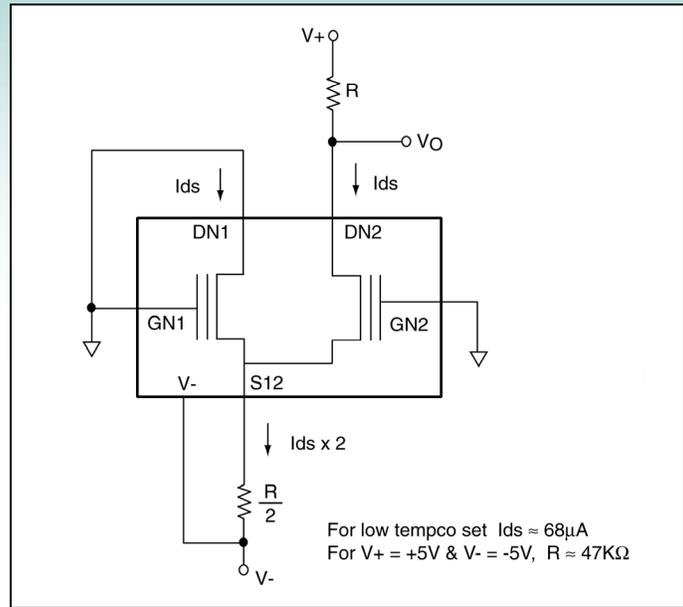




Matched Pair EPAD® MOSFET with Dual Supplies



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 to ground, thereby forcing both devices to have exactly the same gate bias voltages. The source current through R/2 resistor is equal to drain current of DN1 plus the drain current DN2. At small values of VO, the drain current of both sides are equal to each other, i.e. $I_{DS1} = I_{DS2}$. 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. Interesting variations include using different value for R. 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_11104.0](#) Matched Pair EPAD MOSFET Array with a Single Supply