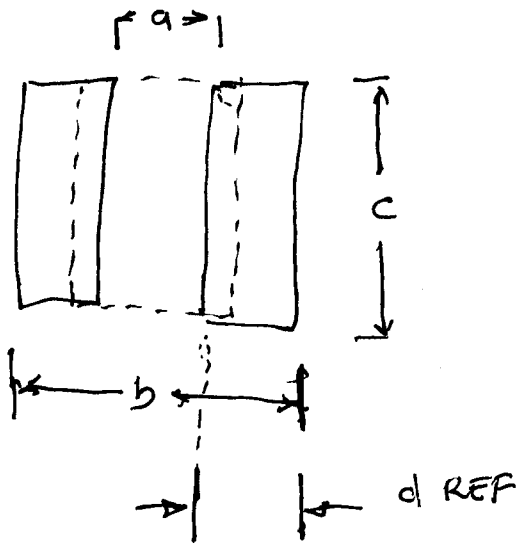


FSCL110 RESISTOR - 5W, 50mΩ

15MAY13; Rod-errick.

OHMITE

LAHO PATTERN



$$a = \frac{3.6}{0.142}$$

$$b = \frac{5.6}{0.220}$$

$$c = \frac{11.2}{0.441}$$

$$d = \frac{b-a}{2} = \frac{1.0}{.039}$$

MAKE MUCH WIDER

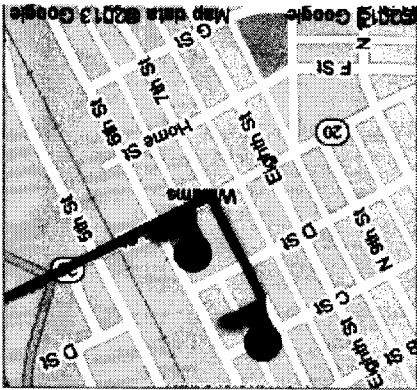
Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

Map data ©2013 Google

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

330 7th St, Williams, CA 95987

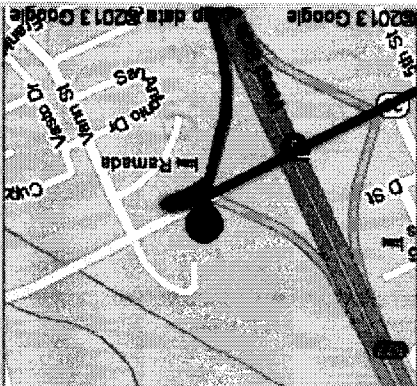
Stage Stop Motel



go 0.1 mi  
total 152 mi

Destination will be on the left

15. Turn right onto 7th St



YOUTUBE - randacnam 7321

16 MAY 13

Roderick

7:00 "DIY MPPT finished board testing"

+ HALL EFFECT ~~TR~~ CURRENT SENSOR ACS713

25 m: L TRACK WIDTH PER AMP

25 KHZ FREQUENCY

PIC 16F785

USING IRLS 2118  
BOOTSTRAPPING MOSFET  
DRIVER

IRL5 21171 NON-INVERTING  
DRIVE FROM LOGIC LEVEL

MBR 2525 SCHOTTKY RECTIFIERS  
2535? 0.82V DROP @ 30A

ACS711 ELETR  
-12AB-T -40-80C

ACS 758 50A HALL EFFECT

ACS711 KLCTR.  
-12AG-T -40-125C

↳ 1.6V OUTPUT 5V SUPPLY.

NEEDS 10-13.5 mA SUPPLY CURRENT.

185 mV/A  
10A → 1.85V

\$8. I DO NOT NEED ELECTRICAL ISOLATION,  
ALTHOUGH WITH THIS ARRANGEMENT, COULD  
MEASURE ~~BATTERY CURRENT~~ SOLAR PANEL CURRENT  
DIRECTLY AT TERMINALS.

1 To get 1.00% Annual Percentage Yield (APY) through June 30, 2014, you must open a MoneyMarket Extra account between April 18, 2013, and June 28, 2013, with a minimum opening deposit of \$10,000, with funds not presently on deposit with Union Bank, and a linked Union Bank personal checking account (minimum \$100 to open). Electronic Transfer Accounts and Electronic Access Accounts cannot be linked. Offer for new customers only. 1.00% APY is based on maintaining a combined balance of \$10,000 within the MoneyMarket Extra account and the linked personal checking account. Interest rate tiers are based on the combined balance of the linked personal checking account and MoneyMarket Extra account and applied to the MoneyMarket Extra balance. 1.00% APY valid through June 30, 2014, for combined balances of \$10,000 - \$499,999. For other balances and after June 30, 2014, rates are variable and subject to change daily without notice. Rates as of March 1, 2013, are: 0.01% APY for combined balances of \$0 - \$2,499, 0.05% APY for combined balances of \$2,500 - \$9,999, 1.00% APY for combined balances of \$10,000 - \$24,999, \$25,000 - \$49,999, \$50,000 - \$99,999, and \$100,000 - \$499,999, 0.20% APY for combined balances of \$500,000 - \$999,999 and \$1,000,000 or more. Fees may reduce earnings.

Maintain a daily ledger balance of \$10,000 in your MoneyMarket Extra account and we'll waive the regular monthly service charge of \$15. If the personal checking account is closed or becomes inactive, the MoneyMarket Extra account will convert to a regular MoneyMarket account, which may have lower rates than a MoneyMarket Extra account. Other charges, such as NSF and overdraft fees of \$33 per item, still apply.

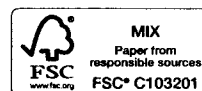
Mobile and Text Banking are offered as free services to Union Bank Online Banking users. You may incur charges assessed by your service provider. Message and data rates may apply.

Account alerts are provided for convenience only and do not substitute for account statements or other notices from Union Bank. Refer to our Online Banking Agreement for additional details. Alerts received on your mobile access device may incur charges from your mobile service provider.

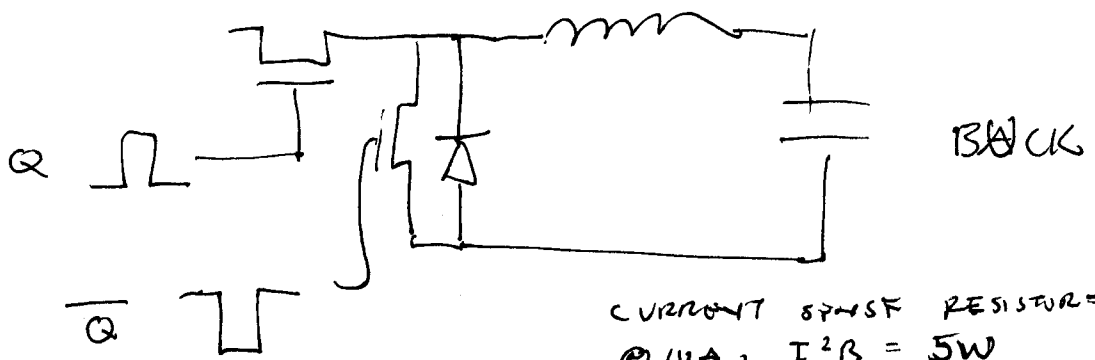
4 Deposits are covered by FDIC insurance within permissible limits.

Available only for personal accounts. Limit: one MoneyMarket Extra account per customer. See our All About Personal Accounts & Services Disclosure and Agreement, A Guide to Our Personal Accounts, and Personal Accounts Fee Schedule for account details.

LTC  
3780  
DUAL BOOT  
COM TAIL WIRE

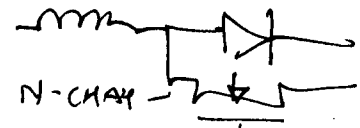
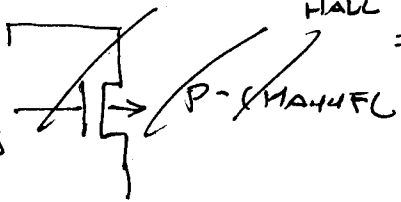


# SYNCHRONOUS RECTIFICATION

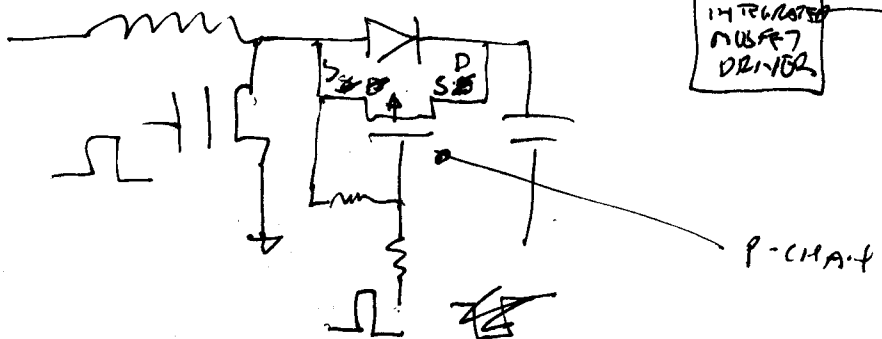


CURRENT SENSE RESISTOR = .05R  
 @ 10A,  $I^2R = 5W$   
 HALL EFFECT SENSOR 100mR  
 = 1/100W

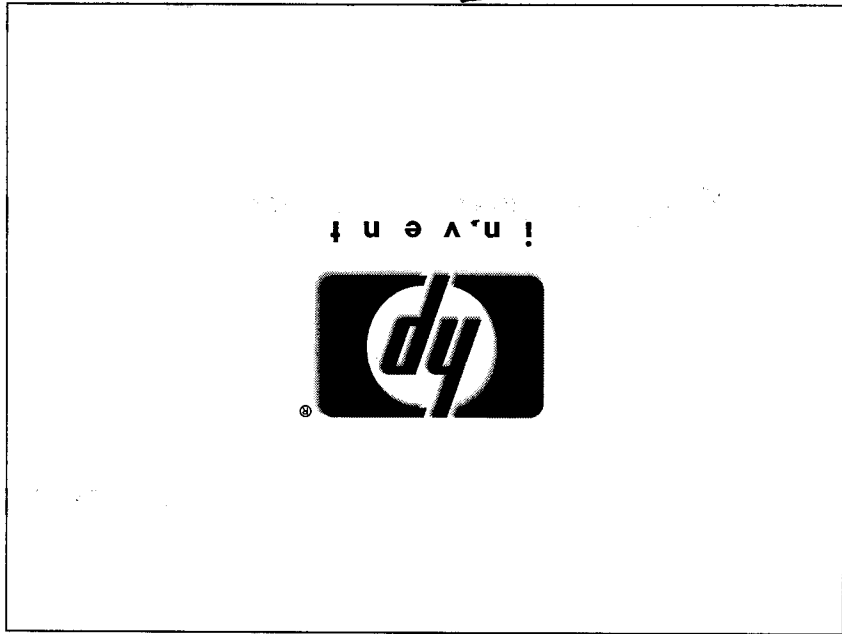
SCHOTTKY DIODES  
 MAYBE 5W -  
 2.5% EFFICIENCY LOSS  
 @ 200W



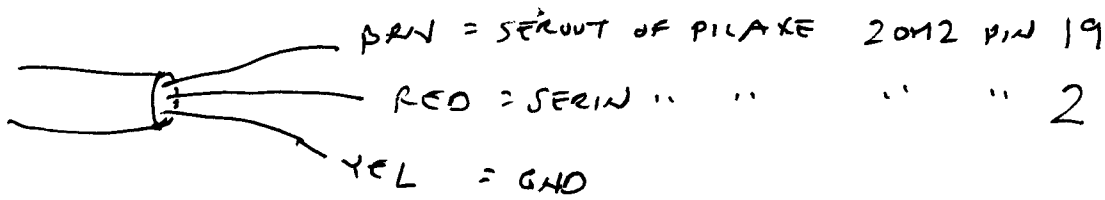
NOT WORTH  
 COMPLEXITY



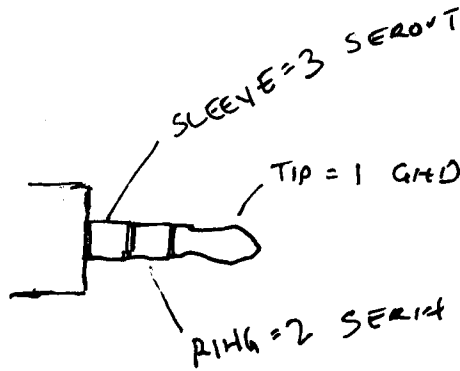
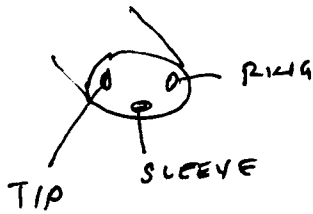
BUCK-  
 BOOST



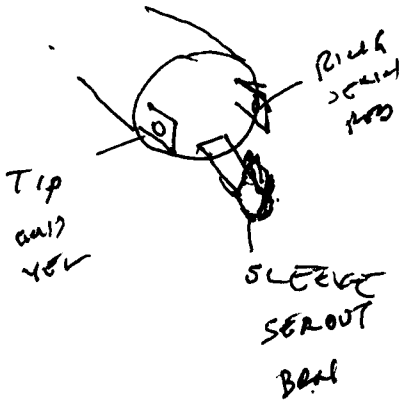
# PICAXE SERIAL DOWNLOAD CONNECTION



## \$1.99 ~~CABLE~~ JACK



## 894 ~~CABLE~~ JACK



HAS BAD CONNECTIONS - RETURN. 4 EXCHANGE  
 NEW ONE IS GOOD

AXE027 CABLE WORKS ON LIN AXEPAD. MUST DO  
 sudo linaxepad, THEN VIEW -> OPTIONS -> AXE027  
 MODPROBE. AFTER THAT, SUBSEQUENT RUNS DO NOT NEED  
 sudo.

14 MAY 13

TRANSISTOR SELECTION.

IDEALLY, WANT SOMETHING WITH LOW  $R_{DS}$ , BUT CAN BE DRIVEN BY 5V

10A CONTINUOUS DRAIN CURRENT - MORE IS BETTER  
PULSE DRAIN CURRENT TO 40A

TO-220 PACKAGE

LOWER  $C_{GS}$  - ELSE POWER CONSUMED IN SWITCHING, NOT STAYING ON.  
COULD LOWER SWITCHING FREQ, BUT THEN NEED BIGGER CAPACITORS.

NXP SEMICONDUCTOR PSMN5R0 - 80PS

TYPICAL 5.5 mΩ  $R_{DS}$  @  $V_{GS} = 5V$

UP TO ABOUT 75A

INFINEON 1PPO48N12M3G 100A

TYP 7mΩ @  $V_{GS} = 5V$  TO 55A

771 - PSMN5R0 - 80PS <sup>127</sup> \$1.82

512 - FDPF085H10A  $V_{DS} = 0.6V$  @  $V_{GS} = 5V$ , 40A  
NOT GREAT. BUT ISOLATED PACKAGE - CASE ≠ DRAIN

1PPO48N12M3G  $R_{DS} \approx 7mΩ$  @  $V_{GS} = 5V$ ,  $I_D = 40A$   
 $C_{GS} = 9000 pF$

IRFB4110 PBF  $C_{GS} = 9000 pF$   $V_{GS} = 5V \rightarrow V_{DS} < 0.2V$  @  $I_D = 40A$   
\$5.18

MOUSER SEARCH: TO-220 PKG (ANY KIND) N-CHANNEL MOSFET  
 $V_{DS}$  BREAKDOWN = 80-150V

512 - FDP027H08B-F102  $C_{GS} \approx 10000 pF$   $I_D = 60A$  typ @  $V_{GS} = 5V$

$\rightarrow V_{DS} \geq 0.4V$  @  $V_{GS} = 5V$ , REJECT

28 MAY 13  
Roderick.

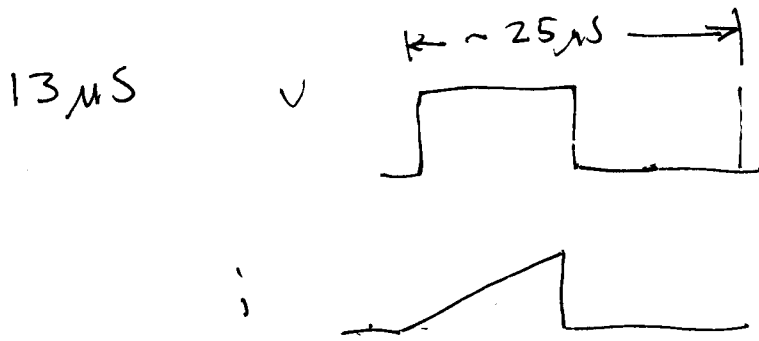
TUNING SA PEAK DETECTOR RESPONSE TIME

ORIGINAL ~~IDEA~~ DESIGN FOR POWER TRANSFER WAS

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

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

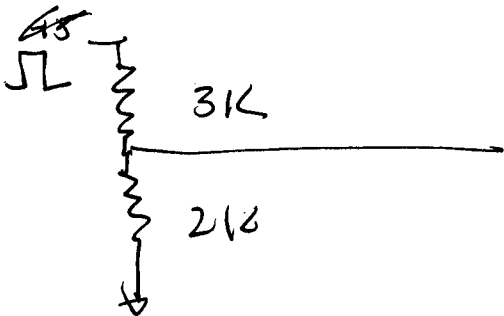
$$= \frac{3A}{\mu S} \quad \text{TO GET TO 40A,}$$



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

~~MUST~~ PEAK DETECTOR MUST BE ABLE TO TRACK TO 2 VOLTS W/ 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.