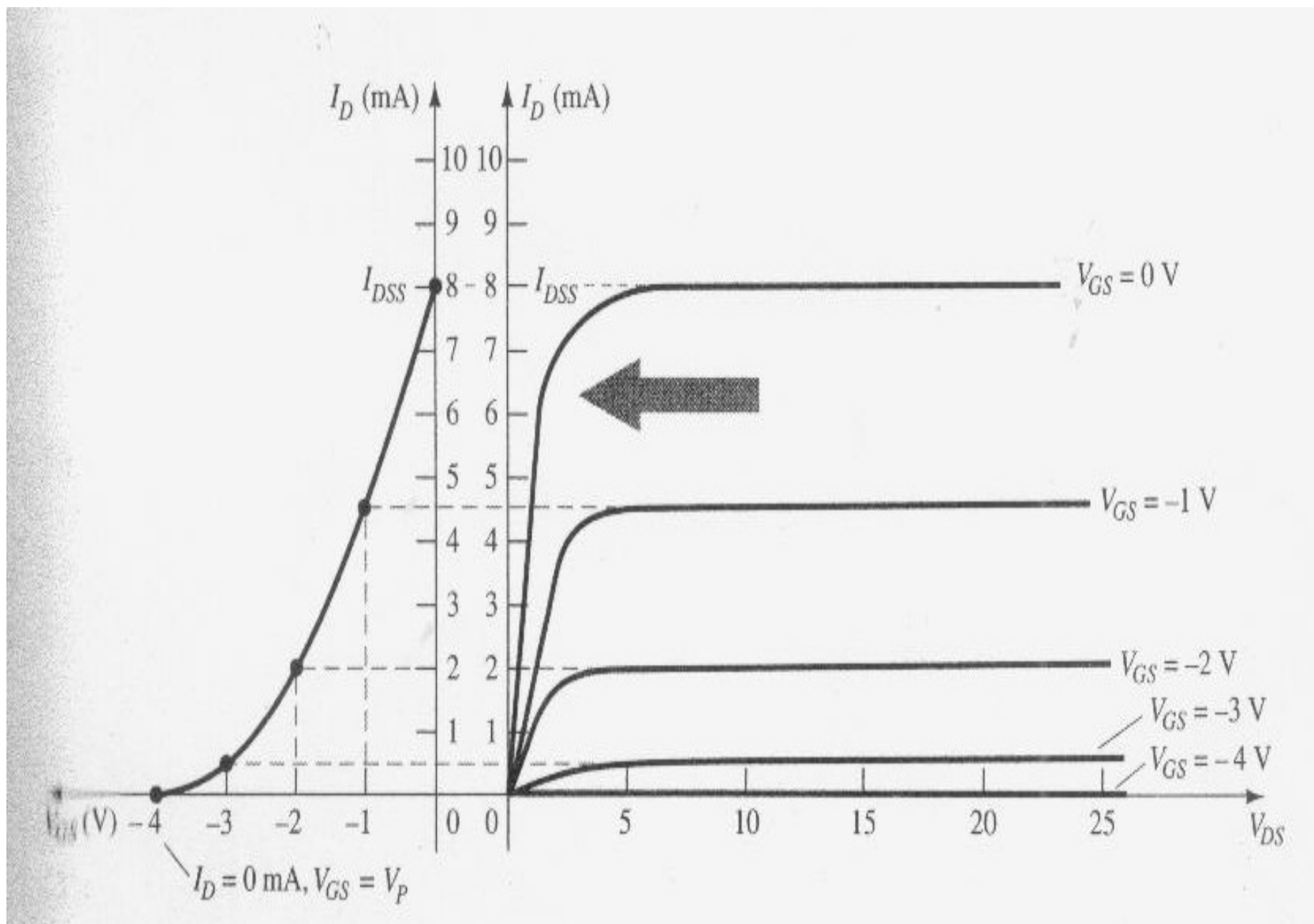
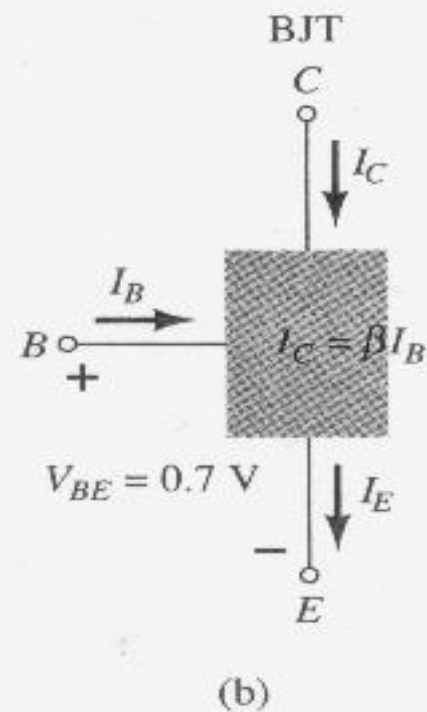
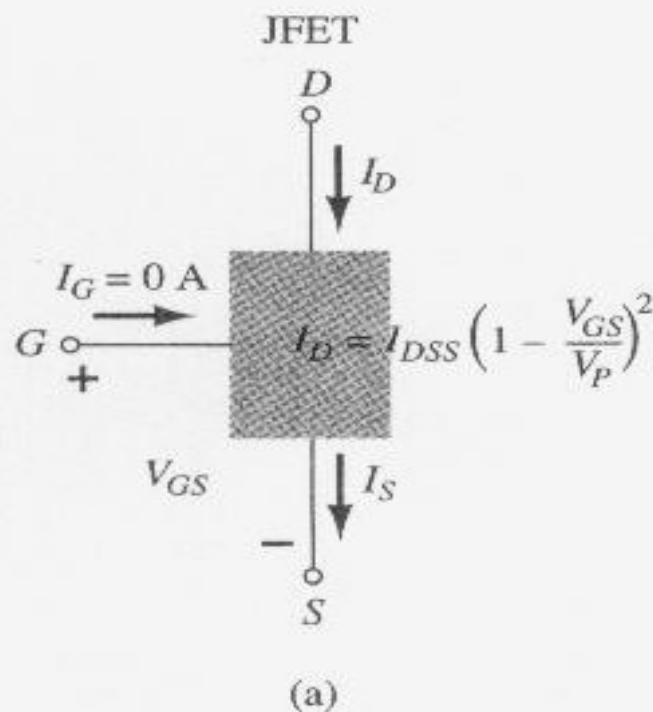
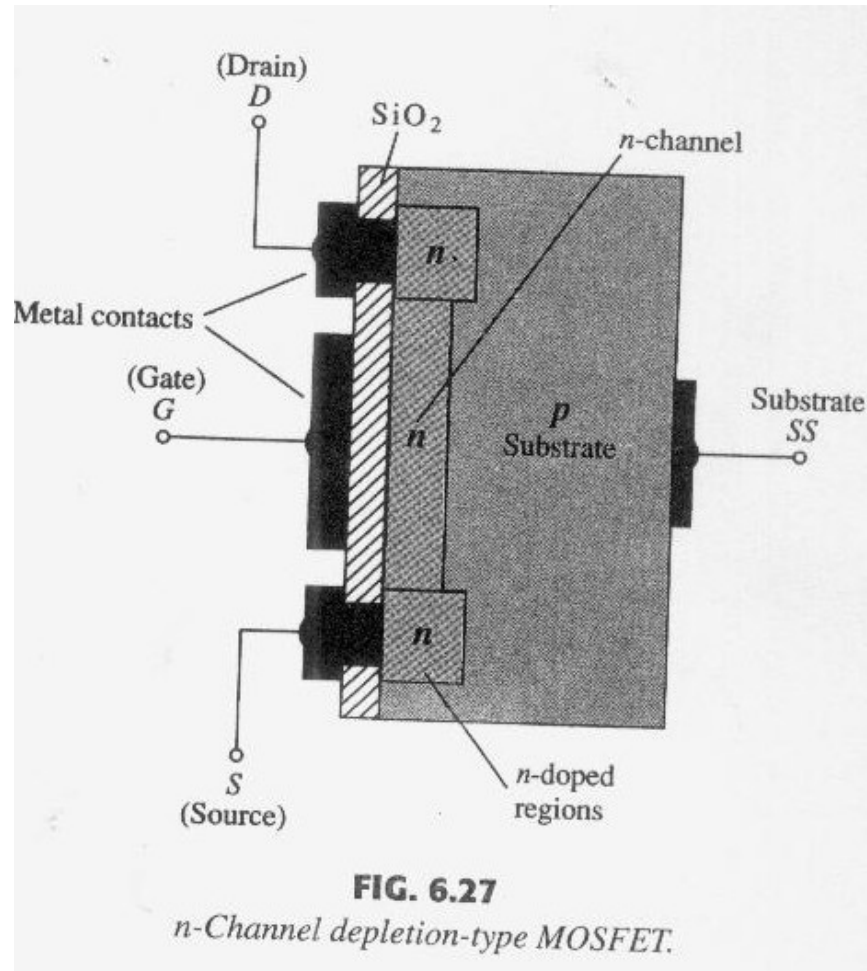




<i>JFET</i>		<i>BJT</i>
$I_D = I_{DSS} \left(1 - \frac{V_{GS}}{V_P}\right)^2 \Leftrightarrow$		$I_C = \beta I_B$
$I_D = I_S$	$\Leftrightarrow$	$I_C \cong I_E$
$I_G \cong 0 \text{ A}$	$\Leftrightarrow$	$V_{BE} \cong 0.7 \text{ V}$



DEPLETION MOSFET (Insulated-Gate FET, IGFET)



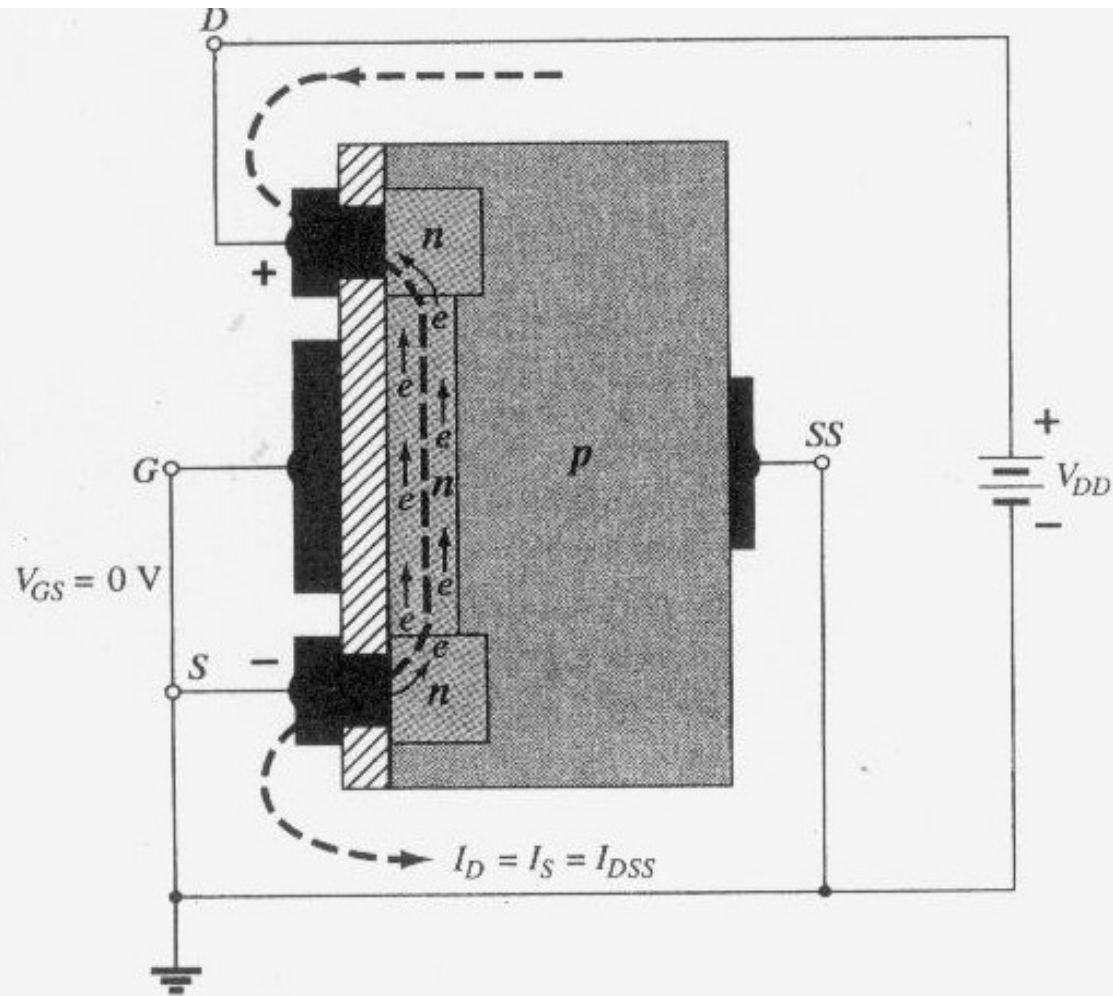


FIG. 6.28

n-Channel depletion-type MOSFET with $V_{GS} = 0\text{ V}$ and applied voltage V_{DD} .

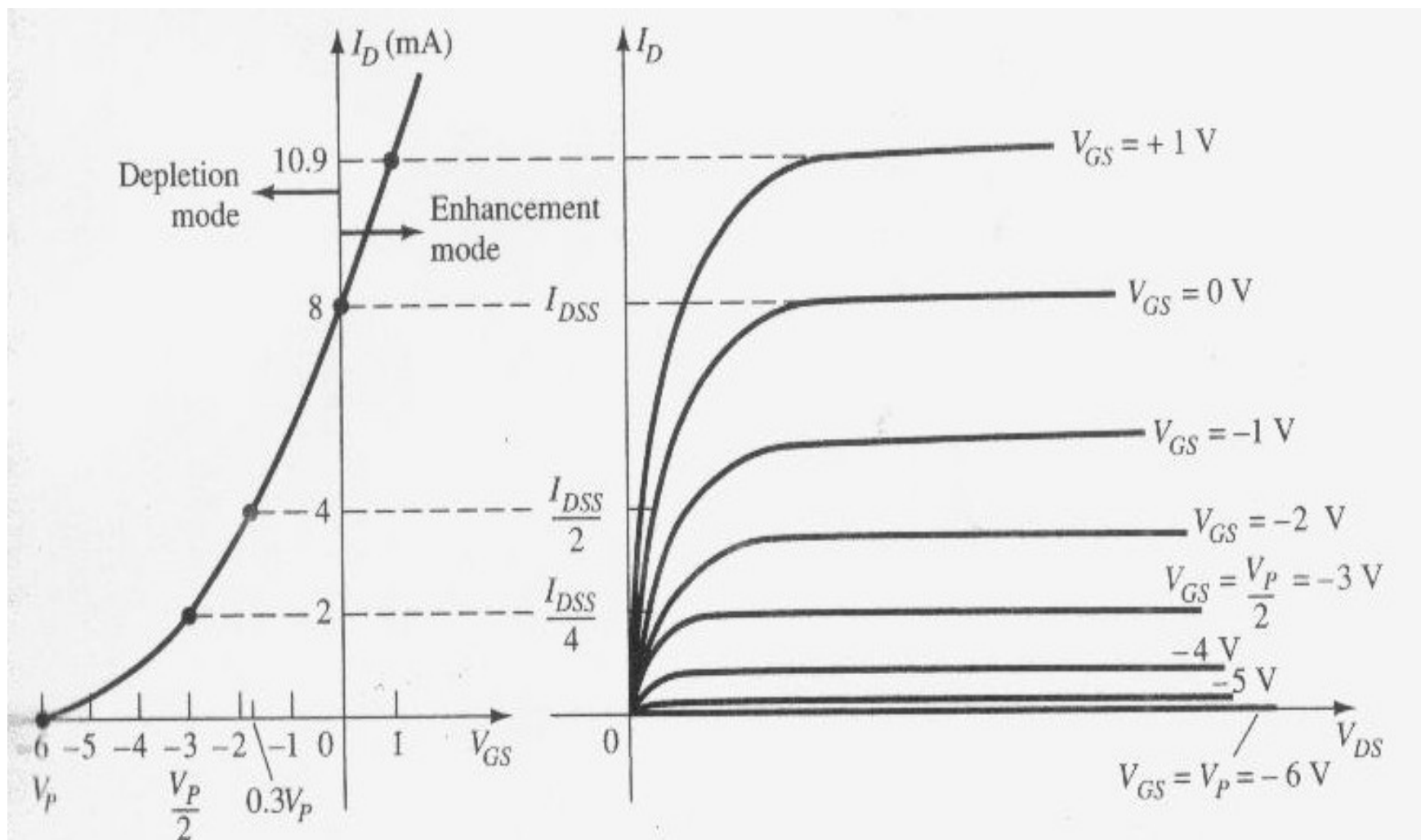
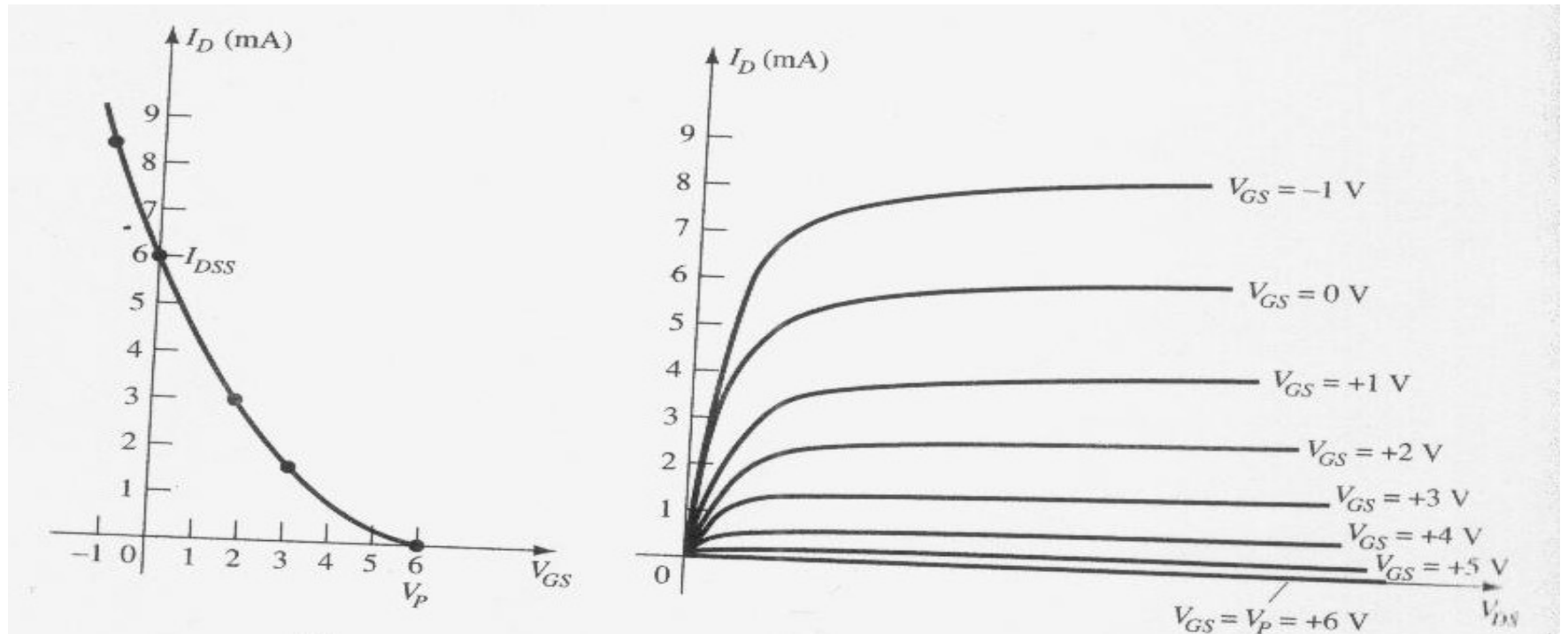
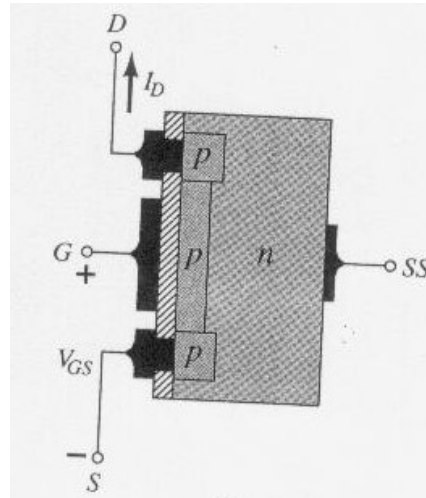
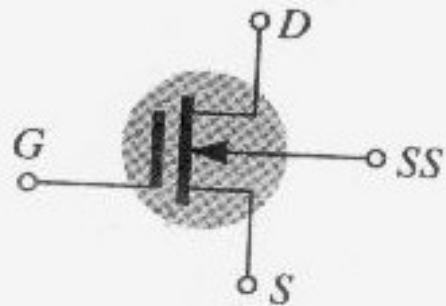


FIG. 6.29

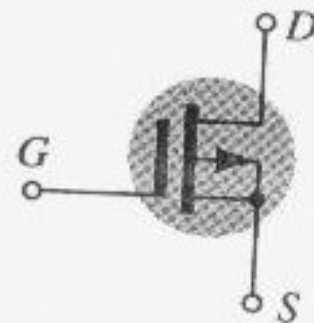
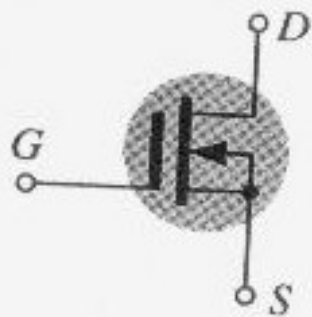
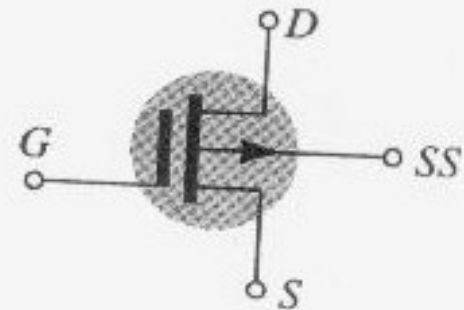
Drain and transfer characteristics for an n-channel depletion-type MOSFET.



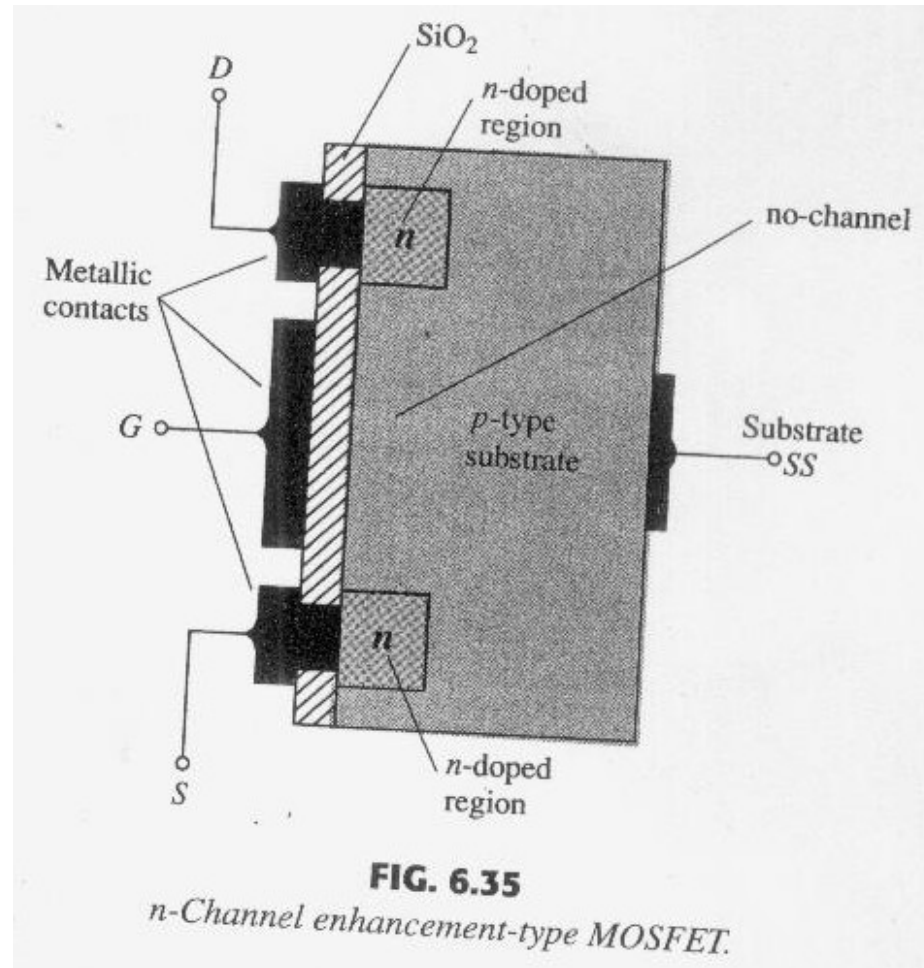
n-channel



p-channel



ENHANCEMENT MOSFET (Insulated-Gate FET, IGFET)



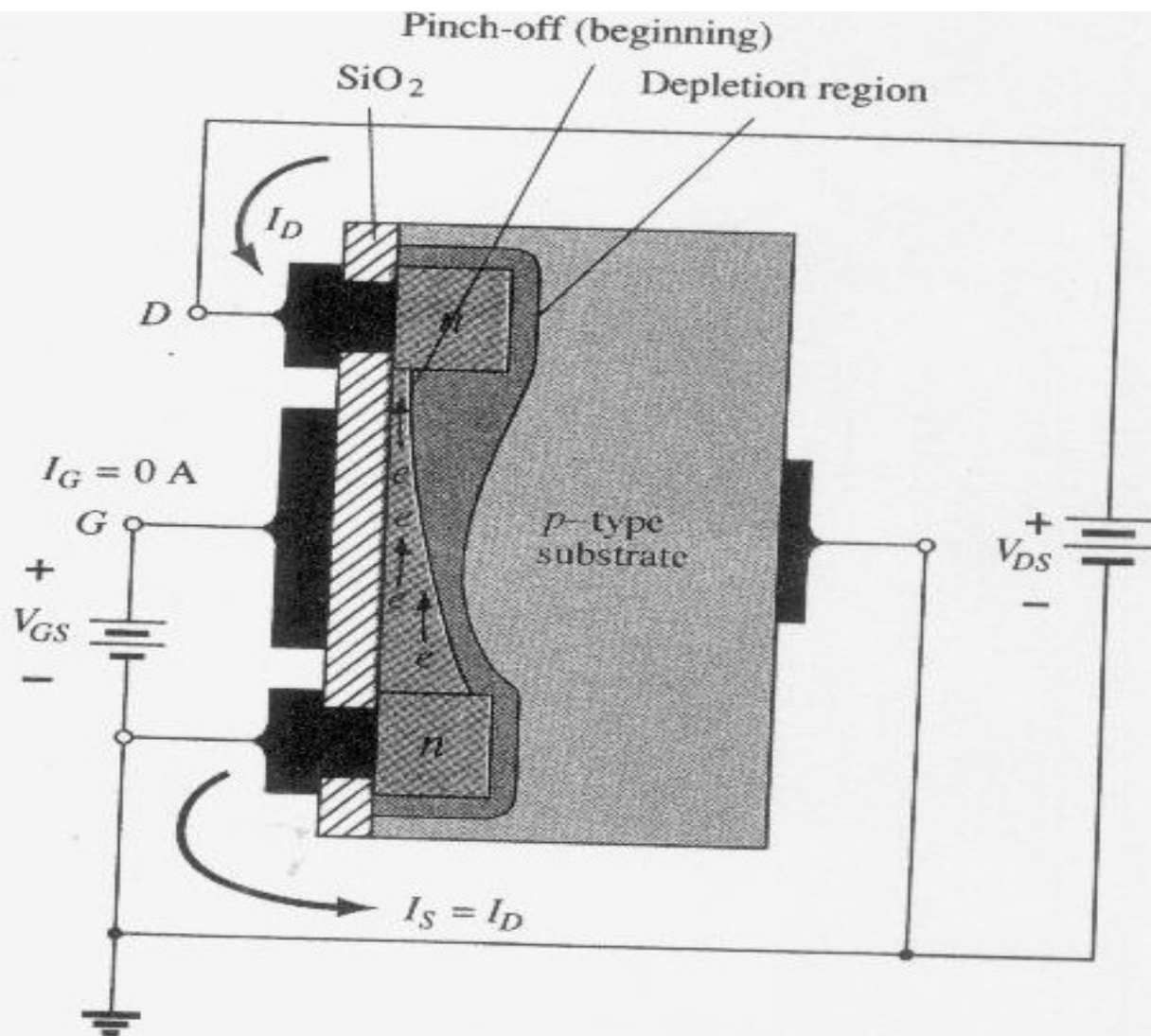


FIG. 6.37

Change in channel and depletion region with increasing level of V_{DS} for a fixed value of V_{GS} .

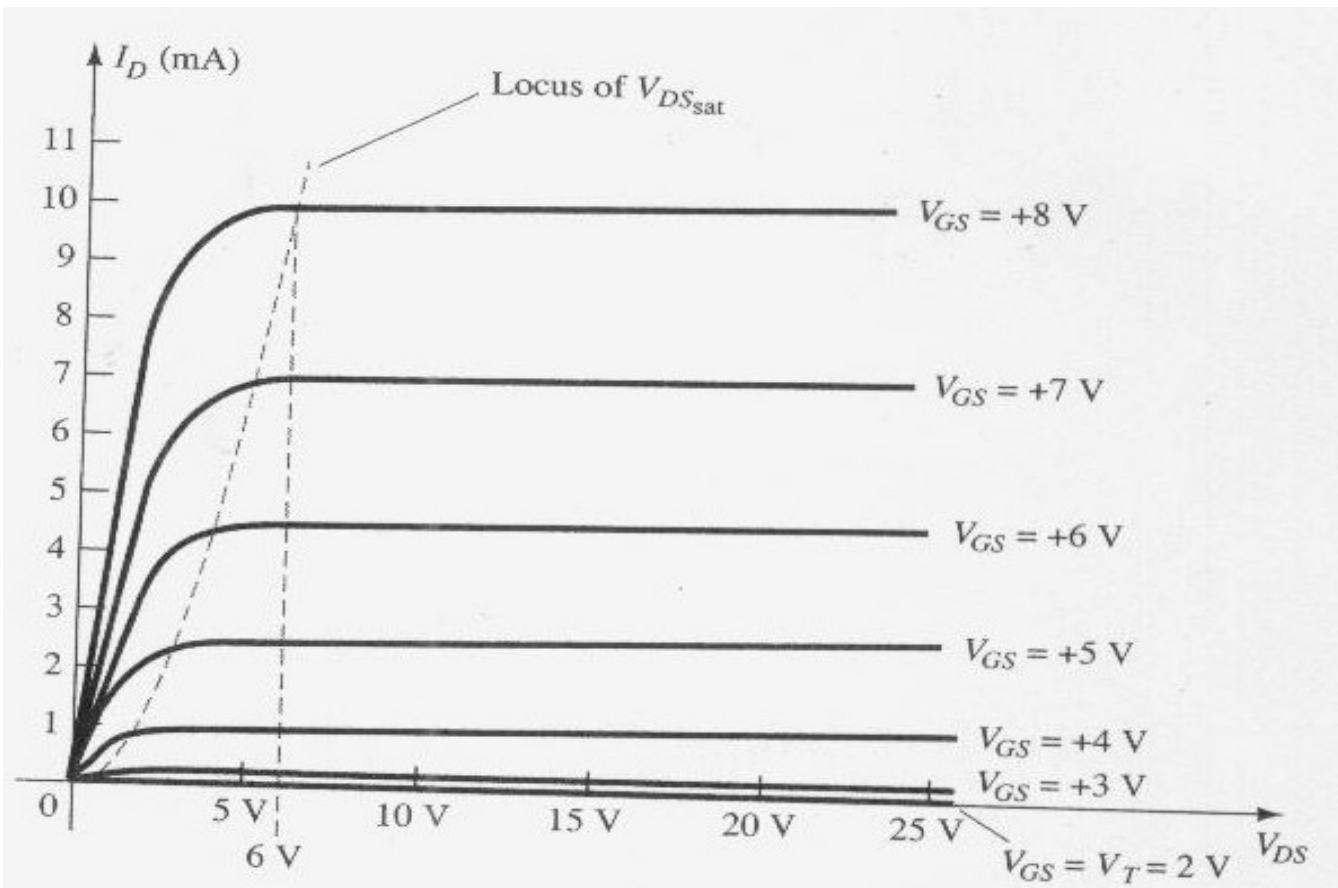
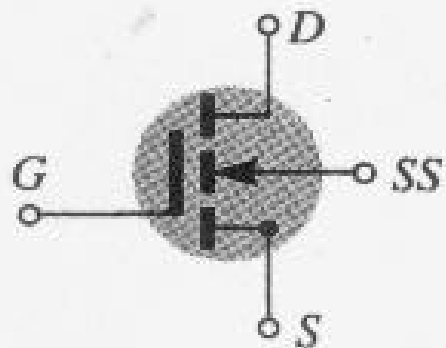


FIG. 6.38

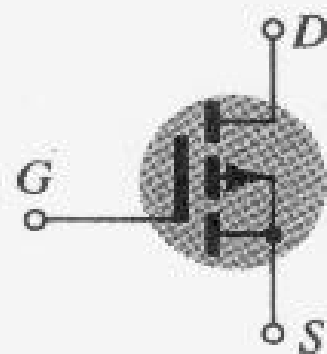
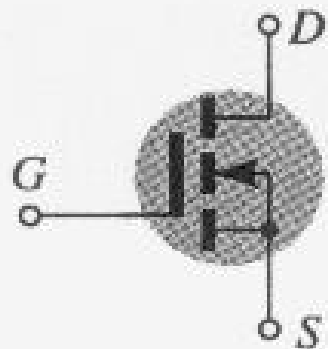
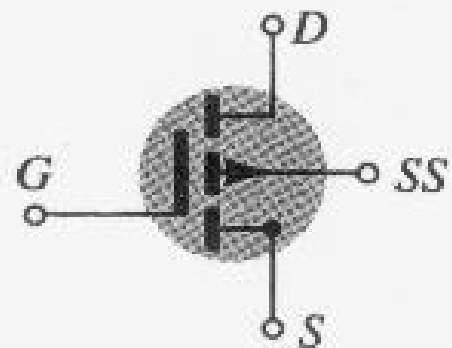
Drain characteristics of an n-channel enhancement-type MOSFET with $V_T = 2\text{ V}$ and $k = 0.278 \times 10^{-3}\text{ A/V}^2$.

$$V_{DSsat} = V_{GS} - V_T$$

n-channel

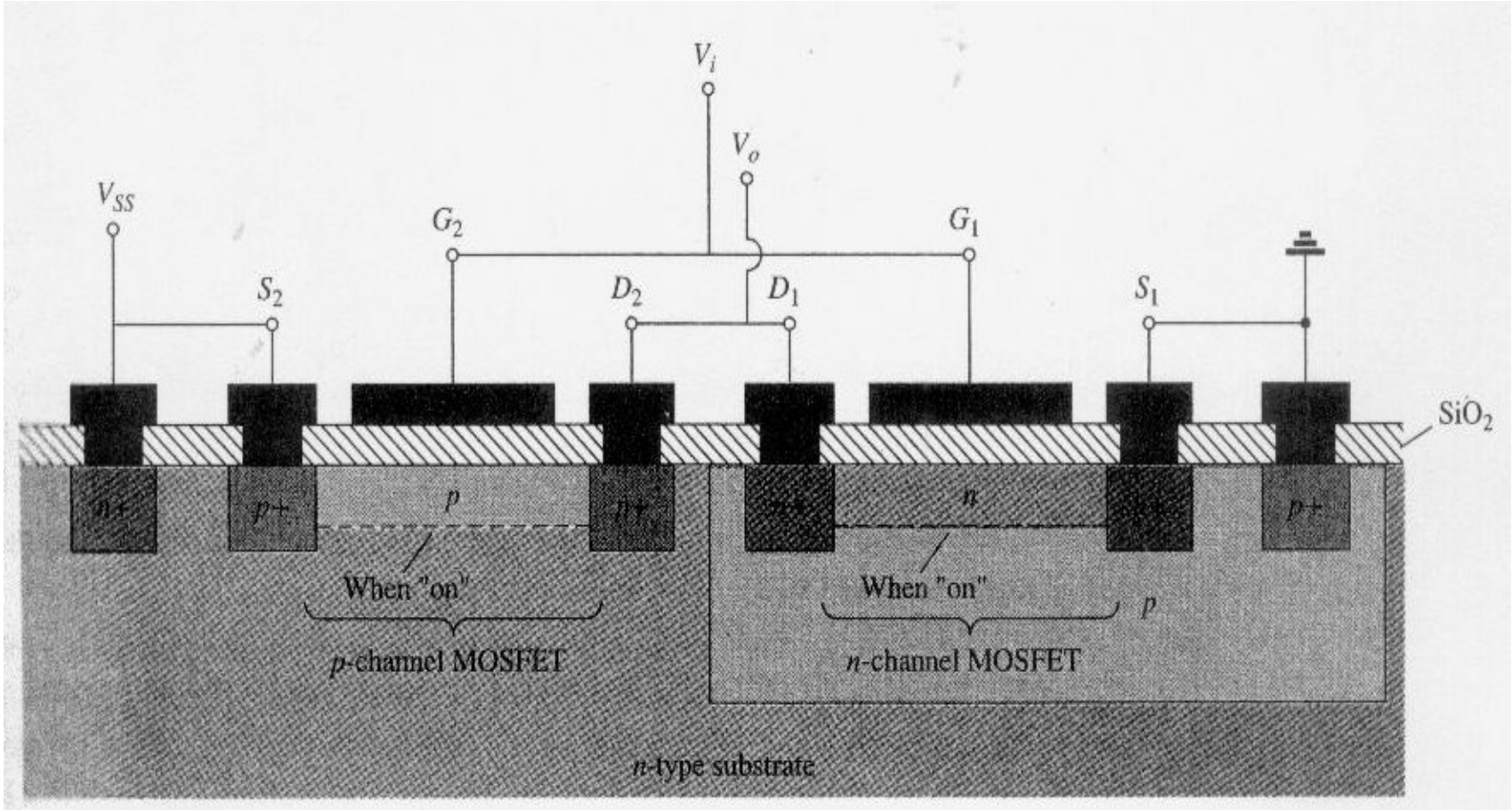


p-channel

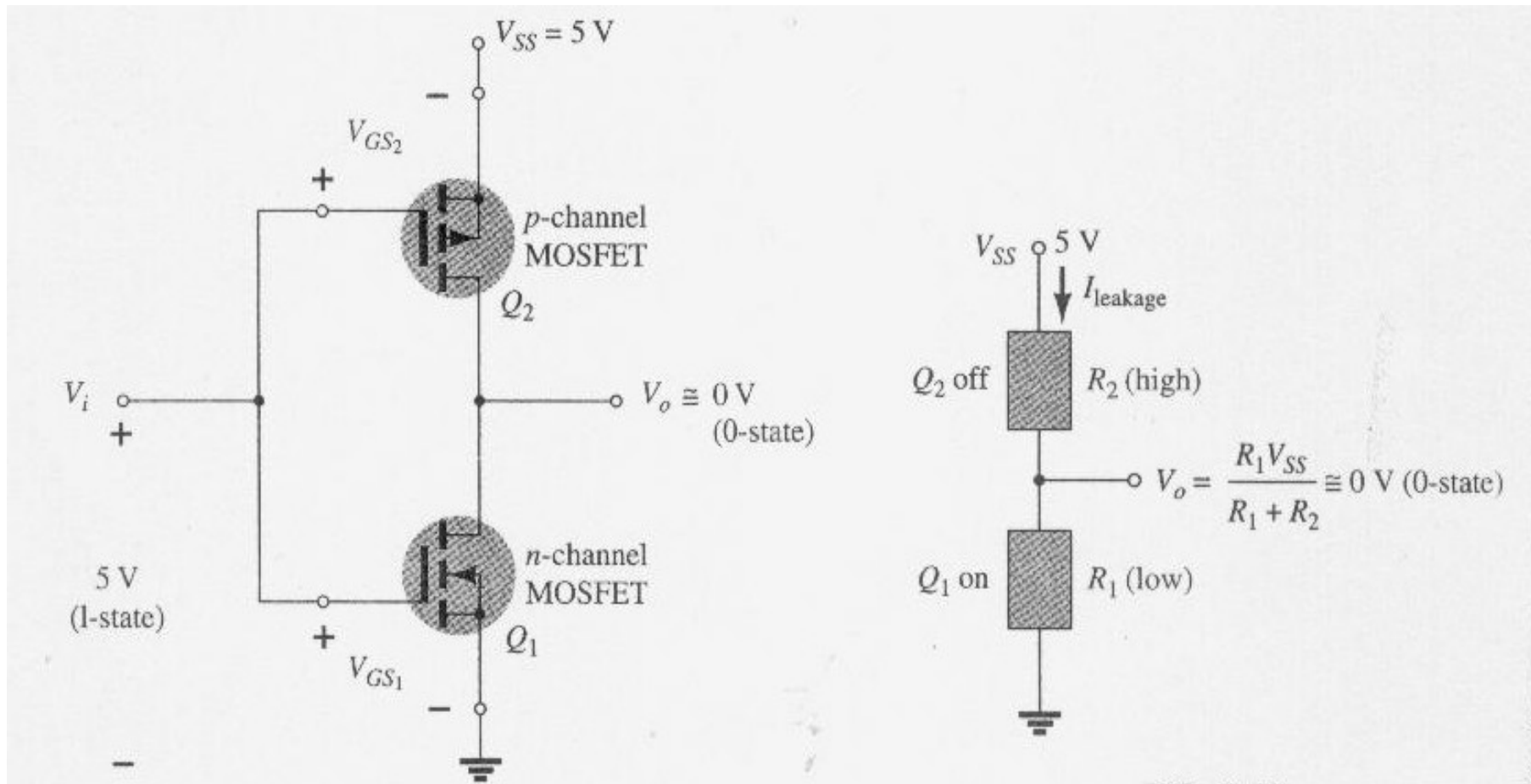


CMOS Transistörler (Complementary MOS)

N ve P kanallı MOSFET transistörlerin bir arada kullanılması ile oluşturulur. Düşük güç harcamasına sahiptir. Sayısal devre tasarımlarında sıkça kullanılırlar.



CMOS Inverter

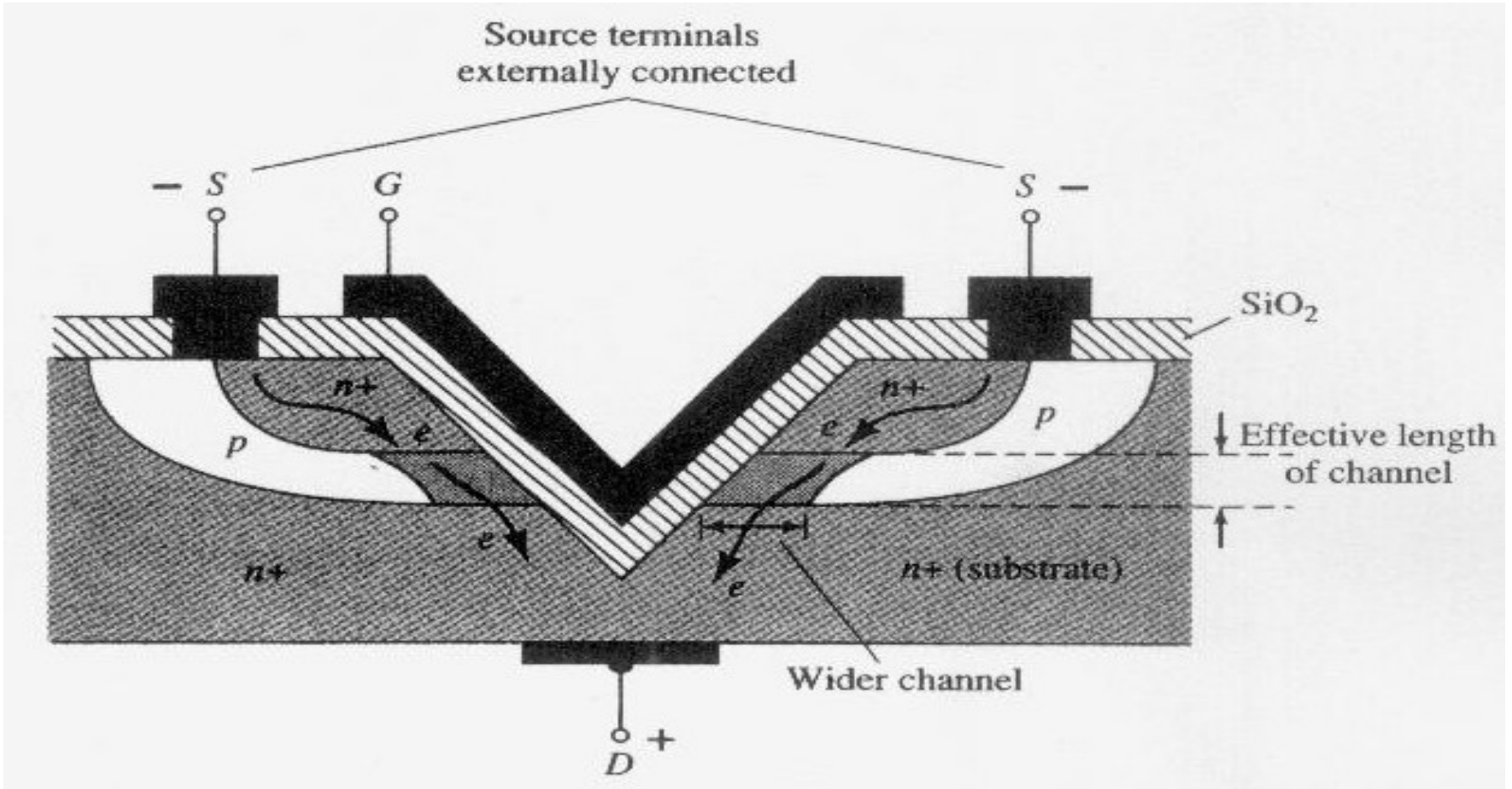


VMOS Transistörler (Vertical Metal Oxide Silicon FET)

Mosfet'lere göre, kanal dirençleri küçüktür ve yüksek akım ve güç oranına sahiptirler.

Pozitif sıcaklık katsayısına sahiptirler.

Anahtarlama zamanları oldukça kısadır.



MESFET Transistörler (Metal Semiconductor Field Effects Transistors)

Mosfet'lere göre, kanal dirençleri küçüktür ve yüksek akım ve güç oranına sahiptirler.

Pozitif sıcaklık katsayısına sahiptirler.

Anahtarlama zamanları oldukça kısadır.

