HA22032T

GaAs MMIC
Down Converter for Micro Wave Application

HITACHI

ADE-207-259 (Z)
1st. Edition
May 1998

Features

- Suitable for down converter of Micro Wave Application(1.5 GHz)
- Low voltage and low current operation (3V, 9 mA typ.)
- Low noise (2 dB typ. @1.5 Ghz)
- High power gain (26 dB typ. @1.5 GHz)
- Built–in matching circuits (50 Ω)
- Small surface mount package (TSSOP-8)

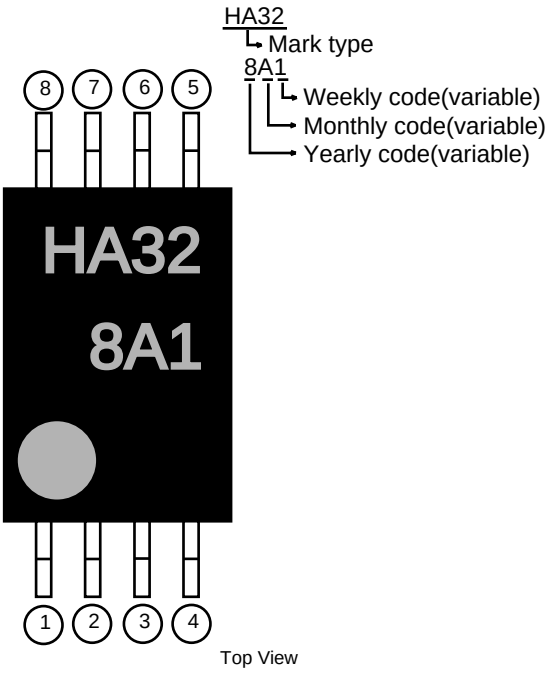
Outline

TTP-8D

This document may, wholly or partially, be subject to change without notice.

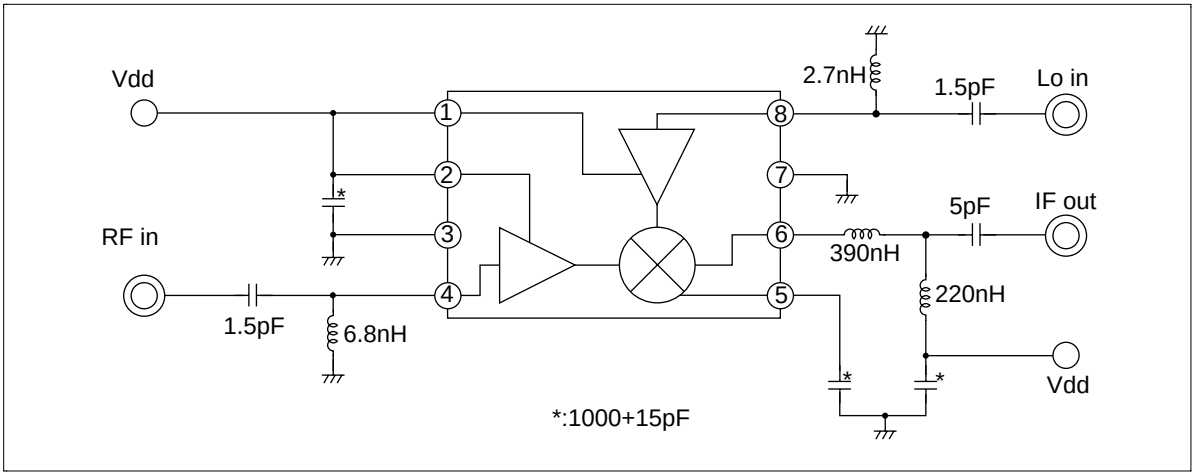
This Device si sensitive to Electro Static Discharge.
An Adequate handling procedure is requested.

Pin Arrangement



Pin No.	Pin name	Function
1	Vddlo	Power supply (Lo)
2	Vddln	Power supply (LNA)
3	GND	Ground
4	RF in	RF input
5	Cs	Bypath capacitor (>100 pF)
6	IF out	IF output
7	GND	Ground
8	Lo in	Local input

Block Diagram



Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Supply voltage	Vdd	5	V
Maximum current	Idd	15	mA
Power dissipation	Pd	100	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +125	°C
Operation temperature	Topr	–20 to +70	°C
Maximum input power	Pin max	+18	dBm

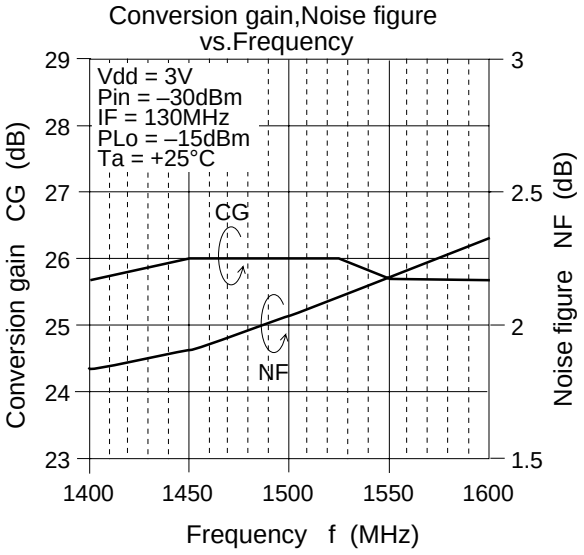
Electrical Characteristics (Ta = 25°C, Vdd = 3V)

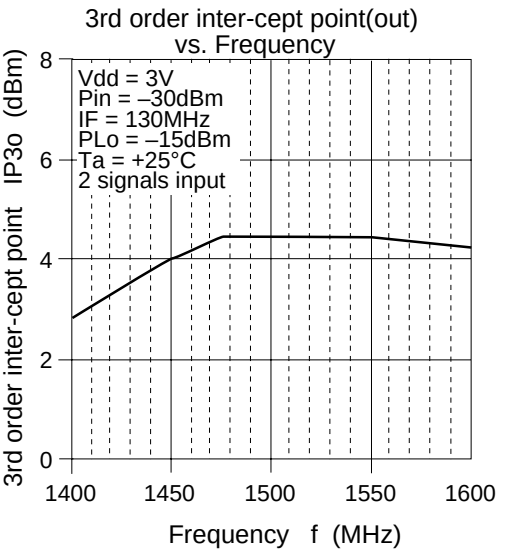
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Quiescent current	Idd	5	9	12	mA	No signal
Power gain	PG	23	26	29	dB	f = 1489 Mhz, fLo = 1619 Mhz, Plo = –15 dBm, IF = 130 Mhz, Pin = –30dBm
Noise figure	NF	—	2	3	dB	f = 1489 Mhz, fLo = 1619 Mhz, Plo = –15 dBm, IF = 130 MHz

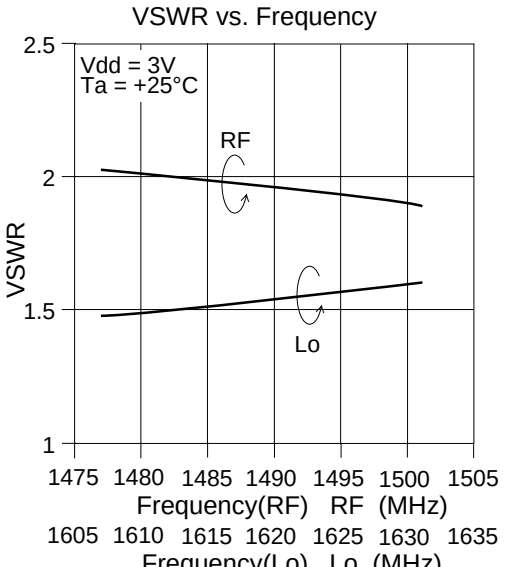
Typical Performance (Ta = 25°C, Vdd = 3V)

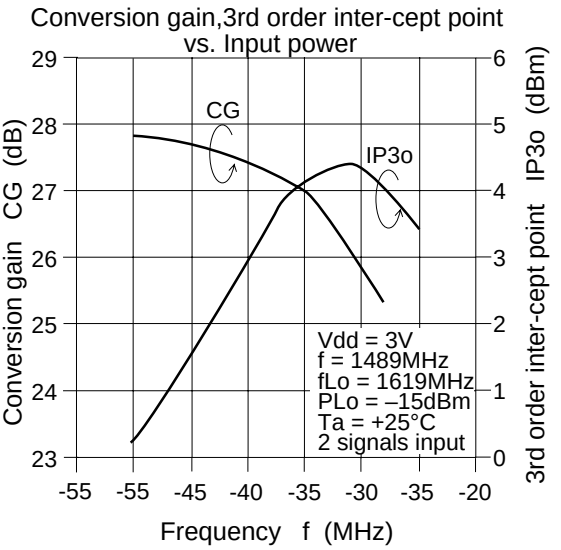
Item	Symbol	Typ	Unit	Test Conditions
VSWR (input)	VSWR in	2	—	f = 1.489 GHz
3rd order inter-cept point	IP3o	+4	dBm	f = 1.489 GHz, fud =1.490 Ghz, Pin = –30 dBm, fLo = 1.619 Ghz, Plo = –15 dBm

Main Characteristics

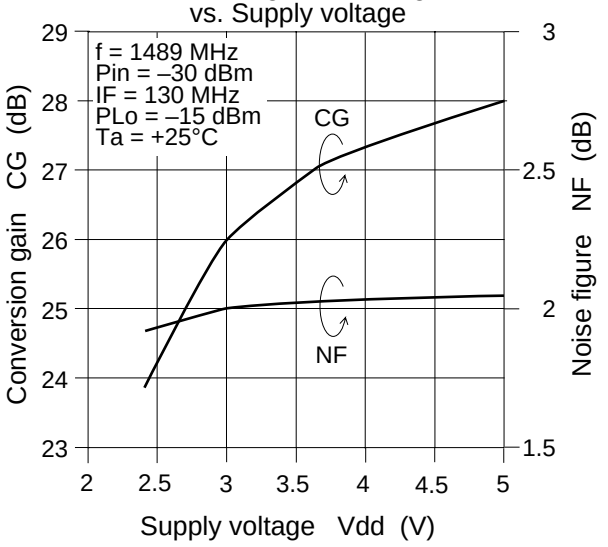




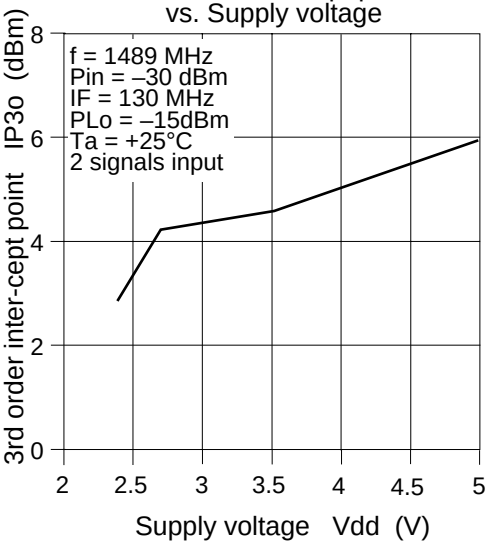




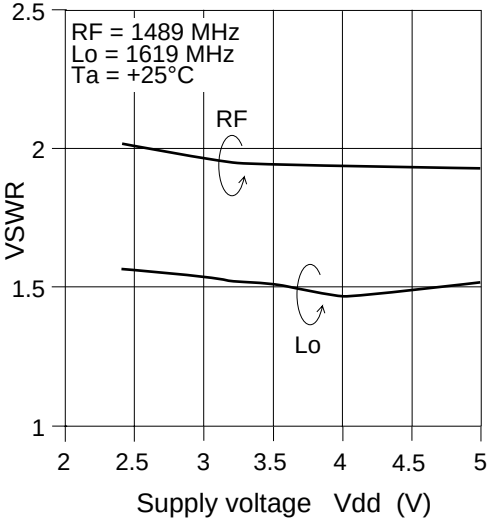
Conversion gain,Noise figure
vs. Supply voltage



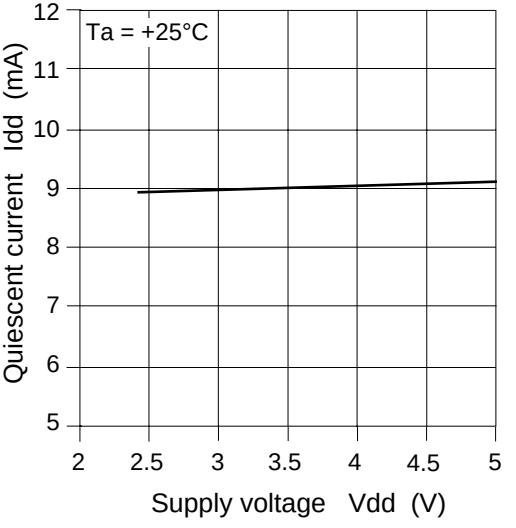
3rd order inter-cept point
vs. Supply voltage



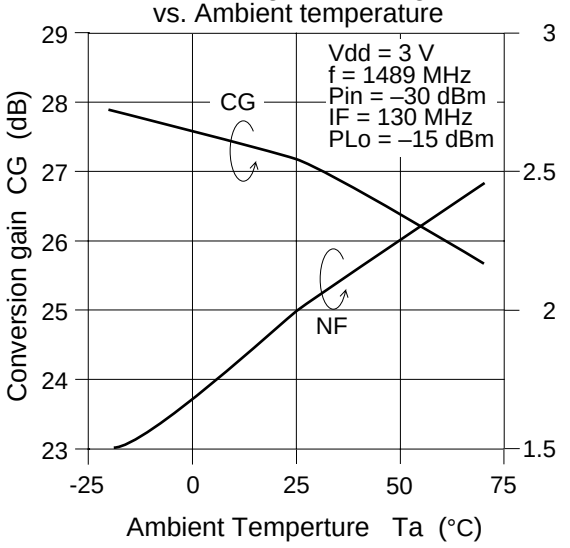
VSWR vs. Supply voltage



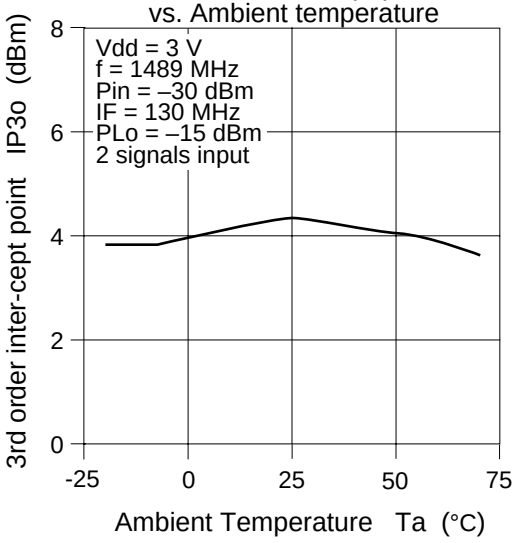
Quiescent current vs. Supply voltage



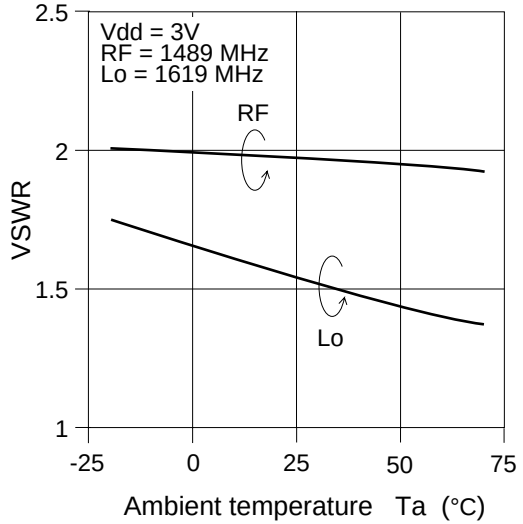
Conversion gain,Noise figure
vs. Ambient temperature



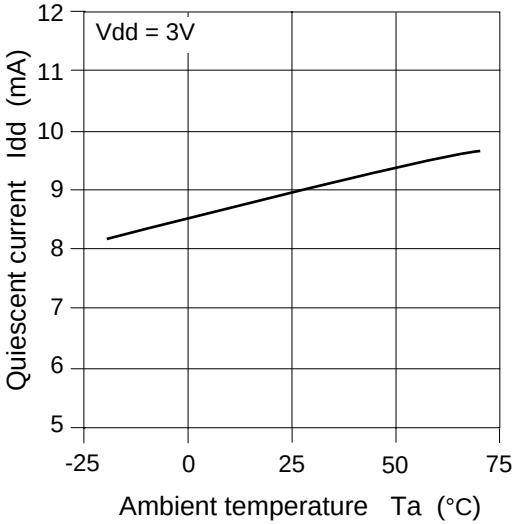
3rd order inter-cept point
vs. Ambient temperature

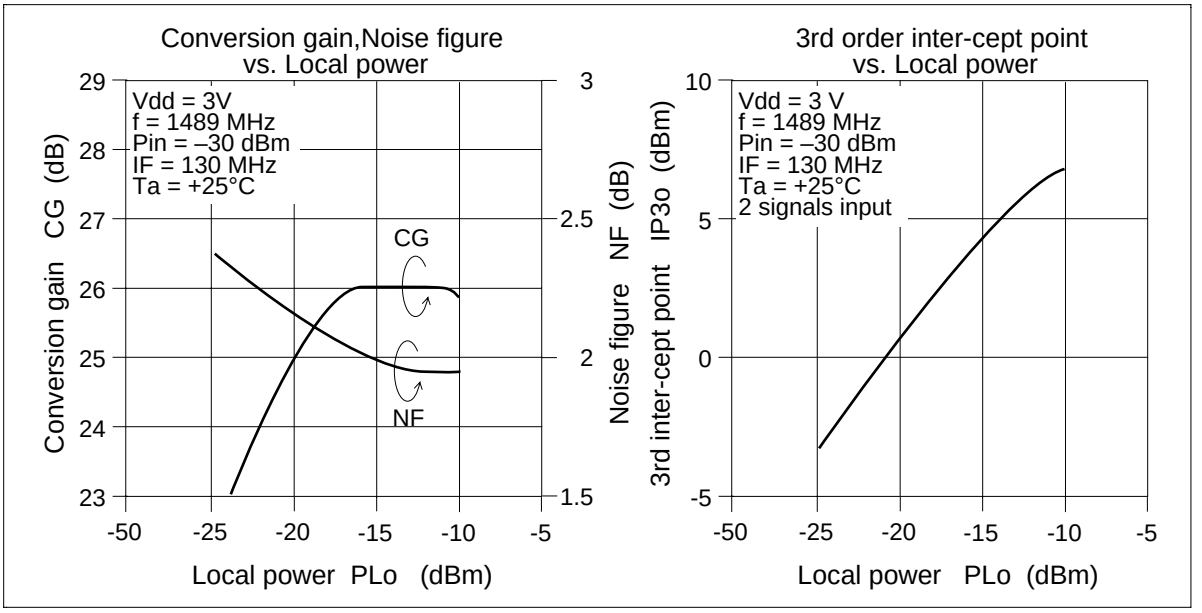


VSWR vs. Ambient temperature



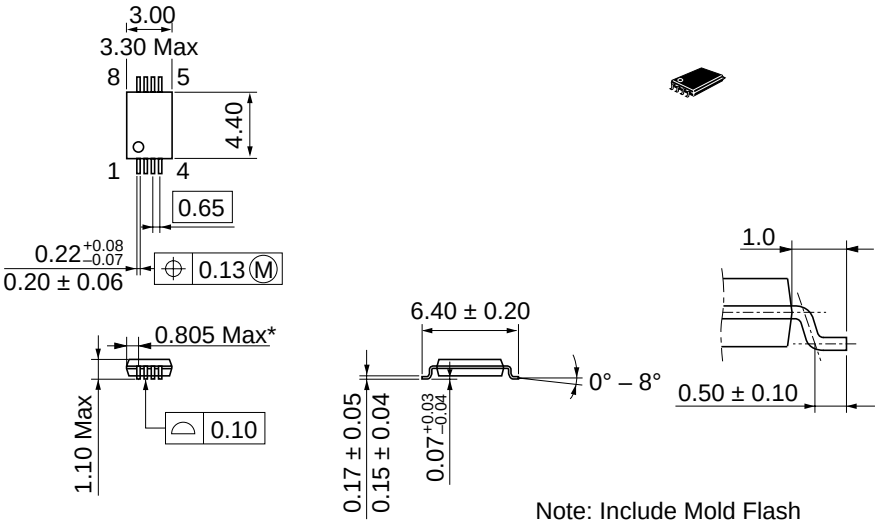
Quiescent vs. Ambient temperature




Conversion gain,Noise figure
vs. Local power
Vdd = 3V
f = 1489 MHz
Pin = –30 dBm
IF = 130 MHz
Ta = +25°C
CG
NF
Conversion gain CG (dB)
Noise figure NF (dB)
Local power PLo (dBm)
29
28
27
26
25
24
23
3
2.5
2
1.5
-50
-25
-20
-15
-10
-5
3rd order inter-cept point
vs. Local power
Vdd = 3 V
f = 1489 MHz
Pin = –30 dBm
IF = 130 MHz
Ta = +25°C
2 signals input
3rd inter-cept point IP3o (dBm)
Local power PLo (dBm)
10
5
0
-5

Package Dimentions

Unit: mm



Note: Include Mold Flash

Hitachi Code	TTP-8D
JEDEC	—
EIAJ	—
Weight (reference value)	—

Dimension including the plating thickness
Base material dimension

Cautions

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