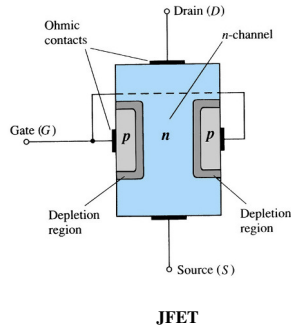
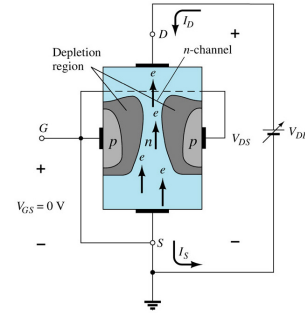


TRANSISTOR DE EFEITO DE CAMPO

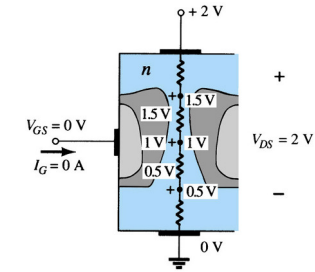
- Junção (JFET)
 - Canal n
 - Canal p
- Porta Isolada (MOSFET)
 - Modo depleção
 - Modo reforço



FUNCIONAMENTO DO JFET CANAL n ($V_{GS}=0$)

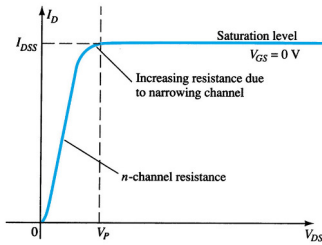


JFET canal n para $V_{GS}=0$

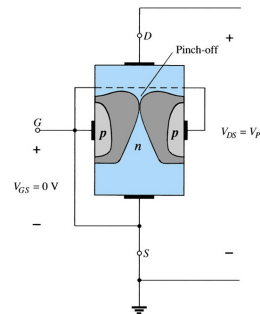


Exemplo de distribuições de tensões ao longo do canal ($V_{GS}=0$)

FUNCIONAMENTO DO JFET CANAL n ($V_{GS}=0$)

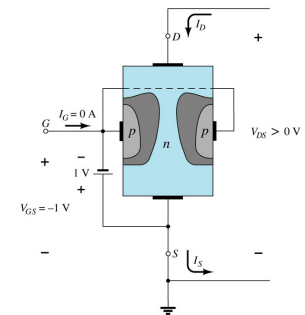


Comportamento $I_D \times V_{DS}$ para $V_{GS}=0$

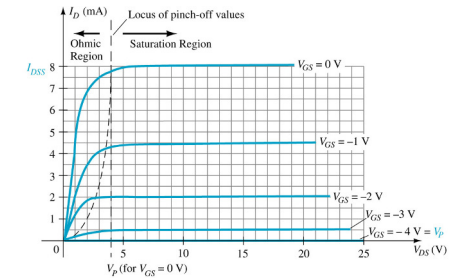


Tensão de estrangulamento ($V_{GS}=0$)

FUNCIONAMENTO DO JFET CANAL n ($V_{GS}<0$)

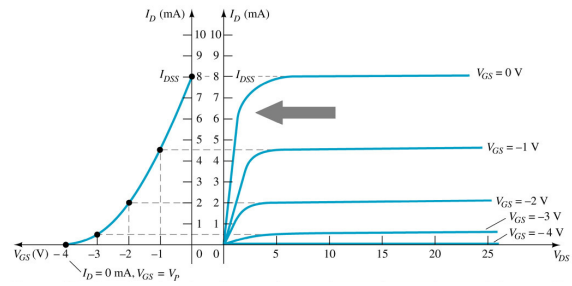


JFET canal n para $V_{GS}<0$



Curva característica do JFET canal n ($I_{DSS}=8\text{mA}$, $V_P=-4\text{V}$)

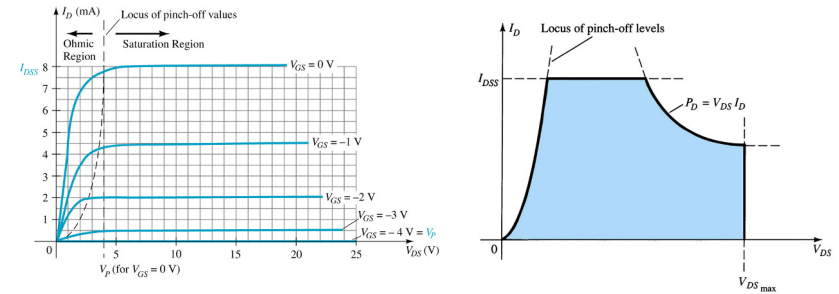
CURVA CARACTERÍSTICA DE TRANSFERÊNCIA DO JFET CANAL N



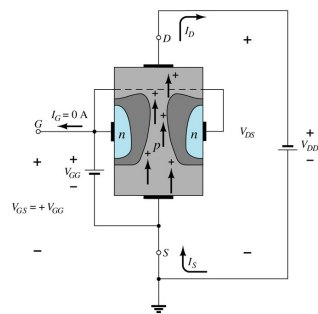
Obtenção da curva característica

Equação de Shockley: $I_D = I_{DSS} \left(1 - \frac{V_{GS}}{V_P}\right)^2$

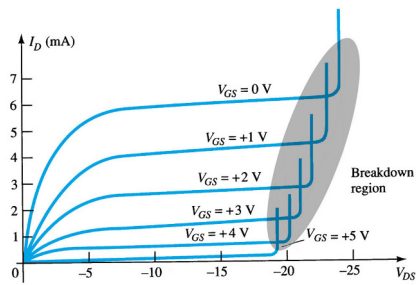
REGIÃO DE OPERAÇÃO



FUNCIONAMENTO DO JFET CANAL P

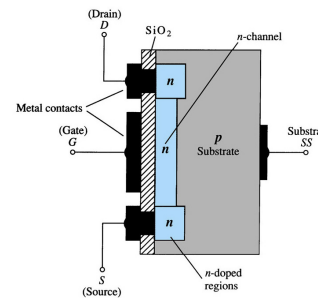


JFET canal p

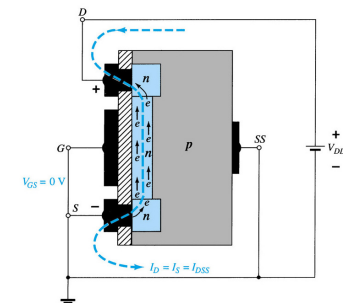


Curva característica do JFET canal p ($I_{DSS}=6mA$, $V_P=6V$)

MOSFET - MODO DEPLEÇÃO – CANAL N

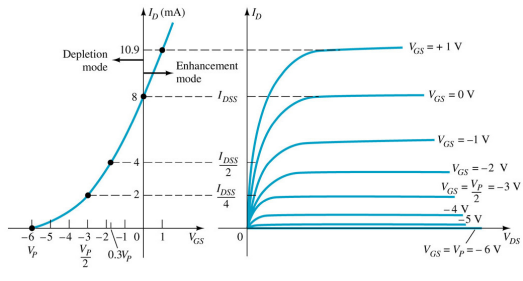


Arquitetura

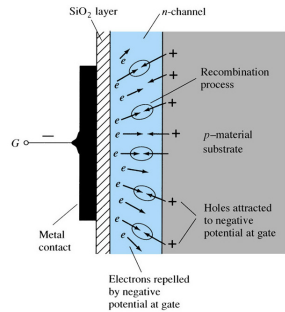


MOSFET modo depleção canal n para $V_{GS}=0$

MOSFET - MODO DEPLEÇÃO – CANAL N

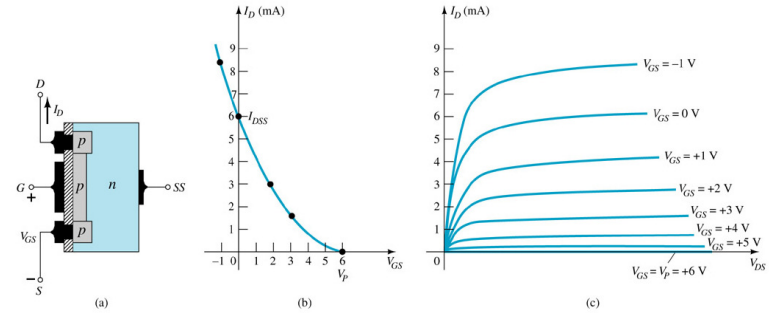


Curva característica do MOSFET modo depleção canal n ($I_{DSS}=8\text{mA}$, $V_p=-6\text{V}$)



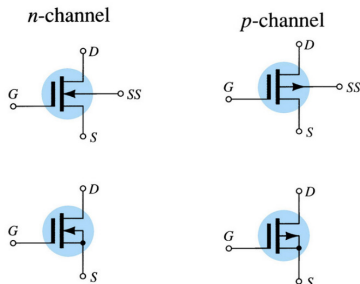
Redução dos portadores livres no canal devido ao potencial negativo na porta

MOSFET - MODO DEPLEÇÃO – CANAL P

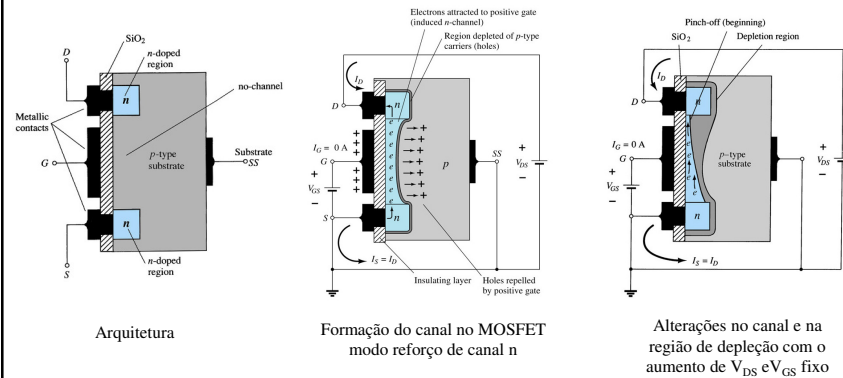


MOSFET modo depleção de canal p ($I_{DSS}=6\text{mA}$, $V_p=6\text{V}$)

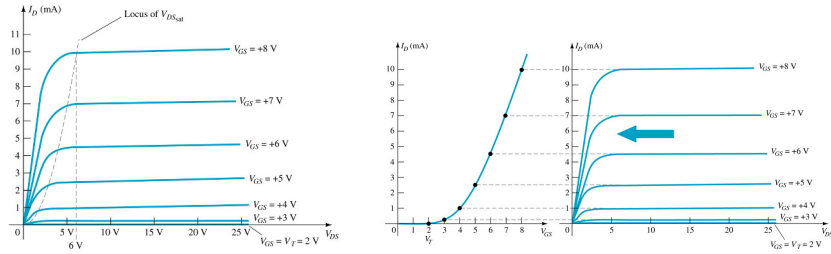
SIMBOLOGIA PARA MOSFET MODO DEPLEÇÃO



MOSFET MODO REFORÇO



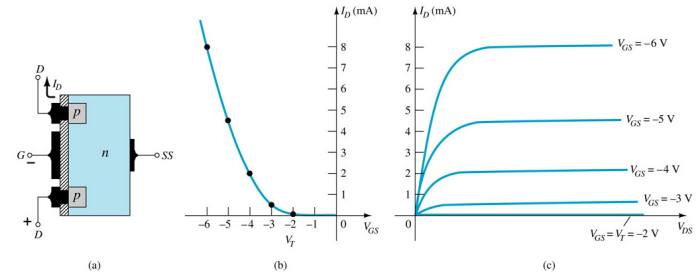
MOSFET MODO REFORÇO



Curva característica de dreno do MOSFET modo reforço de canal n ($V_T=2V$, $k=0,278 \cdot 10^{-3} A/V^2$)

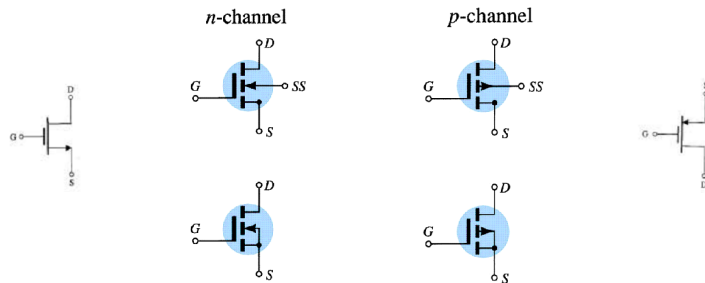
Curva característica de transferência do MOSFET modo reforço de canal n

MOSFET – MODO REFORÇO – CANAL P



MOSFET modo reforço de canal p ($V_T=2V$, $k=0,5 \cdot 10^{-3} A/V^2$)

SIMBOLOGIA PARA MOSFET MODO REFORÇO



CMOS

