Abstracts

FET's and HEMT's at Cryogenic Temperatures - Their Properties and Use in Low-Noise Amplifiers (Mar. 1988 [T-MTT])

M.W. Pospieszalski, S. Weinreb, R.D. Norrod and R. Harris. "FET's and HEMT's at Cryogenic Temperatures - Their Properties and Use in Low-Noise Amplifiers (Mar. 1988 [T-MTT])." 1988 Transactions on Microwave Theory and Techniques 36.3 (Mar. 1988 [T-MTT]): 552-560.

This paper reviews the performance of a number of FET's and HEMT's at cryogenic temperatures. Typical dc characteristics and X-band noise parameters are presented and qualitatively correlated wherever possible with other technological or experimental data. While certain general trends can be identified, further work is needed to explain a number of observed phenomena. A design technique for cryogenically cooled amplifiers is briefly discussed, and examples of realizations of L-, C-, X-, and K-band amplifiers are described. The noise temperature of amplifiers with HEMT's in input stages is usually less than half of that for all-FET realizations, setting new records of performance for cryogenically cooled, multistage amplifiers.

❑ Return to main document.