

ADVANCE INFORMATION

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

8/97



Single/Dual/Quad, Ultra-Low-Power, Single-Supply, Rail-to-Rail I/O Op Amps

General Description

The MAX4230 family of amplifiers combines rail-to-rail inputs and outputs, low input bias current, and excellent capacitive-load driving capability with micropower operation in miniature packages. These devices operate from a single +2.7V to +5.5V supply or from dual $\pm 1.35\text{V}$ to $\pm 2.75\text{V}$ supplies. They require only 5.5 μA of supply current per amplifier while delivering $\pm 2.4\text{mA}$ of output current drive.

The MAX4230/MAX4231/MAX4232 are compensated for applications with a closed-loop gain of +1V/V (0dB) or greater and provide a gain-bandwidth product of 40kHz ($G = +10\text{V/V}$). The MAX4233/MAX4234/MAX4235 are compensated for applications with a closed-loop gain of +10V/V (20dB) or greater and provide a gain-bandwidth product of 379kHz ($G = +100\text{V/V}$).

Micropower operation combined with 100 μV offset voltage, 250pA input bias current, and 120dB of open-loop gain makes these devices ideal for battery-powered remote sensing applications. The single MAX4230/MAX4233 are available in miniature 5-pin SOT23 packages. All devices are available for operation over the extended -40°C to +85°C operating temperature range.

Applications

Portable/Battery-Powered Systems
Remote Sensing
Medical Instrumentation
Electrometer Amplifiers
Photodiode Preamps
pH Meters
Smoke Detectors

Selector Guide

PART	NO. OF AMPLIFIERS	MINIMUM GAIN (V/V)	PIN-PACKAGE
MAX4230	1	1	5-pin SOT23 8-pin SO
MAX4231	2	1	8-pin SO/ μMAX
MAX4232	4	1	14-pin SO 16-pin QSOP
MAX4233	1	10	5-pin SOT23 8-pin SO
MAX4234	2	10	8-pin SO/ μMAX
MAX4235	4	10	14-pin SO 16-pin QSOP

Features

- ♦ Ultra-Low Supply Current: 5.5 μA per Amplifier
- ♦ Operate from a Single Supply down to 2.7V
- ♦ Rail-to-Rail Common-Mode Input Voltage Range
- ♦ Rail-to-Rail Output Voltage Swing
- ♦ 40kHz Gain-Bandwidth Product ($G = +10\text{V/V}$)
- ♦ Available in Tiny Surface-Mount Packages:

5-pin SOT23 (MAX4230/MAX4233)

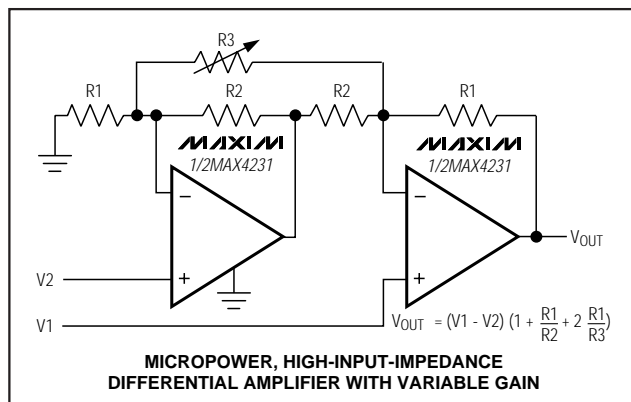
8-pin μMAX (MAX4231/MAX4234)

16-pin QSOP (MAX4232/MAX4235)

Ordering Information

PART	TEMP. RANGE	PIN-PACKAGE	SOT TOP MARK
MAX4230ESA	-40°C to +85°C	8 SO	—
MAX4230EUK-T	-40°C to +85°C	5 SOT23-5	ABZZ
MAX4231ESA	-40°C to +85°C	8 SO	—
MAX4231EUA	-40°C to +85°C	8 μMAX	—
MAX4232ESD	-40°C to +85°C	14 SO	—
MAX4232EEE	-40°C to +85°C	16 QSOP	—
MAX4233ESA	-40°C to +85°C	8 SO	—
MAX4233EUK-T	-40°C to +85°C	5 SOT23-5	ACAA
MAX4234ESA	-40°C to +85°C	8 SO	—
MAX4234EUA	-40°C to +85°C	8 μMAX	—
MAX4235ESD	-40°C to +85°C	14 SO	—
MAX4235EEE	-40°C to +85°C	16 QSOP	—

Typical Operating Circuit



Maxim Integrated Products 1

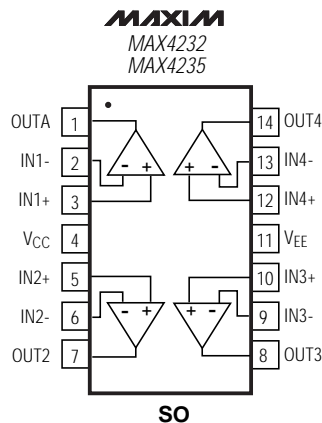
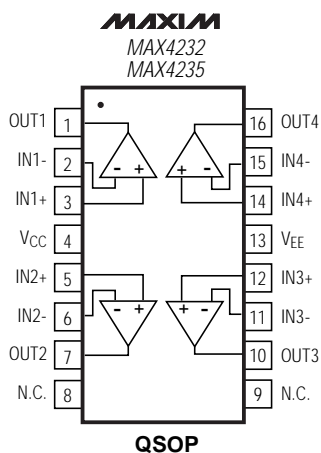
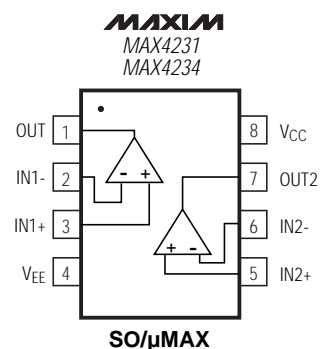
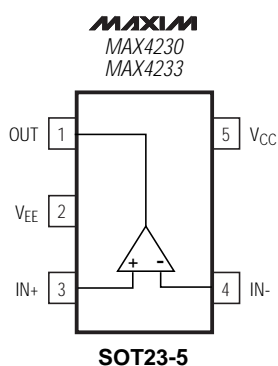
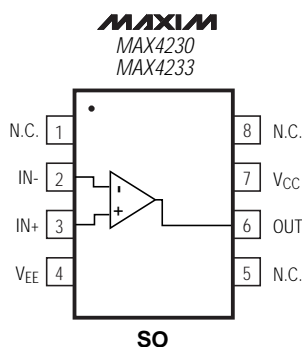
For free samples & the latest literature: <http://www.maxim-ic.com>, or phone 1-800-998-8800
For small orders, phone 408-737-7600 ext. 3468.

MAX4230-MAX4235

Single/Dual/Quad, Ultra-Low-Power, Single-Supply, Rail-to-Rail I/O Op Amps

Pin Configurations/Functional Diagrams

TOP VIEW



N.C. = NOT INTERNALLY CONNECTED