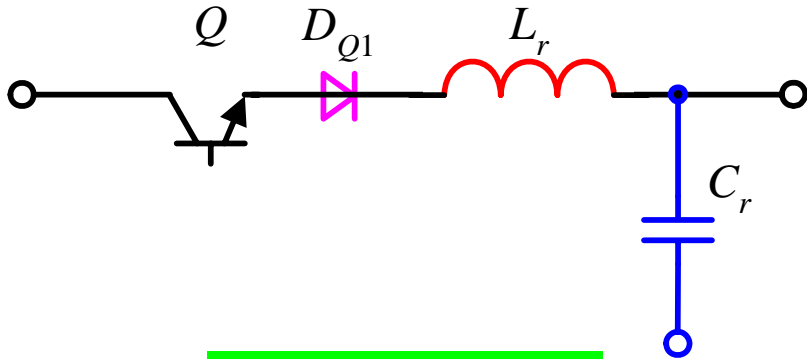


Quasi-Resonant Converters

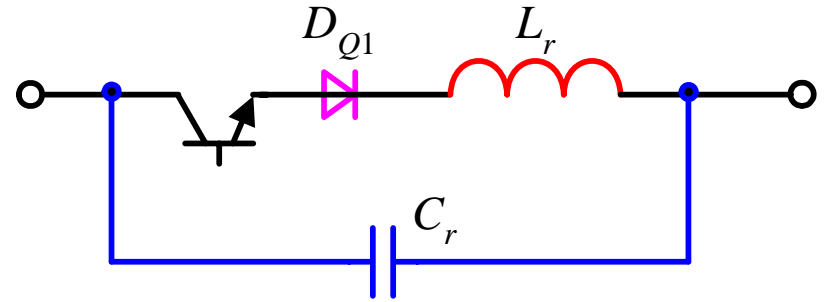
Presented by

Xinbo Ruan

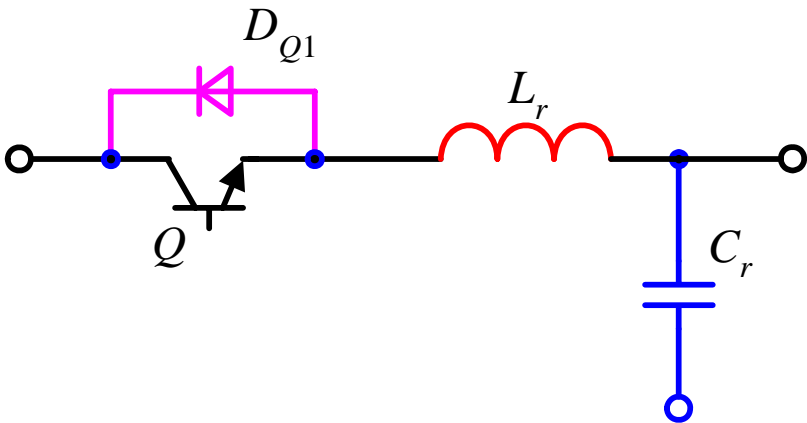
Aero-Power Sci-tech Center
Nanjing University of Aeronautics & Astronautics



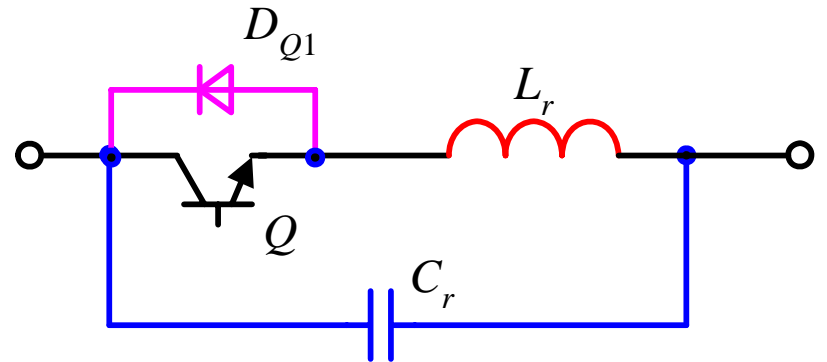
Half-wave mode



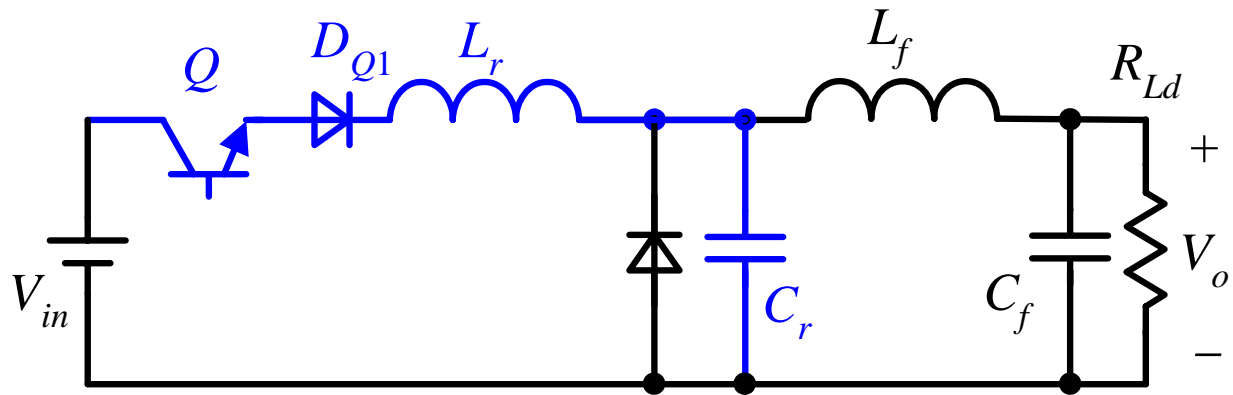
Half-wave mode



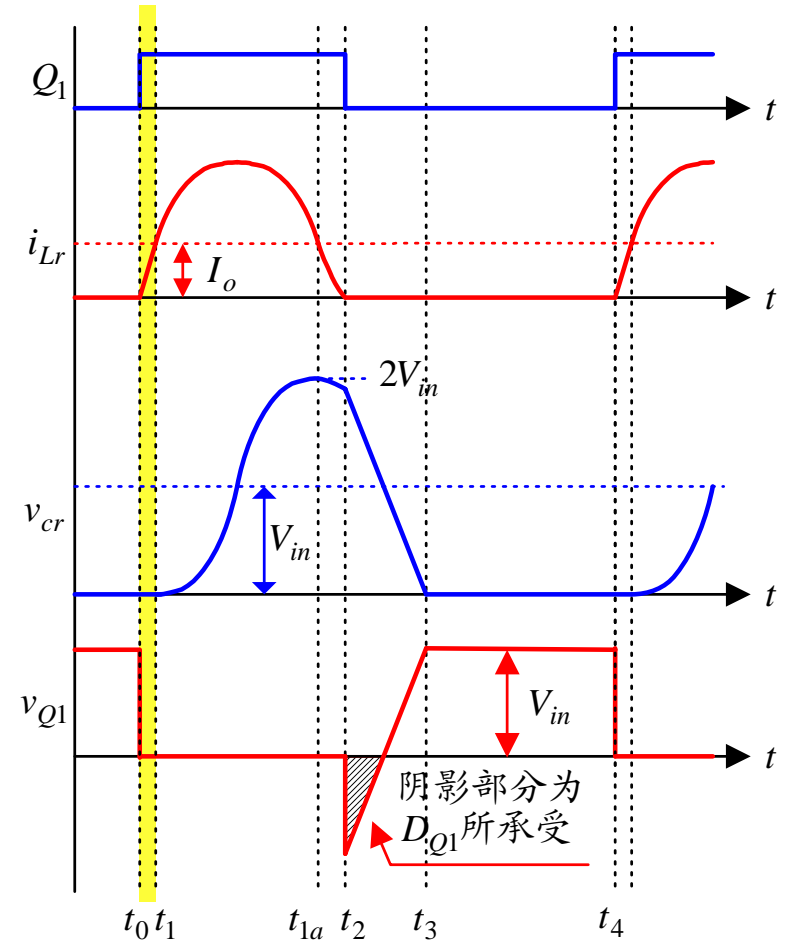
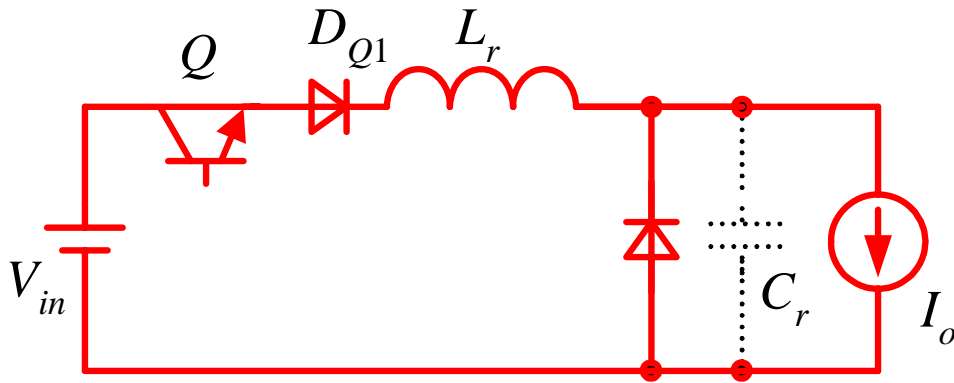
Full-wave mode



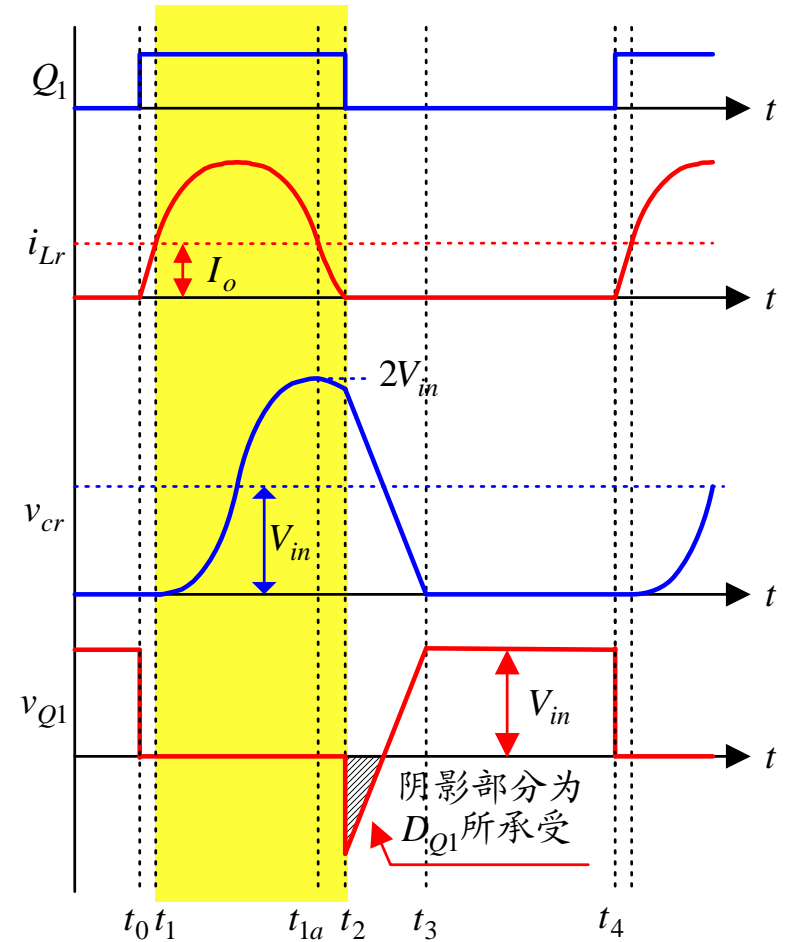
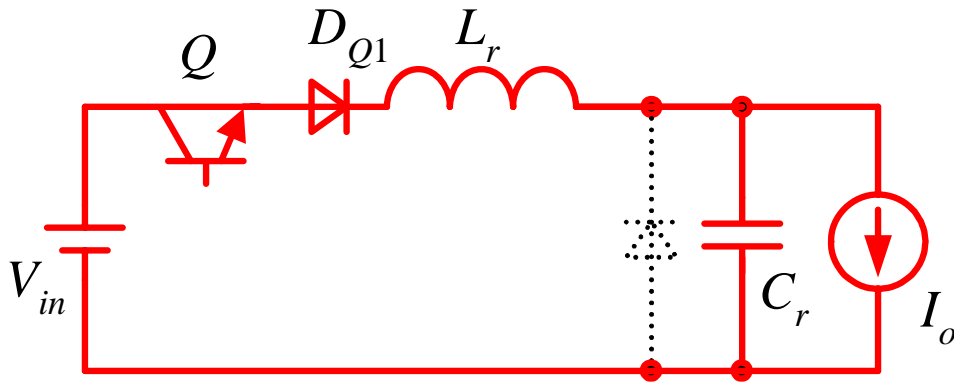
Full-wave mode



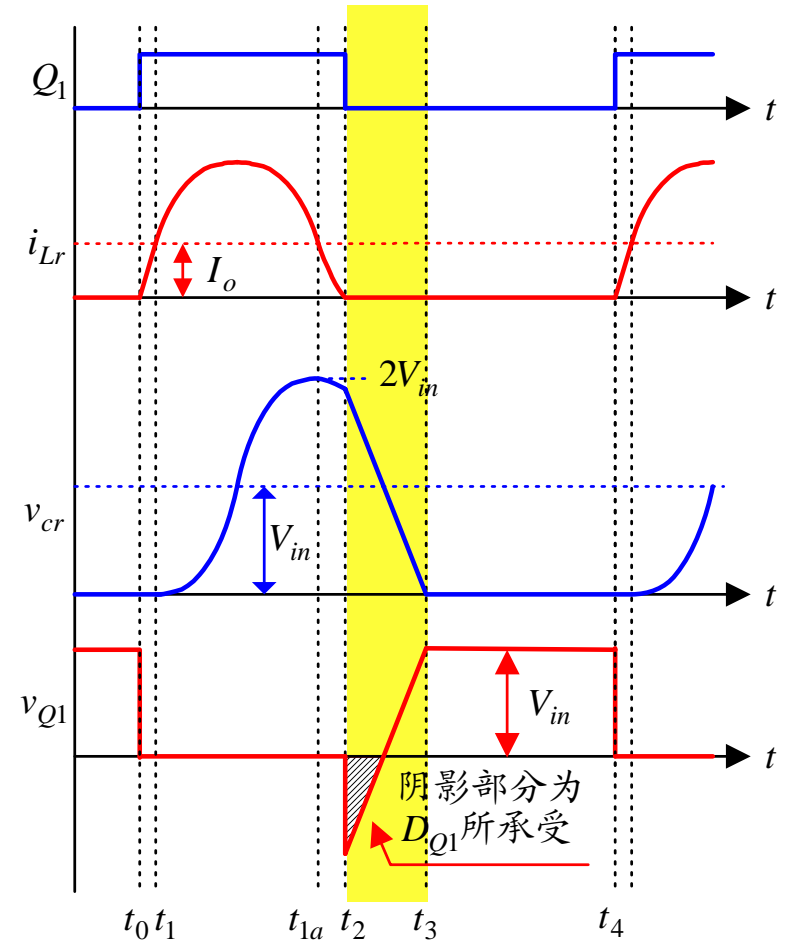
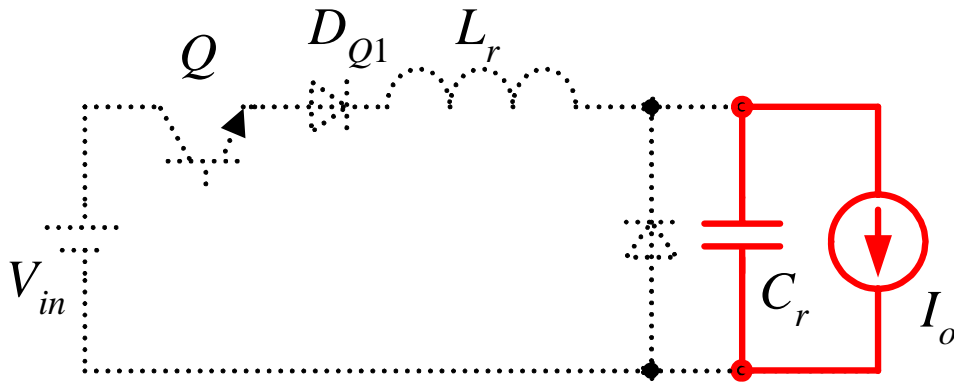
HW ZCS QRC: Linear Charge Stage



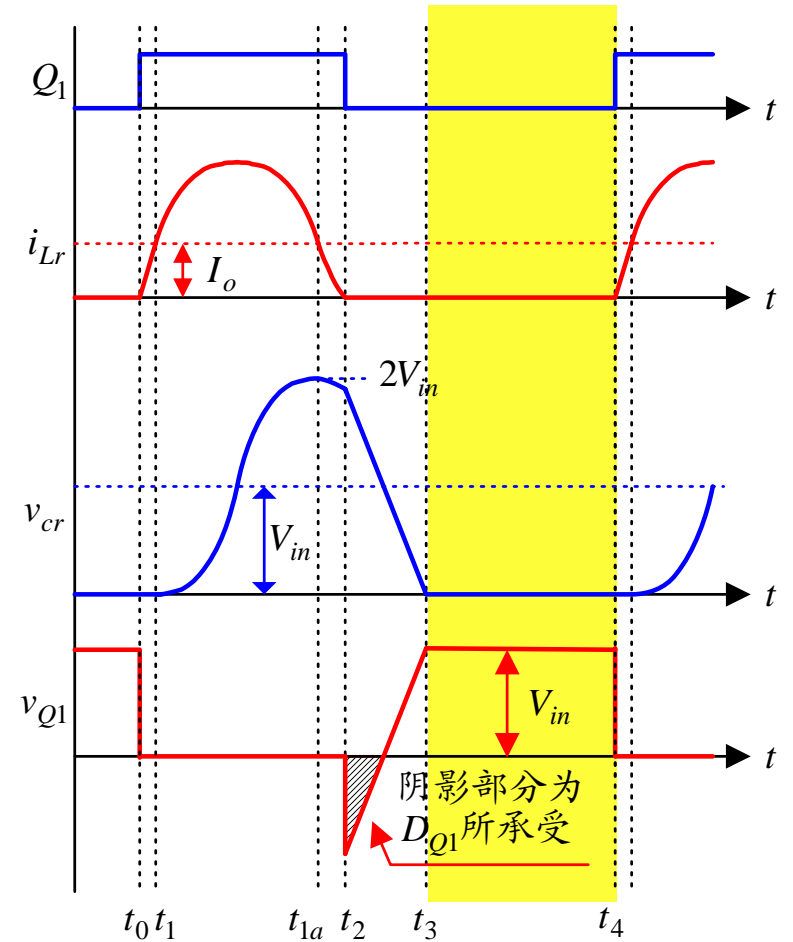
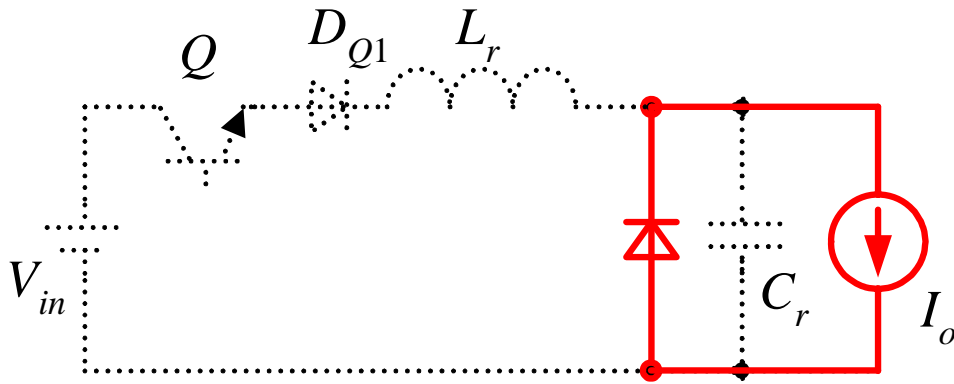
HW ZCS QRC: Resonant Stage

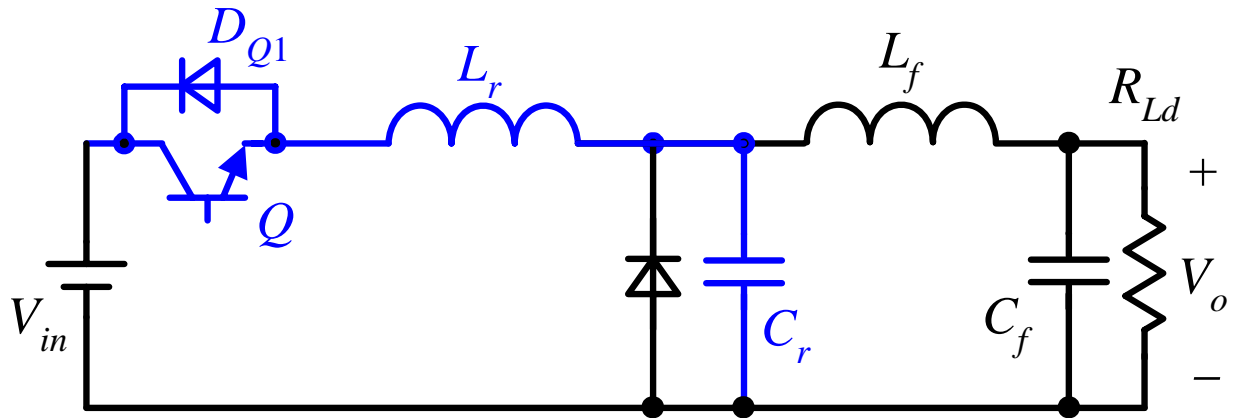


HW ZCS QRC: Discharge Stage

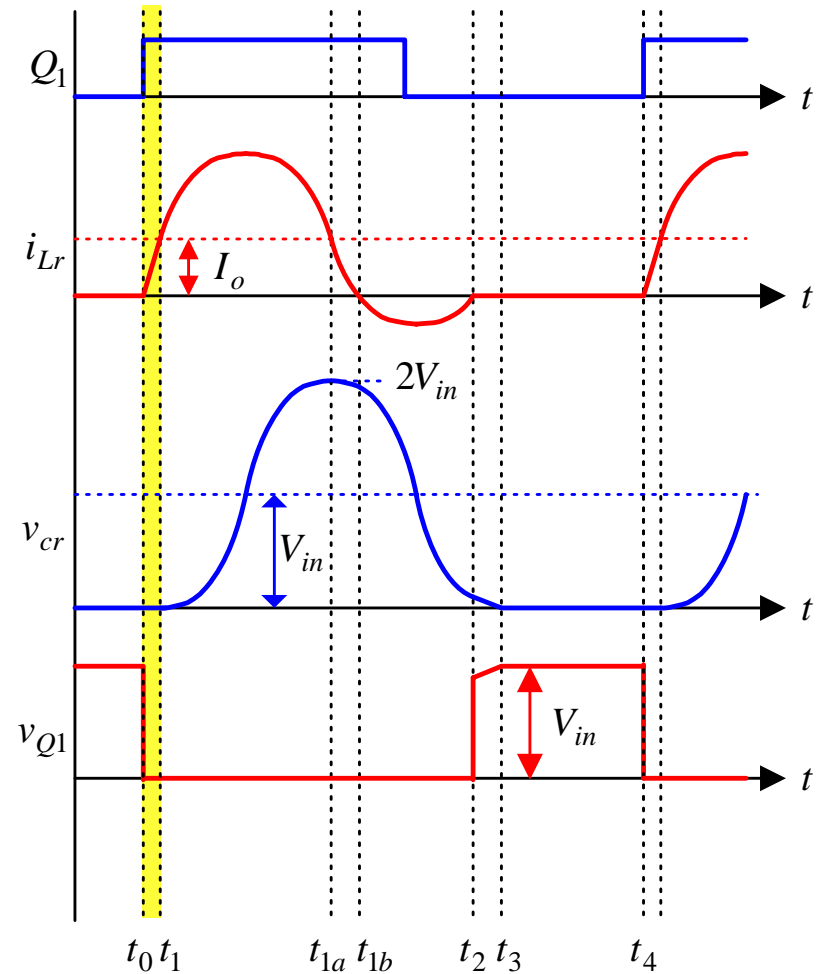
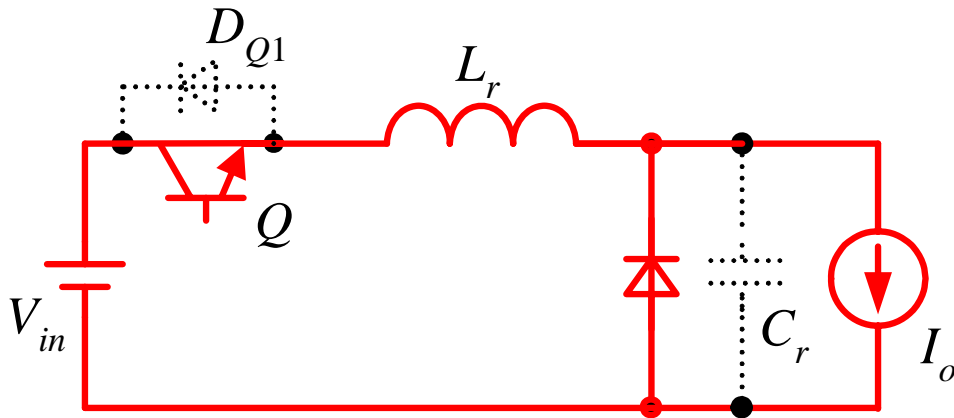


HW ZCS QRC: Freewheeling Stage

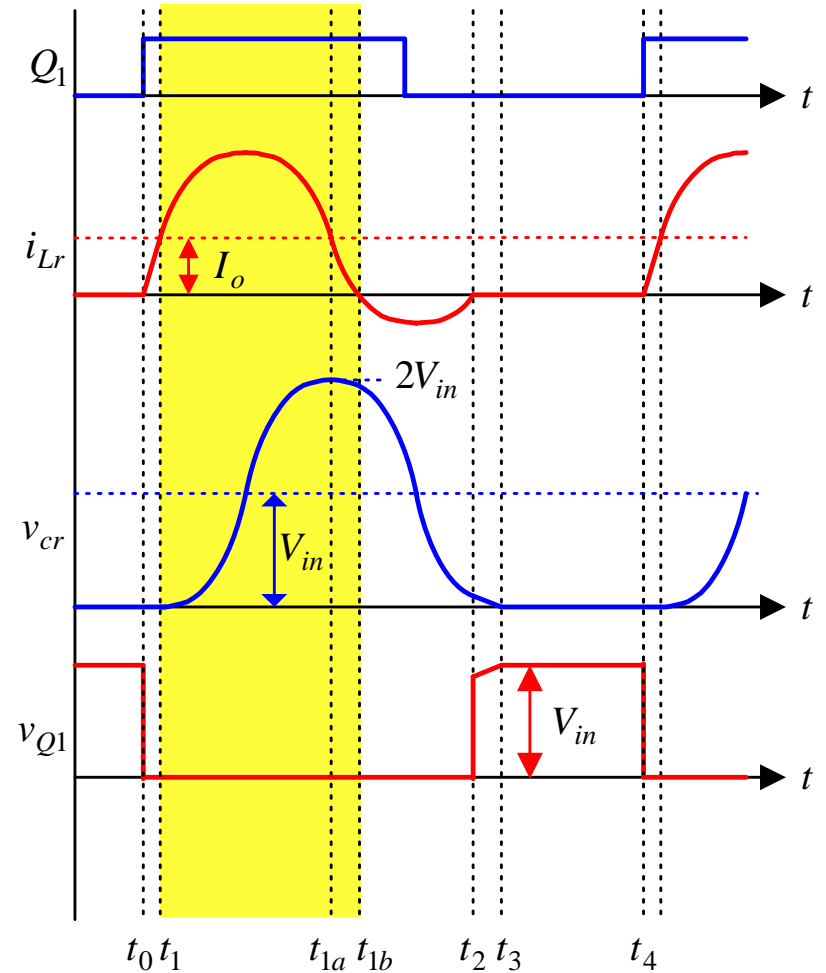
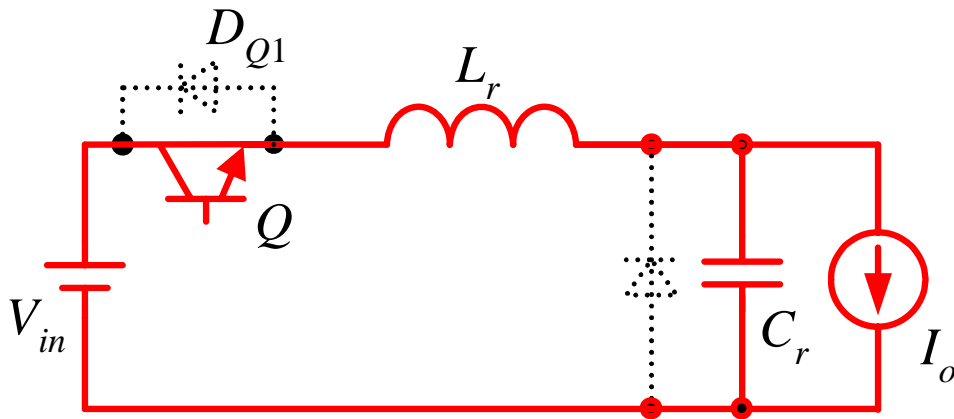




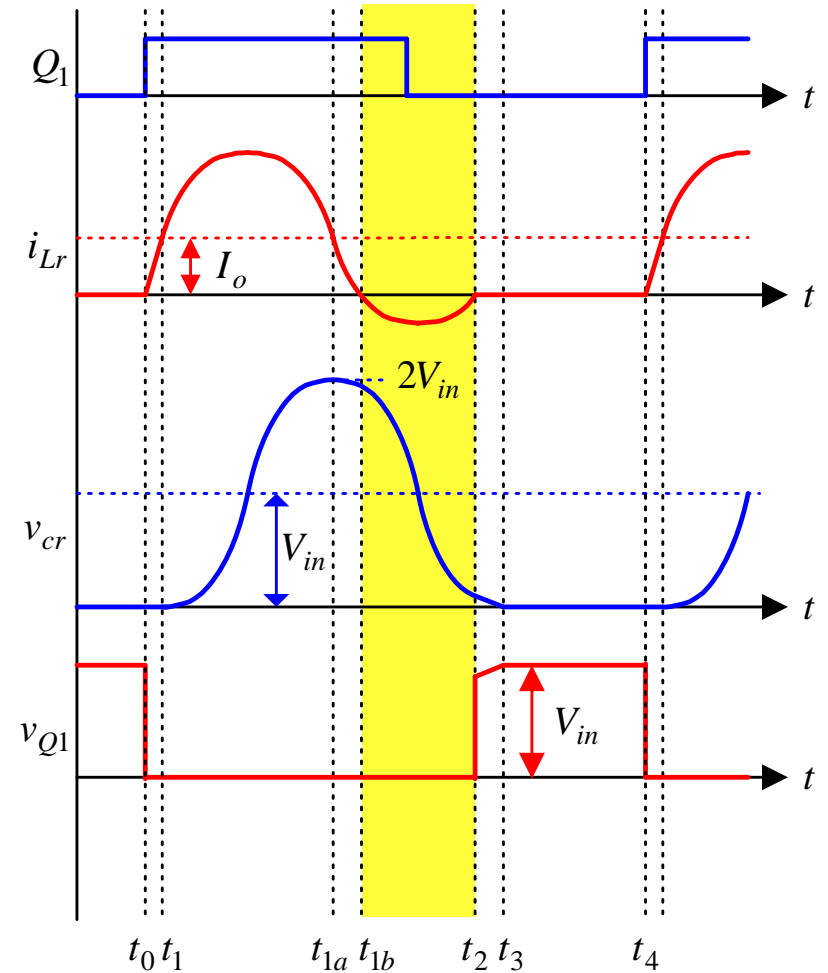
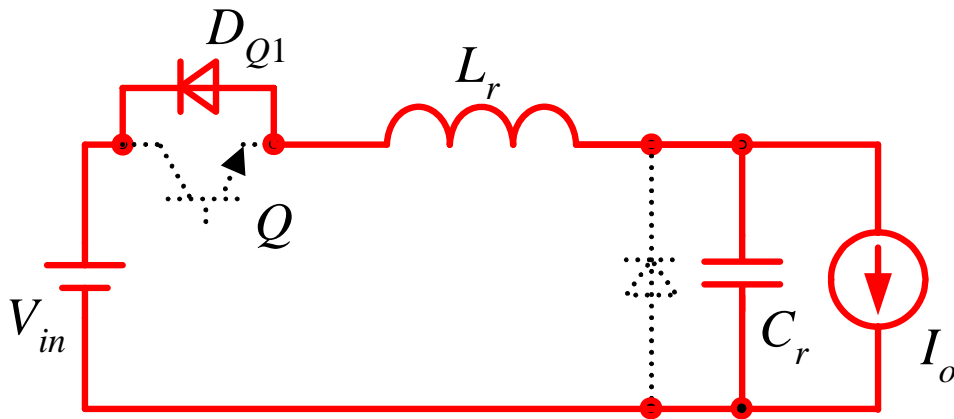
FW ZCS QRC: Linear Charge Stage



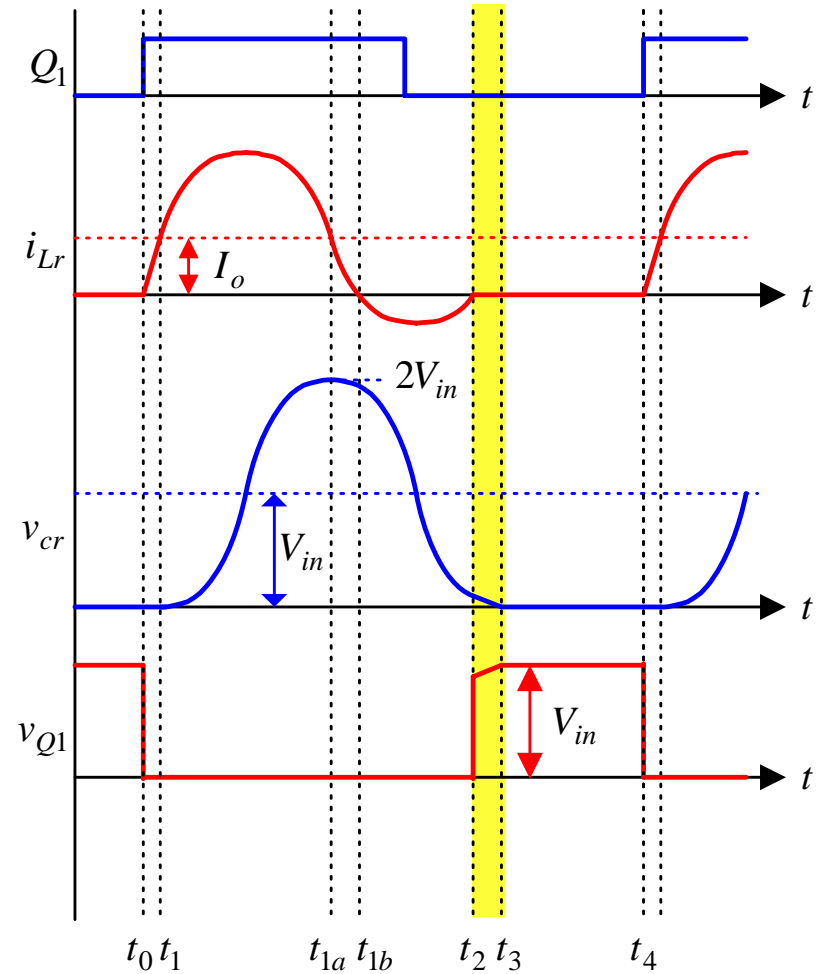
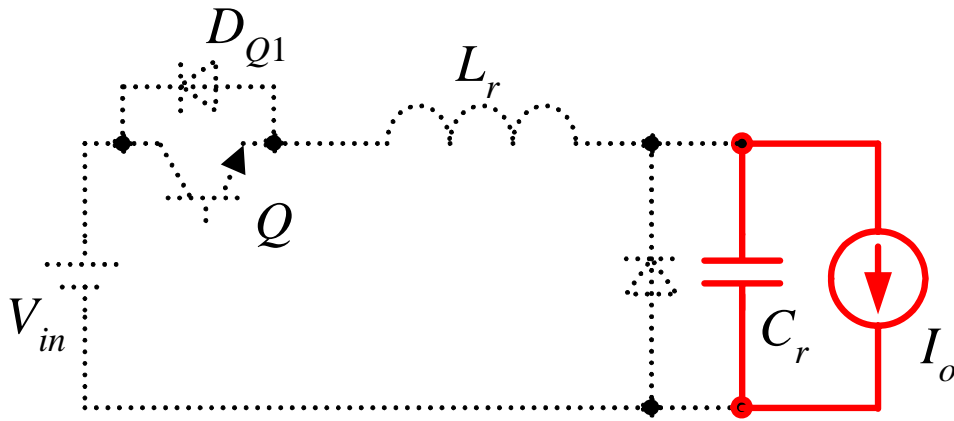
FW ZCS QRC: Resonant Stage (1)



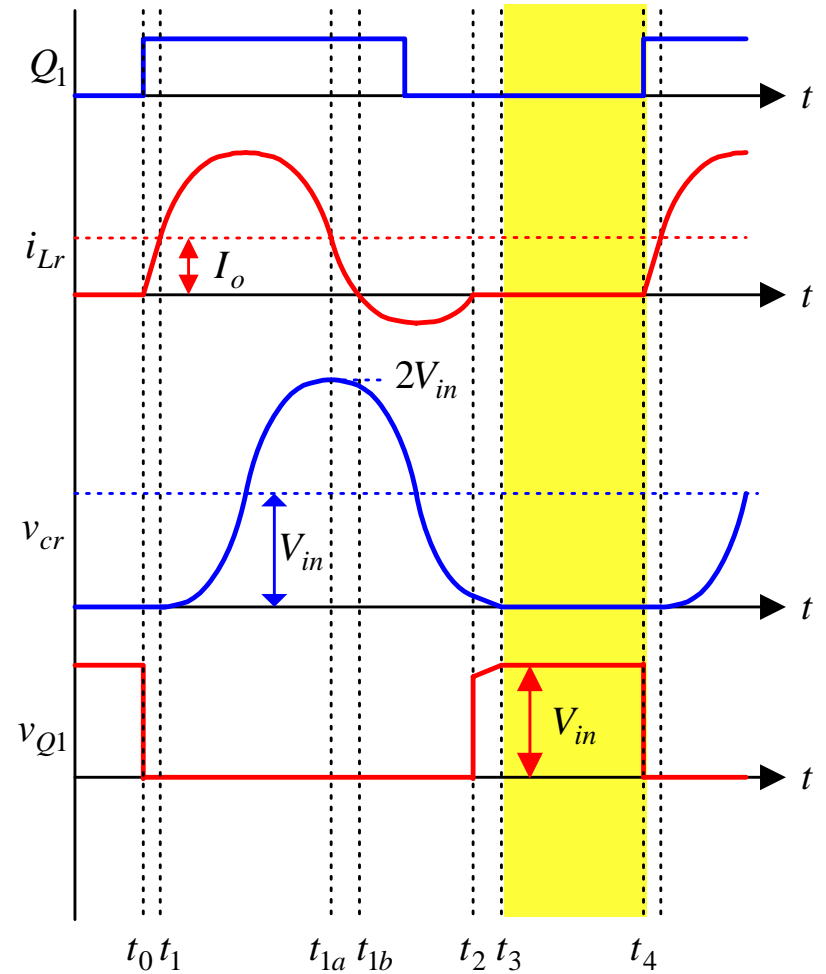
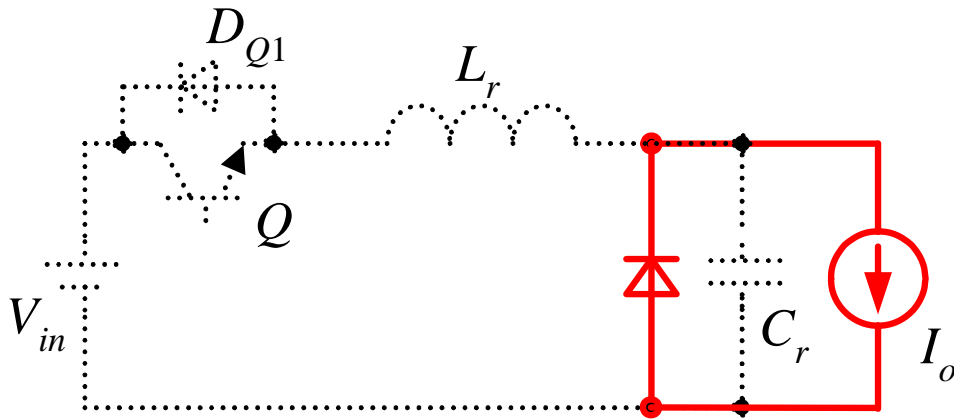
FW ZCS QRC: Resonant Stage (2)



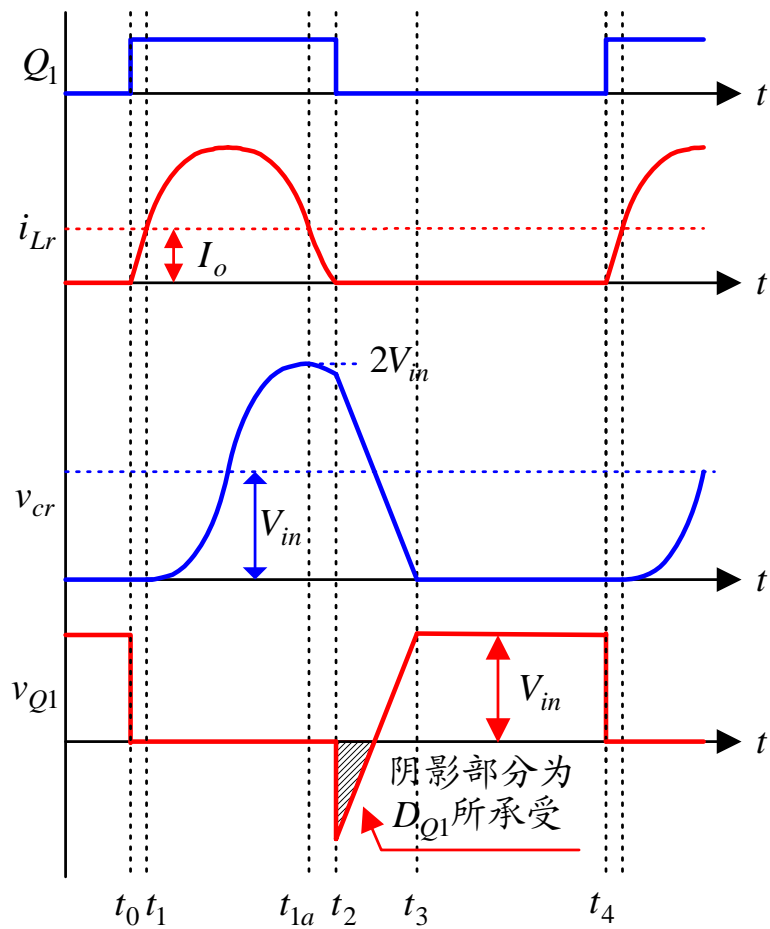
FW ZCS QRC: Discharge Stage



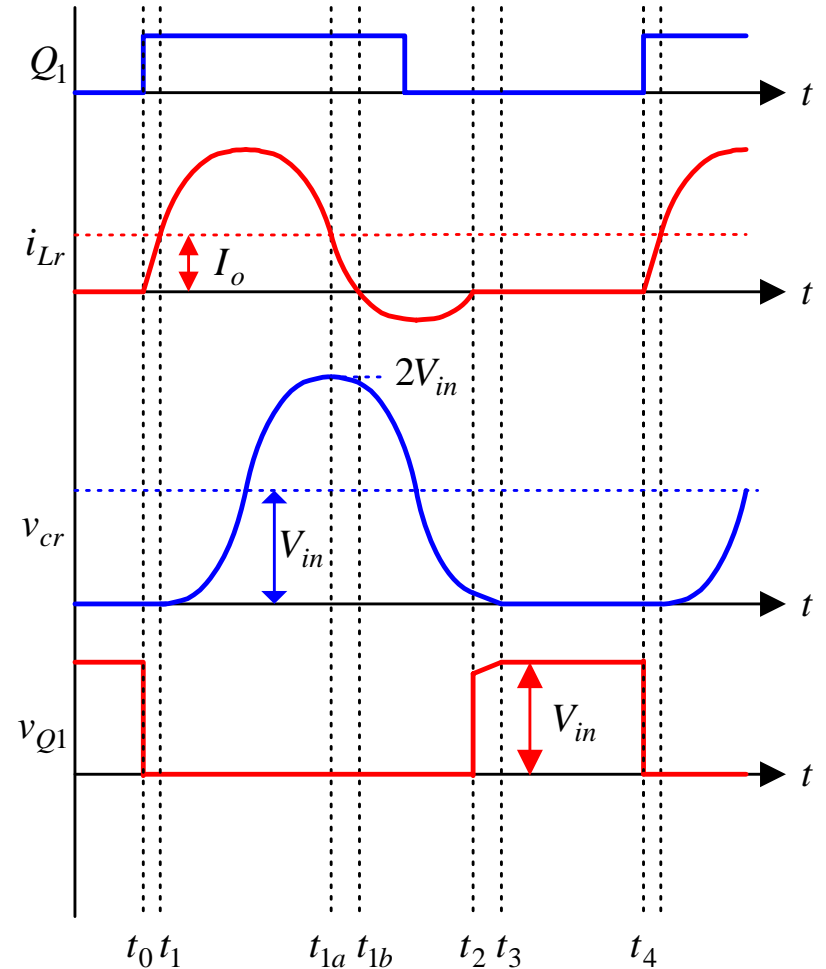
FW ZCS QRC: Freewheeling Stage



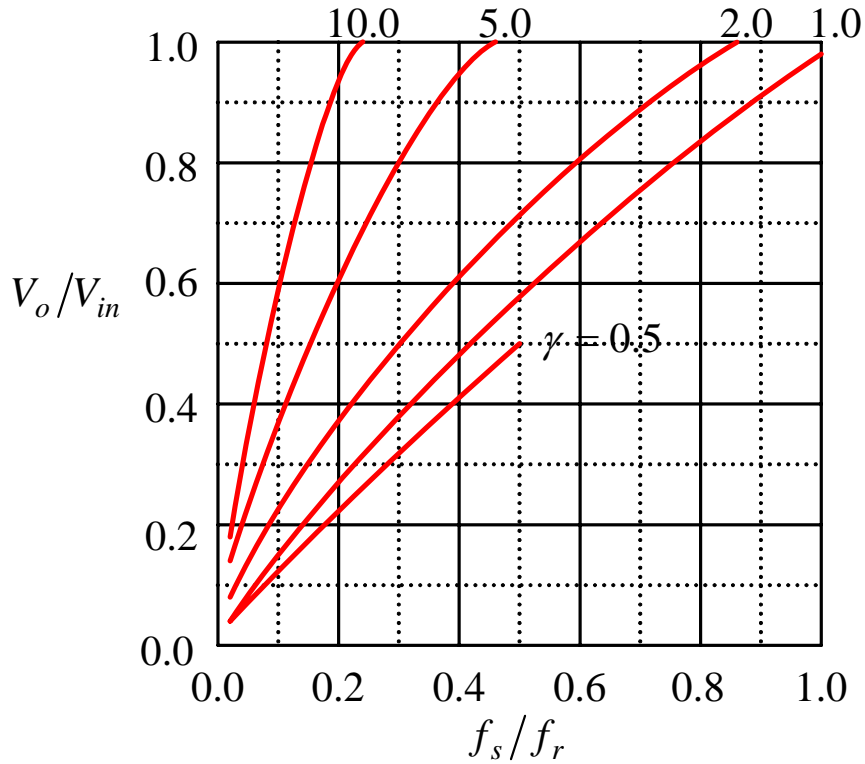
Comparison of ZCS QRC: HW vs FW



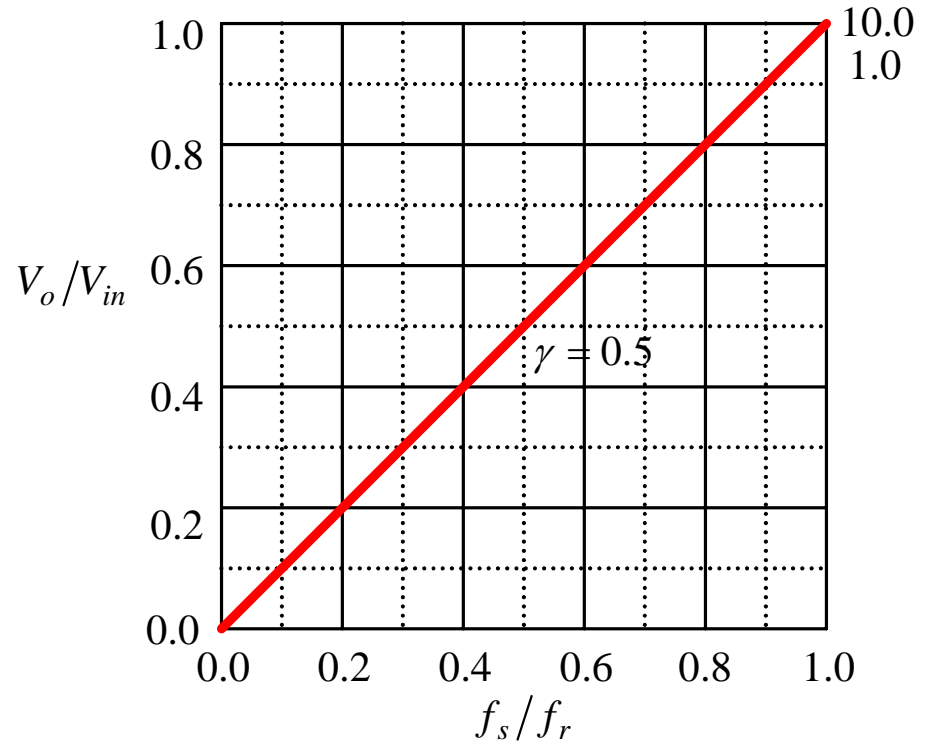
Half-wave mode



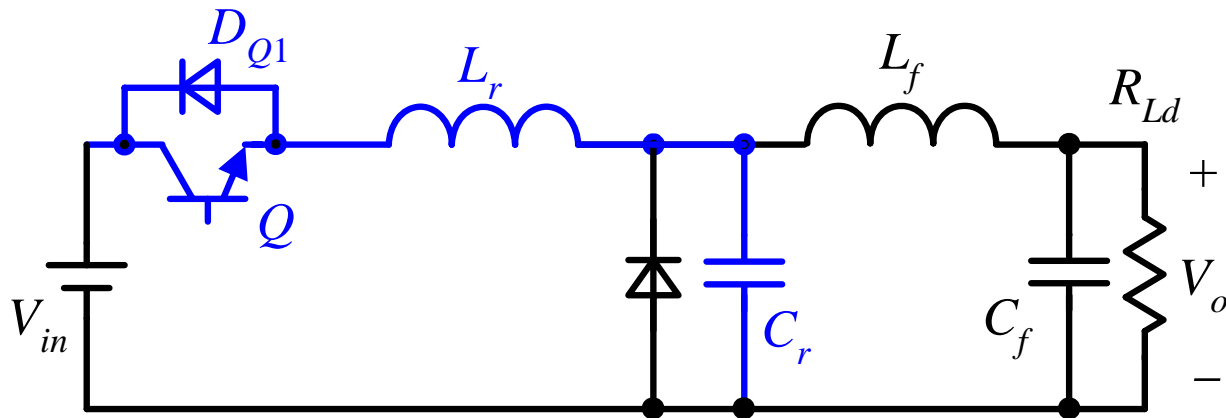
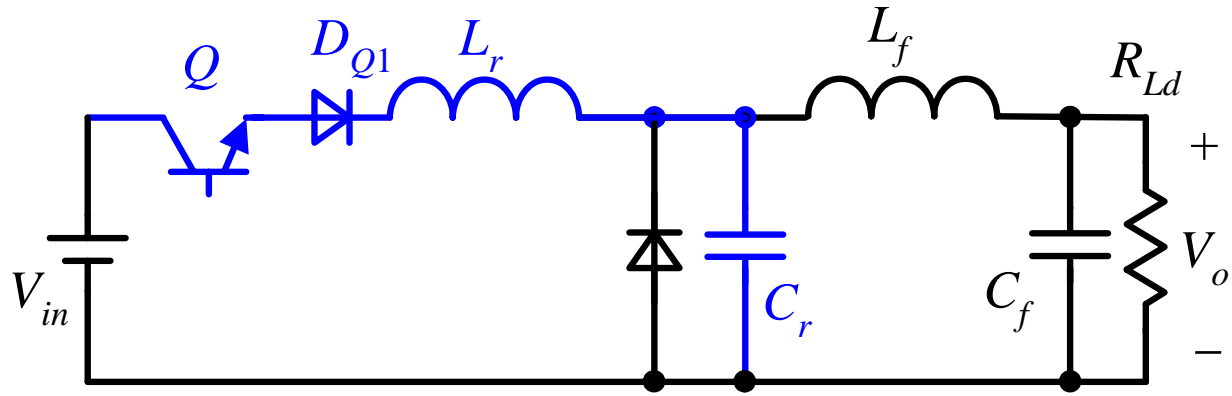
Full-wave mode



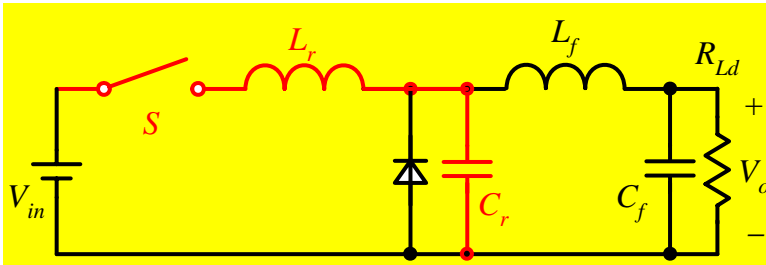
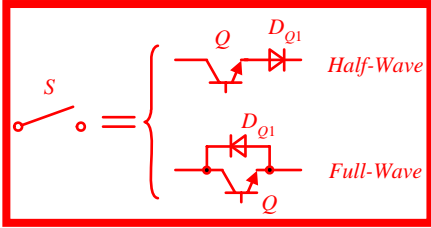
Half-wave mode



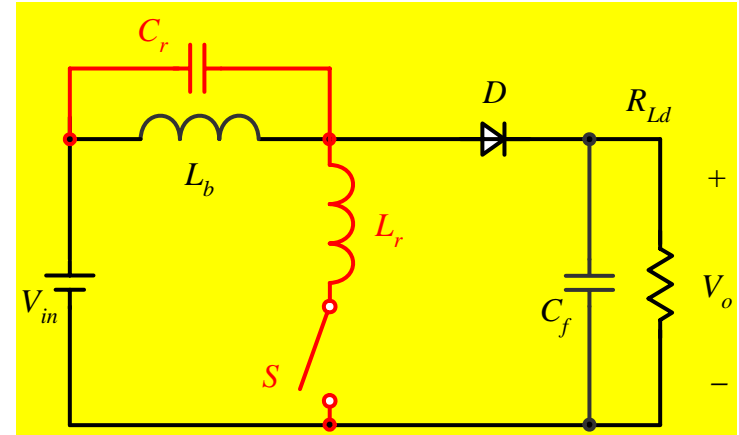
Full-wave mode



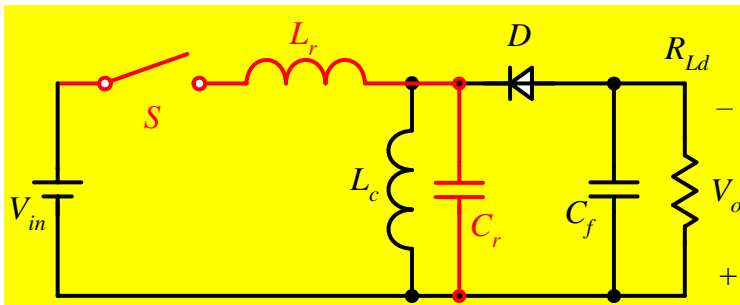
A Family of ZCS QRCs (1)



Buck

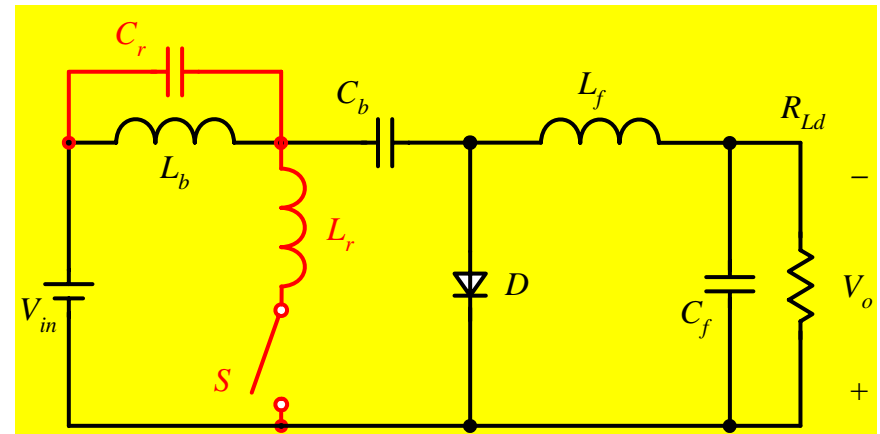


Boost



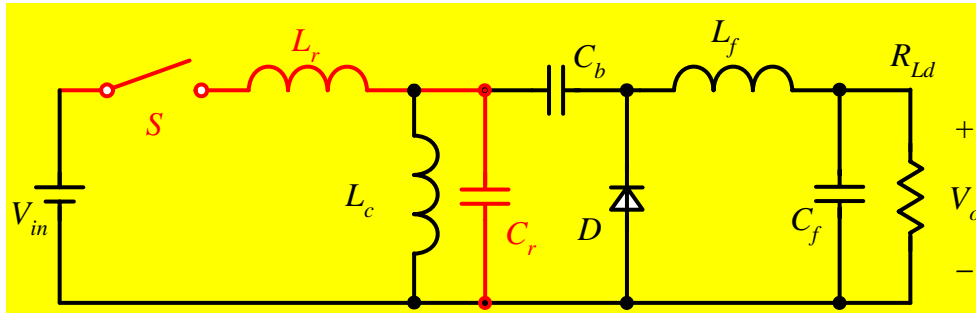
2011-10-3

Buck-Boost

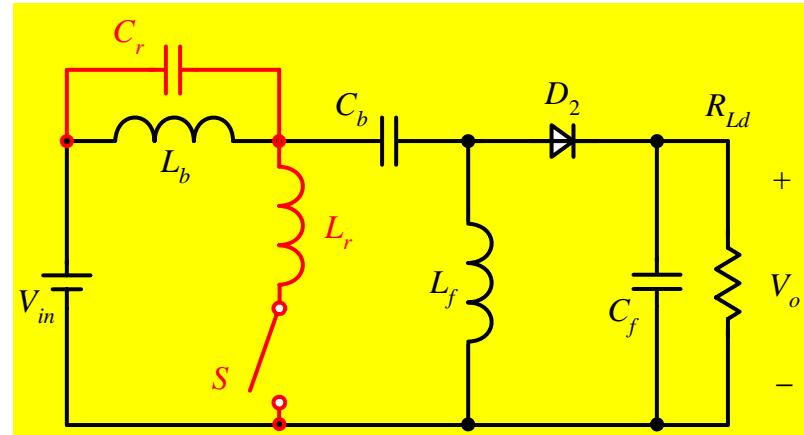


Cuk

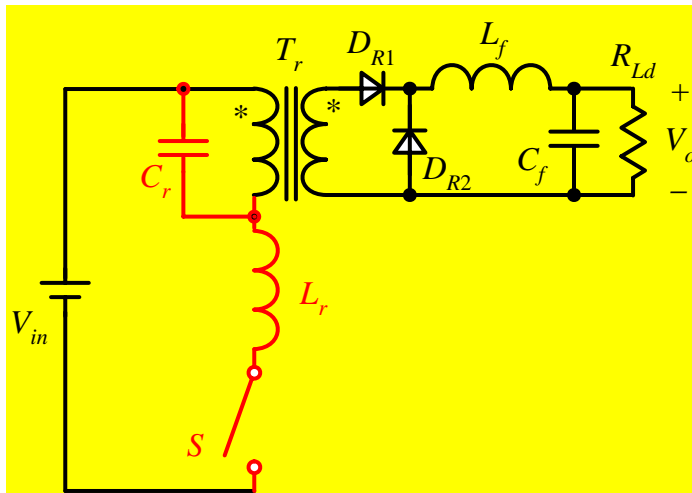
A Family of ZCS QRCs (2)



Zeta

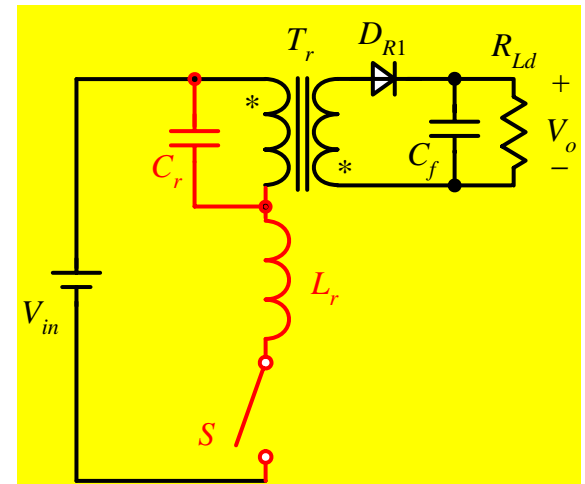


Sepic

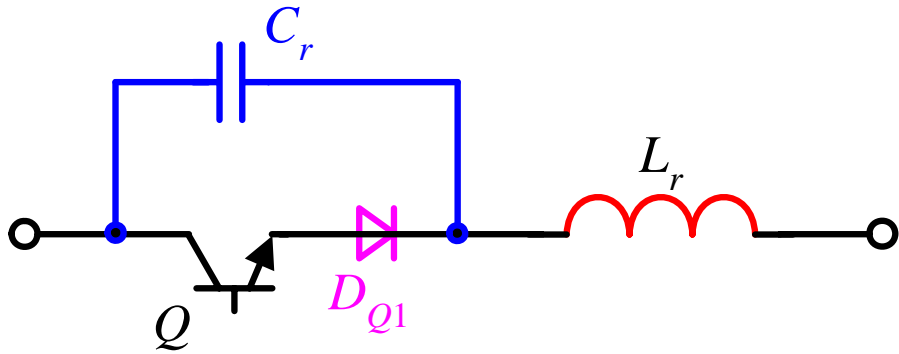


2011-10-31

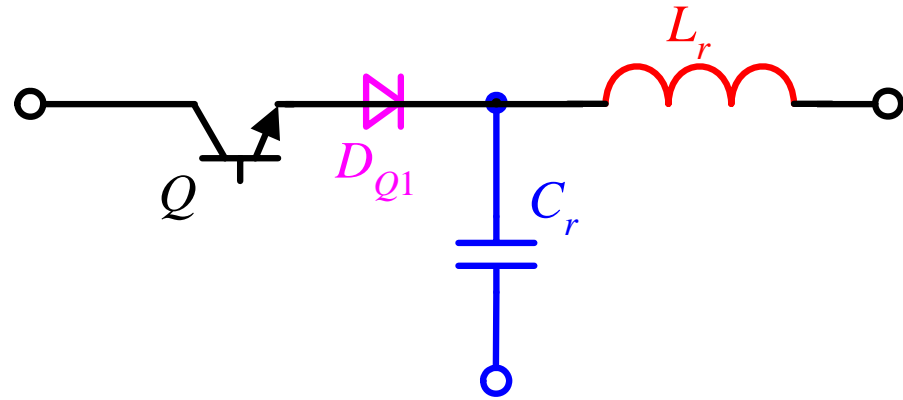
Forward



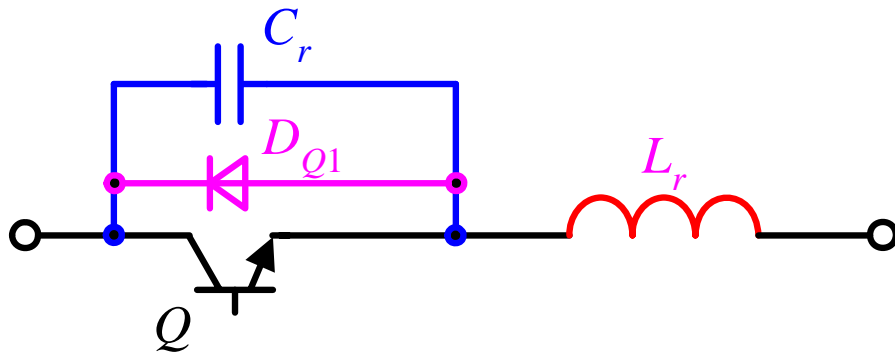
Flyback



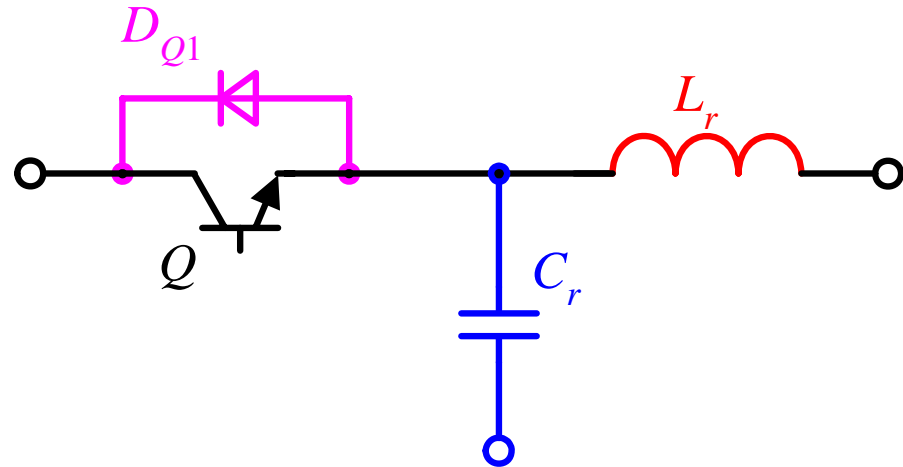
Full-wave mode



Full-wave mode

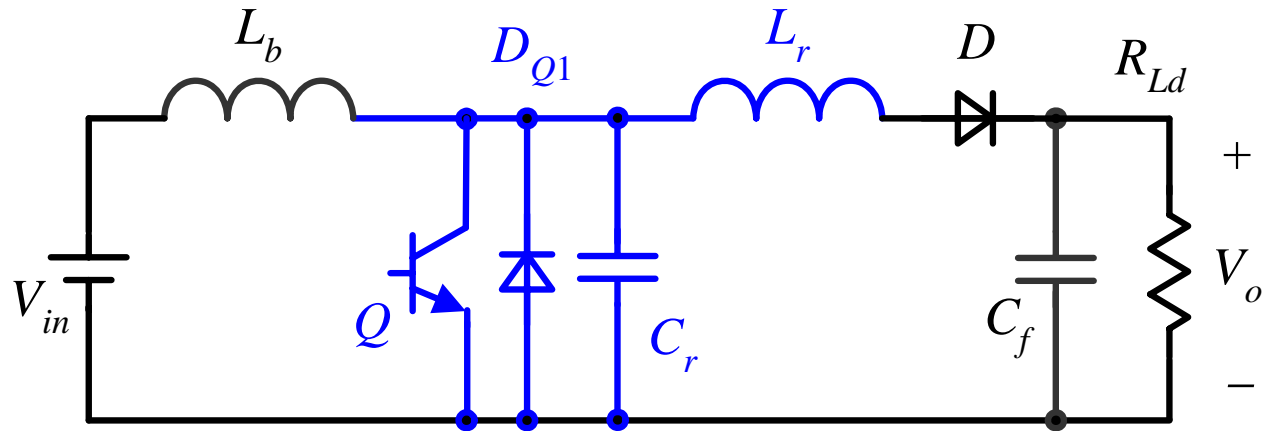


Half-wave mode

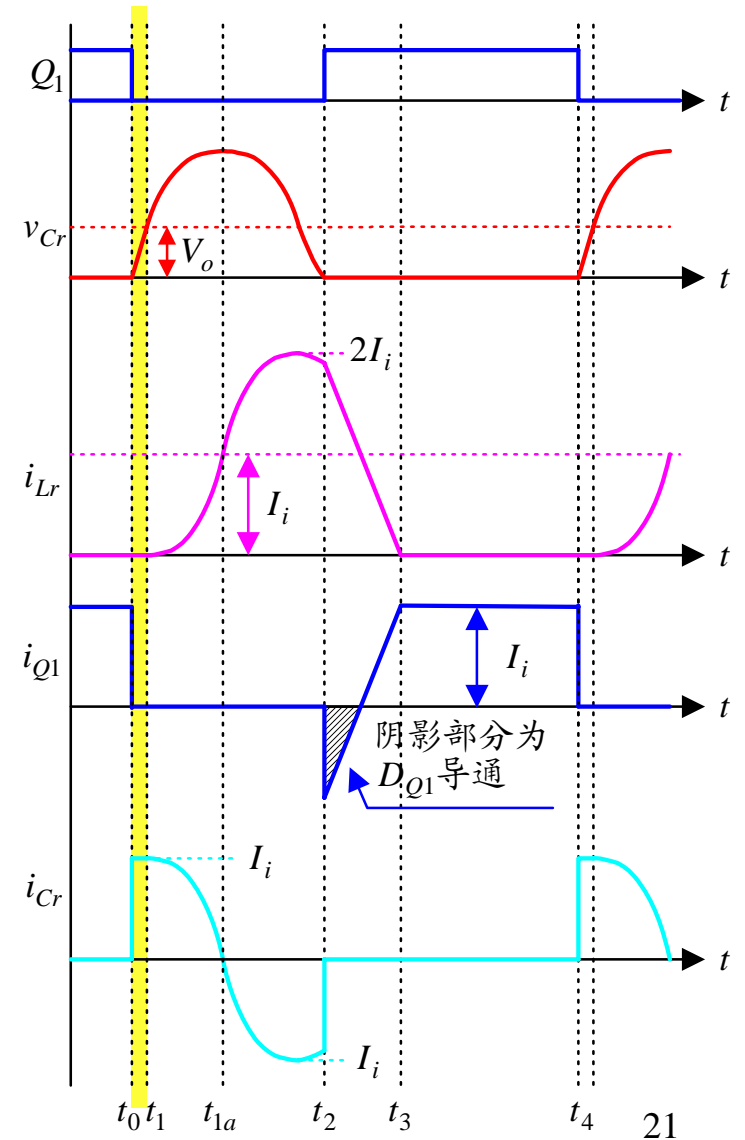
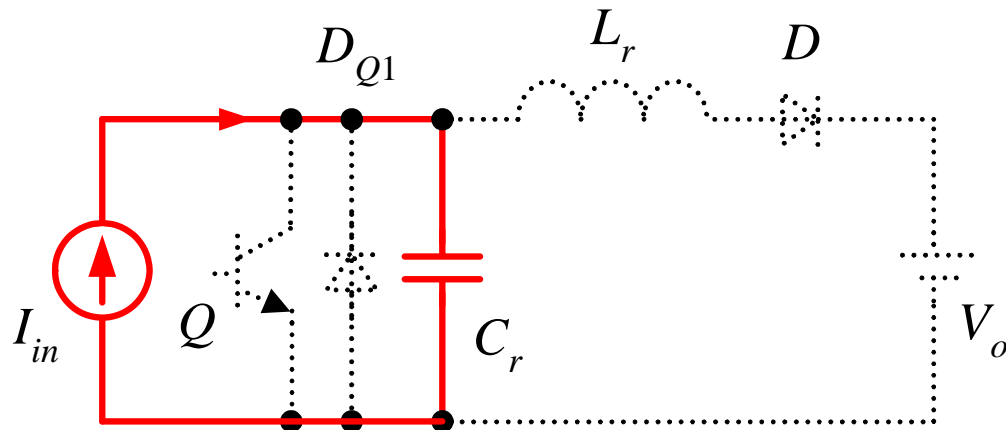


Half-wave mode

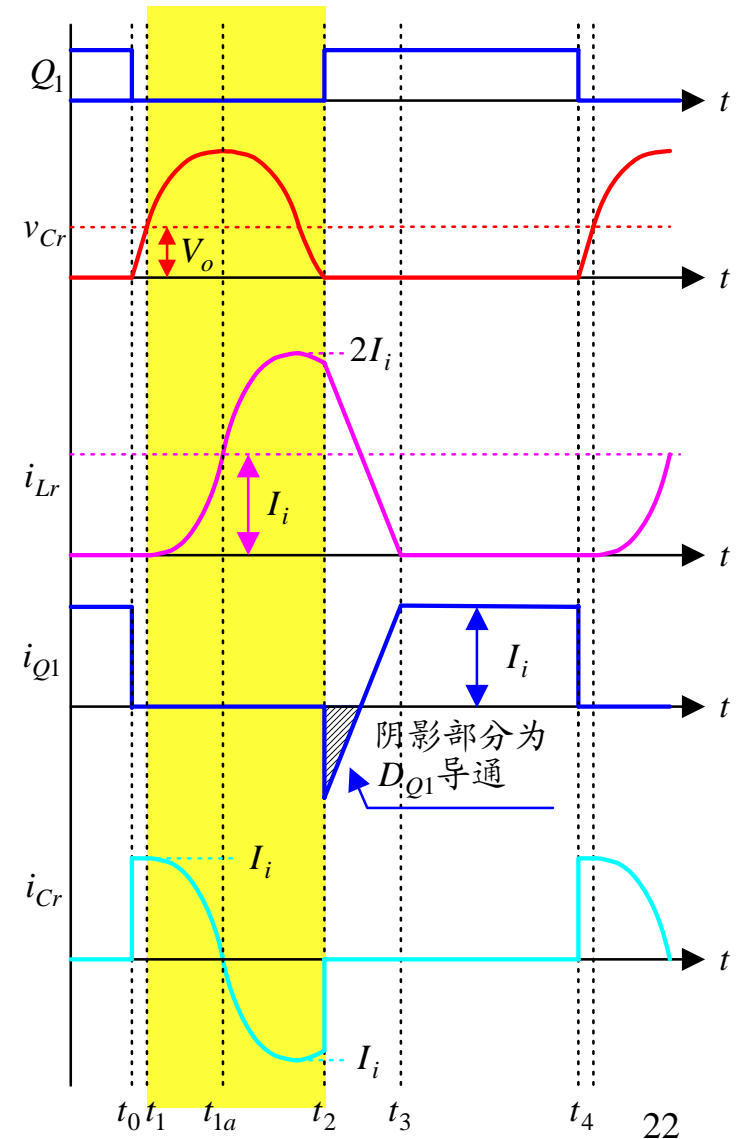
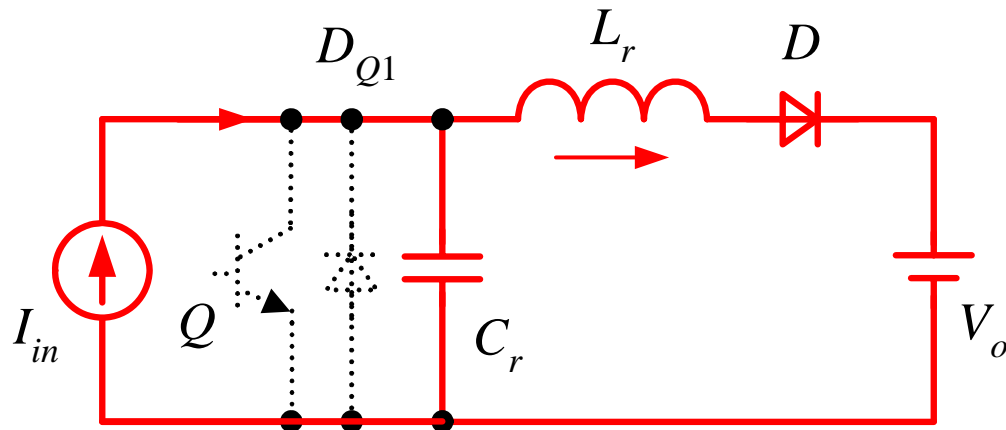
ZVS Boost QRC (HW)



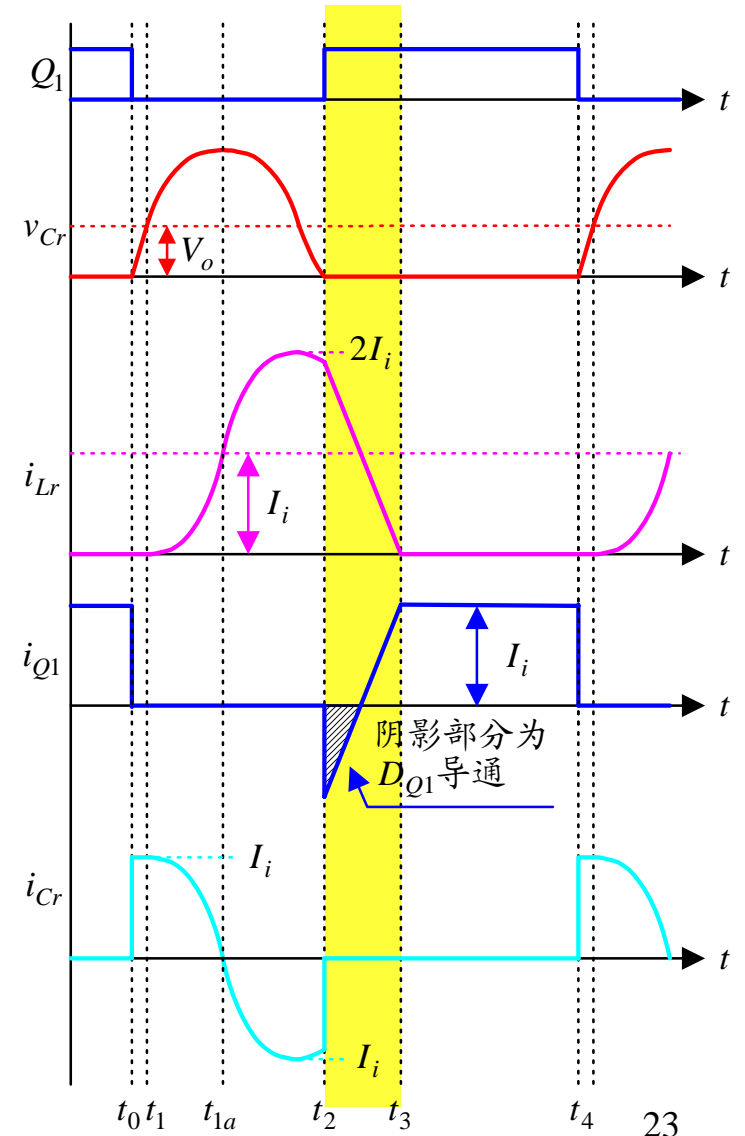
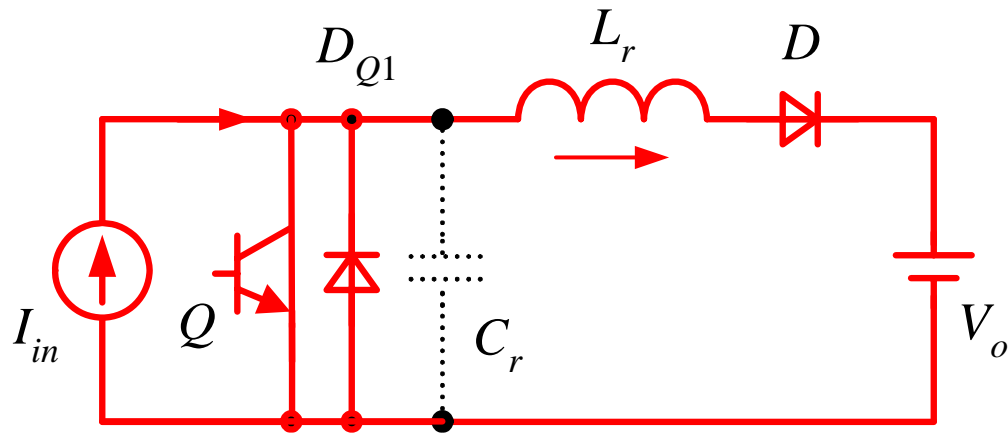
HW ZVS QRC: Linear Charge Stage



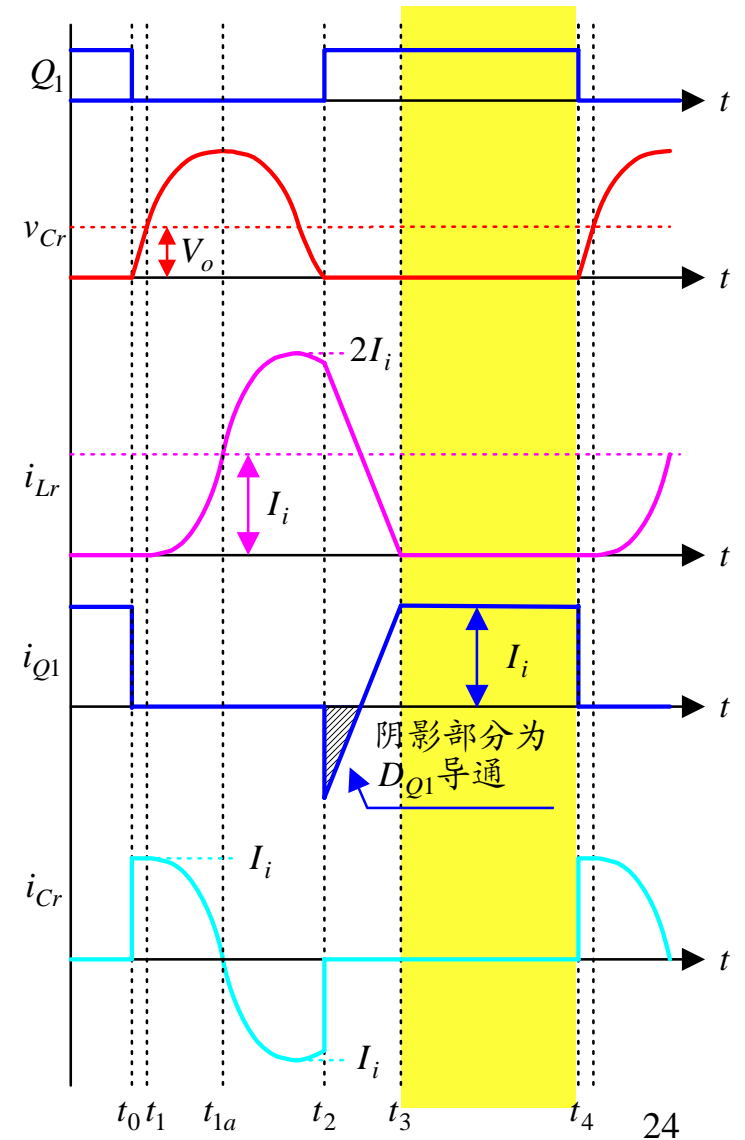
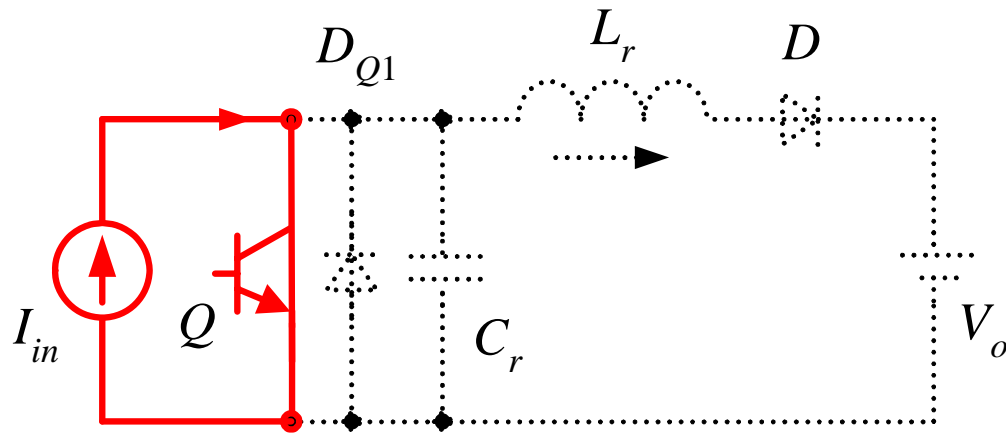
HW ZVS QRC: Resonant Stage



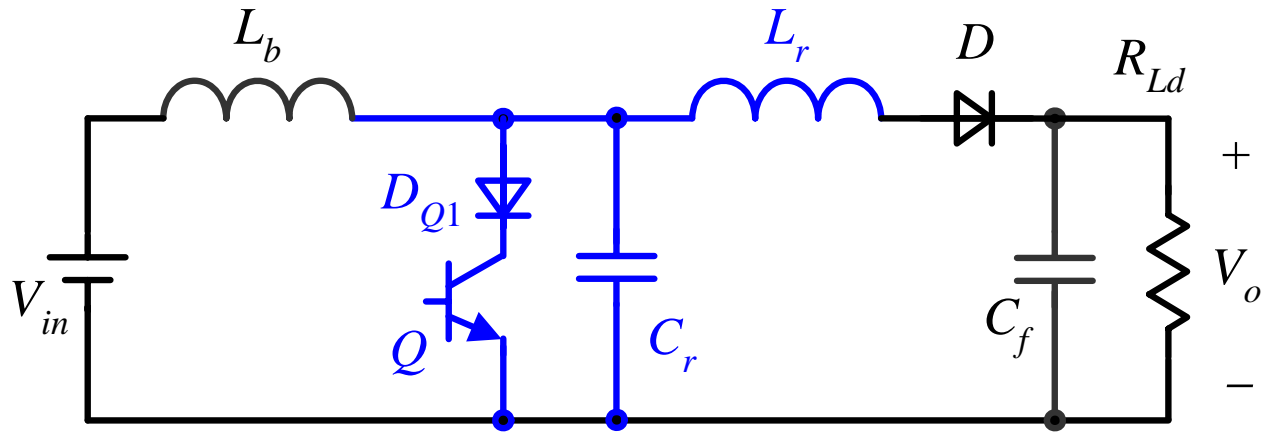
HW ZVS QRC: Discharge Stage



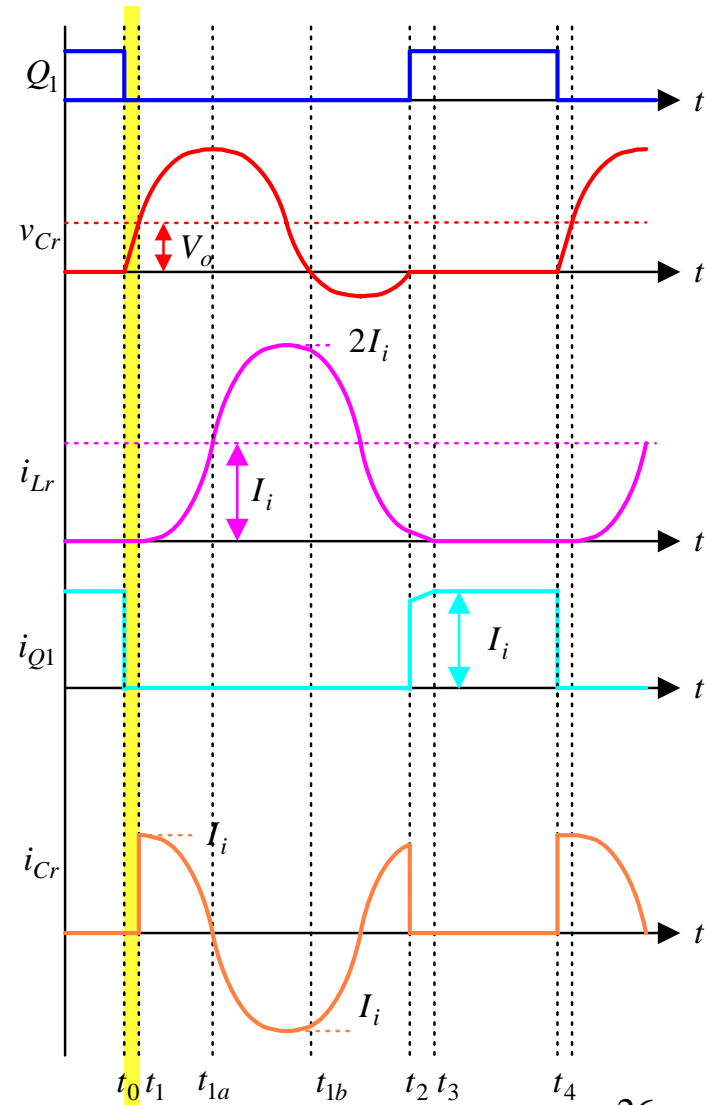
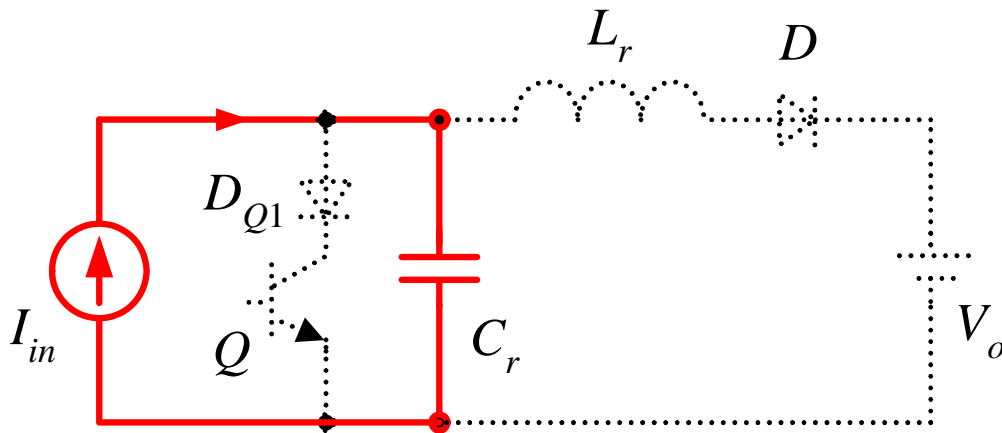
HW ZVS QRC: Freewheel Stage



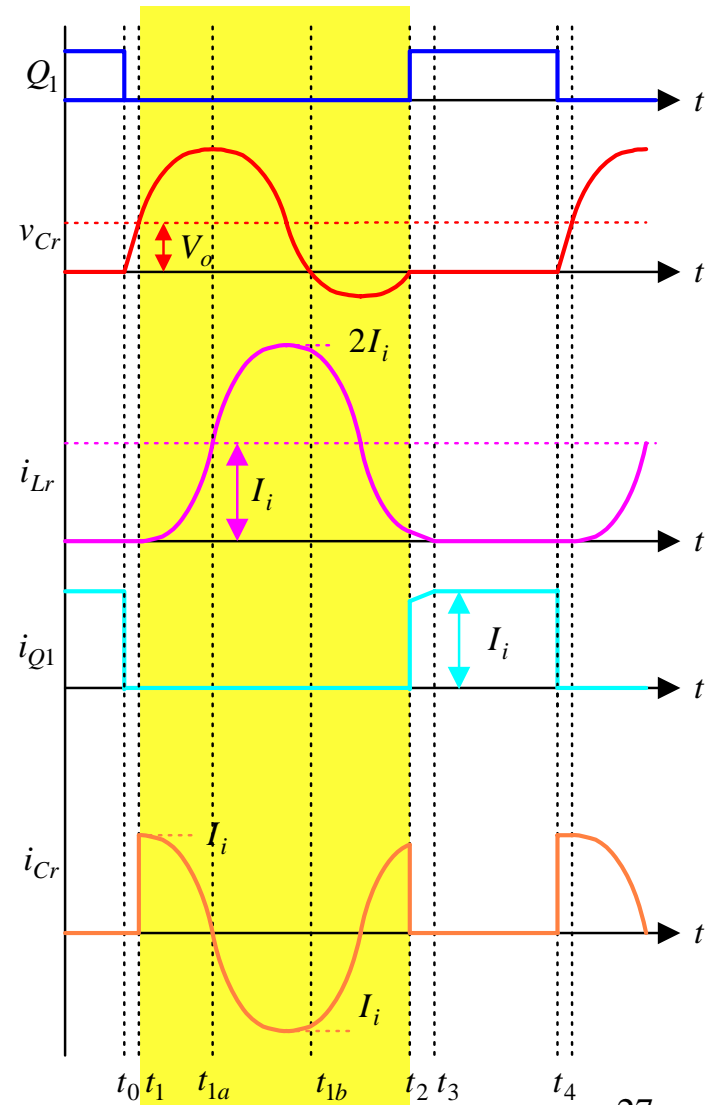
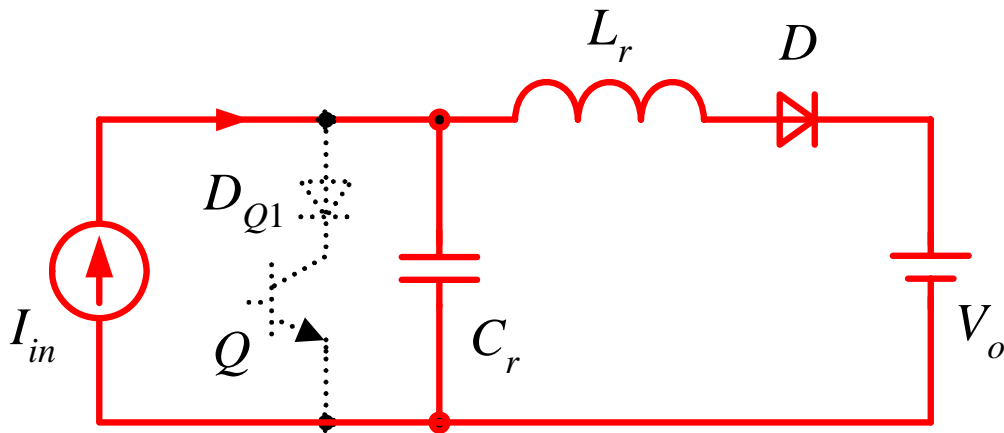
ZVS Boost QRC (FW)



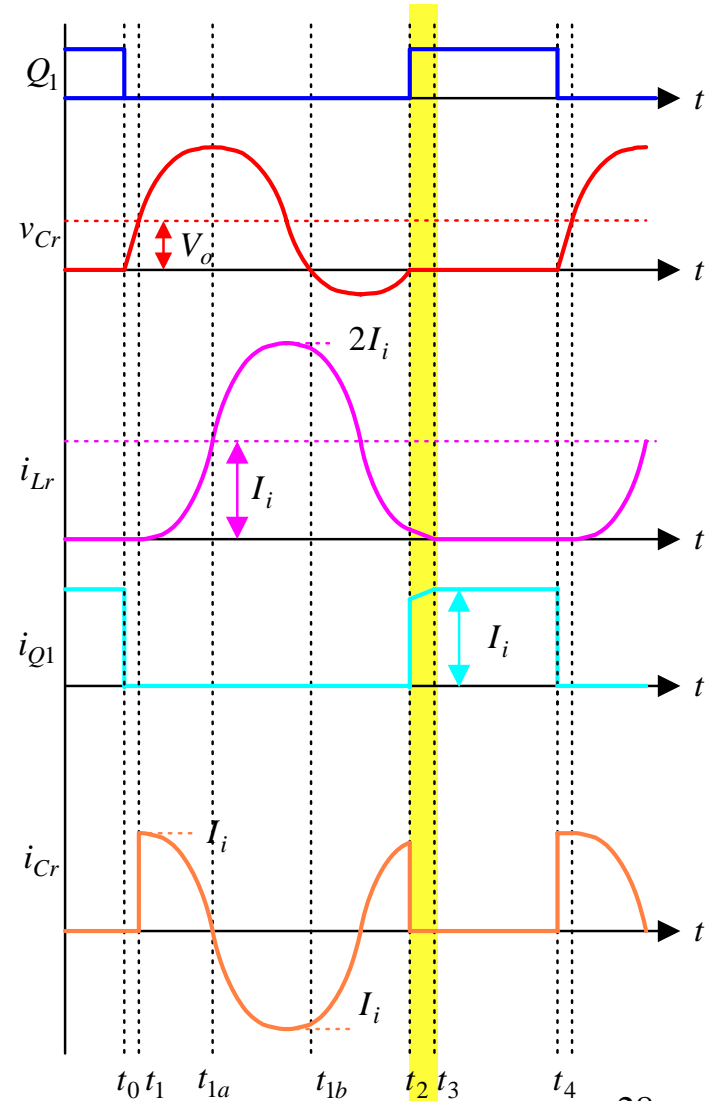
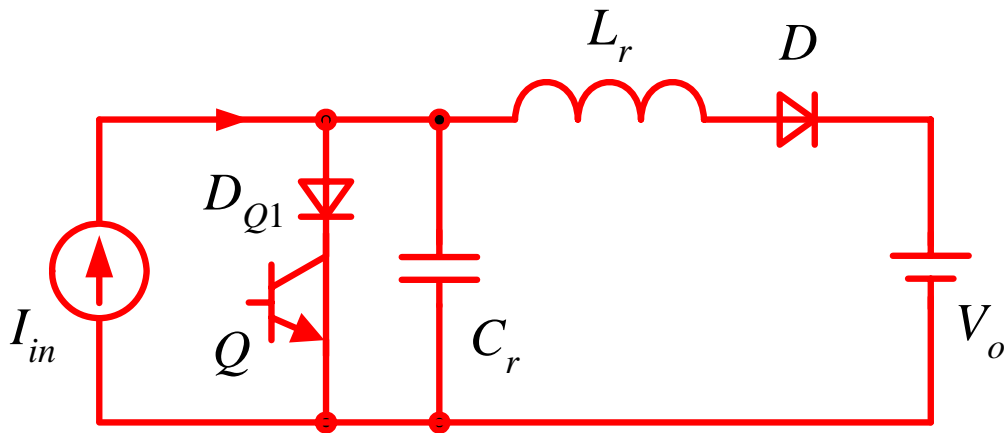
FW ZVS QRC: Linear Charge Stage



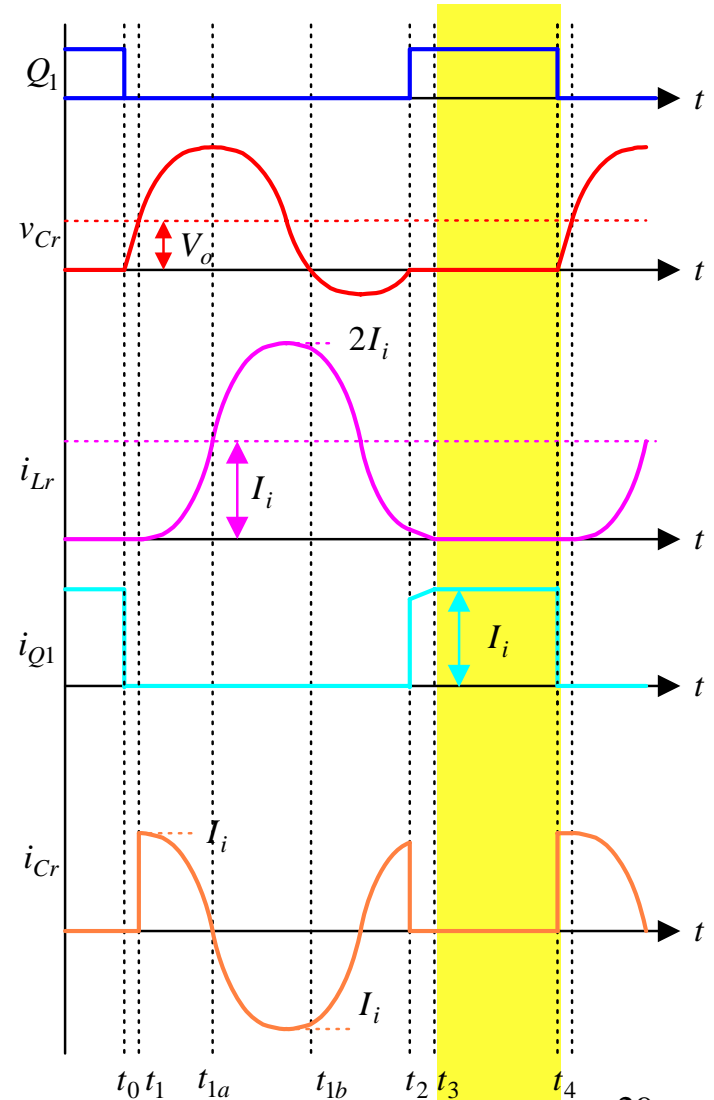
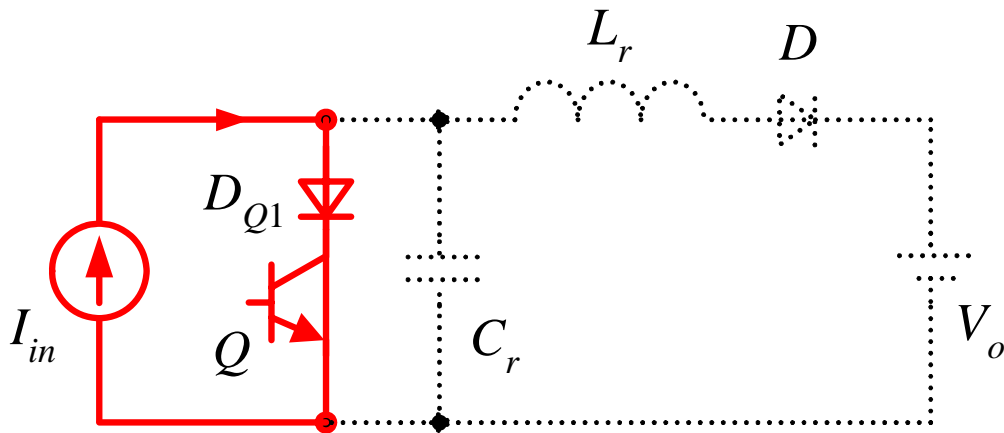
FW ZVS QRC: Resonant Stage



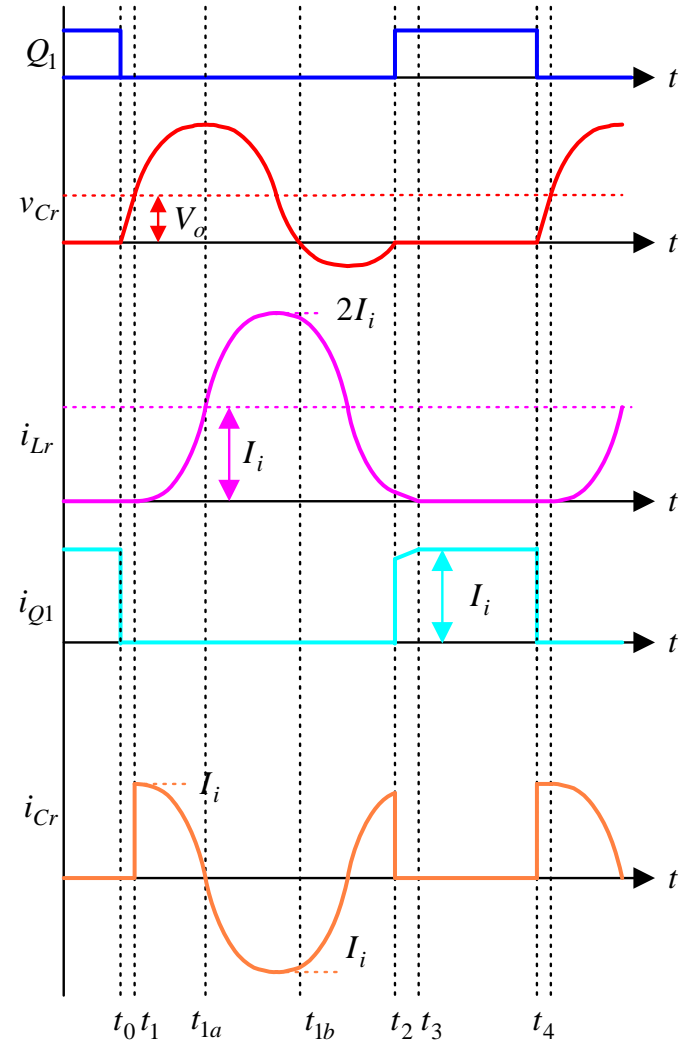
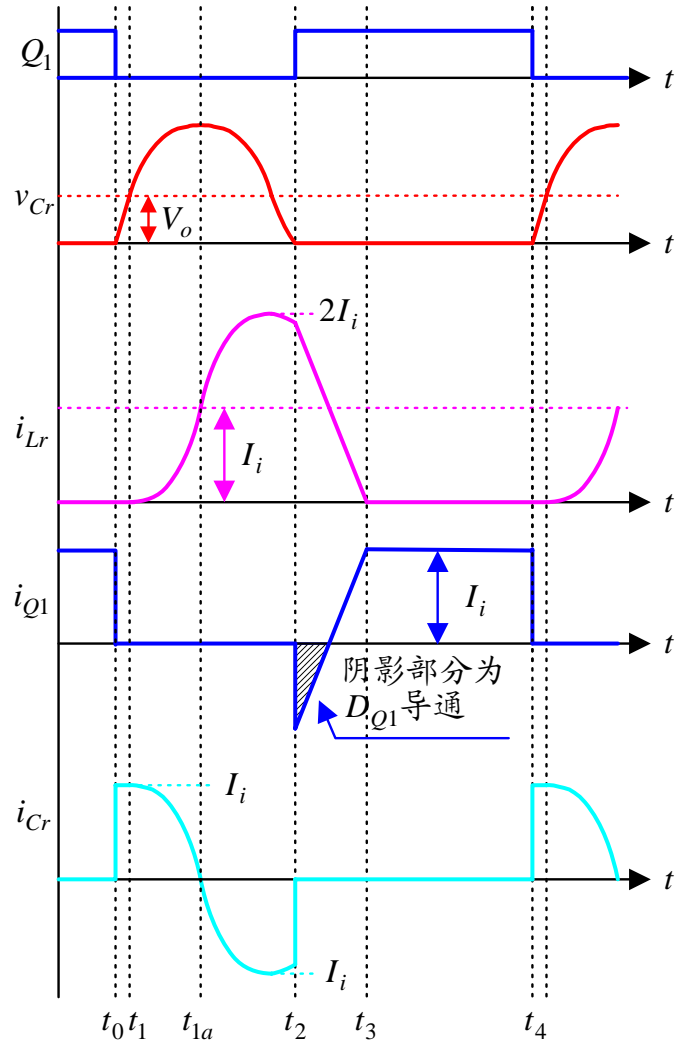
FW ZVS QRC: Discharge Stage



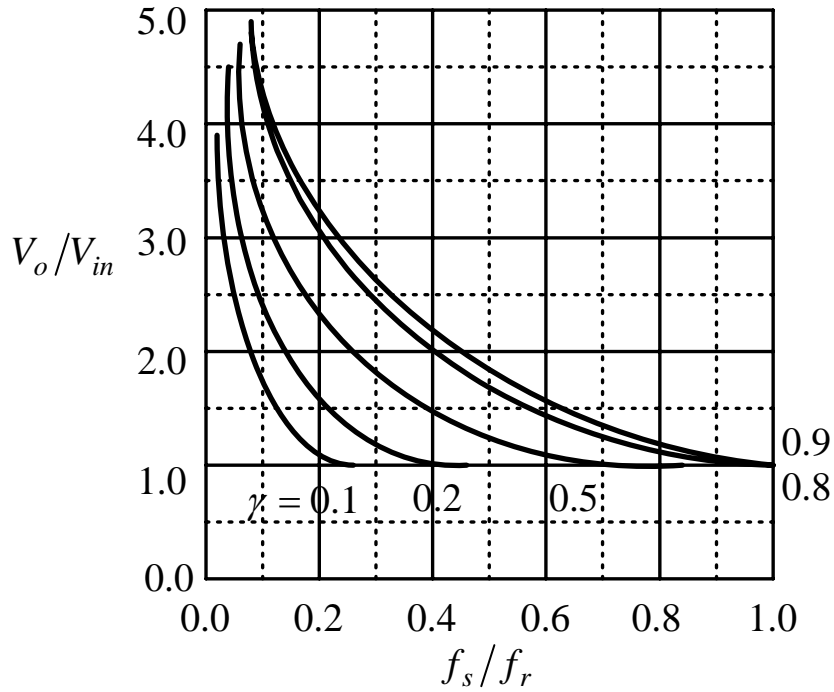
FW ZVS QRC: Freewheel Stage



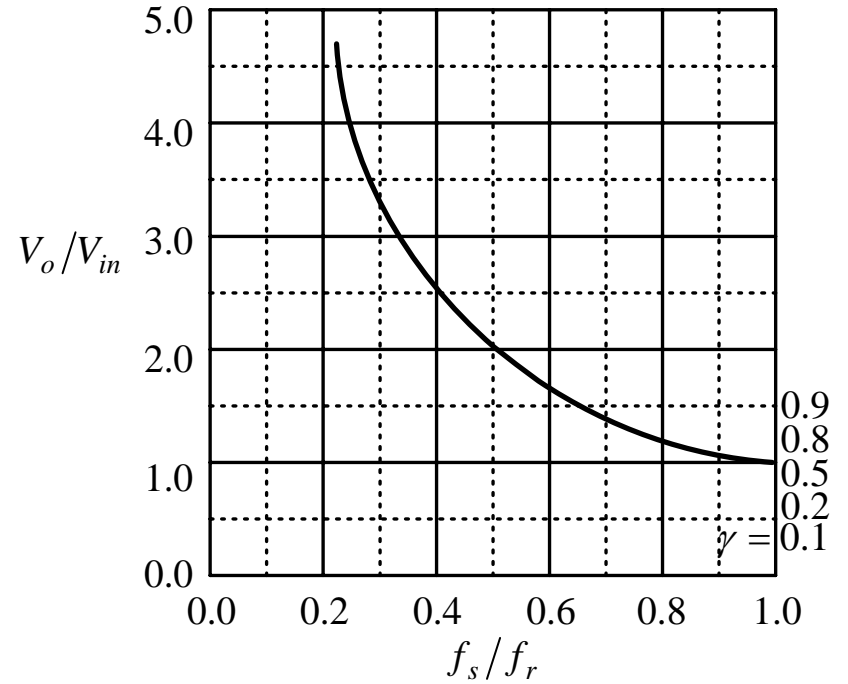
Comparison of ZVS QRC: HW vs FW



Output Characteristics of ZVS QRC

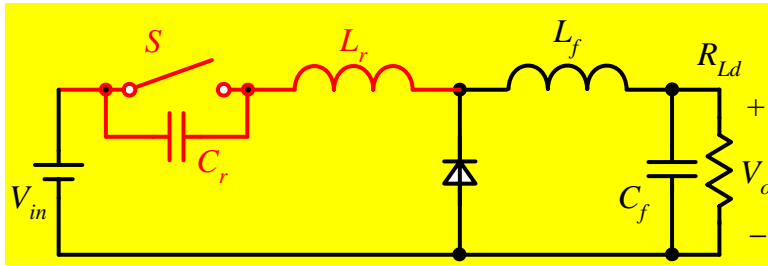


Half-wave mode

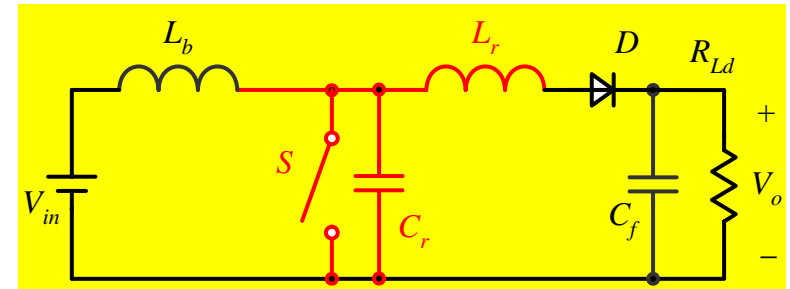


Full-wave mode

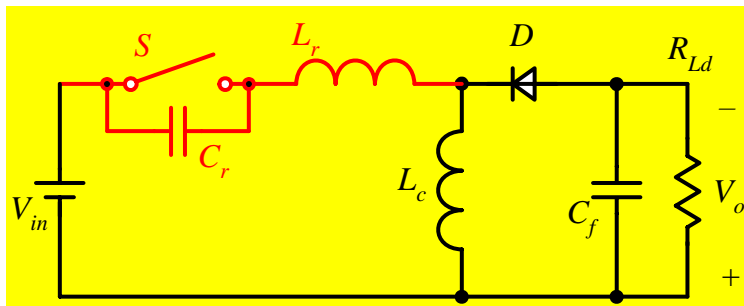
A Family of ZVS QRCs (1)



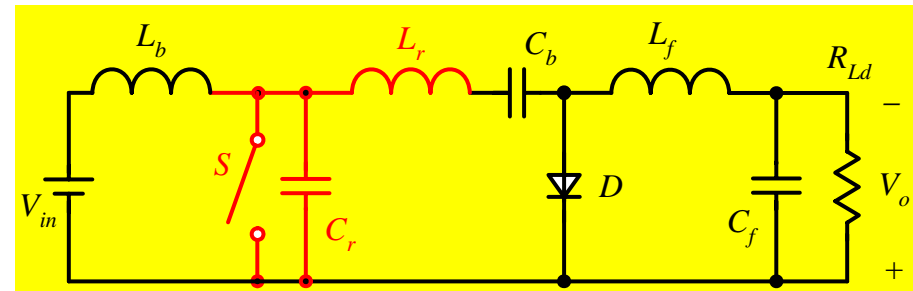
Buck



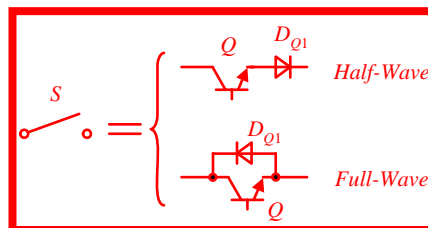
Boost



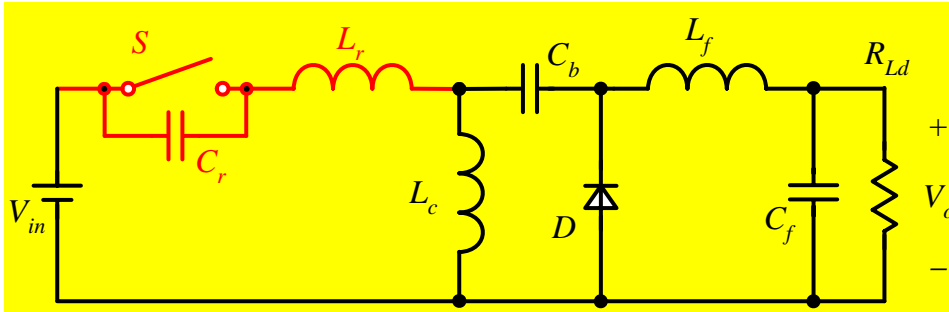
Buck-Boost



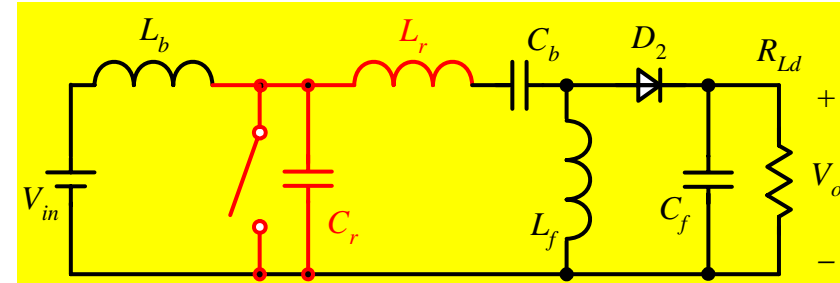
Cuk



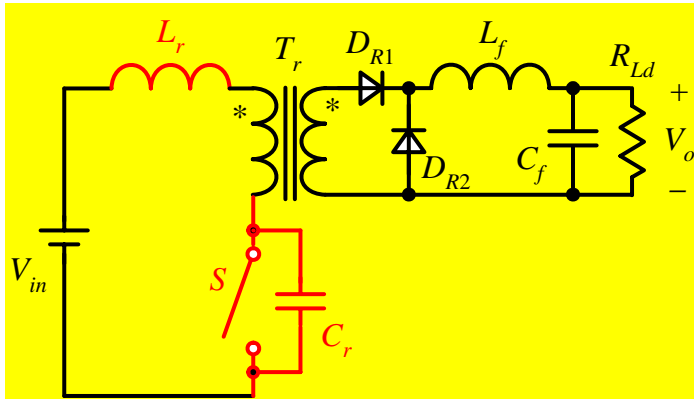
A Family of ZVS QRCs (2)



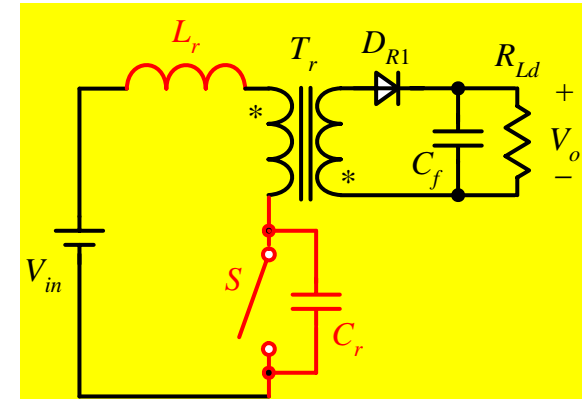
Zeta



Sepic



Forward



Flyback

Thanks for your attention !

Questions? / Answer!