

ADVANCE INFORMATION

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

7/95

MAXIM

+3V, Low-Power, 8-Channel, Serial 10-Bit DAS

MAX149

General Description

The MAX149 is a +3V-powered, 10-bit data-acquisition system (DAS) that includes an 8-channel multiplexer, 4MHz bandwidth track/hold, 133ksps throughput, and a serial interface. Its low power dissipation (less than 5mW) makes it ideal for battery-powered applications. Its analog inputs are software configurable for unipolar/bipolar and single-ended/differential operation.

The MAX149 has a 4-wire serial interface that operates at up to 2MHz and is compatible with SPI™, QSPI™, and Microwire™. A serial strobe output allows direct connection to TMS320 family digital signal processors. The MAX149 uses either its internal clock or an external serial-interface clock to perform successive-approximation conversions.

The MAX149 has an internal 2.50V reference and a reference-buffer amplifier that simplifies gain trim. It also provides a hard-wired shutdown (SHDN) pin and two software-select power-down modes. Accessing the serial interface automatically powers up the device. By using the technique of powering down between conversions, the supply current can be reduced to under 10µA at slower sampling rates.

The MAX149 is available in 20-pin DIP and SO packages, and in a 20-pin SSOP package that occupies 50% less area than the SO package. For 12-bit applications, refer to the pin-compatible MAX146 data sheet.

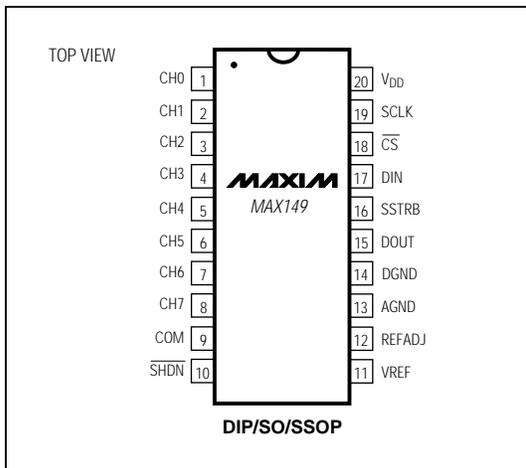
Features

- ♦ 8-Channel Single-Ended or 4-Channel Differential Inputs
- ♦ Single +2.7V to +3.6V Operation
- ♦ Low Power: 1.5mA (operating mode)
2µA (power-down mode)
- ♦ Internal Track/Hold, 133kHz Sampling Rate
- ♦ Internal 2.50V Reference
- ♦ SPI™, QSPI™, Microwire™, TMS320-Compatible 4-Wire Serial Interface
- ♦ 20-Pin DIP, SO, SSOP Packages
- ♦ Pin-Compatible 12-Bit Upgrade = MAX146

Applications

Portable Data Logging
Data Acquisition
High-Accuracy Process Control
Battery-Powered Instruments
Medical Instruments
Consumer Electronics

Pin Configuration



Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE	INL (LSB)
MAX149ACPP	0°C to +70°C	20 Plastic DIP	±1/2
MAX149BCPP	0°C to +70°C	20 Plastic DIP	±1
MAX149ACWP	0°C to +70°C	20 SO	±1/2
MAX149BCWP	0°C to +70°C	20 SO	±1
MAX149ACAP	0°C to +70°C	20 SSOP	±1/2
MAX149BCAP	0°C to +70°C	20 SSOP	±1
MAX149BC/D	0°C to +70°C	Dice*	±1
MAX149AEPP	-40°C to +85°C	20 Plastic DIP	±1/2
MAX149BEPP	-40°C to +85°C	20 Plastic DIP	±1
MAX149AEWP	-40°C to +85°C	20 SO	±1/2
MAX149BEWP	-40°C to +85°C	20 SO	±1
MAX149AEAP	-40°C to +85°C	20 SSOP	±1/2
MAX149BEAP	-40°C to +85°C	20 SSOP	±1
MAX149AMJP	-55°C to +125°C	20 CERDIP	±1/2
MAX149BMJP	-55°C to +125°C	20 CERDIP	±1

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

SPI and QSPI are trademarks of Motorola, Inc. Microwire is a trademark of National Semiconductor Corp.

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