

Precision zero-drift 1.8V, Micropower CMOS dual operational amplifier

The AS2333 is a dual channel operational amplifier using chopper stabilization to provide ultra-low input offset voltage ($8\mu\text{V}$) and near zero-drift over time and temperature.

It also provides reduced $1/f$ noise and input crossover-distortion – present in most rail-to-rail input op-amps.

This low quiescent current, high-precision amplifier offers low bias current inputs that have a common-mode range 100mV beyond the rails, and a rail-to-rail output that swings within 50mV of the rails.

Single or dual supplies as low as 1.8V ($\pm 0.9\text{V}$) and up to 5V ($\pm 2.5\text{V}$) can be used covering a wide number of battery topologies. These attributes of precision and micropower make the AS2333 suitable for the high amplification of very low-level signals from sensors in a wide variety of battery powered applications.

The AS2333 is available in SO-8, MSOP-8 and U-DFN3030-8 packages with operating temperature of -40°C to $+125^{\circ}\text{C}$.



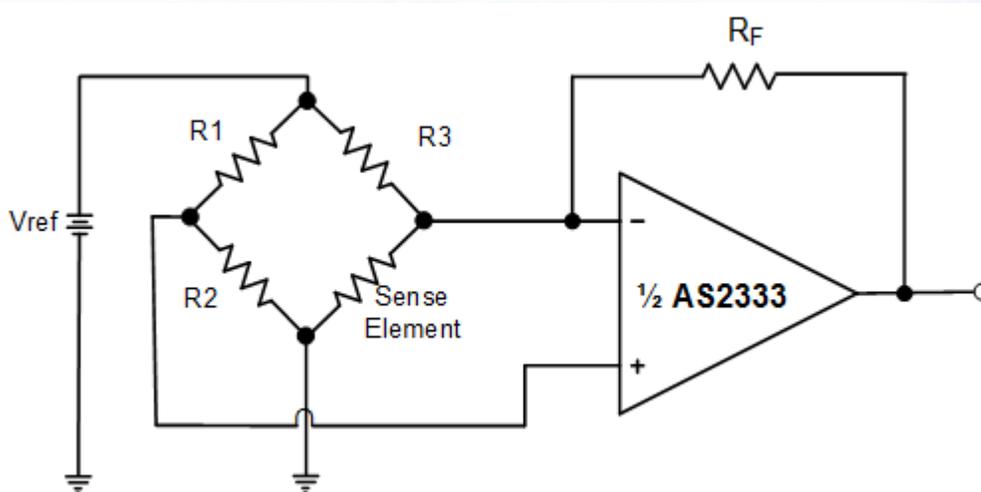
The Diodes Advantage

- Operating voltage from 1.8V to 5.5V**
 Supports typical battery voltage ranges - 2 & 3 NiMH cells as well as Li-rechargeable cells
- High precision Low $8\mu\text{V}$ Offset Voltage with large 120dB open-loop gain**
 Maintains accuracy supporting large amplification of small signals
- Near Zero-Offset Voltage Drift ($0.2\mu\text{V}/^{\circ}\text{C}$) over time and temperature**
 Higher accuracy readings with improved repeatability
- Low Quiescent Current of $12\mu\text{A}$ per amplifier**
 Suited for use in battery / handheld applications.
- Chopper Stabilized**
 Eliminates $1/f$ noise and V_{os} crossover distortion

Applications

- Battery-Powered Instruments
- Handheld test equipment
- Medical instrumentation
- Laboratory instrumentation
- Sensor signal conditioning
- Low voltage current sensing

Conceptual Application



The Wheatstone Bridge circuit along with a precision amplifier is used to exercise a sense element such as a thermistor, strain gauge, or chemical sensor to measure temperature, weight, force, pressure or chemical concentration.

Low Supply Voltage Operational Amplifier Portfolio Overview

Part Number	Channels	Supply Voltage Range (V)	Supply Current @ 5V (/ch) (μ A)	Input Offset Voltage (μ V)	Input Bias Current (pA)	Max. Input Common-mode Voltage (V)	Rail-Rail	Ambient Temperature Range ($^{\circ}$ C)	Packages
AZV831	1	1.6 to 5.5	900	500	1	V+ +0.2	Input/ Output	-40~85	SOT25
AZV832	2	1.6 to 5.5	900	500	1	V+ +0.2	Input/ Output	-40~85	MSOP-8, SO-8
AS2333	2	1.8 to 5.5	12	8	70	V+ +0.1	Input/ Output	-40~125	MSOP-8, SO-8, U-DFN3030-8
LMV321	1	2.5 to 5.5	110	1700	15	V+ - 1	Output	-40~125	SOT25, SOT353
LMV324	4	2.5 to 5.5	85	1700	15	V+ - 1	Output	-40~125	SO-14, TSSOP-14
LMV358	2	2.5 to 5.5	95	1700	15	V+ - 1	Output	-40~125	MSOP-8, SO-8
TLV271	1	2.7 to 16	550	500	1	V+ -1.35	Output	-40~125	SO-8, SOT25
TLV272	2	2.7 to 16	550	500	1	V+ -1.35	Output	-40~125	MSOP-8, SO-8

To find out more information: <https://www.diodes.com/part/AS2333>

Ordering Information

Part Number	Packaging	Marking Identification	Tape and Reel Quantity	Tape Width	Reel size
AS2333S-13	SO-8	AS2333	2500	12mm	13"
AS2333M8-13	MSOP-8	AS2333	2500	12mm	13"
AS2333FGE-7	U-DFN3030-8 (Type E)	ND	3000	8mm	7"