

Calculation of IGBT power losses and junction temperature in inverter drive

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Abstract : Several techniques for estimating power losses in insulated-gate bipolar transistors (IGBTs), diodes and MOSFETs are known. Most of the approaches in the literature deal with PWM switching technique. In this paper presents a feasible loss model to estimate IGBT losses in a switching operation. The loss model is coupled to RC (Foster) Network using the Thermal Impedance. This paper investigates the power losses in IGBT's and associated Diodes as a function of the circuit and the temperature variation during operation. A full presentation of the electro-thermal model has been developed and simulated.

Keywords : IGBT, Losses, thermal analysis