

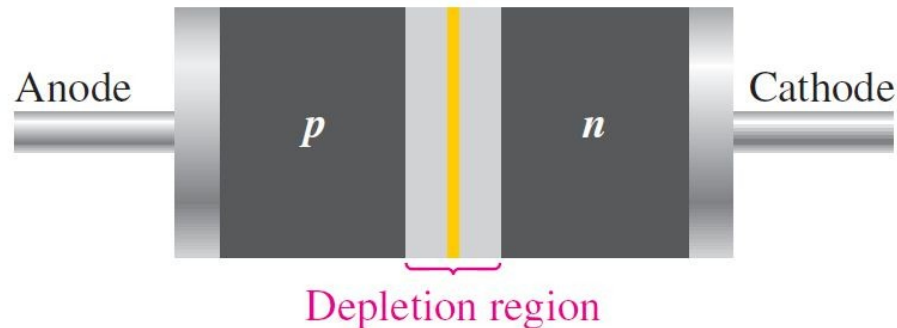
Construction of Zener

Zener diodes are designed to operate in reverse breakdown. Two types of reverse breakdown in a zener diode are *avalanche* and *Zener*. The avalanche break down occurs in both rectifier and zener diodes at a sufficiently high reverse voltage. **Zener breakdown** occurs in a zener diode at low reverse voltages.

A zener diode is heavily doped to reduced the breakdown voltage. This causes a very thin depletion region.

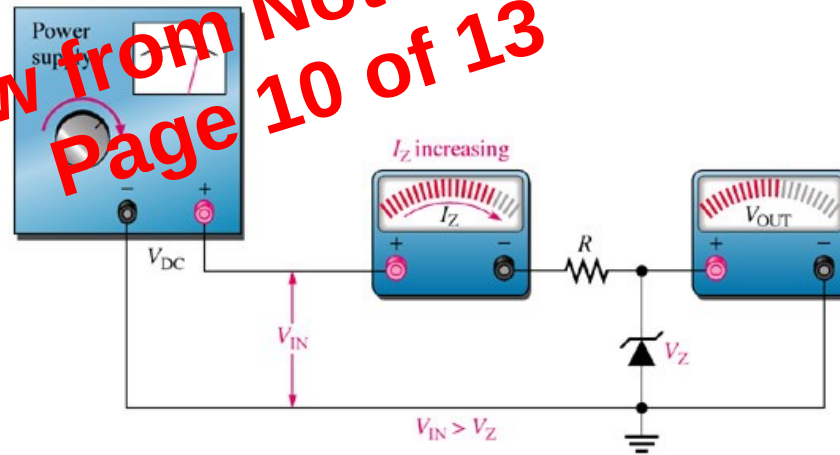
The zener diodes breakdown characteristics are determined by the doping process

Zeners are commercially available with voltage breakdowns of **1.8 V to 200 V**.

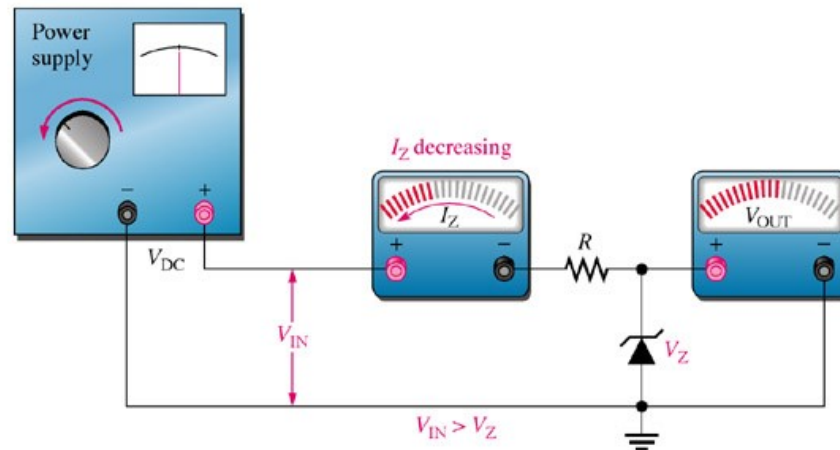


Zener Diode Applications – Zener Regulation with a Varying Input Voltage

Preview from Notesale.co.uk
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(a) As the input voltage increases, the output voltage remains constant ($I_{ZK} < I_Z < I_{ZM}$).



(b) As the input voltage decreases, the output voltage remains constant ($I_{ZK} < I_Z < I_{ZM}$).