



Category: FET

CIRCUIT IDEAS FOR DESIGNERS

Schematic no. fet\_11130.0

### Simple FET Source Follower

#### Description

The source follower is a circuit with a voltage gain slightly less than 1.00 and with a high input impedance and a low output impedance. It is used when the output of a signal source has a high impedance and the signal needs to be sent to a load with low impedance. If this source and load were connected directly, there would be a large loss of signal level, much worse than the 0.95 gain when using a typical emitter follower.

A depletion mode FET can be used for a simple source follower as well as a low  $V_{GS(th)}$  device such as ALD110900 or ALD212900 zero threshold devices. The input impedance is set by  $R_A$ , the output impedance is  $1/g_m$  of the FET in parallel with  $R_B$ , and the gain is the ratio of  $R_{LOAD}$  in parallel with  $R_B$  to the sum of  $1/g_m$  and the parallel combination of  $R_B$  and  $R_{LOAD}$ .

The design is initiated by first selecting the FET and the operating current. The current is set by the  $V_{GS(th)}$  threshold voltage and  $R_B$ .

For full schematic diagram and notes, please register and login at [aldinc.com](http://aldinc.com)