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Autore	Ashburn Peter
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Generation Current in a Reverse Biased pn Junction; 4.2.4 Origins of Deep Levels in Bipolar Transistors; 4.3 High Current Gain
4.4 Basewidth Modulation 4.5 Series Resistance; 4.6 Junction Breakdown; 4.6.1 Punch-through; 4.6.2 Zener Breakdown; 4.6.3 Avalanche Breakdown; 4.6.4 Junction Breakdown in Practice; 4.6.5 Common Base and Common Emitter Breakdown Voltages; 4.6.6 Trade-off between Gain and $BV(CEO)$; References; 5 High-frequency Performance; 5.1 Introduction; 5.2 Forward Transit Time $t(F)$; 5.2.1 Components of $t(F)$; 5.2.2 Base Transit Time; 5.2.3 Emitter Delay; 5.2.4 Collector/Base Depletion Region Transit Time; 5.2.5 Emitter/Base Depletion Region Delay; 5.3 Cut-off Frequency $f(T)$
5.4 Maximum Oscillation Frequency $f(max)$ 5.5 Kirk Effect; 5.6 Base, Collector and Emitter Resistance; 5.6.1 Base Resistance; 5.6.2 Collector Resistance; 5.7 Emitter/Base and Collector/Base Depletion Capacitance; 5.8 Quasi-saturation; 5.9 Current Crowding; References; 6 Polysilicon Emitters; 6.1 Introduction; 6.2 Basic Fabrication and Operation of Polysilicon Emitters; 6.3 Diffusion in Polysilicon Emitters; 6.4 Influence of the Polysilicon/Silicon Interface; 6.5 Base Current in Polysilicon Emitters; 6.6 Effective Surface Recombination Velocity; 6.7 Emitter Resistance
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7.3 Physical Properties of Silicon-Germanium

Sommario/riassunto

SiGe HBTs is a hot topic within the microelectronics community because of its applications potential within integrated circuits operating at radio frequencies. Applications range from high speed optical networking to wireless communication devices. The addition of germanium to silicon technologies to form silicon germanium (SiGe) devices has created a revolution in the semiconductor industry. These transistors form the enabling devices in a wide range of products for wireless and wired communications. This book features: SiGe products include chip sets for wireless cellular handsets
