

# Elevador Reductor

## Reductor

Cálculos

$$V_{in}=36V$$

$$V_{out}= 12V$$

$$F=40Khz$$

$$R=22$$

$$\Delta V_{out}/V_{in}=0.06$$

$$D = \frac{V_{out}}{V_{in}}$$

$$D = \frac{12v}{36v}$$

$$D = 0,33$$

$$L_{min} = \frac{(1-D)*R}{2*f}$$

$$L_{min} = \frac{(1-0,33)*22 \Omega}{2*(40000 Hz)}$$

$$L_{min} = 184,25 uH$$

$$L = 184,25 uH * 1.25$$

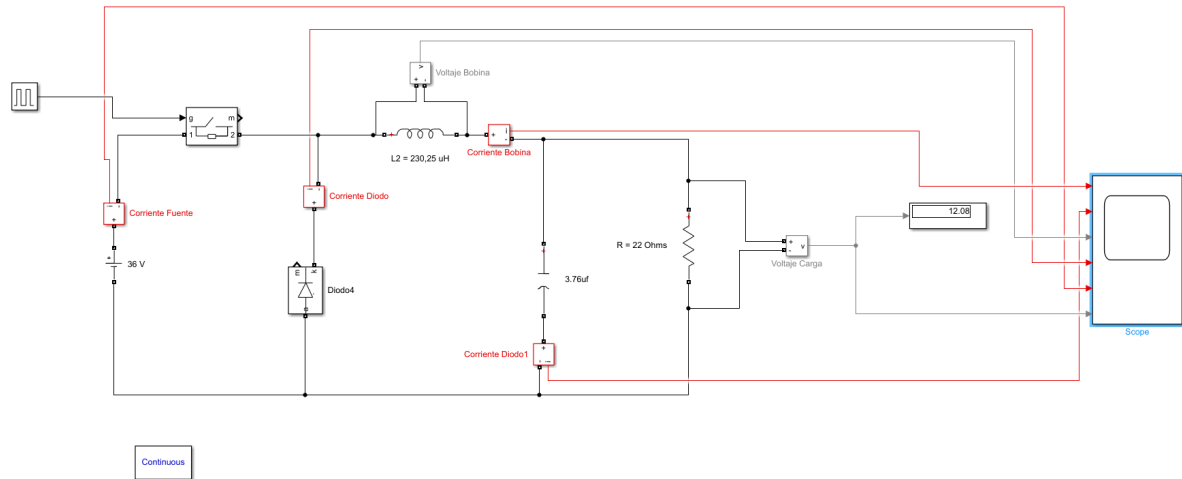
$$L = 230,3125 uH$$

$$C = \frac{1-D}{8*L(\Delta V_{out}/V_{in})*f^2}$$

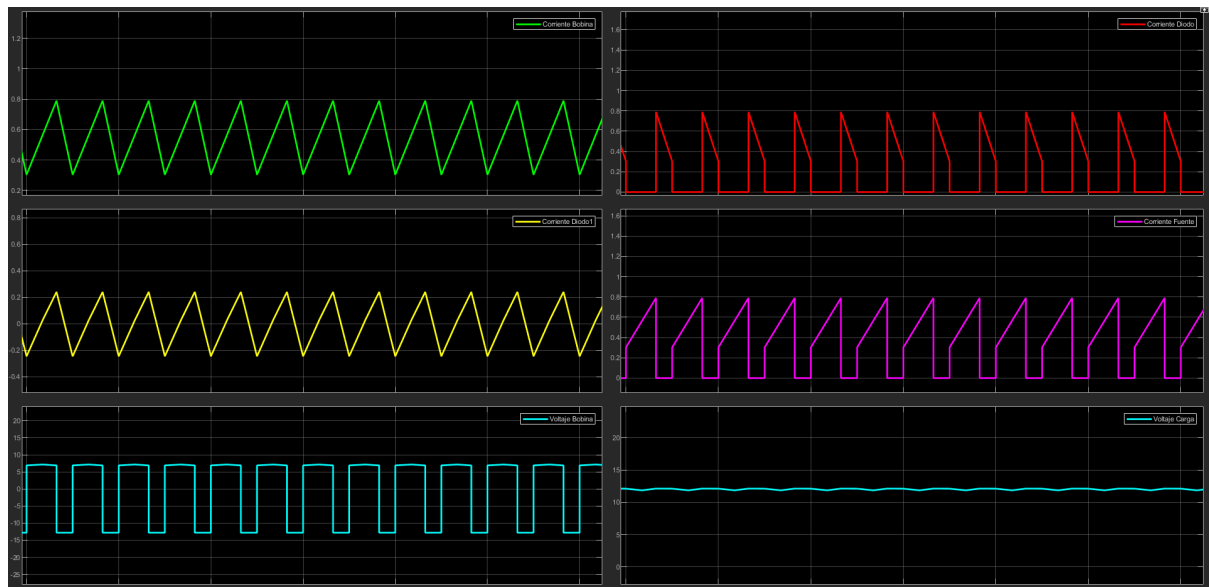
$$C = \frac{1-0,33}{8*(230,3135 uH)*(0.06)*(40000)^2}$$

$$C = 3,76 uF$$

Simulación



## Gráficas Resultantes



## Elevador

Cálculos

$V_{in}=3V$

$V_{out}= 12V$

$F=40Khz$

$R=22$

$\Delta V_{out}/V_{in}=0.06$

$$D = 1 - \frac{V_{in}}{V_{out}}$$

$$D = 1 - \frac{3v}{12v}$$

$$D = 0,75$$

$$L_{min} = \frac{D(1-D)^2 R}{2f}$$

$$L_{min} = \frac{0,2(1-0,2)^2 * 22}{2 * 40000}$$

$$L_{min} = 35,2 \mu H$$

$$L = 35,2 \mu H * 1,25$$

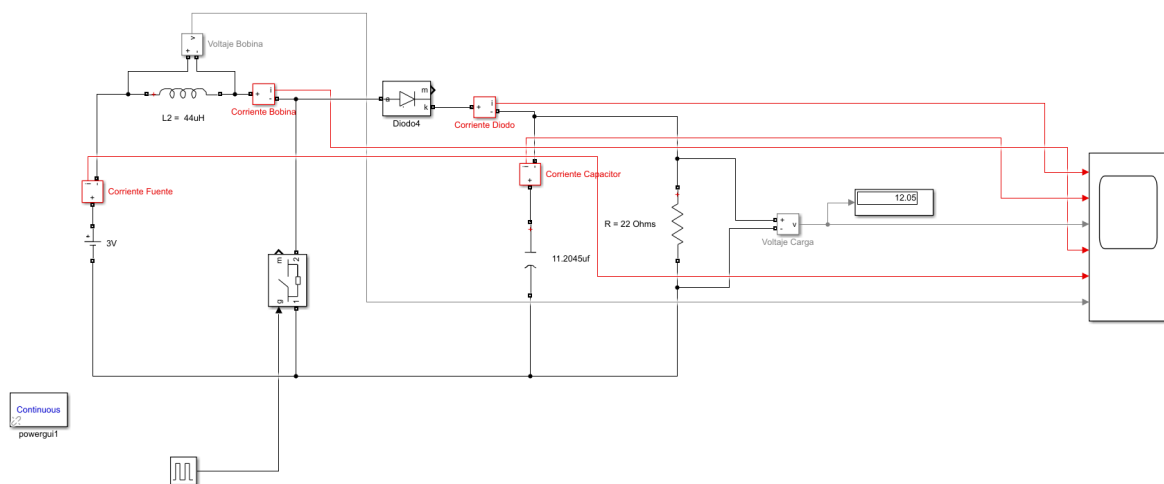
$$L = 44 \mu H$$

$$C = \frac{D}{R * f * (\Delta V_{out} / V_{in})}$$

$$C = \frac{0,75}{22 * 40000 * (0,06)}$$

$$C = 14,2045 \mu F$$

Simulación



Gráficas Resultantes

