Abstracts

Principles of Large-Signal MESFET Operation

T.A. Winslow and R.J. Trew. "Principles of Large-Signal MESFET Operation." 1994 Transactions on Microwave Theory and Techniques 42.6 (Jun. 1994 [T-MTT]): 935-942.

The large-signal RF operating principles of MESFET amplifiers are investigated using a circuit simulator that incorporates a physics based MESFET model which has been augmented with a new gate breakdown model. It is demonstrated that the main saturating mechanisms of the MESFET under large-signal RF operation are forward and reverse conduction of the gate electrode. Maximized RF performance of MESFET amplifiers is obtained by optimally positioning the dynamic load line relative to the RF-IV plane. The position of the dynamic v-i characteristic is determined by device breakdown, bias, and circuit tuning conditions.

❑ Return to main document.