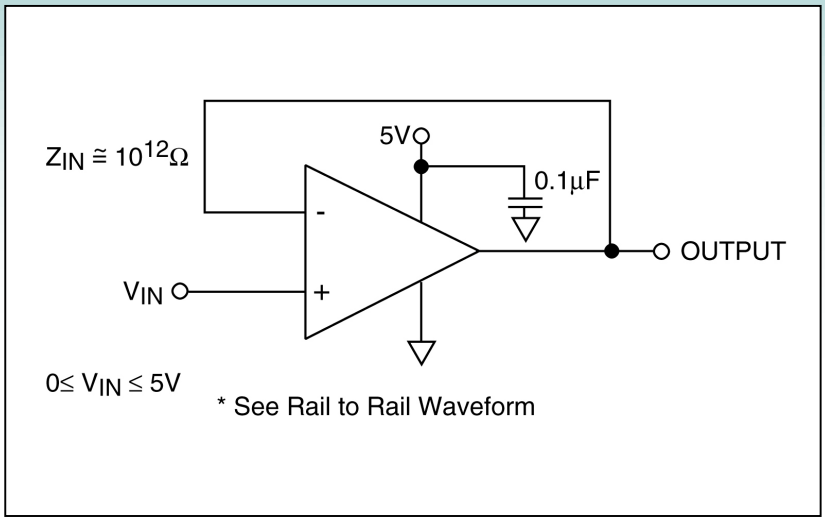
Category: Voltage Follower **CIRCUIT IDEAS FOR DESIGNERS** Schematic no. vf_27001.0

Rail-to-Rail Voltage Follower/Buffer



Description

This is the basic connection of a unity gain buffer amplifier. This unity gain amplifier is used primarily to isolate the input from the output. The key characteristics of this circuit are that the input impedance is required to be very high at the input and the output impedance at the output is very low. In this configuration, the output is connected back to the –ve input terminal of the amplifier. Therefore any voltage at the output would be forced upon the –ve input as well. As the operational amplifier has very high open loop gain, the output voltage would tend to be forced to become very close to Vin voltage. Any difference in voltage between the +ve input and the –ve input terminals would result in an equivalent input voltage applied across the inputs of the operational amplifier, and which then is amplified by the open loop gain of the operational amplifier. By using a rail-to-rail operational amplifier (see list below), the input voltage Vin can be at any voltage between the V+ and V- supply rails. The output of the rail-to-rail operational amplifier generally has a very low output resistance which, when connected to a load resistor, would result in an output voltage that can reach from within a few millivolts to a few tenths of millivolts from the supply rails. The actual output voltage achievable depends on the output impedance of the operational amplifier selected and the current it has to supply to the load resistance.

Recommended Components

ALD1701, ALD1702, ALD1704, ALD1706, ALD1712, ALD1721, ALD1722, ALD1726
½ ALD2711, ½ ALD2701, ½ ALD2702, ½ ALD2704, ½ ALD2706

Other Related Circuit Ideas

Schematic no. vf_27002.0 Micropower Buffered Rail-to-Rail Adjustable Voltage Source