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KiCad E.D.A. kicad (5.0.0)

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AC Input Connections



4-40 Screw  
MK201



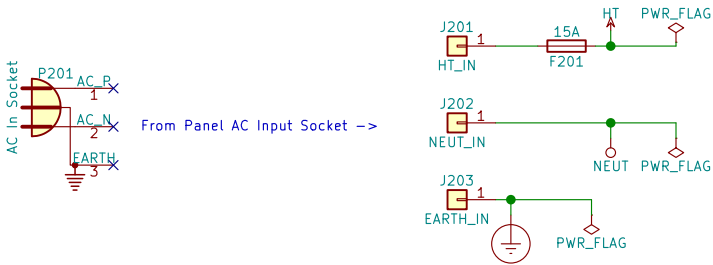
Nut  
MK202



4-40 Screw  
MK203

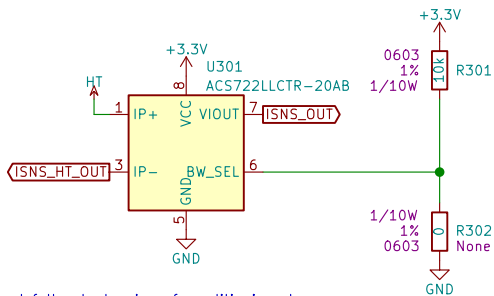


Nut  
MK204

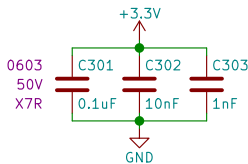


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AC Current Sensor

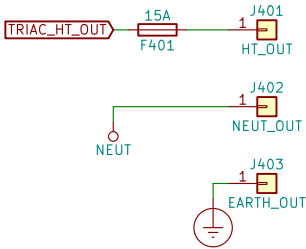


10.7ARMS Max to support full output swing of conditioning stages

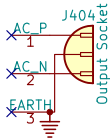


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AC Output Connections

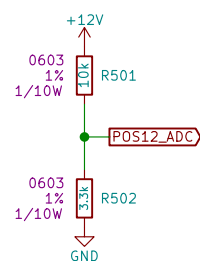
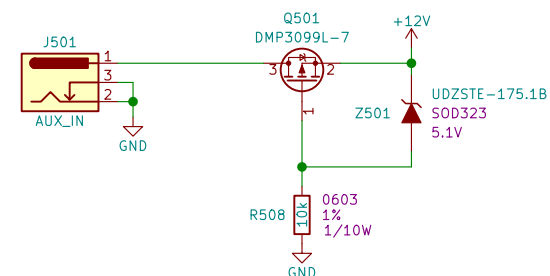
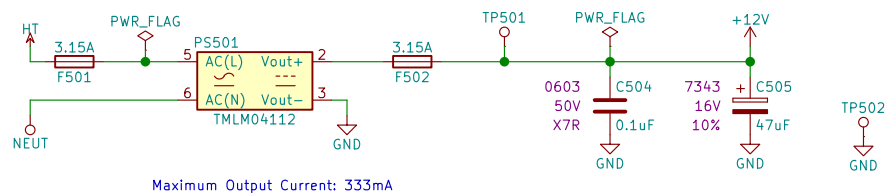


-> To Panel AC Output Socket



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# +12V 4W Isolated AC/DC Converter, +12V PGOOD Window Comparator



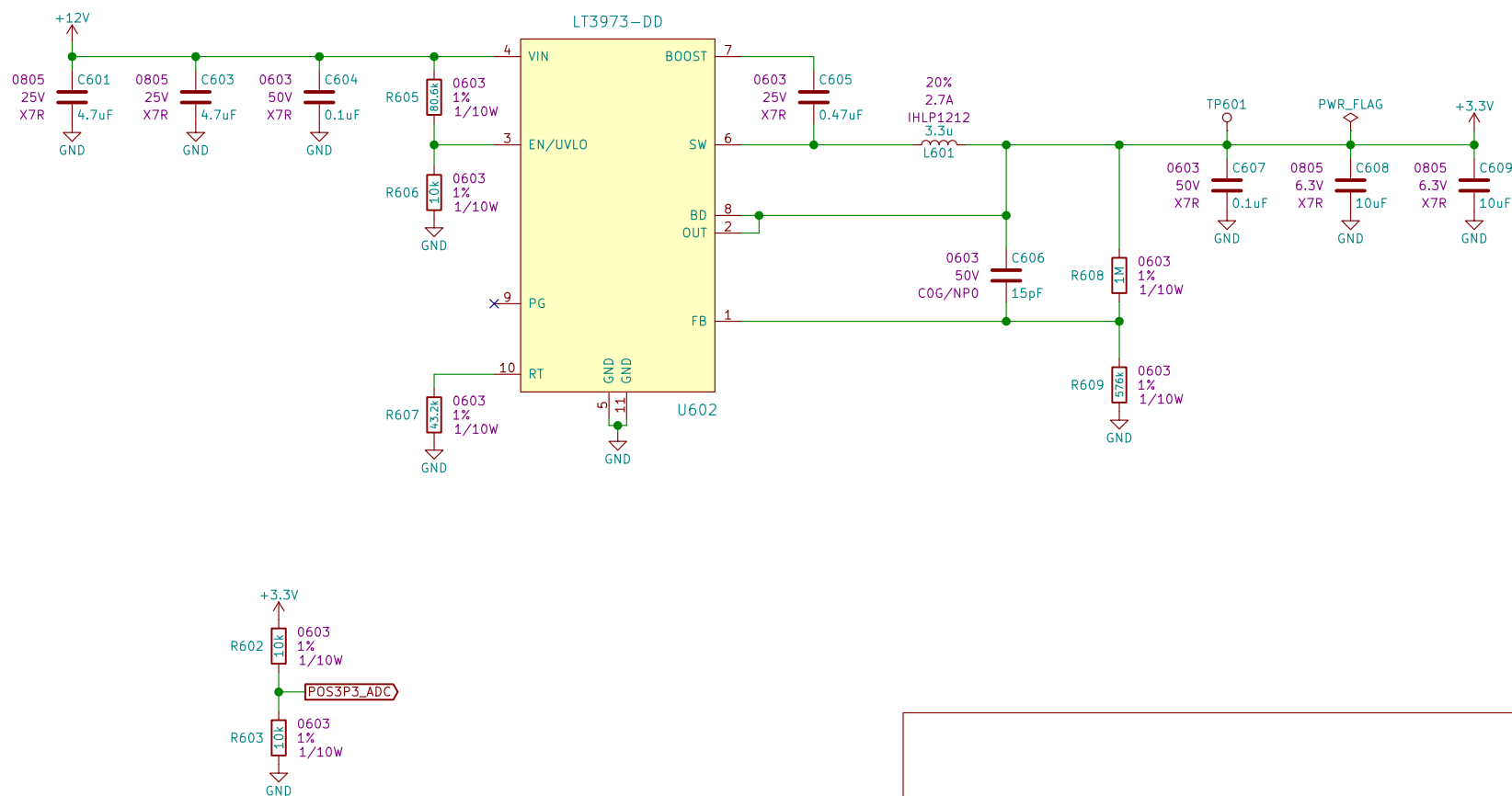
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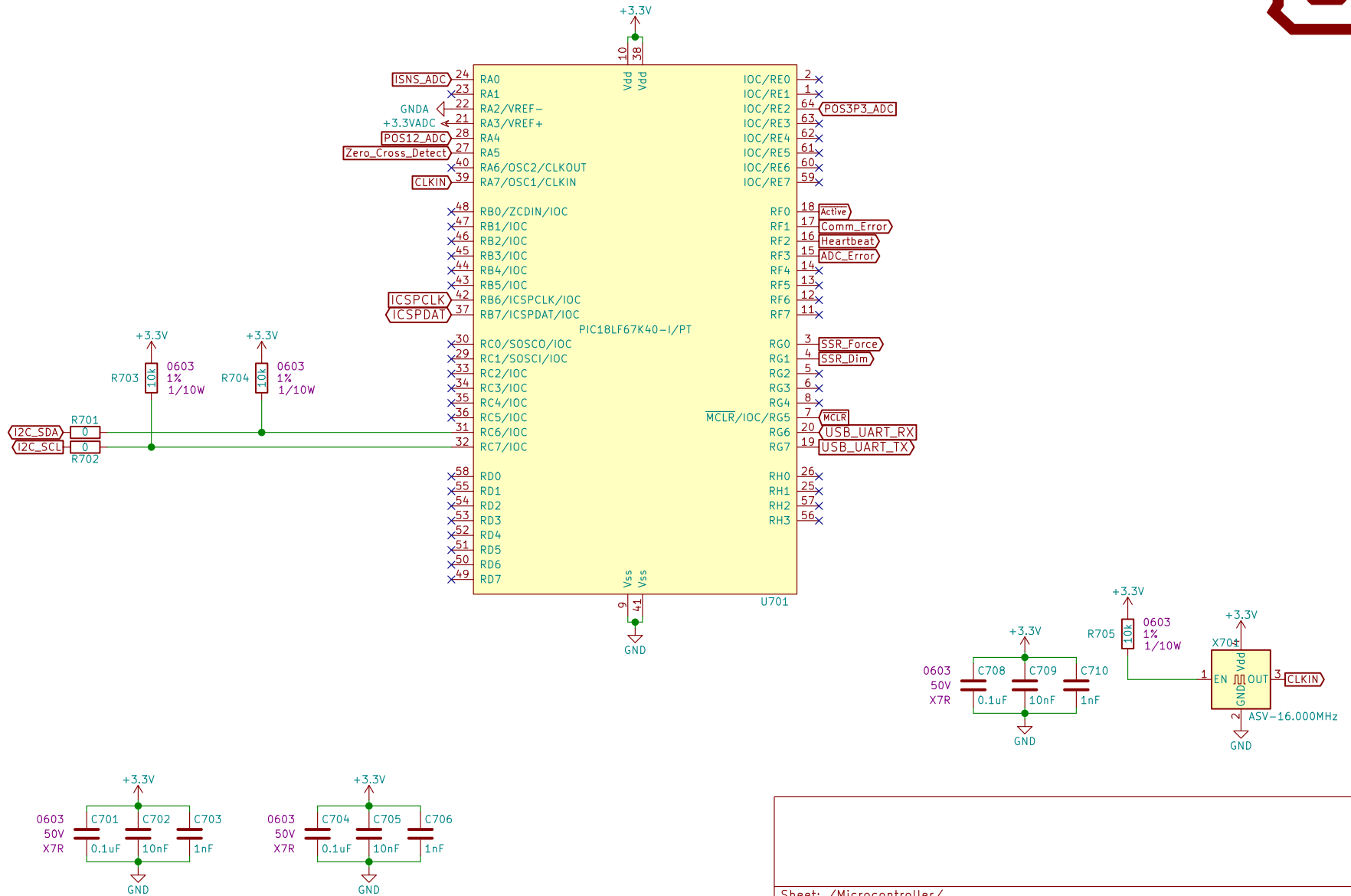
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# +3.3V, 750mA, 2MHz Buck Converter



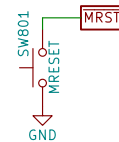
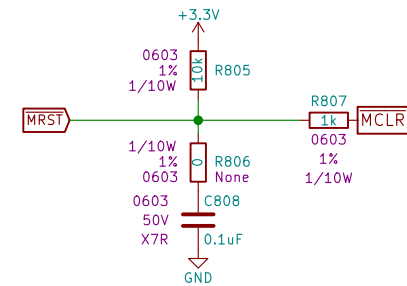
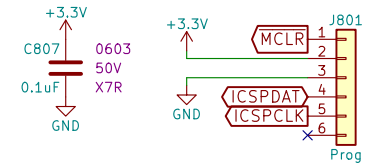
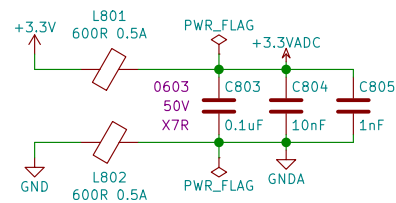
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# 8 bit High Performance Enhanced Flash PIC Microcontroller



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<b>Title:</b>		
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# Programming Header, MCLR Reset Filter, ICSP Detection



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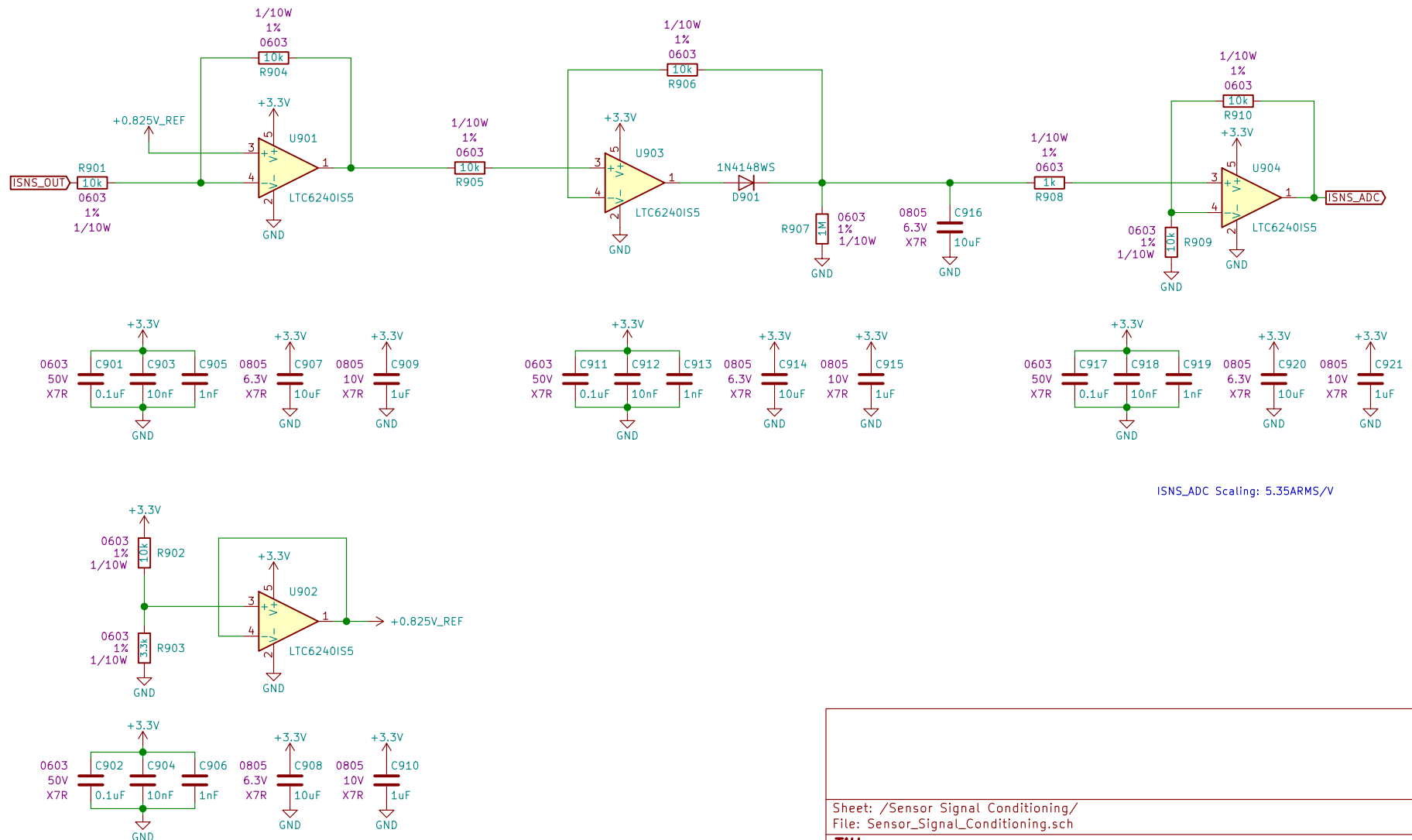
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# Offset Removal, Active Peak Detector, 2V/V Gain Stage



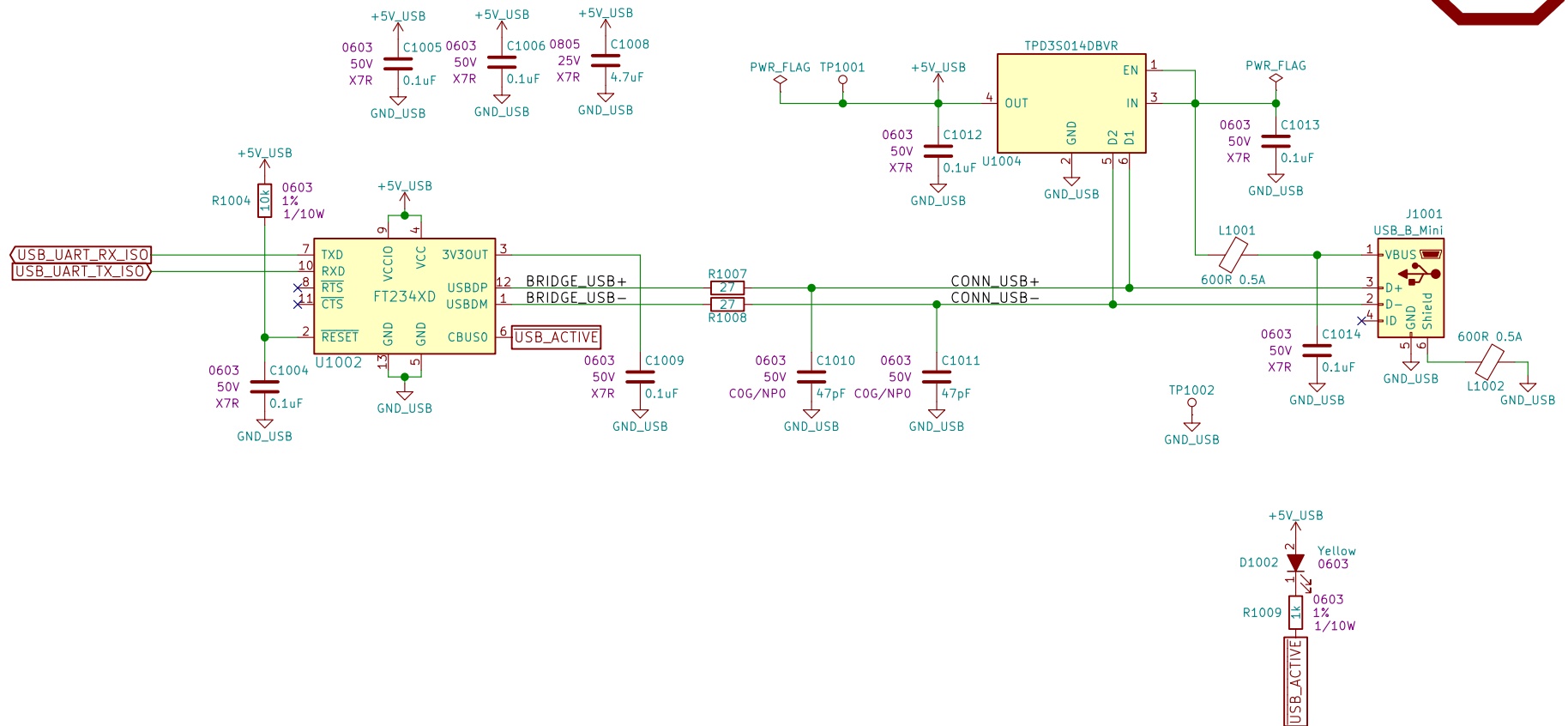
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# UART to USB Bridge, +5V USB Window Comparator



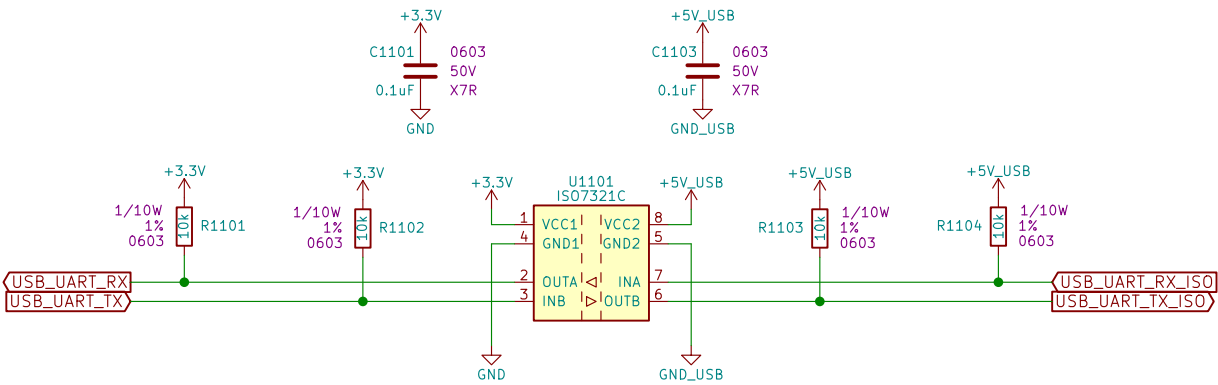
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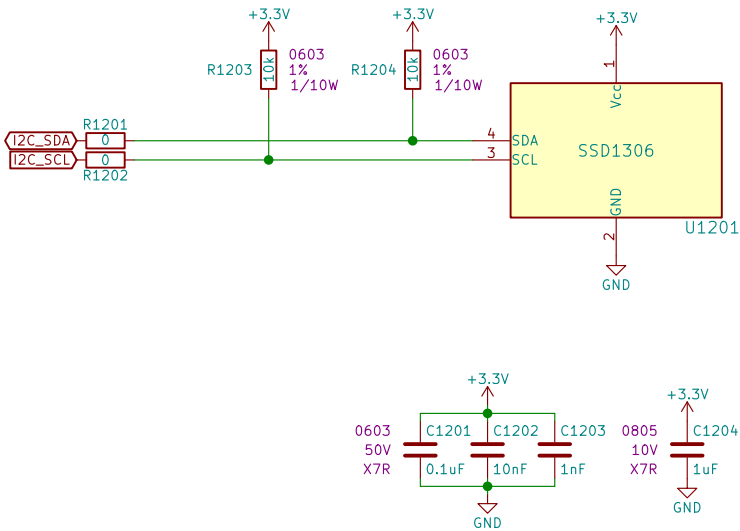
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USB UART Isolation

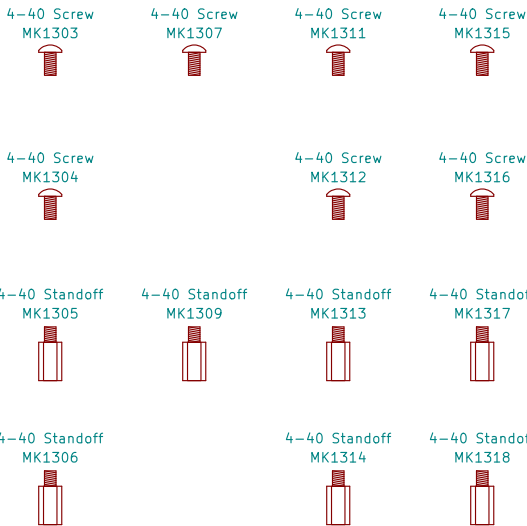


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OLED Display

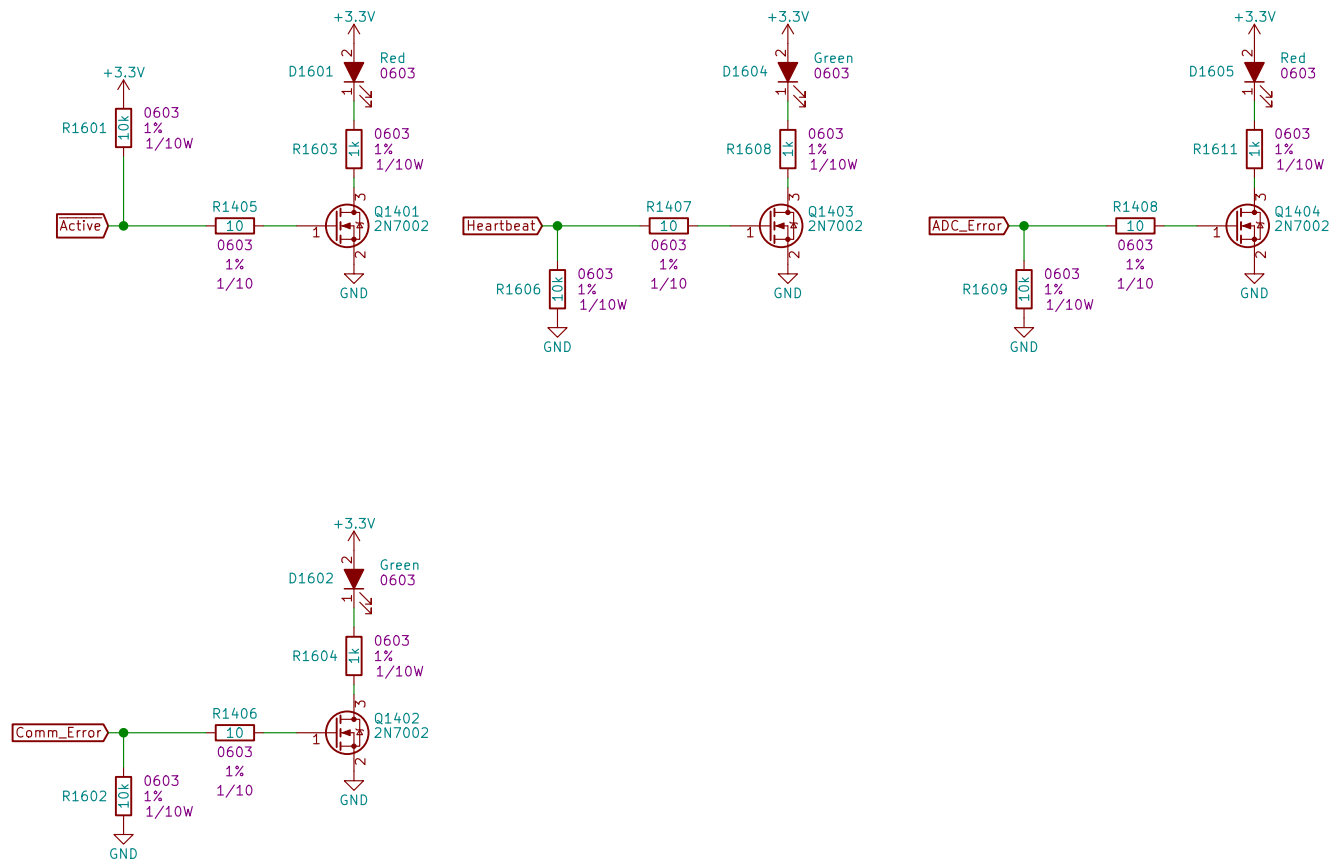


Mounting Holes and Mechanical Components



Sheet: /Mechanical/ File: Mechanical.sch		
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Size: A	Date: 2018-10-01	Rev: A
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## Status LEDs



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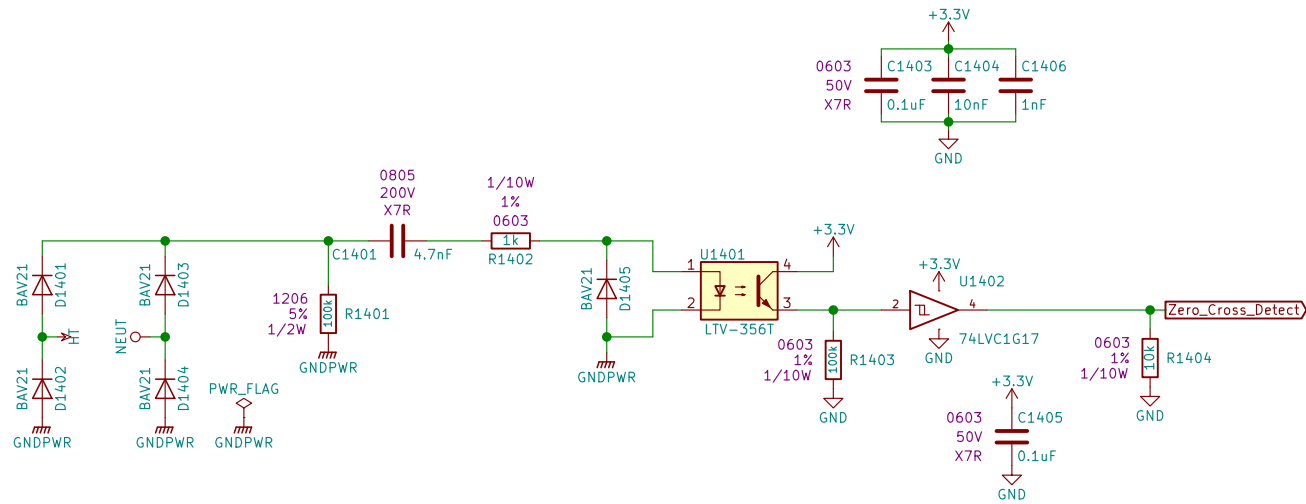
Firmware Notes



- \* Configure RA0 as both an ADC input and the inverting input into an internal comparator
- \* Comparator will be used with internal DAC to set a current limit
- \* Configure ADC clock as FRC, external +/-VREF
- \* Configure clocking structure to use ECM clock mode, 16MHz clock input, 4xPLL = 64MHz SYSCLK
- \* Configure RA4 as an ADC input
- \* Configure RA5 as EXTINT0 for ZCD
- \* Configure RB0 as EXTINT1 for output switching
- \* Configure RB6:7 as MSSP1 I2C IO
- \* Configure RC2 and RC3 as interrupt on change inputs
- \* Configure RE2 as an ADC input
- \* Configure RF0 as open drain output, force low after booting
- \* Configure RF1:3 as push pull outputs, start low
- \* Configure RG6 as EUSART2 RX and RG7 as EUSART2 TX
- \* Configure the ADC to use digital filtering with lowest crossover frequency
- \* Use Timer7 to gather ADC data on all channels and run calculations on it at a fixed time base
- \* Use Timer5 as the time base for output dimming
- \* Use Timer6 as hearthbeat time base

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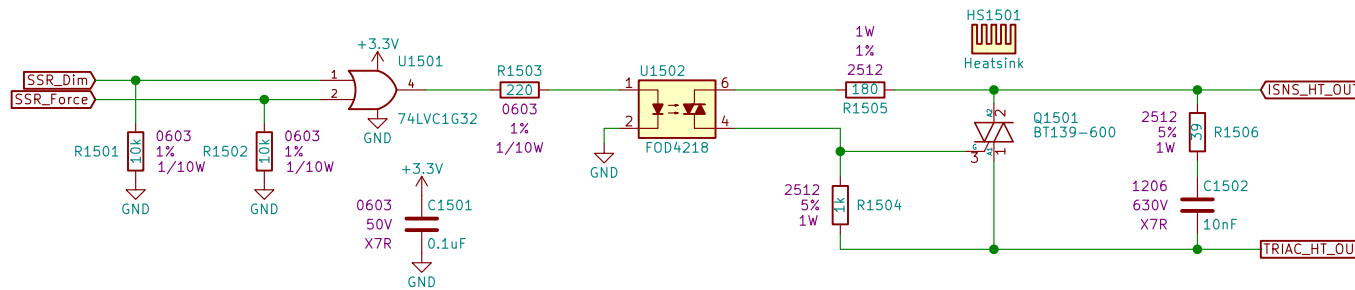
# Input AC Zero-Cross Detection



Sheet: /Zero Cross Detect/		
File: Zero_Cross_Detect.sch		
<b>Title:</b>		
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# Output AC Solid State Switch, Random Phase



Sheet: /Output Switch/  
File: Output\_Switch.sch

## Title:

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