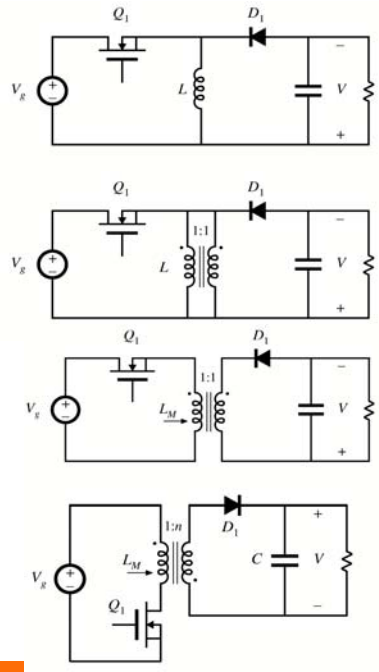
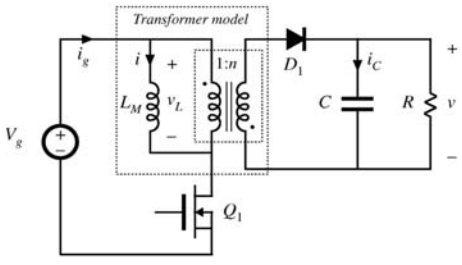
Flyback Converter: Buck-Boost Derived



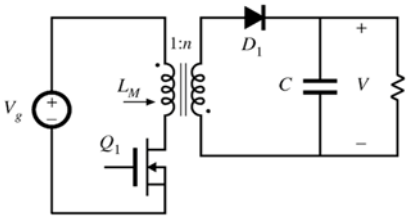
Flyback Transformer

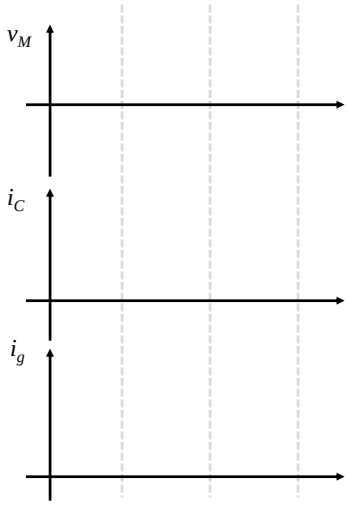


- A two-winding inductor
- Symbol is same as transformer, but function differs significantly from ideal transformer
- Energy is stored in magnetizing inductance
- Magnetizing inductance is relatively small

- Current does not simultaneously flow in primary and secondary windings
- Instantaneous winding voltages follow turns ratio
- Instantaneous (and rms) winding currents do not follow turns ratio
- Model as (small) magnetizing inductance in parallel with ideal transformer

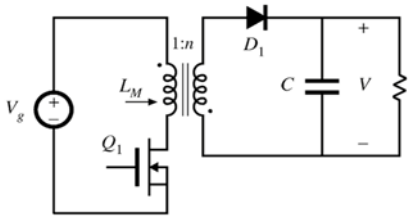
Flyback Waveforms

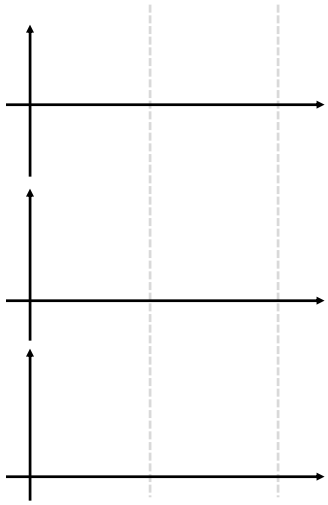




Flyback Equivalent Circuit Model

Flyback Reverse Recovery

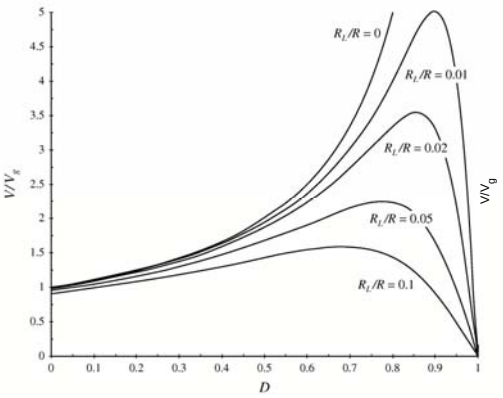




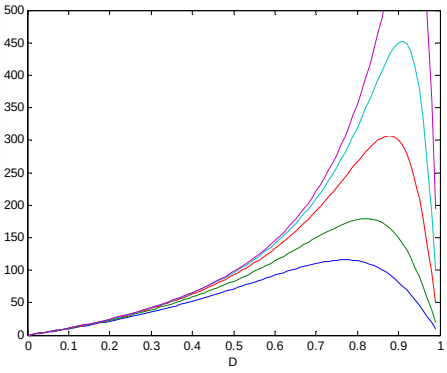
Flyback Equivalent Circuit Model

High Step-Up Conversion Ratios

Boost Converter



Flyback, *n*=100



Switch Ratings