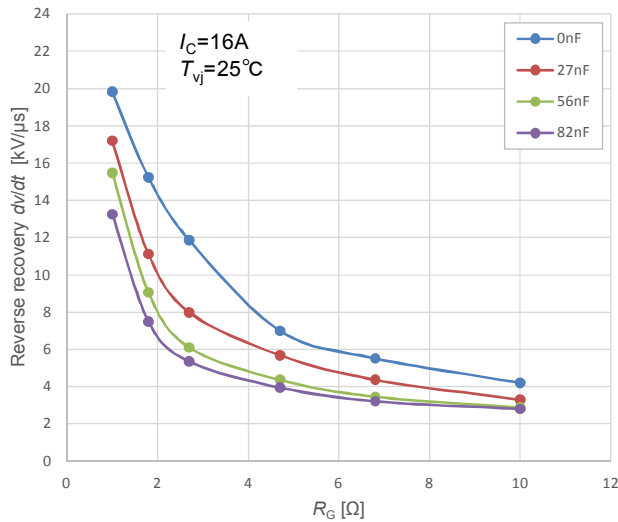


FUJI IGBT Module 6MBI800XV-075V-01

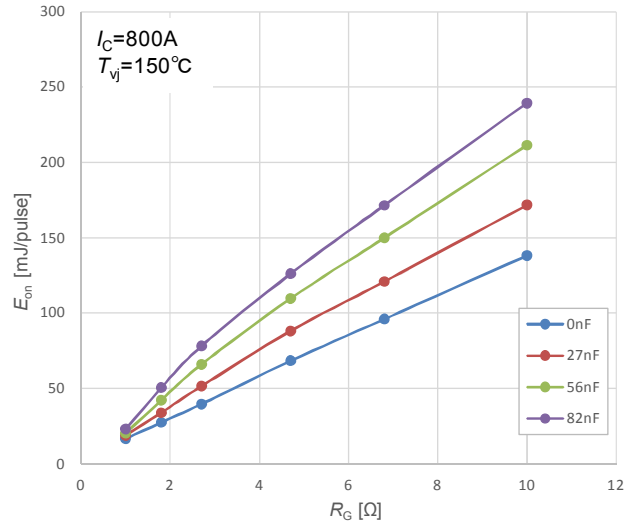
Switching energy and Reverse recovery dv/dt with combination of R_G and C_{GE}

Measured module: 6MBI800XV-075-01

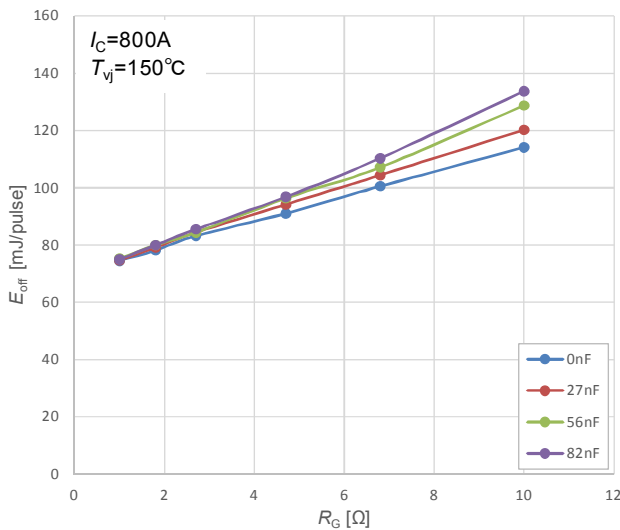
Measured conditions: $V_{CC}=400V$, $I_C=16A$ or $800A$, $V_{GE}=+15V/0V$, $R_G=var.$, $C_{GE}=0, 27, 56, 82nF$
 $T_{vj}=25^\circ C$ or $150^\circ C$



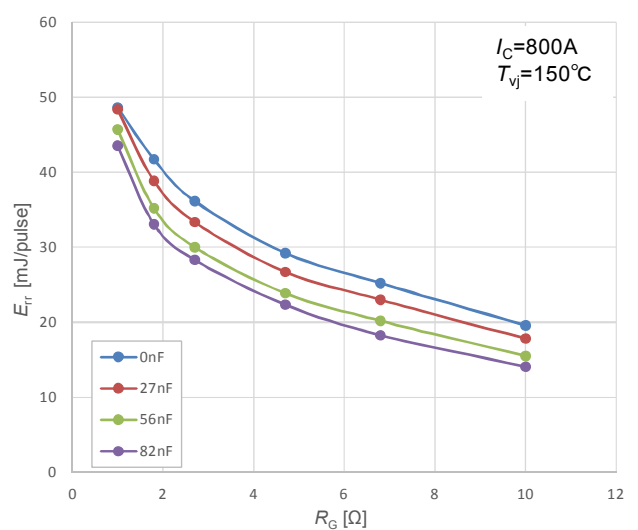
(a) R_G dependence of reverse recovery dv/dt



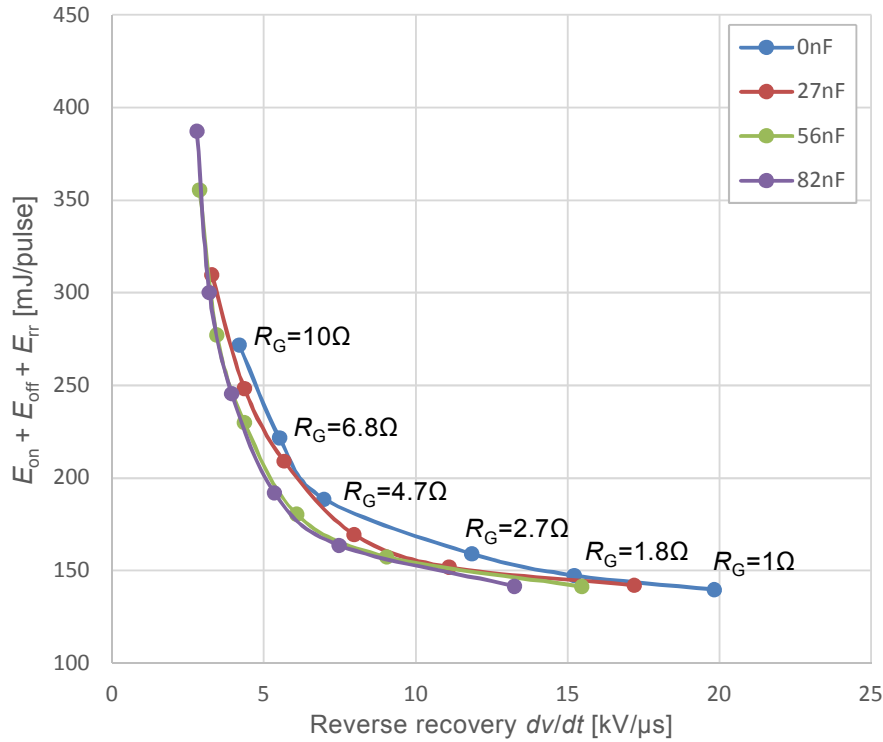
(b) R_G dependence of turn on loss



(c) R_G dependence of turn off loss



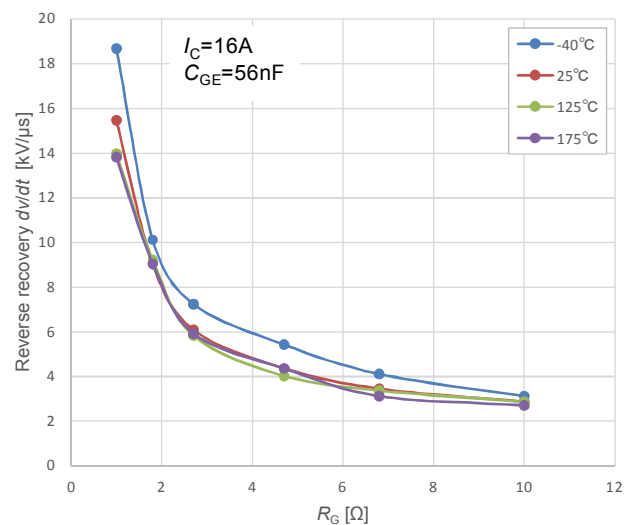
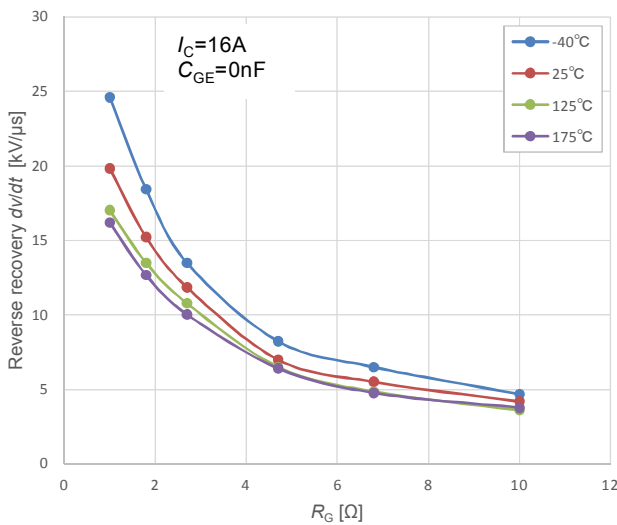
(d) R_G dependence of reverse recovery loss



(e) C_{GE} and R_G dependence for sum of switching loss and reverse recovery dv/dt

Additional external capacitance between IGBT gate and emitter terminals has an effect of improving the trade off between reverse recovery dv/dt and total switching energy as shown in above chart. However, simply add C_{GE} slows down the IGBT significantly and it results penalty of increasing the switching loss. Therefore, the combination of extra- C_{GE} and reduction of the gate resistance (R_G) is recommended to achieve the highest performance of lower dv/dt as well as keep switching energy low.

Reference data



(f) R_G and T_{vj} dependence of reverse recovery dv/dt

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