

— Fuji IGBT Module V Series 1700V Family —

Gate resistance dependence of surge voltage

Type name : 2MBI550VN-170-50

Conditions : Vdc=900V, Ic=550A, Vge=+/-15V, Tj=vari., Rg=vari.

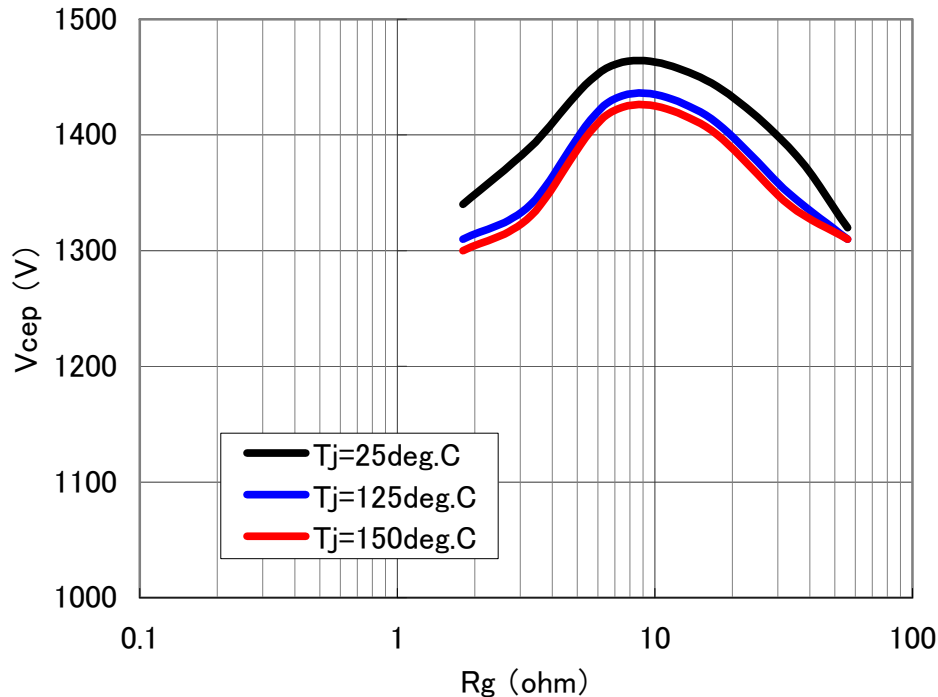


Fig. Gate Resistance Dependence of Turn-off Surge Voltage

The surge voltage, especially at IGBT turn off, depends on the gate resistance. As shown in the figure above figure shows, the surge voltage is able to control with the gate resistance but the curve shape peaks depending on the junction temperature. The primary reason of such behavior is the interaction of two silicon physics in IGBT chip; 1) the carriers stored in the drift region and 2) Current through MOS channel¹⁾.

Reference :

- 1) Y. Onozawa et al., "Investigation of carrier streaming effect for the low spike fast IGBT turn-off", Proc. ISPSD, pp173-176, 2006.