

ADVANCE INFORMATION

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

8/97



Low-Power, High-Speed, Single-Supply Op Amp + Comparator + Reference ICs

MAX9000-MAX9005

General Description

The MAX9000 family features combinations of micro-power, high-speed operational amplifiers, a comparator, and an internal 1.233V reference. These devices operate from a +2.5V to +5.5V single supply. The MAX9000/MAX9001/MAX9003/MAX9004 typically draw 450 μ A of quiescent current, while the MAX9002/MAX9005 typically consume 375 μ A. The MAX9001/MAX9004 feature a low-power shutdown mode that reduces supply current to 2 μ A, making them ideal for portable/battery-powered applications.

The amplifiers in the MAX9000/MAX9001/MAX9002 are internally compensated to be unity-gain stable with a 1.25MHz gain-bandwidth product, while the amplifiers in the MAX9003/MAX9004/MAX9005 are stable for closed-loop gains of +10V/V or greater with an 8MHz gain-bandwidth product. Besides excellent DC accuracy, these amplifiers and comparators can swing Rail-to-Rail[®] and deliver 2.5mA and 4.0mA, respectively. The input common-mode range (CMR) extends from 150mV below the negative rail to within 1.2V of the positive rail for the amplifier, and to within 1.1V for the comparator.

The comparator's ± 2 mV of built-in hysteresis provides noise immunity, which allows glitch-free switching for slow-moving input signals. The MAX9000/MAX9001/MAX9003/MAX9004 have an internal, 1.233V $\pm 1\%$ precision reference with a low, 10ppm/ $^{\circ}$ C temperature coefficient, and can sink or source an external load of up to 1mA.

Applications

Single-Supply Zero-Crossing Detector
Instruments, Terminals, and Bar-Code Readers
Automotive Keyless Entry
Local Area Alarms/Detectors
Photodiode Preamps
Smart Cards
Infrared Receivers for Remote Controls
Safety Sensors
GPS Receivers
Cellular Phones

Features

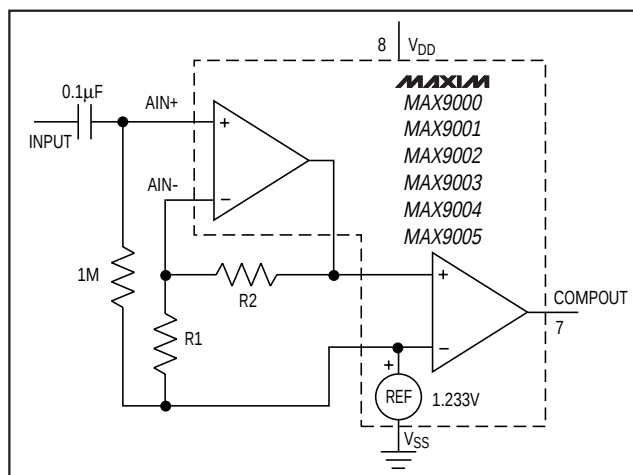
- ♦ Op Amp + Comparator + Reference Available in Space-Saving, 8-Pin μ MAX Package
- ♦ +2.5V to +5.5V Single-Supply Operation
- ♦ 375 μ A Quiescent Supply Current (MAX9002/MAX9005)
- ♦ 1.25MHz and 8MHz Gain-Bandwidth Options
- ♦ 2 μ A Shutdown Current (MAX9001/MAX9004)
- ♦ Outputs Swing Rail-to-Rail
- ♦ Fast, 100ns Propagation-Delay Comparator
- ♦ Input CMR Includes Ground
- ♦ No Phase Reversal for Overdriven Inputs
- ♦ Internal Precision Reference:
 - $\pm 1\%$ Initial Accuracy
 - Low, 10ppm/ $^{\circ}$ C Temperature Drift
 - Sink or Source up to 1mA
 - Stable for Capacitive Loads up to 100nF

Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE
MAX9000ESA	-40 $^{\circ}$ C to +85 $^{\circ}$ C	8 SO
MAX9000EUA	-40 $^{\circ}$ C to +85 $^{\circ}$ C	8 μ MAX
MAX9001ESD	-40 $^{\circ}$ C to +85 $^{\circ}$ C	14 SO
MAX9001EUB	-40 $^{\circ}$ C to +85 $^{\circ}$ C	10 μ MAX

Ordering Information continued on next page

Typical Operating Circuit



Rail-to-Rail is a registered trademark of Nippon Motorola Ltd



Maxim Integrated Products 1

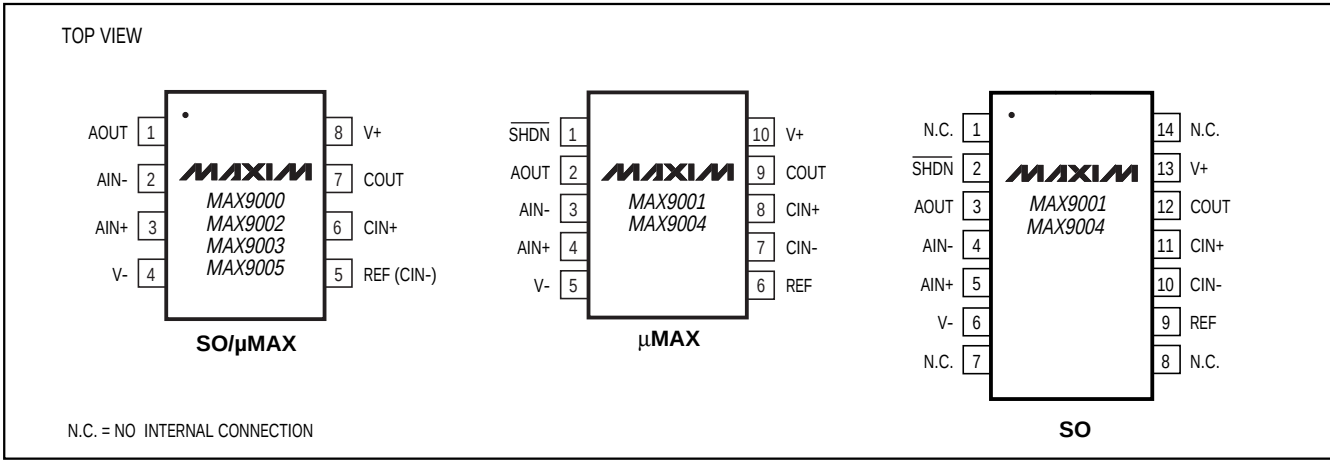
For free samples & the latest literature: <http://www.maxim-ic.com>, or phone 1-800-998-8800
For small orders, phone 408-737-7600 ext. 3468.

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Selector Guide

PART	INTERNAL ±1% PRECISION REFERENCE	OP-AMP GAIN STABILITY (V/V)	SHUTDOWN	OP-AMP GAIN BANDWIDTH (MHz)	PIN-PACKAGE
MAX9000	Yes	1	No	1.25	8-pin SO/μMAX
MAX9001	Yes	1	Yes	1.25	14-pin SO, 10-pin μMAX
MAX9002	No	1	No	1.25	8-pin SO/μMAX
MAX9003	Yes	10	No	8	8-pin SO/μMAX
MAX9004	Yes	10	Yes	8	14-pin SO, 10-pin μMAX
MAX9005	No	10	No	8	8-pin SO/μMAX

Pin Configurations



Ordering Information (continued)

PART	TEMP. RANGE	PIN-PACKAGE
MAX9002ESA	-40°C to +85°C	8 SO
MAX9002EUA	-40°C to +85°C	8 μMAX
MAX9003ESA	-40°C to +85°C	8 SO
MAX9003EUA	-40°C to +85°C	8 μMAX
MAX9004ESD	-40°C to +85°C	14 SO
MAX9004EUB	-40°C to +85°C	10 μMAX
MAX9005ESA	-40°C to +85°C	8 SO
MAX9005EUA	-40°C to +85°C	8 μMAX