28 MAY 13
Roderick.

TUNING ~~SA~~ PEAK DETECTOR RESPONSE TIME

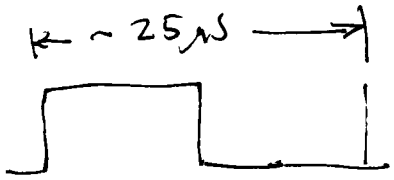
ORIGINAL ~~IDEA~~ DESIGN FOR POWER TRANSFER WAS

8 μH INDUCTOR, ~~25 μS~~ 24 VOLTS TO CHARGE

$V = L \, di/dt \qquad \frac{V}{L} = \frac{di}{dt} \qquad \frac{24V}{8 \times 10^{-6} H}$

$= \frac{3A}{\mu S}$ TO GET TO 40A,

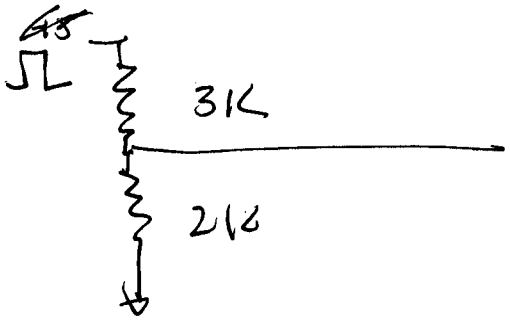
13 μS



40A THROUGH .05Ω SENSE RESISTOR = 2 VOLTS.

~~MUST~~ PEAK DETECTOR MUST BE ABLE TO TRACK TO 2 VOLTS IN 13 μS.

FIND EXPERIMENTAL VALUE THAT IS SUFFICIENT FOR 2 VOLTS @ 10 μS.



BUT EVEN IF IT CAN'T, COULD ALWAYS DOUBLE OR TRIPLE PULSE W/O RESET.

31 MAY 13 ; Roderick,

INTERNAL ERROR - Please use the proper driver.

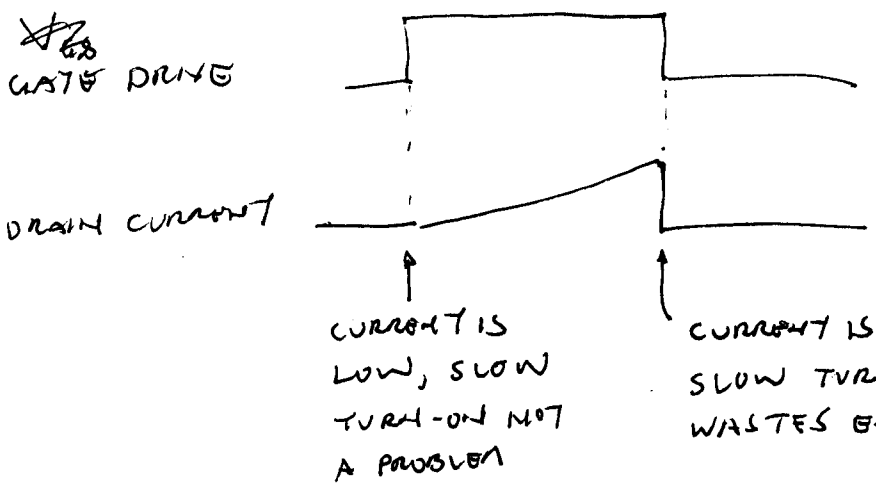
POSITION : 0x0 (0)

SYSTEM : h6fw_5.49/xl_op

LINE : 180

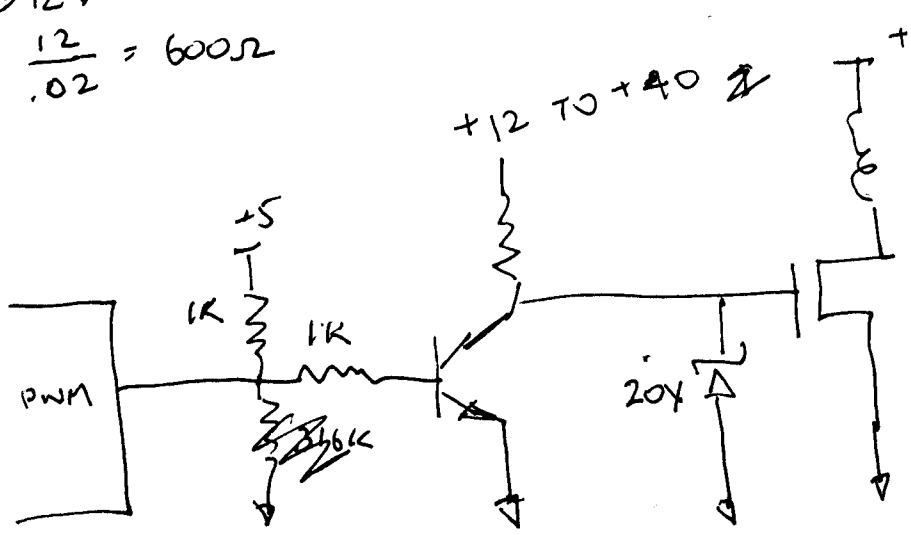
VERSION : SPL 5.49 10-20-2010

FOR INDUCTANCE MEASUREMENT CIRCUIT, AS WELL AS ACTUAL PTC, I'M CONCERNED ABOUT HAVING ENOUGH VOLTAGE ON GATE OF MOSFET TO COMPLETELY TURN IT ON, ALSO WOULD LIKE FAST TURN-OFF.



20mA @ 12V

$R = \frac{E}{I} = \frac{12}{.02} = 600\Omega$



X NO, BURNS ALMOST 5W WHEN GATE IS NOT BEING DRIVEN.

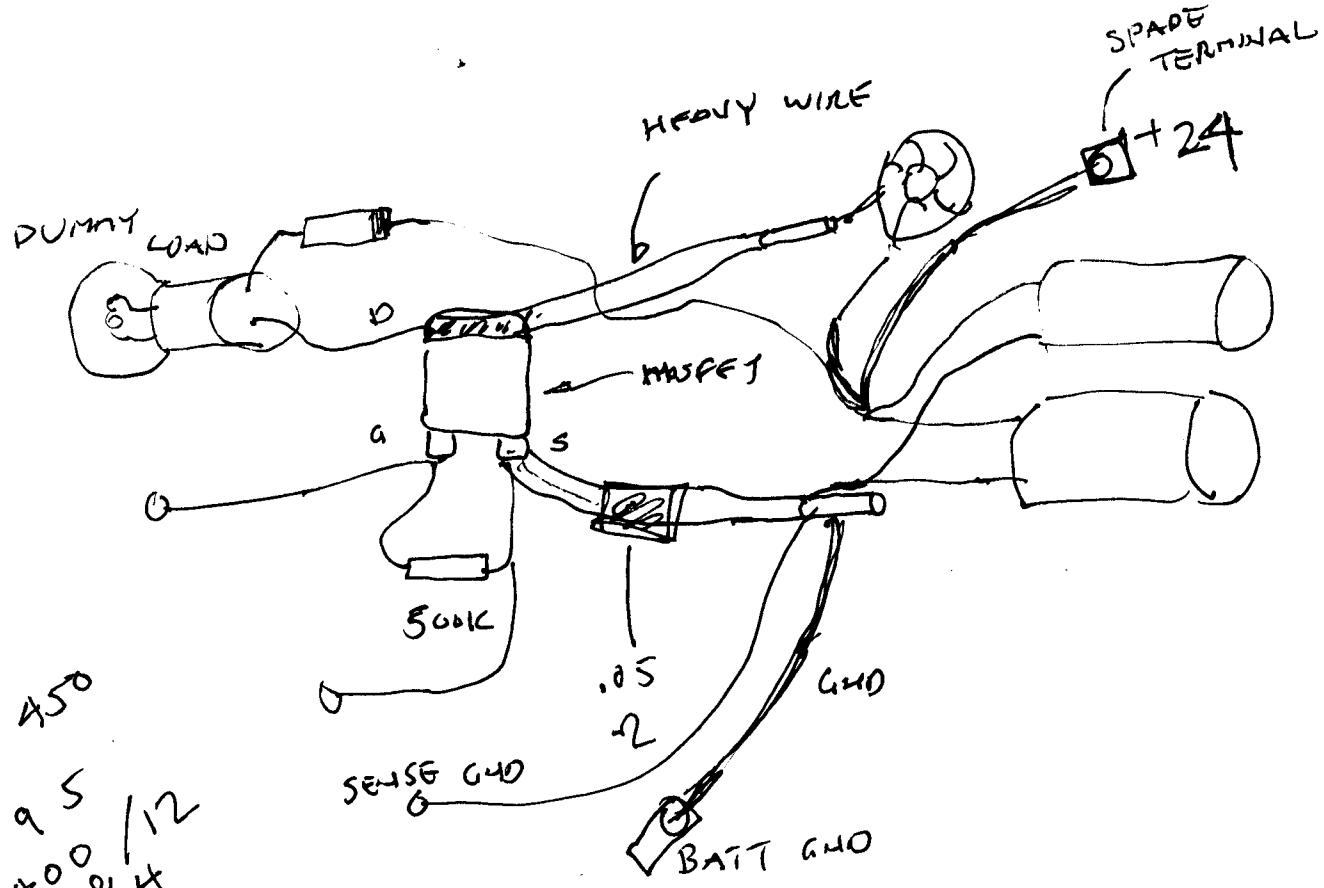
AT +12, MUST BE NO WORSE THAN BARE PICAXE.

20 mA ACROSS (12-5 = 7V) $R = \frac{E}{I} = \frac{7}{.02} = 3.5 \times 10^2 = 350\Omega$

AT 40V, DROP IS 20V $\frac{20}{350} = I = \frac{2}{35} \approx 60mA$

$P = 20 \times .06 = 1.2W$

05 ~~04~~ JUL 13 ; Roderick.



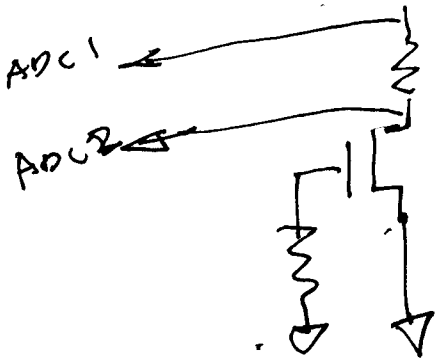
18
2.5 · 450
$ 95
5400 / 12
180% 4

PRE-SOLAR
370

~~450 kWh~~

POST-SOLAR
200 - ~1500 kWh

450 KWH/MO
$170



TWO PEAK DETECTORS?

X NO GOOD
VOLTAGE ZOOMS UP
WHEN TRANSISTOR
TURNS OFF

ENERGY IN INDUCTOR $= \frac{1}{2} L I^2$

$= \frac{1}{2} \cdot 10\mu H \cdot 40A^2 = .5 \times 10^{-5} \times 1.6 \times 10^3$

$= 0.8 \times 10^{-2}$

$= 8$ mJ

SUPPOSE ALL CAME FROM 800 μF CAP $E = \frac{1}{2} C V^2 = \frac{1}{2} \cdot 800 \cdot 10^{-6} \cdot V^2 = 8 \times 10^{-3}$

$\frac{1}{2} \cdot 10^{-4} V^2 = 8 \cdot 10^{-3}$

$V^2 = 16 \cdot 10$