

# Power Supply Switcher, Class 3/23/11

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## Contents

|                           |          |
|---------------------------|----------|
| <b>1 Switcher Circuit</b> | <b>1</b> |
|---------------------------|----------|

## 1 Switcher Circuit

Referring to figure 1, in my circuit I measured  $L = 8mH$ , and we used  $C2 = 50\mu F$ . For resister  $R1$  we used two resistors, 150k and 100k in parallel, giving  $R1 = 60k$ .

$$r1 = (100)(150)/(100 + 150) = 100\frac{3}{5} = 60k.$$

The PWM circuit is partially described in

<http://stem2.org/je/pwm.pdf>

The PWM circuit diagram is:

<http://www.stem2.org/je/swopwm.pdf>

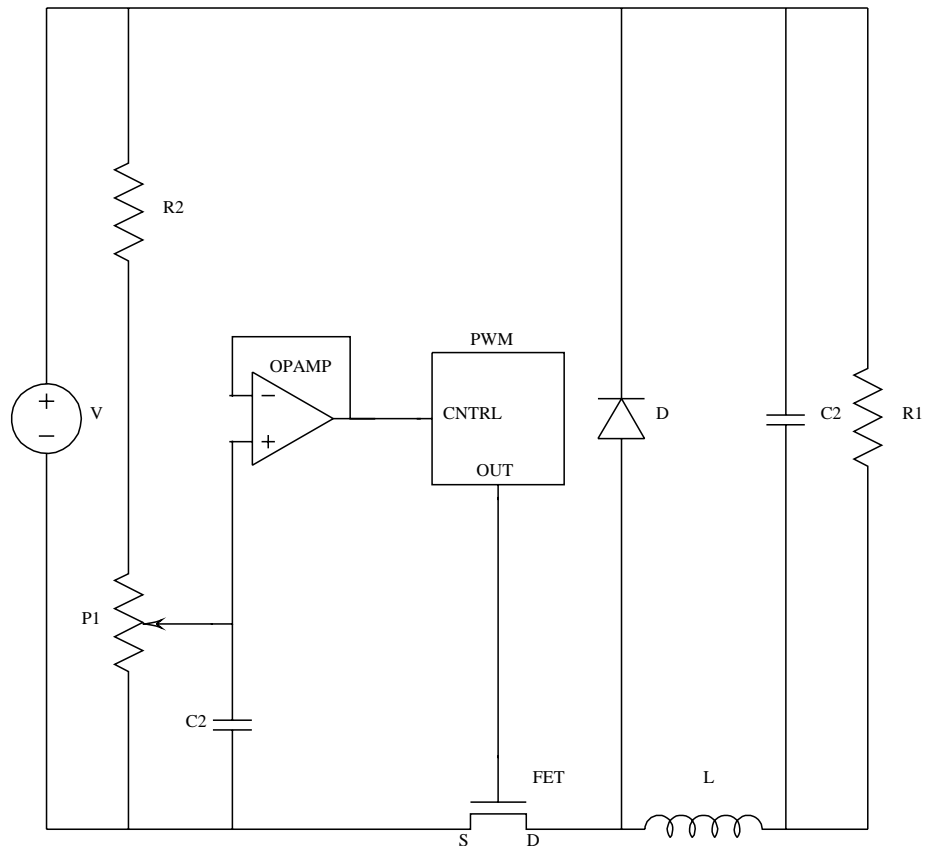


Figure 1: Power supply switching circuit. The voltage source  $V$  is 19 volts from a laptop supply.  $R1 = 150k$ , the pot is  $100k$ ,  $C1 = .1\mu F$ , the opamp is a 741 using  $V$  as the supply voltage, the CNTRL connects to pin 5 of the second stage 555 of the PWM, the output is from pin 3, the FET is a STP16NF06, an N channel MOS FET, the diode is a 1N4148, the inductor is ideally 2 mH,  $C2$  is a  $10\mu F$  electrolytic capacitor, the dummy load resistor is  $R2 = 10k$ .