Product Overview

NCS333: Low Power, Zero-Drift Operational Amplifier with 10 µV Offset

For complete documentation, see the data sheet.

The NCS333 is a precision op amp with very low input offset voltage (10 µV max) and near-zero drift over time and temperature. This high precision, low quiescent current amplifiers has high impedance inputs with a common-mode range 100 mV beyond the rails as well as rail-to-rail output swing within 50 mV of the rails. The NCS333 features a wide supply range from 1.8 V to 5.5 V (±0.9 V to ±2.75 V for dual supplies). The NCS333 family exhibits outstanding
CMRR without the crossover associated with traditional complementary input stages. This design results in superior performance for driving analog-to-digital converters (ADCs) without degradation of differential linearity. The NCS333 is available in compact SC70-5 and SOT23-5 packages and are specified for operation from -40°C to +105°C. The NCV333 is the automotive qualified version available in SOT23-5 and specified for operation from -40°C to +125°C.

Product Family:

NCS333
NCS2333
NCS4333

Channel
1
2
4

Packages
SOT23-5, SC-70-5
SOIC-8, Micro-8, UDFN-8
TSSOP-14, SOIC-14

Features

- Low Offset Voltage: 10 µV max (NCS333), 30µV max (NCV333A)
- Zero Drift Architecture with offset drift as low as 0.07 µV/°C max
- Quiescent Current: 17 µA Typical at 3.3 V Supply
- Supply Voltage: 1.8 V to 5.5 V
- Rail-to-Rail Input and Output Voltage
- NCV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable

Benefits

- Higher Accuracy Signal Conditioning
- Low error and better accuracy over temperature
- Low power consumption suited for battery powered devices
- Wide supply voltage compatible with a a variety of applications
- Wide input and output signal range
- Meets automotive standards

Applications

- Current Sensing
- Temperature Measurements
- Sensor Signal Conditioning
- Transducer Applications

End Products

- Battery Powered Instruments
- Electronic Scales
- Medical Instrumentation
- Lighting

Part Electrical Specifications

Product	Pricing ($/Unit)	Compliance	Status	Rail to Rail	Channels	V_S Min (V)	V_S Max (V)	I_q Typ (mA)	V_{OS} Max (mV)	GBW Typ (MHz)	SR Typ (V/µs)	I_O Typ (mA)	$\Delta V_{OS}/\Delta T$ (µV/°C)	e_N (nV/√Hz)	I_{bias} Typ (pA)	CMRR Typ (dB)	Architecture	Temperature Range (°C)	Package Type
NCS333ASN2T1G	0.3733	Pb-free Halide free non AEC-Q and PPAP	Active	Input/Output	1	1.8	5.5	0.021	0.01	0.35	0.1	6	0.03	62	60	123	CMOS	-40 to 125	TSOP-5 / SOT-23-5
NCS333ASQ3T2G	0.3733	Pb-free Halide free non AEC-Q and PPAP	Active	Input/Output	1	1.8	5.5	0.021	0.01	0.35	0.1	6	0.03	62	60	123	CMOS	-40 to 125	SC-88A / SC-70-5
NCV333ASN2T1G	0.4	AEC Qualified PPAP Capable Pb-free Halide free	Active	Input/Output	1	1.8	5.5	0.028	0.03	0.35	0.1	6	0.03	62	60	123	CMOS	-40 to 125	TSOP-5 / SOT-23-5
NCV333ASQ3T2G	0.4	AEC Qualified PPAP Capable Pb-free Halide free	Active	Input/Output	1	1.8	5.5	0.028	0.03	0.35	0.1	6	0.03	62	60	123	CMOS	-40 to 125	SC-88A / SC-70-5

For more information please contact your local sales support at www.onsemi.com.

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