This paper deals with the simulation of a PWM three-level (3L) & five level (5L) converters. The modulation strategies can be classified into two kinds according to the turn-off sequence of the two switches of the pair of switches. The concept of the leading switches and the lagging switches is introduced to realize soft-switching for PWM 3L and 5L converters. Soft-switching obtained by using both the leading switches and the lagging switches. Soft-switching PWM 3L and 5L converters can be classified into two kinds: zero-voltage-switching (ZVS) and zero-voltage and zero-current-switching (ZVZCS), A three level & five level ZVZCS converters are presented, its operation principle, and the simulation results obtained by using PSPICE are included also.

Reference

**Index Terms**

Power Electronics  
Power systems

**Key words**

ZVS  
ZCS  
PWM