

VARIABLE GAIN LOW NOISE AMPLIFIER

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Abstract

The load of the cascode amplifier is varied by connecting another (secondary) load in parallel with the original load. The secondary load is connected through a MOSFET switch. During the High Gain Mode the MOSFET switch is OFF and the secondary load is electrically isolated from the main load, whereas in the Low Gain Mode the switch is turned ON and the secondary load appears across the primary load, reducing the effective load impedance. The secondary load is AC coupled such that the DC bias current does not pass through the secondary load and hence the Noise Figure (NF) and linearity (IIP3) performance are better in the Low Gain Mode. A number of such switchable loads can be connected across the load to obtain programmability.

Figure 2