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00_Cover.SchDoc

Revision History					
Rev.	Rel.	Date	Author	Description	Page(s)
1.0	-	2014-mm-dd	Hainke	Initial Version of TLF35584 Evaluation Board	-
1.1	-	2015-mm-dd	Hainke	- Correction of SS1/2 connections - Jumper J-TM to enable Micro Programming Support	-
2.0	-	2016-11-dd	Hainke	Re-Design of Evaluationboard for PG-VQFN-48 Variant - Removal of socket - Input-filter-components aligned with EMC-report - Boost-converter components for high currents placed - Layout optimization - Further optional components added for evaluation - Wake circuit reworked for more possibilities	all
2.1	-	2018-08-dd	Hainke	- Change of used transistor for QBO - Change of CVS4 value and set by default - No change of PCB layout	2, 5
2.2	-	2019-07-dd	Hainke	- Change of ceramic capacitance manufacturer to TDK	2, 3, 4, 5

TLF35584_Evaluationboard

TLF35584QV_HF


V2.2

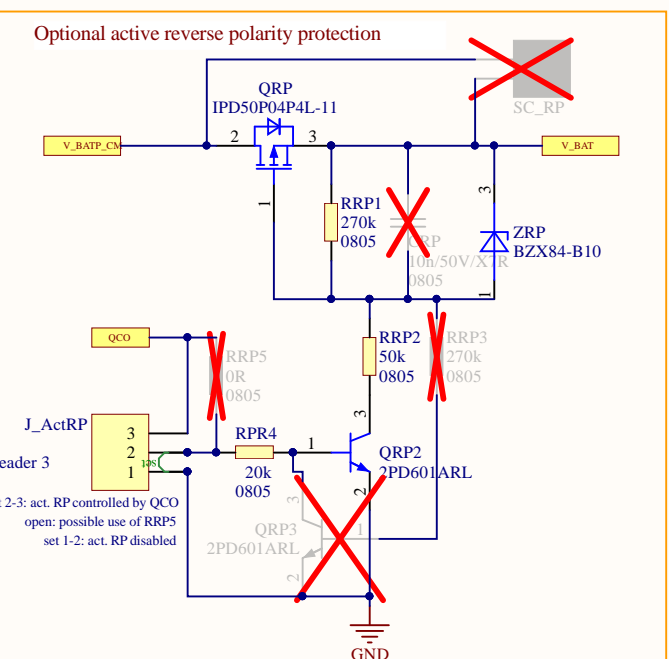
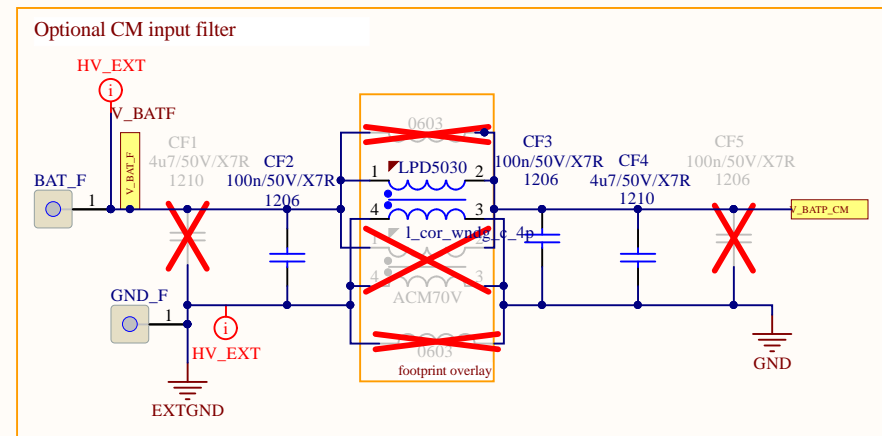
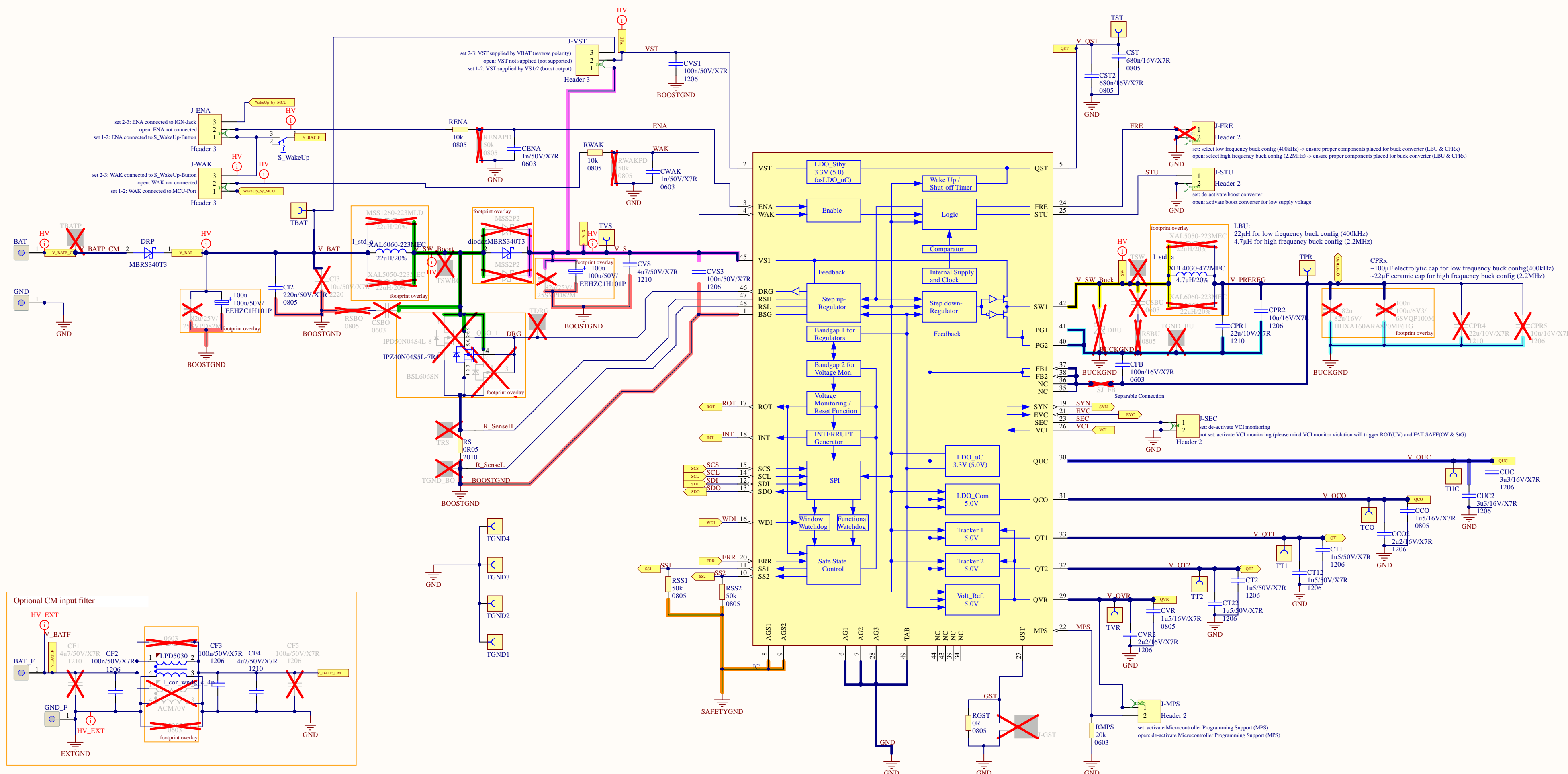


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IFAG ATV PSN AE PS2
Am Campeon 1-15 - 85579 Neubiberg - Germany

2019

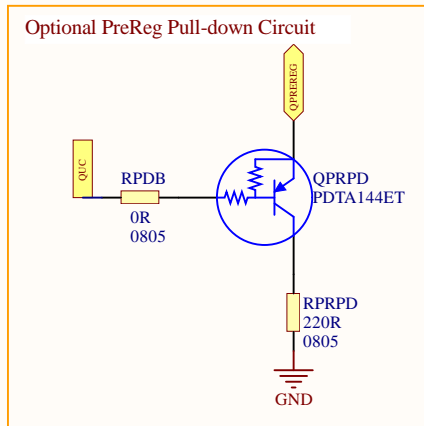
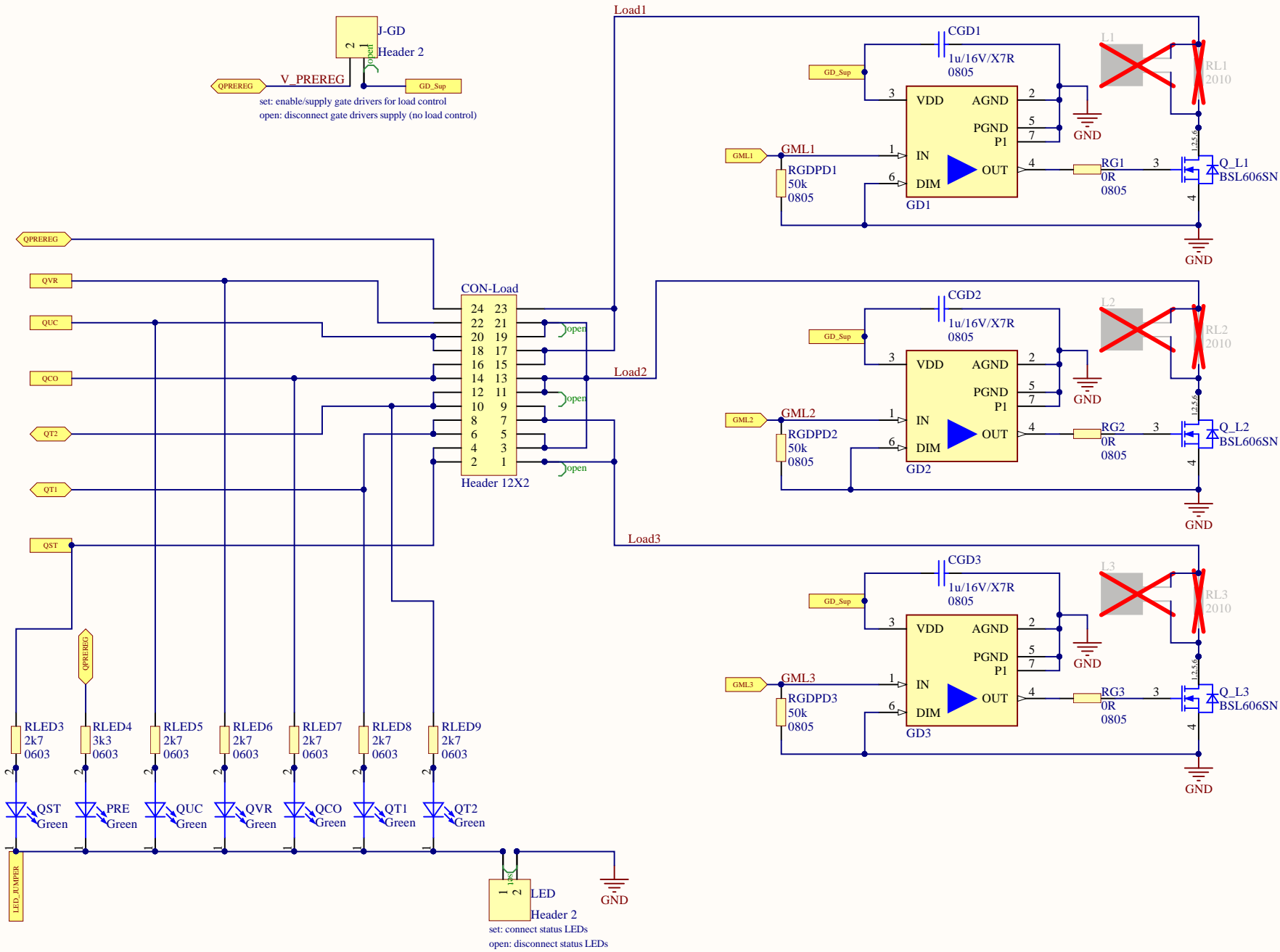
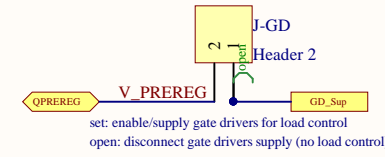
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Title	TLF35584_Evaluationboard		
Variant	TLF35584QV_HF	Approved *	
Size:	Document Name	Rel.	Rev.
A3	00_Cover.SchDoc		V2.2
Author: Tommy Hainke			
Date: 02.08.2019 Time: 09:23:55		SVN Revision: 494 [Locally Modified]	
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IFAG ATV PSN AE PS2 Am Campeon 1-15 - 85579 Neuburg - Germany			
Title TLF35584_Evaluationboard			
Variant	TLF35584QV_HF	Approved *	
Size:	Document Name	Rel.	Rev.
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Author: Tommy Hainke			
Date: 02.08.2019		Time: 09:23:55	
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03_Loadcontrol.SchDoc





Infineon Technologies AG IFAG ATV PSN AE PS2 Am Campeon 1-15 - 85579 Neubiberg - Germany	
Title	TLF35584_Evaluationboard
Variant	TLF35584QV_HF
Size:	Document Name
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Author: Tommy Hainke	Approved *
Date: 02.08.2019 Time: 09:23:56	Rel. Rev.
SVN Revision: 494 [Locally Modified]	V2.2
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Sheet 4	of 5

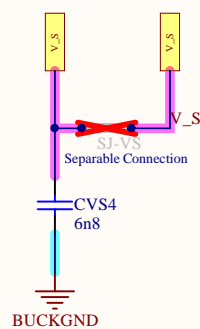
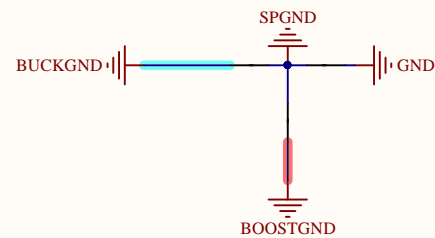
04_PCBOnly.SchDoc


Placed according to IC soldered:

	TLF35584QVVS1 (5V0)
	TLF35584QVVS2 (3V3)

Placed according to Buck Components soldered:

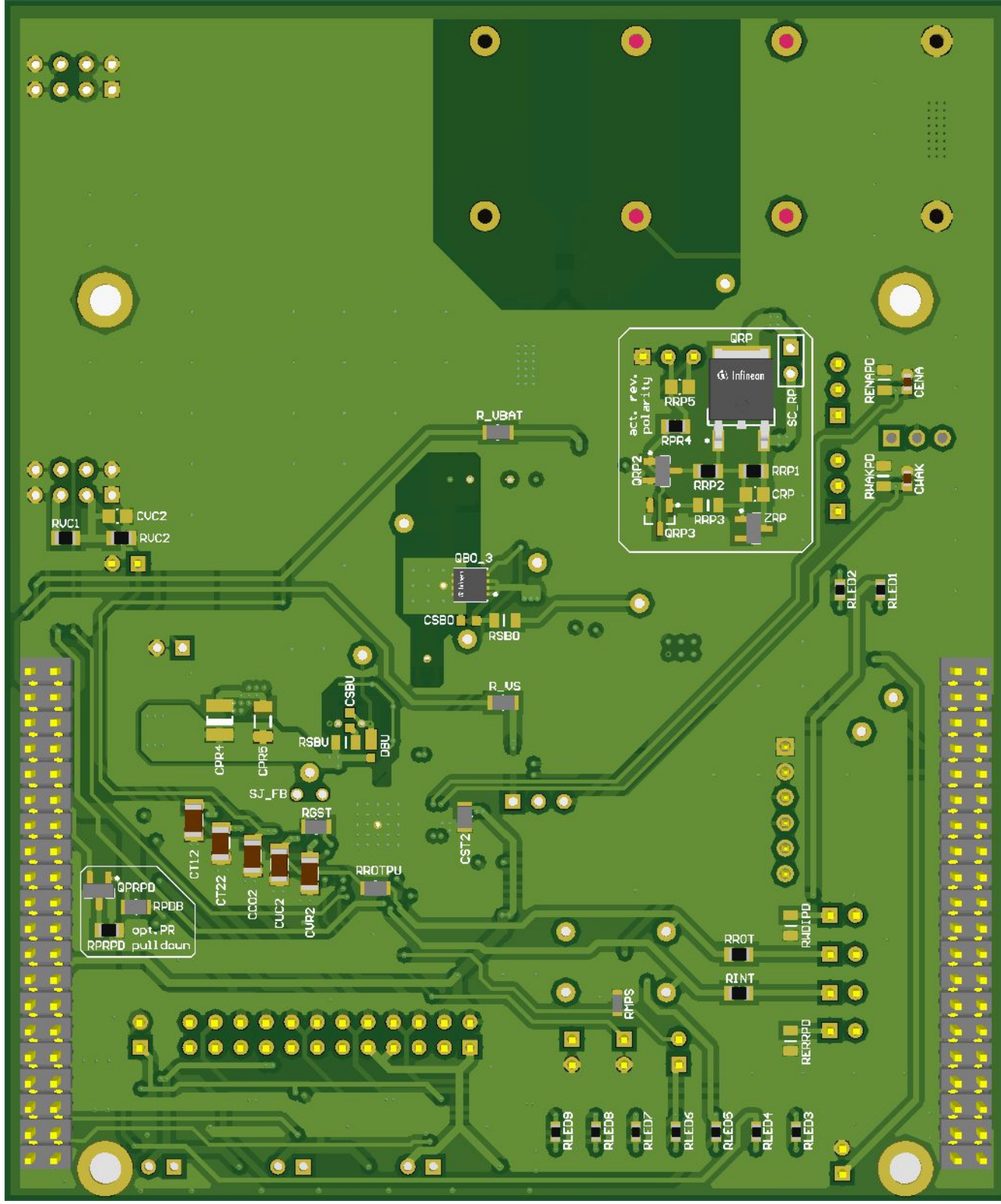
	HF-Buck Config (2.2MHz)
	LF-Buck Config (400kHz)



 Infineon Technologies AG IFAG ATV PSN AE PS2 Am Campeon 1-15 - 85579 Neubiberg - Germany			
		Title TLF35584_Evaluationboard	
Variant TLF35584QV_HF		Approved *	
Size: A3	Document Name: 04_PCBOnly.SchDoc	Rel.	Rev. V2.2
Author: Tommy Hainke			
Date: 02.08.2019 Time: 09:23:56		SVN Revision: 494 [Locally Modified]	
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Bill Of Materials TLF35584QV 2.2MHzBuck

Line #	Quantity	Designator	Type	PackageReference	Description	Manufacturer	ManufacturerPartNumber
1	2	BAT, BAT_F			Hirschmann Banana Jack 4mm red	Hirschmann	973582101
2	2	CCO2, CVR2	2u2/16V/X7R	1206	Ceramic Capacitor	TDK	CGA5L2X7R1E225KT****
3	2	CCO, CVR	1u5/16V/X7R	0805	Ceramic Capacitor	TDK	'CGA4J3X7R1C155KT****
4	2	CENA, CWAK	1n/50V/X7R	0603	Ceramic Capacitor	TDK	'CGA3E2X7R1H102KT****
5	4	CF2, CF3, CVS3, CVST	100n/50V/X7R	1206	Ceramic Capacitor	TDK	CGA5L2X7R2A104KT****
6	2	CF4, CVS	4u7/50V/X7R	1210	Ceramic Capacitor	TDK	CGA6P3X7R1H475KT****
7	1	CFB	100n/16V/X7R	0603	Ceramic Capacitor	TDK	'CGA3E2X7R1E104KT****
8	3	CGD1, CGD2, CGD3	1u/16V/X7R	0805	Ceramic Capacitor	TDK	CGA4J2X7R1C105KT****
9	2	CI1_1, CVS2_1	100u/50V/	G	Poly Capacitor	Panasonic	EEHZC1H101P
10	1	CI2	220n/50V/X7R	0805	Ceramic Capacitor	TDK	CGA4J2X7R1H224KT****
11	2	CON1, CON2			Pin Header 2.54mm 20x2		
12	1	CON-Load			Pin Header 2.54mm 12x2		
13	7	CON-Load1-Default, CON-Load2-Default, CON-Load3-Default, J-FRE-HF-Default, J-GD-Default, J-MPS-Default, J-STU-Default			JumperSet Configuration Open		
14	1	CON-SPI			Pin Header 2.54mm 6x1		
15	1	CPR1	22u/10V/X7R	1210	Ceramic Capacitor	TDK	CGA6P1X7R1C226MT****
16	1	CPR2	10u/16V/X7R	1206	Ceramic Capacitor	TDK	CGA5L1X7R1C106KT****
17	2	CST, CST2	680n/16V/X7R	0805	Ceramic Capacitor	TDK	CGA4J2X7R1C684KT****
18	4	CT1, CT2, CT12, CT22	1u5/50V/X7R	1206	Ceramic Capacitor	TDK	CGA5L3X7R1H155KT****
19	2	CUC, CUC2	3u3/16V/X7R	1206	Ceramic Capacitor	TDK	CGA5L1X7R1E335KT****
20	1	CVS4	6n8/50V/COG	0805 Shrink	Cap-0805-Shrink-6n8/50V/5%/X7R	TDK	CGA4J2C0G2A682J125AA
21	2	DBO_1, DRP			Schottky Barrier Rectifier	ON Semiconductor	MBR3340T3
22	3	GD1, GD2, GD3	FL3100TMPX	6-Lead MLP	Gate Driver	NXP	FL3100TMPX
23	2	GND, GND_F			Hirschmann Banana Jack 4mm black	Hirschmann	973582100
24	3	HF-Buck Config (2.2MHz), RPDB, TLF35584QVVS1 (5V0)	0R	0805	Resistor		
25	1	IC		PG-VQFN-48-31	TLF35584	Infineon	TLF35584QVVSxx
26	4	J_ActRP, J-ENA, J-VST, J-WAK			Pin Header 2.54mm 3x1		
27	10	J-ActRP-Default, J-ENA-Default, J-ERR-Default, J-INT-Default, J-ROT-Default, J-SEC-Default, J-VST-Default, J-WAK-Default, J-WDI-Default, LED-Default			JumperSet Configuration Set		
28	10	J-ERR, J-FRE, J-GD, J-INT, J-MPS, J-ROT, J-SEC, J-STU, J-WDI, LED			Pin Header 2.54mm 2x1		
29	1	LBO_1	22uH/20%	XAL6060	Shielded Power Inductor	Coilcraft	XAL6060-223MEC
30	1	LBU_1	4.7uH/20%	XEL4030	Shielded Power Inductor	Coilcraft	XEL4030-472MEC
31	1	LCM_1	0.57uH/30%	LPD5030	Shielded Coupled Power Inductor	Coilcraft	LPD5030-571NRB
32	8	PRE, QCO, QST, QT1, QT2, QUC, QVR, SS1			LED - SML / Green	Farnell	1655513
33	3	Q_L1, Q_L2, Q_L3	BSL606SN	PG-TSOP-6	OptiMOS-3 Small Signal N-Channel Enhancement Transistor	Infineon Technologies	BSL606SN H6327
34	1	QBO_3	IPZ40N04S5L-7R4	PG-TSDSON-8	OptiMOS-3 N-Channel Enhancement Power Transistor	Infineon Technologies	IPZ40N04S5L-7R4
35	1	QPRPD	PDTA144ET	PG-SOT23	PNP Bipolar Transistor with integrated bias resistors	NXP	PDTA144ET
36	1	QROT	BSL207SP	PG-TSOP-6	OptiMOS-P Small Signal P-Channel Enhancement Transistor	Infineon Technologies	BSL207SP L6327
37	1	QRP	IPD50P04P4L-11	TO-228	OptiMOS-P P-Channel Enhancement Power Transistor	Infineon Technologies	IPD50P04P4L-11
38	1	QRP2	2PD601ARL	PG-SOT23	NPN Bipolar Transistor	NXP	2PD601ARL
39	4	R_VBAT, R_VS, RENA, RWAK	10k	0805	Resistor		
40	3	RERR, RINT, RWDI	1k	0805	Resistor		
41	4	RG1, RG2, RG3, RGST	0R	0805	Resistor		
42	6	RGDPD1, RGDPD2, RGDPD3, RRP2, RSS1, RSS2	50k	0805	Resistor		
43	1	RLED1	1k5	0603	Resistor		
44	7	RLED2, RLED3, RLED5, RLED6, RLED7, RLED8, RLED9	2k7	0603	Resistor		
45	1	RLED4	3k3	0603	Resistor		
46	1	RMPS	20k	0603	Resistor		
47	1	ROT			LED - SML / Red	Farnell	1655520
48	1	RPR4	20k	0805	Resistor		
49	1	RPRPD	220R	0805	Resistor		
50	5	RROT, RSCL, RSCS, RSDI, RSDO	100R	0805	Resistor		
51	1	RROTPU	4.7K	0805	Resistor		
52	1	RRP1	270k	0805	Resistor		
53	1	RS	0R05	2010	Resistor		
54	1	RVC1	205k	0805	Resistor		
55	1	RVC2	330k	0805	Resistor		
56	1	S_WakeUp		1K2 Straight	Changeover Switch 1K2	EAO	09.03201.02
57	13	TBAT, TCO, TGND1, TGND2, TGND3, TGND4, TPR, TST, TT1, TT2, TUC, TVR, TVS			Testpoint_SMD	Keystone Electronics	KEY_5015
58	1	ZRP	BZX84-B10	PG-SOT23	SOD-123	NXP	BZX84-B10



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00_Cover.SchDoc

Revision History					
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2.0	-	2016-11-dd	Hainke	Re-Design of Evaluationboard for PG-VQFN-48 Variant - Removal of socket - Input-filter-components aligned with EMC-report - Boost-converter components for high currents placed - Layout optimization - Further optional components added for evaluation - Wake circuit reworked for more possibilities	all
2.1	-	2018-08-dd	Hainke	- Change of used transistor for QBO - Change of CVS4 value and set by default - No change of PCB layout	2, 5
2.2	-	2019-07-dd	Hainke	- Change of ceramic capacitance manufacturer to TDK	2, 3, 4, 5

TLF35584_Evaluationboard

TLF35584QV_LF


V2.2

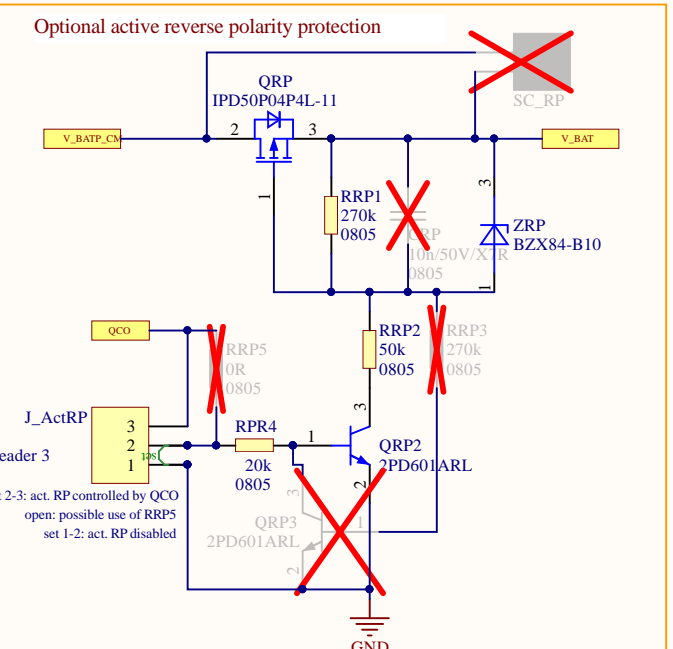
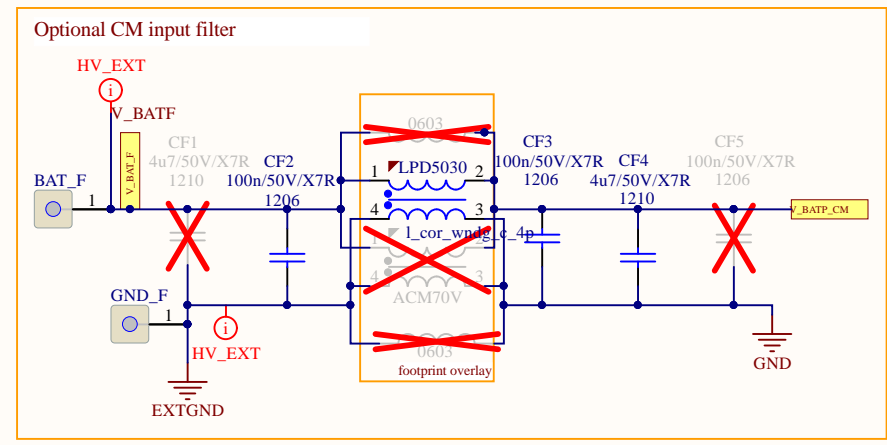
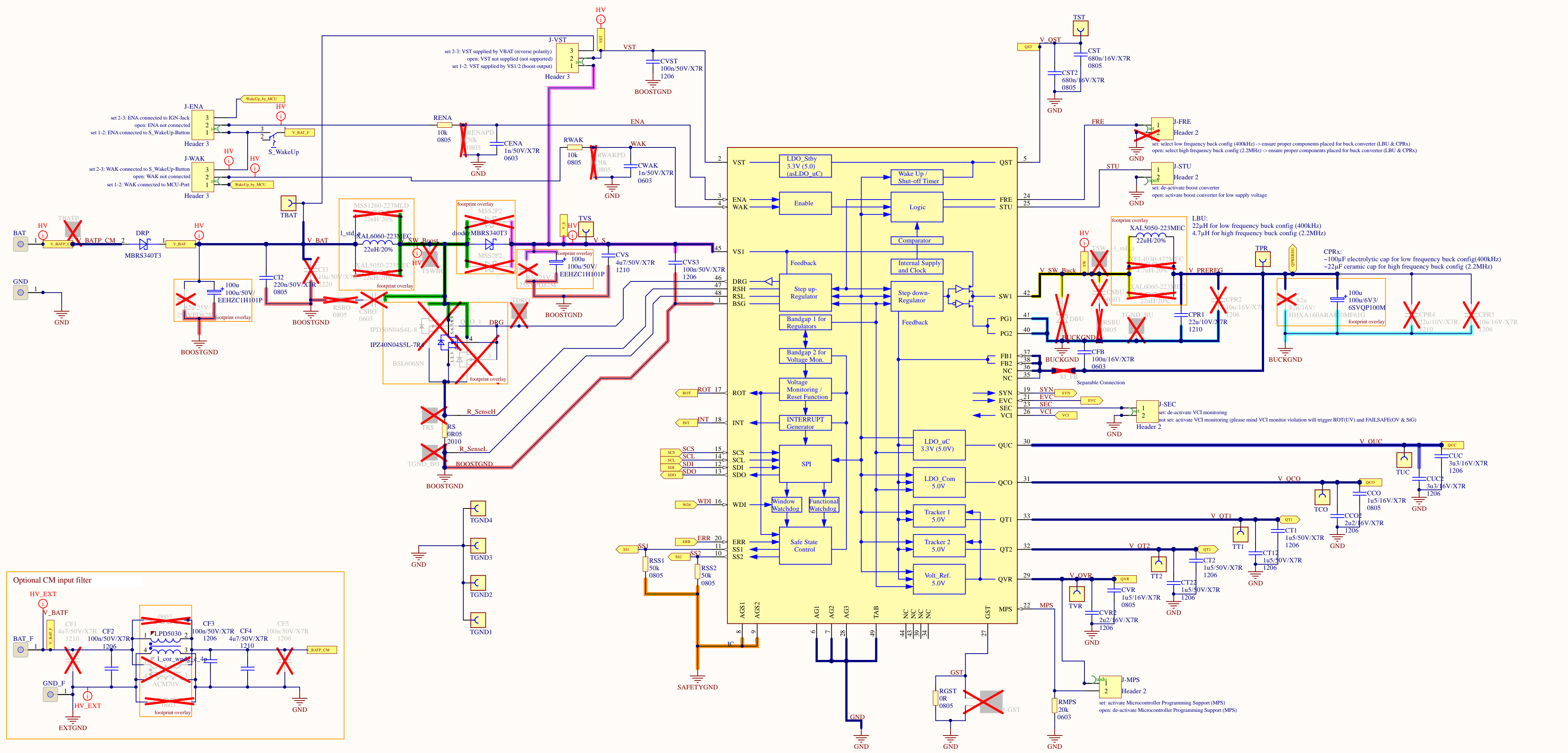


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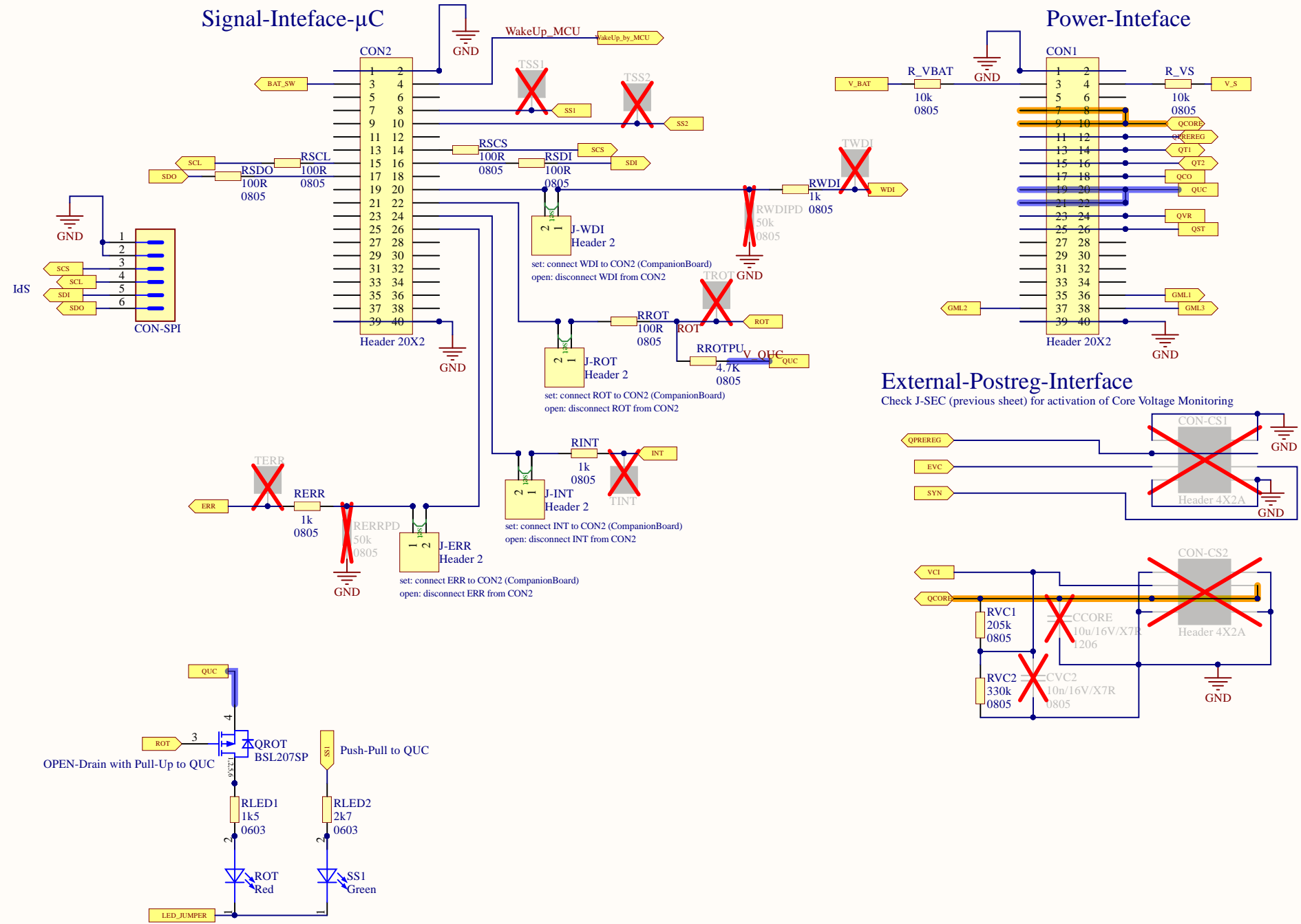
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Title	TLF35584_Evaluationboard		
Variant	TLF35584QV_LF	Approved *	
Size:	Document Name	Rel.	Rev.
A3	00_Cover.SchDoc		V2.2
Author: Tommy Hainke			
Date: 02.08.2019 Time: 09:24:06		SVN Revision: 494 [Locally Modified]	
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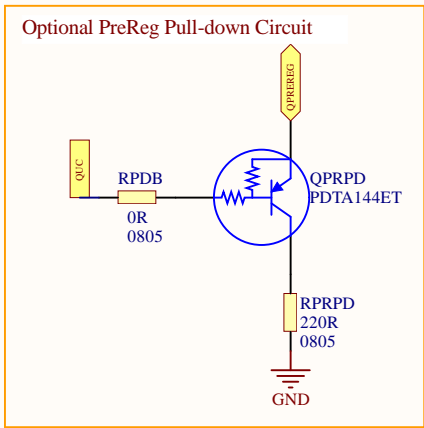
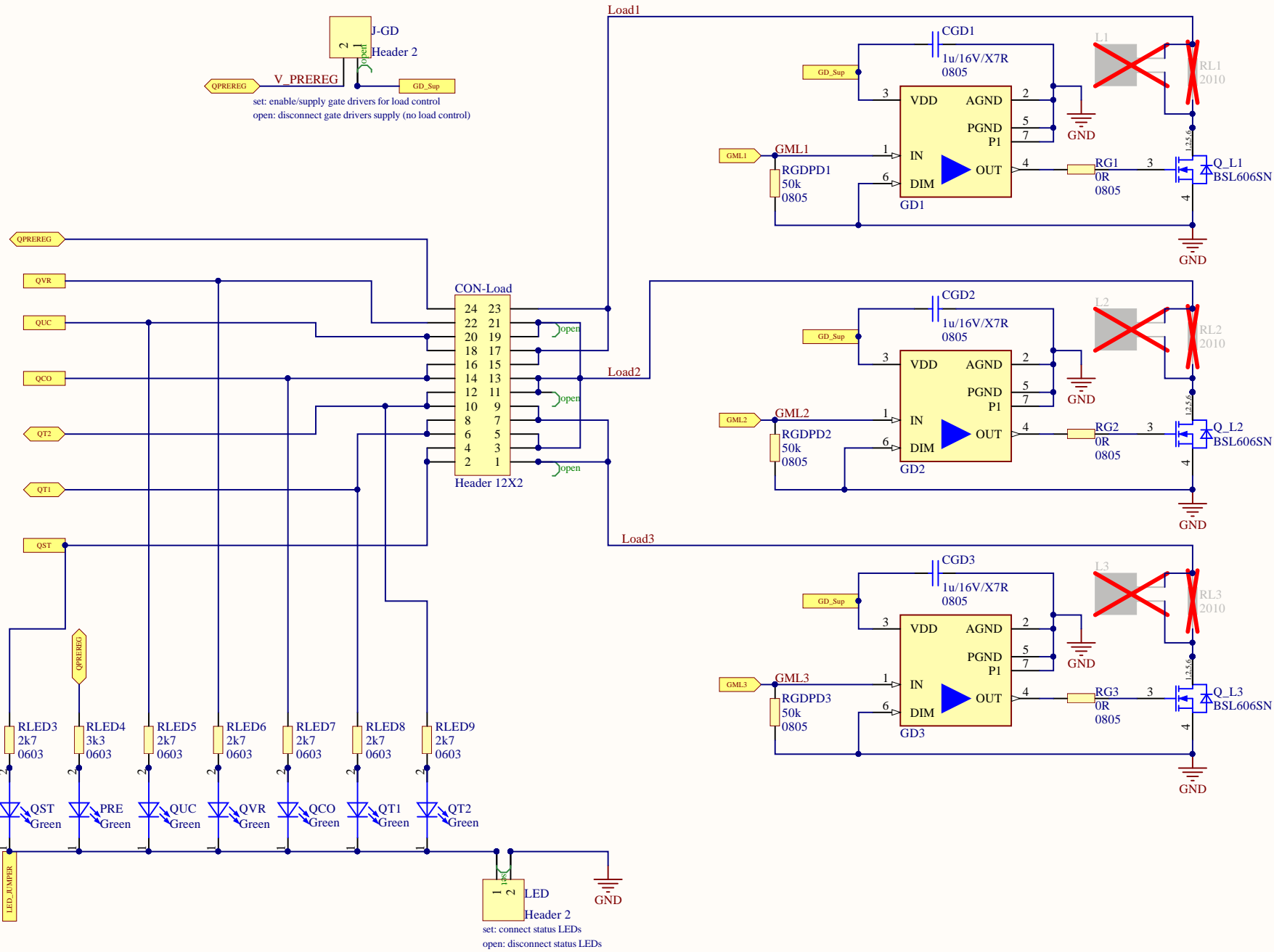
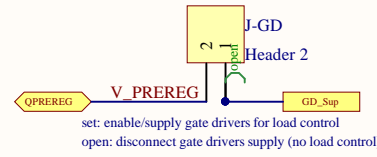
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Author: Tommy Hainke		Date: 02.08.2019 Time: 09:24:07	
Date: 02.08.2019 Time: 09:24:07		SVN Revision: 494 [Locally Modified]	
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02_Interfaces.SchDoc



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Title	TLF35584_Evaluationboard		
Variant	TLF35584QV_LF	Approved *	
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A3	02_Interfaces.SchDoc		V2.2
Author: Tommy Hainke			
Date: 02.08.2019 Time: 09:24:07		SVN Revision: 402 [Locally Modified]	
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03_Loadcontrol.SchDoc





Infineon Technologies AG IFAG ATV PSN AE PS2 Am Campeon 1-15 - 85579 Neubiberg - Germany			
Title: TLF35584_Evaluationboard			
Variant: TLF35584QV_LF			Approved *
Size: A3	Document Name: 03_Loadcontrol.SchDoc		Rel. Rev. V2.2
Author: Tommy Hainke			
Date: 02.08.2019 Time: 09:24:07		SVN Revision: 494 [Locally Modified]	
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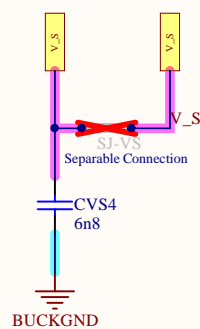
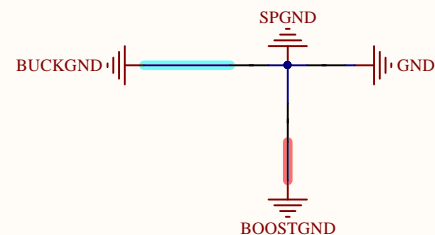
04_PCBOnly.SchDoc


Placed according to IC soldered:

	TLF35584QVVS1 (5V0)
	TLF35584QVVS2 (3V3)

Placed according to Buck Components soldered:

	HF-Buck Config (2.2MHz)
	LF-Buck Config (400kHz)



 Infineon Technologies AG IFAG ATV PSN AE PS2 Am Campeon 1-15 - 85579 Neubiberg - Germany			
		Title TLF35584_Evaluationboard	
Variant TLF35584QV_LF		Approved *	
Size: A3	Document Name: 04_PCBOnly.SchDoc	Rel.	Rev. V2.2
Author: Tommy Hainke			
Date: 02.08.2019 Time: 09:24:08		SVN Revision: 494 [Locally Modified]	
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Bill Of Materials TLF35584QV 400kHzBuck

Line #	Quantity	Designator	Type	PackageReference	Description	Manufacturer	ManufacturerPartNumber
1	2	BAT, BAT_F			Hirschmann Banana Jack 4mm red	Hirschmann	973582101
2	2	CCO2, CVR2	2u2/16V/X7R	1206	Ceramic Capacitor	TDK	CGA5L2X7R1E225KT****
3	2	CCO, CVR	1u5/16V/X7R	0805	Ceramic Capacitor	TDK	'CGA4J3X7R1C155KT****
4	2	CENA, CWAK	1n/50V/X7R	0603	Ceramic Capacitor	TDK	'CGA3E2X7R1H102KT****
5	4	CF2, CF3, CVS3, CVST	100n/50V/X7R	1206	Ceramic Capacitor	TDK	CGA5L2X7R2A104KT****
6	2	CF4, CVS	4u7/50V/X7R	1210	Ceramic Capacitor	TDK	CGA6P3X7R1H475KT****
7	1	CFB	100n/16V/X7R	0603	Ceramic Capacitor	TDK	'CGA3E2X7R1E104KT****
8	3	CGD1, CGD2, CGD3	1u/16V/X7R	0805	Ceramic Capacitor	TDK	CGA4J2X7R1C105KT****
9	2	CI1_1, CVS2_1	100u/50V/	G	Poly Capacitor	Panasonic	EEHZC1H101P
10	1	CI2	220n/50V/X7R	0805	Ceramic Capacitor	TDK	CGA4J2X7R1H224KT****
11	2	CON1, CON2			Pin Header 2.54mm 20x2		
12	1	CON-Load			Pin Header 2.54mm 12x2		
13	6	CON-Load1-Default, CON-Load2-Default, CON-Load3-Default, J-GD-Default, J-MPS-Default, J-STU-Default			JumperSet Configuration Open		
14	1	CON-SPI			Pin Header 2.54mm 6x1		
15	1	CPR1	22u/10V/X7R	1210	Ceramic Capacitor	TDK	CGA6P1X7R1C226MT****
16	1	CPR3_1	100u/6V3/	C6	Poly Capacitor	Sanyo	6SVQP100M
17	2	CST, CST2	680n/16V/X7R	0805	Ceramic Capacitor	TDK	CGA4J2X7R1C684KT****
18	4	CT1, CT2, CT12, CT22	1u5/50V/X7R	1206	Ceramic Capacitor	TDK	CGA5L3X7R1H155KT****
19	2	CUC, CUC2	3u3/16V/X7R	1206	Ceramic Capacitor	TDK	CGA5L1X7R1E335KT****
20	1	CVS4	6n8/50V/C0G	0805 Shrink	Cap-0805-Shrink-6n8/50V/5%/X7R	TDK	CGA4J2C0G2A682J125AA
21	2	DBO_1, DRP			Schottky Barrier Rectifier	ON Semiconductor	MBRS340T3
22	3	GD1, GD2, GD3	FL3100TMPX	6-Lead MLP	Gate Driver	NXP	FL3100TMPX
23	2	GND, GND_F			Hirschmann Banana Jack 4mm black	Hirschmann	973582100
24	1	IC		PG-VQFN-48-31	TLF35584	Infineon	TLF35584QVVSxx
25	4	J_ActRP, J-ENA, J-VST, J-WAK			Pin Header 2.54mm 3x1		
26	11	J-ActRP-Default, J-ENA-Default, J-ERR-Default, J-FRE-LF-Default, J-INT-Default, J-ROT-Default, J-SEC-Default, J-VST-Default, J-WAK-Default, J-WDI-Default, LED-Default			JumperSet Configuration Set		
27	10	J-ERR, J-FRE, J-GD, J-INT, J-MPS, J-ROT, J-SEC, J-STU, J-WDI, LED			Pin Header 2.54mm 2x1		
28	1	LBO_1	22uH/20%	XAL6060	Shielded Power Inductor	Coilcraft	XAL6060-223MEC
29	1	LBU_2	22uH/20%	XAL5050	Shielded Power Inductor	Coilcraft	XAL5050-223MEC
30	1	LCM_1	0.57uH/30%	LPD5030	Shielded Coupled Power Inductor	Coilcraft	LPD5030-571NRB
31	3	LF-Buck Config (400kHz), RPDB, TLF35584QVVS1 (5V0)	0R	0805	Resistor		
32	8	PRE, QCO, QST, QT1, QT2, QUC, QVR, SS1			LED - SML / Green	Farnell	1655513
33	3	Q_L1, Q_L2, Q_L3	BSL606SN	PG-TSOP-6	OptiMOS-3 Small Signal N-Channel Enhancement Transistor	Infineon Technologies	BSL606SN H6327
34	1	QBO_3	IP240N04S5L-7R4	PG-TSDSON-8	OptiMOS-3 N-Channel Enhancement Power Transistor	Infineon Technologies	IP240N04S5L-7R4
35	1	QPRPD	PDTA144ET	PG-SOT23	PNP Bipolar Transistor with integrated bias resistors	NXP	PDTA144ET
36	1	QROT	BSL207SP	PG-TSOP-6	OptiMOS-P Small Signal P-Channel Enhancement Transistor	Infineon Technologies	BSL207SP L6327
37	1	QRP	IPD50P04P4L-11	TO-228	OptiMOS-P P-Channel Enhancement Power Transistor	Infineon Technologies	IPD50P04P4L-11
38	1	QRP2	2PD601ARL	PG-SOT23	NPN Bipolar Transistor	NXP	2PD601ARL
39	4	R_VBAT, R_VS, RENA, RWAK	10k	0805	Resistor		
40	3	RERR, RINT, RWDI	1k	0805	Resistor		
41	4	RG1, RG2, RG3, RGST	0R	0805	Resistor		
42	6	RGDPD1, RGDPD2, RGDPD3, RRP2, RSS1, RSS2	50k	0805	Resistor		
43	1	RLED1	1k5	0603	Resistor		
44	7	RLED2, RLED3, RLED5, RLED6, RLED7, RLED8, RLED9	2k7	0603	Resistor		
45	1	RLED4	3k3	0603	Resistor		
46	1	RMPS	20k	0603	Resistor		
47	1	ROT			LED - SML / Red	Farnell	1655520
48	1	RPR4	20k	0805	Resistor		
49	1	RPRPD	220R	0805	Resistor		
50	5	RROT, RSCL, RSCS, RSDI, RSDO	100R	0805	Resistor		
51	1	RROTPU	4.7K	0805	Resistor		
52	1	RRP1	270k	0805	Resistor		
53	1	RS	0R05	2010	Resistor		
54	1	RVC1	205k	0805	Resistor		
55	1	RVC2	330k	0805	Resistor		
56	1	S_WakeUp		1K2 Straight	Changeover Switch 1K2	EAO	09.03201.02
57	13	TBAT, TCO, TGND1, TGND2, TGND3, TGND4, TPR, TST, TT1, TT2, TUC, TVR, TVS			Testpoint_SMD	Keystone Electronics	KEY_5015
58	1	ZRP	BZX84-B10	PG-SOT23	SOD-123	NXP	BZX84-B10

