Abstracts

S-Parameter Characterization and Modeling of Three-Terminal Semiconductive Devices at Cryogenic Temperatures

J.W. Smuk, M.G. Stubbs and J.S. Wight. "S-Parameter Characterization and Modeling of Three-Terminal Semiconductive Devices at Cryogenic Temperatures." 1992 Microwave and Guided Wave Letters 2.3 (Mar. 1992 [MGWL]): 111-113.

Three generations of three-terminal microwave semi-conductive devices are measured and analyzed at 297K and 77K. FET's, HEMT's, and Pseudomorphic-HEMT's (P-HEMT's) are accurately characterized over the frequency range from 1 GHz to 20 GHz using a newly developed split-block test fixture and the Through-Reflect-Line (TRL) calibration technique. Accurate characterization allows small-signal models to be closely fitted at both temperatures. The performance improvement offered by low temperature operation is described.

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