

Need discussion with Vincent

CHANGELOG
QM_CHANGELOG.SchDoc

CHANGELOG

Title	LFR_QM_TOP	Author	Alexis Jeandet
Size	A3	Number	LFR-172200-FM
Date	07/05/2014	Time	10:05:42
Contact	alexis.jeandet@lpp.polytechnique.fr		
File	F:\Missions\Satellites\SolarOrbiter\LFR\PCB\QM\QM_SOLO_LFR_TOP.SchDoc		



CHANGELOG

09/04/2014

- Moved analog input buffers resistors before the swithes.
- C21 (100nF cap @ SUB1.5V input) footprint changed to 0805.
- Connected SENS input for RHFL4913 to Vout.
- 2.5V analogic connected to sub 3.3V.
- added R/C Slow start on 2.5V RHFL4913.
- 1.8V MSK5822 VBias input moved from 5V to sub 3.3V.

14/04/2014

- Connected SCM cal and SPW shield to GND.
- Unconnected Pin are connected to Unconnected Net which is tied to GND.

15/04/2014

- Updated ground strap, it's now removable and the circuit is a R C//R.

22/04/2014

- Connected 3.3V regulator VBIAS input to sub 3.3V.
- Connected MSKs Latch input to GND.
- Connected RHFL4913 INH inputs to GND.
- Replaced DG419 with 54HC4053 for bais/ant mux.

24/04/2014

- Replaced EM SRAM with FM SRAM UT8ER1M32.

25/04/2014

- Replaced DG419 with 54HC4053 for HK mux.
- Replaced DG419 with 54HC4053 for SCM CAL mux.
- Replaced DAC reference with qualified one.

30/04/2014


- Replaced EM Oscillators with FM.
- Replaced EM HK DAC with FM.

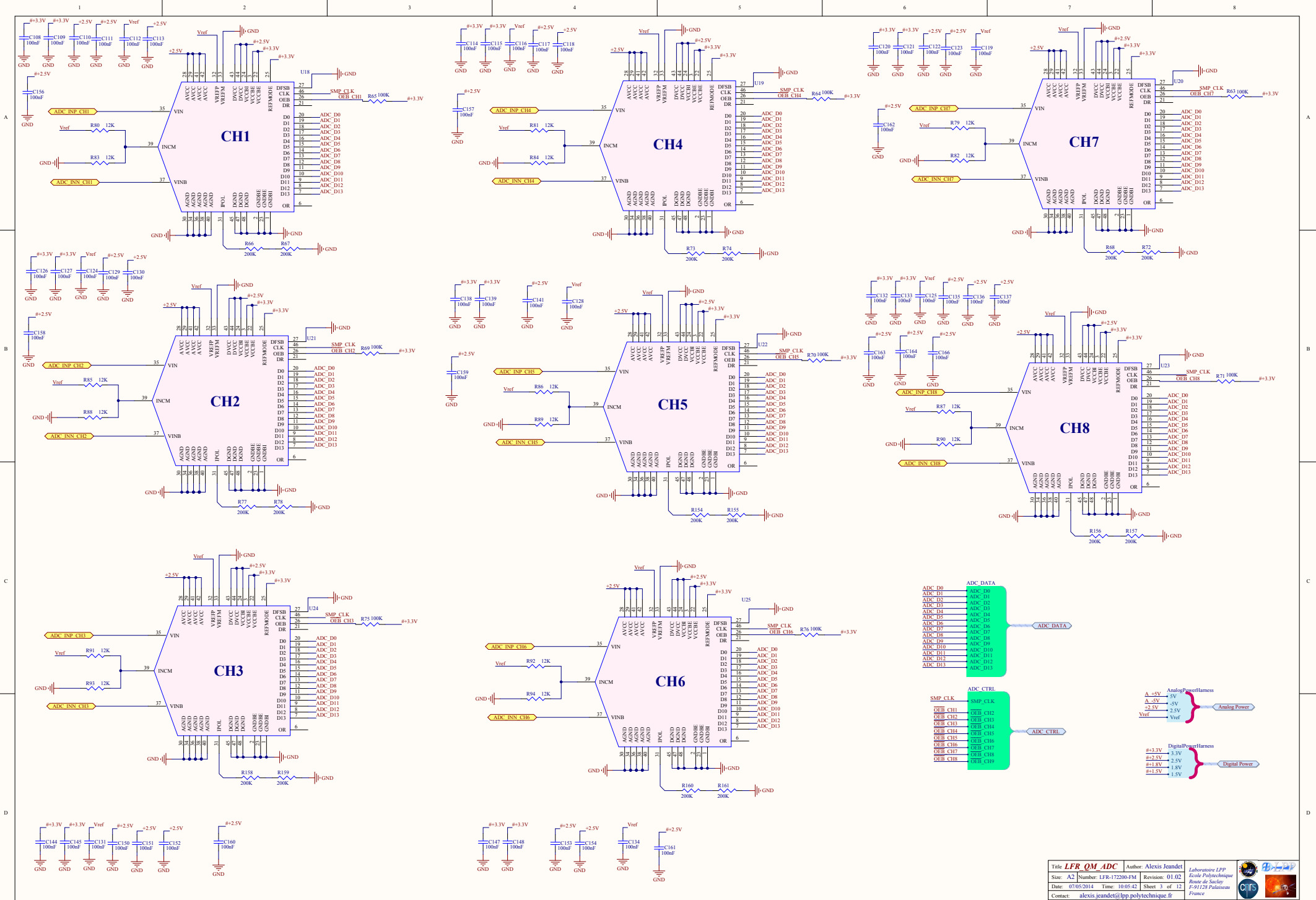
05/05/2014

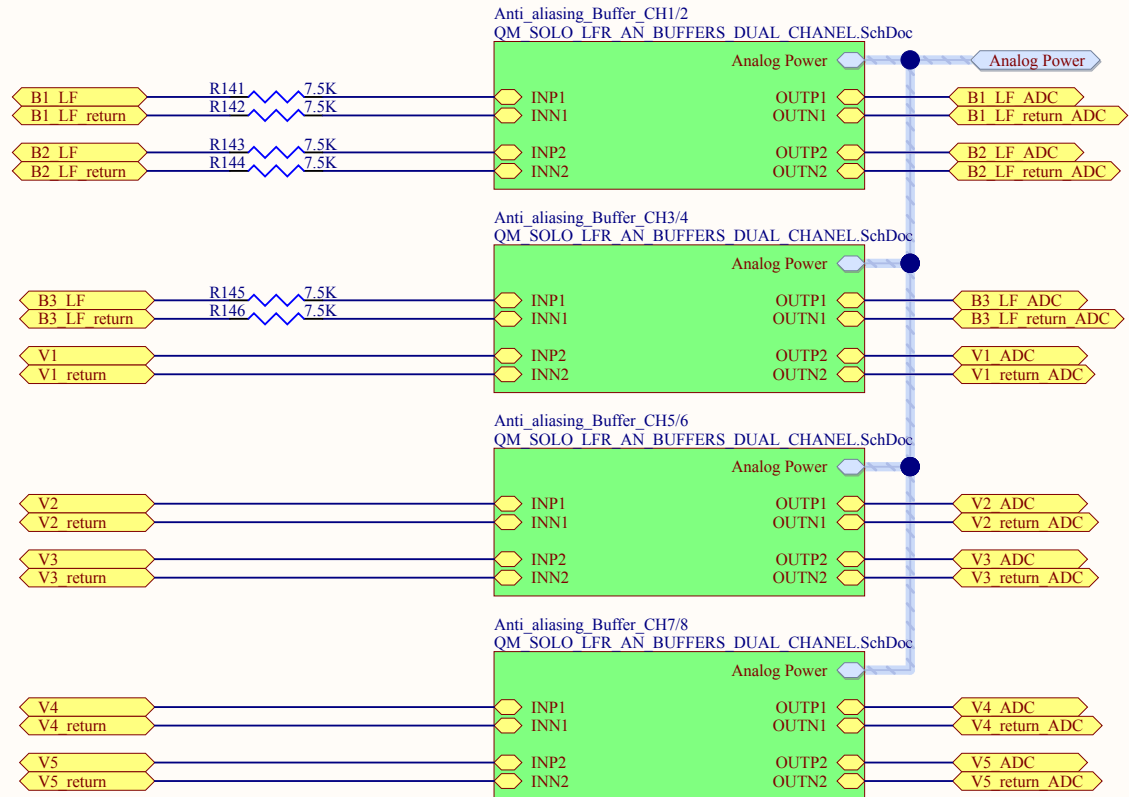
- Added SPW enable signal.
- Replaced LT1009 by RH1009.
- Replaced MSK 3.3V regulator by RHFL4913.
- Added filtering structures on +/-5V.
- Added RC reset circuit for FPGA.
- Changed 400k resistors on ADC bias to 2x200k.

06/05/2014

- Changed power input inductors from 100µH to 10µH.

Title CHANGELOG		Author: Alexis Jeandet		 
Size: A4	Number: LFR-172200-FM	Revision: 01.02		
Date: 07/05/2014	Time: 10:05:42	Sheet 2 of 12		 
Contact: alexis.jeandet@lpp.polytechnique.fr				
File: F:\Missions\Satellites\SolarOrbiter\LFR\PCB\QM\QM_CHANGELOG.SchDoc				

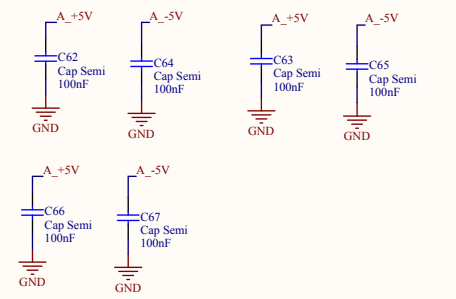
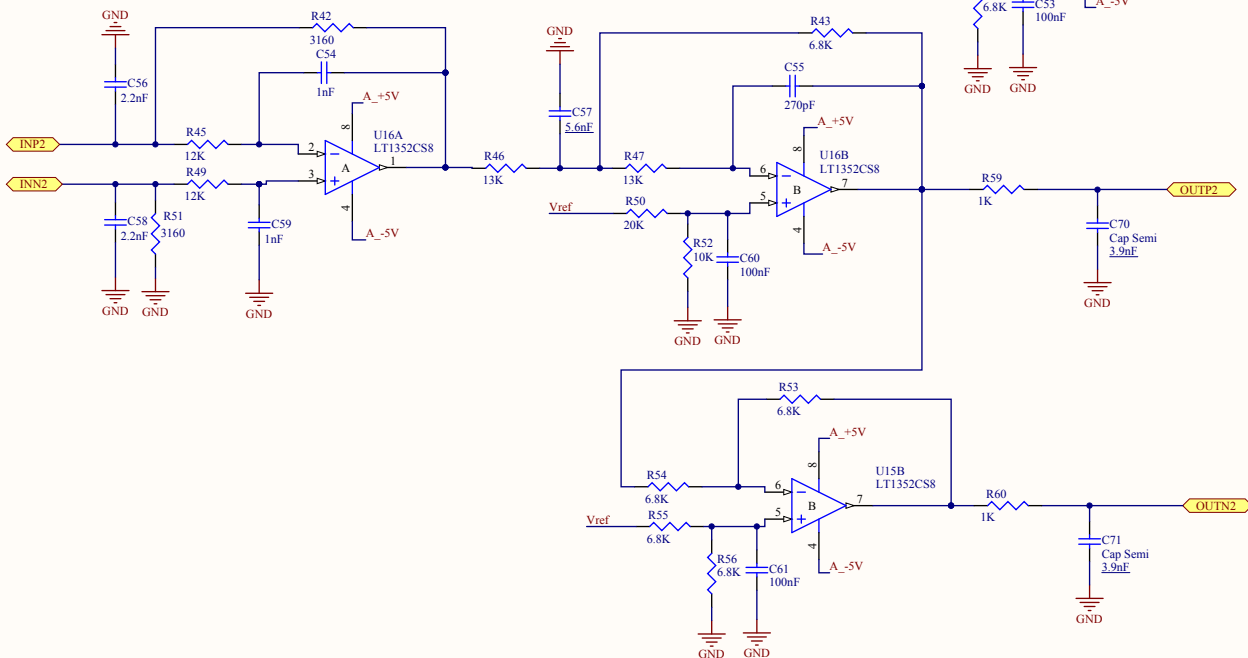
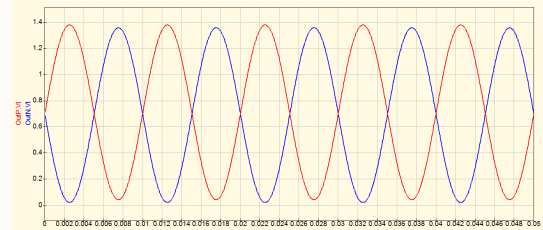
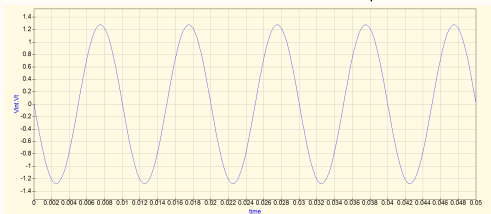
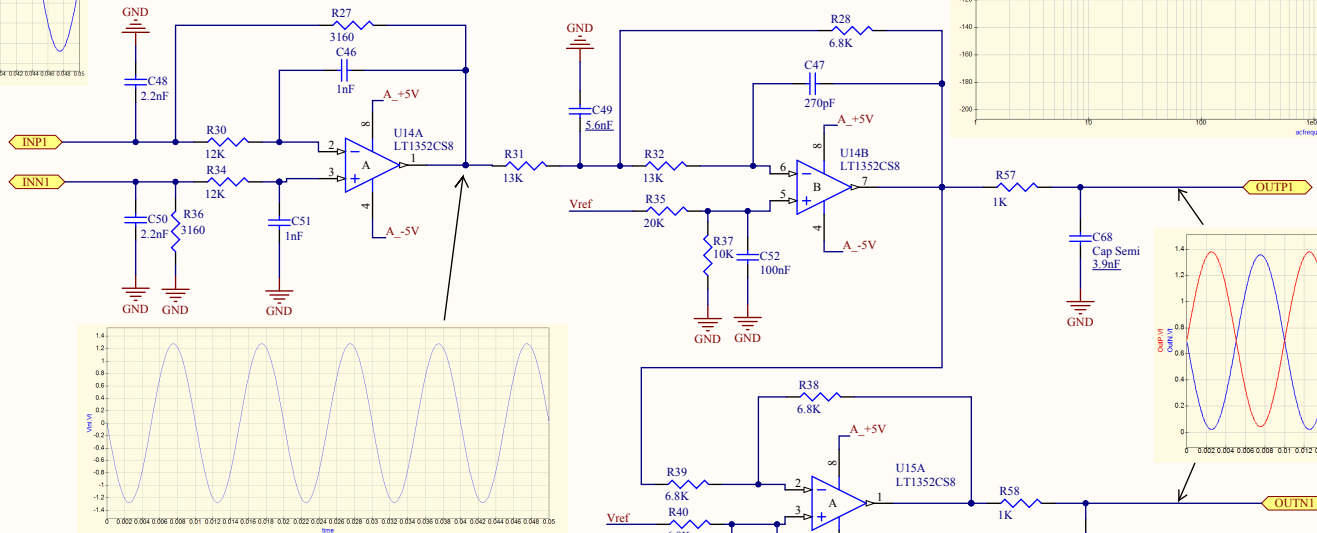
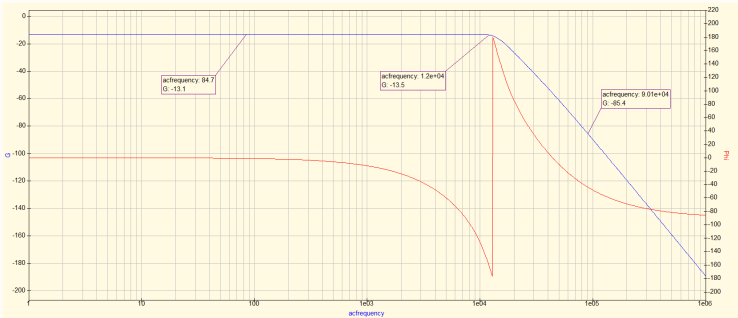
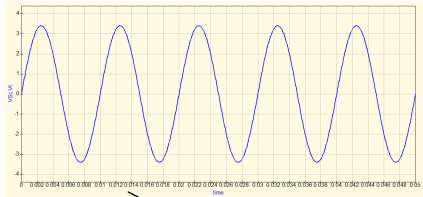




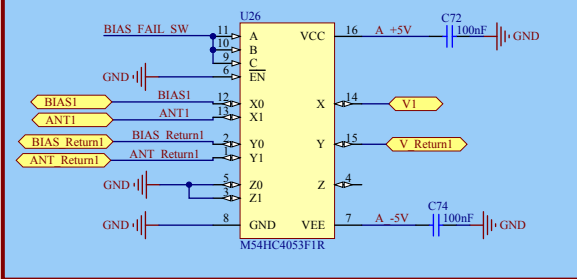
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Size: A4	Number: LFR-172200-FM	Revision: 01.02	
Date: 07/05/2014	Time: 10:05:43	Sheet 4 of 12	
Contact: alexis.jeandet@lpp.polytechnique.fr			
File: F:\Missions\Satellites\SolarOrbiter\LFR\PCB\QM\QM_SOLO_LFR_AN_BUFFERS.SchDoc			

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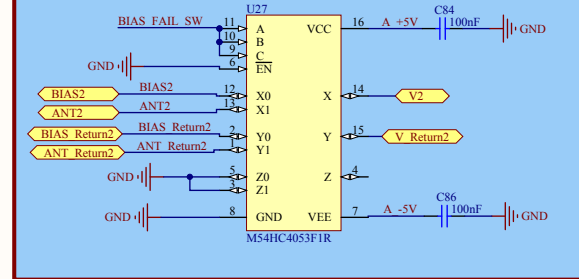




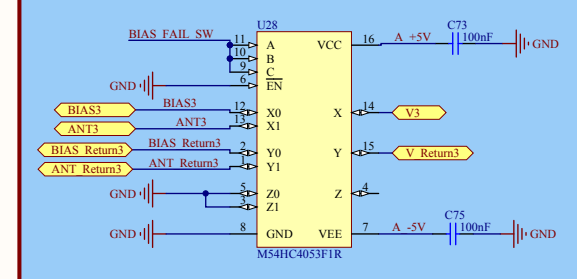
BIAS1/ANT1 Channel



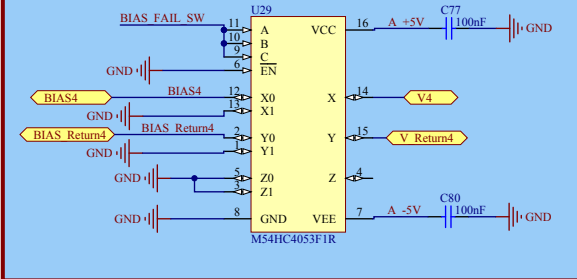
BIAS2/ANT2 Channel



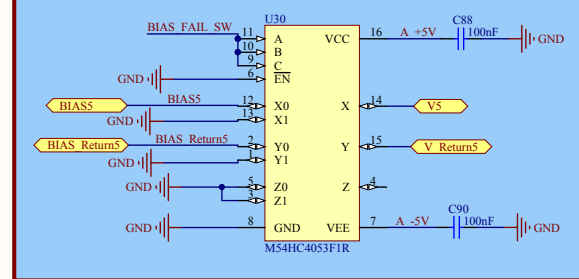
BIAS3/ANT3 Channel



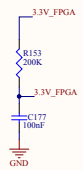
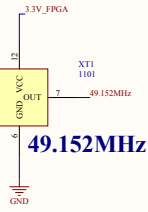
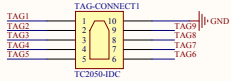
BIAS4 Channel



BIAS5 Channel



TAG-Probe



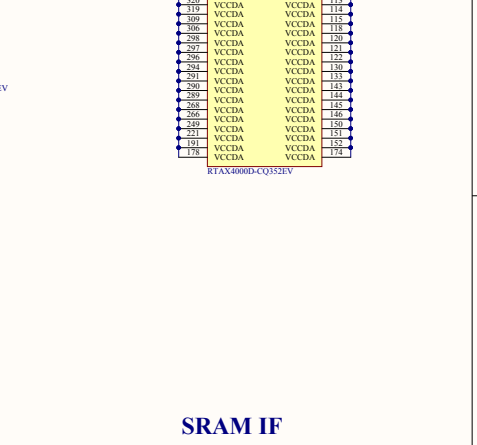
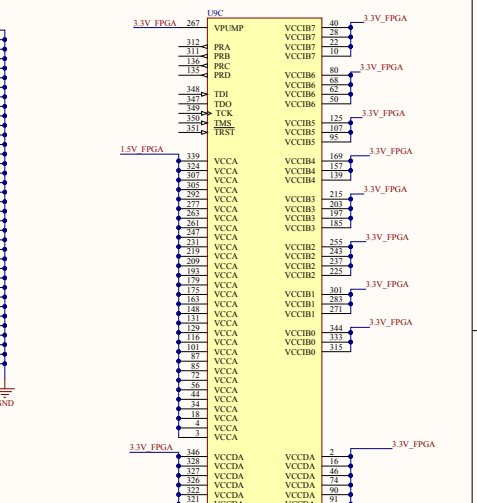
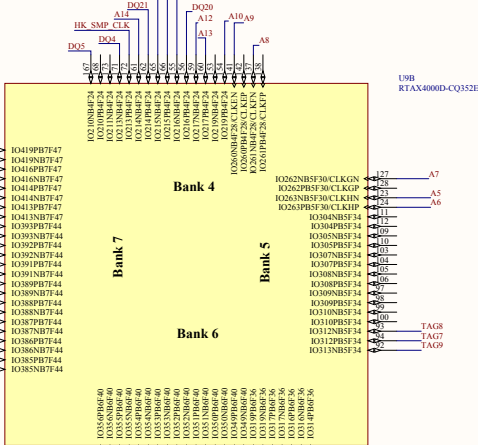
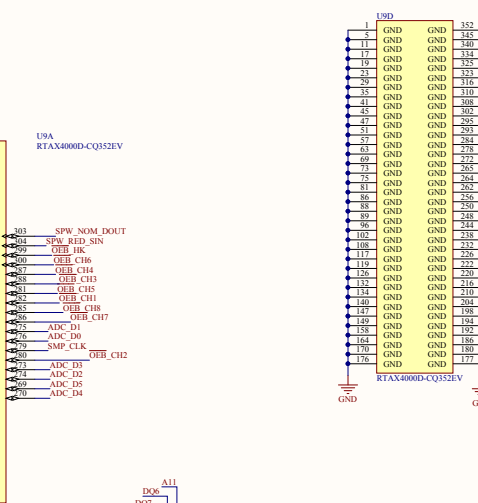
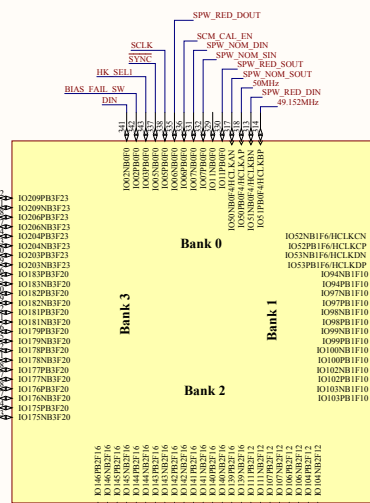
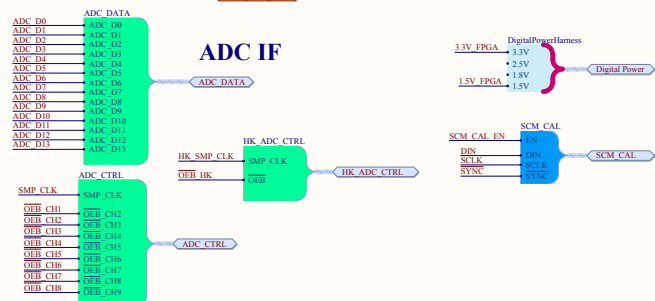
SPW Nominal Link



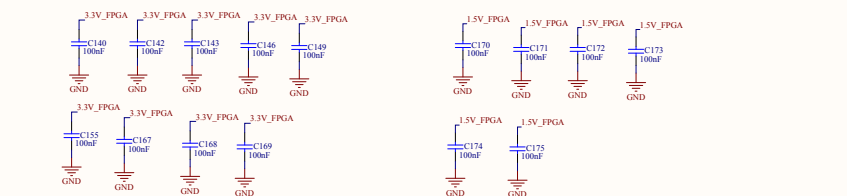
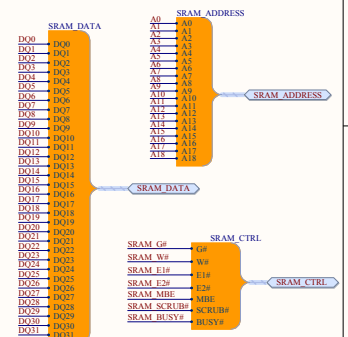
SPW Redundant Link



ADC IF



SRAM IF



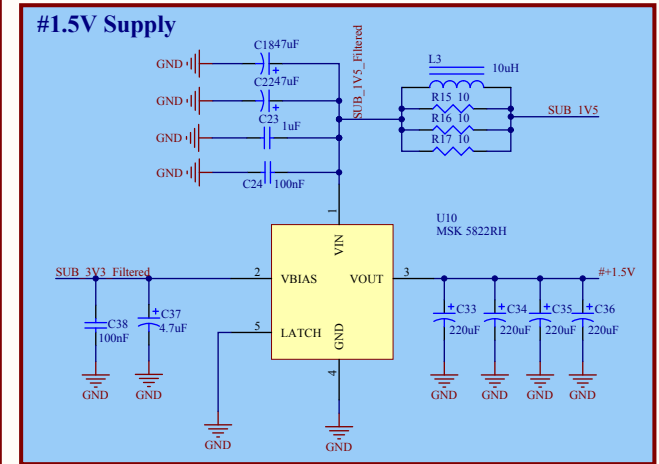
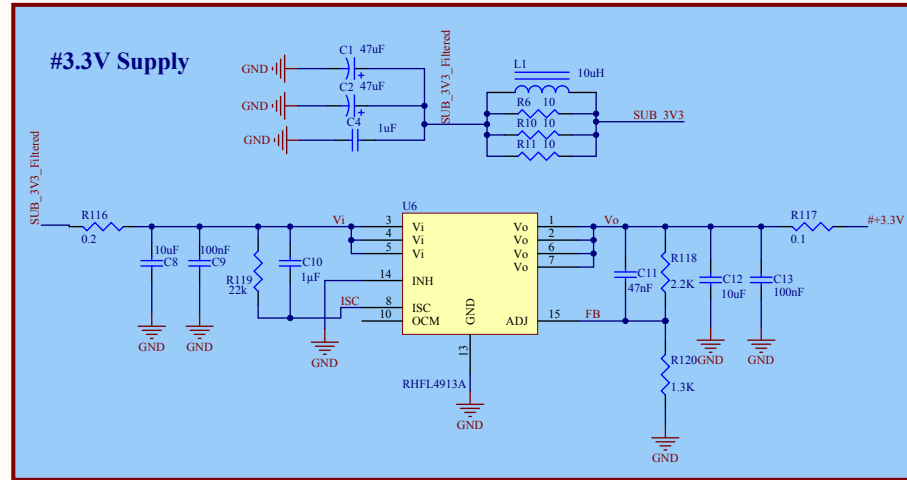
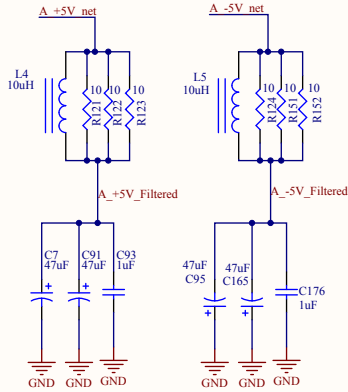
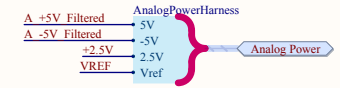
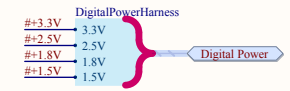
Characterization

Power-Up Characterization

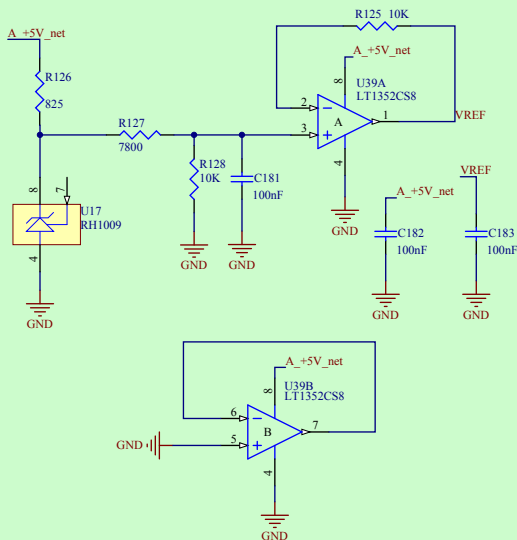
Power supplies for the RTAX-S/SL devices can power up in any sequence. Figure 1 and Figure 2 show the power-up characteristics for the different sequencing between VCCA (1.5 V) and VCCDA/VCCIBX (3.3 V). No significant transient current (>5 mA) is observed with either sequence.

Uses Rev H for MSK5822 and MSK5810 regulators!

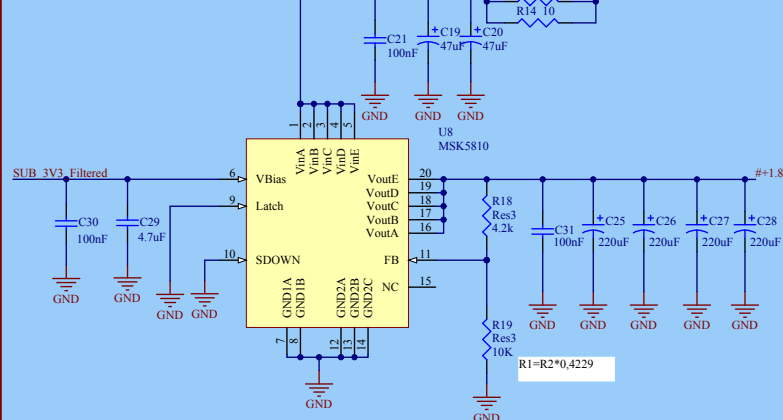
220uF => TAZ-H package
47uF => TAZ-H package
4.7uF => TAJ-B package



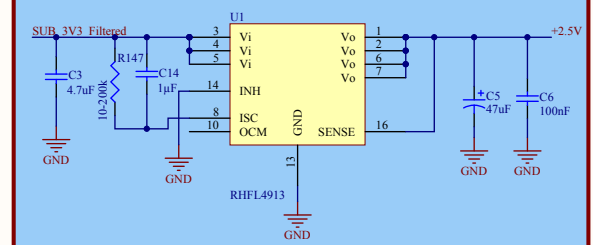
Reference Voltage 1.4V



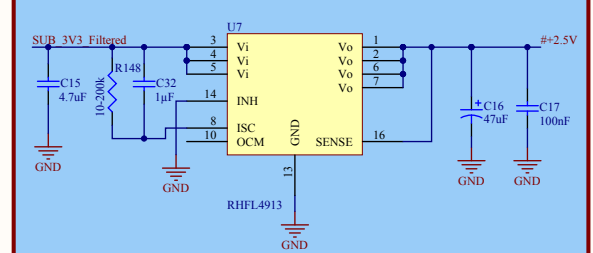
#1.8V Supply



2.5V Supply

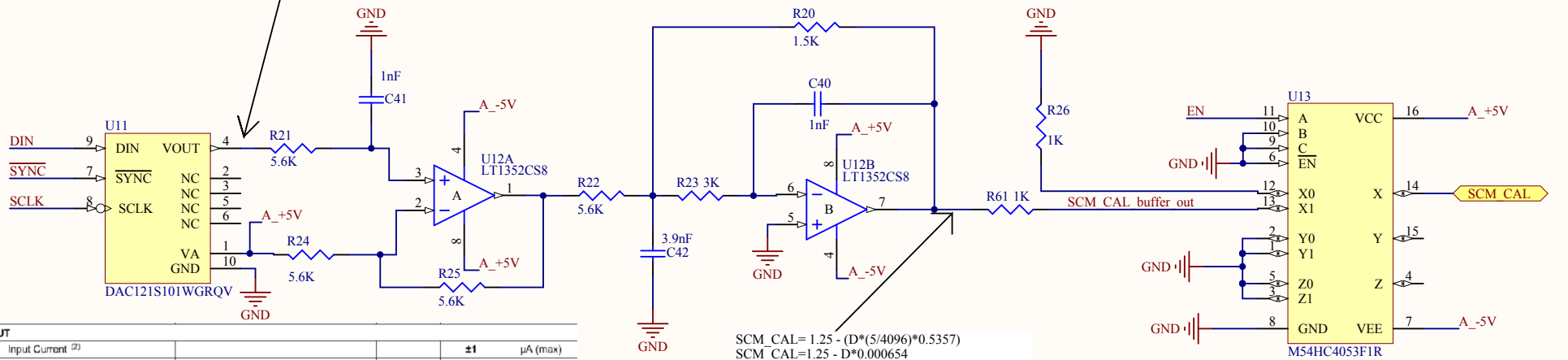
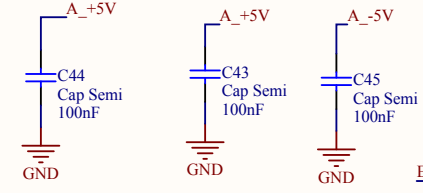
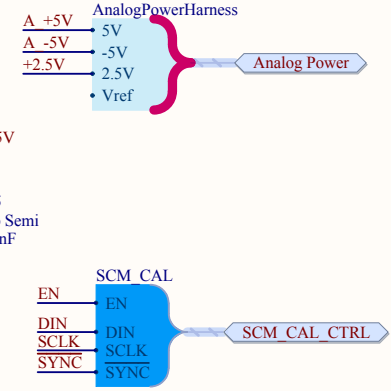
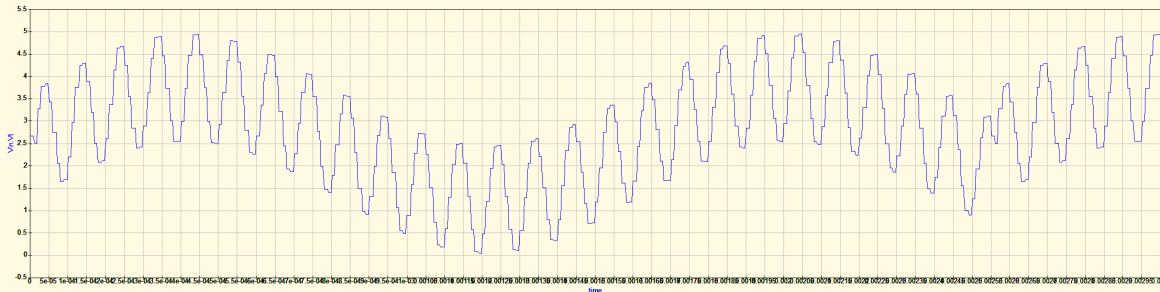


#2.5V Supply



REQ-RPW-LFR-4706 LFR shall deliver a calibration signal to the SCM. This signal will be the sum of two sinus waves, at different frequencies $f_1 = 625$ Hz and $f_2 = 10$ kHz, with amplitudes of 500 mVpp, a sampling frequency of [TBD], a resolution of 8 bits and a duration of 4 s.

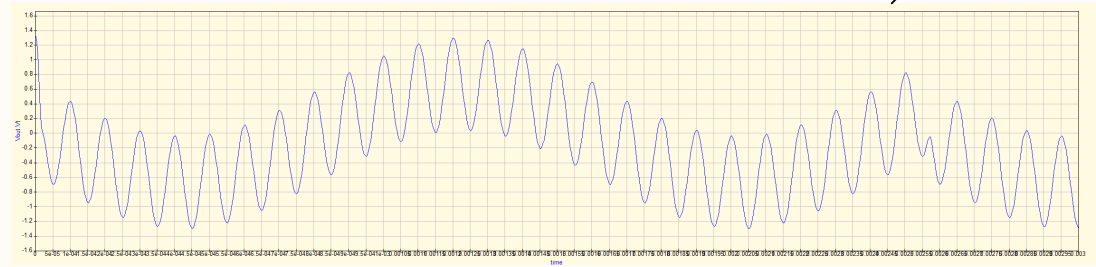
When not used, the calibration signal will be tied to ground (TBC) via an analog switch.



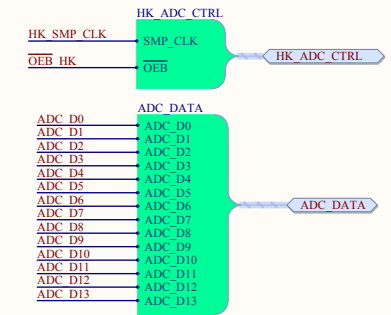
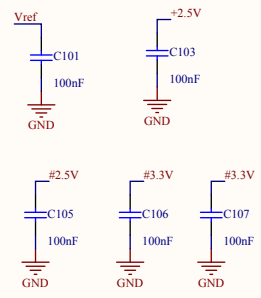
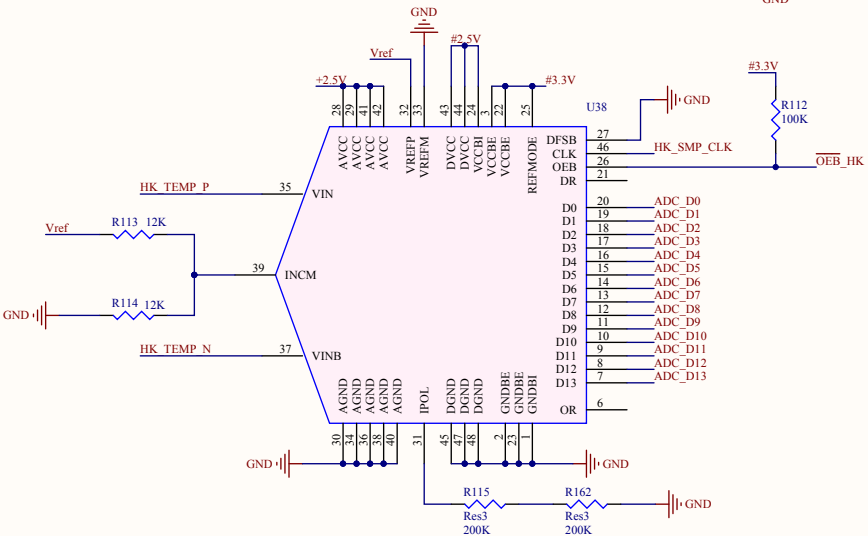
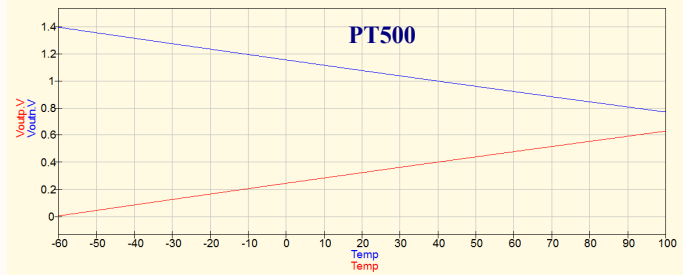
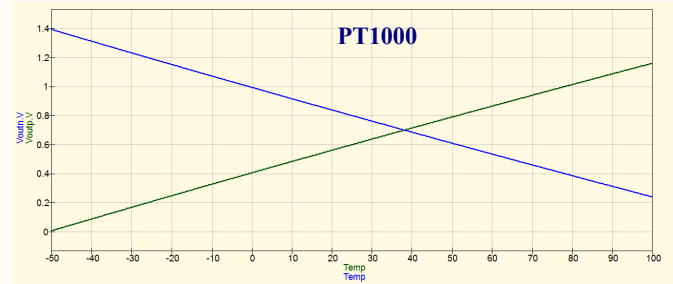
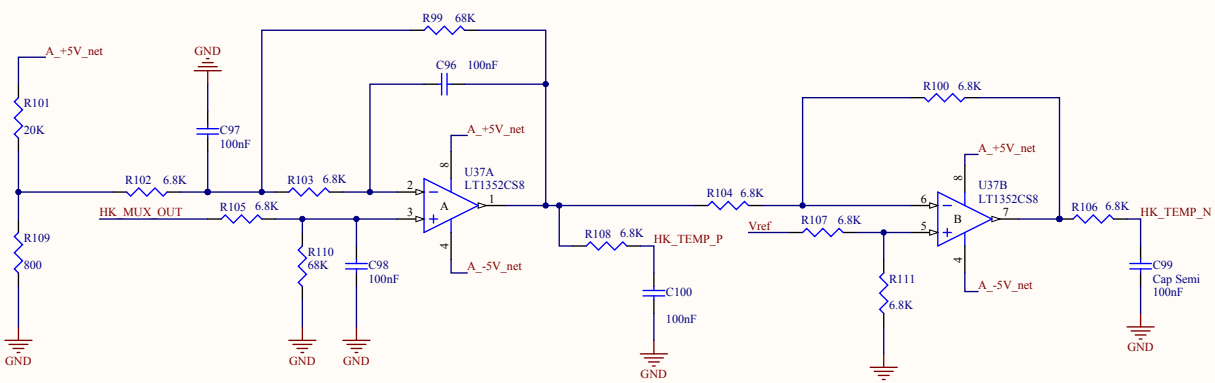
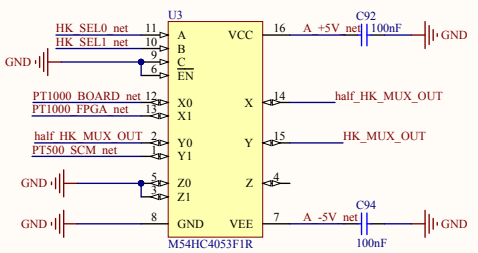
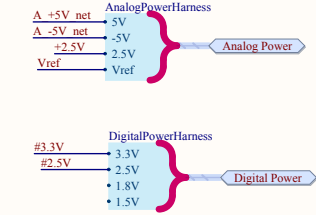
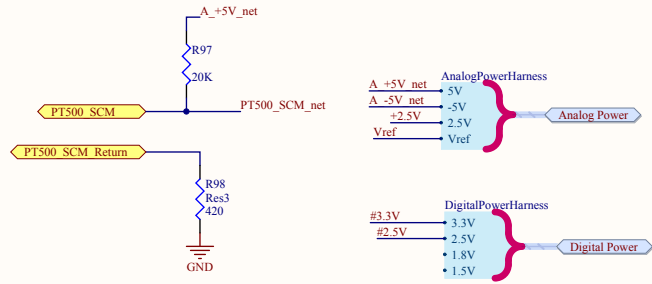
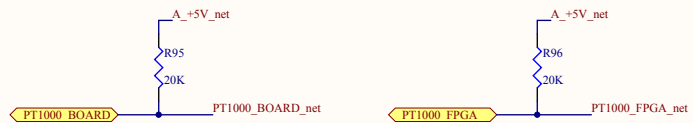
$$SCM_CAL = 1.25 - (D * (5/4096) * 0.5357)$$

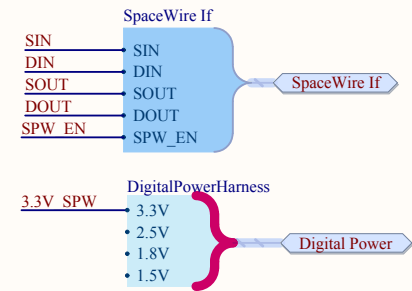
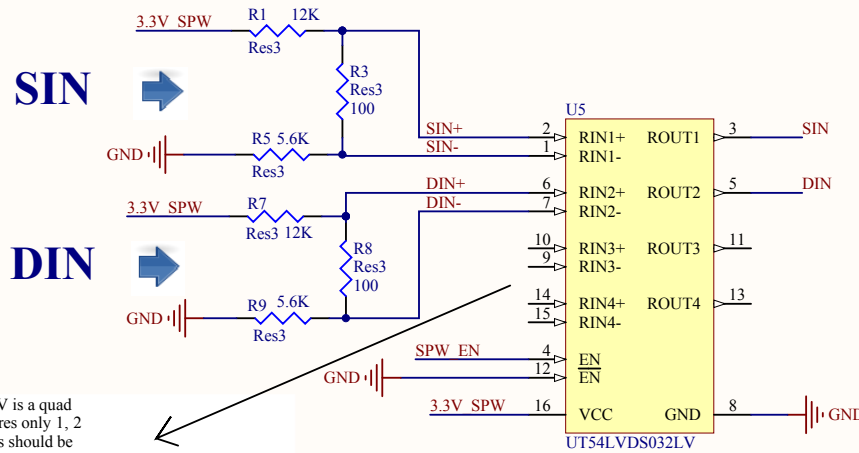
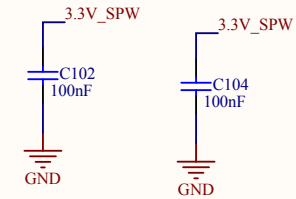
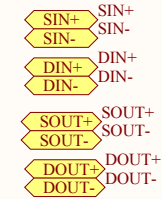
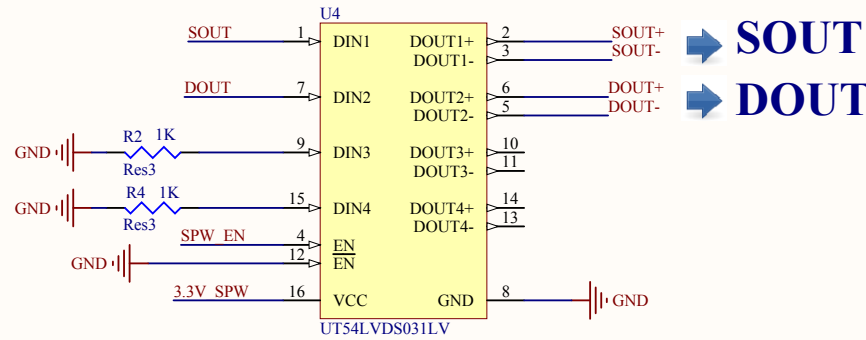
$$SCM_CAL = 1.25 - D * 0.000654$$

LOGIC INPUT			
I_{IH}	Input Current (2)	± 1	μA (max)
V_{IL}	Input Low Voltage (2)	$V_A = 5V$	0.8 V (max)
		$V_A = 3V$	0.5 V (max)
V_{HI}	Input High Voltage (2)	$V_A = 5V$	2.4 V (min)
		$V_A = 3V$	2.1 V (min)
C_{IN}	Input Capacitance (2)	3	pF (max)



Title	LFR_QM_CAL	Author:	Alexis Jeandet	
Size:	A4	Number:	LFR-172200-FM	
Date:	07/05/2014	Time:	10:05:44	
Contact:	alexis.jeandet@lpp.polytechnique.fr			
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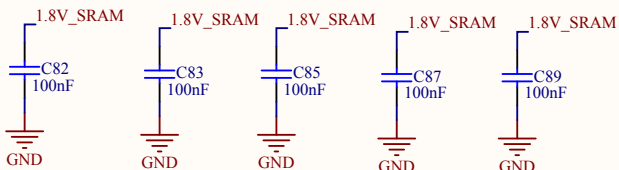
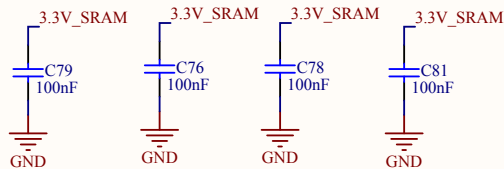
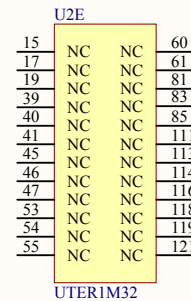
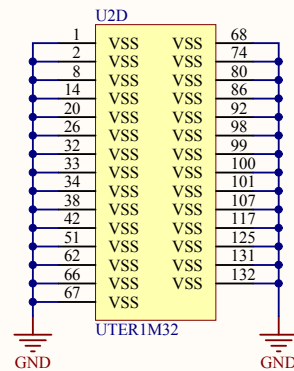
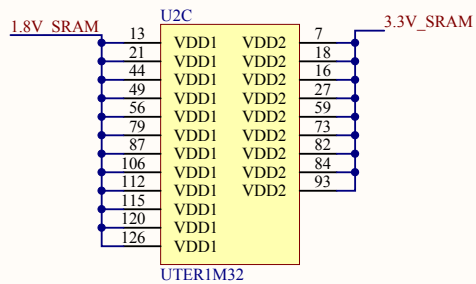
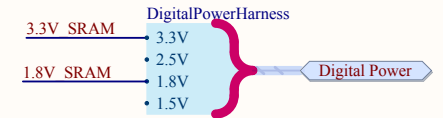
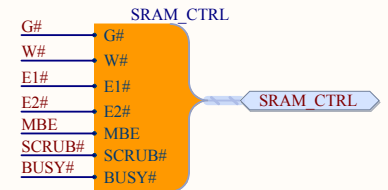
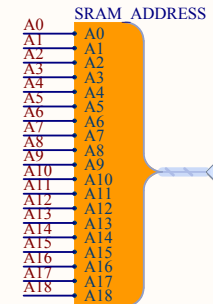
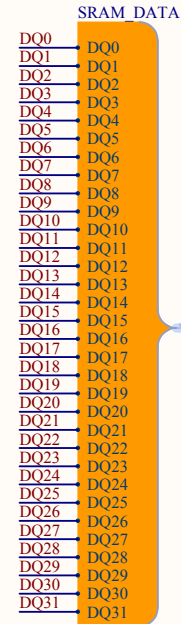
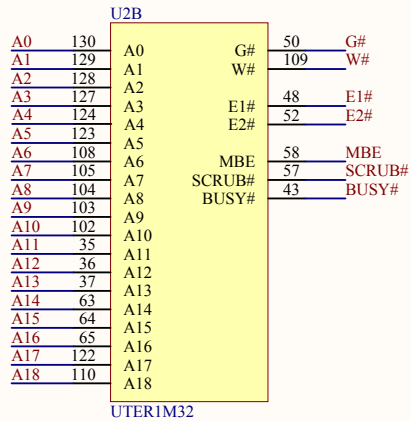
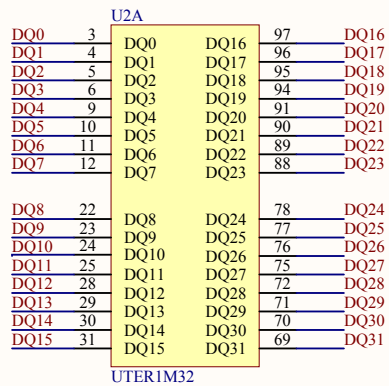


1. Open Input Pins. The UT54LVDS032LV is a quad receiver device, and if an application requires only 1, 2 or 3 receivers, the unused channel(s) inputs should be left OPEN. Do not tie the unused receiver inputs to ground or any other voltages. The input is biased by internal high value pull up and pull down resistors to set the output to a HIGH state. This internal circuitry will guarantee a HIGH, stable output state for open inputs.

cf : <http://www.aeroflex.com/ams/pagesproduct/datasheets/LVDSReceiver3v.pdf>

Title LFR_QM_SPW		Author: Alexis Jeandet	
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File: F:\Missions\Satellites\SolarOrbiter\LFR\PCB\QM\QM_SOLO_LFR_SPW_IF.SchDoc			





Title	LFR_QM_SRAM	Author:	Alexis Jeandet
Size:	A4	Number:	LFR-172200-FM
		Revision:	01.02
Date:	07/05/2014	Time:	10:05:44
		Sheet	12 of 12
Contact:	alexis.jeandet@lpp.polytechnique.fr		
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Item	Item Name	Item Description	Item Code	Item Unit	Item Price	Item Quantity	Item Total
001	Item 1	Item 1 Description	001	Unit 1	Price 1	Quantity 1	Total 1
002	Item 2	Item 2 Description	002	Unit 2	Price 2	Quantity 2	Total 2
003	Item 3	Item 3 Description	003	Unit 3	Price 3	Quantity 3	Total 3
004	Item 4	Item 4 Description	004	Unit 4	Price 4	Quantity 4	Total 4
005	Item 5	Item 5 Description	005	Unit 5	Price 5	Quantity 5	Total 5
006	Item 6	Item 6 Description	006	Unit 6	Price 6	Quantity 6	Total 6
007	Item 7	Item 7 Description	007	Unit 7	Price 7	Quantity 7	Total 7
008	Item 8	Item 8 Description	008	Unit 8	Price 8	Quantity 8	Total 8
009	Item 9	Item 9 Description	009	Unit 9	Price 9	Quantity 9	Total 9
010	Item 10	Item 10 Description	010	Unit 10	Price 10	Quantity 10	Total 10
011	Item 11	Item 11 Description	011	Unit 11	Price 11	Quantity 11	Total 11
012	Item 12	Item 12 Description	012	Unit 12	Price 12	Quantity 12	Total 12
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022	Item 22	Item 22 Description	022	Unit 22	Price 22	Quantity 22	Total 22
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024	Item 24	Item 24 Description	024	Unit 24	Price 24	Quantity 24	Total 24
025	Item 25	Item 25 Description	025	Unit 25	Price 25	Quantity 25	Total 25
026	Item 26	Item 26 Description	026	Unit 26	Price 26	Quantity 26	Total 26
027	Item 27	Item 27 Description	027	Unit 27	Price 27	Quantity 27	Total 27
028	Item 28	Item 28 Description	028	Unit 28	Price 28	Quantity 28	Total 28
029	Item 29	Item 29 Description	029	Unit 29	Price 29	Quantity 29	Total 29
030	Item 30	Item 30 Description	030	Unit 30	Price 30	Quantity 30	Total 30
031	Item 31	Item 31 Description	031	Unit 31	Price 31	Quantity 31	Total 31
032	Item 32	Item 32 Description	032	Unit 32	Price 32	Quantity 32	Total 32
033	Item 33	Item 33 Description	033	Unit 33	Price 33	Quantity 33	Total 33
034	Item 34	Item 34 Description	034	Unit 34	Price 34	Quantity 34	Total 34
035	Item 35	Item 35 Description	035	Unit 35	Price 35	Quantity 35	Total 35
036	Item 36	Item 36 Description	036	Unit 36	Price 36	Quantity 36	Total 36
037	Item 37	Item 37 Description	037	Unit 37	Price 37	Quantity 37	Total 37
038	Item 38	Item 38 Description	038	Unit 38	Price 38	Quantity 38	Total 38
039	Item 39	Item 39 Description	039	Unit 39	Price 39	Quantity 39	Total 39
040	Item 40	Item 40 Description	040	Unit 40	Price 40	Quantity 40	Total 40
041	Item 41	Item 41 Description	041	Unit 41	Price 41	Quantity 41	Total 41
042	Item 42	Item 42 Description	042	Unit 42	Price 42	Quantity 42	Total 42
043	Item 43	Item 43 Description	043	Unit 43	Price 43	Quantity 43	Total 43
044	Item 44	Item 44 Description	044	Unit 44	Price 44	Quantity 44	Total 44
045	Item 45	Item 45 Description	045	Unit 45	Price 45	Quantity 45	Total 45
046	Item 46	Item 46 Description	046	Unit 46	Price 46	Quantity 46	Total 46
047	Item 47	Item 47 Description	047	Unit 47	Price 47	Quantity 47	Total 47
048	Item 48	Item 48 Description	048	Unit 48	Price 48	Quantity 48	Total 48
049	Item 49	Item 49 Description	049	Unit 49	Price 49	Quantity 49	Total 49
050	Item 50	Item 50 Description	050	Unit 50	Price 50	Quantity 50	Total 50
051	Item 51	Item 51 Description	051	Unit 51	Price 51	Quantity 51	Total 51
052	Item 52	Item 52 Description	052	Unit 52	Price 52	Quantity 52	Total 52
053	Item 53	Item 53 Description	053	Unit 53	Price 53	Quantity 53	Total 53
054	Item 54	Item 54 Description	054	Unit 54	Price 54	Quantity 54	Total 54
055	Item 55	Item 55 Description	055	Unit 55	Price 55	Quantity 55	Total 55
056	Item 56	Item 56 Description	056	Unit 56	Price 56	Quantity 56	Total 56
057	Item 57	Item 57 Description	057	Unit 57	Price 57	Quantity 57	Total 57
058	Item 58	Item 58 Description	058	Unit 58	Price 58	Quantity 58	Total 58
059	Item 59	Item 59 Description	059	Unit 59	Price 59	Quantity 59	Total 59
060	Item 60	Item 60 Description	060	Unit 60	Price 60	Quantity 60	Total 60
061	Item 61	Item 61 Description	061	Unit 61	Price 61	Quantity 61	Total 61
062	Item 62	Item 62 Description	062	Unit 62	Price 62	Quantity 62	Total 62
063	Item 63	Item 63 Description	063	Unit 63	Price 63	Quantity 63	Total 63
064	Item 64	Item 64 Description	064	Unit 64	Price 64	Quantity 64	Total 64
065	Item 65	Item 65 Description	065	Unit 65	Price 65	Quantity 65	Total 65
066	Item 66	Item 66 Description	066	Unit 66	Price 66	Quantity 66	Total 66
067	Item 67	Item 67 Description	067	Unit 67	Price 67	Quantity 67	Total 67
068	Item 68	Item 68 Description	068	Unit 68	Price 68	Quantity 68	Total 68
069	Item 69	Item 69 Description	069	Unit 69	Price 69	Quantity 69	Total 69
070	Item 70	Item 70 Description	070	Unit 70	Price 70	Quantity 70	Total 70
071	Item 71	Item 71 Description	071	Unit 71	Price 71	Quantity 71	Total 71
072	Item 72	Item 72 Description	072	Unit 72	Price 72	Quantity 72	Total 72
073	Item 73	Item 73 Description	073	Unit 73	Price 73	Quantity 73	Total 73
074	Item 74	Item 74 Description	074	Unit 74	Price 74	Quantity 74	Total 74
075	Item 75	Item 75 Description	075	Unit 75	Price 75	Quantity 75	Total 75
076	Item 76	Item 76 Description	076	Unit 76	Price 76	Quantity 76	Total 76
077	Item 77	Item 77 Description	077	Unit 77	Price 77	Quantity 77	Total 77
078	Item 78	Item 78 Description	078	Unit 78	Price 78	Quantity 78	Total 78
079	Item 79	Item 79 Description	079	Unit 79	Price 79	Quantity 79	Total 79
080	Item 80	Item 80 Description	080	Unit 80	Price 80	Quantity 80	Total 80
081	Item 81	Item 81 Description	081	Unit 81	Price 81	Quantity 81	Total 81
082	Item 82	Item 82 Description	082	Unit 82	Price 82	Quantity 82	Total 82
083	Item 83	Item 83 Description	083	Unit 83	Price 83	Quantity 83	Total 83
084	Item 84	Item 84 Description	084	Unit 84	Price 84	Quantity 84	Total 84
085	Item 85	Item 85 Description	085	Unit 85	Price 85	Quantity 85	Total 85
086	Item 86	Item 86 Description	086	Unit 86	Price 86	Quantity 86	Total 86
087	Item 87	Item 87 Description	087	Unit 87	Price 87	Quantity 87	Total 87
088	Item 88	Item 88 Description	088	Unit 88	Price 88	Quantity 88	Total 88
089	Item 89	Item 89 Description	089	Unit 89	Price 89	Quantity 89	Total 89
090	Item 90	Item 90 Description	090	Unit 90	Price 90	Quantity 90	Total 90
091	Item 91	Item 91 Description	091	Unit 91	Price 91	Quantity 91	Total 91
092	Item 92	Item 92 Description	092	Unit 92	Price 92	Quantity 92	Total 92
093	Item 93	Item 93 Description	093	Unit 93	Price 93	Quantity 93	Total 93
094	Item 94	Item 94 Description	094	Unit 94	Price 94	Quantity 94	Total 94
095	Item 95	Item 95 Description	095	Unit 95	Price 95	Quantity 95	Total 95
096	Item 96	Item 96 Description	096	Unit 96	Price 96	Quantity 96	Total 96
097	Item 97	Item 97 Description	097	Unit 97	Price 97	Quantity 97	Total 97
098	Item 98	Item 98 Description	098	Unit 98	Price 98	Quantity 98	Total 98
099	Item 99	Item 99 Description	099	Unit 99	Price 99	Quantity 99	Total 99
100	Item 100	Item 100 Description	100	Unit 100	Price 100	Quantity 100	Total 100