



New Product Announcement

AS2333Q

Precision, Zero-Drift, Dual-Operational Amplifier for High-Accuracy Automotive Signal Conditioning

The DIODES™ AS2333Q is an automotive-compliant dual channel operational amplifier (op amp). The device has an ultra-low input offset voltage ($8\mu\text{V}$), and near zero-drift over time and temperature for high-accuracy signal conditioning in automotive ECUs.

This rail-to-rail input and output op amp uses chopper stabilization to minimize input offset voltage, reduce $1/f$ noise, and decrease input crossover-distortion present in most rail-to-rail input op amps.

Its low $12\mu\text{A}$ quiescent current, coupled with a large open loop gain and common-mode rejection (CMRR), make the AS2333Q suitable for large amplification of very low-level signals from sensors in a wide variety of automotive applications.

The device's rail-to-rail input has a common-mode range of 100mV beyond the rails with extremely low bias current. Its rail-to-rail output swings within 50mV of the rails.

The AS2333Q is AEC grade 1 qualified with an ambient temperature range of -40°C to $+125^\circ\text{C}$ and is available in the industry-standard SO-8 package.

Automotive-compliant - AEC qualified, manufactured in IATF 16949 certified sites supporting PPAP documents (if applicable).

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The DIODES™ Advantage

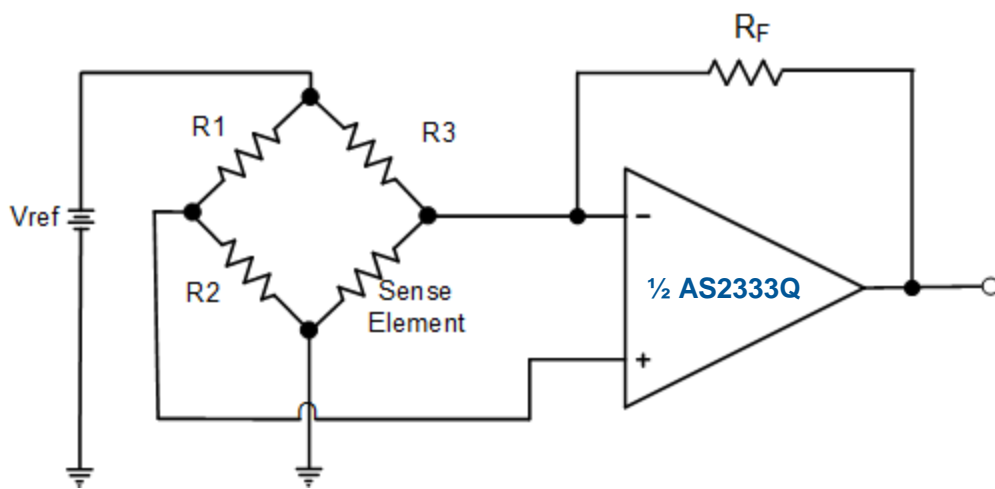
High-precision, dual-channel op amp provides accurate signal conditioning in automotive ECUs.

- **1.8V to 5.5V Operating Voltage Range**
Operates from standard 3.3V and 5V protected rails
- **Low $8\mu\text{V}$ Offset Voltage with Large 120dB Open-Loop Gain**
Maintains accuracy while supporting large amplification of small signals
- **Near Zero-Offset Voltage Drift ($0.02\mu\text{V}/^\circ\text{C}$) Across Time and Temperature**
Maintains high accuracy readings with better repeatability
- **Low $12\mu\text{A}$ Quiescent Current per Amplifier**
Supports low power systems maximum $100\mu\text{A}$ operating current
- **Chopper Stabilized**
Eliminates $1/f$ noise and V_{os} crossover distortion

Applications

- Automotive signal conditioning
- Ground current measurements
- Transducer signal conditioning
- Water pumps
- Airbags
- Position sensors
- Brake systems
- Vehicle occupant detection sensors

Typical Application



Precision Automotive-Compliant Operational Amplifier

Part Number	Compliance	Channel	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)	Package
AS2333Q	Automotive	2	1.8 to 5.5	12	8	70	V+ +0.1	Input/Output	-40~125	SO-8

Ordering Information

Orderable Part Number	Package	Moisture Sensitivity	Packing	
			Quantity	Carrier
AS2333QS-13	SO-8	MSL-1	2,500	13" Tape and Reel