Precision Low Voltage P-Channel Cascode Current Sources

Description

This is a multiple p-channel cascode current source with gates and drains diode-connected. Cascoding buffers the current source set by R_{SET} from the loadings, so that variations of the load have minimal impact on other loads and the current source itself. Matched MOSFETs in this circuit produce a constant current I_{SOURCE} at the output for different loads. Matching full scale readings produce best results when $R_{LOAD} = R_{SET}$. R_{LOAD} and R_{SET} resistor types, their temperature coefficients and tolerances affect the accuracy readings directly, so for best results match R_{SET} resistor characteristics to R_{LOAD} characteristics. Notice when connecting multiple device packages to build a larger array of cascode current sources with multiple outputs, the first devices in a cascode circuit should be from one IC package, and then the second device in the cascode circuit should be from a second package. Thus, matching across the circuits is preserved with best same chip error cancellation possible.

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