

MCP356xR

2/4/8-Channel, 153.6 ksps, Low Noise, 24-bit Delta-Sigma ADCs

General Information

The MCP3561/2/4/R are low-noise 24-bit Delta-Sigma Analog-to-Digital Converter (ADC), with two single-ended or one differential input channels and programmable data rate of up to 153.6 kSPS. It offers integrated features such as oscillator, internal voltage reference, temperature sensor and burnout sensor detection, to reduce components and cost. The devices also feature 20 MHz SPI-compatible serial interface. Communication is largely simplified with 8-bit commands, including various continuous read/write modes and 24/32-bit multiple data formats that can be accessed by the Direct Memory Access (DMA) of an 8-bit, 16-bit or 32-bit MCU.



Features

- 24-bit resolution
- 1/2/4 differential input channels or 2/4/8 single ended channels
- Programmable data rate up to 153.6 kSPS
- Programmable Gain: 0.33X to 64X
- Internal 2.4V V_{REF}
- RMS ENOB: Up to 23.3 bits
- 9 ppm/°C (-40°C to +85°C)
- Internal oscillator or external clock selection
- Internal temperature sensor
- 20 MHz SPI-compatible serial interface with Mode 0.0 and 1.1
- 3 mm x 3 mm 20-lead UQFN & 6.4 mm x 6.4 mm x 1 mm 20-lead TSSOP
- Extended temperature range from -40°C to +125°C

Applications

- Medical diagnostics
- IoT devices and applications
- Automation and portable instrumentation
- Industrial panels and sensors

Benefits

- Integrated features reduce component count and bill of material cost
- Advanced security features, such as CRC & register map lock, ensure data integrity
- Low noise, low power and smallest 24-bit ADC makes it an optimal design choice

MCP3564 24-Bit $\Delta\Sigma$ ADC Weigh Scale Evaluation Board

The LCD displays the user's selected option and the ADC output code or the calculated results.



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