

Influence of Temperature on Properties of MOSFETs

Authors : Azizi Cherifa, O. Benzaoui

Abstract : The thermal aspects in the design of power circuits often deserve as much attention as pure electric components aspects as the operating temperature has a direct influence on their static and dynamic characteristics. MOSFET is fundamental in the circuits, it is the most widely used device in the current production of semiconductor components using their honorable performance. The aim of this contribution is devoted to the effect of the temperature on the properties of MOSFETs. The study enables us to calculate the drain current as function of bias in both linear and saturated modes. The effect of temperature is evaluated using a numerical simulation, using the laws of mobility and saturation velocity of carriers as a function of temperature.

Keywords : temperature, MOSFET, mobility, transistor

Conference Title : ICEESE 2015 : International Conference on Electrical, Electronics and Systems Engineering

Conference Location : Istanbul, Türkiye

Conference Dates : December 21-22, 2015