Abstracts

Establishing the Minimum Reverse Bias for a p-i-n Diode in a High-Power Switch

R.H. Caverly and G. Hiller. "Establishing the Minimum Reverse Bias for a p-i-n Diode in a High-Power Switch." 1990 Transactions on Microwave Theory and Techniques 38.12 (Dec. 1990 [T-MTT] (1990 Symposium Issue)): 1938-1943.

An important circuit design parameter in a high-power p-i-n diode application is the selection of an appropriate applied dc reverse bias voltage. Until now, this important circuit parameter has been chosen either conservatively, using the magnitude of the peak RF voltage, or by empirical trials to determine a possible lower value. This paper explores the reverse bias requirement for a p-i-n diode operating in a high-power RF and microwave environment. It demonstrates that the minimum reverse bias voltage is equivalent to the p-i-n diode's self-generated dc voltage under similar RF conditions. A concise expression for this self-generated voltage is developed and experimentally verified and will assist the design engineer in more accurately selecting an appropriate minimum value for the applied reverse bias voltage setting.

❑ Return to main document.