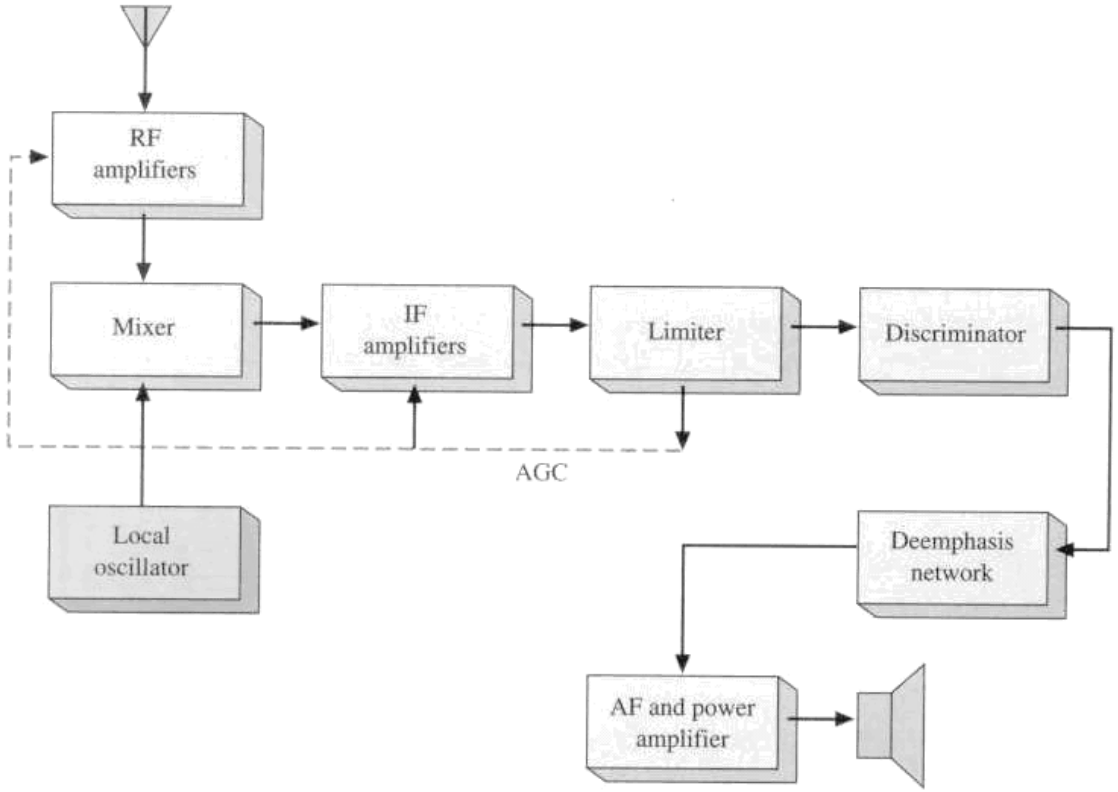
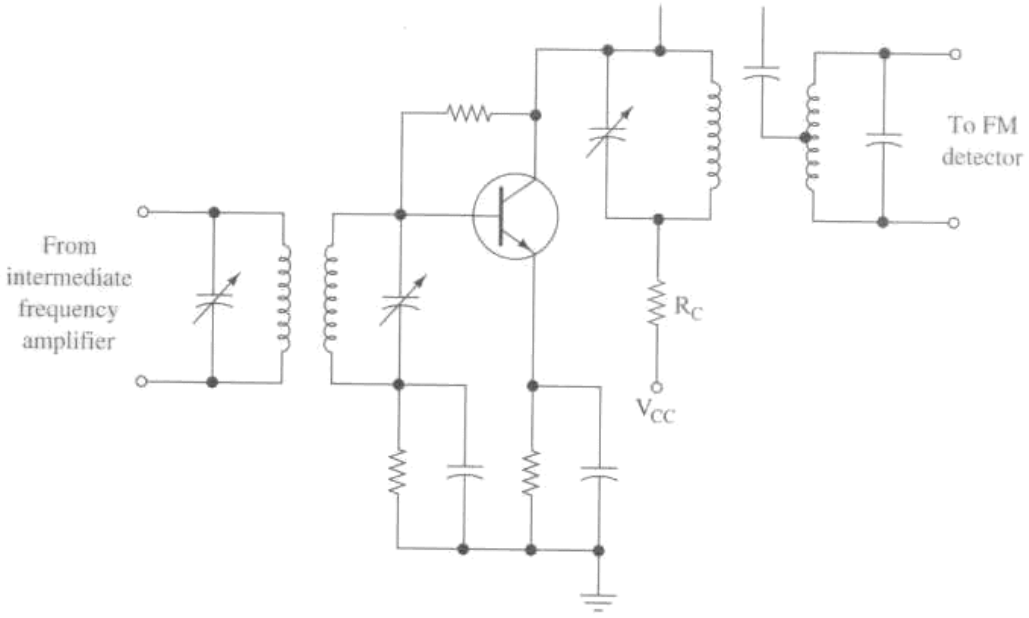
Receptores de modulación en ángulo

Receptor típico de FM

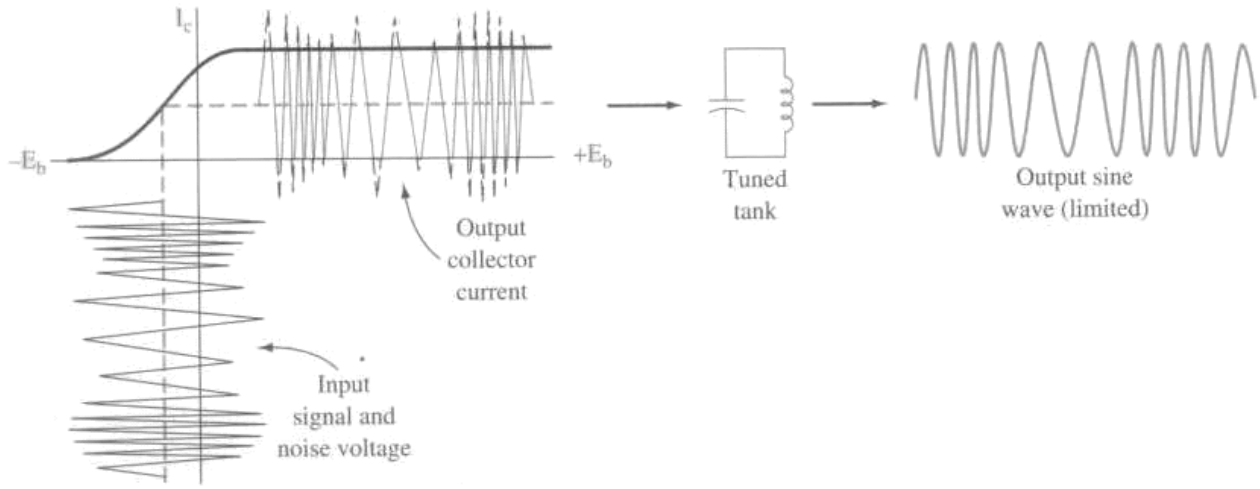


Limitadores

Circuito limitador basado en transistor



Señales de entrada y salida en un circuito limitador y el efecto "volante"



Ejemplo:
Un receptor de FM tiene una ganancia de voltaje de 200000 (106dB) antes de la etapa limitadora. El voltaje del limitador es de 200mV. Determinar la sensibilidad del receptor.

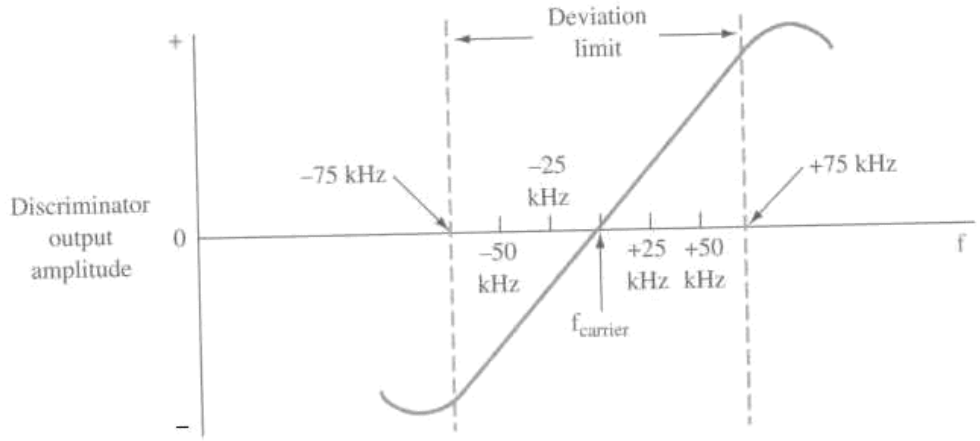
Solución

$$\frac{200\ mV}{200000} = 1\ \mu V$$

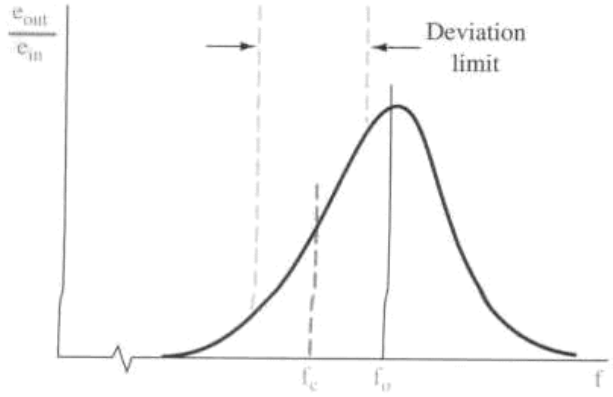
La sensibilidad del receptor es de 1μV

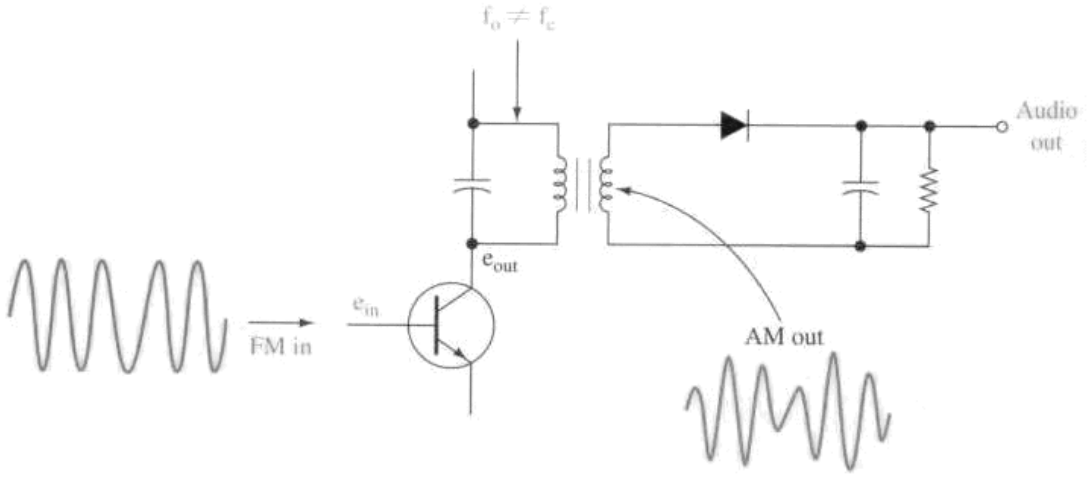
Discriminadores

Curva característica de un discriminador de FM

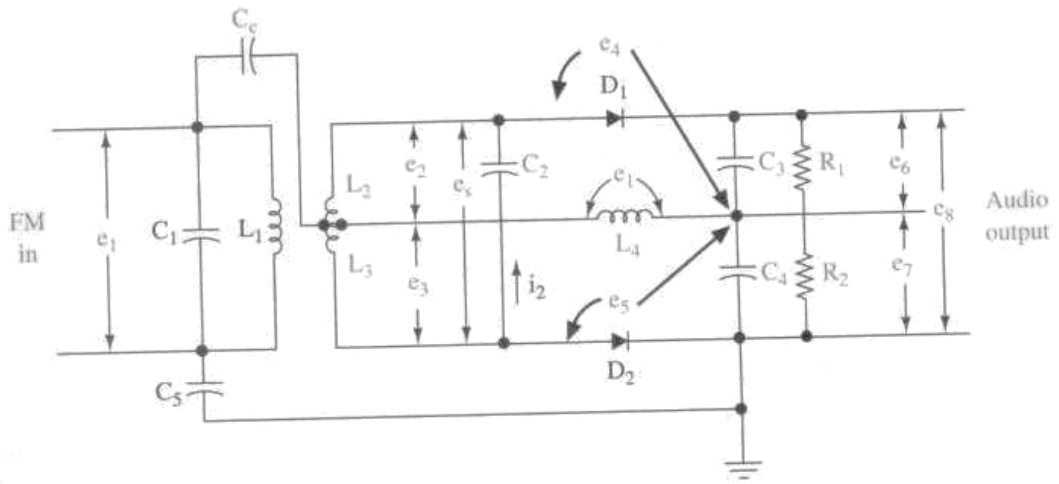


Detector de pendiente

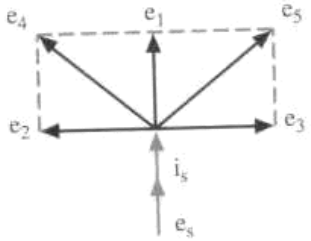




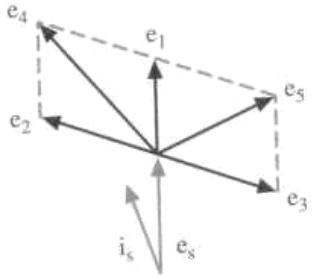
Discriminador Foster-Seeley



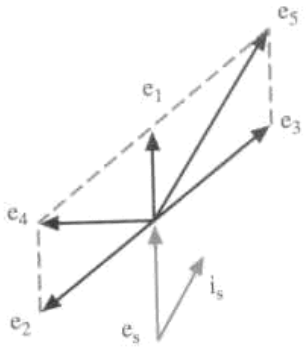
Relaciones de fase del discriminador



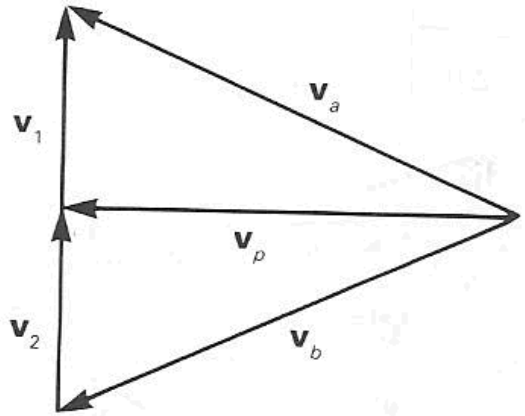
(a) $f = f_c$

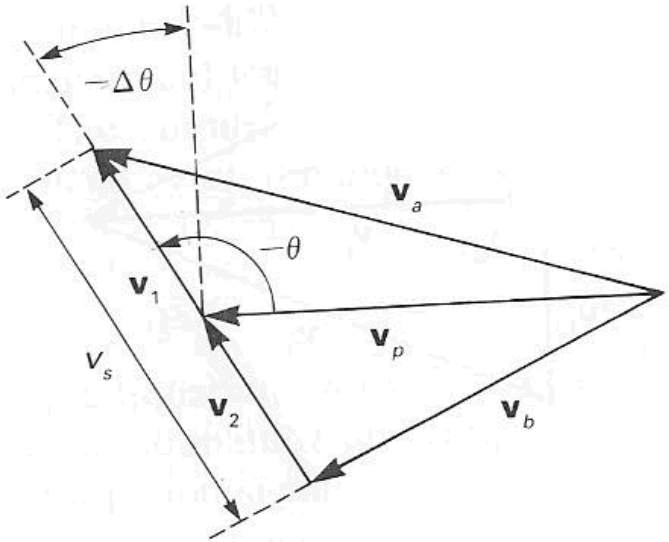


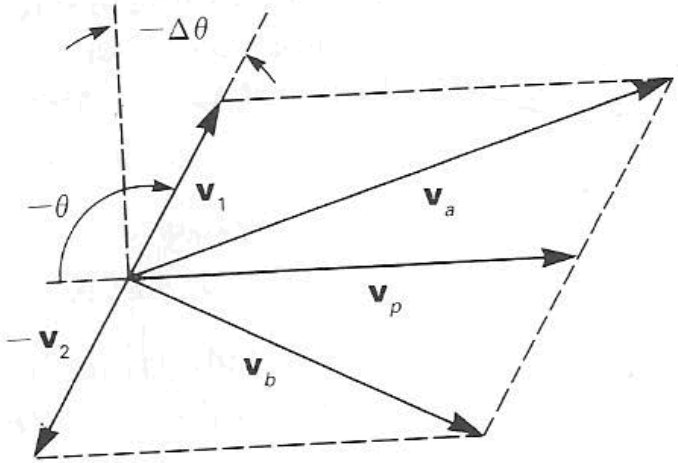
(b) $f > f_c$

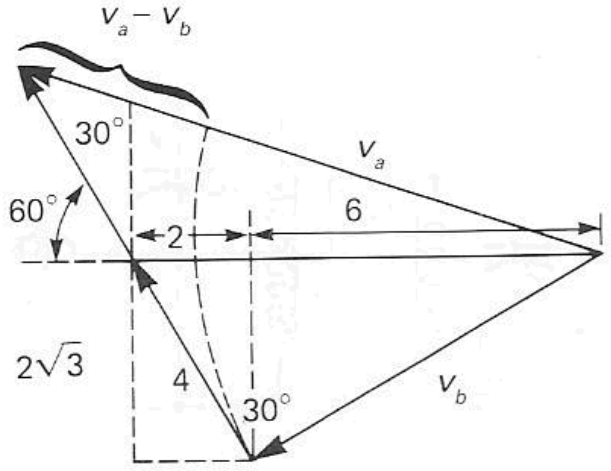


(c) $f < f_c$

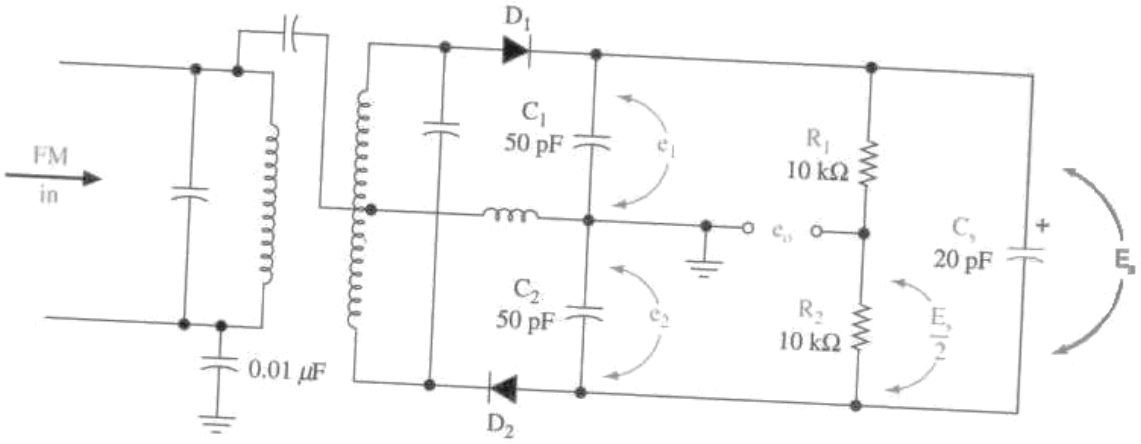

$\mathbf{v}_1$
$\mathbf{v}_a$
$\mathbf{v}_p$
$\mathbf{v}_2$
$\mathbf{v}_b$


$-\Delta\theta$
$\mathbf{v}_a$
$-\theta$
$\mathbf{v}_1$
$\mathbf{v}_p$
v_s
$\mathbf{v}_2$
$\mathbf{v}_b$

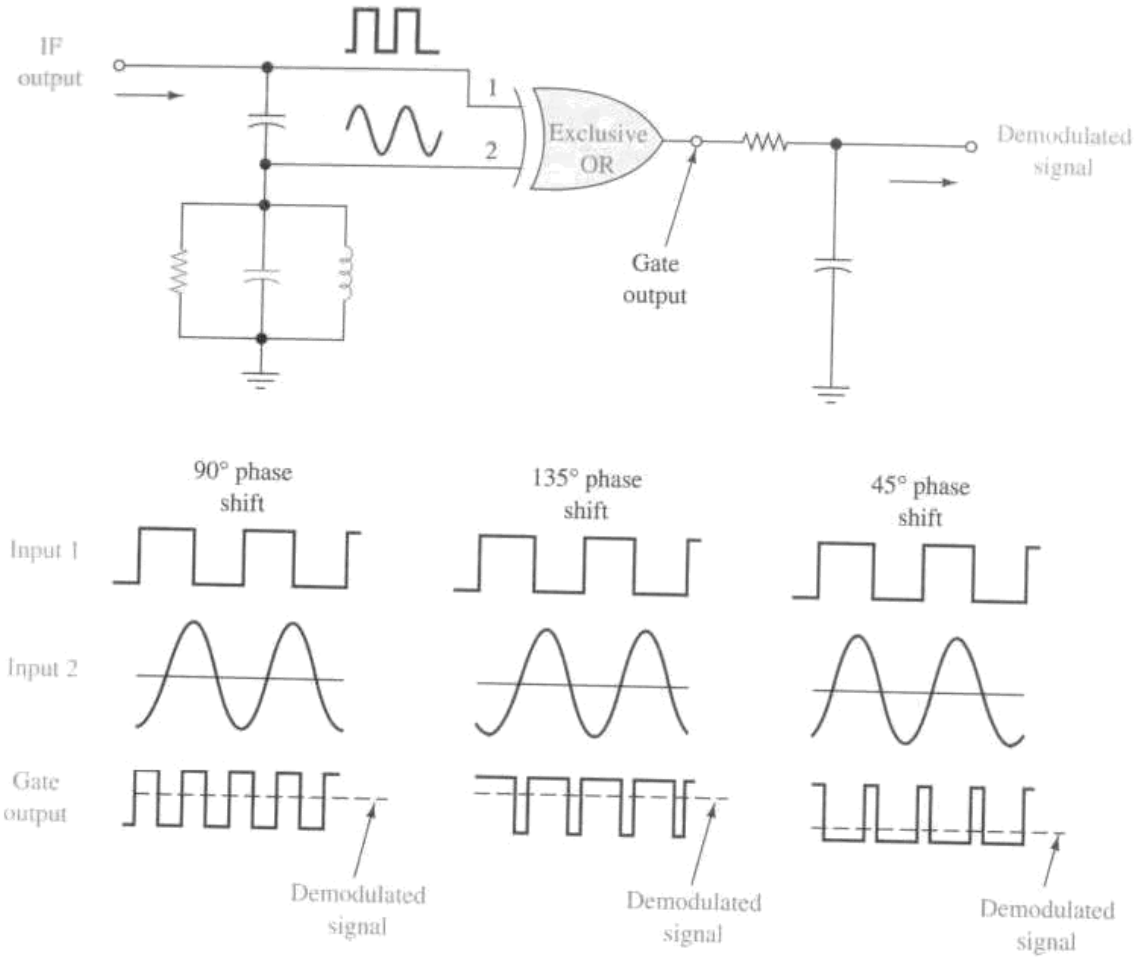

$-\Delta\theta$
$-\theta$
$\mathbf{v}_1$
$\mathbf{v}_a$
$\mathbf{v}_p$
$-\mathbf{v}_2$
$\mathbf{v}_b$


$v_a - v_b$
30°
v_a
60°
2
6
$2\sqrt{3}$
4
30°
v_b

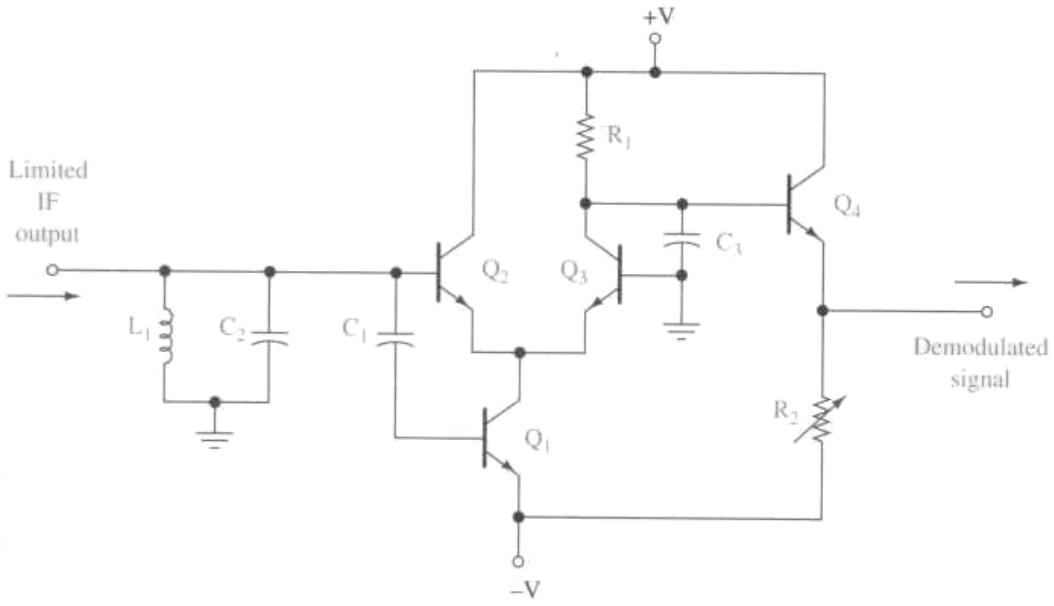
Detector de proporción o relación



Detector de cuadratura



Detector de cuadratura analógico



Demodulador de FM basado en PLL