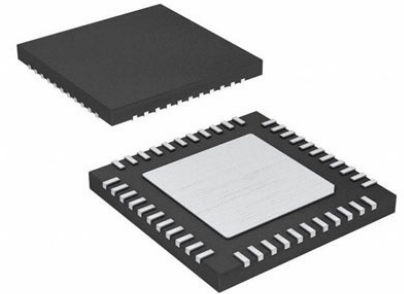


RF Amp Single VGA 2.5GHz±2.625V/5.25V 16-Pin UQFN T/R



Images are for reference only

[Inquiry](#)

Manufacturer: [Texas Instruments, Inc](#)

Package/Case: UQFN-16

Product Type: Amplifier ICs

RoHS: RoHS Compliant/Lead free 

Lifecycle: Active

General Description

The LMH6401 is a wideband, digitally-controlled, variable-gain amplifier (DVGA) designed for dc to radio frequency (RF), intermediate frequency (IF), and high-speed time-domain applications. The device is an ideal analog-to-digital converter (ADC) driver for dc- or ac-coupled applications that require an automatic gain control (AGC).

Noise and distortion performance is optimized to drive ultra-wideband ADCs. The amplifier has an 8-dB noise figure at maximum gain and a -63-dBc harmonic distortion at 1 GHz for full-scale signal levels. The device supports both single- and split-supply operation for driving an ADC. A common-mode reference input pin is provided to align the amplifier output common-mode with the ADC input requirements.

Gain control is performed via an SPI interface, allowing a 32-dB gain range from -6 dB to 26 dB in 1-dB steps. A power-down feature is also available through the external PD pin or SPI control.

This level of performance is achieved at a low power level of 345 mW. The operating ambient temperature range is -40°C to 85°C.

Key Features

3-dB Bandwidth: 4.5 GHz at 26-dB Gain

Gain Range: -6 dB to 26 dB in 1-dB Steps

Differential Input Impedance: 100 Ω

Differential Output with Common-Mode Control

Distortion at Max Gain ($V_O = 2 V_{PPD}$, $R_L = 200 \Omega$):

200 MHz: HD2 at -73 dBc, HD3 at -80 dBc

500 MHz: HD2 at -68 dBc, HD3 at -72 dBc

1 GHz: HD2 at -63 dBc, HD3 at -63 dBc

2 GHz: HD2 at -58 dBc, HD3 at -54 dBc

Output IP3:

43 dBm at 200 MHz

33 dBm at 1 GHz

27 dBm at 2 GHz

Output IP2:

67 dBm at 200 MHz

60 dBm at 1 GHz

52 dBm at 2 GHz

8-dB Noise Figure at 1 GHz, $R_S = 100 \Omega$

82-ps Rise, Fall Time Pulse Response

Supply Operation: 5.0 V at 69 mA

Supports Single- and (\pm) Split-Supply Operation:

DC- and AC-Coupled Applications

Fabricated on an Advanced Complementary BiCMOS Process

3-mm \times 3-mm UQFN-16 Package

Recommended For You

LM311MX

Texas Instruments, Inc

SOP8

LMV7219M5

Texas Instruments, Inc

SOT23-5

LMB48D

Texas Instruments, Inc

SOP-14

LM224N

Texas Instruments, Inc

DIP14

LM239J

Texas Instruments, Inc

CDIP14

LMV331M5

Texas Instruments, Inc

SOT23-5

LM393ADR

Texas Instruments, Inc
SOP8

LM293DR

Texas Instruments, Inc
SOP8

LM293D

Texas Instruments, Inc
SOP8

LMV824MIX

Texas Instruments, Inc
TSSOP

LMV358M

Texas Instruments, Inc
SOP8

LMV321M5

Texas Instruments, Inc
SOT23-5

LM741H

Texas Instruments, Inc
CAN8

LM193AH

Texas Instruments, Inc
CAN8

LM111H/NOPB

Texas Instruments, Inc
CAN8