

Semiconductor Diode





Common Diode Applications

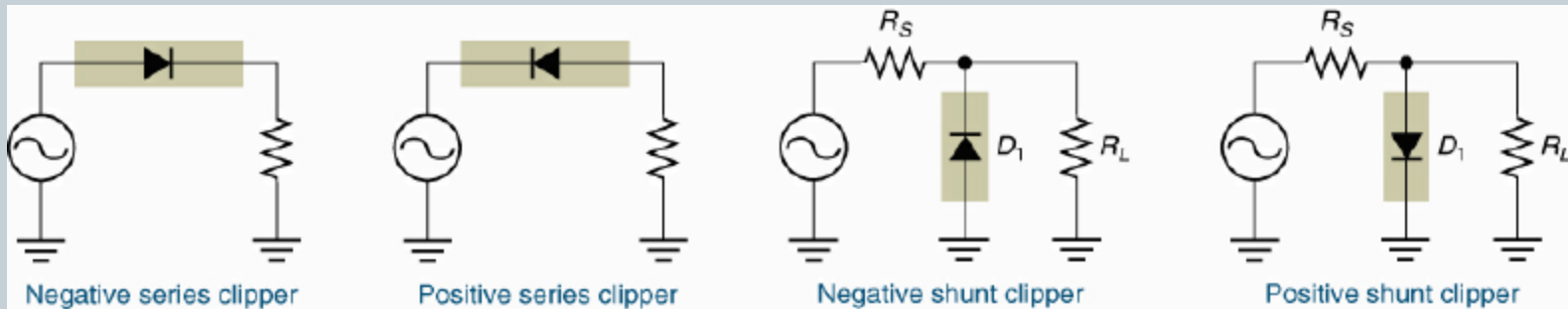
Clippers, Clampers, Voltage Multipliers and Displays

Diode Clippers

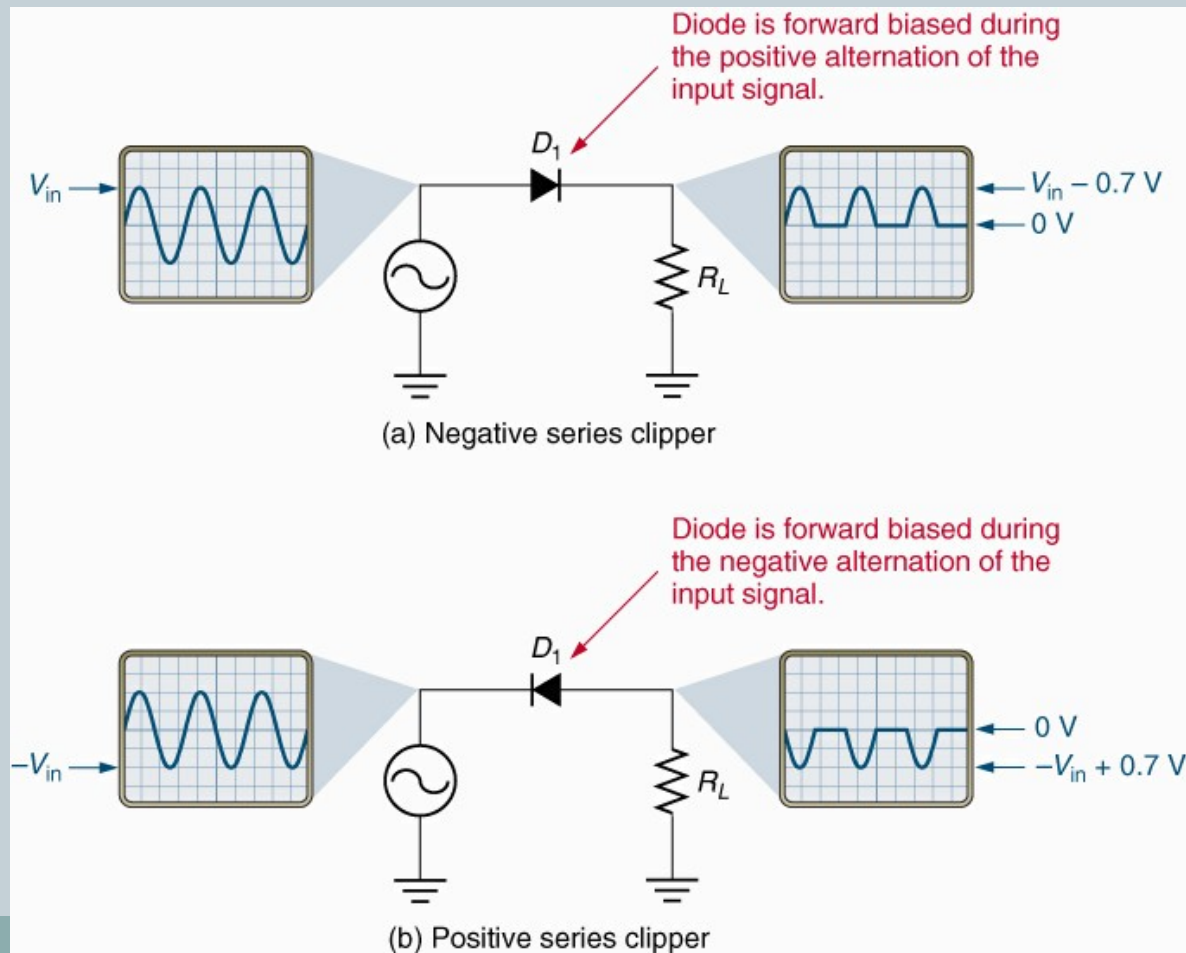


A clipper (or limiter) is a circuit used to eliminate some portion (or portions) of a waveform.

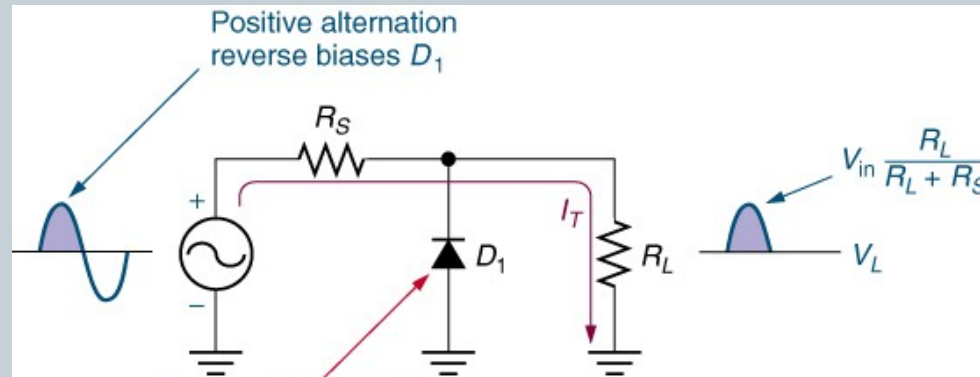
- A series clipper is in series with its load.
- A shunt clipper is in parallel with its load.



Series Clippers

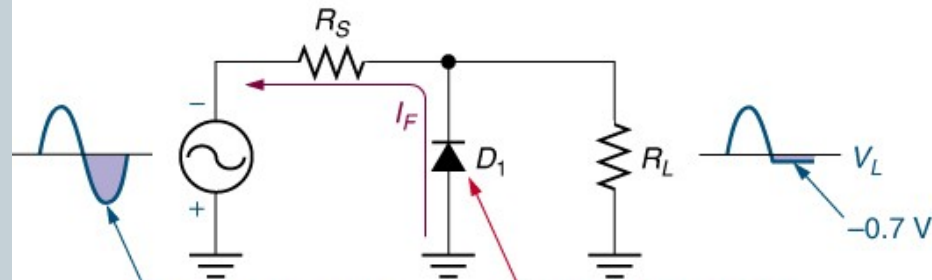


Negative Shunt Clipper Operation



Reverse biased diode
acts as an open

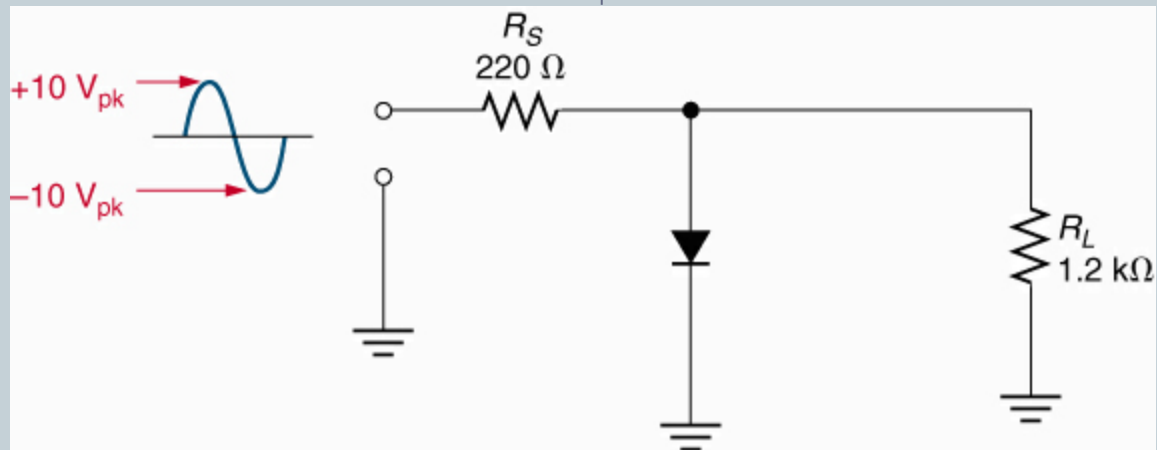
(a) Positive half-cycle operation



Forward biased diode
acts as a short (ideally)

(b) Negative half-cycle operation

A Positive Shunt Clipper

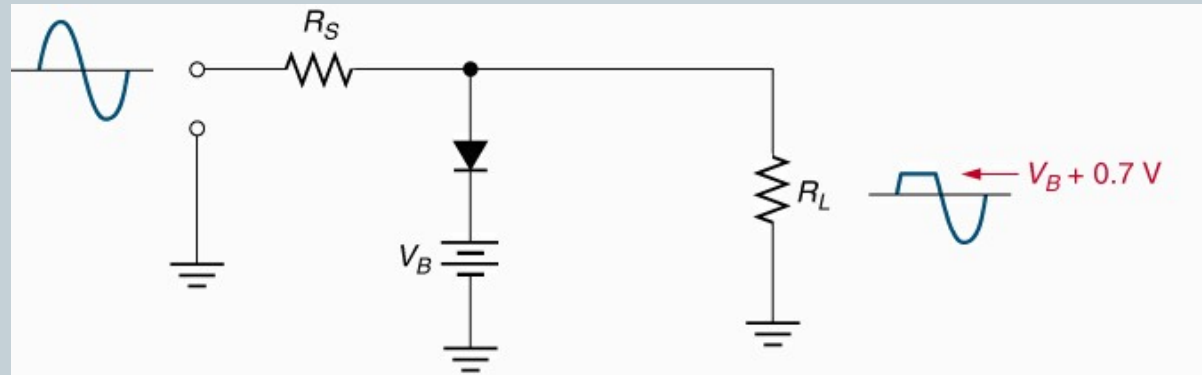


When the diode is conducting:

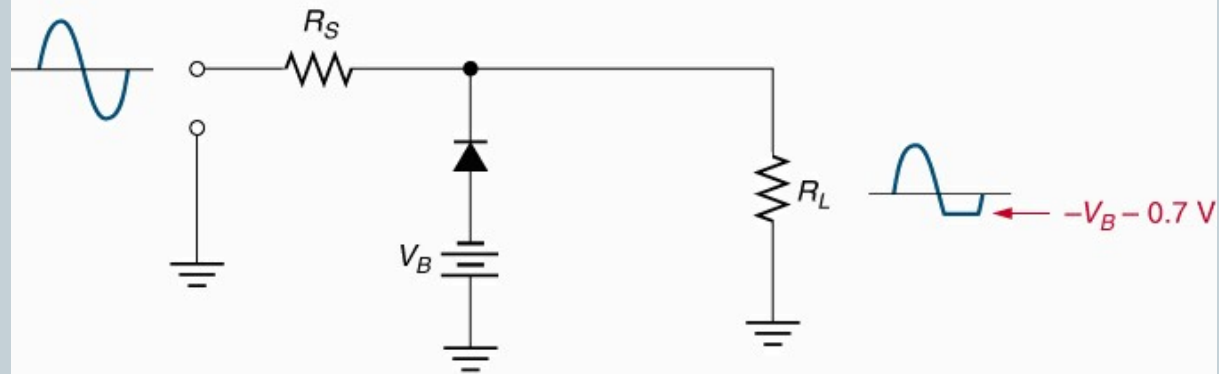
$$V_L = V_F$$

When the diode is not conducting:

Biased Shunt Clippers



(a) Positive-biased clipper



(b) Negative-biased clipper