New Product Announcement

AS2376Q

Low-Noise, Precision Operational Amplifier for High-Accuracy Automotive Signal Conditioning

The DIODES™ AS2376Q is our first low-noise, wide-bandwidth, automotive-compliant operational amplifier, offering outstanding DC-precision and AC-performance.

The AS2376Q has a rail-to-rail input and output range, low 25µV offset (maximum), large 120dB open-loop gain, and reduced 0.8µVpp low-frequency noise that make this part attractive for precision automotive applications where power-line noise rejection is important.

The device's low-wideband noise (9.5nV/$\sqrt{\text{Hz}}$), large power supply rejection ratio (PSRR), and 5.5MHz bandwidth support large signal-to-noise ratio signal conditioning in automotive 5V rail applications' quiescent current of 950µA (maximum).

The AS2376Q has been qualified to AEC-Q100 grade 1 with an ambient temperature range of -40ºC to +125ºC and is available in the SO-8 package.

The DIODES™ Advantage

Low-noise, high-precision, dual-channel operational amplifier provides accurate signal conditioning in automotive electronic control unit (ECU).

- **2.2V to 5.5V Operating Voltage Range**
  Operates from standard 3.3V and 5V protected rails
- **Low Noise 9.5nV/$\sqrt{\text{Hz}}$ and a 5.5MHz Bandwidth**
  Large signal to noise ratio
- **Low 5µV Offset Voltage with Large 120dB Open-Loop Gain**
  Maintains accuracy, supporting large amplification of small signals
- **Robust ESD Capability (HBM: 4kV, CDM: 1kV)**
  Exceeds standard requirements, improving system reliability
- **Low 760µA Quiescent Current per Amplifier**
  Supports low-power systems with a maximum 950µA operating current

Automotive Applications

- Signal conditioning
- Onboard chargers (OBC)
- Wireless chargers
- Battery management systems
- Pumps
- Airbags
- Position sensors
- Brake systems
- Vehicle occupant detection sensors

Automotive-compliant –AEC-Q100 grade 1 qualified in IATF 16949 certified manufacturing sites and supports PPAP documentation.

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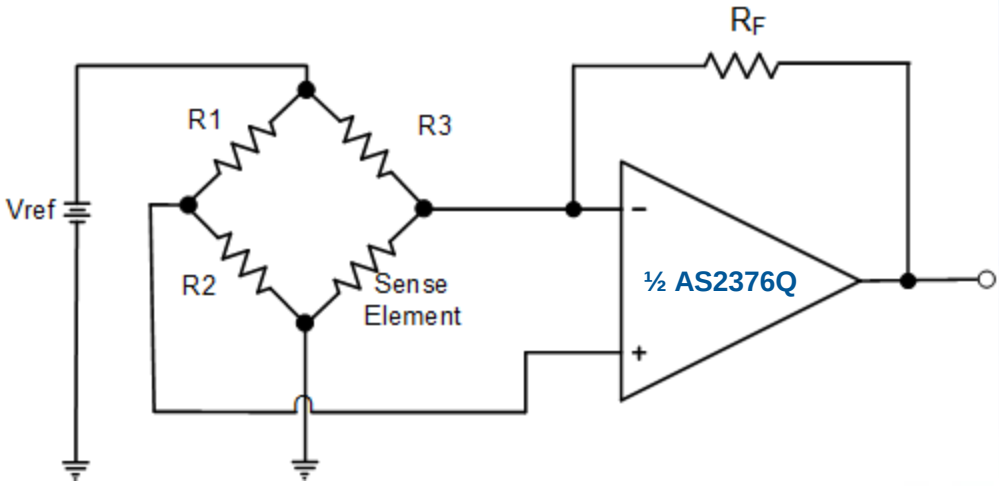
Typical Application



Automotive-Compliant Precision Operational Amplifiers

Part Number	Channels	Supply Voltage Range (V)	Low Noise f=1kHz (nV/√Hz)	Input Offset Voltage (µV)	Input Bias Current (pA)	Supply Current per Channel (µA)	Rail-to-Rail	Ambient Temperature Range (°C)	Packages
AS2376Q	**2**	**2.2 to 5.5**	**9.5**	**25**	**70**	**760**	**Input/ Output**	**-40 to +125**	**SO-8**
AS2333Q	2	1.8 to 5.5	75	8	70	12	Input/ Output	-40 to +125	SO-8

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAPs)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
AS2376QS-13	Automotive	SO-8	MSL-1	2,500	13” Tape & Reel