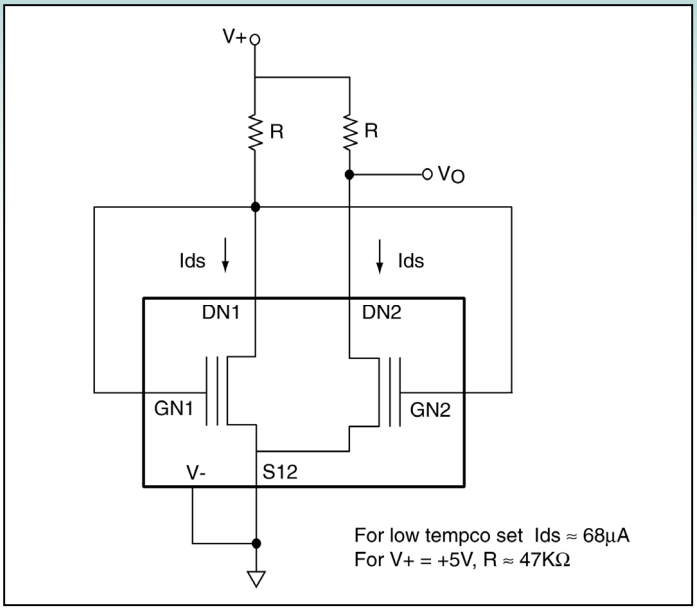
Category: MOSFET **CIRCUIT IDEAS FOR DESIGNERS** Schematic no. fet_11104.0

Matched Pair EPAD® MOSFET Array with a Single Supply



Description

This circuit uses a matched pair N-channel MOSFET Array (or EPAD MOSFET) for primary temperature and other electrical error effect matching and cancellation. The gate of device 1 and the gate of device 2 are shorted together, thereby forcing both devices to have exactly the same gate bias voltages. Therefore, the drain-source current Ids of DN1 is equal to Ids of DN2, when R is of the same value for both sides. Depending on the value of R selected, the output V_O is biased in either negative tempco, zero tempco, or positive tempco modes. Note that the resistor R itself also contributes its own tempco term. Interesting variations include using different value R1 and R2 instead of a balanced circuit with both sides using the same resistor (R) value. 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

¼ ALD1108xx, ½ ALD1109xx, or any of the EPAD MOSFETs

Other Related Circuit Ideas

Schematic no. fet_11101.0 Basic MOSFET/EPAD MOSFET Diode-Connected Circuit
Schematic no. fet_11103.0 Voltage Controlled Resistor
Schematic no. fet_11105.0 Matched Pair EPAD MOSFET with Dual Supplies