

## Product Overview

### NCS2333: Precision Operational Amplifier, Low Power, Zero-Drift, 30 $\mu\text{V}$ Offset

For complete documentation, see the data sheet.

The NCS333 family of high precision op amps feature very low input offset voltage and near-zero drift over time and temperature. These low quiescent current amplifiers have 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. These op amps operate over a wide supply range from 1.8 V to 5.5 V. The NCS333 family exhibits outstanding CMRR without the crossover associated with traditional complementary input stages. The NCS333, as well as the dual version, NCS2333, and the quad version, NCS4333, come in a variety of packages and pinouts. Automotive qualified options are available under NCV prefix.

#### Features

- Low Offset Voltage: 30  $\mu\text{V}$  max for NCS2333
- Zero Drift: 0.07  $\mu\text{V}/^\circ\text{C}$  max
- Low Noise: 1.1  $\mu\text{V}_{\text{pp}}$ , 0.1 Hz to 10 Hz
- Quiescent Current per Channel: 17  $\mu\text{A}$  Typical at 3.3 V Supply
- Supply Voltage: 1.8 V to 5.5 V
- Rail-to-Rail Input and Output

#### Benefits

- Amplifies small differential voltages with better output accuracy
- Better accuracy over temperature
- Better output accuracy with lower noise
- Low power consumption suited for battery powered devices
- Wide supply voltage compatible with a variety of applications
- Wide input and output signal range

#### Applications

- Temperature Measurements
- Transducer Applications
- Current Sensing

#### End Products

- Battery Powered Instruments
- Electronic Scales
- Medical Instrumentation

### Part Electrical Specifications

Product	Compliance	Status	Rail to Rail	Channels	V <sub>S</sub> Min (V)	V <sub>S</sub> Max (V)	I <sub>q</sub> Typ (mA)	V <sub>OS</sub> Max (mV)	GBW Typ (MHz)	SR Typ (V/ $\mu\text{s}$ )	I <sub>o</sub> Typ (mA)	$\Delta V_{OS}/\Delta T$ ( $\mu\text{V}/^\circ\text{C}$ )	e <sub>N</sub> (nV/ $\sqrt{\text{Hz}}$ )	I <sub>bias</sub> Typ (pA)	CMRR Typ (dB)	Architecture	Temperature Range (°C)	Package Type
NCS2333DMR2G	Pb-free	Active	Input /Output	2	1.8	5.5	0.021	0.03	0.27	0.1	5	0.04	62	60	123	CMOS	-40 to 125	Micro8™
	Halide free						0.017											
NCS2333DR2G	Pb-free	Active	Input /Output	2	1.8	5.5	0.017	0.03	0.27	0.1	5	0.04	62	60	123	CMOS	-40 to 125	SOIC-8
	Halide free						0.021											
NCS2333MUTBG	Pb-free	NEW	Input /Output	2	1.8	5.5	0.017	0.03	0.27	0.1	5	0.04	62	60	123	CMOS	-40 to 125	UDFN-8
	Halide free						0.021											
NCV2333DMR2G	AEC Qualified	Active	Input /Output	2	1.8	5.5	0.021	0.03	0.27	0.1	5	0.04	62	60	123	CMOS	-40 to 125	Micro8™
	PPAP Capable						0.017											
	Pb-free																	
	Halide free																	
NCV2333DR2G	AEC Qualified	Active	Input /Output	2	1.8	5.5	0.021	0.03	0.27	0.1	5	0.04	62	60	123	CMOS	-40 to 125	SOIC-8
	PPAP Capable						0.017											
	Pb-free																	
	Halide free																	

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