

GaAs MMIC SUB-HARMONIC SMT MIXER, 24 - 34 GHz

Typical Applications

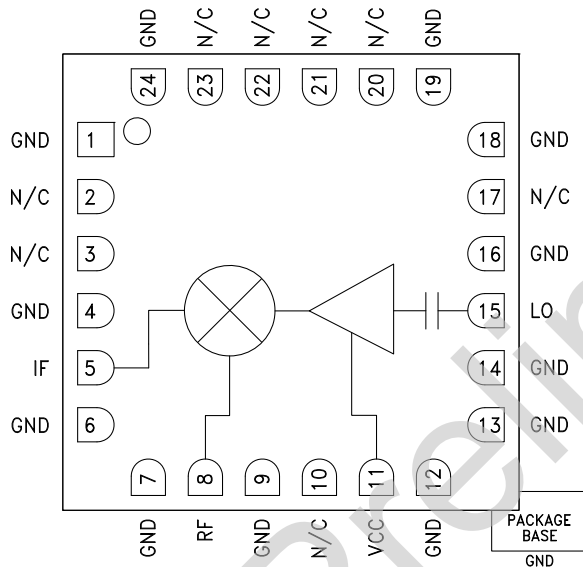
The HMC798ALC4 is ideal for:

- Point-to-Point Radios
- Point-to-Multi-Point Radios & VSAT
- Test Equipment & Sensors
- Military End-Use
- SATCOM

Features

- Integrated LO Amplifier: +4 dBm Input
- Sub-Harmonically Pumped (x2) LO
- Wideband IF: DC - 4 GHz
- Single Positive Supply: +5V @ 95mA
- 24 Lead 4x4mm SMT Package: 16mm²

Functional Diagram



General Description

The HMC798ALC4 is a 24 - 34 GHz Sub-harmonically Pumped (x2) MMIC Mixer with an integrated LO amplifier in a leadless RoHS compliant SMT package. The 2LO to RF isolation is excellent at 30 dB, eliminating the need for additional filtering. The LO amplifier is a single bias +5V design with a nominal +4 dBm drive requirement. The RF and LO ports are matched to 50 Ohms for ease of use while the IF covers DC to 4 GHz. The HMC798ALC4 eliminates the need for wire bonding, allowing use of surface mount manufacturing techniques.

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{CC} = 5\text{V}$

| Parameter | IF = 1 GHz LO = 4 dBm | | | IF = 1 GHz LO = 4 dBm | | | Units |
|-----------------------------------|--------------------------|------|------|--------------------------|------|------|-------|
| | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| Frequency Range, RF | 24 - 29.5 | | | 29.5 - 34 | | | GHz |
| Frequency Range, LO | 12 - 16 | | | 13.5 - 17.75 | | | GHz |
| Frequency Range, IF | DC - 4 | | | DC - 4 | | | GHz |
| Conversion Loss | | 11 | 13 | | 10 | 12 | dB |
| 2LO to RF Isolation | 25 | 30 | | 20 | 25 | | dB |
| 2LO to IF Isolation | | 45 | | | 35 | | dB |
| IP3 (Input) | 17 | 20 | | 19 | 22 | | dBm |
| 1 dB Compression (Input) | | 10 | | | 12 | | dBm |
| Supply Current (I _{dd}) | | 95 | 125 | | 95 | 125 | mA |

*Unless otherwise noted, all measurements performed as upconverter, IF = 1 GHz, LO = 4 dBm

HMC798A* PRODUCT PAGE QUICK LINKS

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COMPARABLE PARTS

View a parametric search of comparable parts.

DOCUMENTATION

Data Sheet

- HMC798ALC4: GaAs MMIC Sub-Harmonic SMT Mixer, 24 - 34 GHz Preliminary Data Sheet

DESIGN RESOURCES

- HMC798A Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC798A EngineerZone Discussions.

SAMPLE AND BUY

Visit the product page to see pricing options.

TECHNICAL SUPPORT

Submit a technical question or find your regional support number.

DOCUMENT FEEDBACK

Submit feedback for this data sheet.

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Absolute Maximum Ratings

| | |
|--|----------------|
| RF / IF Input (Vdd = +5V) | +13 dBm |
| LO Drive (Vdd = +5V) | +10 dBm |
| Vdd | 5.5V |
| Channel Temperature | 175 °C |
| Continuous P _{diss} (Ta = 85 °C) (derate 8.33 mW/°C above 85 °C) | 0.75 mW |
| Thermal Resistance (junction to ground paddle) | 119 °C/W |
| Storage Temperature | -65 to +150 °C |
| Operating Temperature | -40 to +85 °C |

MxN Spurious Outputs

@ RF Port, Vdd = 5V

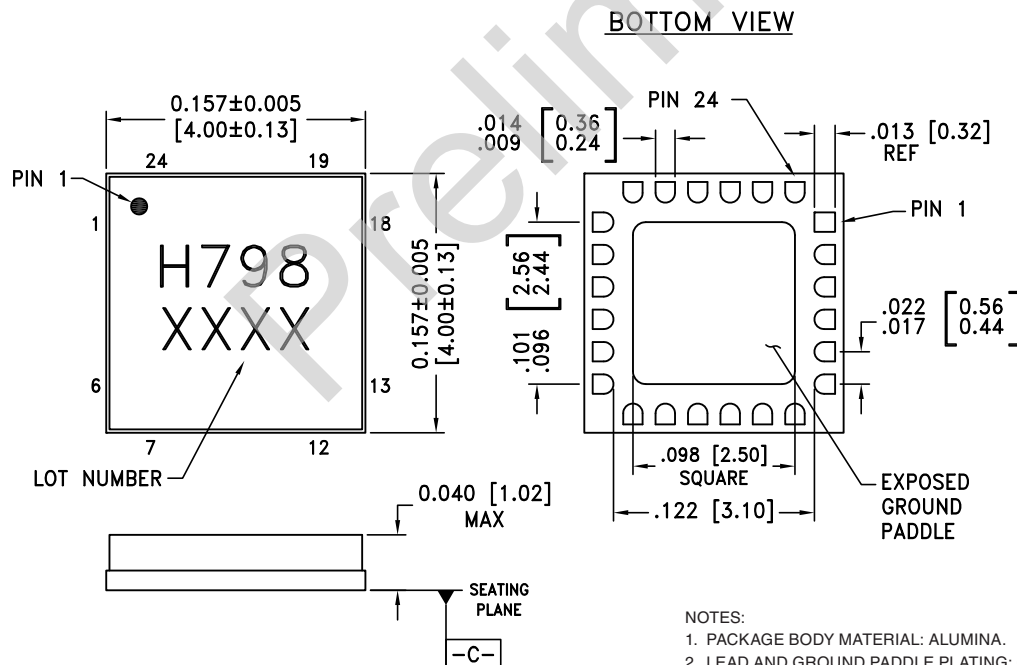
| mIF | nLO | | |
|-----|-----|----|----|
| | 2 | 1 | 0 |
| -3 | 68 | | |
| -2 | 53 | 71 | 66 |
| -1 | 0 | 49 | 32 |
| 0 | 1 | 31 | |
| 1 | 1 | 45 | 31 |
| 2 | 54 | 66 | 65 |
| 3 | 66 | | |

IF = 2 GHz @ -10 dBm
LO = 15 GHz @ 4 dBm
All values in dBc below IF power level (2LO - 1IF)
Measured as upconverter



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

Outline Drawing



NOTES:

1. PACKAGE BODY MATERIAL: ALUMINA.
2. LEAD AND GROUND PADDLE PLATING: GOLD FLASH OVER NICKEL.
3. DIMENSIONS ARE IN INCHES (MILLIMETERS).
4. LEAD SPACING TOLERANCE IS NON-CUMULATIVE.
5. CHARACTERS TO BE HELVETICA MEDIUM, .025 HIGH, BLACK INK, OR LASER MARK LOCATED APPROX. AS SHOWN.
6. PACKAGE WARP SHALL NOT EXCEED 0.05MM DATUM [-C-]
7. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.