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IGBT 的動態特性分析  
Analysis of IGBT's Dynamic Characteristics

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中文摘要

IGBT 是目前常用的高功率半導體元件，具有高導通電流密度及高輸入阻抗之優點。本篇論文的重點在於研究 IGBT 的動態特性，並以之建立一個符合靜態及動態的模型。我們設計一些靜態及動態的量測實驗，從中萃取出我們所需要的元件內部參數。從靜態中取得  $G_m, V_t, G_d, K, \text{Alpha}(\text{pnp})$  等參數。由動態取得高注入載子生命週期， $\text{Alpha}(\text{pnp})$  等，最後加上溫度的變數，萃取值後供 MEDICI 及 HSPICE 等模擬軟體使用，並建立一個 HSPICE MODEL 供線路設計使用。

關鍵字：絕緣閘雙極性電晶體

Abstract

The Dessert discuss the dynamic characteristics of IGBT and try to build a IGBT dynamic model.IGBT combines the advantages of MOS and BJT, has high conduction current and high input resistance. Here we design some experiment including steady and dynamic state. And extract some parameters from measurement results. Then we build a model for steady and dynamic characteristic.From steady state we extract  $G_m, V_t, G_d, K, \text{alpha}(\text{pnp})$  etc and from dynamic results we extract High level injection carrier life time,  $\text{alpha}(\text{pnp})$  etc.

Key words : Igbt; IGBT