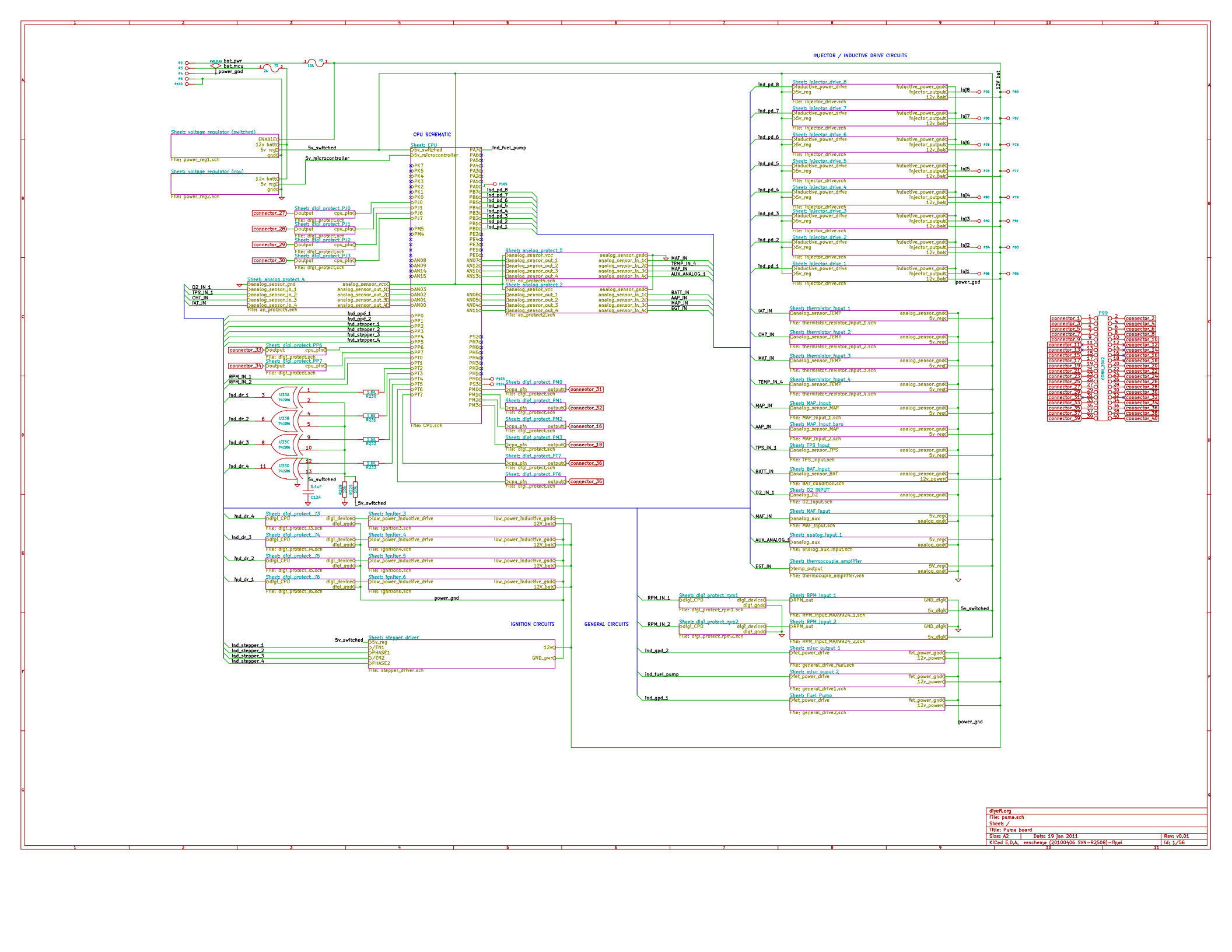
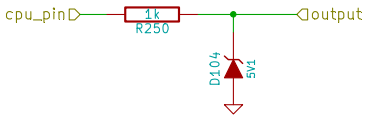
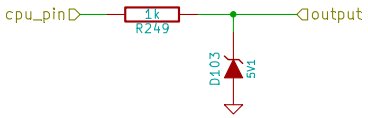


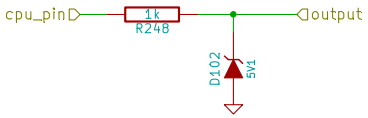
diyefi.org	
File: puma.sch	
Sheet: /	
Title: Puma board	
Size: A2	Date: 19 Jan 2011 — Rev: v0.01
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final	Id: 1/56



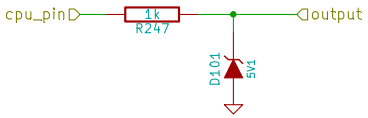
diyefi.org		
File: digi_protect.sch Sheet: /digi_protect_PT7/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 2/56



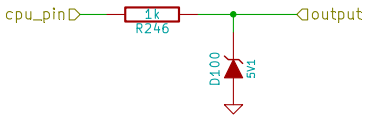
diyefi.org		
File: digi_protect.sch Sheet: /digi_protect_PT6/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 3/56



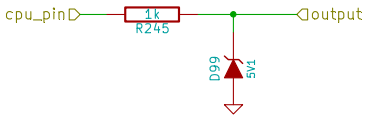
diyefi.org		
File: digi_protect.sch Sheet: /digi_protect_PM3/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 4/56



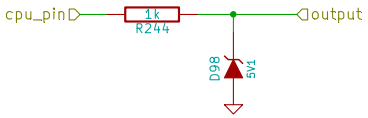
diyefi.org		
File: digi_protect.sch Sheet: /digi_protect_PM2/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 5/56



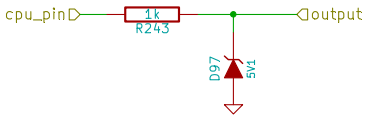
diyefi.org		
File: digi_protect.sch Sheet: /digi_protect_PM1/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 6/56



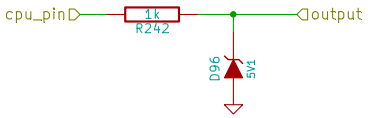
diyefi.org		
File: digi_protect.sch Sheet: /digi_protect_PM0/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 7/56



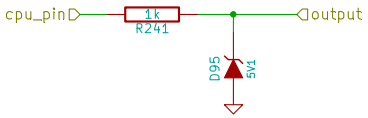
diyefi.org		
File: digi_protect.sch Sheet: /digi_protect_PP6/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 8/56



diyefi.org		
File: digi_protect.sch Sheet: /digi_protect_PP7/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 9/56



diyefi.org		
File: digi_protect.sch Sheet: /digi_protect_PJ2/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 10/56



diyefi.org		
File: digi_protect.sch		
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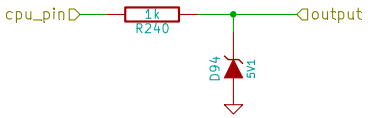
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 11/56



diyefi.org		
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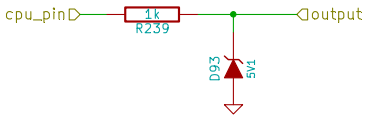
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 12/56



diyefi.org		
File: digi_protect.sch		
Sheet: /digi_protect_PJ0/		
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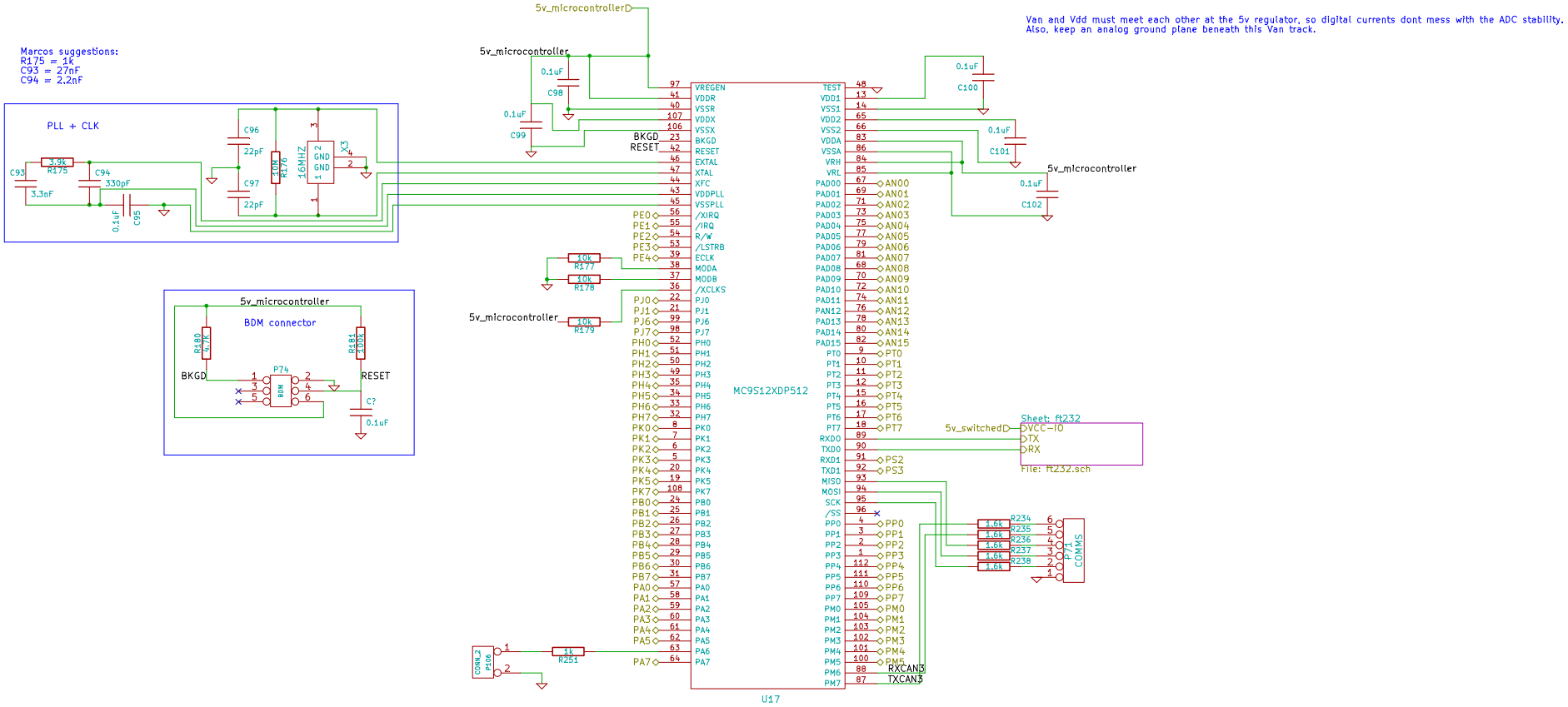
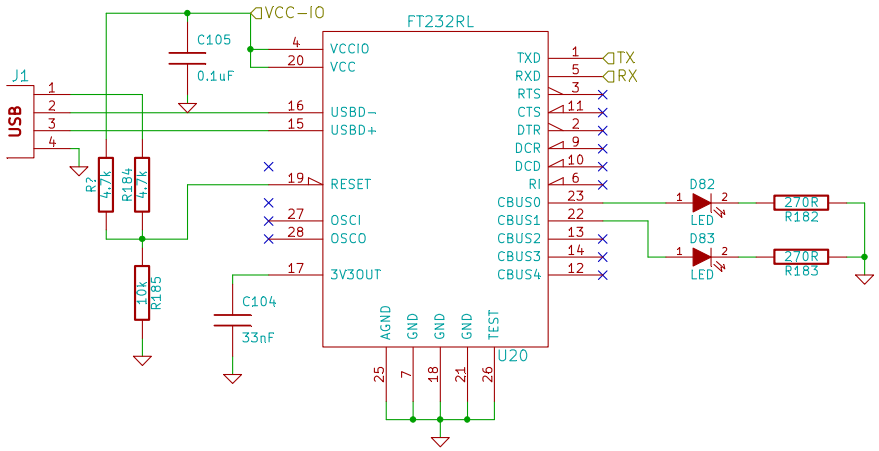
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 13/56



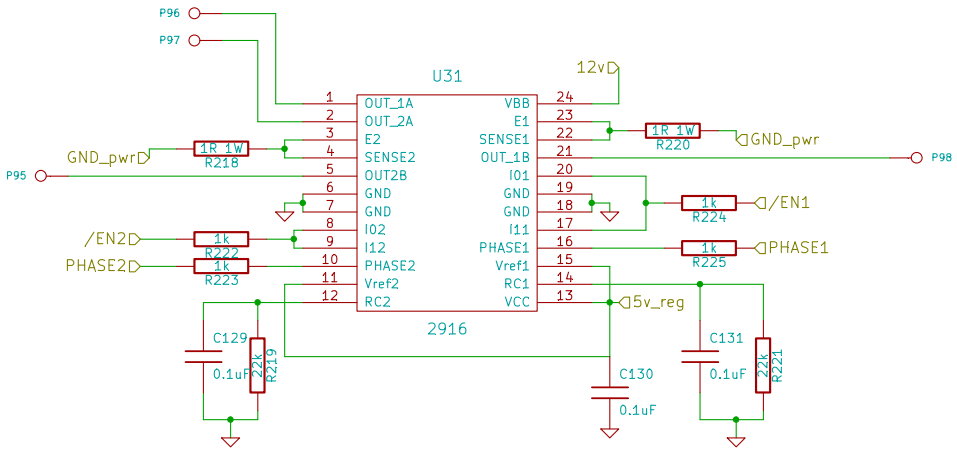
diyefi.org		
File: CPU.sch		
Sheet: /CPU/		
Title: Puma board		
Size: A3	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 14/56



Self powered mode

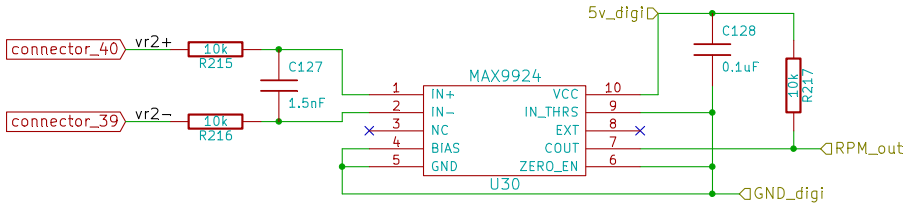
This device only support 85Â°C. To withstand 125Â°C it must be powered off.

diyefi.org		
File: ft232.sch		
Sheet: /CPU/ft232/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 15/56

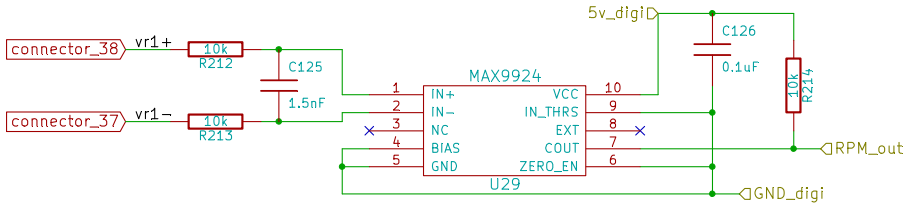


* RC = 2msec
* I = Vreg/(10*Rsense) = 500mA

diyefi.org		
File: stepper_driver.sch		
Sheet: /stepper_driver/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 16/56

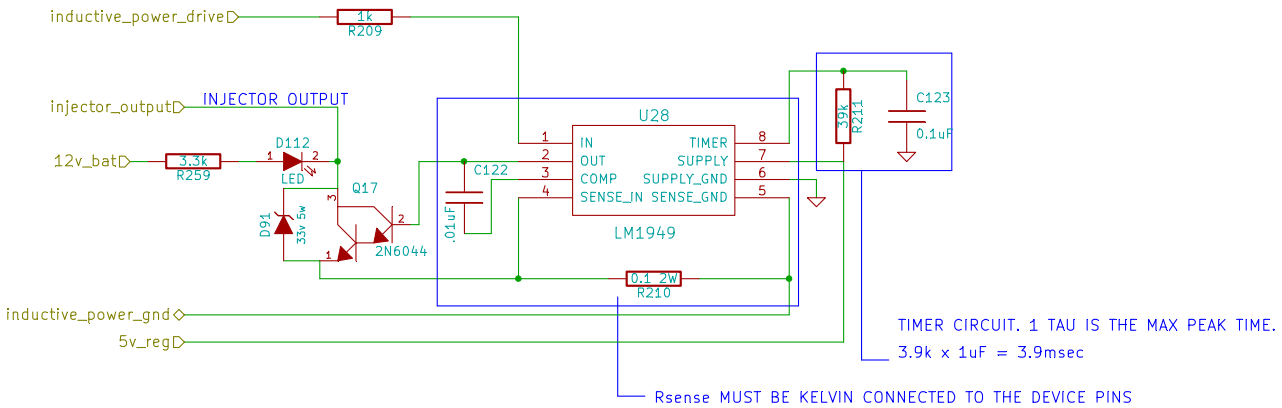


diyefi.org		
File: RPM_input_MAX9924_2.sch		
Sheet: /RPM_input_2/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 17/56



diyefi.org		
File: RPM_input_MAX9924_1.sch		
Sheet: /RPM_input_1/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 18/56

PEAK & HOLD INJECTOR DRIVER



injector_drive.sch		
diyefi.org		
File: injector_drive.sch		
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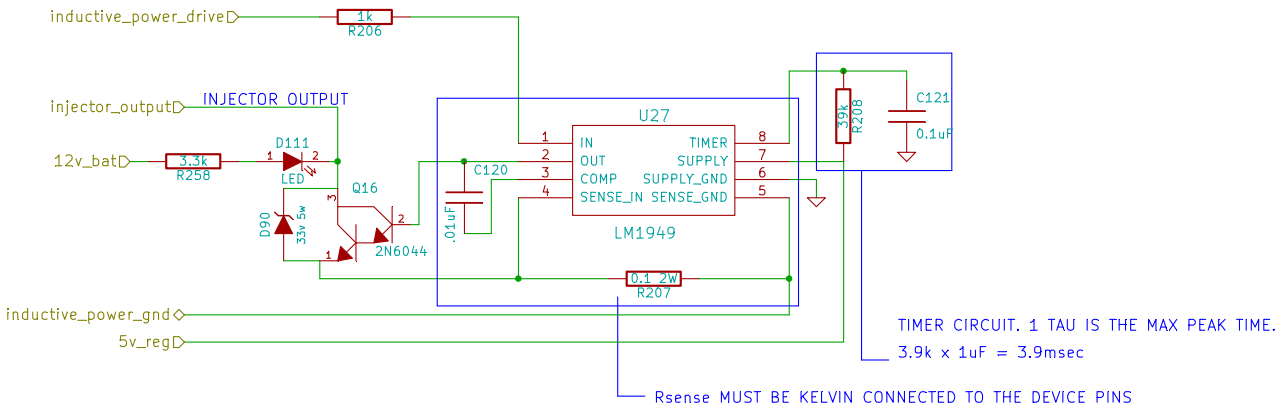
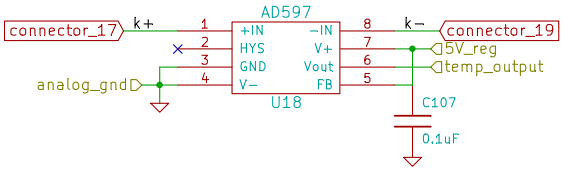
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 19/56

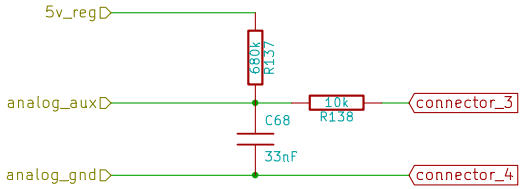
PEAK & HOLD INJECTOR DRIVER



injector_drive.sch		
diyefi.org		
File: injector_drive.sch		
Sheet: /injector_drive_7/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 20/56

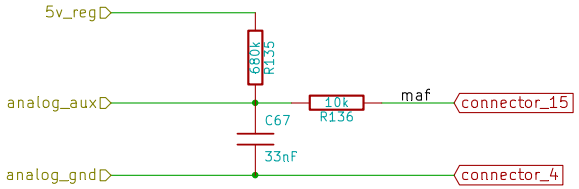


diyefi.org		
File: thermocuple_amplifier.sch Sheet: /thermocouple_amplifier/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN−R2508)−final		Id: 21/56



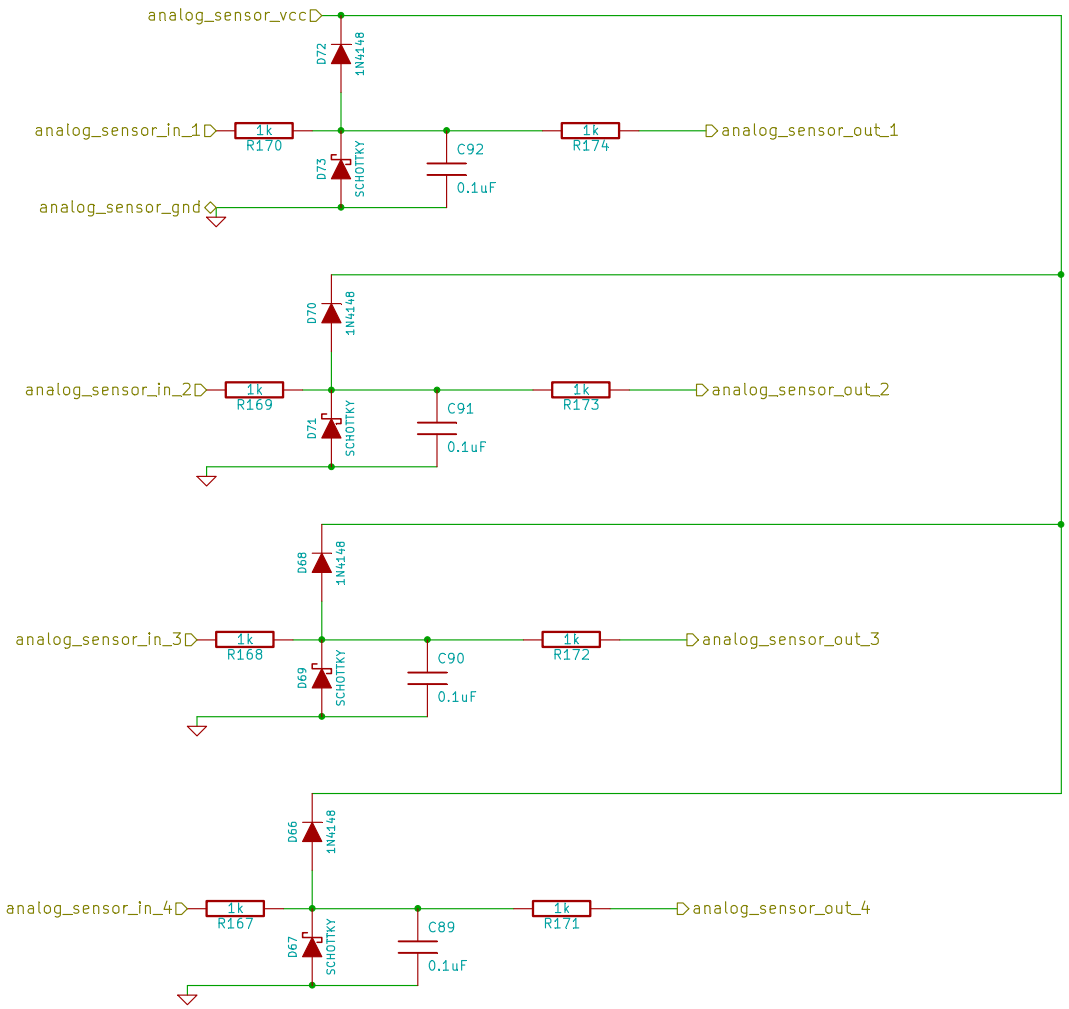
Filter settling time: 1ms (4*RC = 1.2ms)
Pull-up resistor for diagnosis

diyefi.org		
File: analog_aux_input.sch		
Sheet: /analog_input_1/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 22/56

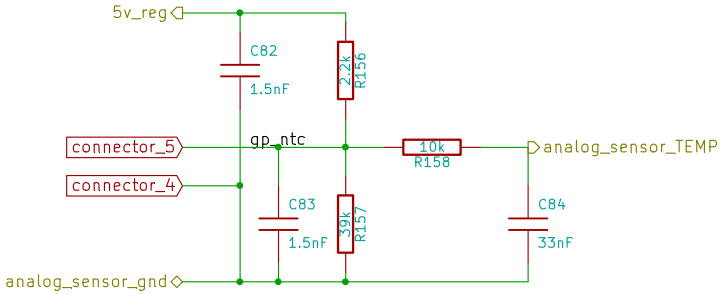


Filter settling time: 1ms (4*RC = 1.2ms)
Pull-up resistor for diagnosis

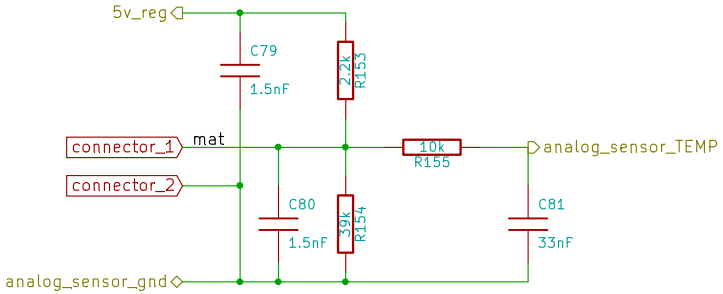
diyefi.org		
File: MAF_input.sch		
Sheet: /MAF_input/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 23/56



an_protect.sch		
diyefi.org		
File: an_protect4.sch		
Sheet: /analog_protect_5/		
Title: Puma board		
Size: A	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 24/56



thermistor_resistor_input.sch		
diyefi.org		
File: thermistor_resistor_input_4.sch		
Sheet: /thermistor_input_4/		
Title: Puma board		
Size: A	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 25/56



thermistor_resistor_input.sch		
diyefi.org		
File: thermistor_resistor_input_3.sch		
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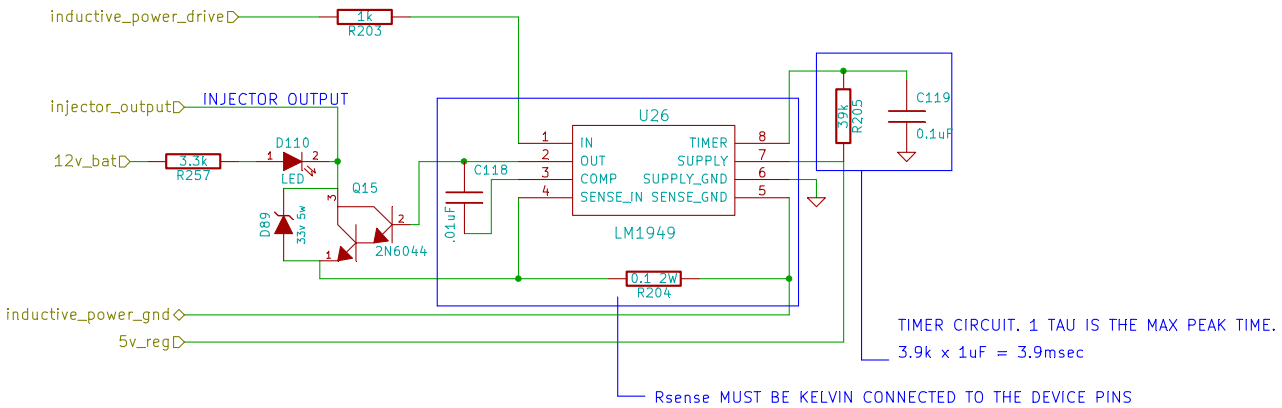
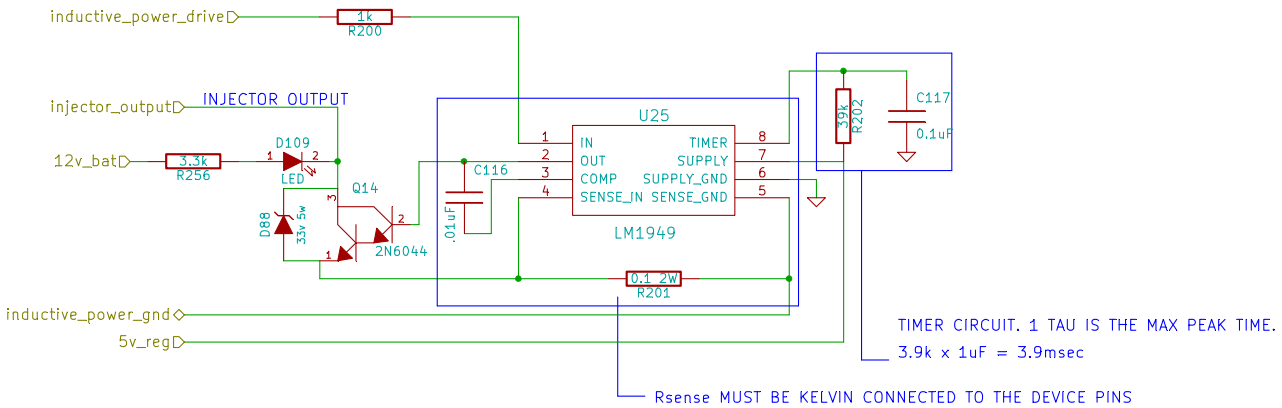
Title: Puma board		
Size: A	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 26/56

PEAK & HOLD INJECTOR DRIVER



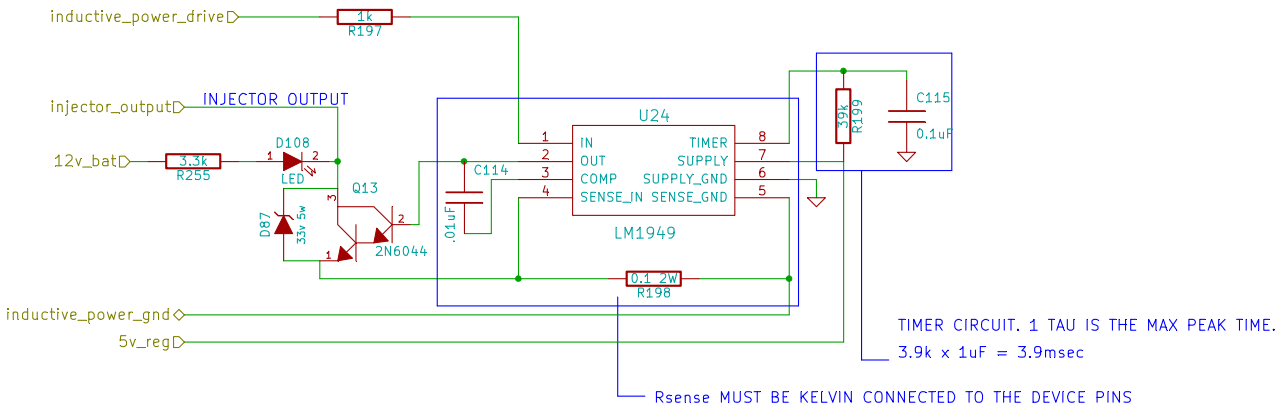
injector_drive.sch		
diyefi.org		
File: injector_drive.sch		
Sheet: /injector_drive_1/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 27/56

PEAK & HOLD INJECTOR DRIVER



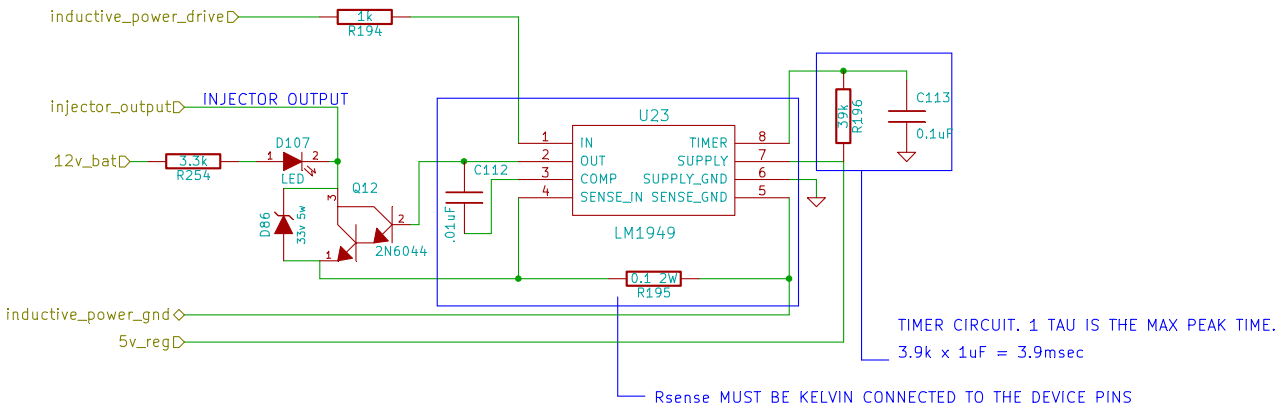
injector_drive.sch		
diyefi.org		
File: injector_drive.sch		
Sheet: /injector_drive_2/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 28/56

PEAK & HOLD INJECTOR DRIVER



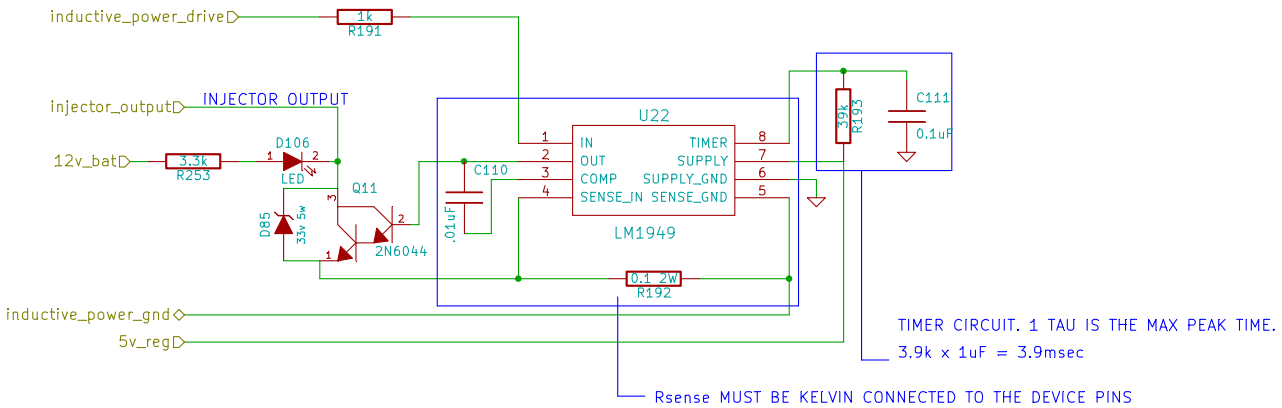
injector_drive.sch		
diyefi.org		
File: injector_drive.sch		
Sheet: /injector_drive_3/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 29/56

PEAK & HOLD INJECTOR DRIVER



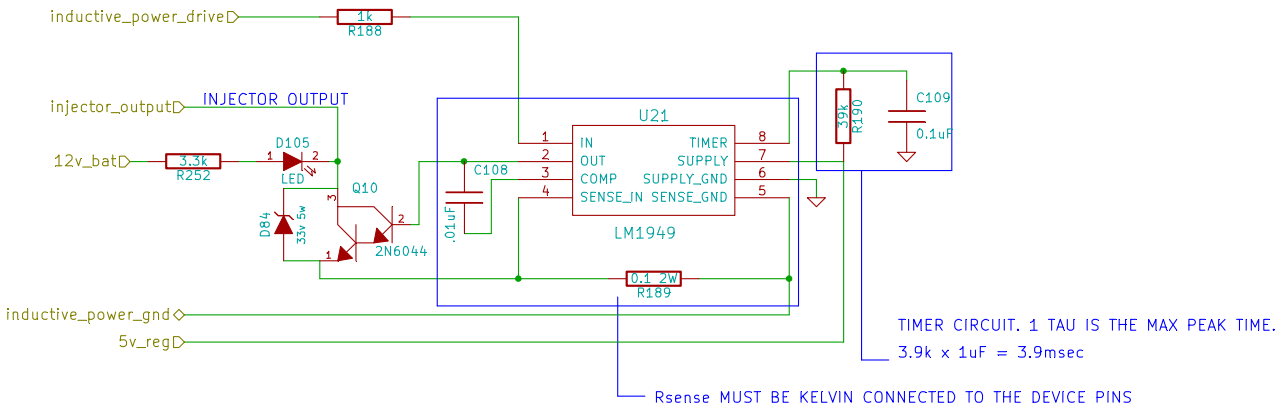
injector_drive.sch		
diyefi.org		
File: injector_drive.sch		
Sheet: /injector_drive_4/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 30/56

PEAK & HOLD INJECTOR DRIVER



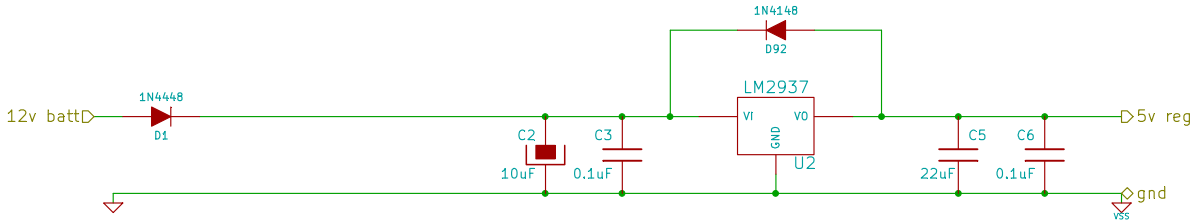
injector_drive.sch		
diyefi.org		
File: injector_drive.sch		
Sheet: /injector_drive_5/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 31/56

PEAK & HOLD INJECTOR DRIVER



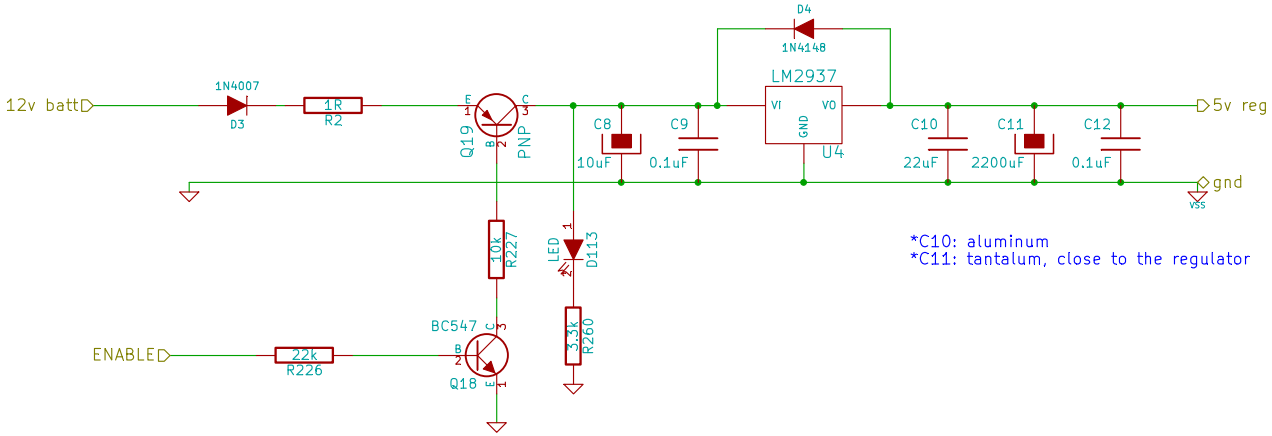
injector_drive.sch		
diyefi.org		
File: injector_drive.sch		
Sheet: /injector_drive_6/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 32/56

CPU VOLTAGE REGULATOR



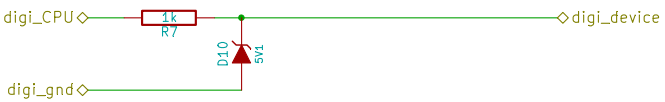
Starting from left and moving to the right we have in order :
-- Power feed and ground from battery and/or block
-- Reverse polarity hook up protection diode
-- Current limiting resistor
-- Zener over voltage clamping diode
-- Charge storage electrolytic polarised 25V 1000uF capacitor (value may change, 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

power_reg.sch		
diyefi.org		
File: power_reg2.sch		
Sheet: /voltage regulator (cpu)/		
Title: Puma board		
Size: A	Date: 13 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 33/56



Starting from left and moving to the right 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

power_reg.sch		
diyefi.org		
File: power_reg1.sch		
Sheet: /voltage regulator (switched)/		
Title: Puma board		
Size: A	Date: 29 jan 2011	**Rev: A.07**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 34/56



digi_protect.sch		
diyefi.org		
File: digi_protect_l3.sch		
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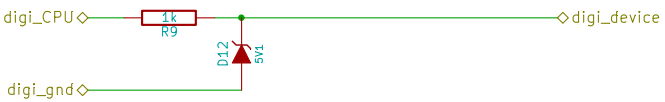
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 35/56



digi_protect.sch		
diyefi.org		
File: digi_protect_l4.sch		
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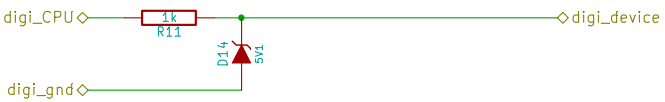
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 36/56



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diyefi.org		
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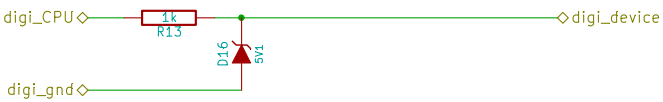
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 37/56



digi_protect.sch		
diyefi.org		
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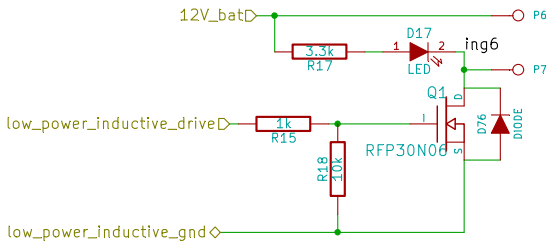
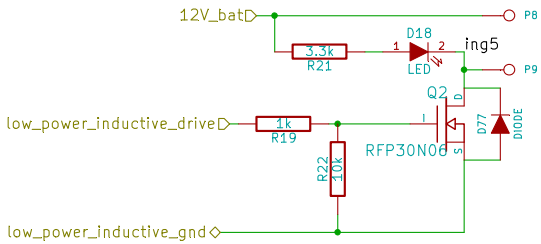
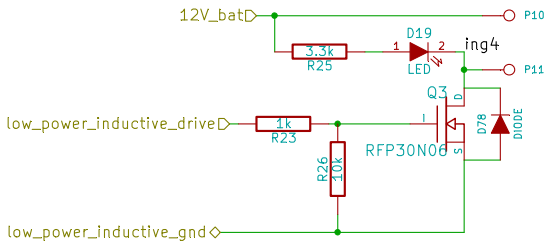
Sheet: /digi_protect__l6/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 38/56



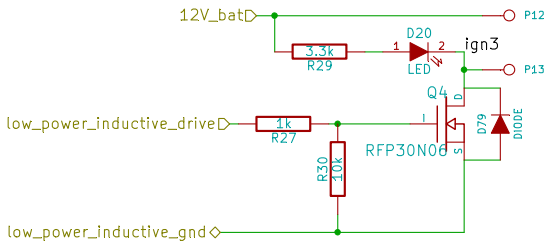
ignition.sch		
diyefi.org		
File: ignition6.sch		
Sheet: /igniter_6/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 39/56



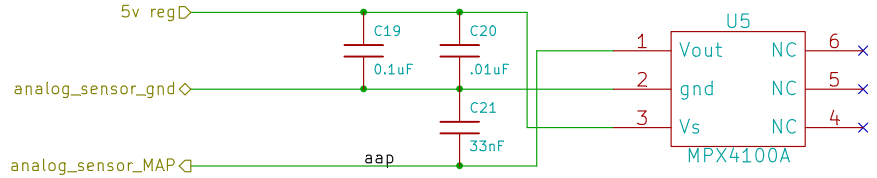
ignition.sch		
diyefi.org		
File: ignition5.sch		
Sheet: /igniter_5/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 40/56



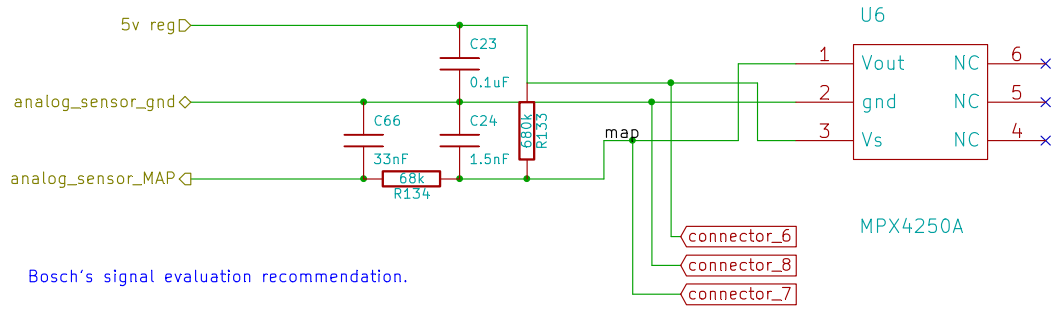
ignition.sch		
diyefi.org		
File: ignition4.sch		
Sheet: /igniter_4/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 41/56



ignition.sch		
diyefi.org		
File: ignition3.sch		
Sheet: /igniter_3/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 42/56



MAP_input.sch		
diyefi.org		
File: MAP_input_2.sch		
Sheet: /MAP_input_baro/		
Title: Puma board		
Size: A	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 43/56



Bosch's signal evaluation recommendation.

The 680k pull up ressistor is for diagnostics

MAP_input.sch		
diyefi.org		
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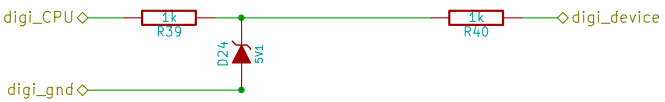
Title: Puma board		
Size: A	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 44/56



digi_protect.sch		
diyefi.org		
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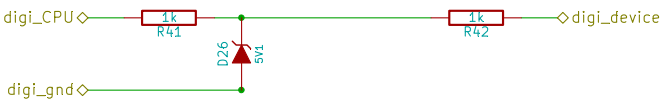
Sheet: /digi_protect_rpm1/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 45/56



digi_protect.sch		
diyefi.org		
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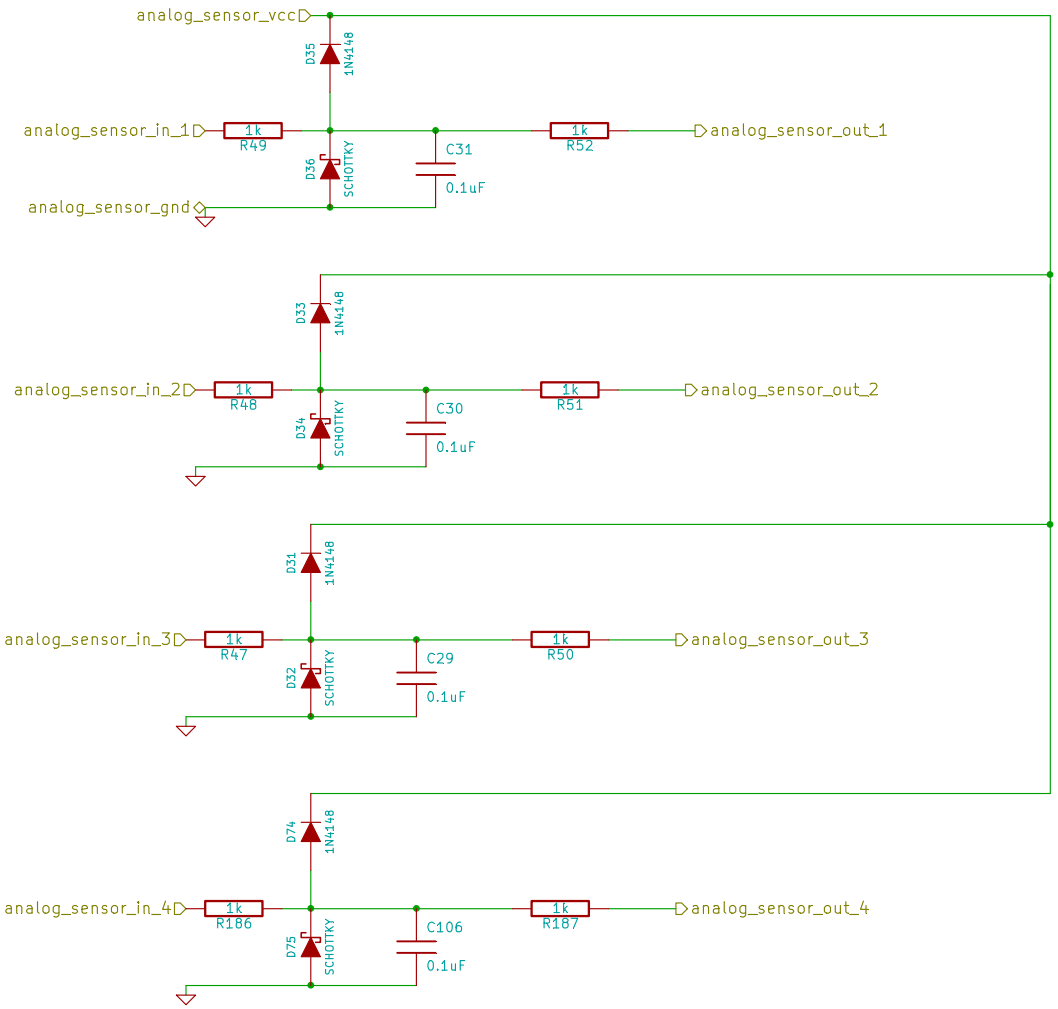
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 46/56



an_protect.sch		
diyefi.org		
File: an_protect2.sch		
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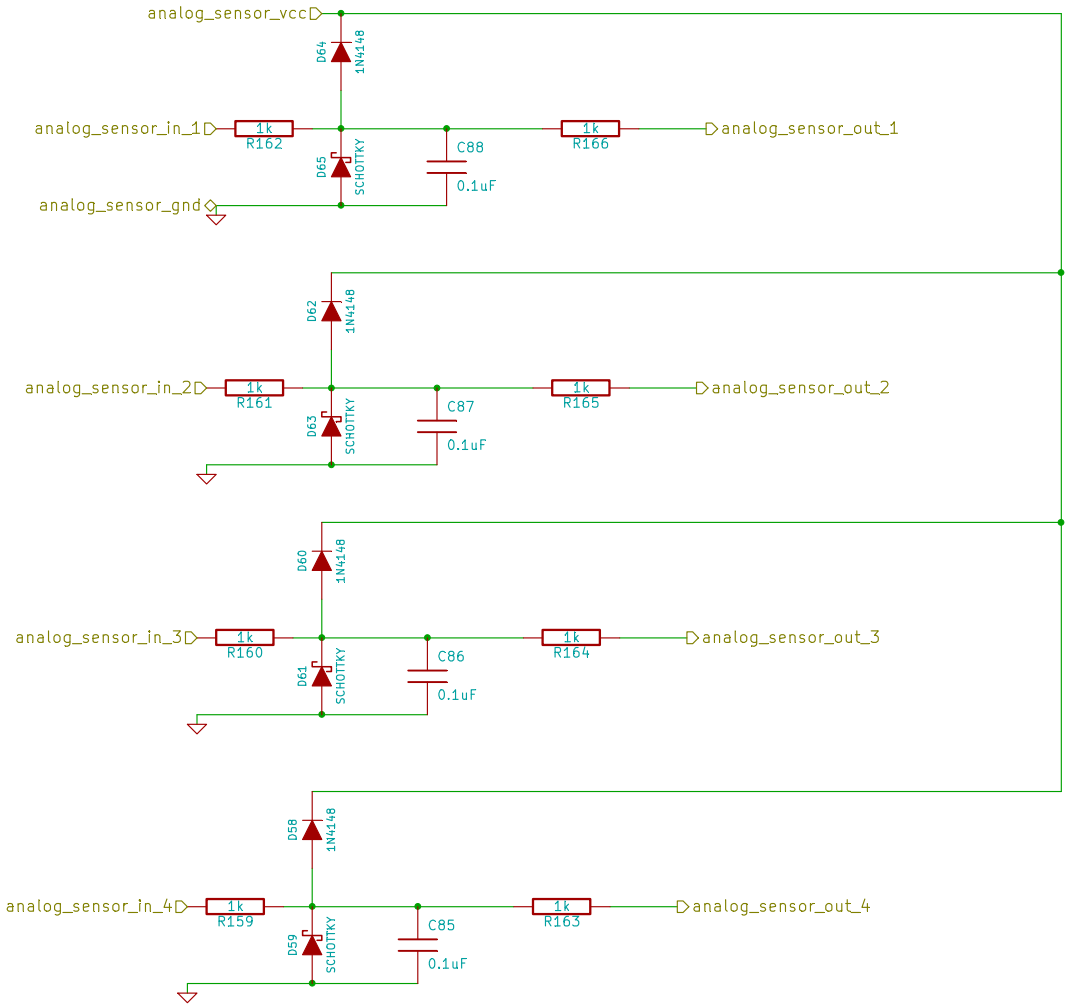
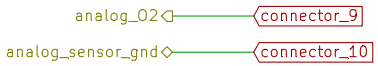
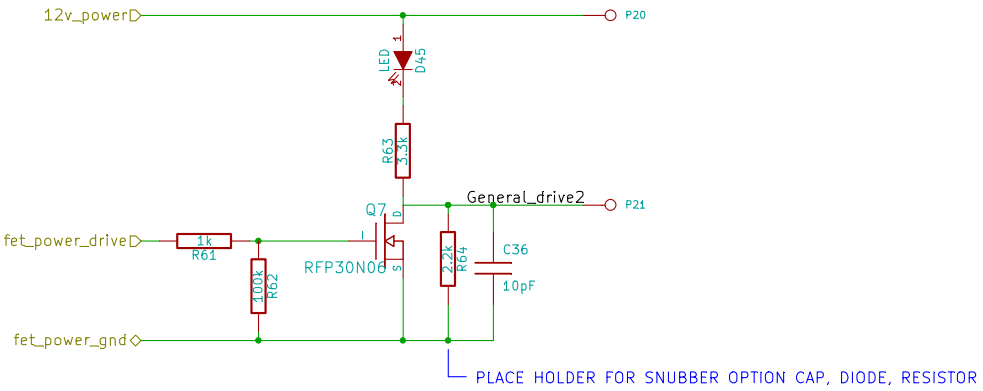
Title: Puma board		
Size: A	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 47/56



an_protect.sch		
diyefi.org		
File: an_protect4.sch		
Sheet: /analog_protect_4/		
Title: Puma board		
Size: A	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 48/56

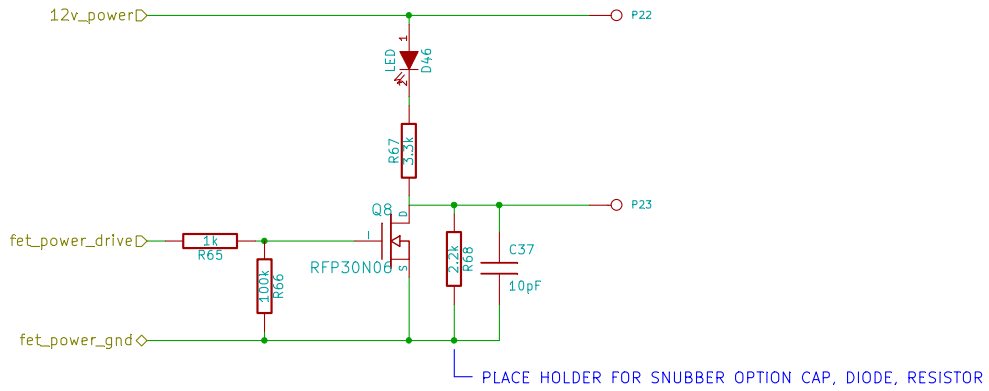


O2_input.sch		
diyefi.org		
File: O2_input.sch		
Sheet: /O2 INPUT/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 49/56

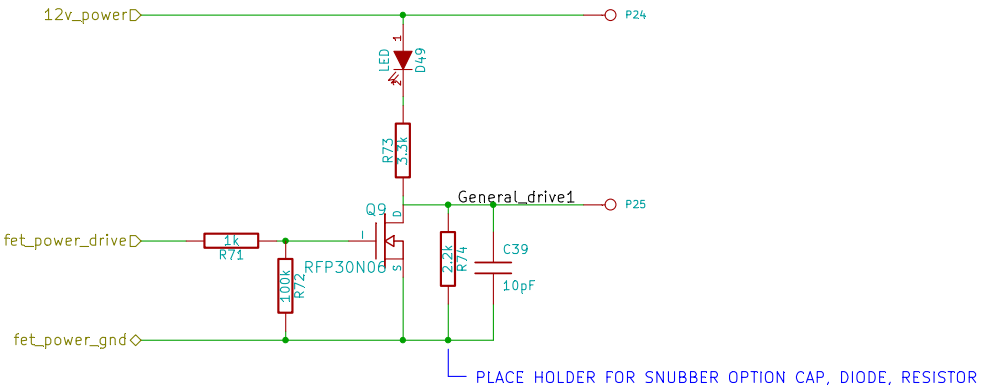


warning: ground comes from power ground,
5v are referenced from the signal ground

general_drive.sch		
diyefi.org		
File: general_drive2.sch		
Sheet: /Fuel Pump/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 50/56



general_drive.sch		
diyefi.org		
File: general_drive1.sch		
Sheet: /misc ouput 2/		
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 51/56



general_drive_fuel.sch		
diyefi.org		
File: general_drive_fuel.sch		
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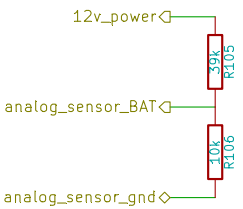
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 52/56



BAT_condition		
diyefi.org		
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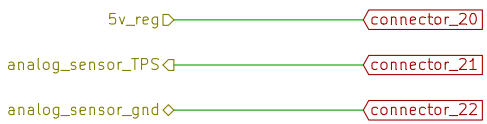
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 53/56



TPS_input.sch		
diyefi.org		
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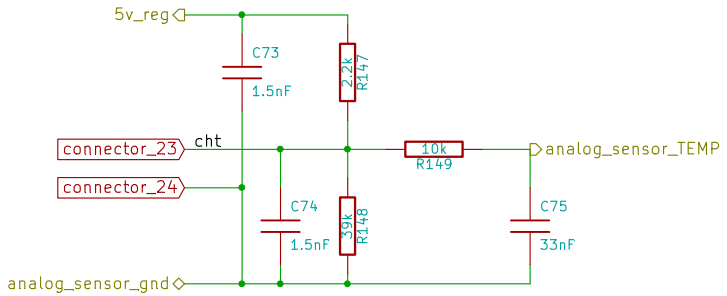
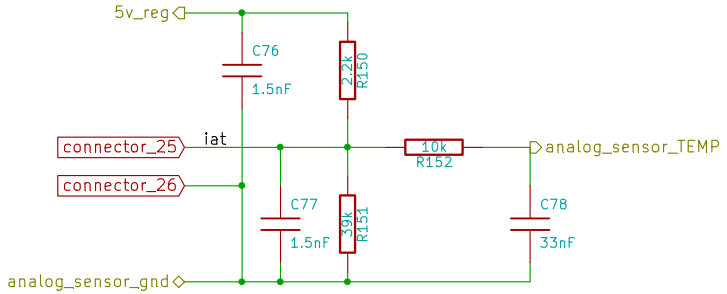
Title: Puma board		
Size: A4	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 54/56



thermistor_resistor_input.sch		
diyefi.org		
File: thermistor_resistor_input_2.sch		
Sheet: /thermistor_input_2/		
Title: Puma board		
Size: A	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 55/56



thermistor_resistor_input.sch		
diyefi.org		
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Sheet: /thermistor_input_1/		
Title: Puma board		
Size: A	Date: 14 feb 2011	**Rev: v0.02**
KiCad E.D.A. eeschema (20100406 SVN-R2508)-final		Id: 56/56