# Abstracts

## A Temperature Noise Model for Extrinsic FETs

*B. Hughes. "A Temperature Noise Model for Extrinsic FETs." 1992 Transactions on Microwave Theory and Techniques 40.9 (Sep. 1992 [T-MTT]): 1821-1832.*

A resistor temperature noise model for FETs has been successfully applied to extrinsic FETs to predict the frequency dependence of minimum noise figure, F/sub min/, and associated gain, G/sub Aopt/.The model gives a fixed relationship between F/sub min/ and G/sub Aopt/, with one fitting parameter T/sub d/. An extensive comparison to published results shows that the majority of FETs can be modelled with effective T/sub d/ values (the temperature of the output resistor) between 300 and 700 K for all of frequencies (8 to 94 GHz), gate lengths (0.8 to 0.1 µm) and material types examined. The analysis shows that InP-based MODFETs exhibit significantly lower F/sub min/ and higher G/sub Aopt/ than conventional and pseudomorphic GaAs-based MODFETs of the same gate length. The results suggest a high f/sub max/, is a key factor for low noise figure.

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