EL42A - Circuitos Electrónicos

Clase No. 5: Circuitos con Diodos

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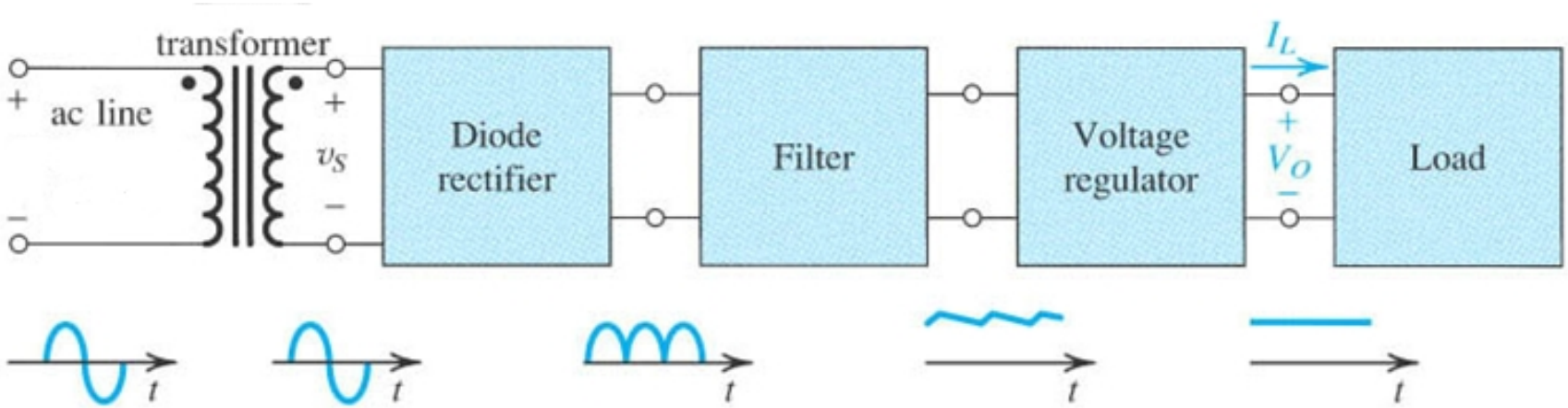
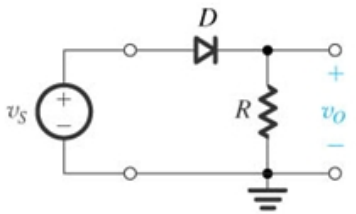
Fuentes Reguladas

Esquema general de una fuente regulada:

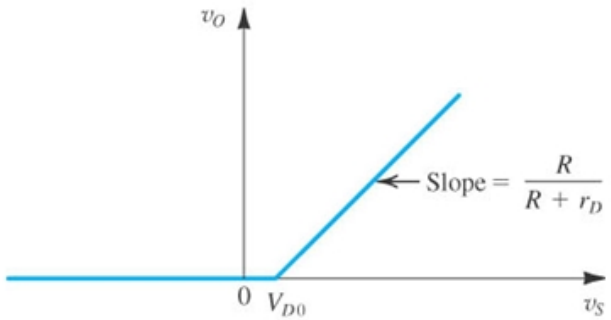


Circuitos Rectificadores (1)

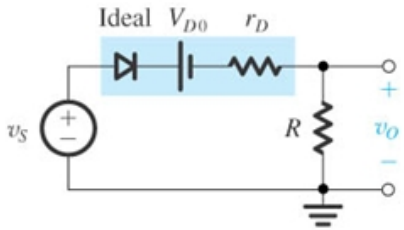
Tres implementaciones típicas:
Rectificador de media onda



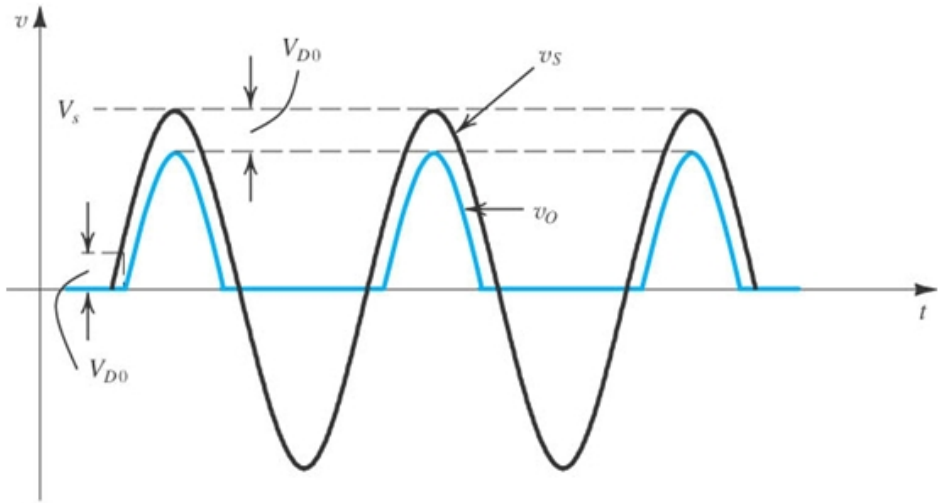
(a)



(c)



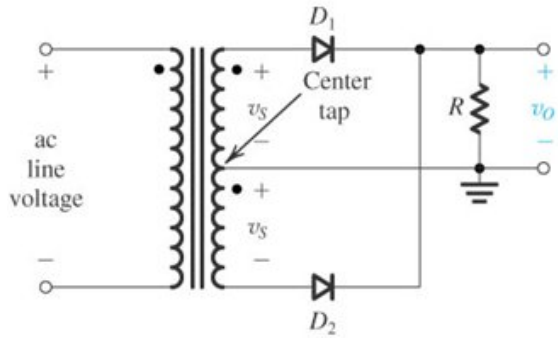
(b)



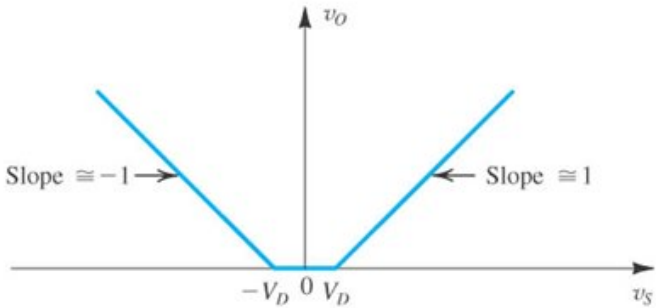
(d)

Circuitos Rectificadores (2)

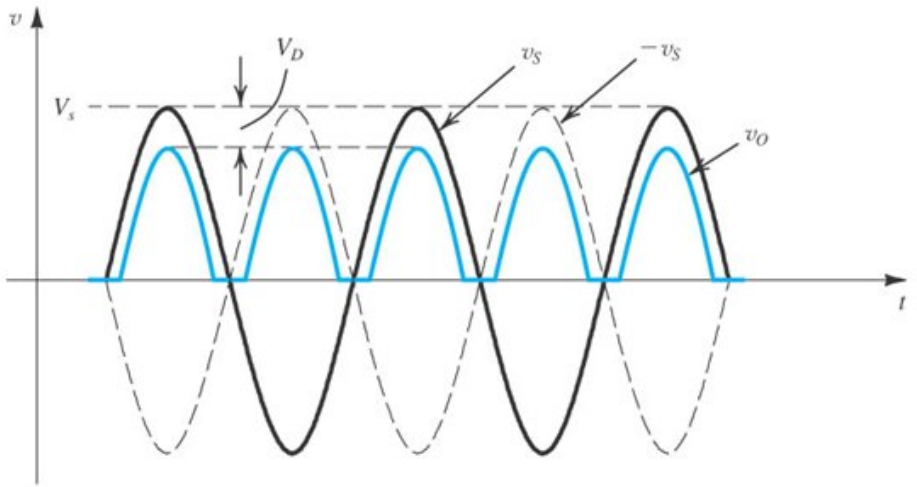
Rectificador de onda completa con derivación central



(a)



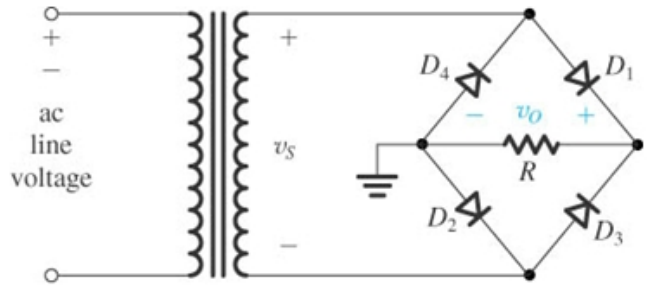
(b)



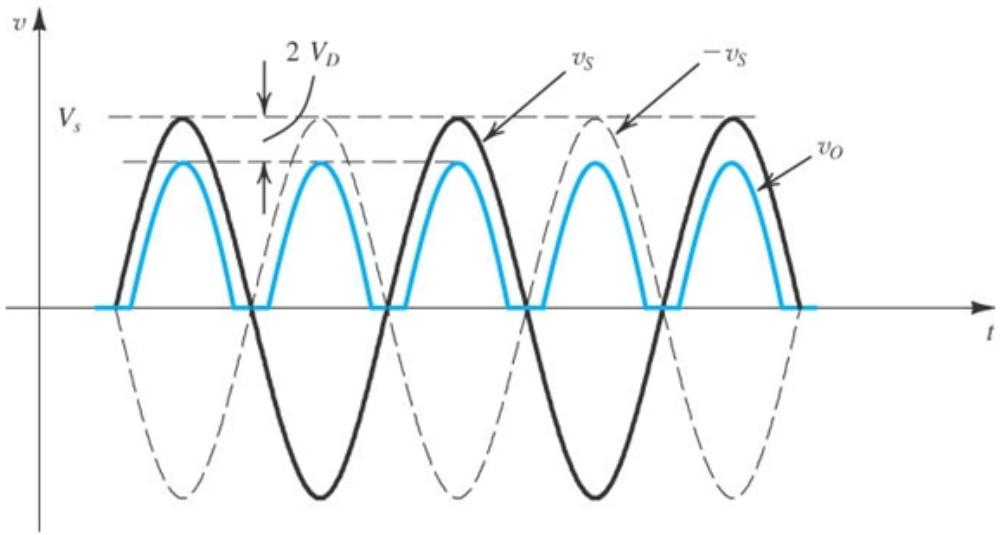
(c)

Circuitos Rectificadores (3)

Rectificador de onda completa con puente de diodo



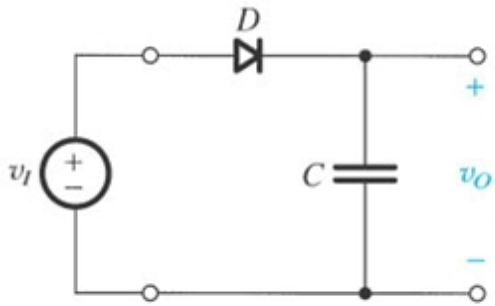
(a)



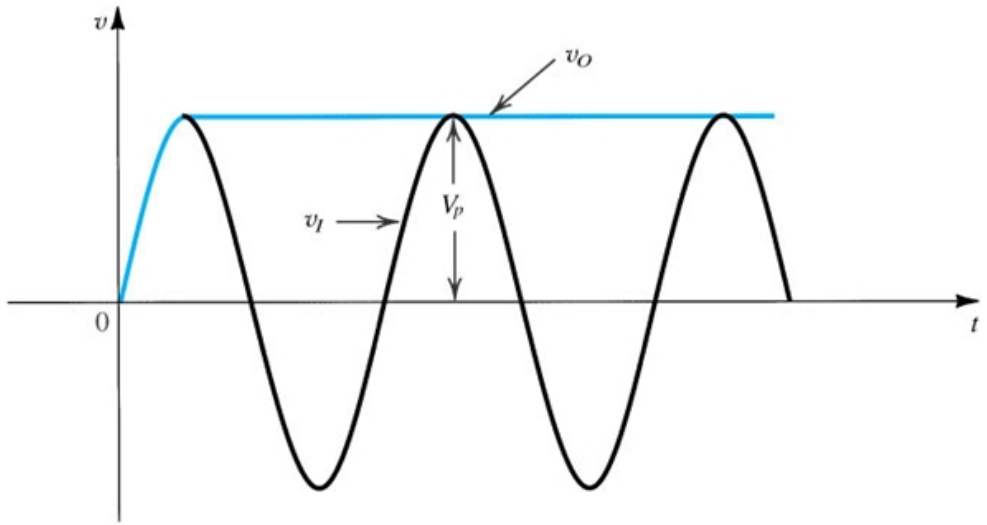
(b)

Filtro básico

Consideremos el circuito



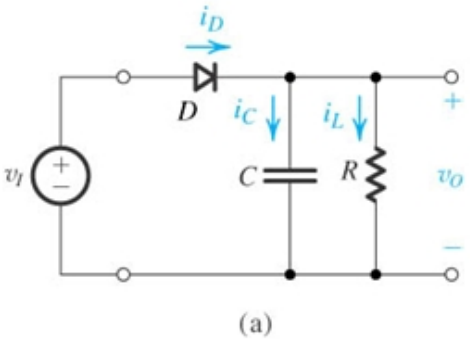
(a)

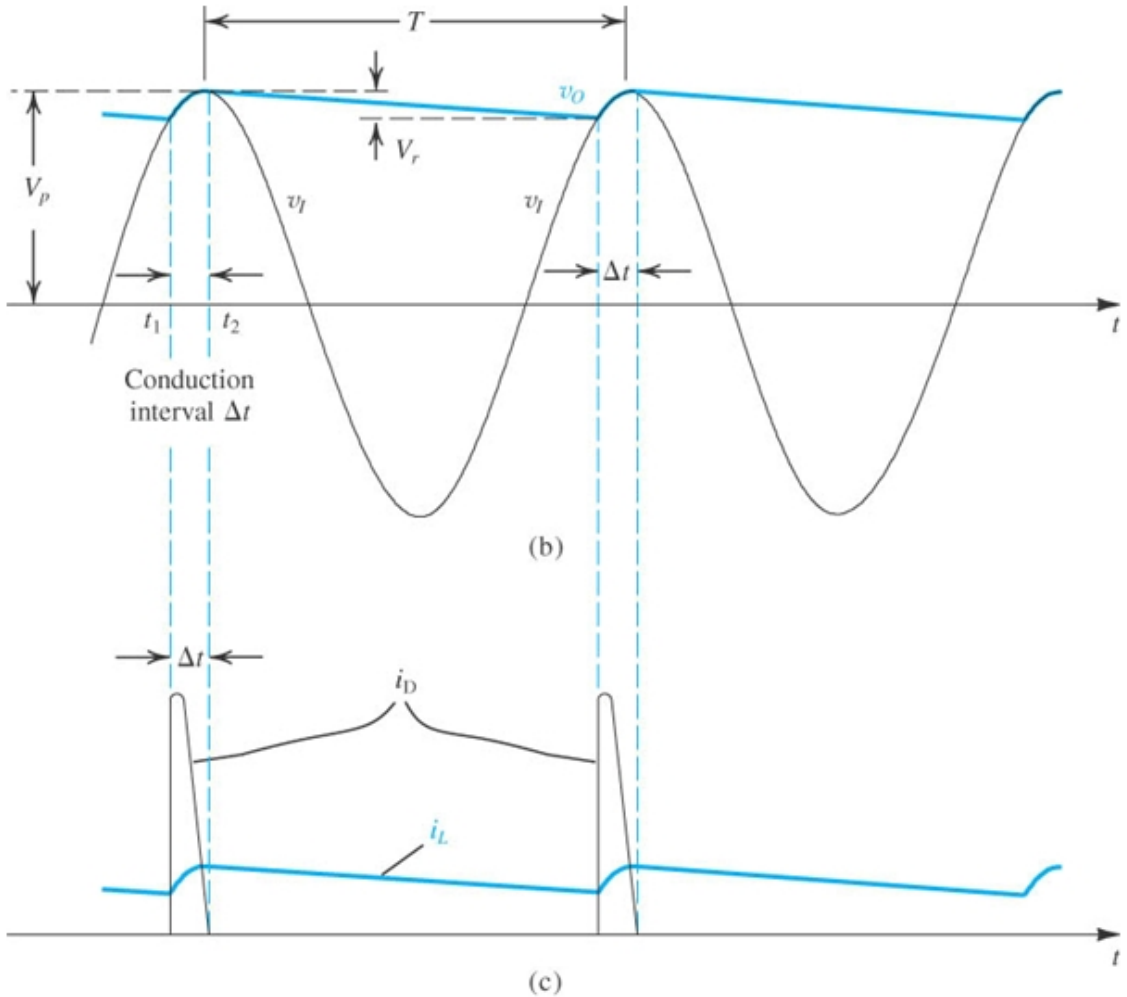


(b)

Filtro RC

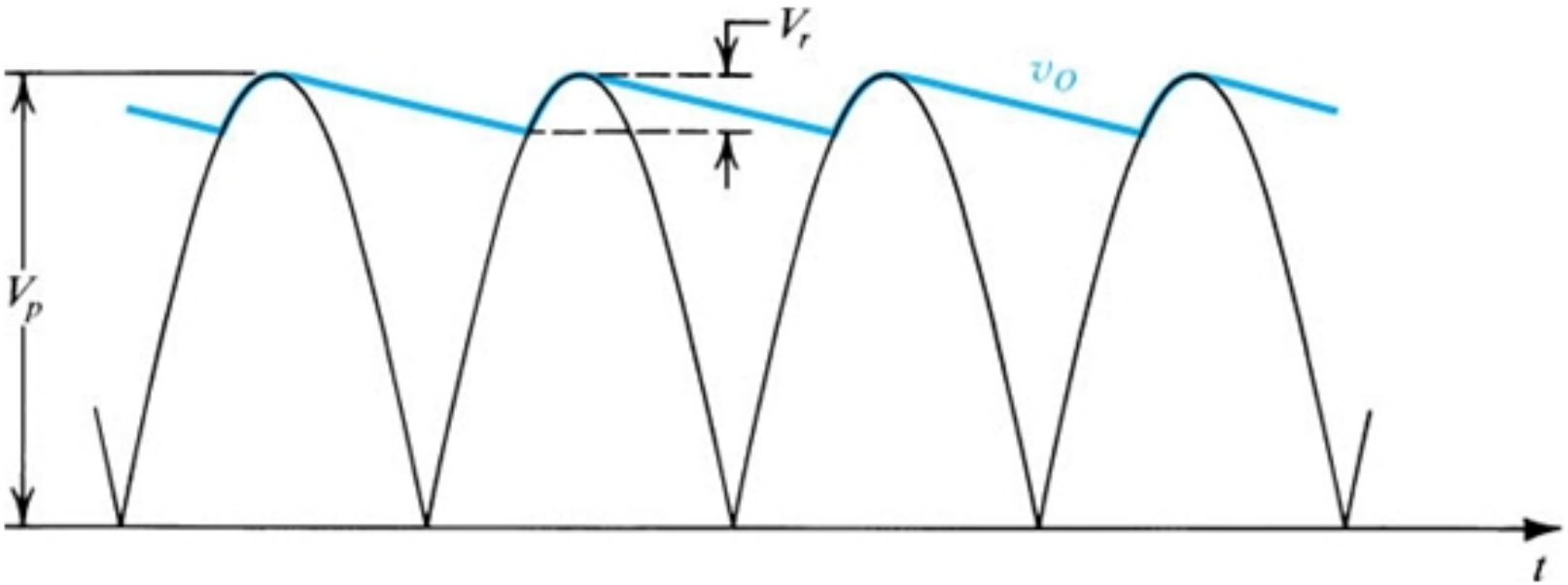
Ahora consideremos el circuito más realista:



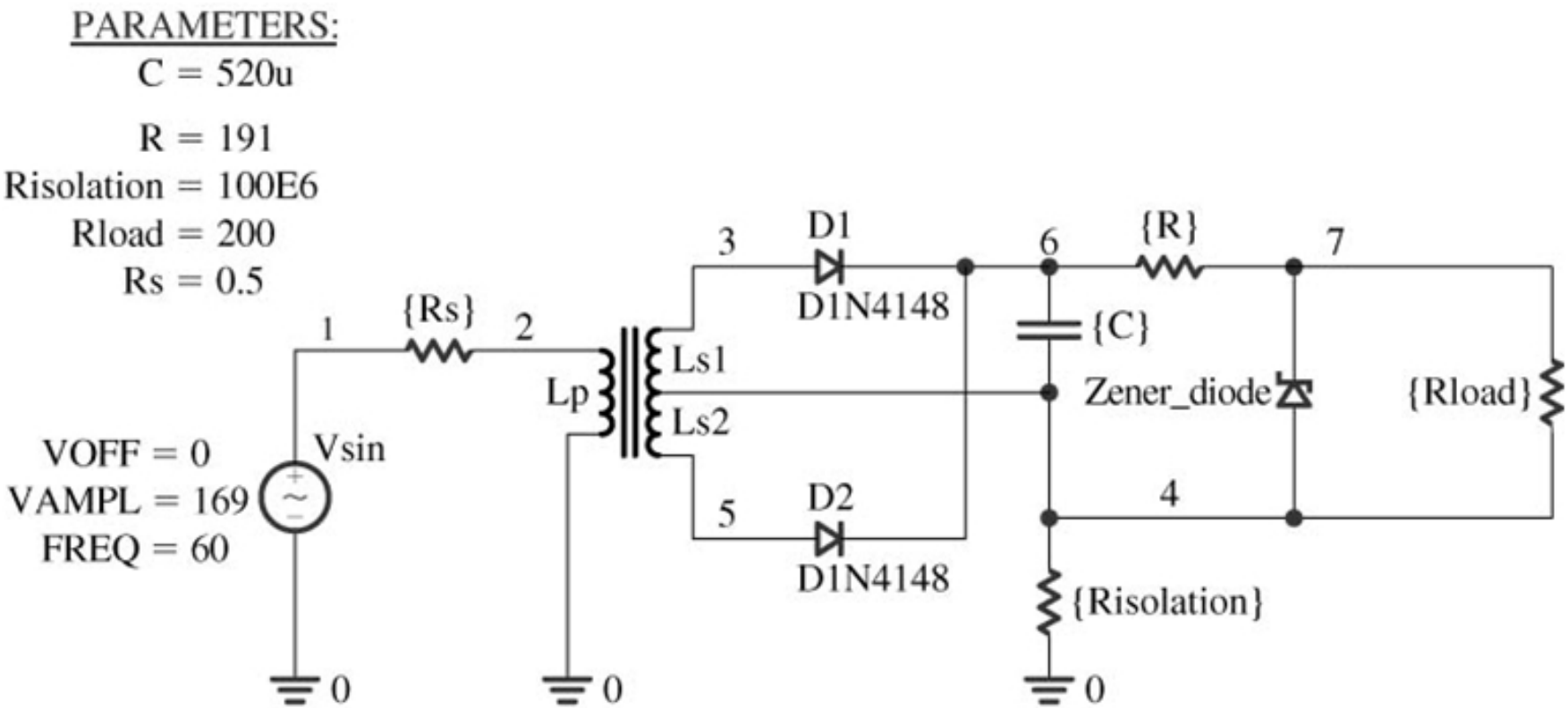


El Fenómeno de Rizado

$$\text{Voltaje de Rizado} = \frac{V_p}{fRC} \tag{1}$$

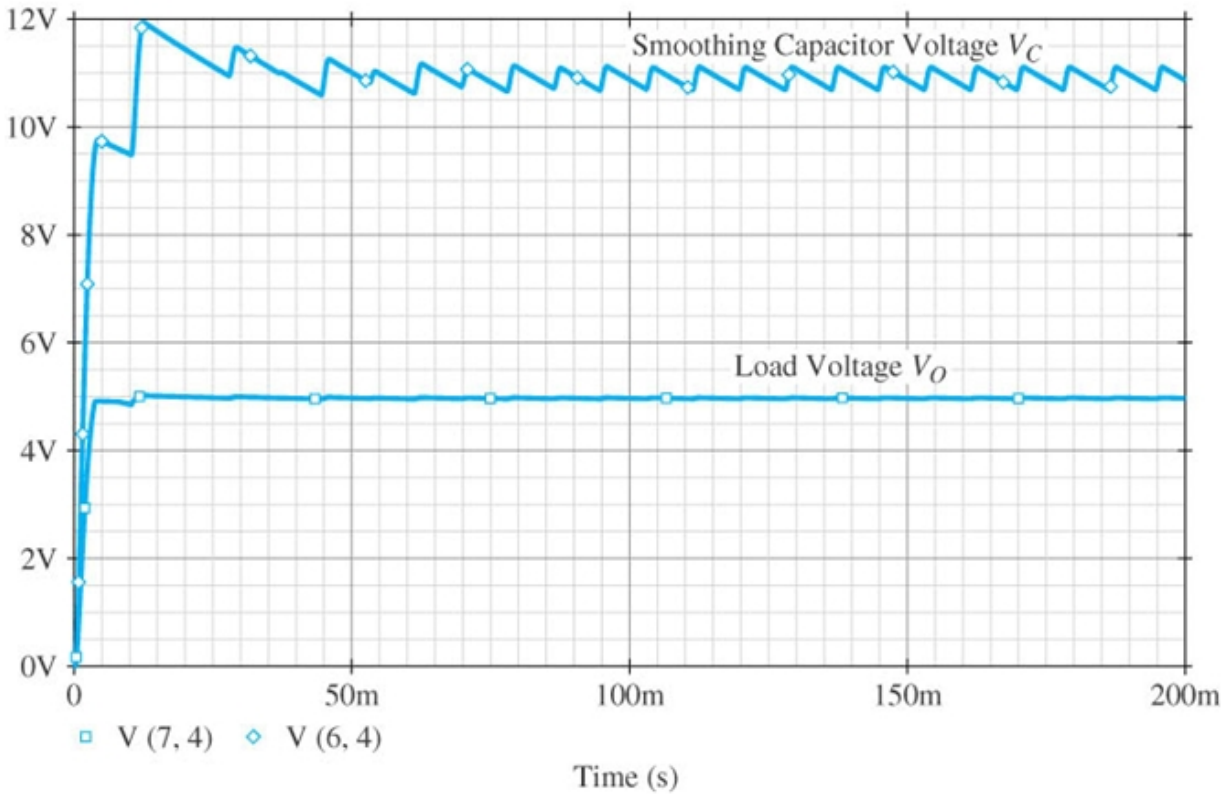


... y ahora todo junto



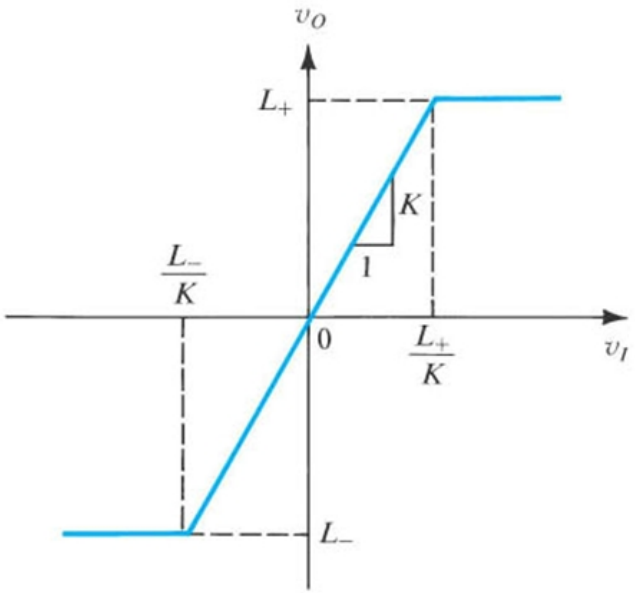
... y ahora todo junto (2)

Si utilizamos una fuente de 5 [V] y una carga $R_L = 200\ \Omega$

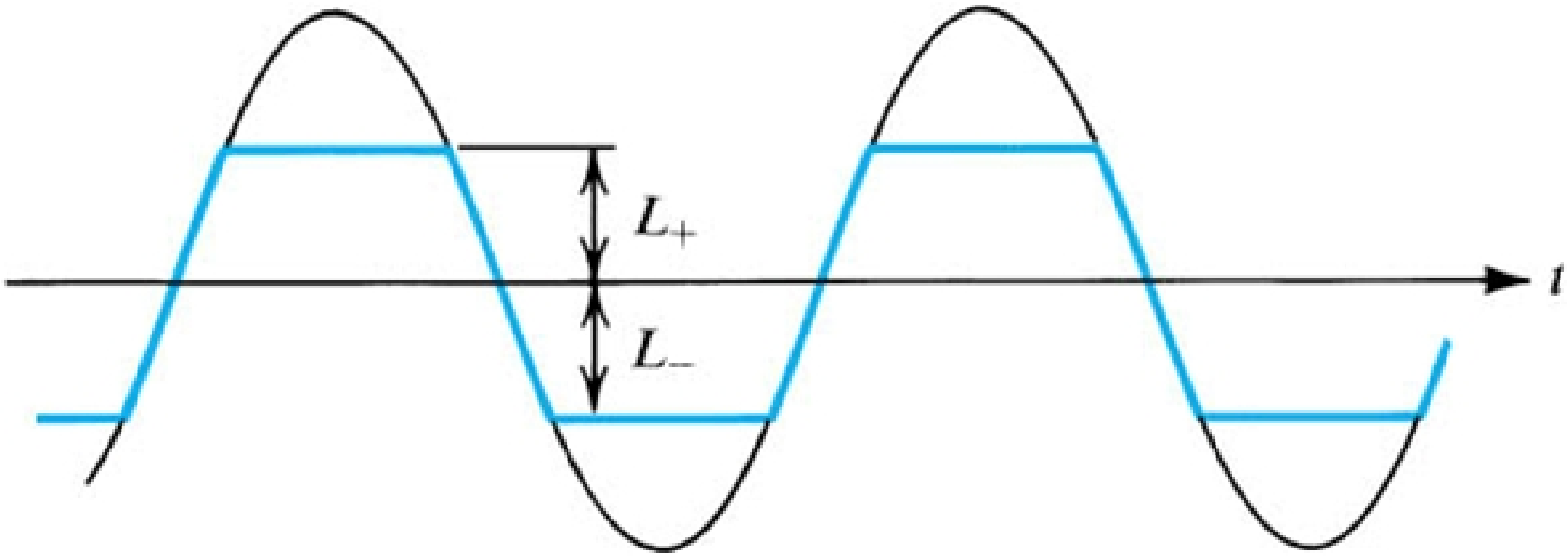


Circuitos Limitadores

$$v_O = \begin{cases} L_+ & v_I \geq \frac{L_+}{K} \\ Kv_I & \frac{L_-}{K} \leq v_I \leq \frac{L_+}{K} \\ L_- & \frac{L_-}{K} \geq v_I \end{cases} \tag{2}$$

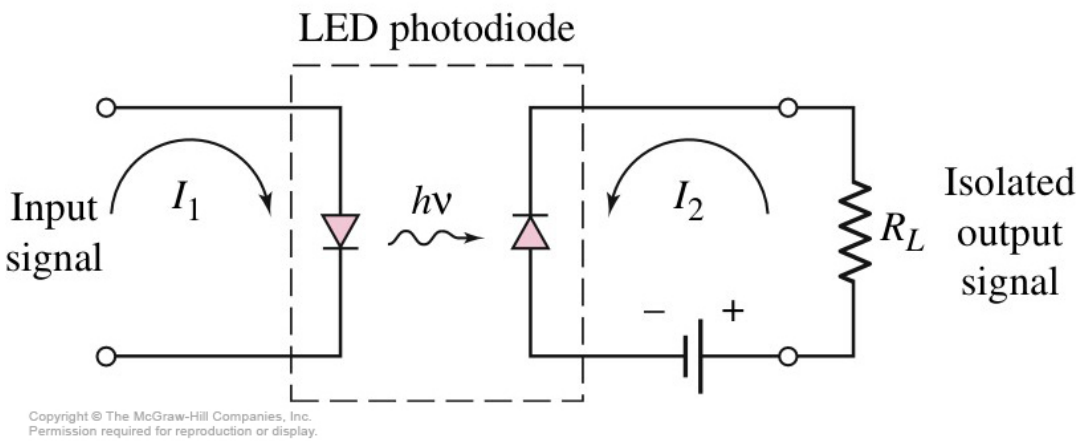


Clipper



Otros tipos de diodos (1)

1. Diodo de Barrera de Schottky (Schottky-barrier diode)
2. Varactores
3. Fotodiodo



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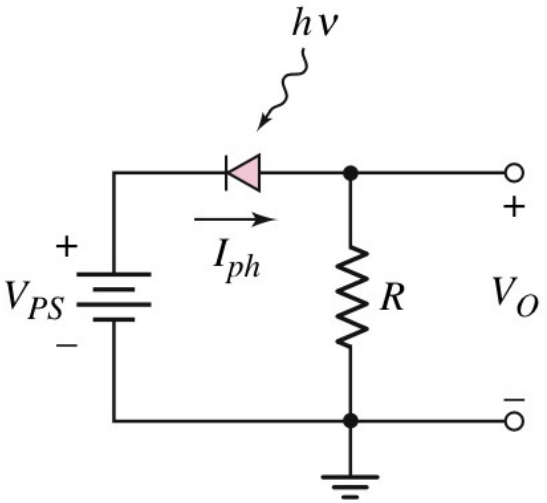
Otros tipos de diodos (2)

1. Light-emitting diodes (LED)



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