

ENGINEERING TRIPOS PART IIB 2013
4B2 Numerical Solutions

Q1: On-state losses: 1.41 W
Off-state losses: ~0 W
Turn-on Losses: 6.03 W
Turn-off Losses: 11.68 W
Total Losses: 19.12 W

Q3 (b) (ii) $I_{\text{snap-back}} = 70 \text{ mA}$ (considering a forward-voltage of the junction as 0.7 V)
 $V_{\text{snap-back}} = 5.6 \text{ V}$

(iii) $I_{\text{latch-up}} = 2.33 \text{ A}$
When the temperature is raised by 50 C, $I_{\text{latch-up}} = 2 \text{ A}$