# ANALOG SPOTLIGHT

## MCP37Dx1-80

80 Msps, 16/14-bit High-Precision Pipelined ADC

#### **General Information**

The MCP37D31-80 and MCP37D21-80 are 80 Msps, 16-bit and 14-bit high-precision analog-to-digital converter, respectively, with configurable input MUX. A built-in 8-input Multiplexer (MUX) is used to select the active analog input(s) depending on the user configuration. In single-channel operation, the MUX can be configured to select one of the 8-inputs. In multichannel operation, the selected inputs are sequentially sampled. The MCP37D21-80 includes many digital processing features that simplify system design, cost and power usage. These include an integrated digital down-converter with onboard NCO, decimation filters for improved SNR, individual phase, offset and gain adjustment and a fractional delay recovery for time-delay corrections in multi-channel modes. The device operates at very low power consumption and enables high-precision measurements of fast input signals.

#### **Features**

- 14-bit resolution
- 80 Msps maximum sampling rate
- Low power 320 mW operation at full sampling rate, including LVDS digital I/O
- Power saving modes of 79 mW during Standby and 22 mW during Shutdown
- 73.9 dB SNR at 80 Msps
- 93 dB SFDR at 80 Msps
- Integrated digital down-converter
- Decimation filters for improved SNR
- Noise-shaping requantizer
- Phase, offset and gain adjustment of individual channels
- Fractional delay recovery for time-delay corrections in multichannel operations
- Input channel bandwidth of 500 MHz

#### MCP37xxx-80 Evaluation Tools

- MCP37x1x-80 Eval Board (EV55U36A)
- MCP37XXX Data Capture Card (ADM00506)
- PC GUI (Graphical User Interface)



- Output data format in serial DDR LVDS or parallel CMOS
- Configuration via Serial Peripheral Interface (SPI)
- Available in TFBGA-121 package
- AEC-Q100 gualified, Temperature Grade 1: -40°C to +125°C

#### **Applications**

- Communication instruments
- Microwave digital radio
- Lidar and radar
- High-speed test equipment
- Ultrasound and sonar imaging
- Scanners and low-power instruments

#### **Benefits**

- Integrated features reduces post processing demands on MCU/MPU and eliminates the need for external components
- Up to 8 configurable channels could address wide range of applications
- Built-in reference decoupling capacitors reduces cost and footprint





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