



Category: FET

CIRCUIT IDEAS FOR DESIGNERS

Schematic no. fet_11128.0

Attenuator with Attenuation Control

Description

For small values of V_{DS} , FETs act like variable resistors controlled by V_{GS} . They can be used for variable attenuators. The circuit above is a classical voltage divider with two stages in tandem. However, the input and output impedance changes with attenuation.

With no attenuation Q1 is off, $V_{GS1} = 0.0V$ and Q2 is also off, $V_{GS2} = 0.0V$. Maximum attenuation is when Q1 is full on and Q2 is full off. This requires separate controls for the gate bias (attenuation control).

On the above circuit, the FET resistance is a nonlinear function of gate bias. For accuracy, the gate bias can be from a DAC output and the DAC input can be from a lookup table.

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