

circuit exhibits the high impedance, very low bias current input of a CMOS amplifier ($< 1\text{pA}$ input current). Linearity is better than 1ppm over a $\pm 20\text{V}$ voltage range, when supplied by $\pm 24\text{V}$ ($V+$, $V-$), and the input offset magnitude and thermal drift is the same as the amplifier used at the input. The graph in **Figure 2** shows the output of the voltage follower with a 400Hz, 20V_{P-P} triangle wave applied at the input.

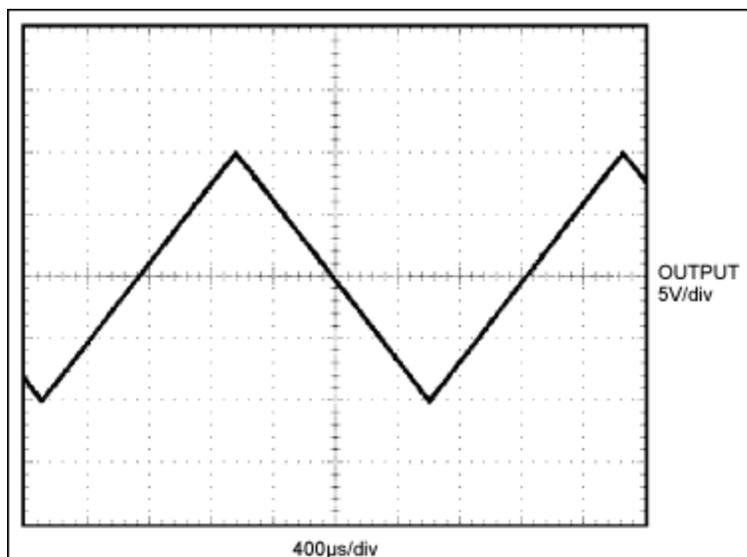


Figure 2. Voltage-follower output for a 400Hz triangle-wave input.

IC1 ([MAX4162](#)) is a micropower, precision op amp with a gain bandwidth product of 200kHz. IC2 ([MAX6771](#)) provides a regulated +3.3V supply voltage to IC1. The common node of IC2 is tracked to the input voltage by the feedback loop comprised of IC1 and transistor Q1. D1, a 4.5mA constant-current diode, provides quiescent biasing current for Q1, and sinks current from the load when V_{IN} is below circuit common potential. The RC network R1 and C3 provide shunt compensation to stabilize the circuit for a given bias current through Q1.

Output voltage swing is limited by the headroom requirements of the LDO and the constant current biasing diode, D1. The MAX6771 input voltage range of 76V and the maximum voltage rating of Q1 limit the allowable output voltage range of the circuit.

Related Parts

MAX4162	SOT23, Micropower, Single-Supply, Rail-to-Rail I/O Op Amps	Free Samples
MAX6771	Automotive Micropower Linear Regulators with Supervisor	Free Samples

More Information

For Technical Support: <http://www.maximintegrated.com/support>

For Samples: <http://www.maximintegrated.com/samples>

Other Questions and Comments: <http://www.maximintegrated.com/contact>

Application Note 4566: <http://www.maximintegrated.com/an4566>

APPLICATION NOTE 4566, AN4566, AN 4566, APP4566, Appnote4566, Appnote 4566
Copyright © by Maxim Integrated Products
Additional Legal Notices: <http://www.maximintegrated.com/legal>