

Low-Cost 250MHz Differential Receiver Amplifier

AD8129/8130

FEATURES:

High Speed

AD8130 250MHz, 1100V/ms @ G = 1

AD8129 200MHz, 1100V/ms @ G = 10

High CMRR 77dB @ 5MHz

High Input Impedance 500k Ω

Input Common Mode Range +/-10.5V

Low Noise

AD8130 12.5nV/rt Hz

AD8129 4.5nV/rt/Hz

Low Distortion

AD8130 -74dBc Worst Harmonic @ 5MHz

AD8129 -68dBc Worst Harmonic @ 5MHz

User Adjustable Gain

No External Components for G=1 or 2

Power Supply Range +4.5V to +/-12.5V

Power Down

Output Swing +/-10V

Applications

High Speed Differential Line Receiver

Differential to Single-ended Converter

High Speed Instrumentation Amp

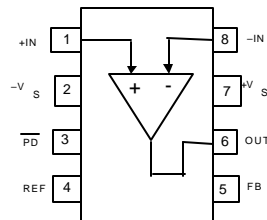
Level Shifting

GENERAL DESCRIPTION

The AD8129 and AD8130 are designed as receivers for the transmission of high-speed signals over twisted pair cables to work with the AD8131 or AD8132 drivers. Either can be used for analog or digital video signals and for high-speed data transmission. The AD8129 and AD8130 are differential to single-ended amplifiers with extremely high CMRR at high frequency. Therefore, they can also be effectively used as high-speed instrumentation amps or for converting differential signals to single-ended signals.

The AD8129 is a low-noise high gain (10 or greater) version intended for applications over very long cables where signal attenuation is significant. The AD8130 is stable at a gain of 1 and can be used for those applications where lower gains are required. Both have user adjustable gain to help compensate for losses in the transmission line. The gain is set by

CONNECTION DIAGRAMS
(TOP VIEW)
SO-8 (R) and mSO-8 (RM)



the ratio of two resistor values. The AD8129 and AD8130 have very high input impedance on both inputs regardless of the gain setting.

The AD8129 and AD8130 have excellent common-mode rejection (up to 77dB @5MHz) allowing the use of low cost unshielded twisted pair cables without fear of corruption by external noise sources or cross-talk. The output provides the capability to drive 40mA with high capacitive loads.

The AD8129 and AD8130 have a wide power supply range from single 5V supply to +/-12V allowing wide common-mode and differential mode voltage ranges, while maintaining signal integrity. The wide common mode voltage range will enable the driver receiver pair to operate without isolation transformers in many systems where the ground potential difference between drive and receive locations is many volts. The AD8129 and AD8130

have considerable cost and performance improvements over op amps and other multi-amplifier receiving solutions.