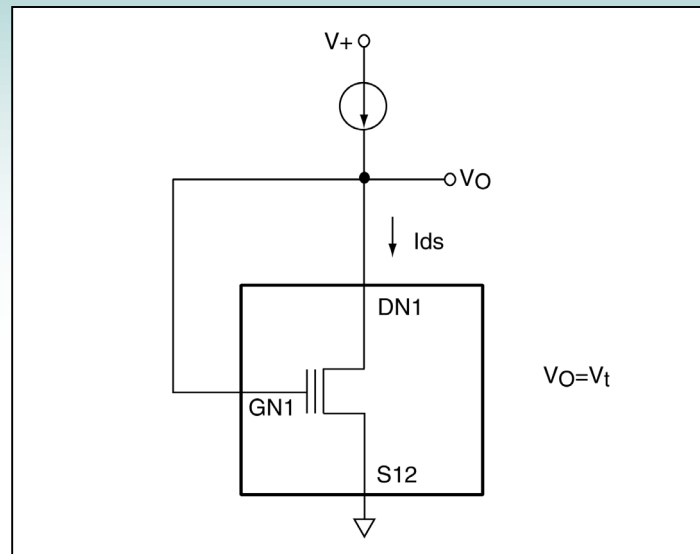




Basic EPAD® MOSFET Connection with Current Source Drive



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 $68\mu A$ 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.

Recommended Components

$\frac{1}{4}$ ALD1108xx; $\frac{1}{2}$ 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

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