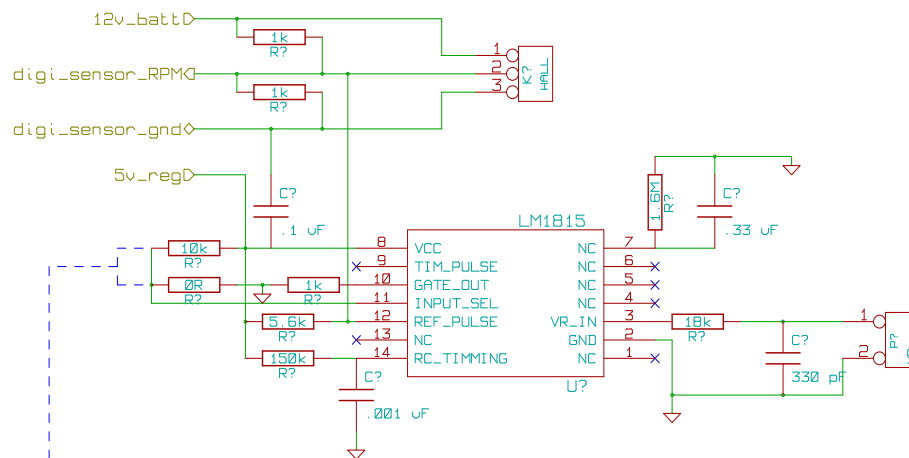
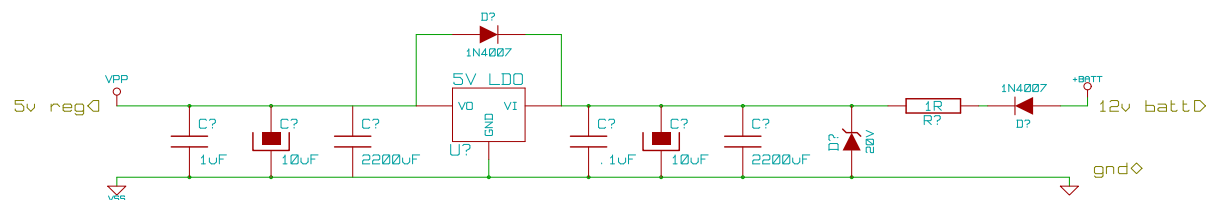


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--- SWITCHING THESE RESISTORS AROUND WILL CHANGE THE POLARITY OF OUTPUT SIGNAL FOR THE VR CIRCUIT

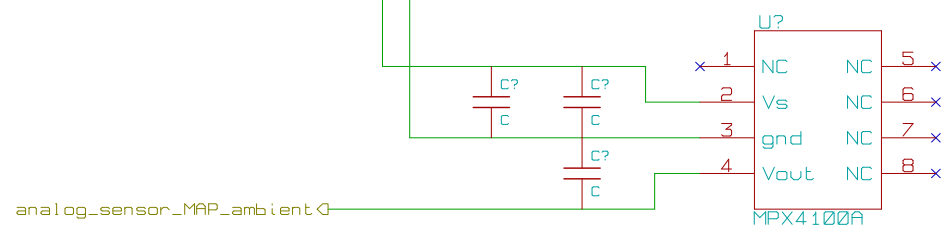
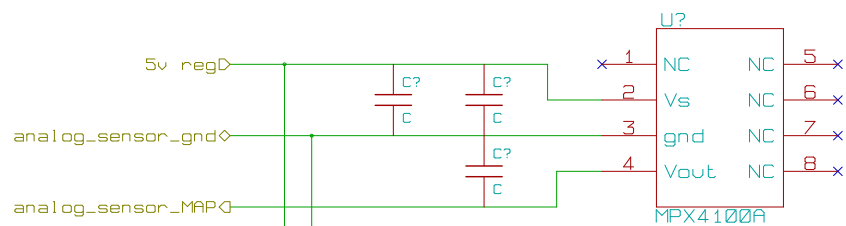


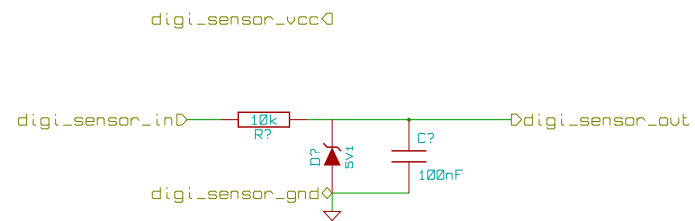
Starting from right and moving to the left we have in order :

- Power feed and ground from battery and/or block
- Reverse polarity hook up protection diode
- Current limiting resistor
- Zener over voltage clamping diode
- Charge storage electrolytic polarised 25V 1000uF capacitor (value may change, but 220 - 2200 is around what we want)
- High frequency tantalum 25V 10uF capacitor (35V units are expensive, as are 22uF)
- Ultra high frequency ceramic 0.1uF capacitor (larger units with similar frequency response would also be acceptable)
- 5V LDO (low drop out) voltage regulator
- Reverse voltage protection diode for the regulator in case of external capacitors discharging more quickly and/or to a lower level than internal ones (snubbing not required as this will not happen when things are actually running)
- High frequency tantalum 25V 10uF capacitor (35V units are expensive, as are 22uF)
- Ultra high frequency ceramic 0.1uF capacitor (larger units with similar frequency response would also be acceptable)
- Power feed and ground for CPU core

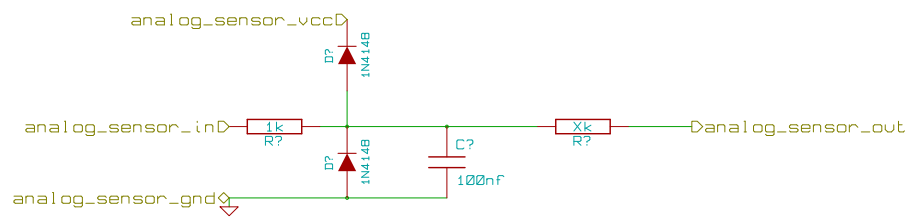
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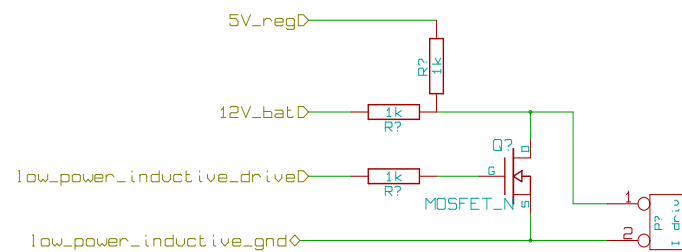


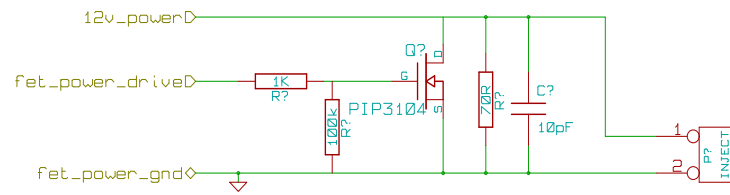


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Title: freeEMS 1.0		
Size: A	Date: 1 aug 2008	Rev: A.06
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VCC ◇ 50 1 ◇ PA7
 GND ◇ 49 2 ◇ PA6
 PE7 ◇ 48 3 ◇ PA5
 PK7 ◇ 47 4 ◇ PA4
 PK5 ◇ 46 5 ◇ PA3
 PK4 ◇ 45 6 ◇ PA2
 PK3 ◇ 44 7 ◇ PA1
 PK2 ◇ 43 8 ◇ PA0
 PK1 ◇ 42 9 ◇ PB7
 PK0 ◇ 41 10 ◇ PB6
 PJ0 ◇ 40 11 ◇ PB5
 PJ7 ◇ 39 12 ◇ PB4
 PJ6 ◇ 38 13 ◇ PB3
 PM7 ◇ 37 14 ◇ PB2
 PM6 ◇ 36 15 ◇ PB1
 PM5 ◇ 35 16 ◇ PB0
 PM4 ◇ 34 17 ◇ R/W
 PM3 ◇ 33 18 ◇ ECLK
 PM2 ◇ 32 19 ◇ LSTRB
 PM1 ◇ 31 20 ◇ IRQ
 PM0 ◇ 30 21 ◇ PJ1
 AN12 ◇ 29 22 ◇ AN08
 AN13 ◇ 28 23 ◇ AN09
 AN14 ◇ 27 24 ◇ AN10
 AN15 ◇ 26 25 ◇ AN11

P?

9S12XDP512

AN03 ◇ 25 26 ◇ AN07
 AN02 ◇ 24 27 ◇ AN06
 AN01 ◇ 23 28 ◇ AN05
 AN00 ◇ 22 29 ◇ AN04
 PP0 ◇ 21 30 ◇ VRH
 PP1 ◇ 20 31 ◇ VRL
 PP2 ◇ 19 32 ◇ PS3
 PP3 ◇ 18 33 ◇ ECLK-2
 PP4 ◇ 17 34 ◇ PS2
 PP5 ◇ 16 35 ◇ PH7
 PP6 ◇ 15 36 ◇ PH6
 PP7 ◇ 14 37 ◇ PH5
 PT0 ◇ 13 38 ◇ PH4
 PT1 ◇ 12 39 ◇ PH3
 PT2 ◇ 11 40 ◇ PH2
 PT3 ◇ 10 41 ◇ PH1
 PT4 ◇ 9 42 ◇ PH0
 PT5 ◇ 8 43 ◇ PE7-2
 PT6 ◇ 7 44 ◇ RESET
 PT7 ◇ 6 45 ◇ PE0
 PS1 ◇ 5 46 ◇ PE1
 PS7 ◇ 4 47 ◇ VCC-2
 PS6 ◇ 3 48 ◇ PS0
 PS5 ◇ 2 49 ◇ GND-2
 PS4 ◇ 1 50 ◇ GND-3

