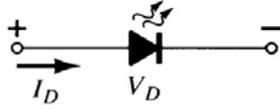


## 1.7 – Diodos Especiais

### LED – Light-Emitting Diode

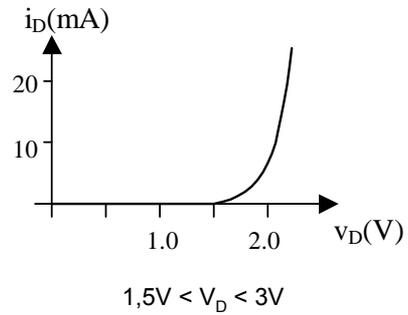
Símbolo:



Materiais (semicondutores compostos)

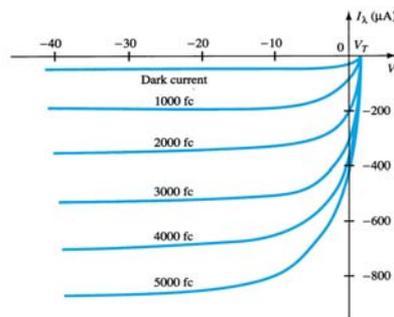
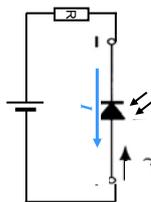
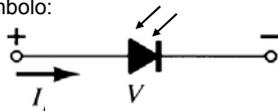
GaAs (*infravermelho*)

GaAs<sub>0,6</sub>P<sub>0,4</sub> (*luz vermelha*)



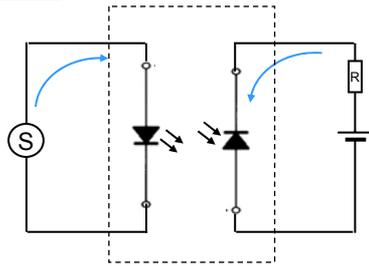
**FOTODIODO:** A luz incidente na junção p-n provoca um aumento dos portadores minoritários, controlando assim a corrente reversa no diodo.

Símbolo:



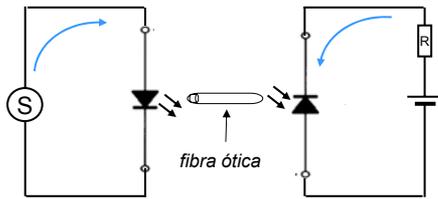
fc (footcandle) – intensidade luminosa

## Optocoplador



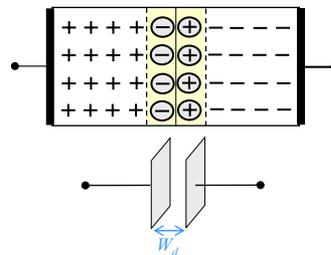
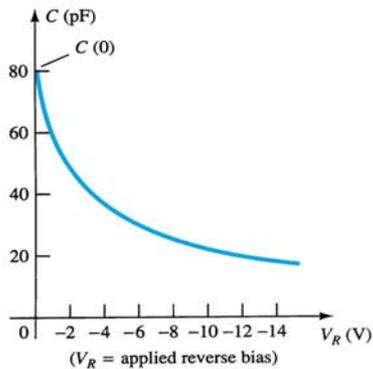
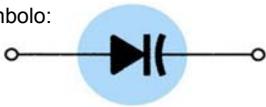
Isolador ou transformador ótico

Outra aplicação:



**VARACTOR** (varicap, VVC): capacitor de semiconductor que tem sua capacitancia controlada pela tensão reversa aplicada.

Símbolo:

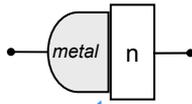
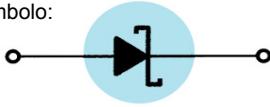


$$C_T(V_R) = \epsilon \frac{A}{W_d}$$

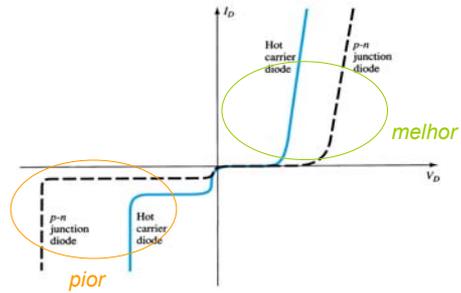
## **DIODO SCHOTTKY:** Diodo rápido

Junção metal-semicondutor (só portadores majoritários)

Símbolo:



Junção metal-semicondutor



**Aplicações principais:**

- circuitos de alta frequência (GHz)
- circuitos de baixa tensão-alta corrente

**DIODO TUNEL:** Diodo altamente dopado que apresenta uma região de resistência negativa

Aplicação principal: Osciladores

Símbolo:

