



Category: MOSFET

**CIRCUIT IDEAS FOR DESIGNERS**

Schematic no. fet\_11102.0

**Basic EPAD® MOSFET Connection with Current Source Drive****Description**

This circuit shows a basic diode-connected MOSFET connection driven by a constant current source. The drain terminal is shorted to the gate terminal. When connected in this manner, this circuit produces an output voltage  $V_O$ . The drain current  $I_{ds}$  that flows through the MOSFET increases exponentially with increases of  $V_O$ , with  $I_{ds}$  vs.  $V_O$  characteristics similar to that of a forward biased diode. Hence the term "diode-connected" configuration. This type of circuit is very useful to clamp or control the output to a certain voltage level and not allowing  $V_O$  to increase rapidly with current increase. When a constant current of  $68\mu\text{A}$  is applied, the resultant output voltage tend to be temperature stable. This results in a voltage about 55mV above threshold voltage of the EPAD MOSFET. At other voltage or current levels, the tempco changes from positive to negative as a function of drain currents. By selecting and setting a constant current source level, a voltage output with a certain positive, zero or negative temperature coefficient can be maintained.

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