Low voltage operational amplifier

NE/SA5230

DESCRIPTION

The NE5230 is a very low voltage operational amplifier that can perform with a voltage supply as low as 1.8V or as high as 15V. In addition, split or single supplies can be used, and the output will swing to ground when applying the latter. There is a bias adjusting pin which controls the supply current required by the device and thereby controls its power consumption. If the part is operated at ±0.9V supply voltages, the current required is only 110µA when the current control pin is left open. Even with this low power consumption, the device obtains a typical unity gain bandwidth of 180kHz. When the bias adjusting pin is connected to the negative supply, the unity gain bandwidth is typically 600kHz while the supply current is increased to 600µA. In this mode, the part will supply full power output beyond the audio range.

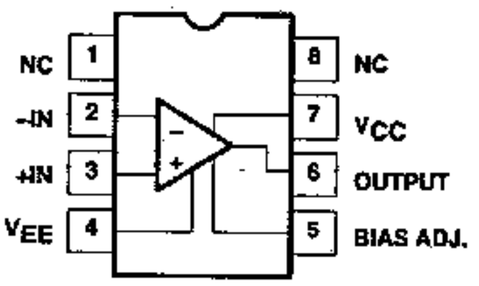
The NE5230 also has a unique input stage that allows the common-mode input range to go above the positive and below the negative supply voltages by 250mV. This provides for the largest possible input voltages for low voltage applications. The part is also internally-compensated to reduce external component count.

The NE5230 has a low input bias current of typically ±40nA, and a large open-loop gain of 125dB. These two specifications are beneficial when using the device in transducer applications. The large open-loop gain gives very accurate signal processing because of the large "excess" loop gain in a closed-loop system.

The output stage is a class AB type that can swing to within 100mV of the supply voltages for the largest dynamic range that is needed in many applications. The NE5230 is ideal for portable audio equipment and remote transducers because of its low power consumption, unity gain bandwidth, and 30nV/√Hz noise specification.

PIN CONFIGURATION

N, D, FE Packages



APPLICATIONS

- Portable precision instruments
- Remote transducer amplifier
- Portable audio equipment
- Rail-to-rail comparators
- Half-wave rectification without diodes
- Remote temperature transducer with 4 to 20mA output transmission

FEATURES

- Works down to 1.8V supply voltages
- Adjustable supply current
- Low noise
- Common-mode includes both rails
- V_{OUT} within 100mV of both rails

ORDERING INFORMATION

DESCRIPTION	TEMPERATURE RANGE	ORDER CODE	DWG #
8-Pin Plastic Small Outline (SO) Package	0 to +70°C	NE5230D	0174C
8-Pin Plastic Dual In-Line Package (DIP)	0 to +70°C	NE5230N	0404B
8-Pin Plastic Small Outline (SO) Package	-40°C to +85°C	SA5230D	0174C
8-Pin Ceramic Dual In-Line Package (CERDIP)	-40°C to +85°C	SA5230FE	0580A
8-Pin Plastic Dual In-Line Package (DIP)	-40°C to +85°C	SA5230N	0404B