



## **CIRCUIT IDEAS FOR DESIGNERS** Category: MOSFET Schematic no. fet\_11103.0 **Voltage Controlled Resistor** V+ 0 ŚR -oVo lds 🕴 DN1 VREFO GN1 S12 Note: VREF can be connected to any relatively stable voltage, such as a reference voltage or V+

## Description

This circuit shows an EPAD® MOSFET inverter circuit connected as a voltage controlled resistor circuit. The drain terminal is the output and the gate terminal is the input, which is connected to a voltage reference. The output voltage VO is determined by the reference input voltage and the output loading R. The drain to source voltage and the drain current Ids forms one leg of a resistor divider, and the resistor R forms the other leg of the resistor divider. Depending on the value of R selected, the output VO is biased in either negative tempco, zero tempco, or positive tempco modes. Note that the resistor R itself also contributes its own tempco term. This circuit works best when the VO value is kept to a low level, such as at less than 1.0V. If a separate reference voltage is not available, a relatively stable voltage such as a regulated V+ or a voltage that is ratio-metric to V+ could be used, at increased VO variations.

## **Recommended Components**

1/4 ALD1108xx, 1/2 ALD1109xx, or any of the EPAD MOSFETs

## **Other Related Circuit Ideas**

Schematic no. fet\_11100.0 Basic MOSFET/EPAD MOSFET Inverter Circuit Schematic no. fet\_11101.0 Basic MOSFET/EPAD MOSFET Diode-Connected Circuit

©2005 Advanced Linear Devices, Inc. Information furnished by Advanced Linear Devices, Inc. (ALD) is believed to be accurate and reliable. However, ALD assumes no responsibility for the use of such information nor for any infringement of patent or rights of third parties that may result from its use. No license is granted implication or otherwise under any patent rights of ALD.