Abstracts

Reliability Study of GaAs MESFET's

T. Irie, I. Nagasako, H. Kohzu and K. Sekido. "Reliability Study of GaAs MESFET's." 1976 Transactions on Microwave Theory and Techniques 24.6 (Jun. 1976 [T-MTT] (Special Issue on Microwave Field-Effect Transistors)): 321-328.

Failure modes have been studied phenomenologically on a small-signal GaAs MESFET with a 1µm aluminum gate. Three major failure modes have been revealed, i.e., gradual degradation due to source and drain contact degradation, catastrophic damage due to surge pulse, and instability or reversible drift of electrical characteristics during operation. To confirm the product quality and to assure the device reliability, a quality assurance program has been designed and incorporated in a production line. A cost-effective lifetime prediction method is presented that utilizes correlations between RF parameters and dc parameters calculated using an equivalent circuit model. Mean time to failure (MTTF) value of over 10/sup 8/ h has been obtained for the GaAs MESFET for an operating channel temperature of 100°C.

❑ Return to main document.