

ADVANCE INFORMATION

All information in this data sheet is preliminary and subject to change.

8/93

MAXIM

Low-Power, 5V, 12-Bit Serial ADCs with Shutdown

General Description

The MAX187/MAX189 serial, 12-bit analog-to-digital converters (ADCs) operate from a single +5V supply, accept a 0V to 5V analog input, and digitize signals with a throughput rate of 75ksps. Both parts feature an 8.5μs successive approximation ADC, a fast track/hold (1.5μs), an on-chip clock, and a high-speed, 3-wire serial interface. Current consumption is only 1.5mA and reduces to 2μA in shutdown.

The fast, 3-wire serial interface is compatible with SPI™, QSPI™, and Microwire™, and communicates with most digital signal processors and microcontrollers with no external logic.

The MAX187 has an on-chip buffered reference, while the MAX189 requires an external reference. Both the MAX187 and MAX189 save space with 8-pin DIP and 16-pin surface-mount SO packages.

Excellent AC characteristics and very low power consumption, combined with ease of use and small package size, make these converters ideal for remote DSP and sensor applications, or for applications where power consumption and space are crucial.

Applications

Portable Data Logging
Remote Digital Signal Processing
Isolated Data Acquisition
High-Accuracy Process Control
Battery-Powered Instruments

Features

- ♦ 12-Bit Resolution
- ♦ $\pm 1/2$ LSB (max) Integral Nonlinearity
- ♦ Internal Track/Hold, 75kHz Sampling Rate
- ♦ Single +5V Operation
- ♦ Low Power:
1.5mA Operating Current
2μA Shutdown Current
- ♦ Internal 4.096V Buffered Reference (MAX187)
- ♦ 3-Wire Serial Interface, Compatible with SPI™, QSPI™, and Microwire™
- ♦ Small-Footprint 8-Pin DIP and 16-Pin SO

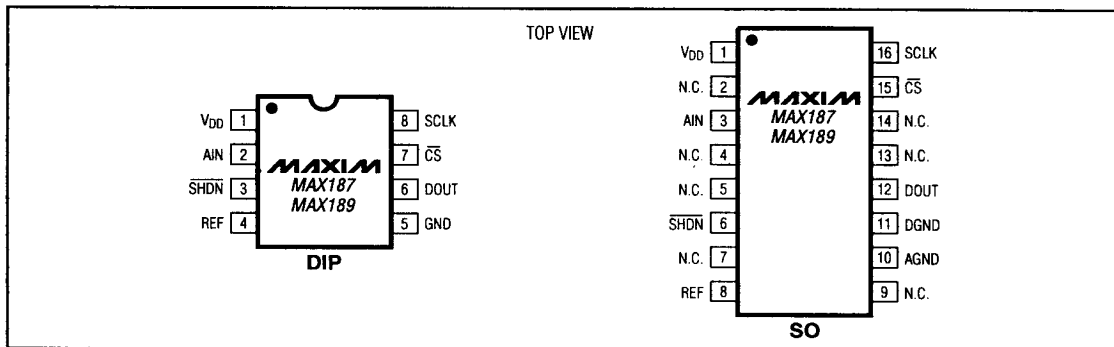
Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE
MAX187ACPA	0°C to +70°C	8 Plastic DIP
MAX187BCPA	0°C to +70°C	8 Plastic DIP
MAX187ACWE	0°C to +70°C	16 Wide SO
MAX187BCWE	0°C to +70°C	16 Wide SO
MAX187BC/D	0°C to +70°C	Dice*
MAX187AEPA	-40°C to +85°C	8 Plastic DIP
MAX187BEPA	-40°C to +85°C	8 Plastic DIP
MAX187AEWE	-40°C to +85°C	16 Wide SO
MAX187BEWE	-40°C to +85°C	16 Wide SO
MAX187AMJA	-55°C to +125°C	8 CERDIP
MAX187BMJA	-55°C to +125°C	8 CERDIP

Ordering Information continued on last page.

*Dice are specified at $T_A = +25^\circ\text{C}$, DC parameters only.

Pin Configurations



™SPI and QSPI are trademarks of Motorola. Microwire is a trademark of National Semiconductor.

MAXIM

Maxim Integrated Products 7-111

Call toll free 1-800-998-8800 for free samples or literature.

5V, Single-Supply, 12-Bit Serial ADCs with Shutdown

Ordering Information (continued)

PART	TEMP. RANGE	PIN-PACKAGE
MAX189ACPA	0°C to +70°C	8 Plastic DIP
MAX189BCPA	0°C to +70°C	8 Plastic DIP
MAX189ACWE	0°C to +70°C	16 Wide SO
MAX189BCWE	0°C to +70°C	16 Wide SO
MAX189BC/D	0°C to +70°C	Dice*
MAX189AEPA	-40°C to +85°C	8 Plastic DIP
MAX189BEPA	-40°C to +85°C	8 Plastic DIP
MAX189AEWE	-40°C to +85°C	16 Wide SO
MAX189BEWE	-40°C to +85°C	16 Wide SO
MAX189AMJA	-55°C to +125°C	8 CERDIP
MAX189BMJA	-55°C to +125°C	8 CERDIP

* Dice are specified at $T_A = +25^\circ\text{C}$, DC parameters only.

Functional Diagram

