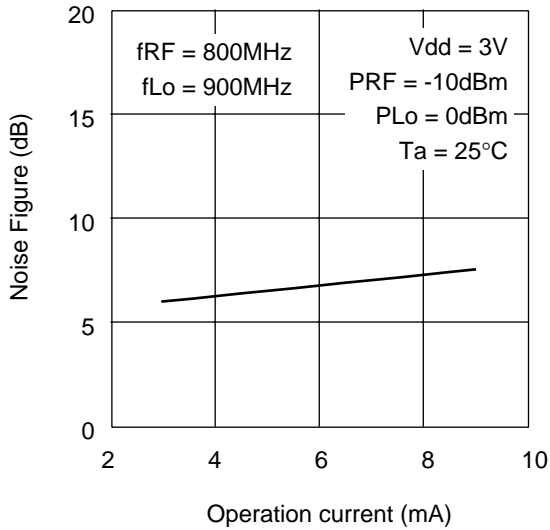
Insertion loss vs. Operation current



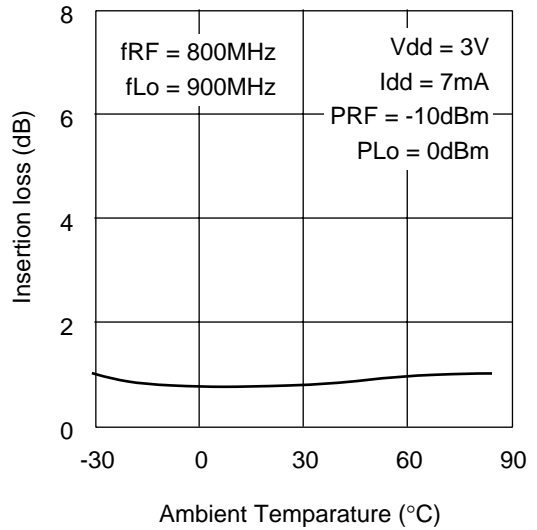
IP3in vs. Operation current



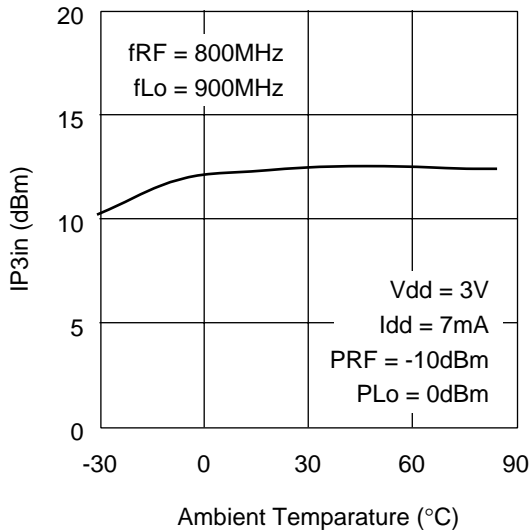
NF vs. Operation current



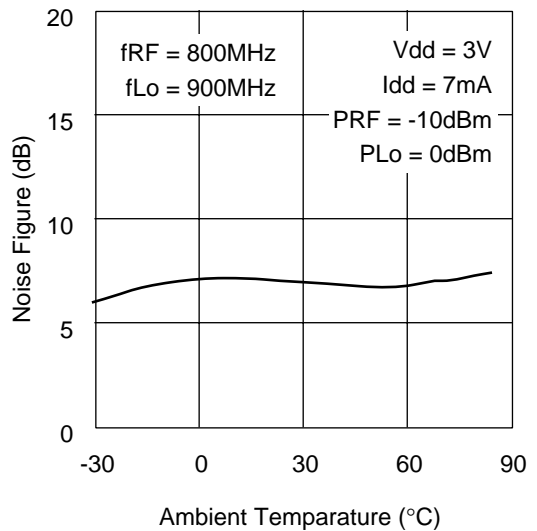
Insertion loss vs. Temperature



IP3in vs. Temperature

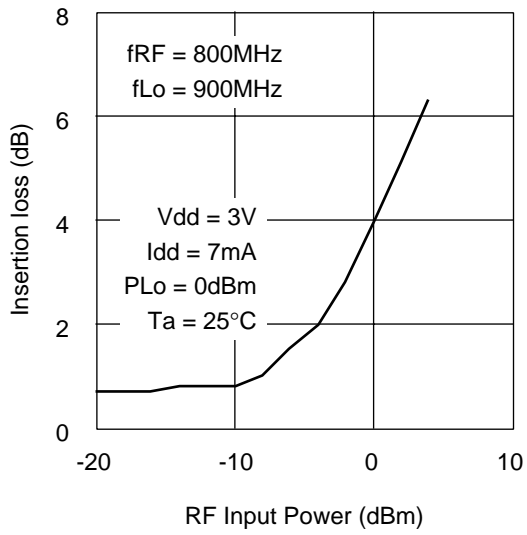


NF vs. Temperature

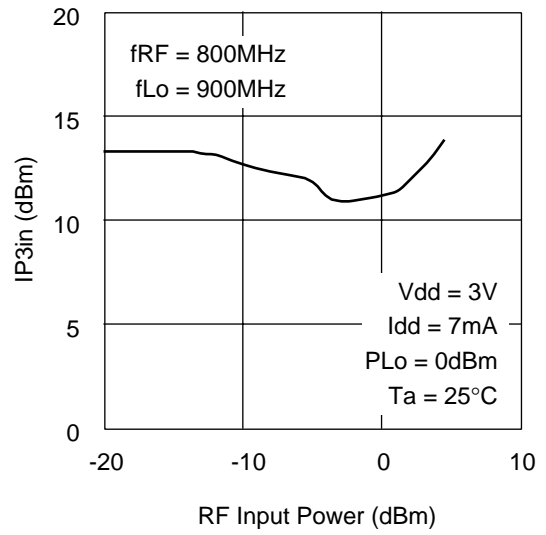




Insertion loss vs. Input Power



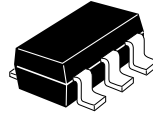
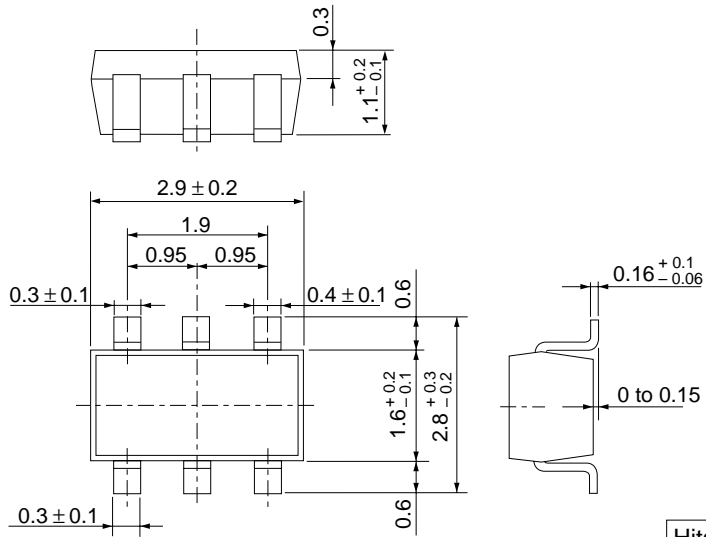
IP3in vs. Input Power



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## Package Dimentions

Unit: mm



Hitachi Code	MPAK-6
EIAJ	—
JEDEC	—

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