
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

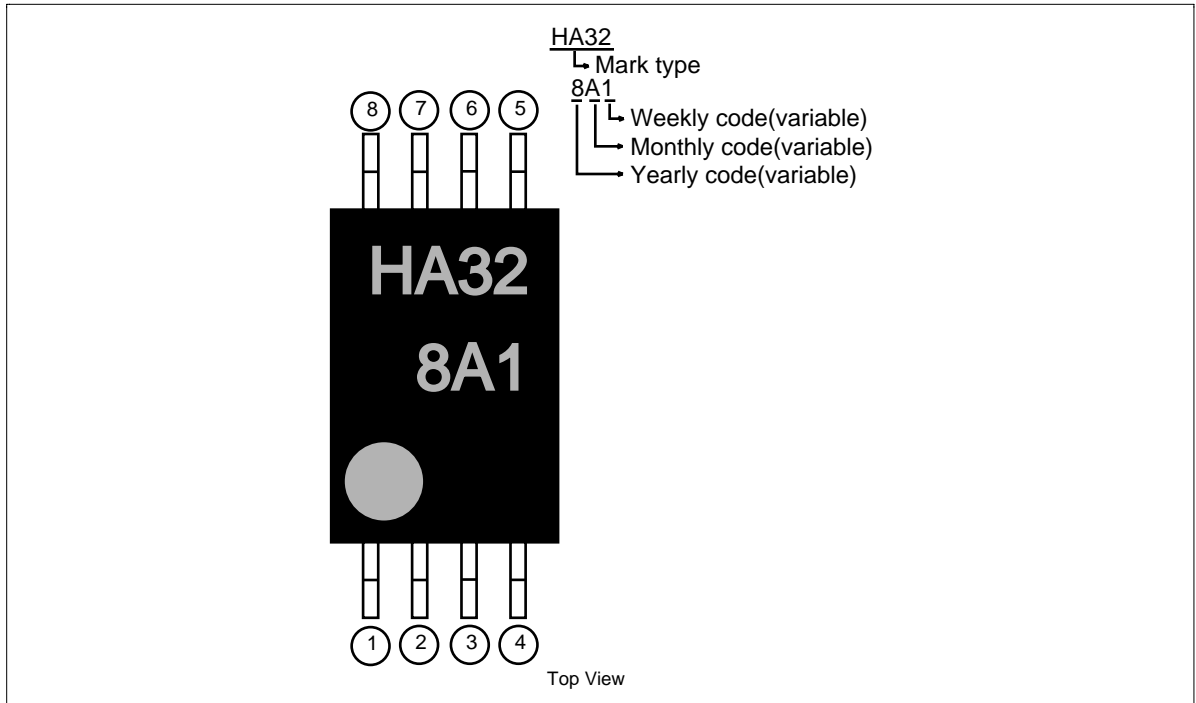


This document may, wholly or partially, be subject to change without notice.

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

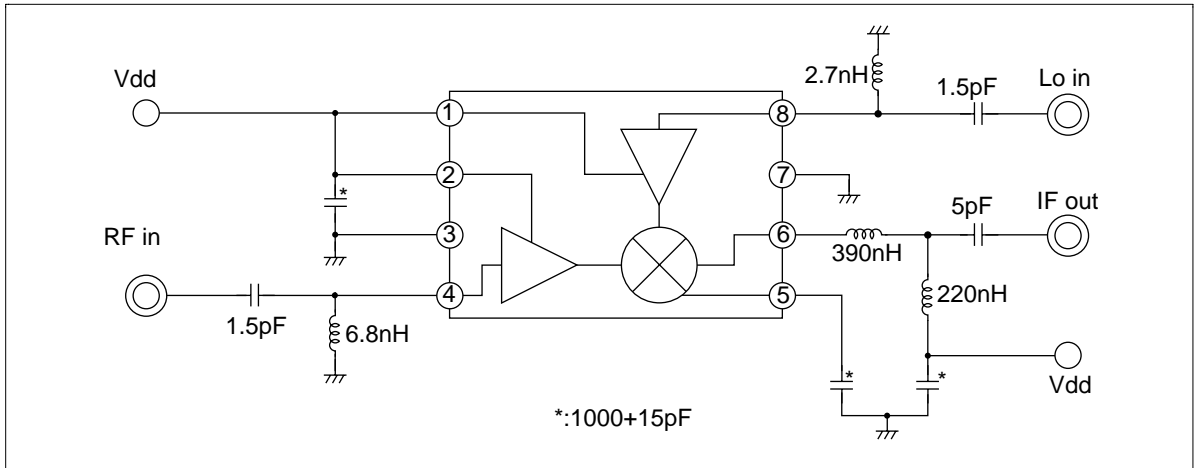
HA22032

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 | Bypass capacitor (>100 pF) |
| 6 | IF out | IF output |
| 7 | GND | Ground |
| 8 | Lo in | Local input |

Block Diagram



HA22032

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 |

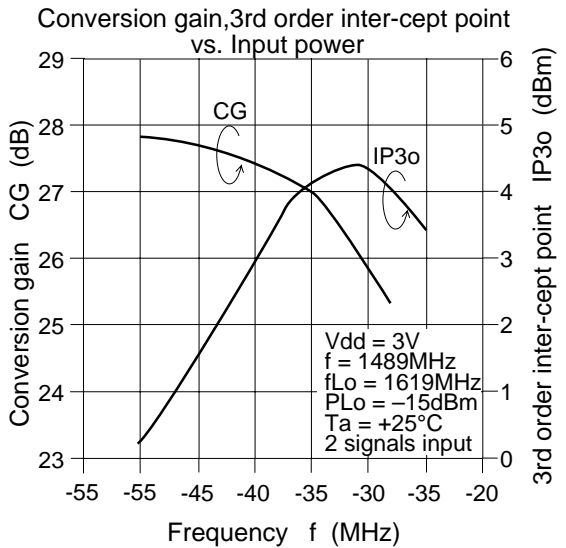
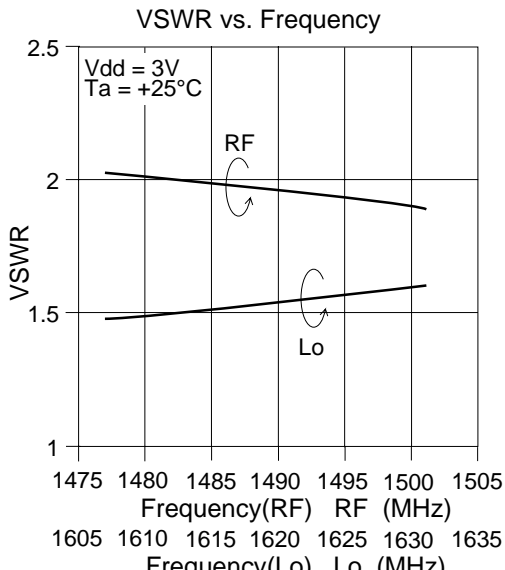
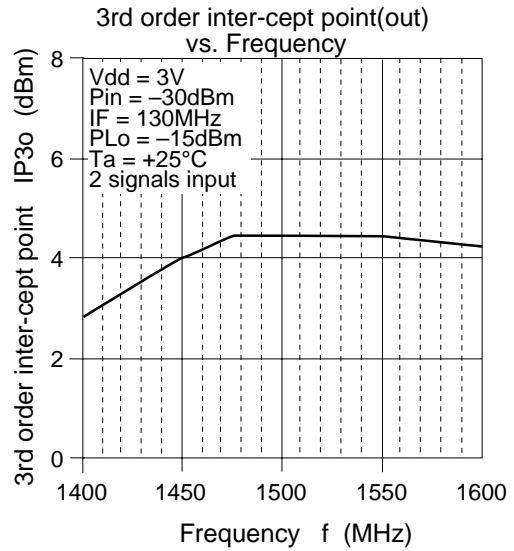
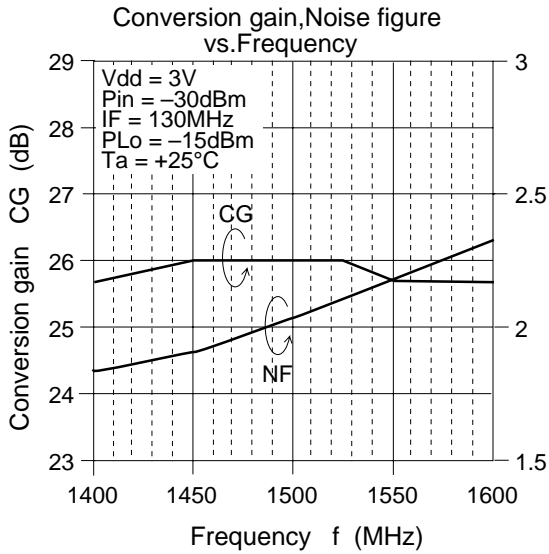
Electrical Characteristics (Ta = 25°C, Vdd = 3V)

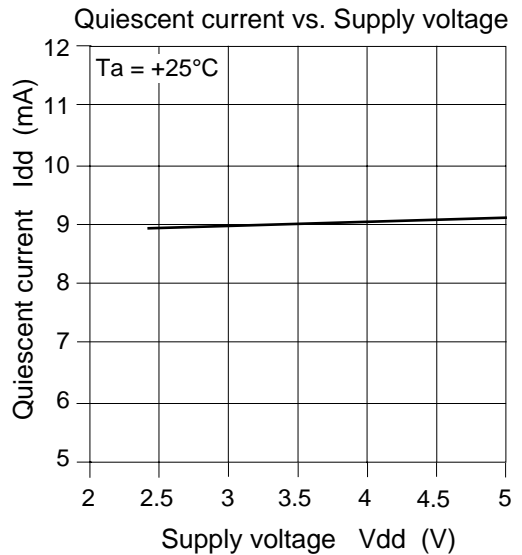
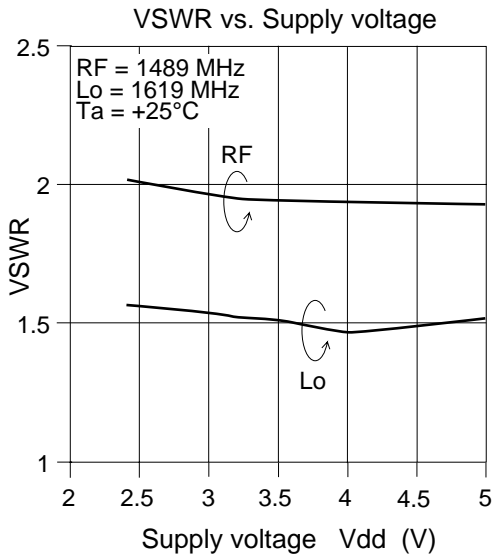
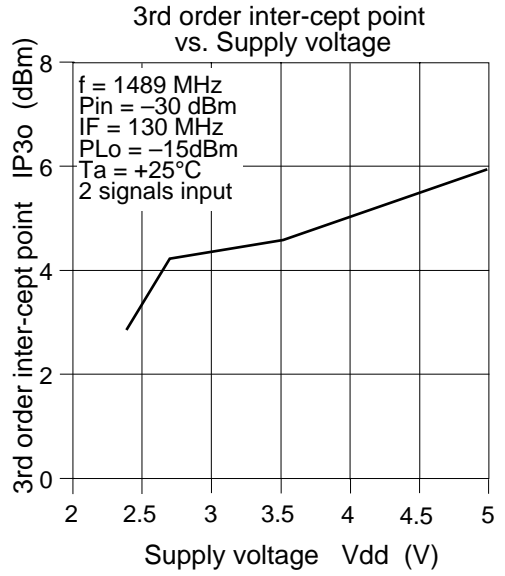
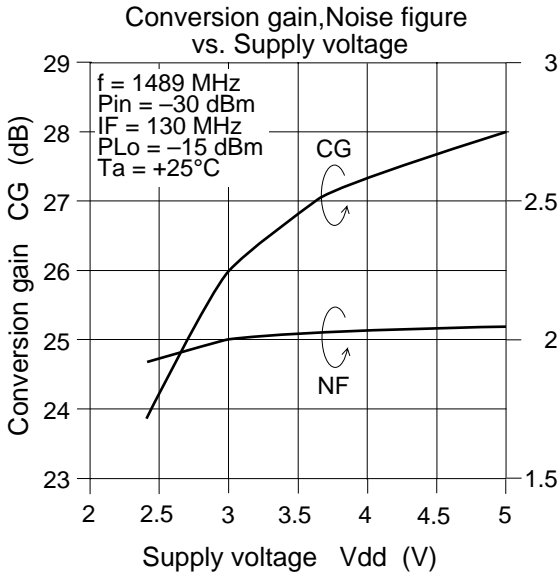
| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|-------------------|--------|-----|-----|-----|------|---|
| Quiescent current | Idd | 5 | 9 | 12 | mA | No signal |
| Power gain | PG | 23 | 26 | 29 | dB | f = 1489 Mhz, fLo = 1619 Mhz, Plo = -15 dBm, IF = 130 Mhz, Pin = -30dBm |
| Noise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

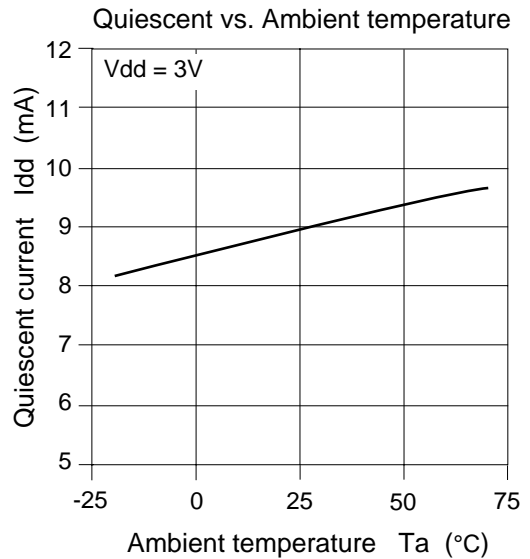
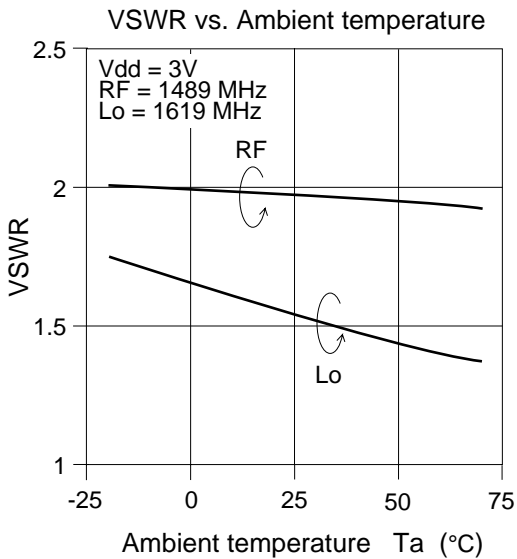
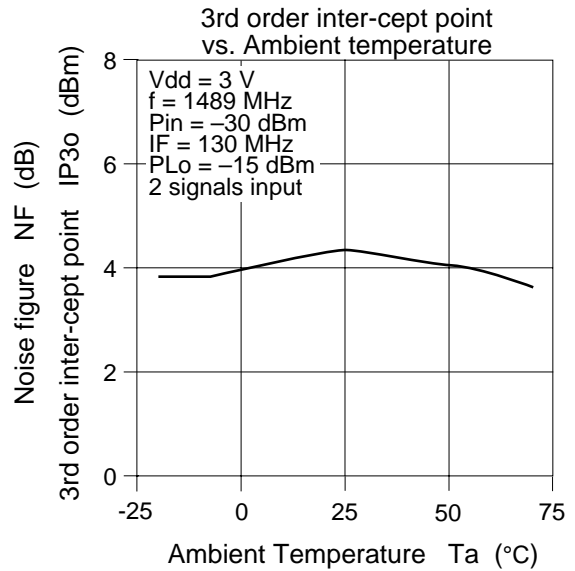
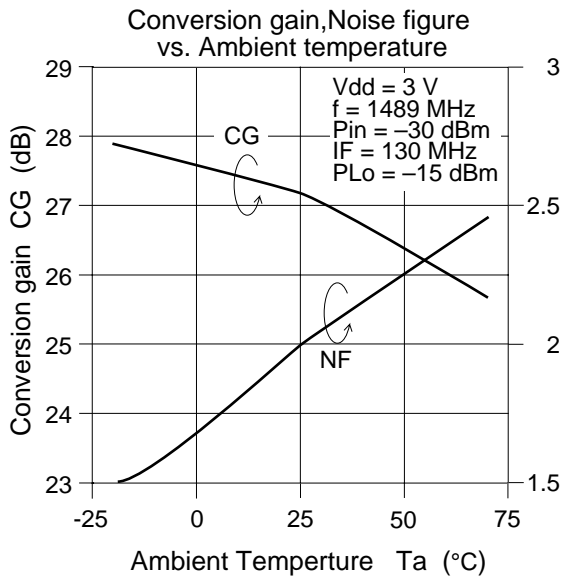
Typical Performance (Ta = 25°C, Vdd = 3V)

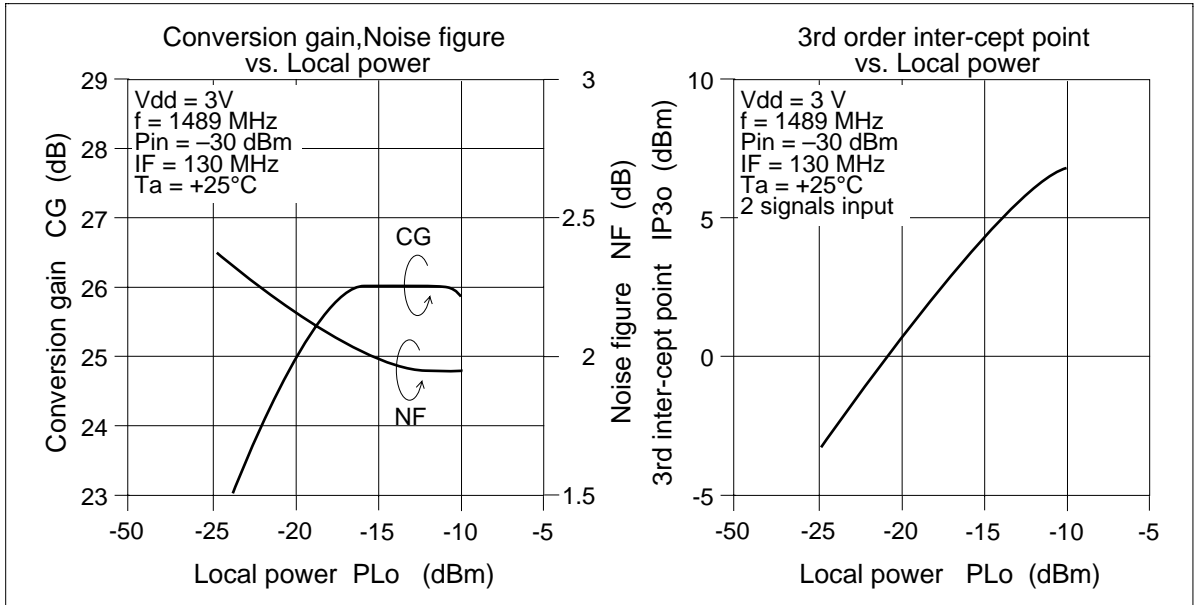
| Item | Symbol | Typ | Unit | Test Conditions |
|----------------------------|------------|-----|------|---|
| VSWR (input) | VSWR in | 2 | — | f = 1.489 GHz |
| 3rd order inter-cept point | IP3o | +4 | dBm | f = 1.489 GHz, fud = 1.490 GHz, Pin = -30 dBm, fLo = 1.619 GHz, Plo = -15 dBm |

Main Characteristics



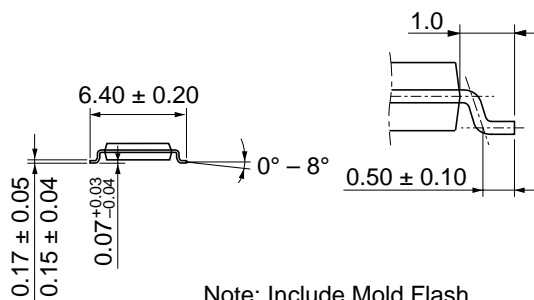
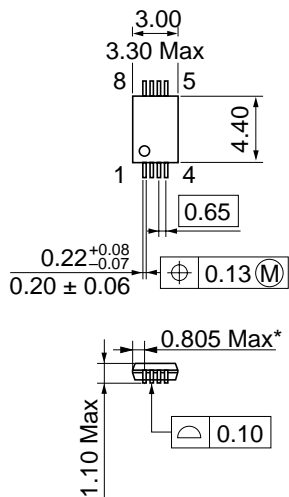






Package Dimentions

Unit: mm



Note: Include Mold Flash

Dimension including the plating thickness
Base material dimension

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

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