

## HW #1

$$1) \quad V_o = DV_g, \quad D = 0.6$$

$$2) \quad \frac{\Delta i_L}{i_L}, \quad \frac{\Delta i_L}{6} * 100 = 0.1, \quad \Delta i_L = 6m[A]$$

$$L = \frac{V_g - V}{2\Delta i_L} = \frac{50 - 30}{2 * 6 * 10^{-3}} * 0.6 * \frac{1}{50 * 10^3} = 0.02 = 20m[H]$$

$$3) \quad I_L = 6[A], \quad i_{Lmax} = 6.006 [A], \quad i_{Lmin} = 5.994 [A]$$

$$4) \quad q = c2\Delta V, \quad \Delta v = \frac{q}{2c} = \frac{\Delta i_L T_s}{8C}$$

$$\frac{\Delta v}{v_o} = 0.5\% = \frac{\Delta i_L T_s}{8C} * \frac{1}{30}, \quad C = \frac{6 * 10^{-3} * \left(\frac{1}{50 * 10^3}\right) * 100}{30 * 8 * 0.5} = 0.1\mu[F]$$

$$\Delta v = 0.15[V]$$

## HW #2

$$1) V_o = \frac{V_g}{D'} \quad 400 = \frac{100}{D'}, \quad D' = 0.25, \quad D = \mathbf{0.75}$$

$$I_o = \frac{V_{out}}{R_{out}} = \frac{400}{10} = \mathbf{40[A]}$$

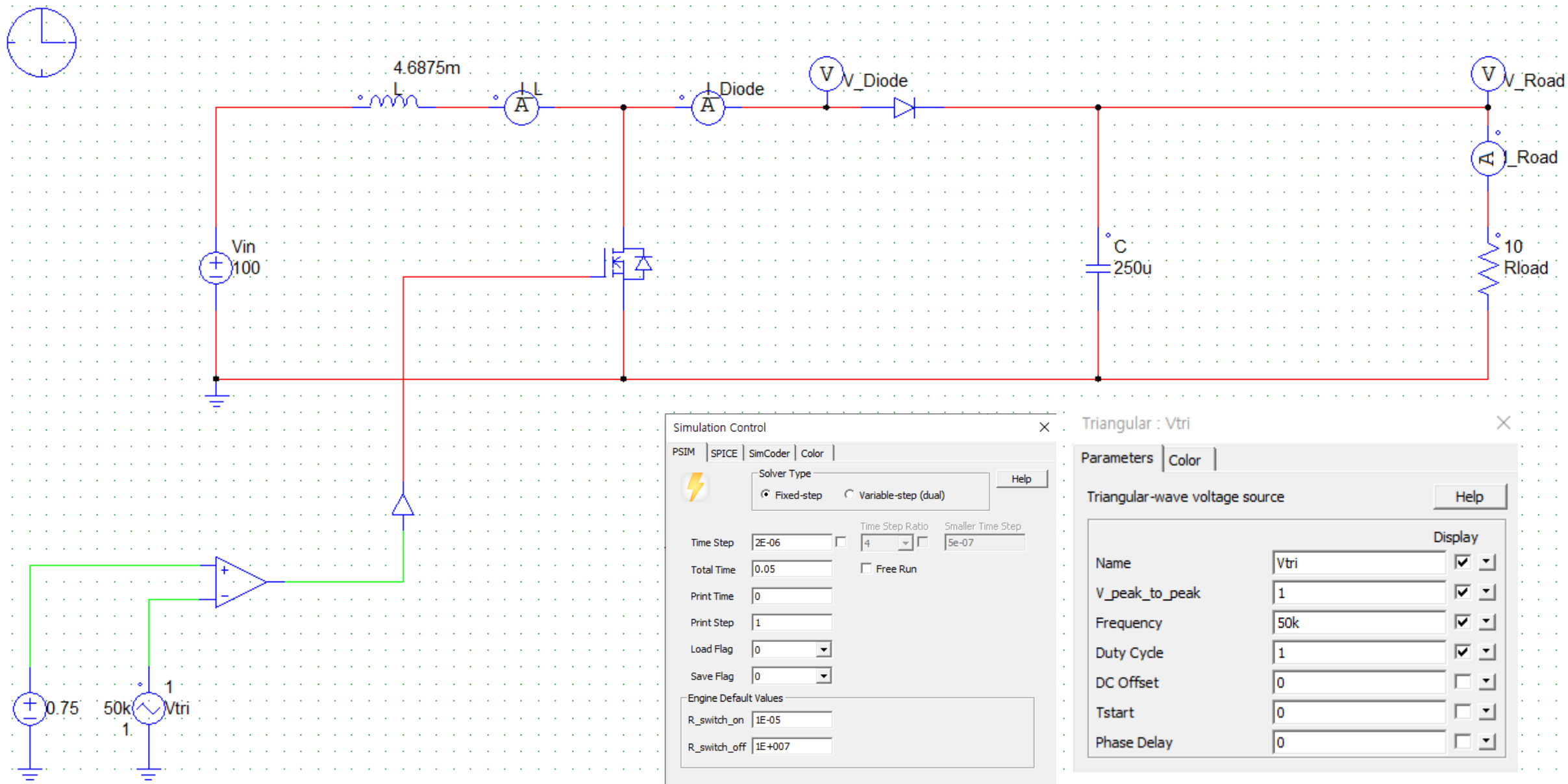
$$2) L = \frac{V_{in}}{2\Delta i_L} DT_s, \quad I = \frac{V_{out}}{D'R} = \frac{400}{0.25*10} = \mathbf{160[A]}, \quad \frac{\Delta i_L}{160} * 100 = 0.1, \quad \Delta i_L = 0.16 = 160m[A]$$

$$i_{Lmax} = \mathbf{160.16[A]}, \quad i_{Lmin} = \mathbf{159.84[A]}$$

$$L = \frac{V_{in}}{2\Delta i_L} DT_s = \frac{100}{2 * 0.16} * 0.75 * \frac{1}{50 * 10^3} = \mathbf{4.6875m[H]}$$

$$\frac{\Delta v}{400} * 100 = 0.3, \quad \Delta v = \mathbf{1.2[V]}$$

$$C = \frac{V_{out}}{2R\Delta v} DT_s = \frac{400}{2 * 10 * 1.2} * 0.75 * \frac{1}{50 * 10^3} = \mathbf{250\mu[F]}$$



Simulation Control

PSIM | SPICE | SimCoder | Color

Solver Type: ☒ Fixed-step ☐ Variable-step (dual) [Help](#)

Time Step:  ☐ Time Step Ratio:  ☐ Smaller Time Step:

Total Time:  ☐ Free Run

Print Time:

Print Step:

Load Flag:

Save Flag:

Engine Default Values

R\_switch\_on:

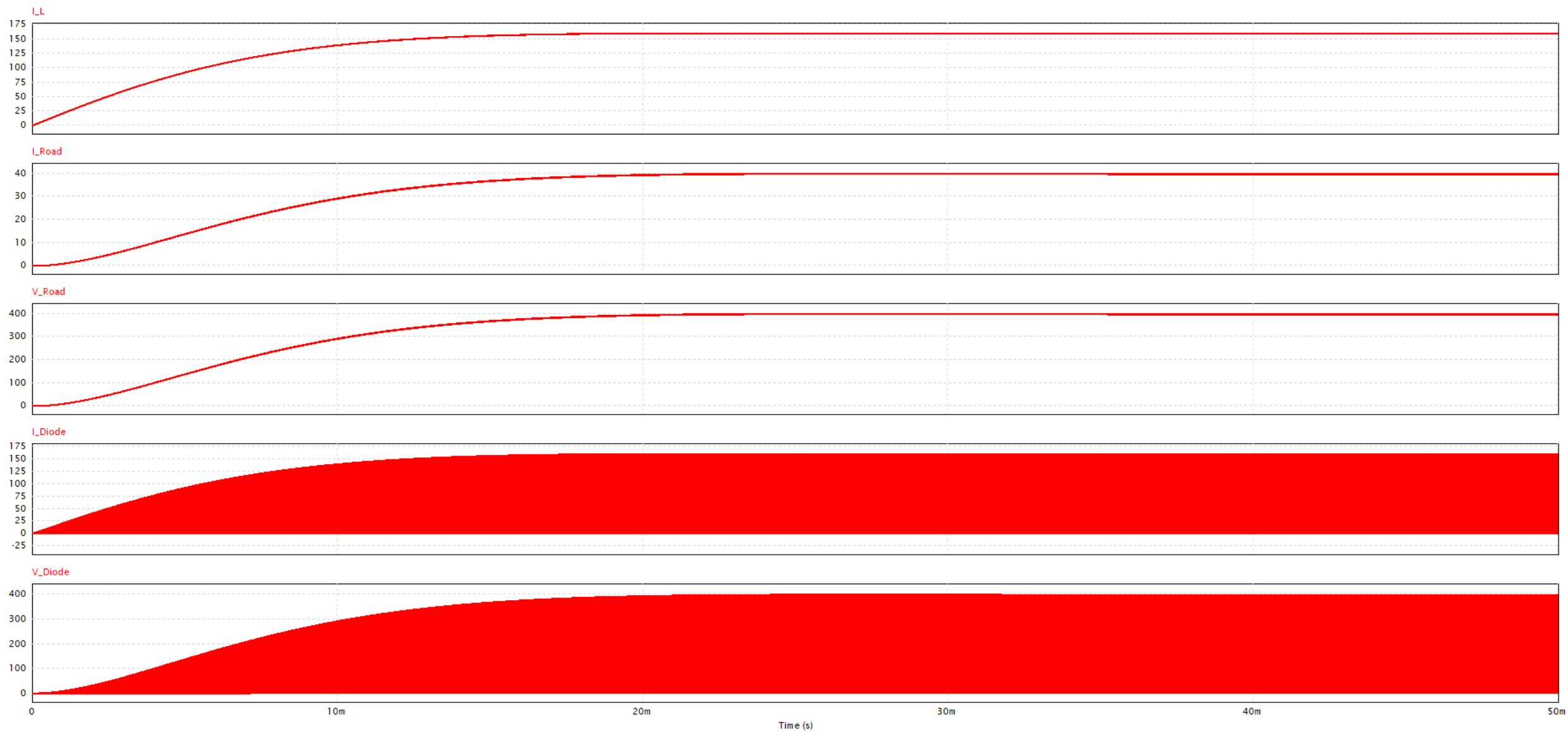
R\_switch\_off:

Triangular : Vtri

Parameters | Color

Triangular-wave voltage source [Help](#)

		Display
Name	<input type="text" value="Vtri"/>	<input checked="" type="checkbox"/>
V_peak_to_peak	<input type="text" value="1"/>	<input checked="" type="checkbox"/>
Frequency	<input type="text" value="50k"/>	<input checked="" type="checkbox"/>
Duty Cycle	<input type="text" value="1"/>	<input checked="" type="checkbox"/>
DC Offset	<input type="text" value="0"/>	<input type="checkbox"/>
Tstart	<input type="text" value="0"/>	<input type="checkbox"/>
Phase Delay	<input type="text" value="0"/>	<input type="checkbox"/>



파형 (x-axis 조절 32.6m to 33msec)

