

FUJI X-series IGBT Module 1700V Family

Current imbalance ratio between parallel connected IGBT modules

The proportion of current sharing between IGBT modules in parallel connection, called the current imbalance ratio α . This ratio is determined by the variation of $V_{CE(sat)}$ of the IGBT's itself and the junction temperature dependence of the output characteristics. The current imbalance ratio α is determined using Equation 1 which sets the current value I_{C1} in relation to the average current $I_{C(ave)} (= I_{C1}/2 + I_{C2}/2)$ of the two paralleled modules.

The dependency between the current imbalance ratio α and the variation $\Delta V_{CE(sat)}$ of IGBT and ΔV_F of FWD for two X-series IGBT modules in parallel are shown in Figure 2.

$$\alpha = \left(\frac{I_{C1}}{I_{C(ave)}} - 1 \right) \times 100 \quad (\text{Equation 1})$$

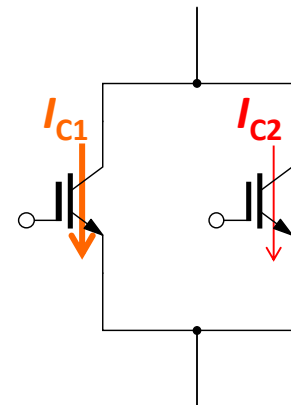


Figure 1

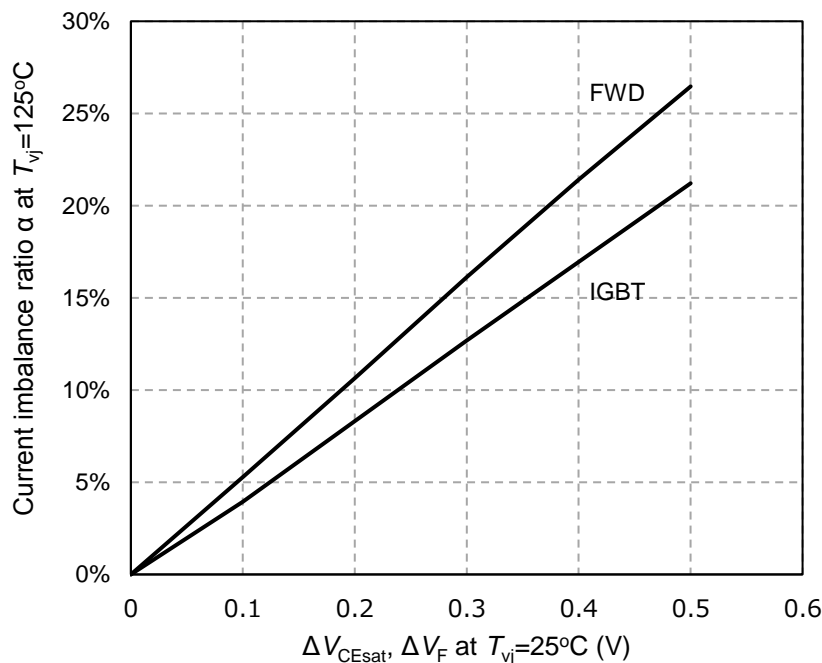


Figure 2 $V_{CE(sat)}$ and V_F variation and current imbalance ratio (1700V)

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