# Abstracts

## Design and Analysis of a Traveling-Wave MESFET with Enhanced Shielding Capabilities

*A.D. Yarbrough and S.S. Osofsky. "Design and Analysis of a Traveling-Wave MESFET with Enhanced Shielding Capabilities." 1994 Transactions on Microwave Theory and Techniques 42.9 (Sep. 1994, Part I [T-MTT]): 1610-1616.*

The Concentric MESFET (CMESFET) is a small-signal, traveling-wave transistor in which a grounded source electrode surrounds and shields the gate and drain electrodes from electromagnetic fields generated by other nearby circuit elements. S-parameters for the transistor are computed to obtain gain curves for several design configurations. For a gate length of 2 µm, maximum gain occurs with a gate width of 3.0 mm. The CMESFET has a calculated bandwidth of 17 GHz for this gate length and a gate width of 300 µm. Coupling capacitances between device electrodes and a nearby transmission line are calculated to demonstrate how the shielding source electrode isolates the device from interference and crosstalk originating in the surrounding circuit. The CMESFET geometry exhibits shielding characteristics better than those of conventional small-signal FET geometries.

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