

## Product Overview

### NCS2005: Operational Amplifier, Low Power, 8 MHz GBW, Rail-to-Rail Input-Output

For complete documentation, see the data sheet.

The NCS2005 provides high performance in a wide range of applications. The NCS2005 offers beyond rail-to-rail input range, full rail-to-rail output swing, large capacitive load driving ability, and low distortion. The inputs can be driven by voltages that exceed both power supply rails, thus eliminating concerns over exceeding the common-mode voltage range. The rail-to-rail output swing capability provides the maximum possible dynamic range at the output. This is particularly important when operating on low supply voltages.

Operating on supplies of 2.2 V to 32 V, the NCS2005 is excellent for a very wide range of applications in low power systems. With a supply current of 1.3 mA, the 8 MHz gain-bandwidth of this device supports applications where faster speeds are required. Placing the amplifier right at the signal source reduces board size and simplifies signal routing. The NCS2005 is available in a space-saving 5-pin SOT-23 package.

### Features

- Wide Power Supply Range: 2.2 V to 32 V
- Common Mode Voltage Range Wider than Rail-to-Rail:  
V<sub>CM</sub> = -0.1 V to 5.1 V @ V<sub>S</sub> = 5 V
- Wide Gain-bandwidth: 8 MHz typical
- Low Supply Current: 1.3 mA typical
- Stable with a 1 nF Capacitor Load with a Phase Margin over 25° @ V<sub>S</sub> = 10 V
- Available in a Space-saving 5-pin SOT23 Package

### Applications

- Active Filters
- Voltage Referenced Buffers
- Sensors and Instrumentation
- Microphone Amplifiers
- ASIC Input Drivers

### Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Rail to Rail	Channels	V <sub>S</sub> Min (V)	V <sub>S</sub> Max (V)	I <sub>a</sub> Typ (mA)	V <sub>OS</sub> Max (mV)	GBW Typ (MHz)	SR Typ (V/μs)	I <sub>O</sub> Typ (mA)	ΔV <sub>OS</sub> /ΔT (μV/C)	e <sub>N</sub> (nV/√Hz)	I <sub>bias</sub> Typ (pA)	CMRR Typ (dB)	Architecture	Temperature Range (°C)	Package Type
NCS2005SN1T1G	0.22	Pb-free Halide free non AEC-Q and PPAP	Active	Input/Output	1	2.2	32	1.3	6	8	2.7	12	1	45	50000	84	Bipolar	-40 to 125	TSO P-5 / SOT-23-5

For more information please contact your local sales support at [www.onsemi.com](http://www.onsemi.com).

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