



Category: FET

CIRCUIT IDEAS FOR DESIGNERS

Schematic no. fet_11138.0

Precision P-Channel Low Tempco Cascode Current Source**Description**

Cascoding buffers the current source set by RSET from the load, so that variations of the load have minimal impact on the current source itself. Matched MOSFETs in this circuit produce a constant current at the output; this current remains constant for different loads. For low tempco, reference current ISET need to be set at 57 μ A with appropriate RSET and V+ values. Matching full scale readings produce best results when RLOAD = RSET. This gives constant 57 μ A current at the output from RLOAD = 0 to RLOAD = RSET (full scale voltage). This cascode circuit was tested for current at RLOAD, 0.8 * RLOAD, 0.4 * RLOAD, 0.2 * RLOAD, 0.1 * RLOAD, with temperature coefficient and accuracy results of 50ppm/ $^{\circ}$ C and 0.5%. RLOAD and RSET resistor types, their temperature coefficients and tolerances affect the accuracy readings directly, so for best results match RSET resistor characteristics to RLOAD characteristics.

For full schematic diagram and notes, please register and login at aldinc.com