LTC1401

Complete SO-8, 12-Bit, 200ksps ADC with Shutdown

FEATURES

- **Complete 12-Bit ADC with Reference in SO-8**
- **Single Supply 3V Operation**
- **Sample Rate: 200ksps**
- Power Dissipation: 15mW (Typ)
- 68dB S/(N + D) and –72dB THD at 50kHz
- No Missing Codes Over Temperature
- Nap Mode with Instant Wake-Up: 1.5mW
- Sleep Mode: 19.5µW
- Shutdown Mode: 13.5µW
- High Impedance Analog Input
- Input Range (0.5mV/LSB): 0V to 2.048V
- Internal Reference Can Be Overdriven Externally
- 3-Wire Interface to DSPs and Processors (SPI and MICROWIRE™ Compatible)

APPLICATIONS

- Low Power and Battery-Operated Systems
- Handheld or Portable Instruments
- High Speed Data Acquisition
- Digital Signal Processing
- Multiplexed Data Acquisition Systems
- Telecommunication
- Digital Radio
- Spectrum Analysis

DESCRIPTION

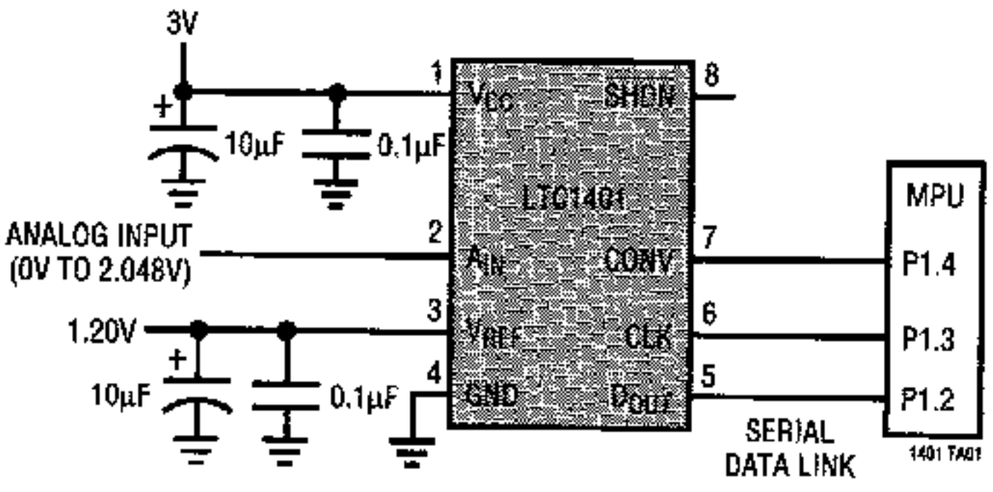
The LTC®1401 is a complete 200ksps, 12-bit A/D converter that converts 0V to 2.048V unipolar input and draws only 15mW from a single 3V supply. This easy-to-use device comes complete with a 315ns sample-and-hold and a precision reference. Maximum DC specifications include ±1LSB INL, ±1LSB DNL and 45ppm/°C full-scale drift over temperature.

The LTC1401 has three power saving modes: Nap and Sleep, through the serial interface and Shutdown by setting the $\overline{SHDN}$ pin to zero. In Nap mode, it consumes only 1.5mW of power and can wake up and convert immediately. In Sleep (Shutdown) mode, it consumes 19.5µW (13.5µW) of power typically. Upon power-up from Sleep or Shutdown mode, a reference ready (REFRDY) signal is available in the serial word to indicate that the reference has settled and the chip is ready to convert.

The 3-wire serial port allows compact and efficient data transfer to a wide range of microprocessors, microcontrollers and DSPs.

TYPICAL APPLICATION

Single 3V Supply, 200kHz, 12-Bit Sampling A/D Converter



Power Consumption vs Sample Rate