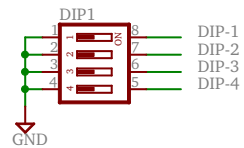


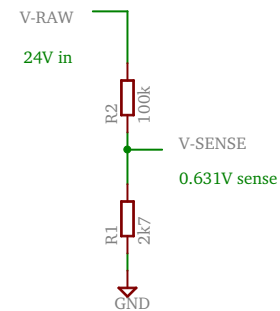
DIP switch 4 position, CTS 210-4MS, Digikey #CT2104MS-ND

PCB mounting holes at (200, 2050), (4925, 2050), (4925, 200), (200, 200)

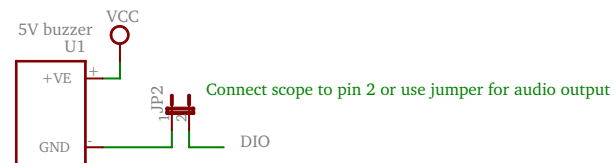
For setting house code



Values are for 0-41V input, 40mV resolution, 1.1V ref.
 Use R2 = 4k7 for 0-24V, 24mV resolution, 1.1V ref.
 Use R2 = 22k for 0-22V, 22mV resolution, 4.096V ref.



For debugging



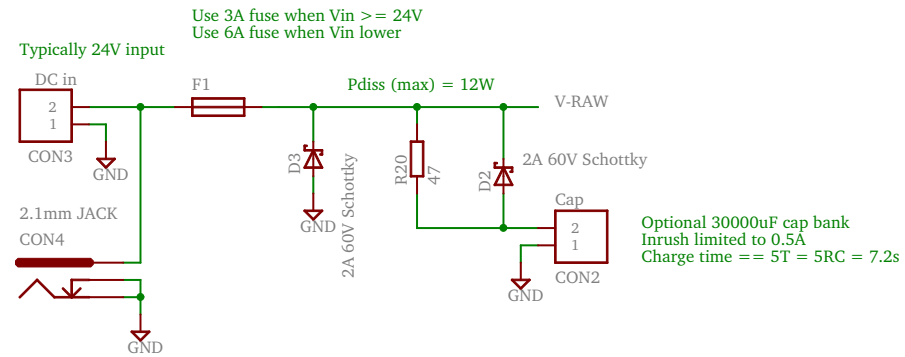
Lighting Controller for Arduino

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Inputs and outputs	
TITLE: led-v400	
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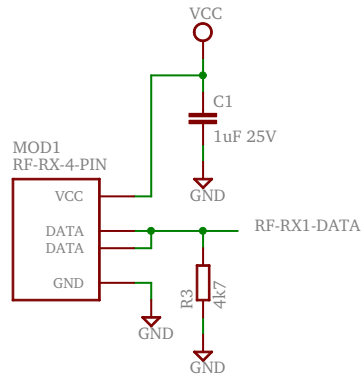
30000uF 35V, Cornell Dubilier Electronics 380LX333M035A052, Digikey #338-2260-ND
 30000uF 35V, Panasonic electro ECO-S1VP333EA 7.5A ripple, Digikey #P6924-ND (NOW END OF LIFE)
 Phoenix screw connector MKDSN series 10A 14-30AWG, Digikey #277-1247-ND
 47R 3W axial resistor, TT Electronics ULW3-47RJA1, Digikey #985-1009-1-ND

2.1mm jack 2.5A max, Cui Inc PJ-102A, Digikey #CP-102A-ND
 2.1mm jack 5A max, Cui Inc PJ-102AH, Digikey #CP-102AH-ND

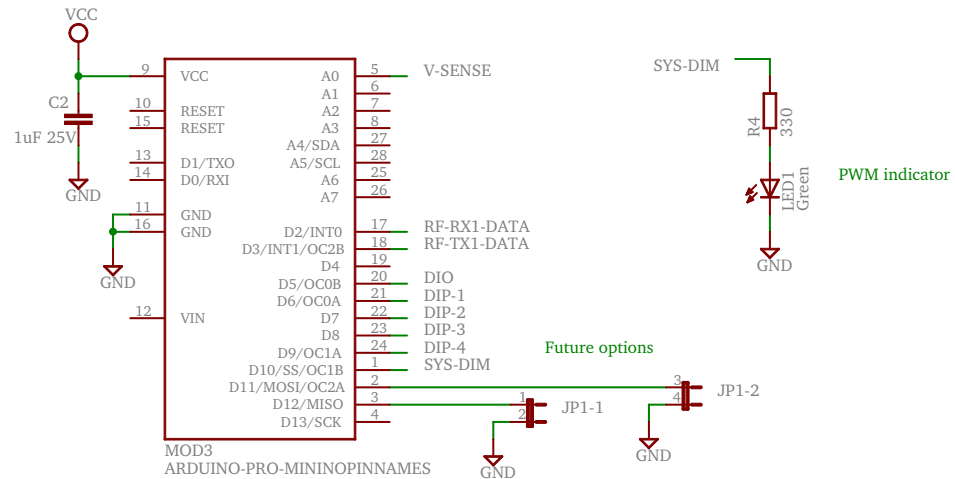
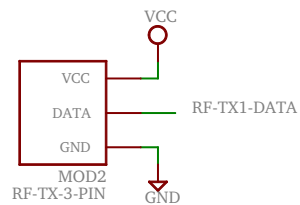


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Power input and current limit	
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Pull-down a good idea on RF module
Appears to be able to source, but not sink current well.
17cm aerial (1/4 wave) for 433MHz, 24cm for 315MHz



Arduino module and 433/315 MHz RF receiver

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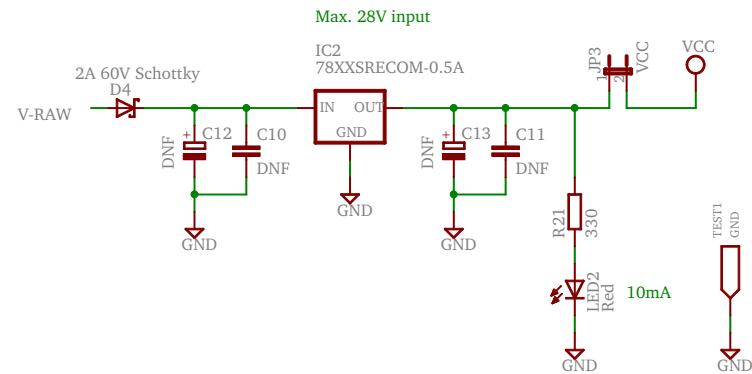
Date: 11/25/2014 17:44:10

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0.5A regulator max. 28V input, Recom Power R-78E5.0-0.5, digikey #945-1648-5-ND
 22uF 35V LOESR, Panasonic type V series FP, part #EEE-FP1V220AR, Digikey #PCE4550CT-ND
 220uF 10V LOESR, Panasonic type V series FP, part #EEE-FP1A221AP, Digikey #PCE4523CT-ND

Recom recommend:
 3.3uF input cap (reqd. iff Vin > 26V)
 100uF output cap (220uF max) to reduce ripple
 Measured ripple is extremely low in this application

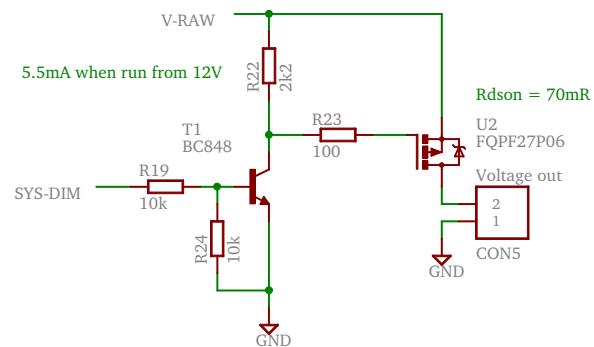


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Step-down PSU	
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If average output current more than around 3A suggest using a heatsink on U2

Circuit tested and found to work fine at 250Hz PWM



Measured powering 50W halogen, ~12V and 4.2A
FQPF27P06 58C above ambient.
Thermal rating Rja is 62.5 C/W, so Pdiss = 0.93W

Rjc = 1.9 C/W
Rcs = 0.5 C/W
Use (say) a Rsa = 20 C/W heatsink...
Rtotal = 22.4 C/W

Temp rise for 0.93W is 21 C; quite acceptable

Voltage source output (PWM capable)

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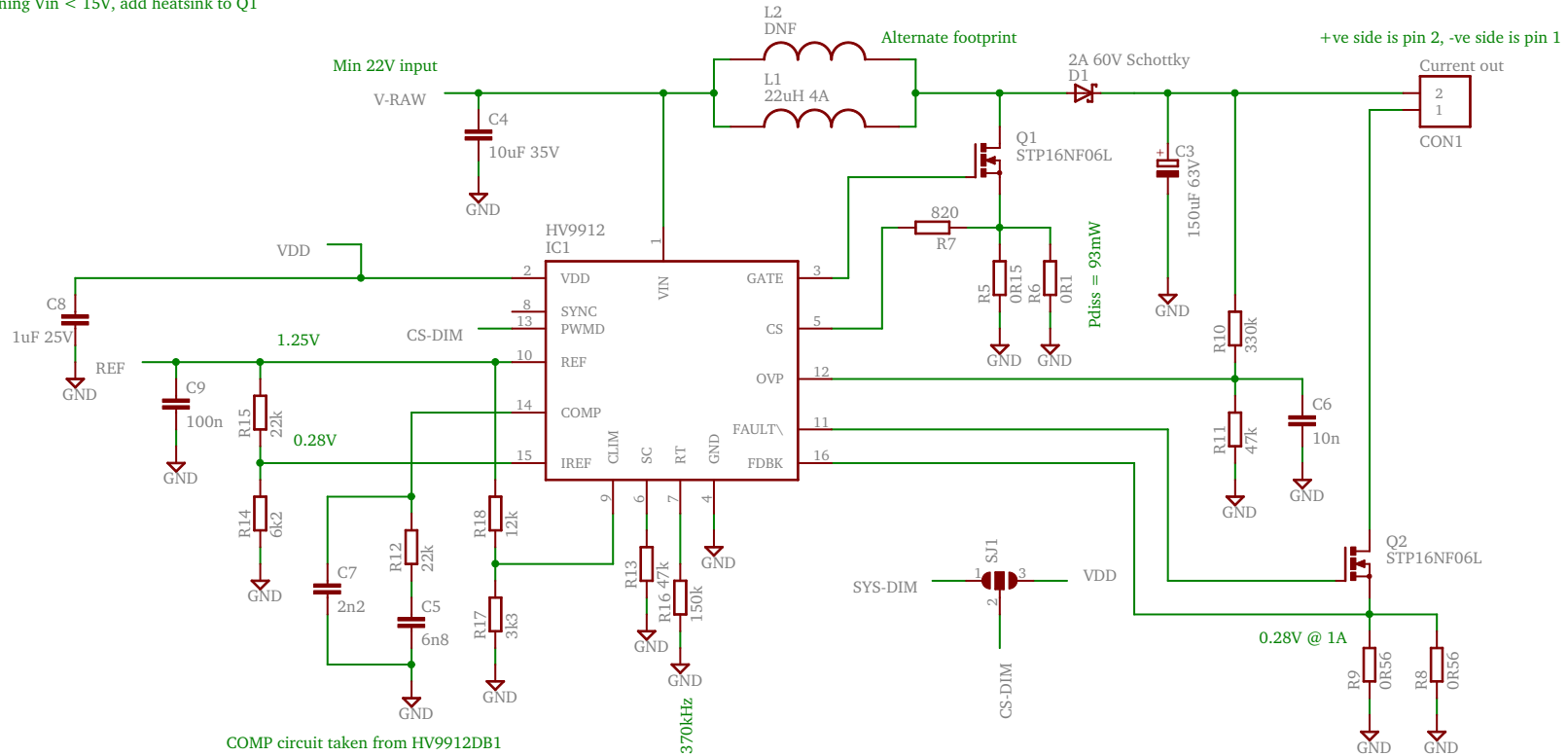
Sheet: 5/6

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HV9912NG, Microchip IC LED driver 16SOIC HV9912NG-G-M901, Digikey #HV9912NG-G-M901CT-ND
 150uH 1.9A inductor, Abracon 1.9A 2.4A sat. 162mR AIUR-06-151K, Digikey #AIUR-06-151K-ND
 200mR 1206 resistor, CTS resistor products 73L4R20J 250mW 5% 1206, Digikey #73L4R20JCT-ND
 560mR 1206 resistor, CTS resistor products 73L4R56J 250mW 5% 1206, Digikey #73L4R56JCT-ND
 2-way socket, Phoenix Contact Combicon MSTBA 1757242, Digikey #277-1106-ND
 2-way plug, Phoenix Contact Combicon MSTB positions marked 1758364, Digikey #277-1964-ND

Alternatives
 22uH 4A inductor, Abracon 4A 6.1A sat. 43mR AIUR-06-220K, Digikey #AIUR-06-220K-ND
 150mR 0.5W 1206 resistor, TT Electronics LRC-LR1206LF-01-R150F, Digikey #989-1032-1-ND
 12uH 4.9A inductor, Abracon 4.9A 23mR AIUR-08-120K, Digikey #AIUR-08-120K-ND
 100mR 0.5W 1206 resistor, TE Connectivity RLP73K2BR10JTD, Digikey #A109842CT-ND

At lower Vin Q1 gets hot.
 If running Vin < 15V, add heatsink to Q1



Other possibilities:
 Microchip HV9961 buck converter, Digikey #HV9961NG-G-M901CT-ND

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Current source output	
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