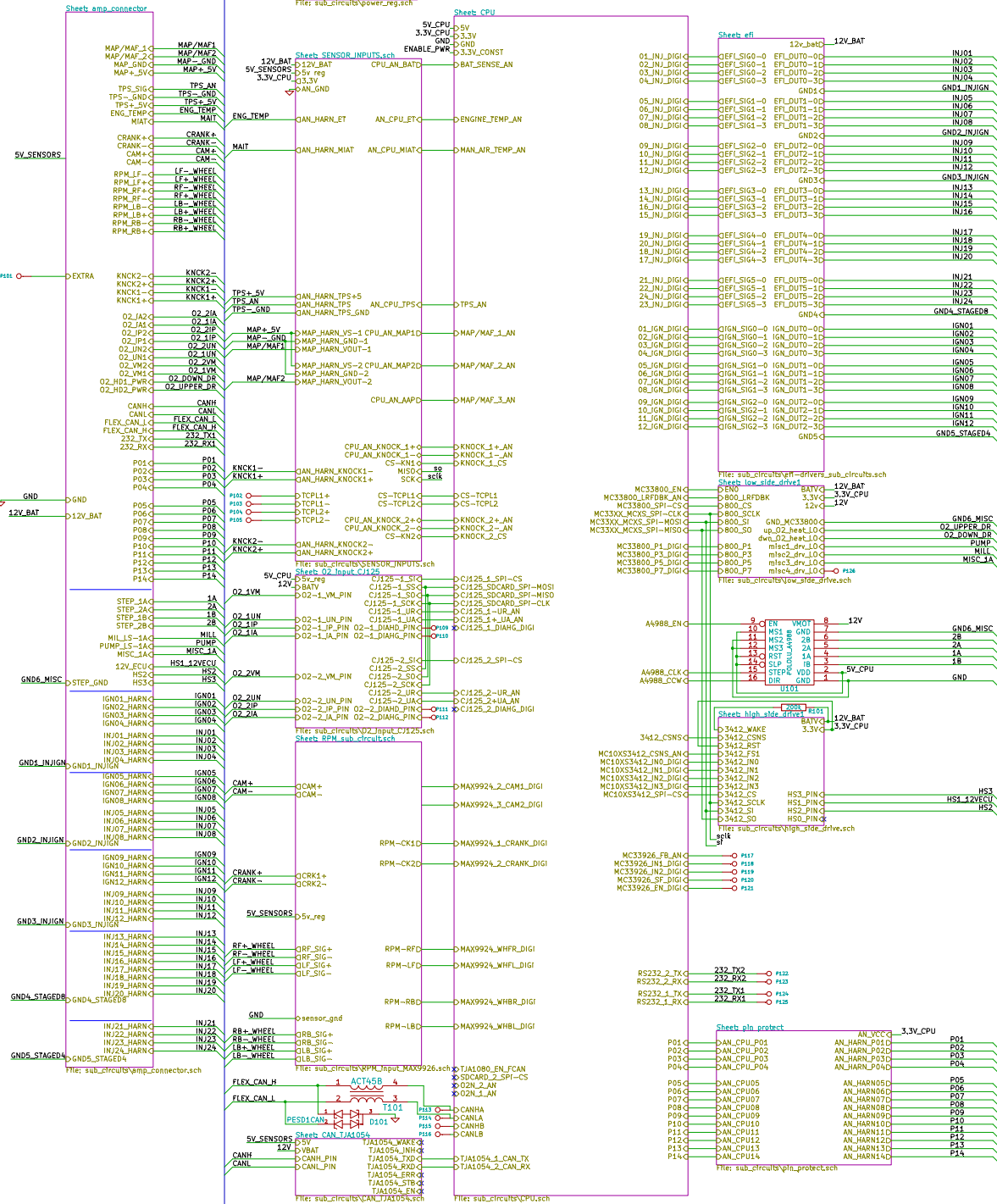
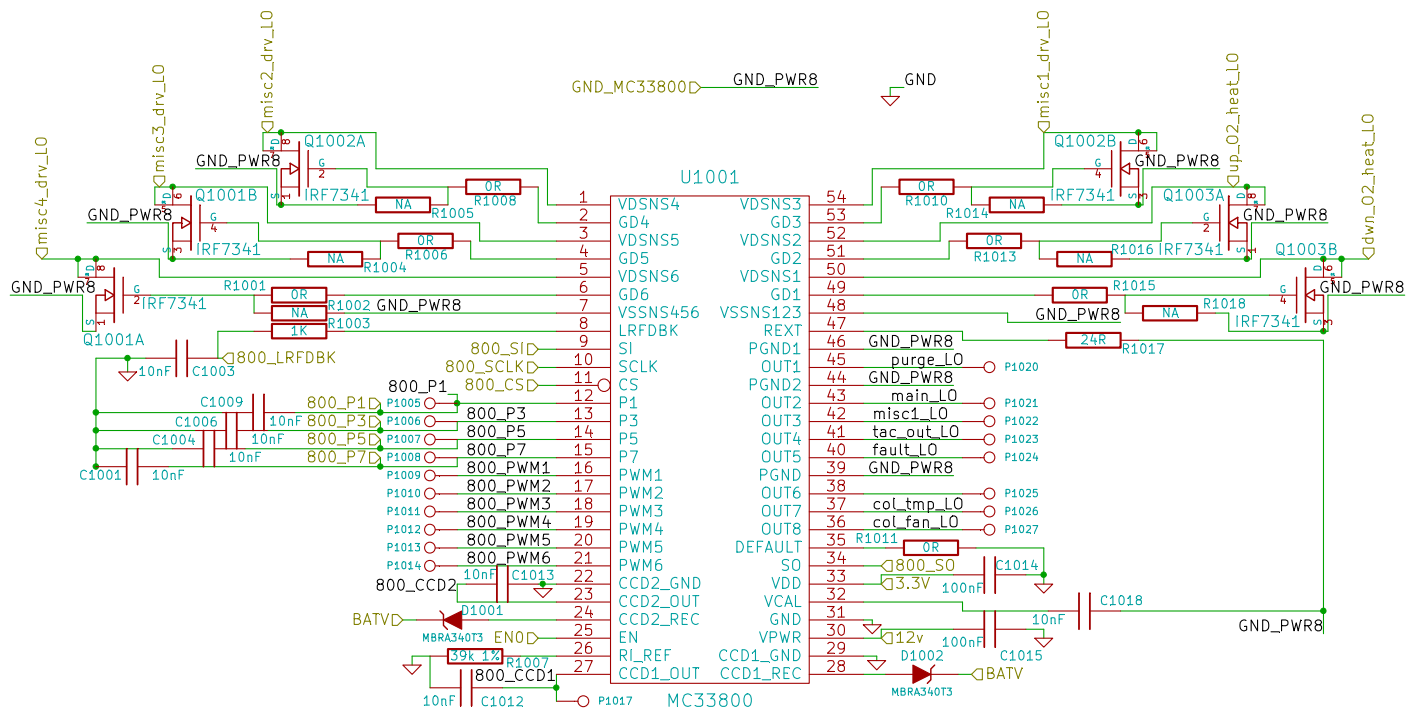


NOTES TO REMEMBER
PERHAPS INSTALL USB FROM PUMA





misc high side and low side drives

<http://open5xxxecu.org/>

File: low_side_drive.sch

Sheet: /low_side_drive1/

Title: Open5xxxECU (o5e), an ECU that is no longer affiliated with freeEMS.

Size: A4

Date: 22 oct 2011

Rev: A-DRAFT8

KiCad E.D.A. eeschema (2011-07-08 BZR 3044)-stable

Id: 2/12

	1	2	3	4	5
A					
B					
C					

1 2 3 4 5

A B C

GND2_INJIGND	2H1	INJ08_HARN	2H2	2H3	INJ07_HARN	2H4	INJ06_HARN
GND4_STAGED8D	2G1	GND	2G2	2G3	EXTRA	2G4	INJ05_HARN
IGN08_HARN	2F1	IGN07_HARN	2F2	2F3	IGN06_HARN	2F4	IGN05_HARN
INJ16_HARN	2E1	INJ15_HARN	2E2	2E3	INJ14_HARN	2E4	INJ13_HARN
INJ20_HARN	2D1	INJ19_HARN	2D2	2D3	RPM_RB-	2D4	RPM_RB+
INJ18_HARN	2C1	INJ17_HARN	2C2	2C3	RPM_LB+	2C4	RPM_LB-
O2_IA2D	2B1	O2_IP2D	2B2	2B3	RPM_RF+	2B4	RPM_RF-
O2_UN2D	2A1	O2_VM2D	2A2	2A3	RPM_LF+	2A4	RPM_LF-

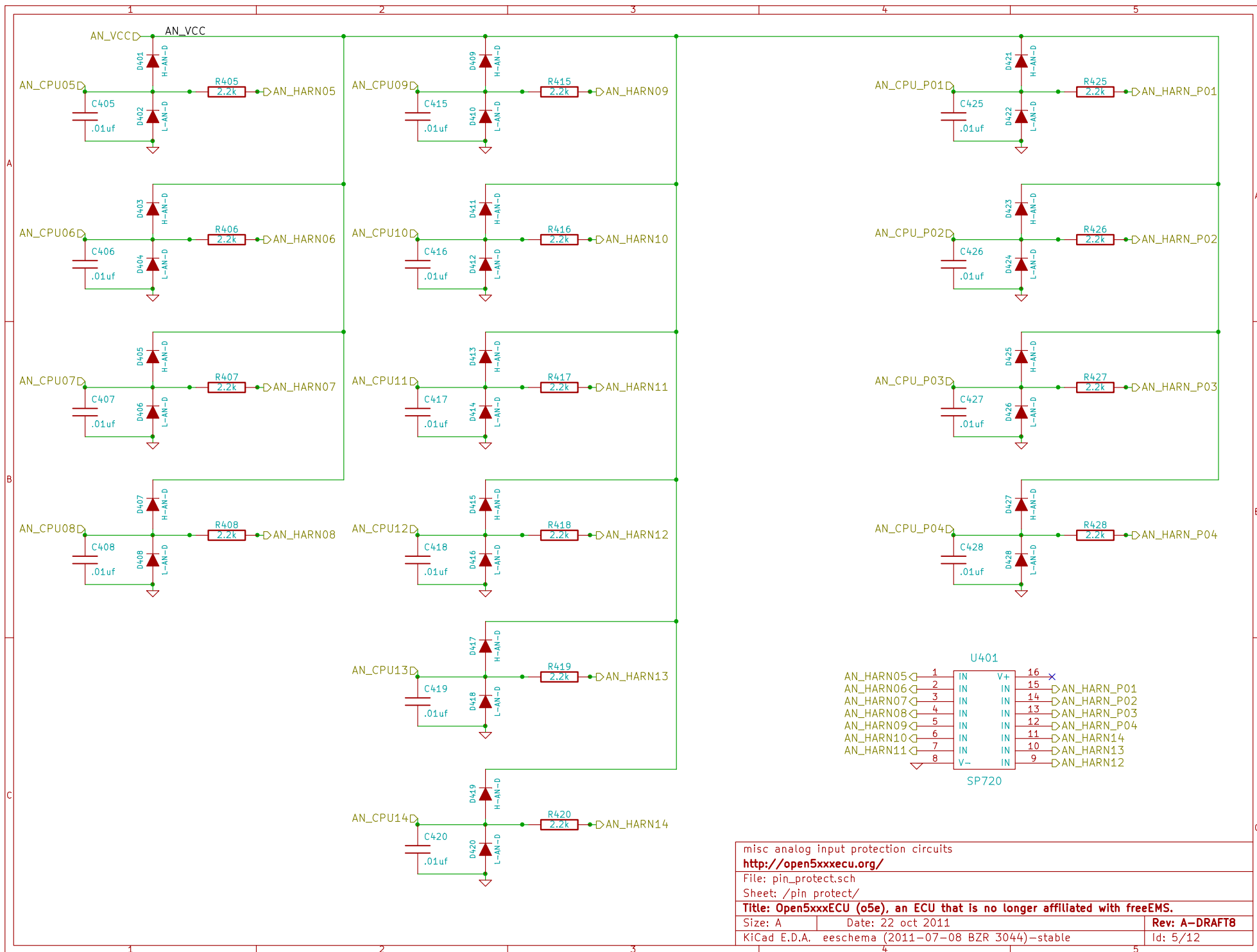
KNCK1-D	1A4	KNCK1+D	1A3	1A2	O2_IP1	1A1	O2_JA1
P01D	1B4	P03D	1B3	1B2	O2_VM1	1B1	O2_UN1
KNCK2+D	1C4	KNCK2-D	1C3	1C2	P04	1C1	P02
CANHD	1D4	ENG_TEMP	1D3	1D2	MAP/MAF_1	1D1	MAP+_5V
CANLD	1E4	MIATD	1E3	1E2	MAP/MAF_2	1E1	MAP_GND
CAM-D	1F4	TPS+_5VD	1F3	1F2	232_TX	1F1	232_RX
CAM+D	1G4	TPS_SIGD	1G3	1G2	MIL_LS-1A	1G1	12V_ECU
CRANK+D	1H4	TPS-_GNDD	1H3	1H2	STEP_1B	1H1	STEP_GND
CRANK-D	1J4	STEP_2BD	1J3	1J2	STEP_1A	1J1	STEP_2A
IGN04_HARN	1K4	IGN03_HARN	1K3	1K2	IGN02_HARN	1K1	IGN01_HARN
GND	1L4	GNDGNDD	1L3	1L2	12V_BAT	1L1	GND1_INJIGN
INJ04_HARN	1M4	INJ03_HARN	1M3	1M2	INJ02_HARN	1M1	INJ01_HARN

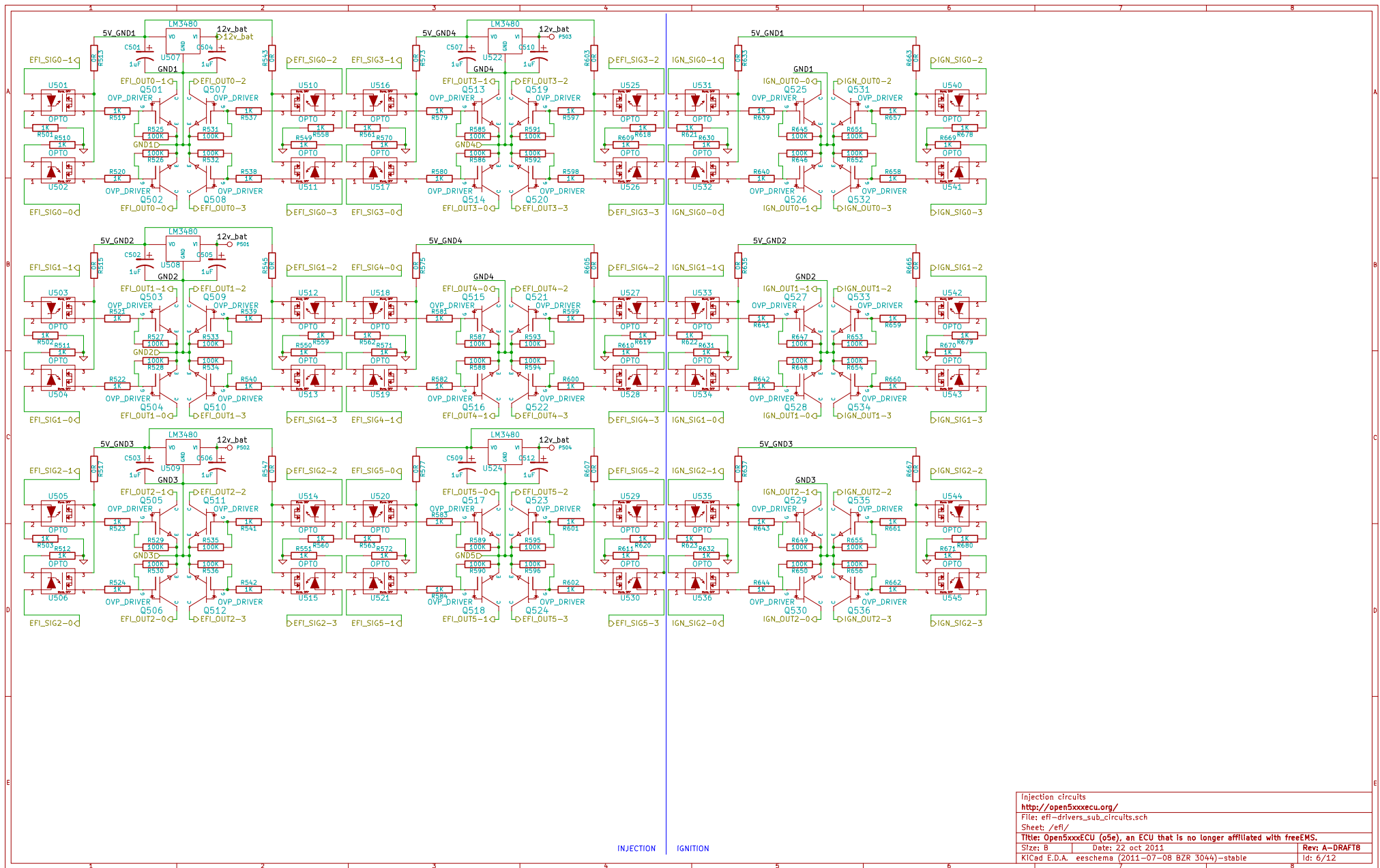
P07D	3A4	P06D	3A3	3A2	P05	3A1	MISC_1A
P10D	3B4	P09D	3B3	3B2	P08	3B1	PUMP_LS-1A
P12D	3C4	P11D	3C3	3C2	FLEX_CAN_L	3C1	O2_HD2_PWR
P14D	3D4	P13D	3D3	3D2	FLEX_CAN_H	3D1	O2_HD1_PWR
INJ24_HARN	3E4	INJ23_HARN	3E3	3E2	INJ22_HARN	3E1	INJ21_HARN
IGN12_HARN	3F4	IGN11_HARN	3F3	3F2	IGN10_HARN	3F1	IGN09_HARN
GND5_STAGED4D	3G4	HS3D	3G3	3G2	HS2	3G1	INJ09_HARN
GND3_INJIGND	3H4	INJ12_HARN	3H3	3H2	INJ11_HARN	3H1	INJ10_HARN

<http://open5xxxecu.org/>

File: amp_connector.sch
Sheet: /amp_connector/
Title: Open5xxxECU (o5e), an ECU that is no longer affiliated with freeEMS.

Size: A	Date: 22 oct 2011	Rev: A-DRAFT8
KiCad E.D.A.	eeschema (2011-07-08 BZR 3044)-stable	Id: 4/12



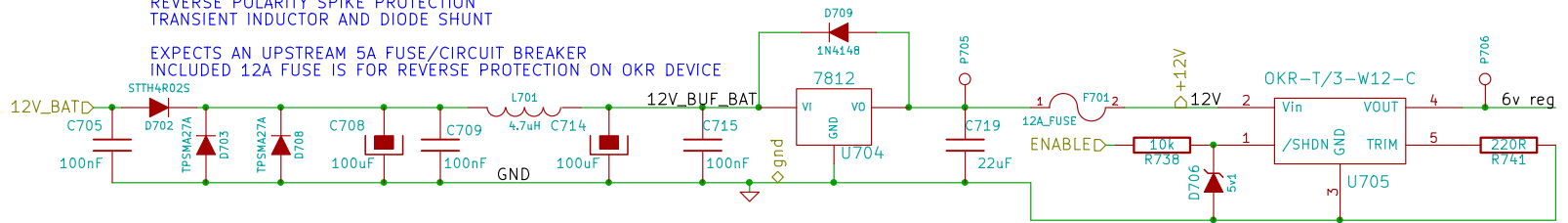


Injection circuits		
http://open5xxxecu.org/		
File: efl-drivers_sub_circuits.sch		
Sheet: /efl/		
Title: Open5xxxECU (o5e), an ECU that is no longer affiliated with freeEMS.		
Size: B	Date: 22 oct 2011	Rev: A-DRAFT8
KiCad E.D.A.	eeschema (2011-07-08 BZR 3044)-stable	Id: 6/12

THIS SECTION CONTAINS

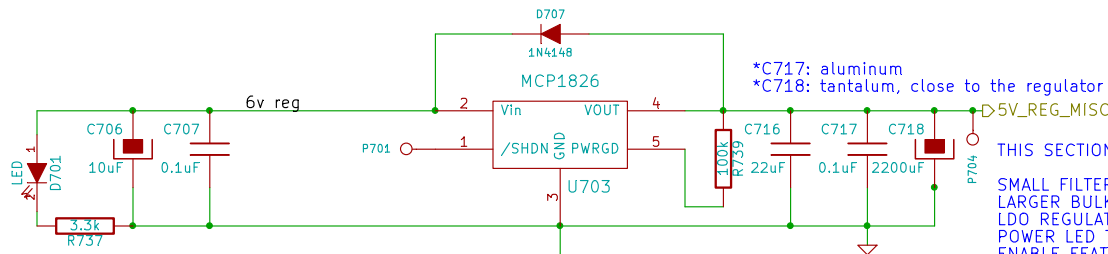
FILTER/BULK CAPS
REVERSE POLARITY PROTECTION DIODE
REVERSE POLARITY SPIKE PROTECTION
TRANSIENT INDUCTOR AND DIODE SHUNT

EXPECTS AN UPSTREAM 5A FUSE/CIRCUIT BREAKER
INCLUDED 12A FUSE IS FOR REVERSE PROTECTION ON OKR DEVICE



$$1.182 / (6 - .591) = .2185k\Omega \text{ trim}$$

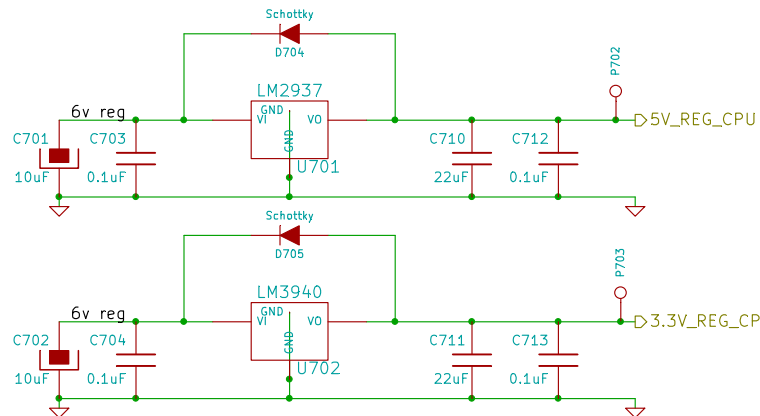
$$(1.182 / .220) + .591 = 5.96V$$



MCP regulator pin compatible with:
LP3852 or MIC29150 (26v-input capable)

THIS SECTION CONTAINS

SMALL FILTERING CAPS TO PREVENT OSSILATION
LARGER BULK CAPS TO HANDLE THE BULK NEEDS
LDO REGULATOR TO GENERATE A 1 AMP ACCURATE 5V SOURCE GOOD FOR MISC NEEDS
POWER LED TO INDICATE IT'S POWRED
ENABLE FEATURE TO ALLOW MCU TO TURN THINGS OFF.
REVERSE POLARITY DIODE PROTECTING THE MCP1826



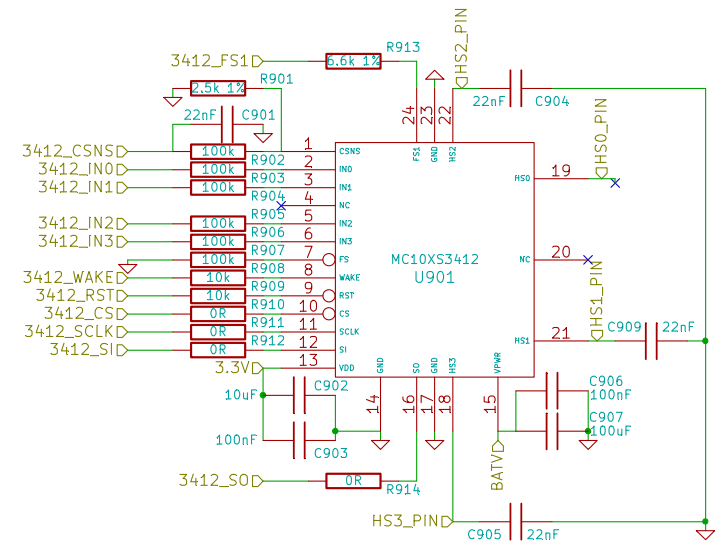
THIS SECTION CONTAINS

SMALL FILTERING CAPS TO PREVENT OSSILATION
LARGER BULK CAPS TO HANDLE THE BULK NEEDS
LDO REGULATOR TO GENERATE A 1 AMP 5V PERCISSION LOW RIPPLE SOURCE

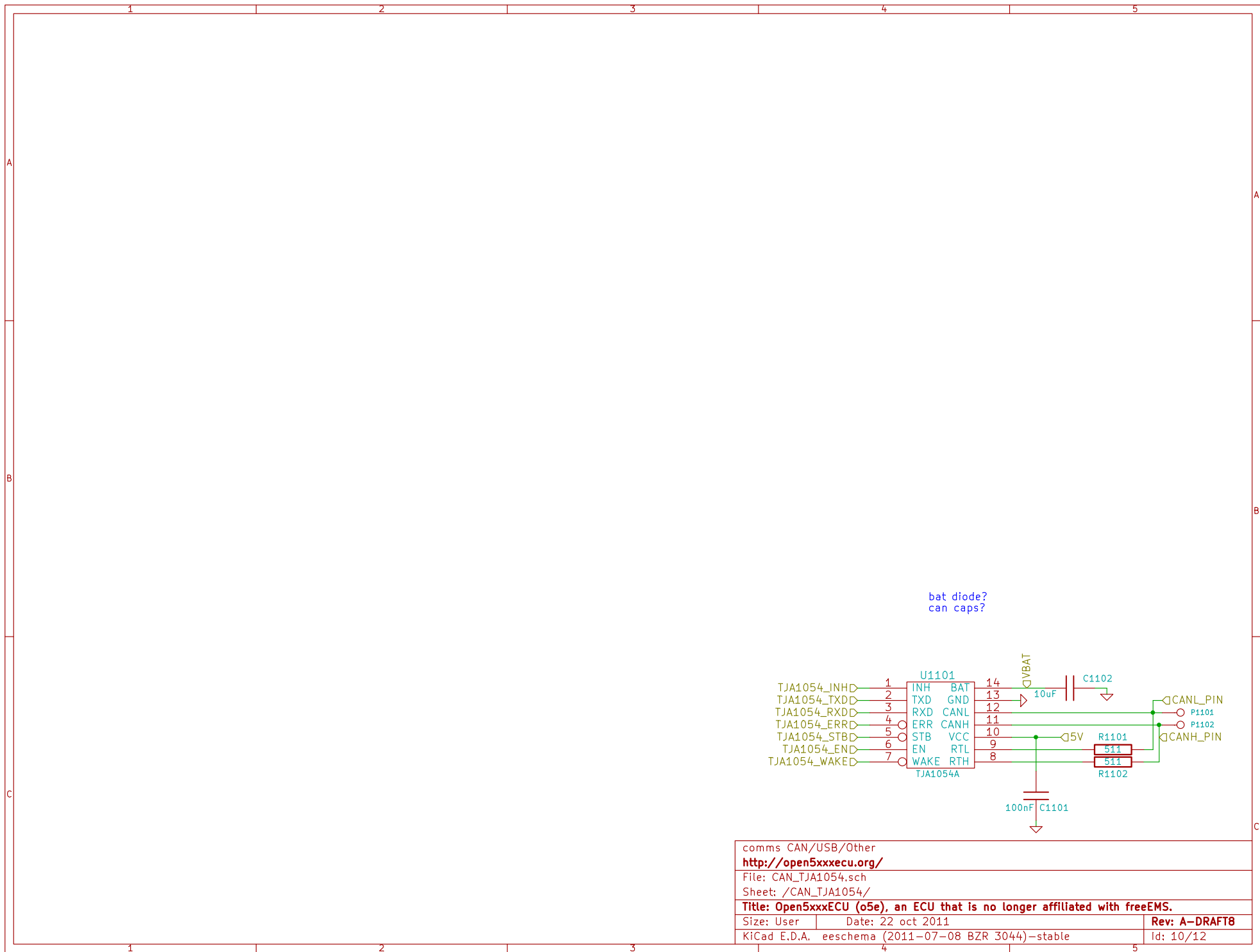
THIS SECTION CONTAINS

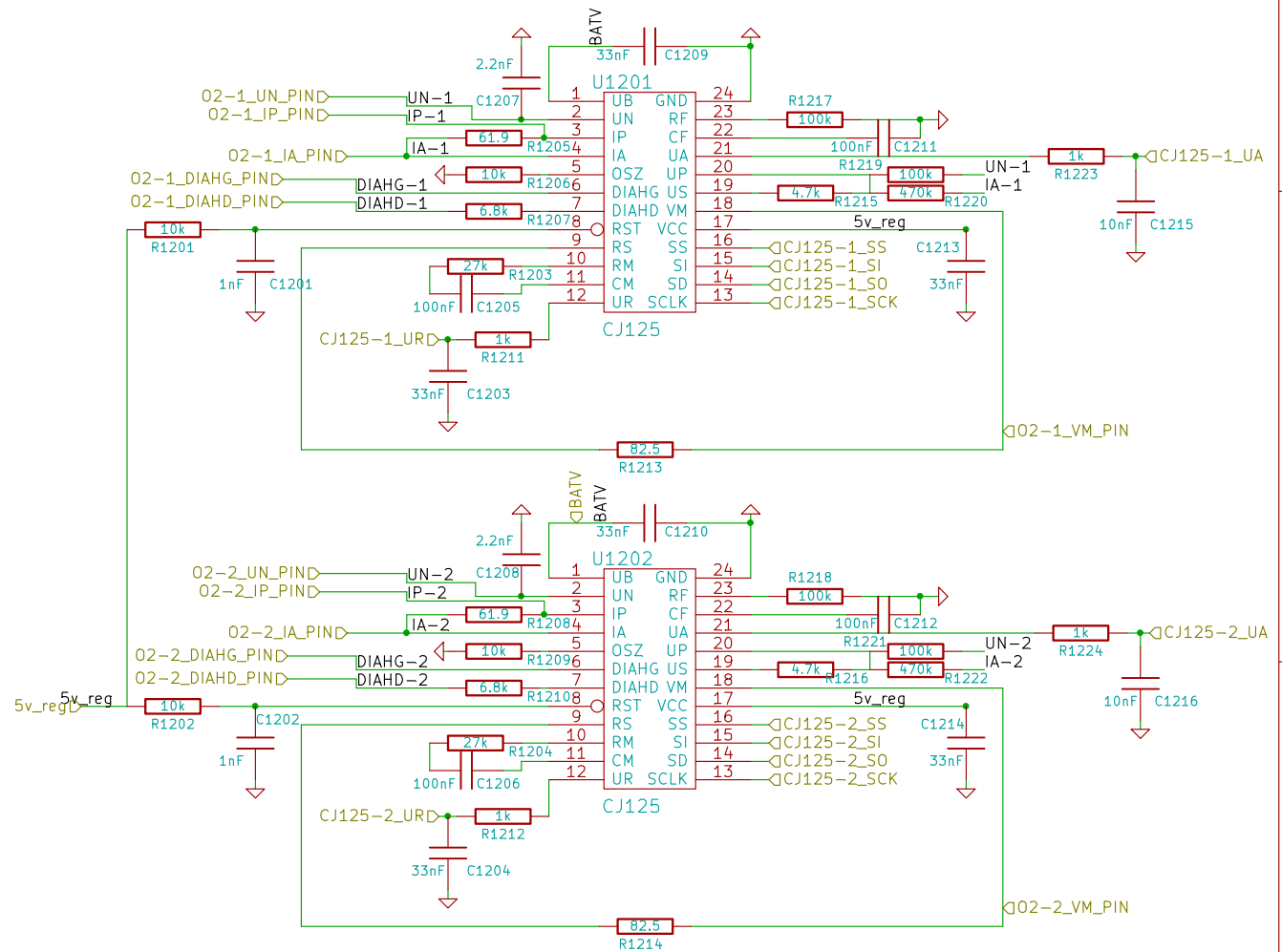
SMALL FILTERING CAPS TO PREVENT OSSILATION
LARGER BULK CAPS TO HANDLE THE BULK NEEDS
LDO REGULATOR TO GENERATE A 1 AMP 3.3V PERCISSION LOW RIPPLE SOURCE

power regulator		
http://open5xxecu.org/		
File: power_reg.sch		
Sheet: /power regulator constant/		
Title: Open5xxECU (o5e), an ECU that is no longer affiliated with freeEMS.		
Size: A	Date: 22 oct 2011	Rev: A-DRAFT8
KiCad E.D.A. eeschema (2011-07-08 BZR 3044)-stable		Id: 8/12

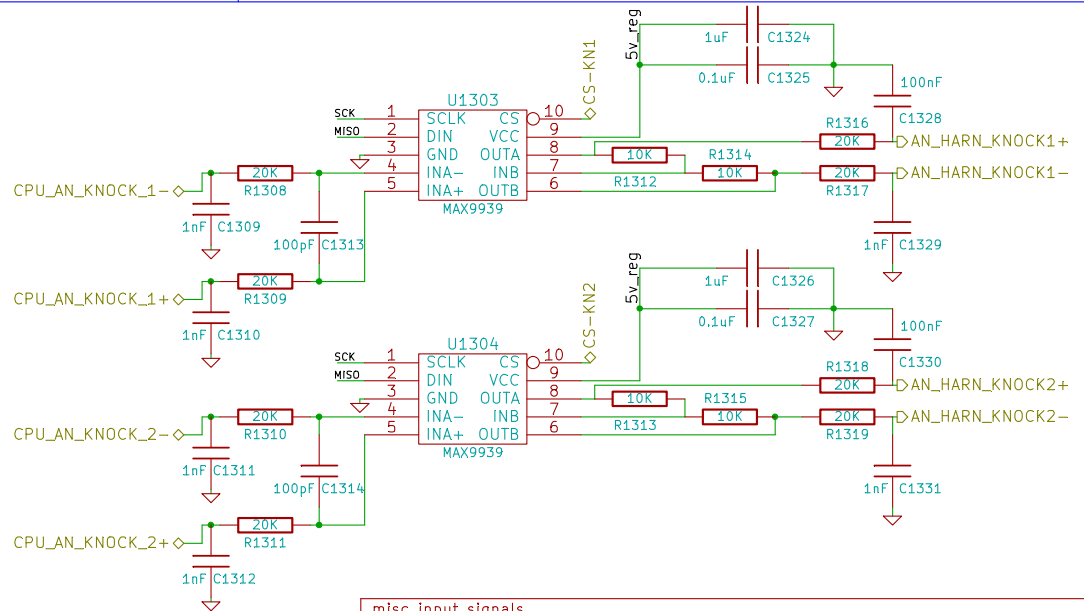
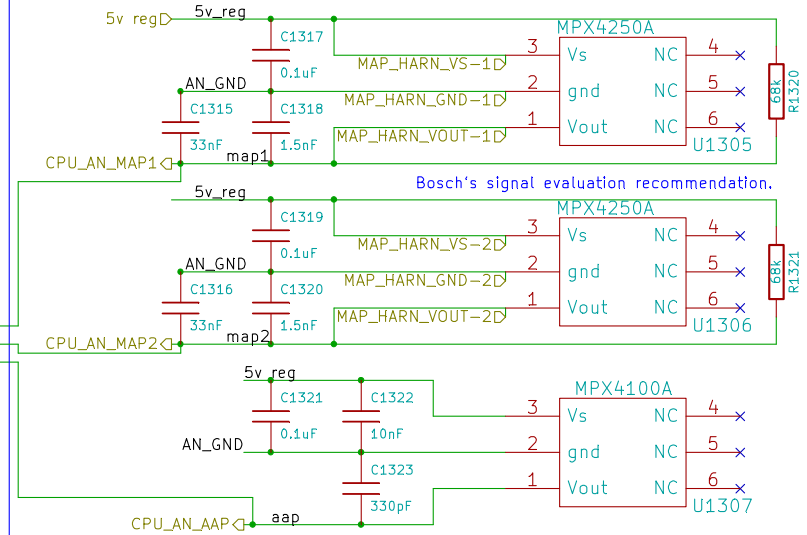
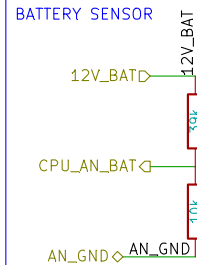
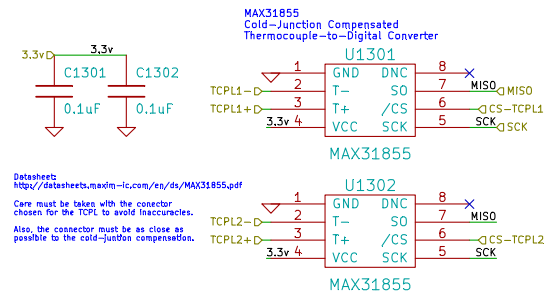
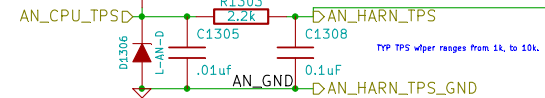
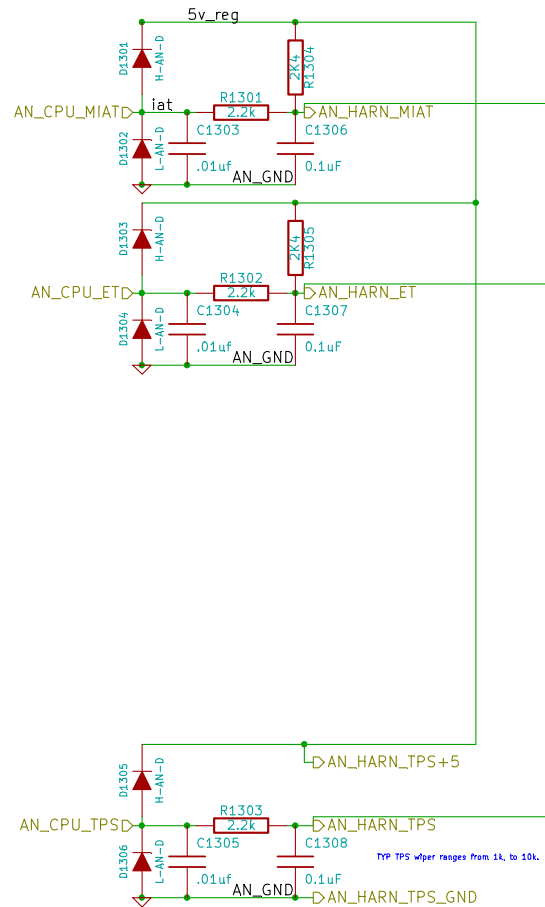


High side drive circuits		
http://open5xxxecu.org/		
File: high_side_drive.sch		
Sheet: /high_side_drive1/		
Title: Open5xxxECU (o5e), an ECU that is no longer affiliated with freeEMS.		
Size: A4	Date: 22 oct 2011	Rev: A-DRAFT8
KiCad E.D.A. eeschema (2011-07-08 BZR 3044)-stable		Id: 9/12





2 channels of Wide O2		
http://open5xxxecu.org/		
File: O2_input_CJ125.sch		
Sheet: /O2_input_CJ125/		
Title: Open5xxxECU (o5e), an ECU that is no longer affiliated with freeEMS.		
Size: User	Date: 22 oct 2011	Rev: A-DRAFT8
KiCad E.D.A. eeschema (2011-07-08 BZR 3044)-stable		Id: 11/12



misc input signals	
http://open5xxxecu.org/	
File: SENSOR_INPUTS.sch	
Sheet: /SENSOR_INPUTS.sch/	
Title: Open5xxxECU (o5e), an ECU that is no longer affiliated with freeEMS.	
Size: A4	Date: 22 oct 2011
KiCad E.D.A.	eeschema (2011-07-08 BZR 3044)-stable
Rev: A-DRAFT8	
Id: 12/12	