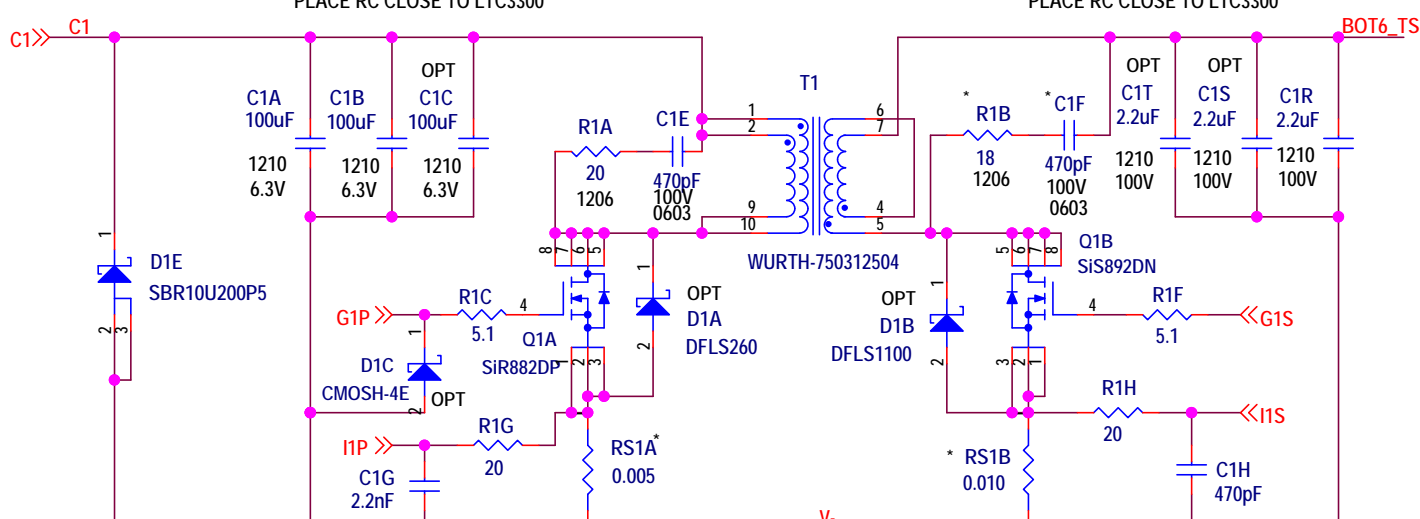
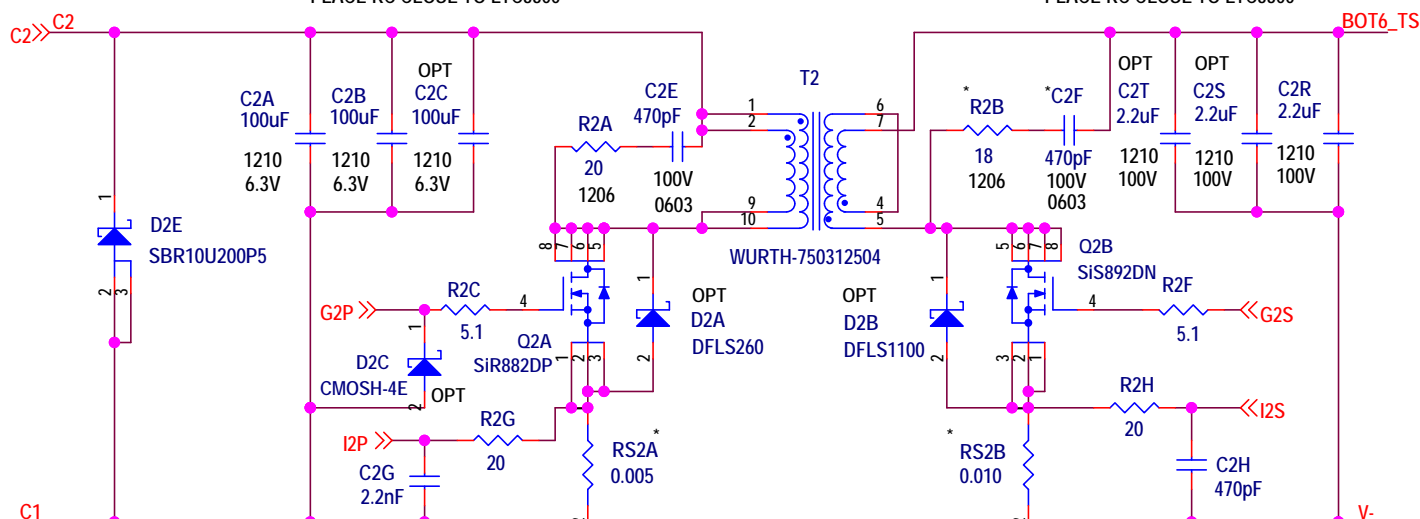
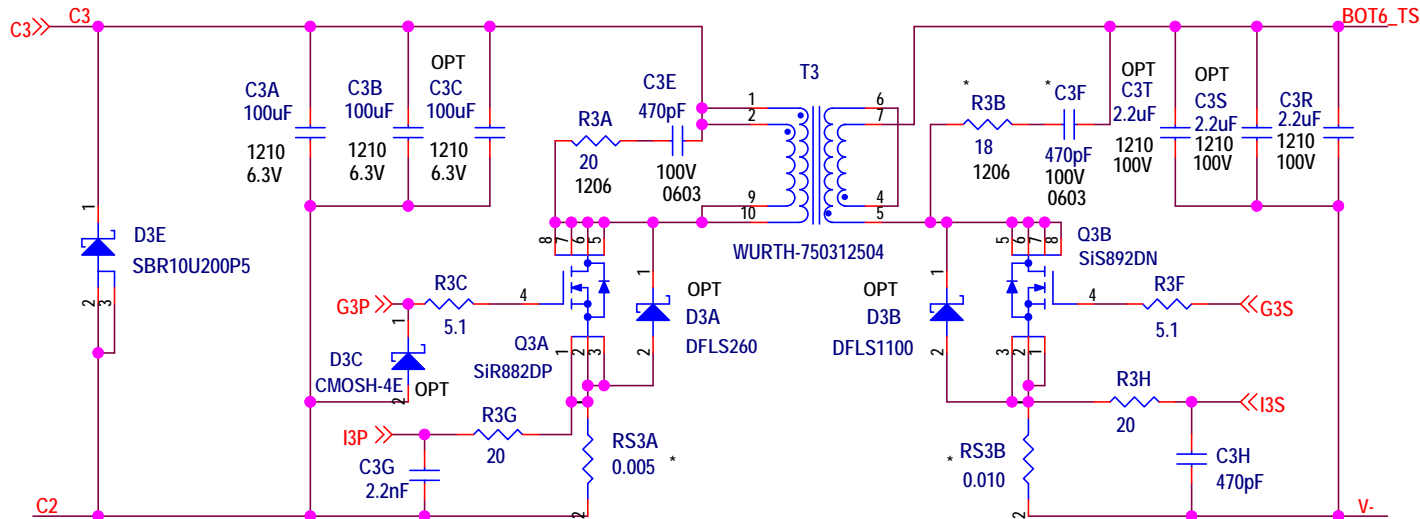
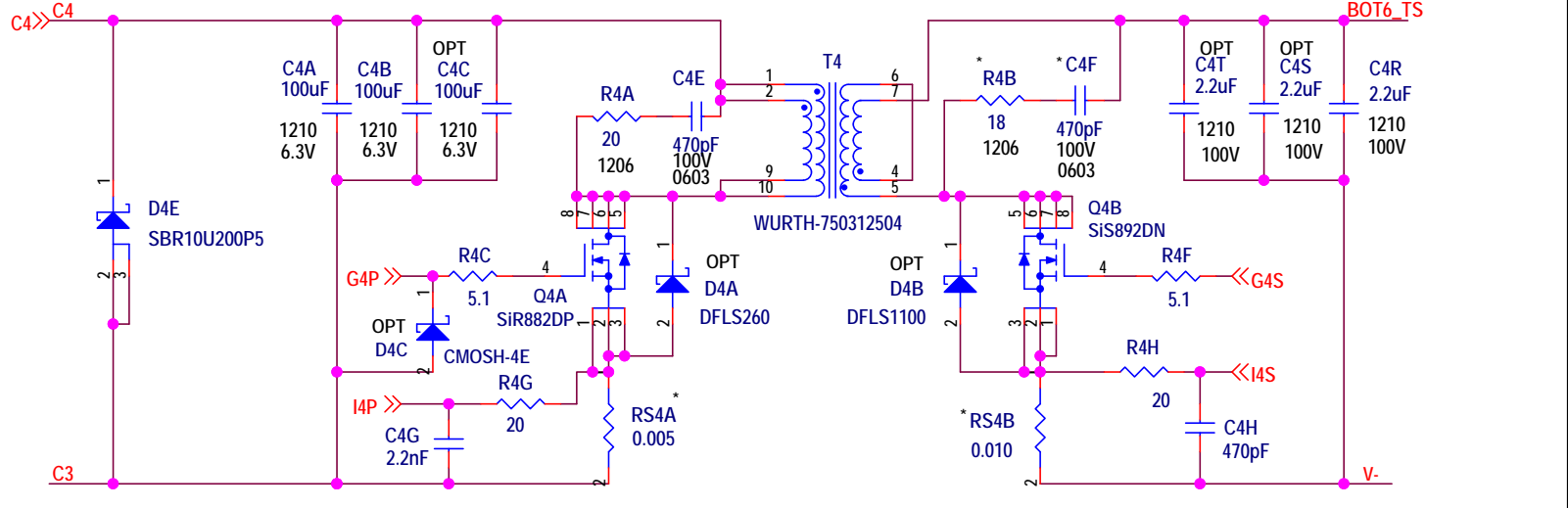
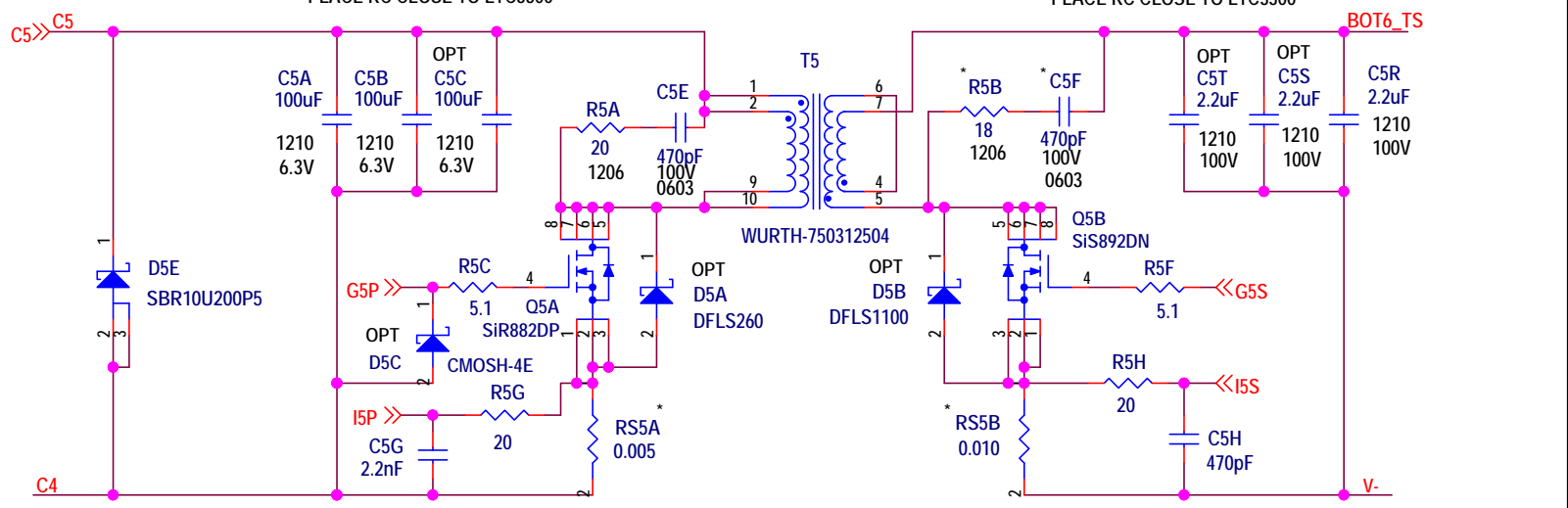
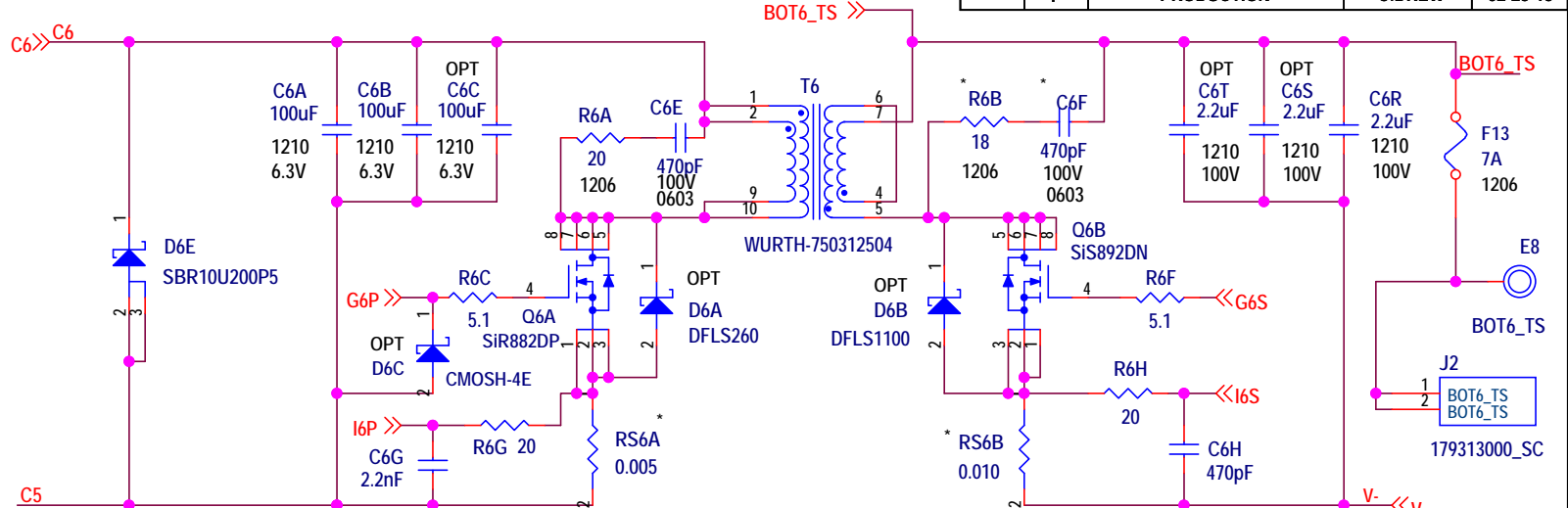


REVISION HISTORY				
ECO	REV	DESCRIPTION	APPROVED	DATE
-	1	PRODUCTION	J.DREW	02-25-15



*	RS1A-RS12A	RS1B-RS12B	R1B-R12B	C1F-C12F
DC2100B - A / B	0.008	0.016	NP	NP
DC2100B - C / D	0.005	0.010	18	470pF



### CUSTOMER NOTICE

LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.

### APPROVALS

PCB DES.	NC
APP ENG.	J. DREW

SCALE = NONE

### LINEAR TECHNOLOGY

1630 McCarthy Blvd.  
Milpitas, CA 95035  
Phone: (408)432-1900 [www.linear.com](http://www.linear.com)  
Fax: (408)434-0507  
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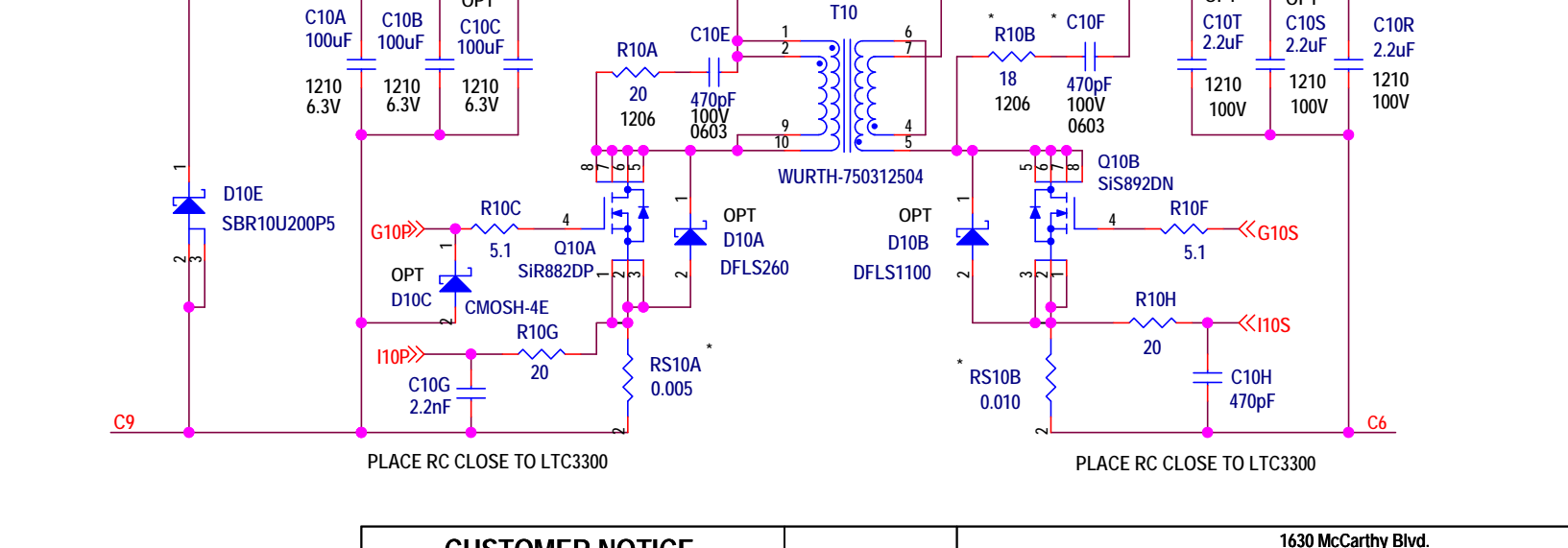
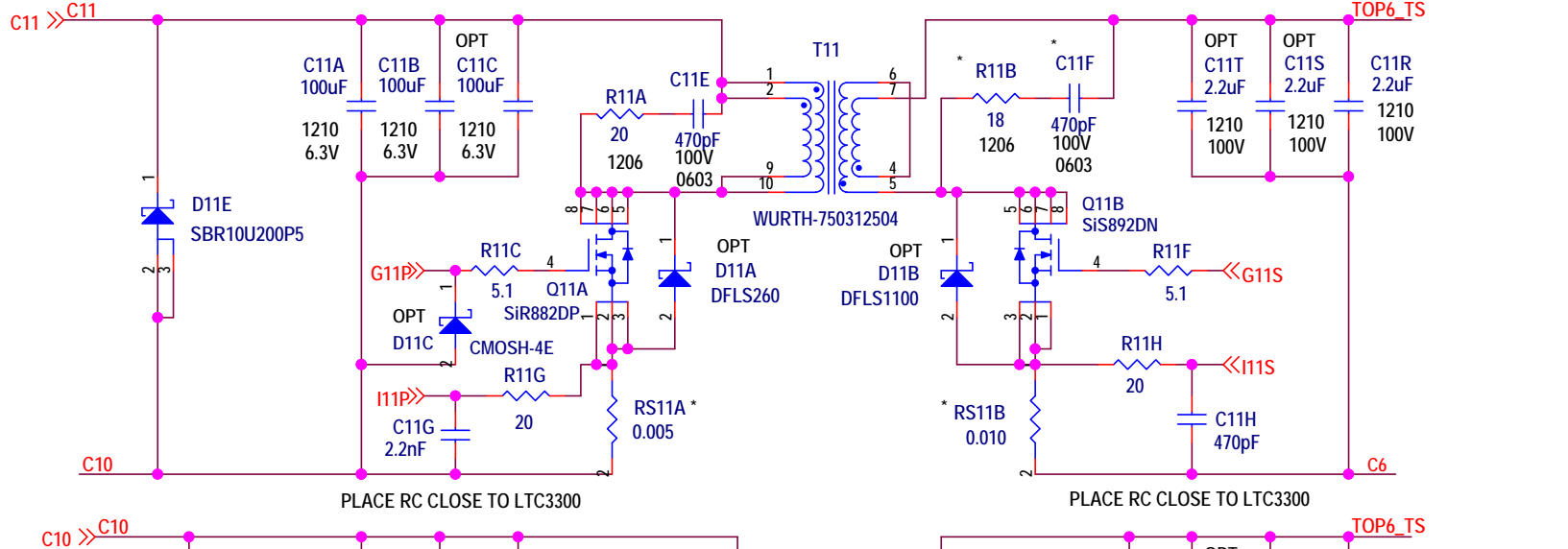
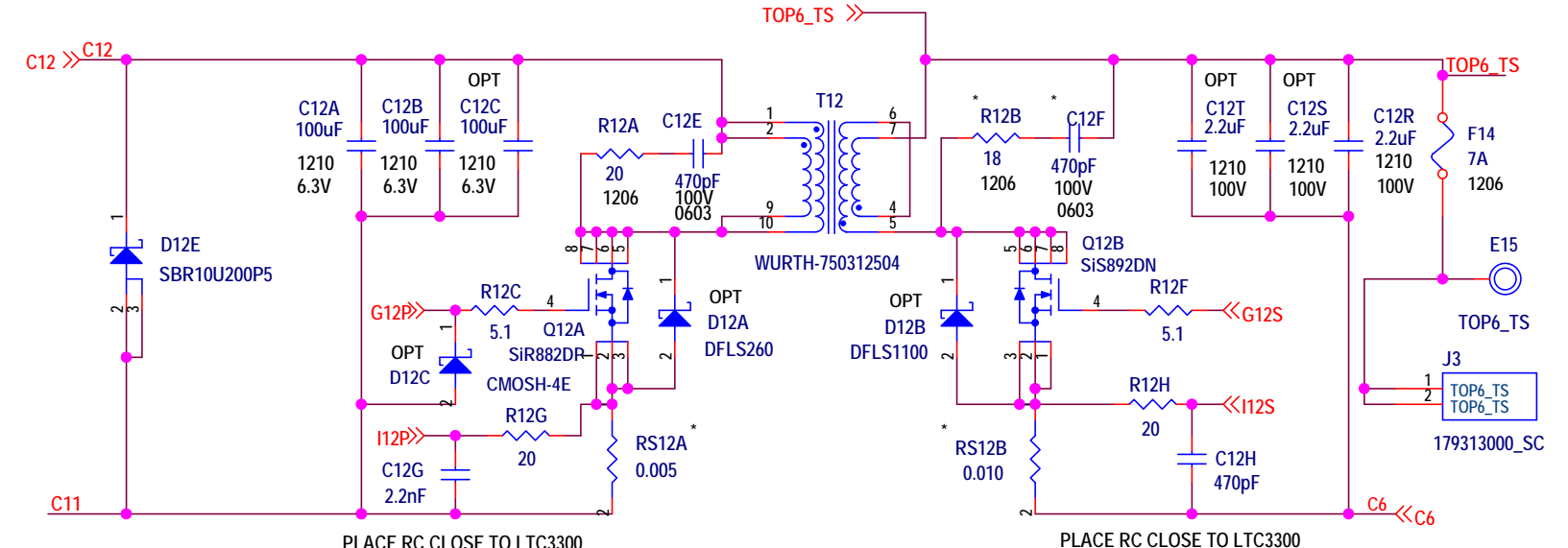
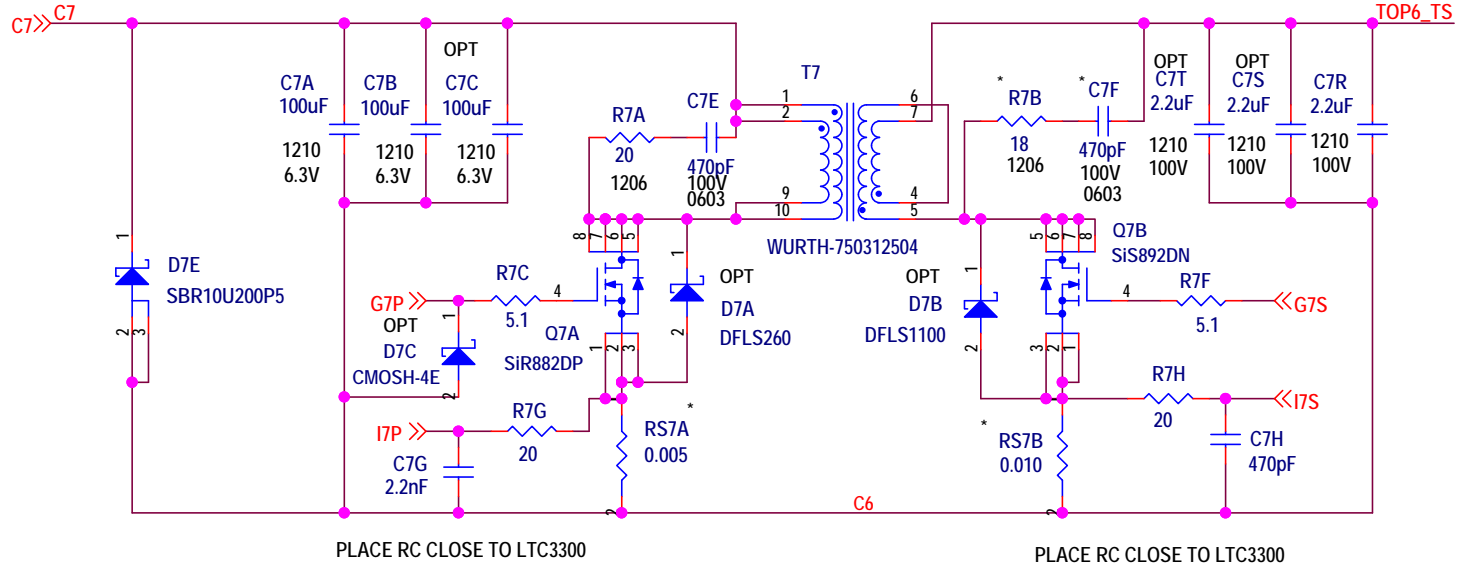
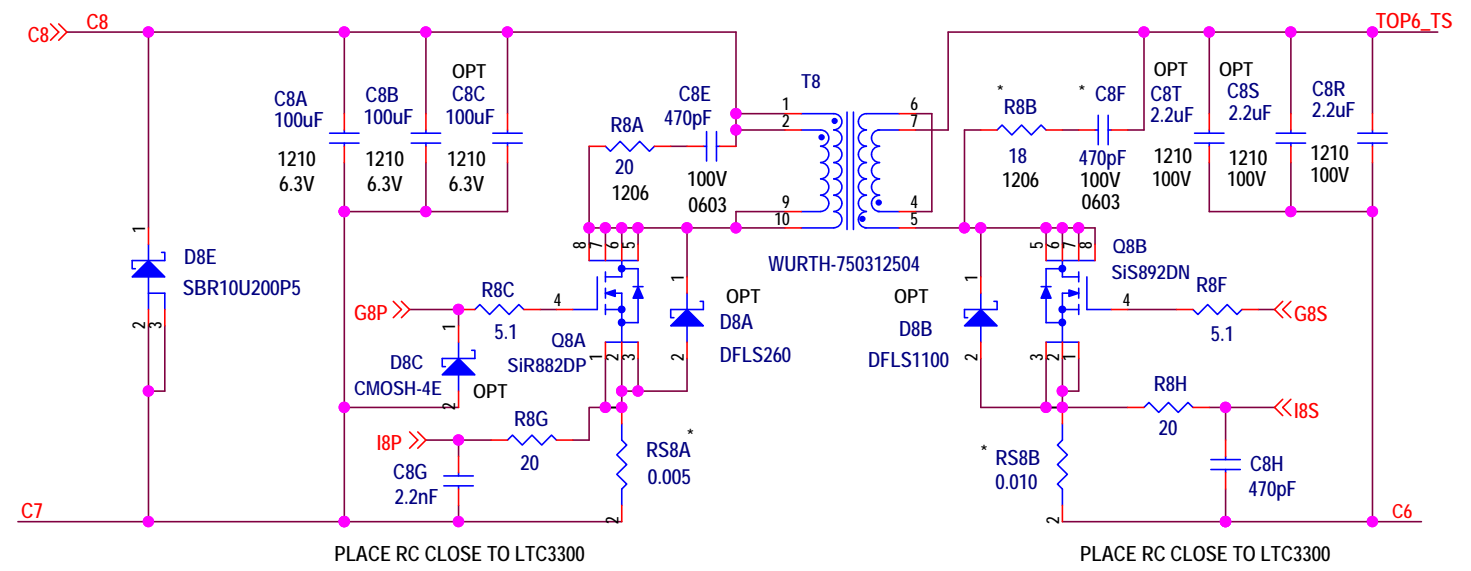
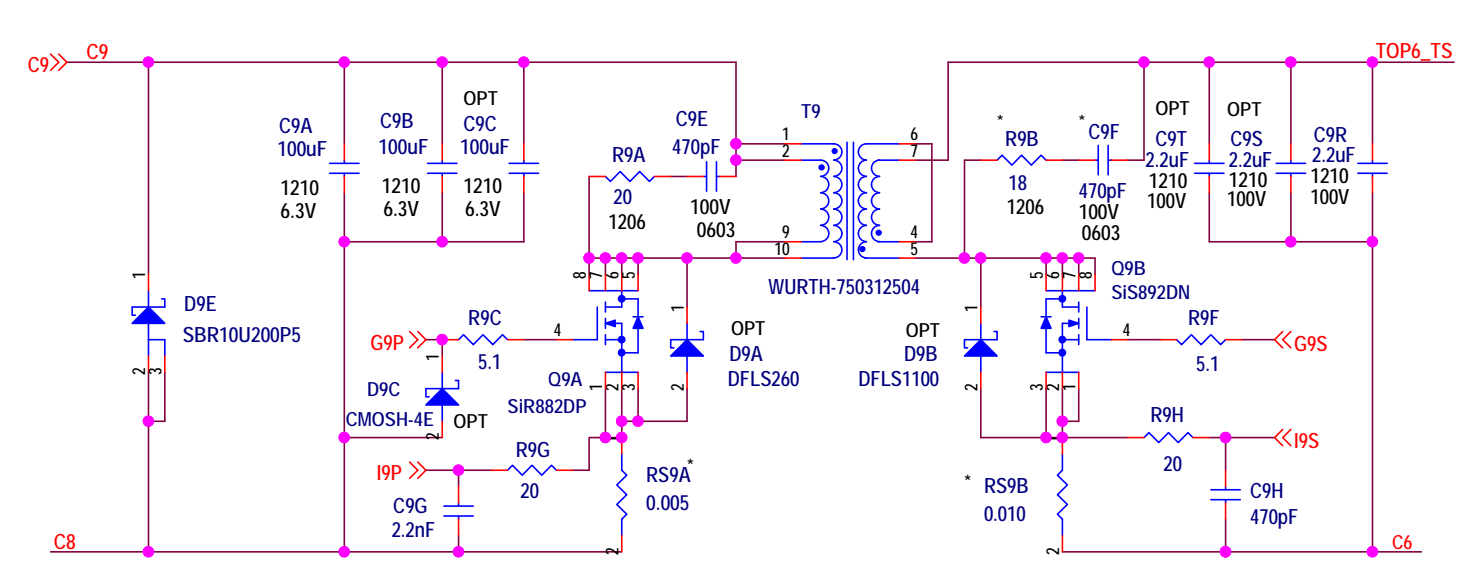
TITLE: SCHEMATIC

SIZE	IC NO.	REV.
N/A	LTC3300ILXE-1 / LTC6804IG-2	1

DATE: 02 - 25 - 15

SHEET 1 OF 6

THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.



*	RS1A-RS12A	RS1B-RS12B	R1B-R12B	C1F-C12F
DC2100B - A / B	0.008	0.016	NP	NP
DC2100B - C / D	0.005	0.010	18	470pF

### CUSTOMER NOTICE

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APPROVALS	
PCB DES.	NC
APP ENG.	J. DREW
SCALE = NONE	

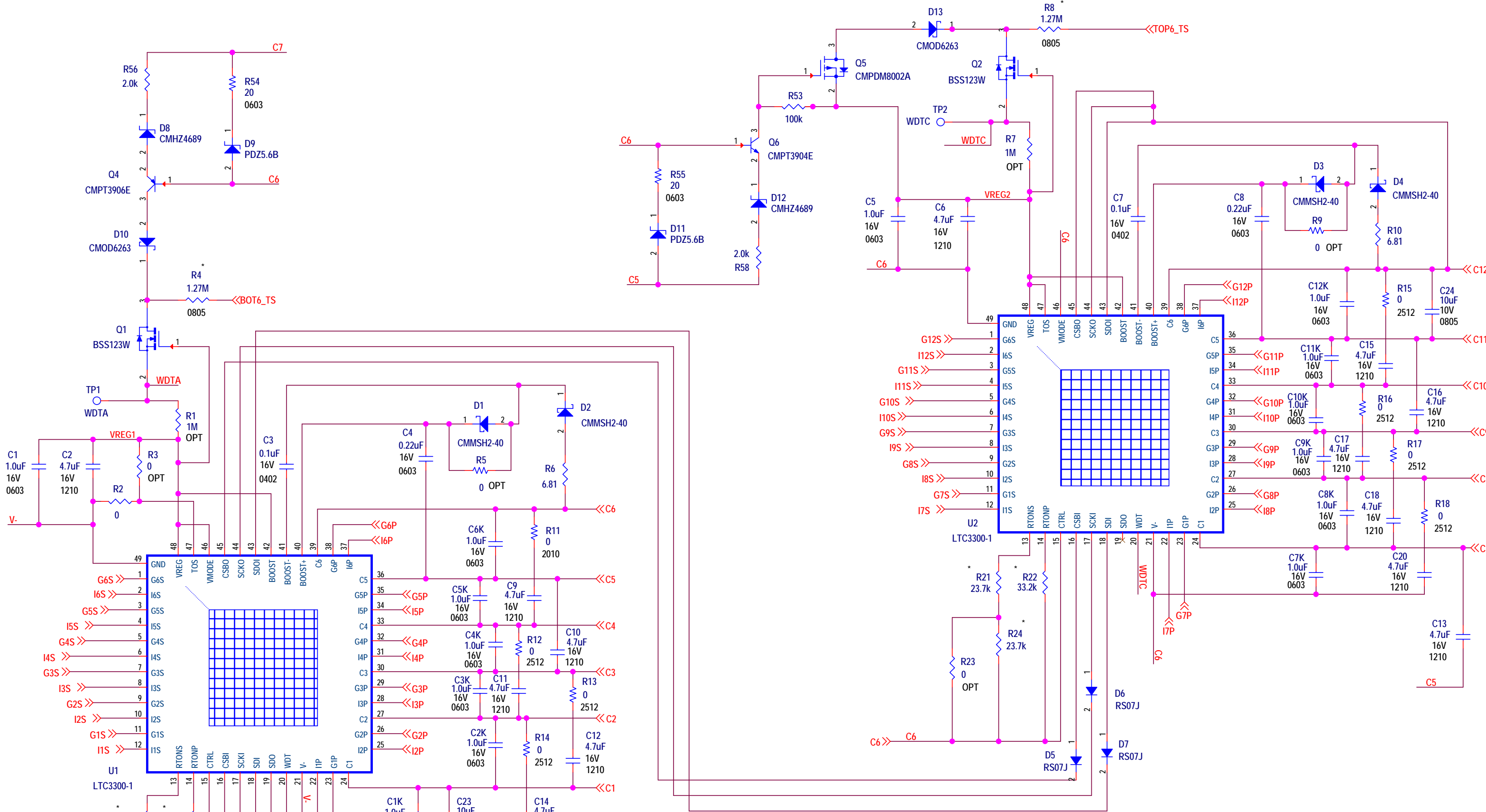
1630 McCarthy Blvd.  
Milpitas, CA 95035  
Phone: (408)432-1900 [www.linear.com](http://www.linear.com)  
Fax: (408)434-0507  
LTC Confidential-For Customer Use Only

TITLE: SCHEMATIC	
SIZE N/A	IC NO. LTC3300ILXE-1 / LTC6804IG-2
DATE: 02 - 25 - 15	

HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER	
REV. 1	

SHEET 2 OF 6	
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THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.



*	R19	R20	R21	R22	R24	R4	R8
DC2100B - A / B	15.4k	20.5k	15.4k	20.5k	15.4k	845k	845k
DC2100B - C / D	23.7k	33.2k	23.7K	33.2k	23.7K	1.27M	1.27M

### CUSTOMER NOTICE

LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.

### APPROVALS

PCB DES.	NC
APP ENG.	J. DREW

### THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.

### LINEAR TECHNOLOGY

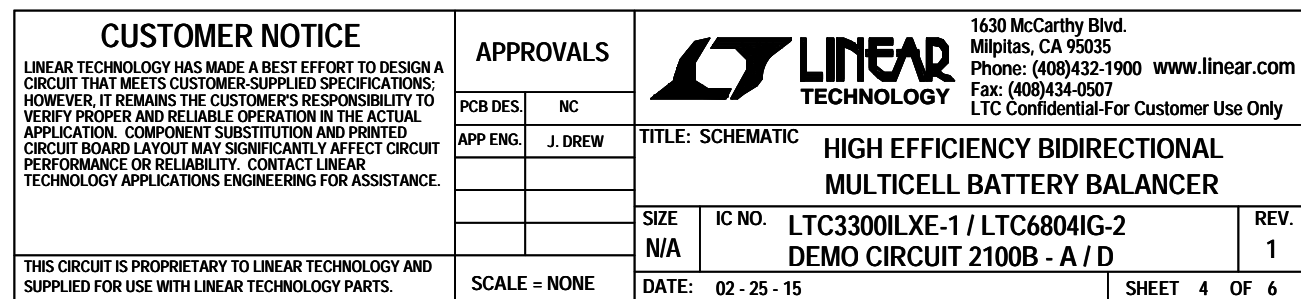
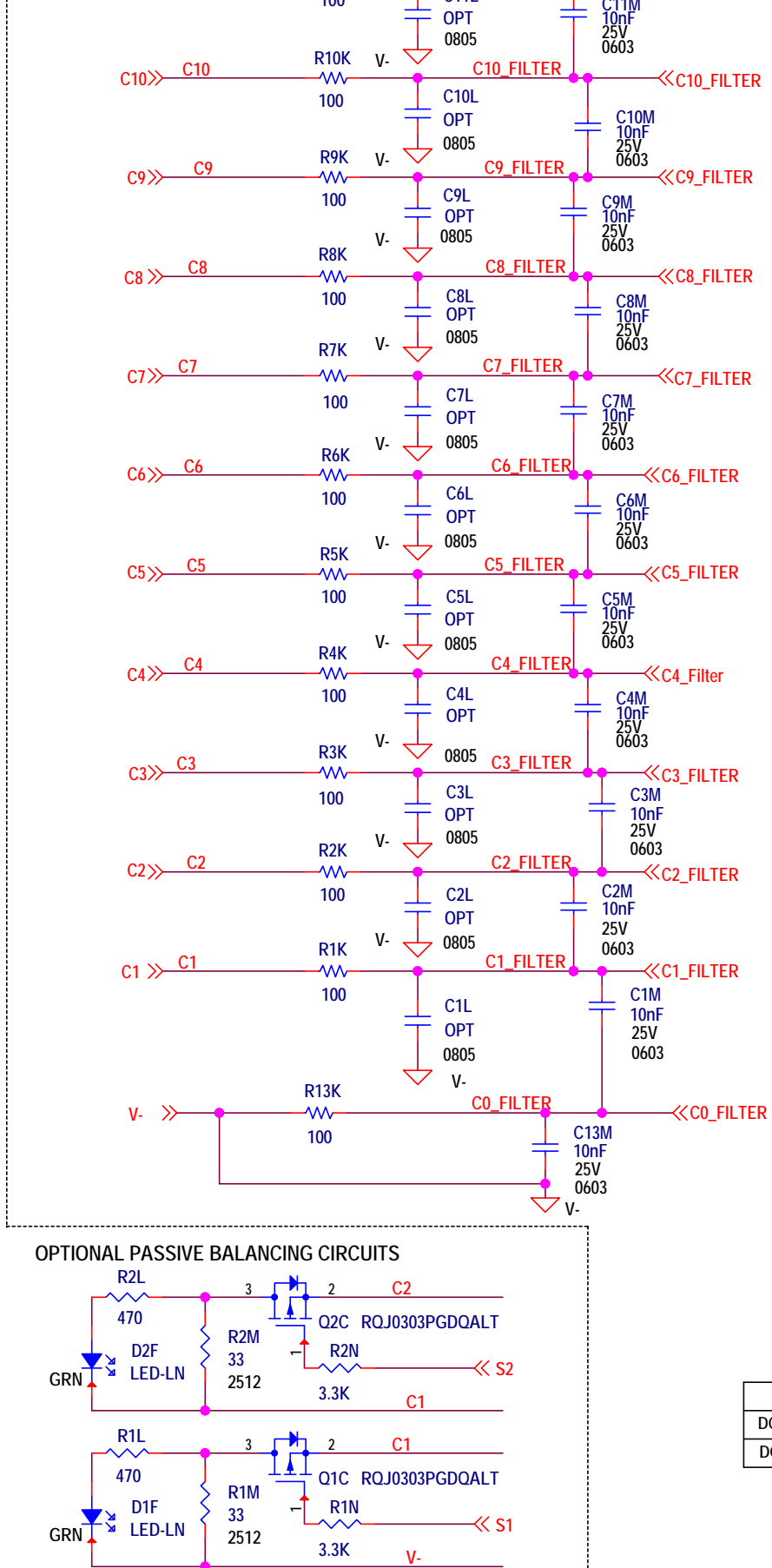
1630 McCarthy Blvd.  
Milpitas, CA 95035  
Phone: (408)432-1900 [www.linear.com](http://www.linear.com)  
Fax: (408)434-0507  
LTC Confidential-For Customer Use Only

### TITLE: SCHEMATIC

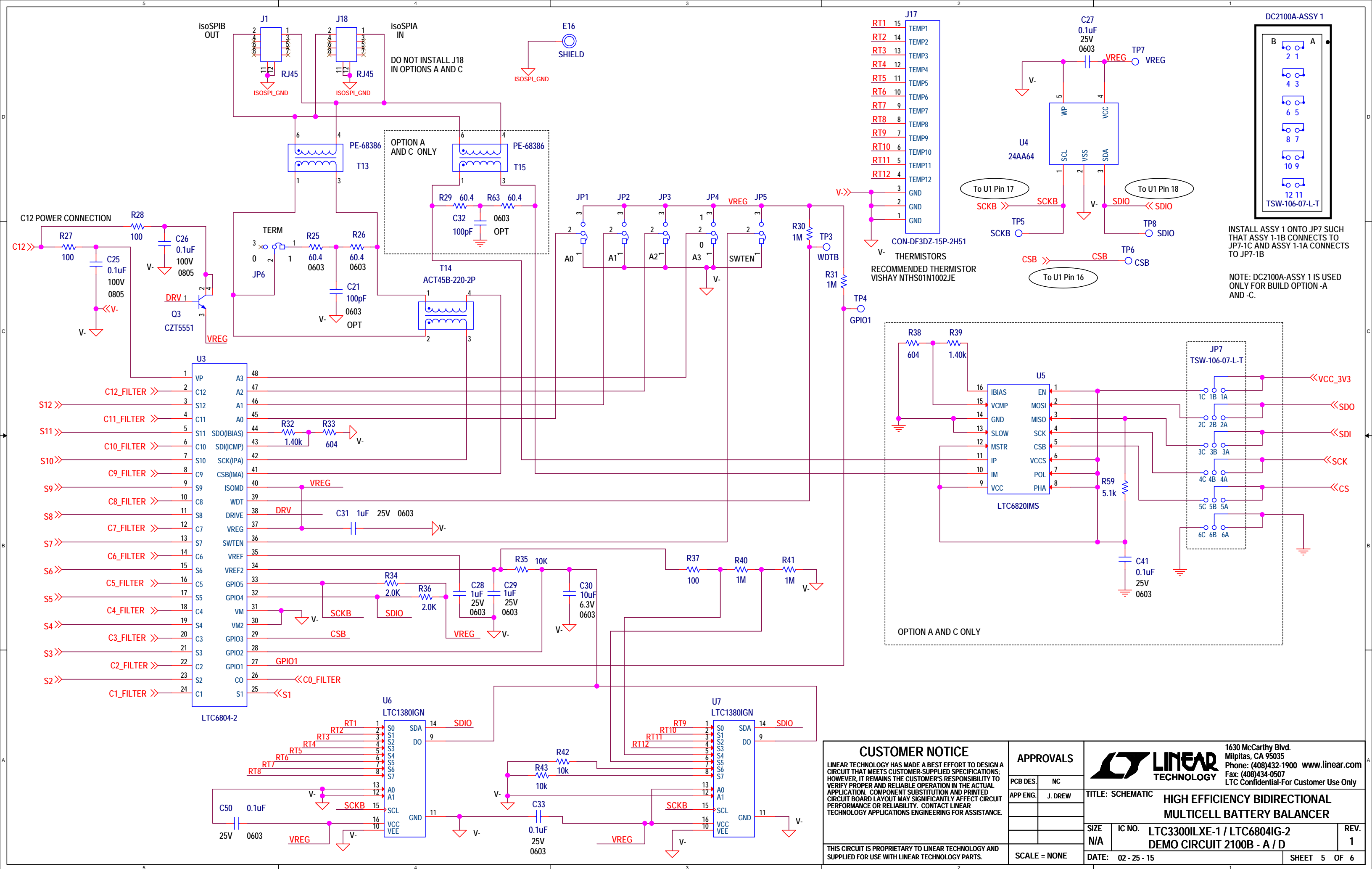
## HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER

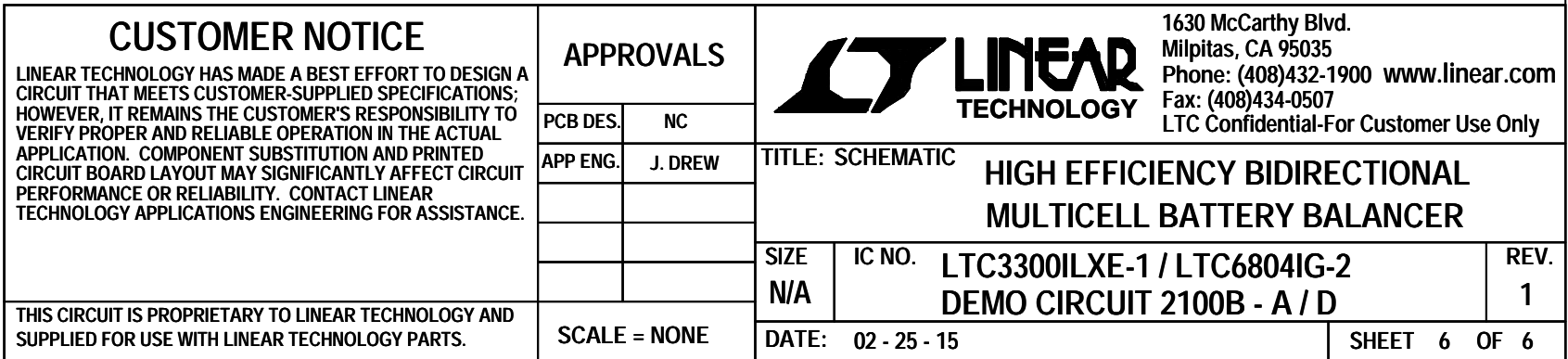
SIZE	IC NO.	REV.
N/A	LTC3300ILXE-1 / LTC6804IG-2	1
DEMO CIRCUIT 2100B - A / D		

DATE:	02 - 25 - 15	SHEET 3 OF 6
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Item	Qty	Reference - Des	Part Description	Manufacturer, Part #
<b>REQUIRED CIRCUIT COMPONENTS:</b>				
1	24	C1A-C12A, C1B-C12B	CAP.,X5R, 100UF, 6.3V,20%, 1210	MURATA, GRM32ER60J107ME20L
2	12	C1E-C12E	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT2A
3	12	C1G-C12G	CAP.,X7R, 2200PF, 50V, 10% 0402	MURATA, GRM155R71H222KA01D
4	12	C1H-C12H	CAP.,X7R, 470PF, 50V, 10% 0402	MURATA, GRM155R71H471KA01D
5	13	C1M-C13M	CAP.,X7R, 0.01UF, 25V,10%, 0603	MURATA, GRM188R71E103KA01D
6	12	C1R-C12R	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM32ER72A225KA35L
7	14	C1,C5,C1K-C12K	CAP.,X7R, 1.0UF, 16V,10%, 0603	MURATA, GRM188R71C105KA12D
8	13	C2,C6,C9-C18,C20	CAP.,X7R, 4.7UF, 16V,10%, 1206	MURATA, GRM31CR71C475KA01L
9	2	C3,C7	CAP, X7R, 0.1UF, 16V, 10% 0402	MURATA, GRM155R71C104KA88D
10	2	C4,C8	CAP.,X7R, 0.22UF, 16V,10%, 0603	TDK, C1608X7R1C224K
11	2	C19, C22	CAP., X7R, 470PF, 250VAC, 10%, 1808	MURATA, GA342QR7GF471KW01L
12	2	C23,C24	CAP.,X7R, 10UF, 10V,10%, 0805	MURATA, GRM21BR71A106KE51L
13	2	C25,C26	CAP., X7R, 0.1UF, 100V, 10%, 0805	AVX, 08051C104KAT2A
14	4	C27,C33, C41, C50	CAP.,X7R, 0.1UF, 25V,10%, 0603	MURATA, GRM188R71E104KA01D
15	3	C28,C29,C31	CAP.,X5R, 1UF, 25V,10%, 0603	TDK, C1608X5R1E105K
16	3	C30,C39,C46	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D
17	6	C34-C38,C45	CAP, X7R, 0.1UF, 16V, 20% 0402	AVX, 0402YC104MAT2A
18	1	C42	CAP.X5R,047UF,16V,10%,0402	TDK, C1005X5R1A474K
19	2	C43,C44	CAP,C0G, 22PF, 50V, 0402	MURATA, GRM1555C1H220JZ01D
20	2	C47,C48	CAP, X5R, 1.0UF, 6.3V,10%,0603	TAIYO YUDEN, JMK105BJ105KV
21	12	D1E-D12E	DIODE, SBR 200V,10A, POWERDI5	DIODES INC, SBR10U200P5-13
22	4	D1-D4	SMD, SCHOTTKY	CENTRAL SEMI, CMMSH2-40
23	3	D5-D7	SMD, SILICON SWITCHING DIODE	VISHAY, RS07J
24	2	D8,D12	SMD,SILICON ZENER,5.1V	CENTRAL SEMI, CMHZ4689
25	2	D10,D13	SMD, SCHOTTKY, 70V	CENTRAL SEMI, CMOD6263 TR
26	2	D9,D11	DIODE,ZENER 5.6V,400MW,SOD323	PHILIPS, PDZ5.6B,115
27	1	D14	DIODE,SWITCHING,1.0mmX0.6mm DFN2	DIODES INC, 1N4448HLP
28	25	D1D-D12D,D1F-D12F,D15	LED,GREEN, CLEAR 0603 SMD	LITE-ON, LTST-C190KGKT
29	1	D16	LED, YELLOW ORANGE CLEAR 0603 SMD	LITE-ON, LTST-C190KFKT
30	15	F1-F15	SMD, FUSE, 7.0A, FAST ACTING, 1206	BUSSMANN, 3216FF7-R
31	1	J1	CONN MOD JACK R/A 8P8C SHIELDED RJ45	WURTH, 615008140121
32	1	J19	USB, B RECEPTACLE,RT,SMT	WURTH, 651005136521
33	1	J20	HEADER, 2.0mm,2X3 TH HEADER	WURTH, 62000621121
34	1	J21	HEADER,2mm,2X8 TH HEADER	WURTH, 62501621621
35	1	J22	HEADER,2mm,2X2, TH HEADER	MOLEX, 87831-0420
36	1	PB1	SWITCH TACTILE SPST-NO 0.05A 12V	WURTH, 434111025826

<b>Item</b>	<b>Qty</b>	<b>Reference - Des</b>	<b>Part Description</b>	<b>Manufacturer, Part #</b>
37	12	R1A-R12A	RES,CHIP,20 OHM,1/4W,5%,1206	VISHAY, CRCW120620R0JNEA
38	24	R1C-R12C,R1F-R12F	RES,CHIP,5.1 OHM,1/16W,5%,0402	VISHAY, CRCW04025R10JNED
39	24	R1G-R12G, R1H-R12H	RES,CHIP,20 OHM,1/16W,5%,0402	VISHAY, CRCW040220R0JNED
40	14	R1J-R12J,R56,R58	RES,CHIP,2.0K,1/16W,5%,0402	VISHAY, CRCW04022K00JNED
41	16	R1K-R13K, R27,R28,R37	RES,CHIP,100 OHM,1/16W,5%,0402	VISHAY, CRCW0402100RJNED
42	12	R1L-R12L	RES,CHIP,470 OHM,1/16W,5%,0402	VISHAY, CRCW0402470RJNED
43	12	R1M-R12M	RES,CHIP,33 OHM,1W,5%,2512	VISHAY, CRCW251233R0JNEG
44	12	R1N-R12N	RES,CHIP,3.3K,1/16W,5%,0402	VISHAY, CRCW04023K30JNED
45	1	R2	RES,CHIP,0 OHM, JUMPER, 1/16W,5%,0402	VISHAY, CRCW04020000Z0ED
46	2	R4,R8	RES,CHIP,845K, 1/8W, 1%,0805	VISHAY, CRCW0805845KFKEA
47	2	R6,R10	RES,CHIP,6.81 OHM,1/16W,1%,0402	VISHAY, CRCW04026R81FKED
48	8	R11-R18	RES, CHIP, 0 OHM, 2512	VISHAY, CRCW25120000Z0EG
49	3	R19,R21,R24	RES,CHIP,15.4K,1/16W,1%,0402	VISHAY, CRCW040215K4FKED
50	2	R20,R22	RES,CHIP,20.5K,1/16W,1%,0402	VISHAY, CRCW040220K5FKED
51	2	R25,R26	RES,CHIP,60.4 OHM,1/10W,1%,0603	VISHAY, CRCW060360R4JKED
52	2	R29,R63	RES,CHIP,60.4 OHM,1/16W,1%,0402	VISHAY, CRCW040260R4JKED
53	4	R30,R31,R40,R41	RES,CHIP,1.00MEG,1/16W,5%,0402	VISHAY, CRCW04021M00JNED
54	1	R35	RES,CHIP,10K,1/16W,1%,0402	VISHAY, CRCW040210K0FKED
55	2	R32,R39	RES,CHIP,1.40K,1/16W,1%,0402	VISHAY, CRCW04021K40FKED
56	2	R33,R38	RES,CHIP,604 OHM,1/16W,1%,0402	VISHAY, CRCW0402604RJKED
57	5	R34,R36,R47,R61,R62	RES,CHIP,2.0K,1/16W,5%,0402	VISHAY, CRCW04022K00JNED
58	6	R42,R43,R50-R52,R60	RES,CHIP,10.0K,1/16W,5%,0402	VISHAY, CRCW040210K0JNED
59	1	R44	RES,CHIP,1.0 OHM,1/16W,5%,0402	VISHAY, CRCW04021R00JNED
60	1	R49	RES,CHIP,1.0K,1/16W,5%,0402	VISHAY, CRCW04021K00JNED
61	1	R53	RES,CHIP,100K,1/16W,1%,0402	VISHAY, CRCW0402100KFKED
62	2	R54,R55	RES,CHIP,20 OHM,1/10W,5%,0603	VISHAY, CRCW060320R0JNEA
63	1	R59	RES,CHIP,5.1K,1/16W,5%,0402	VISHAY, CRCW04025K10JNED
64	1	R64	RES,CHIP, 2.49K,1/16W,1%,0402	VISHAY, CRCW04022K49FKED
65	1	R65	RES,CHIP, 1.00M,1/16W,1%,0402	VISHAY, CRCW04021M00FKED
66	1	R66	RES,CHIP, 301,1/10W,1%,0603	VISHAY, CRCW0603301RFKED
67	12	RS1A-RS12A	RES,CHIP,8mOHM,1W,1%,1206	SUSUMU, PRL1632-R008-F
68	12	RS1B-RS12B	RES,CHIP,16mOHM,1W,1%,1206	SUSUMU, PRL1632-R016-F
69	12	Q1A-Q12A	MOSFET, 100V, 0.0087 OHM, 60A,POWERPAK-SO8	VISHAY, SiR882ADP-GE3
70	12	Q1B-Q12B	MOSFET, 100V, 0.058 OHM, 25A,POWERPAK-1212-8	VISHAY, SiS892ADN-GE3
71	12	Q1C-Q12C	MOSFET, P-CHAN 30V, 80m OHM,MPAK	INFINEON, BSS308PEH6327XT
72	2	Q1,Q2	MOSFET,100V, 10 OHM,SOT-323	DIODES INC, BSS123W-7-F
73	1	Q3	TRANS. NPN, 180V, 0.6A,SOT-223	CENTRAL SEMI, CZT5551



Item	Qty	Reference - Des	Part Description	Manufacturer, Part #
74	1	Q4	TRANS,PNP,60V,SOT-23	CENTRAL SEMI, CMPT3906E
75	1	Q5	MOSFET, P-CHAN 50V, 4 OHM,SOT-23	CENTRAL SEMI, CMPDM8002A
76	2	Q6,Q7	TRANS,NPN,60V,SOT-23	CENTRAL SEMI, CMPT3904E
77	1	Q8	MOSFET,100V, 10 OHM,SOT-323	DIODES INC, BSS123W-F
78	12	T1-T12	TRANSFORMER, 1:1, 3.0uH, 10.8A	WURTH, 750312504
79	1	T13,T15	TRANSFORMER, ISOLATION	PULSE ENG., PE-68386NLT
80	1	T14	IND., CHOKE COM MODE 22UH 1.2KOHM SMD	TDK, ACT458-220-2P-TL003
81	2	U1,U2	IC,SMT, BI-DIRECTIONAL BATTERY BALANCER	LINEAR, LTC3300ILXE-1#PBF
82	1	U3	IC,SMT,BATTERY MONITOR	LINEAR, LTC6804IG-2#PBF
83	1	U4	IC,SMT,24AA64	MICROCHIP TECH. 24AA64T-I/OT
84	1	U5	IC,SMT, isospi ISOLATED COMM. INTERFACE	LINEAR,LTC6820IMS#PBF
85	2	U6,U7	IC,SMT, 8-CHANNEL MUX, SSOP-16	LINEAR, LTC1380CGN#PBF
86	1	U8	MODULE, USB ISOLATOR	LINEAR.LTM2884CY#PBF
87	1	U9	IC,SMT, MICRO POWER VLDO, 3.3V, SOT23-5	LINEAR, LT1761ES5-3.3#PBF
88	1	U10	14bit uc w/usb, 8mmX8mmQFN44	MICROCHIP, PIC18F47J53-I/ML
89	1	Y1	12MHz CRYSTAL	ECS INC, ECS-120-20-3X
<b>COMPONENTS AND HARDWARE FOR DEMO BOARD ONLY:</b>				
1	15	E1-E15	TURRET, 0.09"	MIL-MAX, 2501-2-00-80-00-00-07-0
2	1	J17	HEADER,SMD, 1X15, TIN PLATED,RT ANGLE	HIROSE, DF3DZ-15P-2 (21)
3	6	JP1-JP6	HEADER, 3PINS, 2mm	WURTH, 62000311121
4	6	JP1-JP6	SHUNT 2mm	WURTH,60800213421
5	1	JP7	HEADER,2.54mm, 3X6 THT VERT 18POS	SAMTEC, TSW-106-07-L-T
6	1	JP7(mate)	JP7 JUMPER BOARD	LINEAR,DC2100-ASSY-1
7	1	J17(mate)	DC2100A THERMISTOR BOARD	LINEAR, DC2100A - THERM-1
10	10		STAND-OFF HEX, NYL 8/32 THR 0.25" L	KEYSTONE, 1904A
11	10		SCREW,PAN PHILLIPS 8-32 1/4 NYL	B&F FASTENER, NY PMS 8320025PH
<b>OPTIONAL COMPONENTS :</b>				
1	0	C1C-C12C	CAP.,X5R, 100UF, 6.3V,10%, 1210	MURATA, GRM32ER60J107ME20L
2	0	C1F-C12F OPT	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT2A
3	0	C1S-C12S, C1T-C12T	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM32ER72A225KA35L
4	0	C1L-C12L OPT	CAP,OPT,100V,0805	
5	0	C21, C32 OPT	CAP.,X7R, 100PF, 100V,10%, 0603	AVX, 06031C101KAT
6	0	C40 OPT	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D
7	0	C49	CAP, X7R, 0.1UF, 16V, 20% 0402	AVX, 0402YC104MAT2A
8	0	D1A-D12A OPT	DIODE, SCHOTTKY 2.0A 60V HI EFFICIENCY	DIODES INC, DFLS260-7
9	0	D1B-D12B OPT	DIODE, SCHOTTKY 100V 1A BARRIER RECTIFIER POWERDI123	DIODES INC, DFLS1100-7
10	0	D1C-D12C OPT	SMD, SCHOTTKY	CENTRAL SEMI, CMOSH-4E

<b>Item</b>	<b>Qty</b>	<b>Reference - Des</b>	<b>Part Description</b>	<b>Manufacturer, Part #</b>
11	0	R1B-R12B OPT	RES,CHIP,18 OHMS,1/4W,5%,1206	VISHAY, CRCW120618R0JNEA
12	0	R1,R7 OPT	RES,CHIP,1.00MEG,1/16W,5%,0402	VISHAY, CRCW04021M00JNED
13	0	R3,R5,R9,R23 OPT	RES,CHIP,0 OHMS,0402	VISHAY, CRCW04020000FKED
14	0	R45,R46,R48,R57 OPT	RES, CHIP, 0 OHM, 2512	VISHAY, CRCW25120000Z0EF
15	0	J2,J3,J4,J16 OPT	HEADER 1X2	WEIDMULLER, 179313000_SC
16	0	J2,J3,J4,J16 (mate) OPT	SOCKET 1X2	WEIDMULLER, 1792770000
17	0	J5-J15 OPT	HEADER, 1X3	WEIDMULLER, 179314000_SC
18	0	J5-J13 (mate) OPT	SOCKET, 1X3	WEIDMULLER, 1792780000

Item	Qty	Reference - Des	Part Description	Manufacturer, Part #
<b>REQUIRED CIRCUIT COMPONENTS:</b>				
1	24	C1A-C12A, C1B-C12B	CAP.,X5R, 100UF, 6.3V,20%, 1210	MURATA, GRM32ER60J107ME20L
2	12	C1E-C12E	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT2A
3	12	C1G-C12G	CAP.,X7R, 2200PF, 50V, 10% 0402	MURATA, GRM155R71H222KA01D
4	12	C1H-C12H	CAP.,X7R, 470PF, 50V, 10% 0402	MURATA, GRM155R71H471KA01D
5	13	C1M-C13M	CAP.,X7R, 0.01UF, 25V,10%, 0603	MURATA, GRM188R71E103KA01D
6	12	C1R-C12R	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM32ER72A225KA35L
7	14	C1,C5,C1K-C12K	CAP.,X7R, 1.0UF, 16V,10%, 0603	MURATA, GRM188R71C105KA12D
8	13	C2,C6,C9-C18,C20	CAP.,X7R, 4.7UF, 16V,10%, 1206	MURATA, GRM31CR71C475KA01L
9	2	C3,C7	CAP, X7R, 0.1UF, 16V, 20% 0402	MURATA, GRM155R71C104KA88D
10	2	C4,C8	CAP.,X7R, 0.22UF, 16V,10%, 0603	TDK, C1608X7R1C224K
11	2	C23,C24	CAP.,X7R, 10UF, 10V,10%, 0805	MURATA, GRM21BR71A106K51L
12	2	C25,C26	CAP., X7R, 0.1UF, 100V, 10%, 0805	AVX, 08051C104KAT2A
13	3	C27,C33,C50	CAP.,X7R, 0.1UF, 25V,10%, 0603	MURATA, GRM188R71E104KA01D
14	3	C28,C29,C31	CAP.,X5R, 1UF, 25V,10%, 0603	TDK, C1608X5R1E105K
15	1	C30	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D
16	12	D1E-D12E	DIODE, SBR,200,10A,POWERDI5	DIODES INC, SBR10U200P5-13
17	4	D1-D4	SMD, SCHOTTKY	CENTRAL SEMI, CMMSH2-40
18	3	D5-D7	SMD, SILICON SWITCHING DIODE	VISHAY, RS07J
19	2	D8,D12	SMD,SILICON ZENER,5.1V	CENTRAL SEMI, CMHZ4689
20	2	D10,D13	SMD, SCHOTTKY, 70V	CENTRAL SEMI, CMOD6263 TR
21	2	D9,D11	DIODE,ZENER 5.6V,400MW,SOD323	PHILIPS, PDZ5.6B
22	24	D1D-D12D, D1F-D12F	LED,GREEN, CLEAR 0603 SMD	LITE-ON, LTST-C190KGKT
23	15	F1-F15	SMD, FUSE, 7.0A, FAST ACTING, 1206	BUSSMANN, 3216FF7-R
24	2	J1,J18	CONN MOD JACK R/A 8P8C SHIELDED RJ45	WURTH, 615008140121
25	12	R1A-R12A	RES,CHIP,20 OHM,1/4W,5%,1206	VISHAY, CRCW120620R0JNEA
26	24	R1C-R12C,R1F-R12F	RES,CHIP,5.1 OHM,1/16W,5%,0402	VISHAY, CRCW04025R10JNED
27	24	R1G-R12G, R1H-R12H	RES,CHIP,20 OHM,1/16W,5%,0402	VISHAY, CRCW040220R0JNED
28	14	R1J-R12J,R56,R58	RES,CHIP,2.0K,1/16W,5%,0402	VISHAY, CRCW04022K00JNED
29	15	R1K-R12K, R27,R28,R37	RES,CHIP,100 OHM,1/16W,5%,0402	VISHAY, CRCW0402100RJNED
30	12	R1L-R12L	RES,CHIP,470 OHM,1/16W,5%,0402	VISHAY, CRCW0402470RJNED
31	12	R1M-R12M	RES,CHIP,33 OHM,1W,5%,2512	VISHAY, CRCW251233R0JNED
32	12	R1N-R12N	RES,CHIP,3.3K,1/16W,5%,0402	VISHAY, CRCW04023K30JNED
33	1	R2	RES,CHIP,0,0402	VISHAY, CRCW04020000FKED
34	2	R4,R8	RES,CHIP,845K, 1/8W, 1%,0805	VISHAY, CRCW0805845KFKED
35	2	R6,R10	RES,CHIP,6.81 OHM,1/16W,1%,0402	VISHAY, CRCW04026R81FKED

<b>Item</b>	<b>Qty</b>	<b>Reference - Des</b>	<b>Part Description</b>	<b>Manufacturer, Part #</b>
36	8	R11-R18	RES, CHIP, 0 OHM, 2512	VISHAY, CRCW25120000Z0EF
37	3	R19,R21,R24	RES,CHIP,15.4K,1/16W,1%,0402	VISHAY, CRCW040215K4FKED
38	2	R20,R22	RES,CHIP,20.5K,1/16W,1%,0402	VISHAY, CRCW040220K5FKED
39	2	R25,R26	RES,CHIP,60.4 OHM,1/10W,1%,0603	VISHAY, CRCW060360R4JKED
40	4	R30,R31,R40,R41	RES,CHIP,1.00MEG,1/16W,5%,0402	VISHAY, CRCW04021M00JNED
41	1	R32	RES,CHIP,1.40K,1/16W,1%,0402	VISHAY, CRCW04021K40JKED
42	1	R33	RES,CHIP,604 OHM,1/16W,1%,0402	VISHAY, CRCW0402604RJKED
43	1	R35	RES,CHIP,10K,1/16W,1%,0402	VISHAY, CRCW040210K0FKED
44	2	R42,R43	RES,CHIP,10.0K,1/16W,5%,0402	VISHAY, CRCW040210K0JNED
45	1	R53	RES,CHIP,100K,1/16W,1%,0402	VISHAY, CRCW0402100KFKED
46	2	R54,R55	RES,CHIP,20 OHM,1/10W,5%,0603	VISHAY, CRCW060320R0JNED
47	12	RS1A-RS12A	RES,CHIP,8mOHM,1W,1%,1206	SUSUMU, PRL1632-R008-F
48	12	RS1B-RS12B	RES,CHIP,16mOHM,1W,1%,1206	SUSUMU, PRL1632-R016-F
49	12	Q1A-Q12A	MOSFET, 100V, 0.0087 OHM, 60A,POWERPAK-SO8	VISHAY, SiR882ADP-GE3
50	12	Q1B-Q12B	MOSFET, 100V, 0.058 OHM, 25A,POWERPAK-1212-8	VISHAY, SiS892ADN-GE3
51	12	Q1C-Q12C	MOSFET, P-CHAN 30V, 80m OHM,MPAK	INFINEON, BSS308PEH6327XT
52	2	Q1,Q2	MOSFET,100V, 10 OHM,SOT-323	DIODES INC, BSS123W-7-F
53	1	Q3	TRANS. NPN, 180V, 0.6A,SOT-223	CENTRAL SEMI, CZT5551
54	1	Q4	TRANS,PNP,60V,SOT-23	CENTRAL SEMI, CMPT3906E
55	1	Q5	MOSFET, P-CHAN 50V, 4 OHM,SOT-23	CENTRAL SEMI, CMPDM8002A
56	1	Q6	TRANS,NPN,60V,SOT-23	CENTRAL SEMI, CMPT3904E
57	12	T1-T12	TRANSFORMER, 1:1, 3.0uH, 10.8A	WURTH, 750312504
58	1	T13	TRANSFORMER, ISOLATION	PULSE ENG., PE-68386NLT
59	1	T14	IND., CHOKE COM MODE 22UH 1.2KOHM SMD	TDK, ACT458-220-2P-TL003
60	2	U1,U2	IC,SMT, BI-DIRECTIONAL BATTERY BALANCER	LINEAR, LTC3300ILXE-1#PBF
61	1	U3	IC,SMT,BATTERY MONITOR	LINEAR, LTC6804IG-2#PBF
62	1	U4	IC,SMT,24AA64	MICROCHIP TECH. 24AA64IT-/OT
63	2	U6,U7	IC,SMT, 8-CHANNEL MUX, SSOP-16	LINEAR, LTC1380CGN#PBF
<b>COMPONENTS AND HARDWARE FOR DEMO BOARD ONLY:</b>				
1	15	E1-E15	TURRET, 0.09"	MIL-MAX, 2501-2-00-80-00-00-07-0
2	1	J17	HEADER,SMD, 1X15, TIN PLATED,RT ANGLE	HIROSE, DF3DZ-15P-2H(21)
3	6	JP1-JP56	HEADER, 3PINS, 2mm	WURTH, 62000311121
4	6	JP1-JP6	SHUNT 2mm	WURTH,60800213421
5	1	J17(mate)	DC2100A THERMISTOR BOARD	LINEAR, DC2100A - THERM-1
6	10		STAND-OFF HEX, NYL 8/32 THR 0.25" L	KEYSTONE, 1904A
7	10		SCREW PHIL 8-32 1/4 NYL	B&F FASTENER, NY PMS 8320025PH
<b>OPTIONAL COMPONENTS :</b>				



<i>Item</i>	<i>Qty</i>	<i>Reference - Des</i>	<i>Part Description</i>	<i>Manufacturer, Part #</i>
1	0	C1C-C12C	CAP.,X5R, 100UF, 6.3V,10%, 1210	MURATA, GRM32ER60J107ME20L
2	0	C1F-C12F OPT	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT
3	0	C1S-C12S, C1T-C12T	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM155R71H471KA01D
4	0	C1L-C12L OPT	CAP,OPT,100V,0805	
5	0	C21 OPT	CAP.,X7R, 100PF, 100V,10%, 0603	AVX, 06031C101KAT
6	0	D1A-D12A OPT	DIODE, SCHOTTKY 2.0A 60V HI EFFICIENCY	DIODES INC, DFLS260-7
7	0	D1B-D12B OPT	DIODE, SCHOTTKY 100V 1A BARRIER RECTIFIER POWERDI123	DIODES INC, DFLS1100-7
8	0	D1C-D12C OPT	SMD, SCHOTTKY	CENTRAL SEMI, CMOSH-4E
9	0	R1B-R12B OPT	RES,CHIP,18 OHM,1/4W,5%,1206	VISHAY, CRCW120618R0JNEA
10	0	R1,R7 OPT	RES,CHIP,1.00MEG,1/16W,5%,0402	VISHAY, CRCW04021M00JNED
11	0	R3,R5,R9,R23 OPT	RES,CHIP,0 OHM,0402	VISHAY, CRCW04020000FKED
12	0	J2,J3,J4,J16 OPT	HEADER 1X2	WEIDMULLER, 179313000_SC
13	0	J2,J3,J4,J16 (mate) OPT	SOCKET 1X2	WEIDMULLER, 1792770000
14	0	J5-J15 OPT	HEADER, 1X3	WEIDMULLER, 179314000_SC
15	0	J5-J15 (mate) OPT	SOCKET, 1X3	WEIDMULLER, 1792780000

Item	Qty	Reference - Des	Part Description	Manufacturer, Part #
<b>REQUIRED CIRCUIT COMPONENTS:</b>				
1	24	C1A-C12A, C1B-C12B	CAP.,X5R, 100UF, 6.3V,20%, 1210	MURATA, GRM32ER60J107ME20L
2	24	C1E-C12E, C1F-C12F	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT2A
3	12	C1G-C12G	CAP.,X7R, 2200PF, 50V, 10% 0402	MURATA, GRM155R71H222KA01D
4	12	C1H-C12H	CAP.,X7R, 470PF, 50V, 10% 0402	MURATA, GRM155R71H471KA01D
5	13	C1M-C13M	CAP.,X7R, 0.01UF, 25V,10%, 0603	MURATA, GRM188R71E103KA01D
6	12	C1R-C12R	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM32ER72A225KA35L
7	14	C1,C5,C1K-C12K	CAP.,X7R, 1.0UF, 16V,10%, 0603	MURATA, GRM188R71C105KA12D
8	13	C2,C6,C9-C18,C20	CAP.,X7R, 4.7UF, 16V,10%, 1206	MURATA, GRM31CR71C475KA01L
9	2	C3,C7	CAP, X7R, 0.1UF, 16V, 10% 0402	MURATA, GRM155R71C104KA88D
10	2	C4,C8	CAP.,X7R, 0.22UF, 16V,10%, 0603	TDK, C1608X7R1C224K
11	2	C19, C22	CAP., X7R, 470PF, 250VAC, 10%, 1808	MURATA, GA342QR7GF471KW01L
12	2	C23,C24	CAP.,X7R, 10UF, 10V,10%, 0805	MURATA, GRM21BR71A106K51L
13	2	C25,C26	CAP., X7R, 0.1UF, 100V, 10%, 0805	AVX, 08051C104KAT2A
14	4	C27,C33,C41,C50	CAP.,X7R, 0.1UF, 25V,10%, 0603	MURATA, GRM188R71E103KA01D
15	3	C28,C29,C31	CAP.,X5R, 1UF, 25V,10%, 0603	TDK, C1608X5R1E105K
16	3	C30,C39,C46	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R71C105KA12D
17	6	C34-C38,C45	CAP, X7R, 0.1UF, 16V, 20% 0402	AVX, 0402YC104MAT2A
18	1	C42	CAP.X5R,047UF,16V,10%,0402	TDK, C1005X5R1A474K
19	2	C43,C44	CAP,C0G, 22PF, 50V, 0402	MURATA, GRM1555C1H220JZ01D
20	2	C47,C48	CAP, X5R, 1.0UF, 6.3V,10%,0603	TAIYO YUDEN, JMK105BJ105KV
21	12	D1E-D12E	DIODE, SBR,200,10A,POWERDI5	DIODES INC, SBR10U200P5-13
22	4	D1-D4	SMD, SCHOTTKY	CENTRAL SEMI, CMMSH2-40
23	3	D5-D7	SMD, SILICON SWITCHING DIODE	VISHAY, RS07J
24	2	D8,D12	SMD,SILICON ZENER,5.1V	CENTRAL SEMI, CMHZ4689
25	2	D10,D13	SMD, SCHOTTKY, 70V	CENTRAL SEMI, CMOD6263 TR
26	2	D9,D11	DIODE,ZENER 5.6V,400MW,SOD323	PHILIPS, PDZ5.6B
27	1	D14	DIODE,SWITCHING,1.0mmX0.6mm DFN2	DIODES INC, 1N4448HLP
28	25	D1D-D12D,D1F-D12F,D15	LED,GREEN, CLEAR 0603 SMD	LITE-ON, LTST-C190KGKT
29	1	D16	LED, YELLOW ORANGE CLEAR 0603 SMD	LITE-ON, LTST-C190KFKT
30	13	F1-F12, F15	SMD, FUSE, 12.0A, FAST ACTING, 1206	BUSSMANN, 3216FF12-R
31	2	F13,F14	SMD, FUSE, 7.0A, FAST ACTING, 1206	BUSSMANN, 3216FF7-R
32	1	J1	CONN MOD JACK R/A 8P8C SHIELDED RJ45	WURTH, 615008140121
33	1	J19	USB, B RECEPTACLE,RT,SMT	WURTH, 651005136521
34	1	J20	HEADER,2.0mm, 2X3 TH HEADER	WURTH, 62000621121
35	1	J21	HEADER,2mm,2X8 TH HEADER	WURTH, 62501621621
36	1	J22	HEADER,2mm,2X2, TH HEADER	MOLEX, 87831-0420

<b>Item</b>	<b>Qty</b>	<b>Reference - Des</b>	<b>Part Description</b>	<b>Manufacturer, Part #</b>
37	1	PB1	SWITCH TACTILE SPST-NO 0.05A 12V	WURTH, 434111025826
38	12	R1A-R12A	RES,CHIP,20 OHM,1/4W,5%,1206	VISHAY, CRCW120620R0JNEA
39	12	R1B-R12B OPT	RES,CHIP,18 OHM,1/4W,5%,1206	VISHAY, CRCW120618R0JNEA
40	24	R1C-R12C,R1F-R12F	RES,CHIP,5.1 OHM,1/16W,5%,0402	VISHAY, CRCW04025R10JNED
41	24	R1G-R12G, R1H-R12H	RES,CHIP,20 OHM,1/16W,5%,0402	VISHAY, CRCW040220R0JNED
42	14	R1J-R12J,R56,R58	RES,CHIP,2.0K,1/16W,5%,0402	VISHAY, CRCW04022K00JNED
43	16	R1K-R13K, R27,R28,R37	RES,CHIP,100 OHM,1/16W,5%,0402	VISHAY, CRCW0402100RJNED
44	12	R1L-R12L	RES,CHIP,470 OHM,1/16W,5%,0402	VISHAY, CRCW0402470RJNED
45	12	R1M-R12M	RES,CHIP,33 OHM,1W,5%,2512	VISHAY, CRCW251233R0JNEG
46	12	R1N-R12N	RES,CHIP,3.3K,1/16W,5%,0402	VISHAY, CRCW04023K30JNED
47	1	R2	RES,CHIP,0 OHM, JUMPER, 1/16W,5%,0402	VISHAY, CRCW04020000Z0ED
48	2	R4,R8	RES,CHIP,1.27M, 1/8W, 1%,0805	VISHAY, CRCW08051M27FKED
49	2	R6,R10	RES,CHIP,6.81 OHM,1/16W,1%,0402	VISHAY, CRCW04026R81FKED
50	8	R11-R18	RES, CHIP, 0 OHM, 2512	VISHAY, CRCW25120000Z0EG
51	3	R19,R21,R24	RES,CHIP,23.7K,1/16W,1%,0402	VISHAY, CRCW040223K7FKED
52	2	R20,R22	RES,CHIP,33.2K,1/16W,1%,0402	VISHAY, CRCW040233K2FKED
53	2	R25,R26	RES,CHIP,60.4 OHM,1/10W,1%,0603	VISHAY, CRCW060360R4FKED
54	2	R29,R63	RES,CHIP,60.4 OHM,1/16W,1%,0402	VISHAY, CRCW040260R4FKED
55	4	R30,R31,R40,R41	RES,CHIP,1.00MEG,1/16W,5%,0402	VISHAY, CRCW04021M00JNED
56	2	R32,R39	RES,CHIP,1.40K,1/16W,1%,0402	VISHAY, CRCW04021K40JKED
57	2	R33,R38	RES,CHIP,604 OHM,1/16W,1%,0402	VISHAY, CRCW0402604RJNED
58	5	R34,R36,R47,R61,R62	RES,CHIP,2.0K,1/16W,5%,0402	VISHAY, CRCW04022K00JNED
59	1	R35	RES,CHIP,10K,1/16W,1%,0402	VISHAY, CRCW040210K0FKED
60	6	R42,R43,R50-R52,R60	RES,CHIP,10.0K,1/16W,5%,0402	VISHAY, CRCW040210K0JNED
61	1	R44	RES,CHIP,1.0 OHM,1/16W,5%,0402	VISHAY, CRCW04021R00JNED
62	1	R49	RES,CHIP,1.0K,1/16W,5%,0402	VISHAY, CRCW04021K00JNED
63	1	R53	RES,CHIP,100K,1/16W,1%,0402	VISHAY, CRCW0402100KFKED
64	2	R54,R55	RES,CHIP,20 OHM,1/10W,5%,0603	VISHAY, CRCW060320R0JNEA
65	1	R59	RES,CHIP,5.1K,1/16W,5%,0402	VISHAY, CRCW04025K10JNED
66	1	R64	RES,CHIP, 2.49K,1/16W,1%,0402	VISHAY, CRCW04022K49FKED
67	1	R65	RES,CHIP, 1.00M,1/16W,1%,0402	VISHAY, CRCW04021M00FKED
68	1	R66	RES,CHIP, 301,1/10W,1%,0603	VISHAY, CRCW0603301RFKED
69	12	RS1A-RS12A	RES,CHIP,5mOHM,1W,1%,1206	SUSUMU, PRL1632-R005-F
70	12	RS1B-RS12B	RES,CHIP,10mOHM,1W,1%,1206	SUSUMU, PRL1632-R010-F
71	12	Q1A-Q12A	MOSFET, 100V, 0.0087 OHM, 60A,POWERPAK-SO8	VISHAY, SIR882ADP-GE3
72	12	Q1B-Q12B	MOSFET, 100V, 0.058 OHM, 25A,POWERPAK-1212-8	VISHAY, SIS892ADN-GE3
73	12	Q1C-Q12C	MOSFET, P-CHAN 30V, 80m OHM,MPAK	INFINEON, BSS308PEH6327XT

Item	Qty	Reference - Des	Part Description	Manufacturer, Part #
74	2	Q1,Q2	MOSFET,100V, 10 OHM,SOT-323	DIODES INC, BSS123W-7-F
75	1	Q3	TRANS. NPN, 180V, 0.6A,SOT-223	CENTRAL SEMI, CZT5551
76	1	Q4	TRANS,PNP,60V,SOT-23	CENTRAL SEMI, CMPT3906E
77	1	Q5	MOSFET, P-CHAN 50V, 4 OHM,SOT-23	CENTRAL SEMI, CMPDM8002A
78	2	Q6,Q7	TRANS,NPN,60V,SOT-23	CENTRAL SEMI, CMPT3904E
79	1	Q8	MOSFET,100V, 10 OHM,SOT-323	DIODES INC, BSS123W
80	12	T1-T12	TRANSFORMER, 1:1, 3.0uH, 10.8A	WURTH, 750312504
81	1	T13,T15	TRANSFORMER, ISOLATION	PULSE ENG., PE-68386NLT
82	1	T14	IND., CHOKE COM MODE 22UH 1.2KOHM SMD	TDK, ACT458-220-2P-TL003
83	2	U1,U2	IC,SMT, BI-DIRECTIONAL BATTERY BALANCER	LINEAR, LTC3300ILXE-1#PBF
84	1	U3	IC,SMT,BATTERY MONITOR	LINEAR, LTC6804IG-2#PBF
85	1	U4	IC,SMT,24AA64	MICROCHIP TECH. 24AA64T-I/OT
86	1	U5	IC,SMT,isospi ISOLATED COMM. INTERFACE	LINEAR,LTC6820IMS#PBF
87	2	U6,U7	IC,SMT, 8-CHANNEL MUX, SSOP-16	LINEAR, LTC1380CGN#PBF
88	1	U8	MODULE, USB ISOLATOR	LINEAR.LTM2884CY#PBF
89	1	U9	IC,SMT, MICRO POWER VLDO, 3.3V, SOT23-5	LINEAR, LT1761ES5-3.3#PBF
90	1	U10	14bit uc w/usb, 8mmX8mmQFN44	MICROCHIP, PIC18F47J53-I/ML
91	1	Y1	12MHz CRYSTAL	ECS INC, ECS-120-20-3X
<b>COMPONENTS AND HARDWARE FOR DEMO BOARD ONLY:</b>				
1	15	E1-E15	TURRET, 0.09"	MIL-MAX, 2501-2-00-80-00-00-07-0
2	1	J17	HEADER,SMD, 1X15, TIN PLATED,RT ANGLE	HIROSE, DF3DZ-15P-2(21)
3	6	JP1-JP6	HEADER, 3PINS, 2mm	WURTH, 62000311121
4	6	JP1-JP6	SHUNT 2mm	WURTH,60800213421
5	1	JP7	HEADER,2.54mm, 3X6 THT VERT 18POS	SAMTEC, TSW-106-07-L-T
6	1	JP7(mate)	JP7 JUMPER BOARD	LINEAR,DC2100-ASSY-1
7	1	J17(mate)	DC2100A THERMISTOR BOARD	LINEAR, DC2100A - THERM-1
8	10		STAND-OFF HEX, NYL 8/32 THR 0.25" L	KEYSTONE, 1904A
9	10		SCREW,PAN PHILLIPS 8-32 1/4 NYL	B&F FASTENER, NY PMS 8320025PH
<b>OPTIONAL COMPONENTS :</b>				
1	0	C1C-C12C	CAP.,X5R, 100UF, 6.3V,10%, 1210	MURATA, GRM32ER60J107ME20L
2	0	C1S-C12S, C1T-C12T	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM32ER72A225KA35L
3	0	C1L-C12L OPT	CAP,OPT,100V,0805	
4	0	C21, C32 OPT	CAP.,X7R, 100PF, 100V,10%, 0603	AVX, 06031C101KAT
5	0	C40 OPT	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D
6	0	C49	CAP, X7R, 0.1UF, 16V, 20% 0402	AVX, 0402YC104MAT2A
7	0	D1A-D12A OPT	DIODE, SCHOTTKY 2.0A 60V HI EFFICIENCY	DIODES INC, DFLS260-7
8	0	D1B-D12B OPT	DIODE, SCHOTTKY 100V 1A BARRIER RECTIFIER POWERDI123	DIODES INC, DFLS1100-7



<i>Item</i>	<i>Qty</i>	<i>Reference - Des</i>	<i>Part Description</i>	<i>Manufacturer, Part #</i>
9	0	D1C-D12C OPT	SMD, SCHOTTKY	CENTRAL SEMI, CMOSH-4E
10	0	R1,R7 OPT	RES,CHIP,1.00MEG,1/16W,5%,0402	VISHAY, CRCW04021M00JNED
11	0	R3,R5,R9,R23 OPT	RES,CHIP,0 OHM,0402	VISHAY, CRCW04020000Z0ED
12	0	R45,R46,R48,R57 OPT	RES, CHIP, 0 OHM, 2512	VISHAY, CRCW25120000Z0EF
13	0	J2,J3,J4,J16 OPT	HEADER 1X2	WEIDMULLER, 179313000_SC
14	0	J2,J3,J4,J16 (mate) OPT	SOCKET 1X2	WEIDMULLER, 1792770000
15	0	J5-J15 OPT	HEADER, 1X3	WEIDMULLER, 179314000_SC
16	0	J5-J15 (mate) OPT	SOCKET, 1X3	WEIDMULLER, 1792780000

Item	Qty	Reference - Des	Part Description	Manufacturer, Part #
<b>REQUIRED CIRCUIT COMPONENTS:</b>				
1	24	C1A-C12A, C1B-C12B	CAP.,X5R, 100UF, 6.3V,20%, 1210	MURATA, GRM32ER60J107ME20L
2	24	C1E-C12E,C1F-C12F	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT2A
3	12	C1G-C12G	CAP.,X7R, 2200PF, 50V, 10% 0402	MURATA, GRM155R71H222KA01D
4	12	C1H-C12H	CAP.,X7R, 470PF, 50V, 10% 0402	MURATA, GRM155R71H471KA01D
5	13	C1M-C13M	CAP.,X7R, 0.01UF, 25V,10%, 0603	MURATA, GRM188R71E103KA01D
6	12	C1R-C12R	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM32ER72A225KA35L
7	14	C1,C5,C1K-C12K	CAP.,X7R, 1.0UF, 16V,10%, 0603	MURATA, GRM188R71C105KA12D
8	13	C2,C6,C9-C18,C20	CAP.,X7R, 4.7UF, 16V,10%, 1206	MURATA, GRM31CR71C475KA01L
9	2	C3,C7	CAP, X7R, 0.1UF, 16V, 10% 0402	MURATA, GRM155R71C104KA88D
10	2	C4,C8	CAP.,X7R, 0.22UF, 16V,10%, 0603	TDK, C1608X7R1C224K
11	2	C23,C24	CAP.,X7R, 10UF, 10V,10%, 0805	MURATA, GRM21BR71A106K51L
12	2	C25,C26	CAP., X7R, 0.1UF, 100V, 10%, 0805	AVX, 08051C104KAT2A
13	3	C27,C33,C50	CAP.,X7R, 0.1UF, 25V,10%, 0603	MURATA, GRM188R71E103KA01D
14	3	C28,C29,C31	CAP.,X5R, 1UF, 25V,10%, 0603	TDK, C1608X5R1E105K
15	1	C30	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D
16	12	D1E-D12E	DIODE, SBR,200,10A,POWERDI5	DIODES INC, SBR10U200P5-13
17	4	D1-D4	SMD, SCHOTTKY	CENTRAL SEMI, CMMSH2-40
18	3	D5-D7	SMD, SILICON SWITCHING DIODE	VISHAY, RS07J
19	2	D8,D12	SMD,SILICON ZENER,5.1V	CENTRAL SEMI, CMHZ4689
20	2	D10,D13	SMD, SCHOTTKY, 70V	CENTRAL SEMI, CMOD6263 TR
21	2	D9,D11	DIODE,ZENER 5.6V,400MW,SOD323	PHILIPS, PDZ5.6B
22	24	D1D-D12D, D1F-D12F	LED,GREEN, CLEAR 0603 SMD	LITE-ON, LTST-C190KGKT
23	13	F1-F12,F15	SMD, FUSE, 12.0A, FAST ACTING, 1206	BUSSMANN, 3216FF12-R
24	2	F13,F14	SMD, FUSE, 7.0A, FAST ACTING, 1206	BUSSMANN, 3216FF7-R
25	2	J1,J18	CONN MOD JACK R/A 8P8C SHIELDED RJ45	WURTH, 615008140121
26	12	R1A-R12A	RES,CHIP,20 OHM,1/4W,5%,1206	VISHAY, CRCW120620R0JNEA
27	12	R1B-R12B OPT	RES,CHIP,18 OHM,1/4W,5%,1206	VISHAY, CRCW120618R0JNEA
28	24	R1C-R12C,R1F-R12F	RES,CHIP,5.1 OHM,1/16W,5%,0402	VISHAY, CRCW04025R10JNED
29	24	R1G-R12G, R1H-R12H	RES,CHIP,20 OHM,1/16W,5%,0402	VISHAY, CRCW040220R0JNED
30	14	R1J-R12J,R56,R58	RES,CHIP,2.0K,1/16W,5%,0402	VISHAY, CRCW04022K00JNED
31	15	R1K-R12K, R27,R28,R37	RES,CHIP,100 OHM,1/16W,5%,0402	VISHAY, CRCW0402100RJNED
32	12	R1L-R12L	RES,CHIP,470 OHM,1/16W,5%,0402	VISHAY, CRCW0402470RJNED
33	12	R1M-R12M	RES,CHIP,33 OHM,1W,5%,2512	VISHAY, CRCW251233R0JNED
34	12	R1N-R12N	RES,CHIP,3.3K,1/16W,5%,0402	VISHAY, CRCW04023K30JNED
35	1	R2	RES,CHIP,0 OHM,0402	VISHAY, CRCW04020000Z0ED

<i>Item</i>	<i>Qty</i>	<i>Reference - Des</i>	<i>Part Description</i>	<i>Manufacturer, Part #</i>
36	2	R4,R8	RES,CHIP,1.27M, 1/8W, 1%,0805	VISHAY, CRCW08051M27FKED
37	2	R6,R10	RES,CHIP,6.81 OHM,1/16W,1%,0402	VISHAY, CRCW04026R81FKED
38	8	R11-R18	RES, CHIP, 0 OHM, 2512	VISHAY, CRCW25120000Z0EG
39	3	R19,R21,R24	RES,CHIP,23.7K,1/16W,1%,0402	VISHAY, CRCW040223K7FKED
40	2	R20,R22	RES,CHIP,33.2K,1/16W,1%,0402	VISHAY, CRCW040233K2FKED
41	2	R25,R26	RES,CHIP,60.4 OHM,1/10W,1%,0603	VISHAY, CRCW060360R4FKED
42	4	R30,R31,R40,R41	RES,CHIP,1.00MEG,1/16W,5%,0402	VISHAY, CRCW04021M00JNED
43	1	R32	RES,CHIP,1.40K,1/16W,1%,0402	VISHAY, CRCW04021K40JKED
44	1	R33	RES,CHIP,604 OHM,1/16W,1%,0402	VISHAY, CRCW0402604RJKE
45	1	R35	RES,CHIP,10K,1/16W,1%,0402	VISHAY, CRCW040210K0FKED
46	3	R34,R36,R47	RES,CHIP,2.0K,1/16W,5%,0402	VISHAY, CRCW04022K00JNED
47	2	R42,R43	RES,CHIP,10.0K,1/16W,5%,0402	VISHAY, CRCW040210K0JNED
48	1	R53	RES,CHIP,100K,1/16W,1%,0402	VISHAY, CRCW0402100KFKED
49	2	R54,R55	RES,CHIP,20 OHM,1/10W,5%,0603	VISHAY, CRCW060320R0JNED
50	12	RS1A-RS12A	RES,CHIP,5mOHM,1W,1%,1206	SUSUMU, PRL1632-R005-F
51	12	RS1B-RS12B	RES,CHIP,10mOHM,1W,1%,1206	SUSUMU, PRL1632-R010-F
52	12	Q1A-Q12A	MOSFET, 100V, 0.0087 OHM, 60A,POWERPAK-SO8	VISHAY, SiR882ADP-GE3
53	12	Q1B-Q12B	MOSFET, 100V, 0.058 OHM, 25A,POWERPAK-1212-8	VISHAY, SiS892ADN-GE3
54	12	Q1C-Q12C	MOSFET, P-CHAN 30V, 80m OHM,MPAK	INFINEON, BSS308PEH6327XT
55	2	Q1,Q2	MOSFET,100V, 10 OHM,SOT-323	DIODES INC, BSS123W-7-F
56	1	Q3	TRANS. NPN, 180V, 0.6A,SOT-223	CENTRAL SEMI, CZT5551
57	1	Q4	TRANS,PNP,60V,SOT-23	CENTRAL SEMI, CMPT3906E
58	1	Q5	MOSFET, P-CHAN 50V, 4 OHM,SOT-23	CENTRAL SEMI, CMPDM8002A
59	1	Q6	TRANS,NPN,60V,SOT-23	CENTRAL SEMI, CMPT3904E
60	12	T1-T12	TRANSFORMER, 1:1, 3.0uH, 10.8A	WURTH, 750312504
61	1	T13	TRANSFORMER, ISOLATION	PULSE ENG., PE-68386NLT
62	1	T14	IND., CHOKE COM MODE 22UH 1.2KOHM SMD	TDK, ACT458-220-2P-TL003
63	2	U1,U2	IC,SMT, BI-DIRECTIONAL BATTERY BALANCER	LINEAR, LTC3300ILXE-1#PBF
64	1	U3	IC,SMT,BATTERY MONITOR	LINEAR, LTC6804IG-2#PBF
65	1	U4	IC,SMT,24AA64	MICROCHIP TECH. 24AA64T-I/OT
66	2	U6,U7	IC,SMT, 8-CHANNEL MUX, SSOP-16	LINEAR, LTC1380CGN#PBF
<b>COMPONENTS AND HARDWARE FOR DEMO BOARD ONLY:</b>				
1	15	E1-E15	TURRET, 0.09"	MIL-MAX, 2501-2-00-80-00-00-07-0
2	1	J17	HEADER,SMD, 1X15, TIN PLATED,RT ANGLE	HIROSE, DF3DZ-15P-2H(21)
3	6	JP1-JP6	HEADER, 3PINS, 2mm	WURTH, 62000311121
4	6	JP1-JP6	SHUNT 2mm	WURTH,60800213421
5	1	J17(mate)	DC2100A THERMISTOR BOARD	LINEAR, DC2100A - THERM-1

<i>Item</i>	<i>Qty</i>	<i>Reference - Des</i>	<i>Part Description</i>	<i>Manufacturer, Part #</i>
6	10		STAND-OFF HEX, NYL 8/32 THR 0.25" L	KEYSTONE, 1904A
7	10		SCREW PHIL 8-32 1/4 NYL	B&F FASTENER, NY PMS 8320025PH
<b>OPTIONAL COMPONENTS :</b>				
1	0	C1C-C12C	CAP.,X5R, 100UF, 6.3V,10%, 1210	MURATA, GRM32ER60J107ME20L
2	0	C1S-C12S, C1T-C12T	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM32ER72A225KA35L
3	0	C1L-C12L OPT	CAP,OPT,100V,0805	
4	0	C21 OPT	CAP.,X7R, 100PF, 100V,10%, 0603	AVX, 06031C101KAT
5	0	D1A-D12A OPT	DIODE, SCHOTTKY 2.0A 60V HI EFFICIENCY	DIODES INC, DFLS260-7
6	0	D1B-D12B OPT	DIODE, SCHOTTKY 100V 1A BARRIER RECTIFIER POWERDI123	DIODES INC, DFLS1100-7
7	0	D1C-D12C OPT	SMD, SCHOTTKY	CENTRAL SEMI, CMOSH-4E
9	0	R1,R7 OPT	RES,CHIP,1.00MEG,1/16W,5%,0402	VISHAY, CRCW04021M00JNED
10	0	R3,R5,R9,R23 OPT	RES,CHIP,0 OHM,0402	VISHAY, CRCW04020000Z0ED
11	0	J2,J3,J4,J16 OPT	HEADER 1X2	WEIDMULLER, 179313000_SC
12	0	J2,J3,J4,J16 (mate) OPT	SOCKET 1X2	WEIDMULLER, 1792770000
13	0	J5-J15 OPT	HEADER, 1X3	WEIDMULLER, 179314000_SC
14	0	J5-J15 (mate) OPT	SOCKET, 1X3	WEIDMULLER, 1792780000



# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

LTC3300ILXE-1  
ENGR: J.DREW (011-087)

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-A/D**  
**QTY:150**  
3/16/2015

Item	Qty	Reference	Part Description	Manufacturer / Part #	Pkg Qty
				<b>NUMBER OF BOARDS =</b>	<b>150</b>
1	24	C1A-C12A, C1B-C12B	CAP.,X5R, 100UF, 6.3V,20%, 1210	MURATA, GRM32ER60J107ME20L	3600
2	0	C1C-C12C	CAP.,X5R, 100UF, 6.3V,20%, 1210	MURATA, GRM32ER60J107ME20L	0
3	12	C1E-C12E	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT2A	1800
4	12	C1G-C12G	CAP.,X7R, 2200PF, 50V, 10% 0402	MURATA, GRM155R71H222KA01D	1800
5	12	C1H-C12H	CAP.,X7R, 470PF, 50V, 10% 0402	MURATA, GRM155R71H471KA01D	1800
6	0	C1L(OPT)-C12L OPT	CAP,OPT,100V,0805		0
7	13	C1M-C13M	CAP.,X7R, 0.01UF, 25V,10%, 0603	MURATA, GRM188R71E103KA01D	1950
8	12	C1R-C12R	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM32ER72A225KA35L	1800
9	0	C1S-C12S, C1T-C12T	CAP.,X7R, 2.2UF, 100V,10%, 1210	MURATA, GRM32ER72A225KA35L	0
10	14	C1,C5,C1K-C12K	CAP.,X7R, 1.0UF, 16V,10%, 0603	MURATA, GRM188R71C105KA12D	2100
11	13	C2,C6,C9-C18,C20	CAP.,X7R, 4.7UF, 16V,10%, 1206	MURATA, GRM31CR71C475KA01L	1950
12	2	C3,C7	CAP, X7R, 0.1UF, 16V, 10% 0402	MURATA, GRM155R71C104KA88D	300
13	2	C4,C8	CAP.,X7R, 0.22UF, 16V,10%, 0603	MURATA, GRM188R71C224KA01D	300
14	0	C21(OPT)	CAP.,X7R, 100PF, 100V,10%, 0603	AVX, 06031C101KAT	0
15	2	C23,C24	CAP.,X7R, 10UF, 10V,10%, 0805	MURATA, GRM21BR71A106KE51L	300
16	2	C25,C26	CAP., X7R, 0.1UF, 100V, 10%, 0805	AVX, 08051C104KAT2A	300
17	4	C27,C33,C41,C50	CAP.,X7R, 0.1UF, 25V,10%, 0603	MURATA, GRM188R71E104KA01D	600
18	3	C28, C29,C31	CAP.,X5R, 1UF, 25V,10%, 0603	TDK, C1608X5R1E105K	450
19	1	C30	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D	150
20	0	D1A-D12A OPT	DIODE, SCHOTTKY 2.0A 60V HI EFFICIENCY	DIODES INC, DFSL260-7	0
21	0	D1B-D12B OPT	DIODE, SCHOTKY 100V 1A BARRIER RECTIFIER POWERDI123	DIODES INC, DFSL1100-7	0
22	0	D1C-D12C OPT	SMD, SCHOTTKY	CENTRAL SEMI, CMOSH-4E TR	0
23	12	D1E-D12E	DIODE, SBR 200V,10A, POWERDI5	DIODES INC, SBR10U200P5-13	1800
24	4	D1-D4	SMD, SCHOTTKY	CENTRAL SEMI, CMMSH2-40 TR	600
25	3	D5-D7	SMD, SILICON SWITCHING DIODE, SMD	VISHAY, RS07J-GS08	450
26	2	D8,D12	SMD,SILICON ZENER,5.1V, SMD	CENTRAL SEMI, CMHZ4689 TR	300
27	2	D10,D13	SMD, SCHOTTKY, 70V	CENTRAL SEMI, CMOD6263 TR	300
28	2	D9,D11	DIODE,ZENER 5.6V,400MW,SOD323	PHILIPS, PDZ5.6B,115	300
29	24	D1D-D12D, D1F-D12F	LED, GREEN, CLEAR 0603 SMD	LITE-ON, LTST-C190KGKT	3600
30	2	F13,F14	SMD, FUSE, 7.0A, FAST ACTING, 1206	BUSSMANN, 3216FF7-R	300
31	12	R1A-R12A	RES,CHIP, 20 OHM, 1/4W, 5%, 1206	VISHAY, CRCW120620R0JNEA	1800
32	24	R1C-R12C,R1F-R12F	RES,CHIP, 5.1 OHM, 1/16W, 5%, 0402	VISHAY, CRCW04025R10JNED	3600
33	24	R1G-R12G, R1H-R12H	RES,CHIP, 20 OHM,1/16W,5%, 0402	VISHAY, CRCW040220R0JNED	3600
34	14	R1J-R12J,R56,R58	RES,CHIP, 2.0K, 1/16W, 5%, 0402	VISHAY, CRCW04022K00JNED	2100
35	16	R1K-R13K, R27,R28,R37	RES,CHIP,100 OHM, 1/16W, 5%, 0402	VISHAY, CRCW0402100RJNED	2400

# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

LTC3300ILXE-1  
ENGR: J.DREW (011-087)

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-A/D**  
**QTY:150**  
3/16/2015

Item	Qty	Reference	Part Description	Manufacturer / Part #	Pkg Qty
				<b>NUMBER OF BOARDS =</b>	<b>150</b>
36	12	R1L-R12L	RES,CHIP,470 OHM,1/16W,5%,0402	VISHAY, CRCW0402470RJNED	1800
37	12	R1M-R12M	RES,CHIP, 33 OHM,1W, 5%, 2512	VISHAY, CRCW251233R0JNEG	1800
38	12	R1N-R12N	RES,CHIP, 3.3K, 1/16W, 5%, 0402	VISHAY, CRCW04023K30JNED	1800
39	0	R1,R7 OPT	RES,CHIP, 1.00MEG,1/16W, 5%, 0402	VISHAY, CRCW04021M00JNED	0
40	1	R2	RES,CHIP,0Ω JUMPER,1/16W, 0402	VISHAY, CRCW04020000Z0ED	150
41	0	R3,R5,R9, R23 OPT	RES,CHIP,0Ω JUMPER,1/16W, 0402	VISHAY, CRCW04020000Z0ED	0
42	2	R6,R10	RES,CHIP, 6.81 OHM, 1/16W, 1%, 0402	VISHAY, CRCW04026R81FKED	300
43	8	R11-R18	RES, CHIP, 0 OHM, 2512	VISHAY, CRCW25120000Z0EG	1200
44	2	R25,R26	RES,CHIP 60.4 OHM, 1/10W, 1%, 0603	VISHAY, CRCW060360R4fKEA	300
45	4	R30,R31,R40,R41	RES,CHIP,1.00MEG, 1/16W, 1%, 0402	VISHAY, CRCW04021M00FNED	600
46	1	R32	RES,CHIP, 1.40k,1/16W,1%,0402	VISHAY, CRCW04021K40FKED	150
47	1	R33	RES,CHIP, 604 OHM,1/16W,1%,0402	VISHAY, CRCW0402604RFKED	150
48	3	R34,R36,R47	RES,CHIP,2.0K,1/16W,5%,0402	VISHAY, CRCW04022K00JNED	450
49	1	R35	RES,CHIP,10K,1/16W,1%,0402	VISHAY, CRCW040210K0FKED	150
50	2	R42,R43	RES,CHIP,10.0K,1/16W,5%, 0402	VISHAY, CRCW040210K0JNED	300
51	1	R53	RES,CHIP,100K,1/16W,1%, 0402	VISHAY, CRCW0402100KFKED	150
52	2	R54,R55	RES,CHIP, 20 OHM, 1/10W, 5%, 0603	VISHAY, CRCW060320R0JNEA	300
53	12	Q1A-Q12A	MOSFET, 100V, 0.0087 OHM, 60A,POWERPAK-SO8	VISHAY, SiR882ADP-T1-GE3	1800
54	12	Q1B-Q12B	MOSFET, 100V, 0.058 OHM, 25A,POWERPAK-1212-8	VISHAY, SiS892ADN-T1-GE3	1800
55	12	Q1C-Q12C	MOSFET, P-CHAN 30V, 80m OHM, MPAK	INFINEON, BSS308PEH6327XT	1800
56	2	Q1,Q2	MOSFET, N-CH 100V 170MA SC70-3	DIODES INC, BSS123W-7-F	300
57	1	Q3	TRANS. NPN, 180V, 0.6A, SOT-223	CENTRAL SEMI, CZT5551 TR	150
58	1	Q4	TRANS,PNP, 60V,SOT-23	CENTRAL SEMI, CMPT3906E TR	150
59	1	Q5	MOSFET, P-CHAN 50V, 4 OHM,SOT-23	CENTRAL SEMI, CMPDM8002A TR	150
60	1	Q6	TRANS, NPN, 60V,SOT-23	CENTRAL SEMI, CMPT3904E TR	150
61	12	T1-T12	TRANSFORMER, 1:1, 3.0uH, 10.8A	WURTH, 750312504	1800
62	1	T13	TRANSFORMER, ISOLATION	PULSE ENG., PE-68386NLT	150
63	1	T14	IND., CHOKE COM MODE 22UH 1.2KOHM SMD	TDK, ACT458-220-2P-TL003	150
64	2	U1,U2	IC,SMT, BI-DIRECTIONAL BATTERY BALANCER	LINEAR, LTC3300ILXE-1#PBF	300
65	1	U3	IC,SMT,BATTERY MONITOR	LINEAR, LTC6804IG-2#PBF	150
66	1	U4	IC,EEPROM 64KBIT 400KHZ SOT23-5	MICROCHIP TECH., 24AA64T-I/OT	150
67	2	U6,U7	IC,SMT, 8-CHANNEL MUX, SSOP-16	LINEAR, LTC1380CGN#PBF	300
68	15	E1-E15	TURRET, 0.09"	MIL-MAX, 2501-2-00-80-00-00-07-0	2250
69	1	J17	HEADER,SMD, 1X15, TIN PLATED,RT ANGLE	HIROSE, DF3DZ-15P-2H (21)	150

# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

LTC3300ILXE-1  
ENGR: J.DREW (011-087)

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-A/D**  
**QTY:150**  
3/16/2015

Item	Qty	Reference	Part Description	Manufacturer / Part #	Pkg Qty
				<b>NUMBER OF BOARDS =</b>	<b>150</b>
70	0	J2,J3,J4,J16 OPT	HEADER 1X2	WEIDMULLER, 179313000 SC	0
71	0	J2, J3, J4, J16 (mate) OPT	SOCKET 1X2	WEIDMULLER, 1792770000	0
72	0	J5-J15 OPT	HEADER, 1X3	WEIDMULLER, 179314000 SC	0
73	0	J5-J15 (mate) OPT	SOCKET, 1X3	WEIDMULLER, 1792780000	0
74	6	JP1-JP6	HEADER, 3PINS, 2mm	WURTH, 62000311121	900
75	6	JP1-JP6	SHUNT 2mm 1X3	WURTH, 60800213421	900
76	10		STAND-OFF HEX, NYL 8/32 THR 0.25" L	KEYSTONE, 1904A	1500
77	10		SCREW, PAN PHILLIPS 8-32 1/4 NYL	B&F FASTENER, NY PMS 8320025PH	1500
78	2	STENCILS	STENCILS - TOP & BOTTOM	DC2100B-1	0

# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-A**

LTC3300ILXE-1  
 ENGR: J.DREW (011-087)

**QTY:0**  
 3/16/2015

1	1		DC2100B-1 GENERAL BOM		0
2	0	C1F-C12F OPT	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT2A	0
3	2	C19, C22	CAP., X7R, 470PF, 250VAC, 10%, 1808	MURATA, GA342QR7GF471KW01L	0
4	0	C32 OPT	CAP.,X7R, 100PF, 100V,10%, 0603	AVX, 06031C101KAT	0
5	6	C34-C38,C45	CAP, X7R, 0.1UF, 16V, 20% 0402	AVX, 0402YC104MAT2A	0
6	2	C39,C46	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D	0
7	0	C40 OPT	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D	0
8	1	C42	CAP. X5R, 0.47UF,16V,10%,0402	TDK, C1005X5R1C474K	0
9	2	C43,C44	CAP,C0G, 22PF, 50V, 0402	MURATA, GRM1555C1H220JZ01D	0
10	2	C47,C48	CAP, X5R, 1.0UF,6.3V,10%,0603	TAIYO YUDEN, JMK105BJ105KV	0
11	0	C49	CAP, OPT, 16V, 0402		0
12	1	D14	DIODE,SWITCHING,80V 0.125A 2DFN	DIODES INC, 1N4448HLP-7	0
13	1	D15	LED, GREEN CLEAR 0603 SMD	LITE-ON, LTST-C190KGKT	0
14	1	D16	LED, YELLOW ORANGE CLEAR 0603 SMD	LITE-ON, LTST-C190KFKT	0
15	13	F1-F12, F15	SMD, FUSE, 7.0A, FAST ACTING, 1206	BUSSMANN, 3216FF7-R	0
16	1	J1	CONN MOD JACK R/A 8P8C SHIELDED RJ45	WURTH, 615008140121	0
17	1	J19	USB, MINI- B RECEPTACLE,RT,THT	WURTH, 651005136521	0
18	1	J20	HEADER, 2.0mm DualL Pin 2X3 6 pins straight	WURTH, 62000621121	0
19	1	J21	HEADER, 2mm, 2X8 TH HEADER	WURTH, 62501621621	0
20	1	J22	HEADER 2mm,2X2 TH	MOLEX, 87831-0420	0
21	1	JP7	HEADER, 2.54MM, 3X6 THT VERT 18POS	SAMTEC, TSW-106-07-L-T	0
22	1	PB1	SWITCH TACTILE SPST-NO 0.05A 12V	WURTH, 434111025826	0
23	0	R1B-R12B OPT	RES,CHIP,18 OHMS,1/4W,5%,1206	VISHAY, CRCW120618R0JNEA	0
24	2	R4,R8	RES,CHIP, 845K, 1/8W, 1%,0805	VISHAY, CRCW0805845KFKEA	0
25	3	R19,R21,R24	RES,CHIP, 15.4K,1/16W,1%,0402	VISHAY, CRCW040215K4FKED	0
26	2	R20,R22	RES,CHIP, 20.5K,1/16W,1%,0402	VISHAY, CRCW040220K5FKED	0
27	2	R29,R63	RES,CHIP 60.4 OHM,1/16W,1%,0402	VISHAY, CRCW040260R4FKEA	0
28	1	R38	RES,CHIP,604 OHM,1/16W,1%,0402	VISHAY, CRCW0402604RFKED	0
29	1	R39	RES,CHIP,1.40K,1/16W,1%,0402	VISHAY, CRCW04021K40FKED	0
30	1	R44	RES,CHIP,1.0 OHM,1/16W,5%,0402	VISHAY, CRCW04021R00JNED	0
31	0	R45,R46,R48,R57 OPT	RES, CHIP, 0 OHM, 2512	VISHAY, CRCW25120000Z0EF	0
32	1	R49	RES,CHIP,1.0K,1/16W,5%,0402	VISHAY, CRCW04021K00JNED	0
33	4	R50-R52,R60	RES,CHIP,10.0K,1/16W,5%,0402	VISHAY, CRCW040210K0JNED	0
34	1	R59	RES,CHIP,5.1K,1/16W,5%,0402	VISHAY, CRCW04025K10JNED	0
35	2	R61,R62	RES,CHIP,2.0K,1/16W,5%,0402	VISHAY, CRCW04022K00JNED	0
36	1	R64	RES,CHIP, 2.49K,1/16W,1%,0402	VISHAY, CRCW04022K49FKED	0
37	1	R65	RES,CHIP, 1.00M,1/16W,1%,0402	VISHAY, CRCW04021M00FKED	0
38	1	R66	RES,CHIP, 301,1/10W,1%,0603	VISHAY, CRCW0603301RFKE	0
39	12	RS1A-RS12A	RES,CHIP, 8m OHM,1W,1%,1206	SUSUMU, PRL1632-R008-F	0



# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

LTC3300ILXE-1  
ENGR: J.DREW (011-087)

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-A**  
**QTY:0**  
3/16/2015

40	12	RS1B-RS12B	RES,CHIP,16m OHM,1W,1%,1206	SUSUMU, PRL1632-R016-F	0
41	1	Q7	TRANS,NPN,60V,SOT-23	CENTRAL SEMI, CMPT3904E TR	0
42	1	Q8	MOSFET, N-CH 100V 170MA SC70-3	DIODES INC, BSS123W-7-F	0
43	1	T15	TRANSFORMER, GATE DRIVE 1:1 785UH	PULSE ENG., PE-68386NLT	0
44	1	U5	IC,SMT,isospi ISOLATED COMM. INTERFACE	LINEAR,LTC6820IMS#PBF	0
45	1	U8	MODULE, USB ISOLATOR	LINEAR.LTM2884CY#PBF	0
46	1	U9	IC,SMT, MICRO POWER VLDO, 3.3V, SOT23-5	LINEAR, LT1761ES5-3.3#PBF	0
47	1	U10	14bit uc w/usb, 8mmX8mmQFN44	MICROCHIP, PIC18F47J53-I/ML	0
48	1	Y1	CRYSTAL, 12MHZ 20PF SMD	ECS INC, ECS-120-20-3X-TR	0
49	1	JP7(mate)	JP7 JUMPER BOARD	LINEAR, DC2100A - ASSY-1 (PCB1)	0
50	1	J17(mate)	DC2100A THERMISTOR BOARD	LINEAR, DC2100A - THERM-1	0
51	1	CABLE	USB A-MNI B CON 6' 26/28 AWG	QUALTEK,3021009-06	0
52	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT 2100B-1	0

# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

LTC3300ILXE-1  
ENGR: J.DREW (011-087)

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-B**  
**QTY:0**  
3/16/2015

Item	Qty	Reference	Part Description	Manufacturer / Part #	Pkg Qty
				NUMBER OF BOARDS =	0
1	1		DC2100A-4 GENERAL BOM		0
2	0	C1F-C12F OPT	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT	0
3	13	F1-F12,F15	SMD, FUSE, 7.0A, FAST ACTING, 1206	BUSSMANN, 3216FF7-R	0
4	2	J1,J18	CONN MOD JACK R/A 8P8C SHIELDED RJ45	WURTH, 615008140121	0
5	0	R1B-R12B OPT	RES,CHIP,18 OHMS,1/4W,5%,1206	VISHAY, CRCW120618R0JNEA	0
6	2	R4,R8	RES,CHIP,845K, 1/8W, 1%,0805	VISHAY, CRCW0805845KFKEA	0
7	3	R19,R21,R24	RES,CHIP,15.4K,1/16W,1%,0402	VISHAY, CRCW040215K4FKED	0
8	2	R20,R22	RES,CHIP,20.5K,1/16W,1%,0402	VISHAY, CRCW040220K5FKED	0
9	12	RS1A-RS12A	RES,CHIP,8mOHM,1W,1%,1206	SUSUMU, PRL1632-R008-F	0
10	12	RS1B-RS12B	RES,CHIP,16mOHM,1W,1%,1206	SUSUMU, PRL1632-R016-F	0

# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

LTC3300ILXE-1  
ENGR: J.DREW (011-087)

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-C**  
**QTY:0**  
3/16/2015

Item	Qty	Reference	Part Description	Manufacturer / Part #	Pkg Qty
				<b>NUMBER OF BOARDS =</b>	<b>0</b>
1	1		DC2100B-1 GENERAL BOM		0
2	12	C1F-C12F	CAP.,X7R, 470PF, 100V,10%, 0603	AVX, 06031C471KAT2A	0
3	2	C19, C22	CAP., X7R, 470PF, 250VAC, 10%, 1808	MURATA, GA342QR7GF471KW01L	0
4	0	C32 OPT	CAP.,X7R, 100PF, 100V,10%, 0603	AVX, 06031C101KAT	0
5	6	C34-C38,C45	CAP, X7R, 0.1UF, 16V, 20% 0402	AVX, 0402YC104MAT2A	0
6	2	C39,C46	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D	0
7	0	C40 OPT	CAP, X5R, 10UF, 6.3V, 20% 0603	MURATA, GRM188R60J106ME47D	0
8	1	C42	CAP.X5R, 0.47UF,16V,10%,0402	TDK, C1005X5R1C474K	0
9	2	C43,C44	CAP,C0G, 22PF, 50V, 0402	MURATA, GRM1555C1H220JZ01D	0
10	2	C47,C48	CAP, X5R, 1.0UF, 6.3V,10%,0603	TAIYO YUDEN, JMK105BJ105KV	0
11	0	C49	CAP, OPT 16V, 0402		0
12	1	D14	DIODE,SWITCHING,1.0mmX0.6mm DFN2	DIODES INC, 1N4448HLP	0
13	1	D15	LED, GREEN CLEAR 0603 SMD	LITE-ON, LTST-C190KGKT	0
14	1	D16	LED, YELLOW ORANGE CLEAR 0603 SMD	LITE-ON, LTST-C190KFKT	0
15	13	F1-F12,F15	SMD, FUSE, 12.0A, FAST ACTING, 1206	BUSSMANN, 3216FF12-R	0
16	1	J1	CONN MOD JACK R/A 8P8C SHIELDED RJ45	WURTH, 615008140121	0
17	1	J19	USB, MINI- B RECEPTACLE,RT,THT	WURTH, 651005136521	0
18	1	J20	HEADER, 2.0mm Dual Pin 2X3 6 pin straight	WURTH, 62000621121	0
19	1	J21	2mm,2X8 TH HEADER	WURTH, 62501621621	0
20	1	J22	2mm,2X2 TH HEADER	MOLEX, 87831-0420	0
21	1	JP7	HEADER, 3X6, THT VERT 18 POS	SAMTEC, TSW-106-07-L-T	0
22	1	PB1	SWITCH TACTILE SPST-NO 0.05A 12V	WURTH, 434111025826	0
23	12	R1B-R12B	RES,CHIP, 18 OHMS,1/4W,5%,1206	VISHAY, CRCW120618R0JNEA	0
24	2	R4,R8	RES,CHIP, 1.27Meg, 1/8W, 1%,0805	VISHAY, CRCW08051M27FKEA	0
25	3	R19,R21,R24	RES,CHIP, 23.7K,1/16W,1%,0402	VISHAY, CRCW040223K7FKED	0
26	2	R20,R22	RES,CHIP, 33.2K,1/16W,1%,0402	VISHAY, CRCW040233K2FKED	0
27	2	R29,R63	RES,CHIP 60.4 OHM,1/16W,1%,0402	VISHAY, CRCW040260R4FKEA	0
28	1	R38	RES,CHIP, 604 OHM,1/16W,1%,0402	VISHAY, CRCW0402604RFKED	0
29	1	R39	RES,CHIP,1.40K,1/16W,1%,0402	VISHAY, CRCW04021K40FKED	0
30	1	R44	RES,CHIP,1.0 OHM,1/16W,5%,0402	VISHAY, CRCW04021R00JNED	0
31	0	R45,R46,R48,R57 OPT	RES, CHIP, 0 OHM, 2512	VISHAY, CRCW25120000Z0EF	0
32	1	R49	RES,CHIP,1.0K,1/16W,5%,0402	VISHAY, CRCW04021K00JNED	0
33	4	R50-R52,R60	RES,CHIP,10.0K,1/16W,5%,0402	VISHAY, CRCW040210K0JNED	0

# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

LTC3300ILXE-1  
ENGR: J.DREW (011-087)

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-C**  
**QTY:0**  
3/16/2015

34	1	R59	RES,CHIP,5.1K,1/16W,5%,0402	VISHAY, CRCW04025K10JNED	0
35	2	R61,R62	RES, CHIP, 2.0K,1/6W,5%,0402	VISHSY, CRCW04022K00JNED	0
36	1	R64	RES,CHIP, 2.49K,1/16W,1%,0402	VISHAY, CRCW04022K49FKED	0
37	1	R65	RES,CHIP, 1.00M,1/16W,1%,0402	VISHAY, CRCW04021M00FKED	0
38	1	R66	RES,CHIP, 301,1/10W,1%,0603	VISHAY, CRCW0603301RFKEA	0
39	12	RS1A-RS12A	RES,CHIP, 5m OHM,1W,1%,1206	SUSUMU, PRL1632-R005-F-T5	0
40	12	RS1B-RS12B	RES,CHIP, 10m OHM,1W,1%,1206	SUSUMU, PRL1632-R010-F-T5	0
41	1	Q7	TRANS,NPN,60V,SOT-23	CENTRAL SEMI, CMPT3904E TR	0
42	1	Q8	MOSFET, N-CH 100V 170MA SC70-3	DIODES INC, BSS123W-7-F	0
43	1	T15	TRANSFORMER, GATE DRIVE 1:1 785UH	PULSE ENG., PE-68386NLT	0
44	1	U5	IC,SMT,isospi ISOLATED COMM. INTERFACE	LINEAR,LTC6820IMS#PBF	0
45	1	U8	MODULE, USB ISOLATOR	LINEAR.LTM2884CY#PBF	0
46	1	U9	IC,SMT, MICRO POWER VLDO, 3.3V, SOT23-5	LINEAR, LT1761ES5-3.3#PBF	0
47	1	U10	14bit uc w/usb, 8mmX8mmQFN44	MICROCHIP, PIC18F47J53-I/ML	0
48	1	Y1	CRYSTAL, 12MHZ 20PF SMD	ECS INC, ECS-120-20-3X-TR	0
49	1	JP7(mate)	JP7 JUMPER BOARD	LINEAR, DC2100A - ASSY-1 (PCB1)	0
50	1	J17(mate)	DC2100A THERMISTOR BOARD	LINEAR, DC2100A - THERM-1	0
51	1	CABLE	USB A-MNI B CON 6' 26/28 AWG	QUALTEK,3021009-06	0
52	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT 2100B-1	0

# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

LTC3300ILXE-1  
ENGR: J.DREW (011-087)

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-D**  
**QTY:150**  
3/16/2015

Item	Qty	Reference	Part Description	Manufacturer / Part #	Pkg Qty
				<b>NUMBER OF BOARDS =</b>	<b>150</b>
1	1		DC2100B-1 GENERAL BOM		150
2	12	C1F-C12F	CAP., X7R, 470PF, 100V,10%, 0603	MURATA, GRM188R72A471KA01D	1800
3	13	F1-F12,F15	SMD, FUSE, 12.0A, FAST ACTING, 1206	BUSSMANN, 3216FF12-R	1950
4	2	J1,J18	CONN MOD JACK R/A 8P8C SHIELDED RJ45	WURTH, 615008140121	300
5	12	R1B-R12B	RES, CHIP, 18,1/4W, 5%,1206	VISHAY, CRCW120618R0JNEA	1800
6	2	R4,R8	RES, CHIP, 1.27Meg, 1/8W, 1%, 0805	VISHAY, CRCW08051M27FKEA	300
7	3	R19,R21,R24	RES, CHIP, 23.7K,1/16W,1%, 0402	VISHAY, CRCW040223K7FKED	450
8	2	R20,R22	RES, CHIP, 33.2K,1/16W,1%, 0402	VISHAY, CRCW040233K2FKED	300
9	12	RS1A-RS12A	RES, CHIP, 5mOHM,1W,1%, 1206	SUSUMU, PRL1632-R005-F-T5	1800
10	12	RS1B-RS12B	RES, CHIP, 10mOHM,1W,1%, 1206	SUSUMU, PRL1632-R010-F-T5	1800
11	1	J17(mate)	DC2100A THERMISTOR BOARD	LINEAR, DC2100A - THERM-1	150
12	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT 2100B-1	150

**Linear Technology Corporation**  
**LTC3300-1 Bi-Directional Cell Balancer**

LTC3300ILXE-1  
 ENGR: J.DREW (011-087)

**BILL OF MATERIALS**  
**DEMO BD. #DC2100B-1-ASSY**  
**QTY:0**  
 3/16/2015

Item	Qty	Reference	Part Description	Manufacturer / Part #	Pkg Qty
				<b>NUMBER OF BOARDS =</b>	<b>0</b>
1	1	JP1	THD, 2x6 2.54MM SOCKET HEADER	WURTH, 613 012 218 21	0
1	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT 2100A-PCB1	0



# Linear Technology Corporation

## LTC3300-1 Bi-Directional Cell Balancer

LTC3300ILXE-1

ENGR: J.DREW (011-087)

BILL OF MATERIALS  
DEMO BD. #DC2100B-1-THERM  
QTY:150

3/16/2015

Item Qty Reference

Part Description

Manufacturer / Part #

Pkg Qty

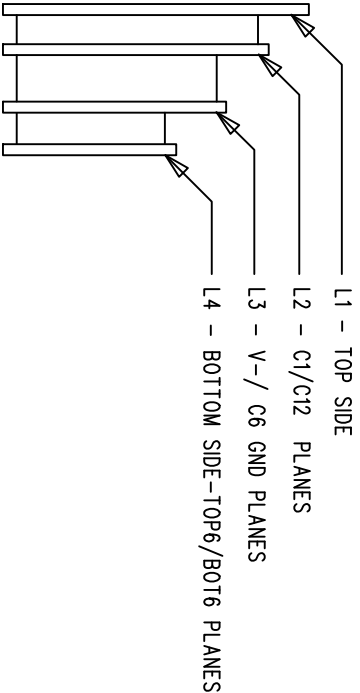
NUMBER OF BOARDS = 150

1	1	J1	CONN RECEPT 15POS 2MM VERT TIN	HIROSE, DF3-15S-2DSA(25)	150
2	1	R1	RES,CHIP, 340K, 1/16W, 1%, 0402	VISHAY, CRCW0402340KFKED	150
3	1	R2	RES,CHIP, 54.9K, 1/16W, 1%, 0402	VISHAY, CRCW040254K9FKED	150
4	1	R3	RES,CHIP, 20K, 1/16W, 1%, 0402	VISHAY, CRCW040220K0FKED	150
5	1	R4	RES,CHIP, 8.06K, 1/16W, 1%, 0402	VISHAY, CRCW04028K06FKED	150
6	1	R5	RES,CHIP, 5.36K, 1/16W, 1%, 0402	VISHAY, CRCW04025K36FKED	150
7	1	R6	RES,CHIP, 3.65K,1/16W,1%, 0402	VISHAY, CRCW04023K65FKED	150
8	1	R7	RES,CHIP, 2.49K,1/16W,1%, 0402	VISHAY, CRCW04022K49FKED	150
9	1	R8	RES,CHIP,1.24K,1/16W,1%, 0402	VISHAY, CRCW04021K24FKED	150
10	1	R9	RES,CHIP, 909 OHM,1/16W,1%, 0402	VISHAY, CRCW0402909RFKED	150
11	1	R10	RES,CHIP, 681 OHM,1/16W,1%, 0402	VISHAY, CRCW0402681RFKED	150
12	1	R11	RES,CHIP, 301 OHM,1/16W,1%, 0402	VISHAY, CRCW0402301RFKED	150
13	1	R12	RES,CHIP,147 OHM,1/16W,1%, 0402	VISHAY, CRCW0402147RFKED	150
14	14	E1-E14	TURRET, 0.061 DIA	MILL MAX, 2308-2-00-80-00-00-07-0	2100
15	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT 2100A-THERM-1 (PCB)	150



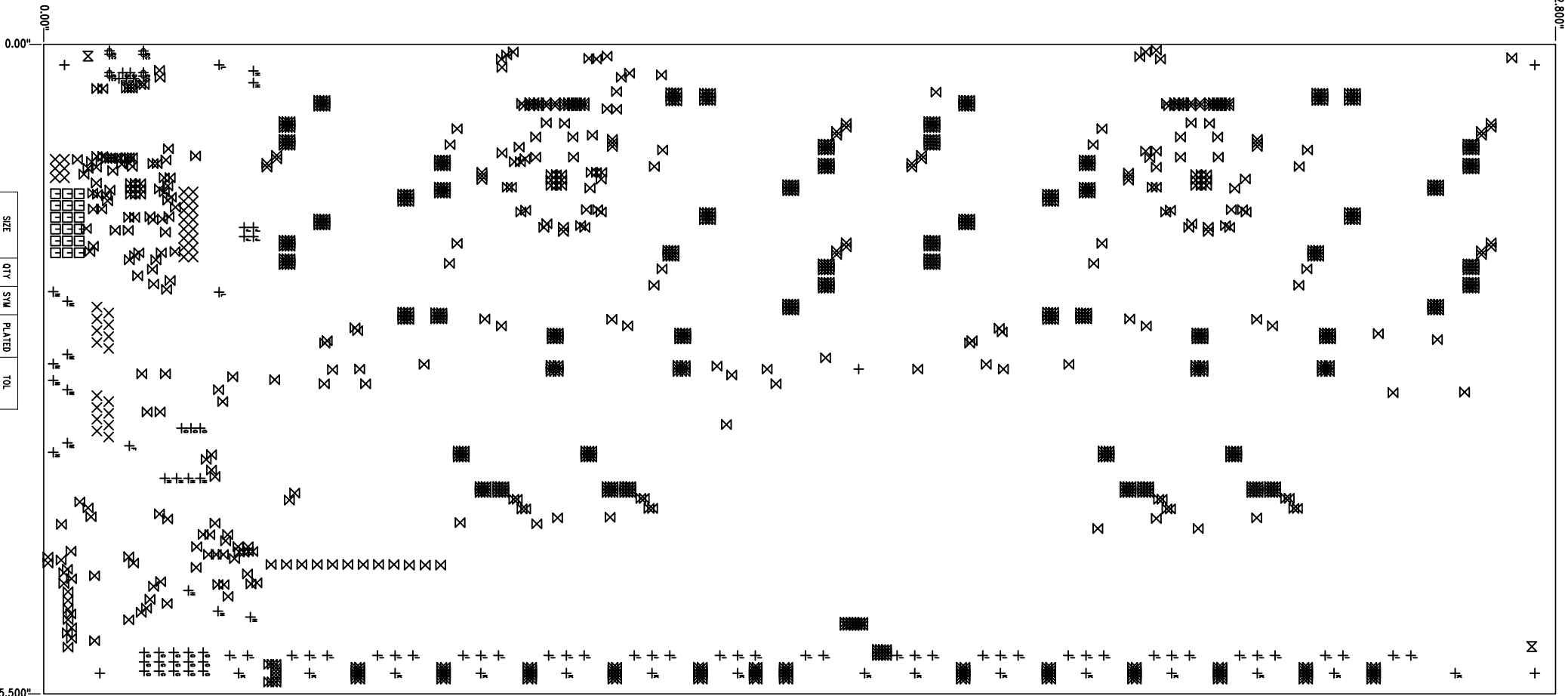
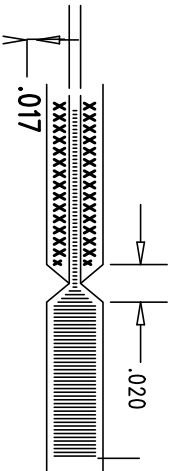


REVISION HISTORY			
ECO#	REV	DESCRIPTION	DATE
-	1	PRODUCTION	JIM D. 02-25-15



NOTES: UNLESS OTHERWISE SPECIFIED

- FAB PER IPC-A-600.
- MATERIAL: -LEAD FREE ASSEMBLY COMPLIANT, ISOLA FR-370HR OR EQUIVALENT.
  - FINISHED THICKNESS TO BE 0.062" +/- .005"
  - TOTAL OF 4 LAYERS WITH 2 OZ. CU ON THE OUTER LAYERS AND 2 OZ. CU ON THE INNER LAYERS.
  - FLAMMABILITY RATING: 94 V-0 MINIMUM.
- SIZE: CUT TO DIMENSIONS AND TOLERANCES SHOWN.  
0.00 ARE PRIMARY DATUMS.
- DRILLING: -DRILL HOLES PER SCHEDULE. PLATE THROUGH HOLES WITH COPPER, 0.001" THICK MIN.
  - ALL HOLE SIZES ARE SPECIFIED AFTER PLATING.
  - HOLE LOCATION TOLERANCES ARE +/-0.003" IN RELATION TO CENTER
- FINISH: -SMOBC USING LPI BOTH SIDES, COLOR GREEN, NO TENT.
  - GOLD IMMERSION BOTH SIDES.
  - FOR SILKSCREEN: BOTH SIDES USE WHITE NON-CONDUCTIVE INK.
- DO NOT ALTER ARTWORK e.g. TO ADD LOGO OR DATE CODE.  
PAD SIZE CAN BE MODIFIED TO MEET END FINISH.
- PCBS ARE TO BE ROHS COMPLIANT.
- DO NOT ALTER SOLDER MASK MAINTAIN .0018" OVERSIZE ON SMT PADS. A .005" WEBBING IS REQUIRED BETWEEN SMD PADS.
- SCORING FOR PANELIZED PCB: "PRODUCTION FAB ONLY"



SIZE	QTY	SWM	PLATED	TOL
0.012	1139	+	YES	+/- .003"
0.02559	1	+	YES	+/- .003"
0.02756	4	+	YES	+/- .003"
0.03	4	+	YES	+/- .003"
0.031	18	+	YES	+/- .003"
0.035	38	X	YES	+/- .003"
0.037	9	+	YES	+/- .003"
0.0374 x 0.06934	+	+	YES	+/- .003"
0.04134	18	+	YES	+/- .003"
0.05512	41	+	YES	+/- .003"
0.063	1	+	YES	+/- .003"
0.07	2	X	NO	+/- .003"
0.094	15	+	YES	+/- .003"
0.19	5	+	YES	+/- .003"
0.1811	2	+	NO	+/- .003"
0.13189	4	+	NO	+/- .003"
0.06	4	+	YES	+/- .003"

UNLESS OTHERWISE SPECIFIED		APPROVALS		TITLE: FABRICATION DRAWING:	
DIMENSIONS ARE IN INCHES		PCB DES. NC.		HIGH EFFICIENCY BIDIRECTIONAL	
TOLERANCES ARE: 100% ±0.001"		APP ENG. JIM D.		MULTICELL BATTERY BALANCER	
0.010" ±0.001"				SIZE	
INTERPRET DIM AND TOL PER ASME Y14.5M-1994				N/A	
THIRD ANGLE PROJECTION				IC NO. LTC3300LXE-1/LTC6804IG-2	
				DEMO CIRCUIT 2/00B-A/D	
				REV. 1	
				SMT 1 of 1	

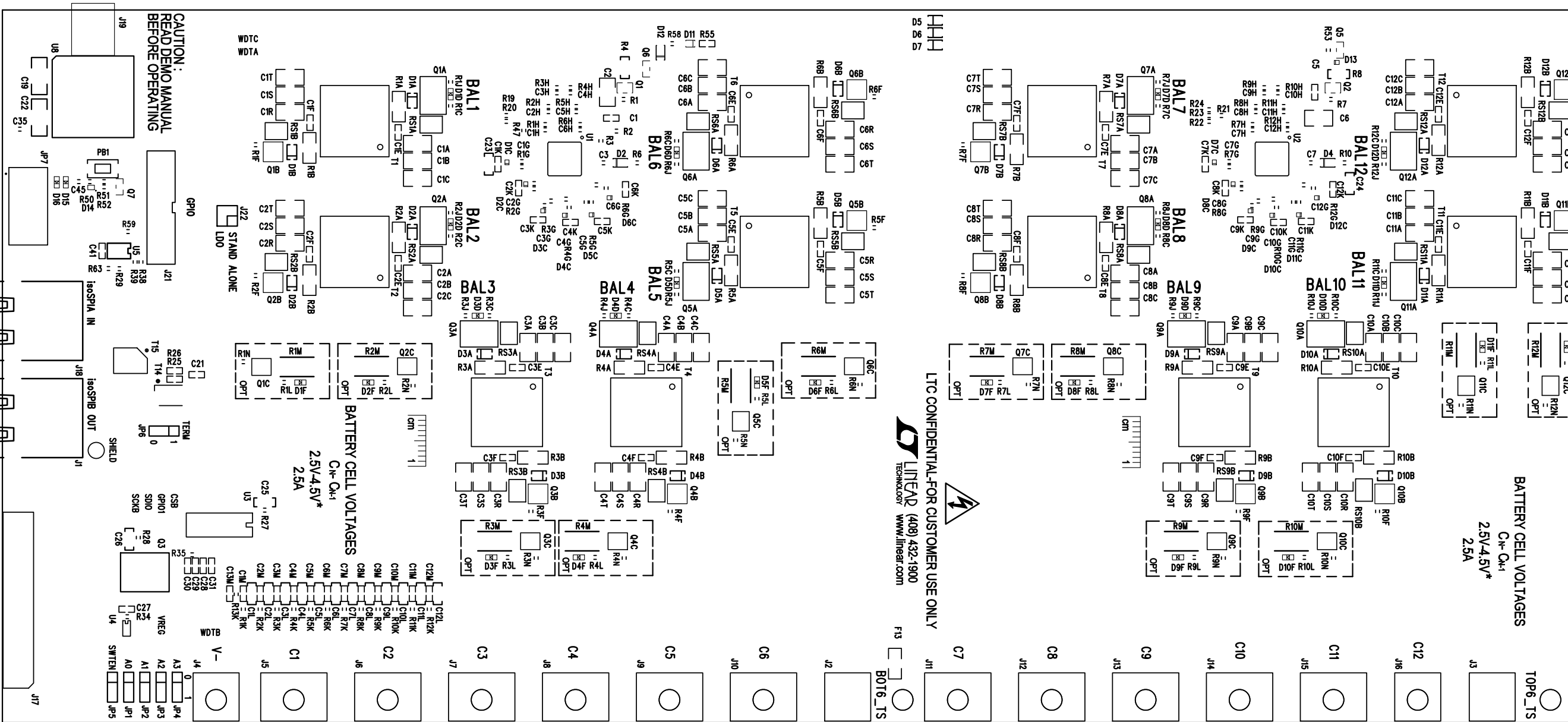
DO NOT SCALE DRAWING

SCALE: NONE

FILENAME: 002100B-1PCB

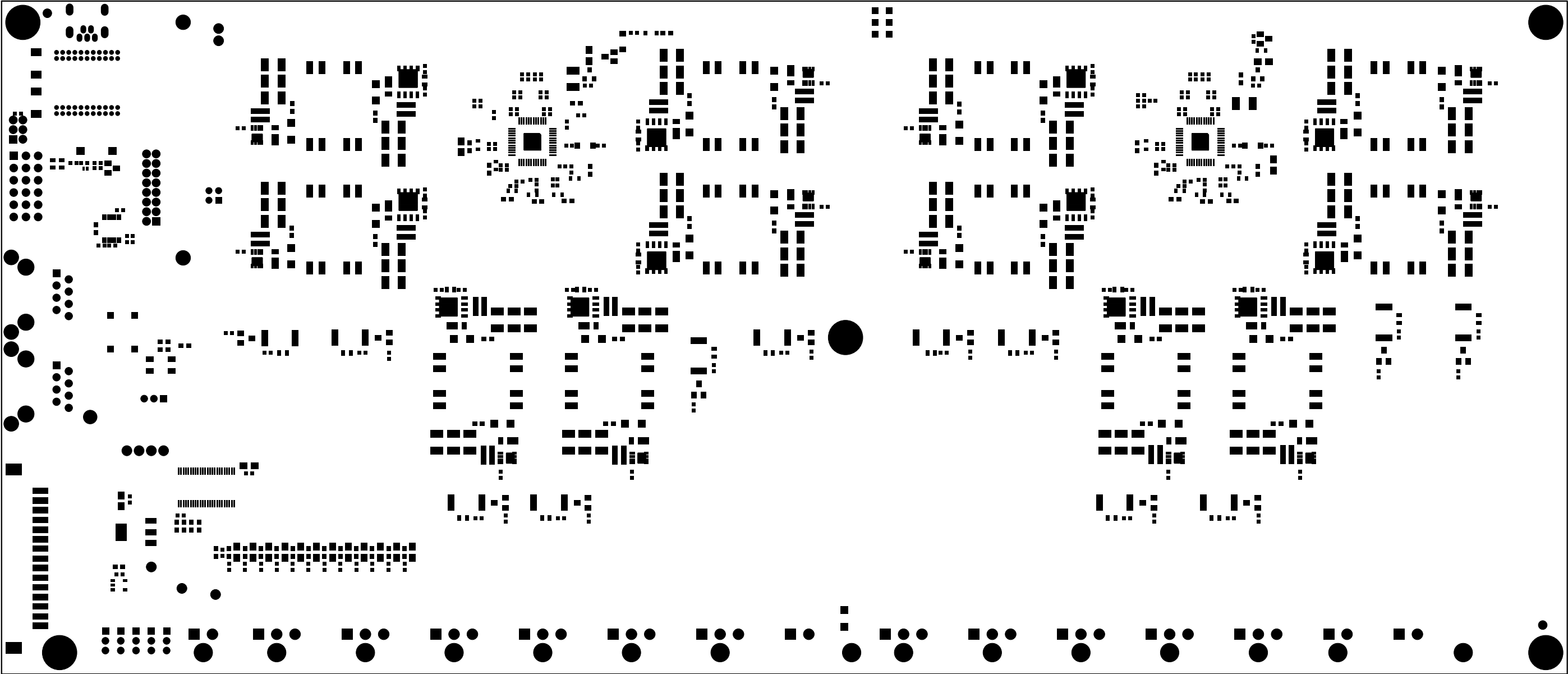
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LTC3300-1 / LTC6804-2  
HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER  
DEMO CIRCUIT 2100B -

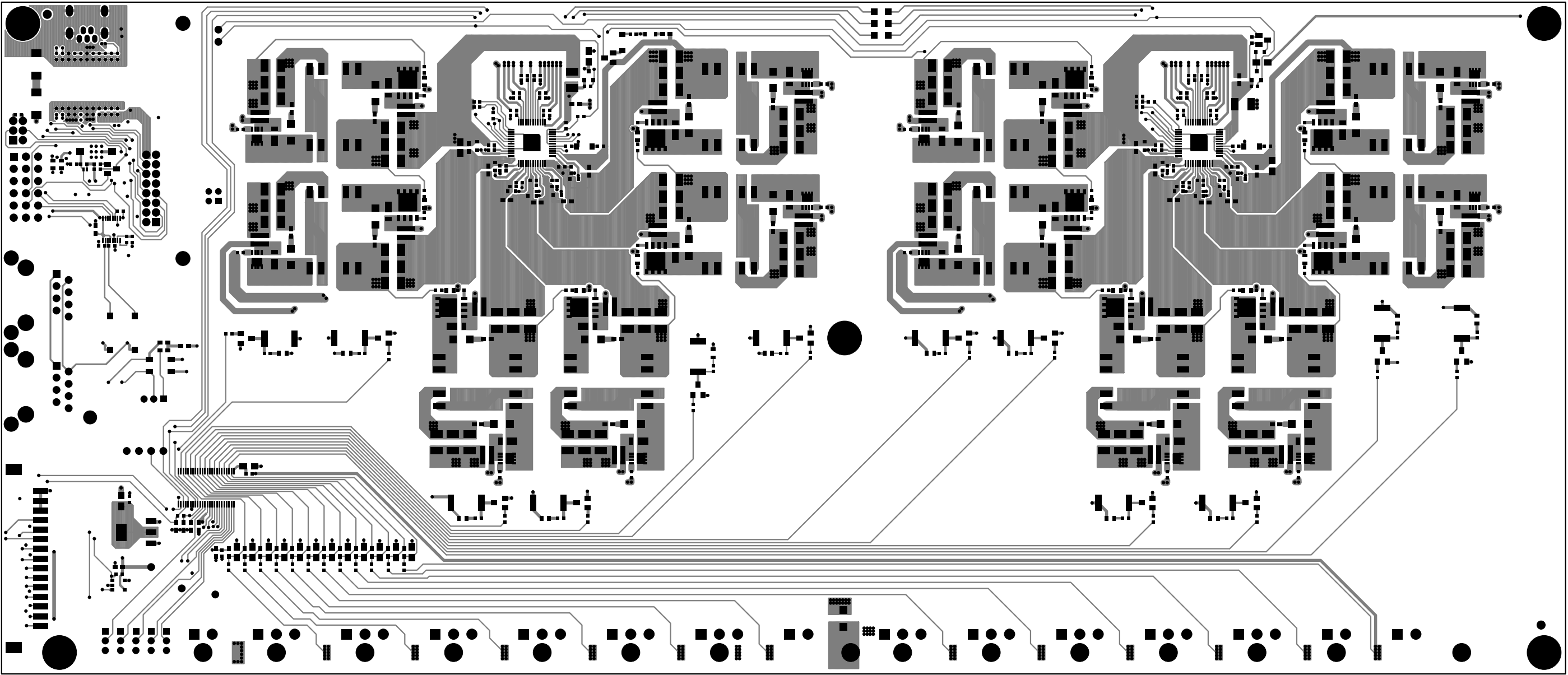




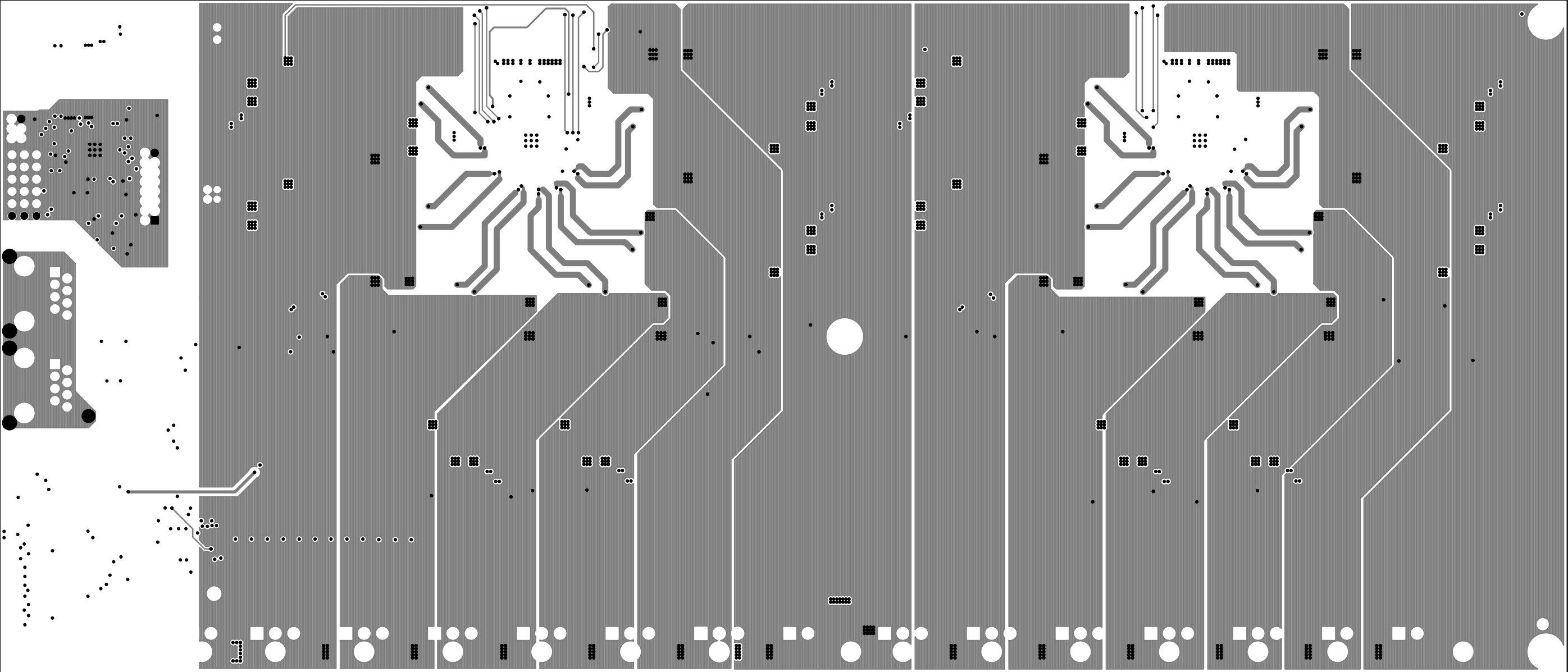




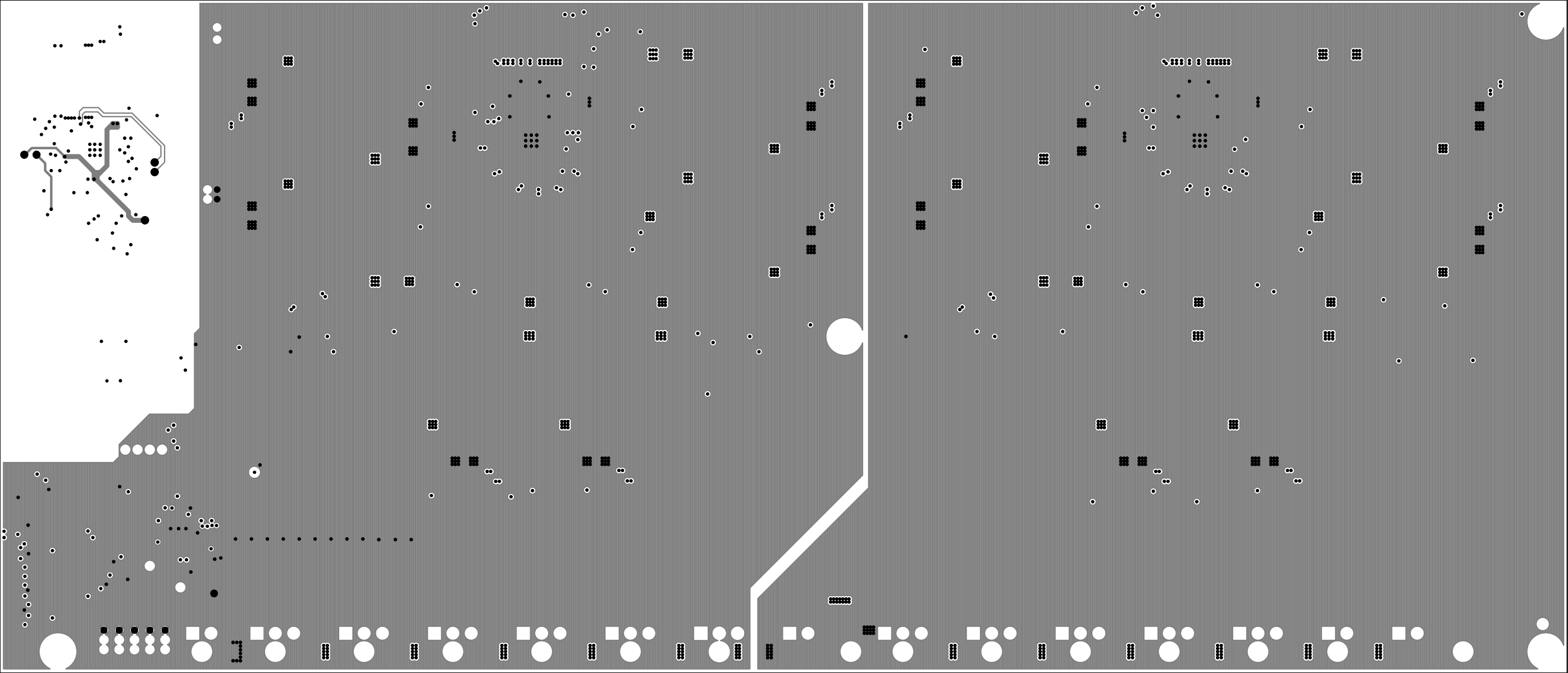
TOP SOLDER MASK  
LINEAR TECHNOLOGY  
DEMO CIRCUIT 2100B-1-A/D\* LTC3300-1/LTC6804-2  
HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER  
02-25-15



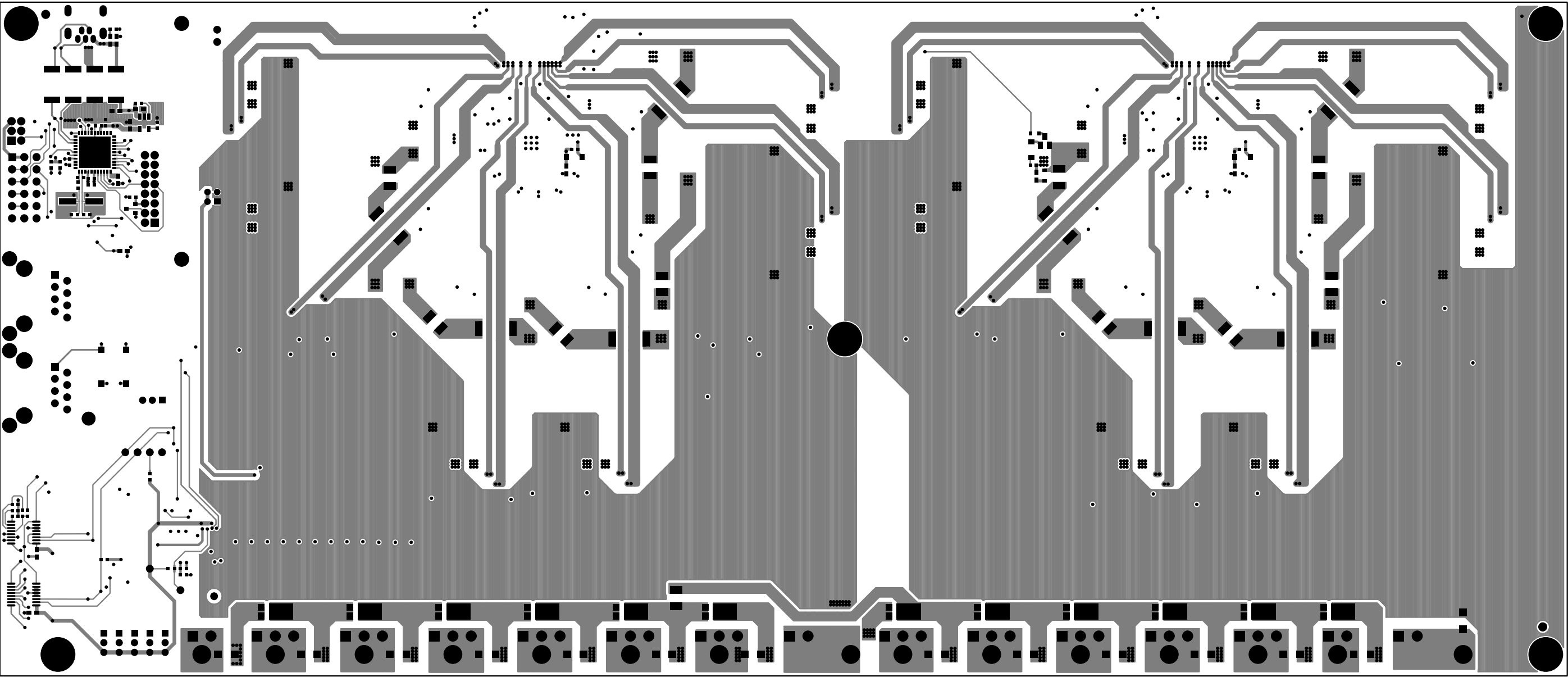
LAYER 1 - TOP SIDE  
LINEAR TECHNOLOGY  
DEMO CIRCUIT 2100B-1-A/D\* LTC3300-1/LTC6804-2  
HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER  
02-25-15



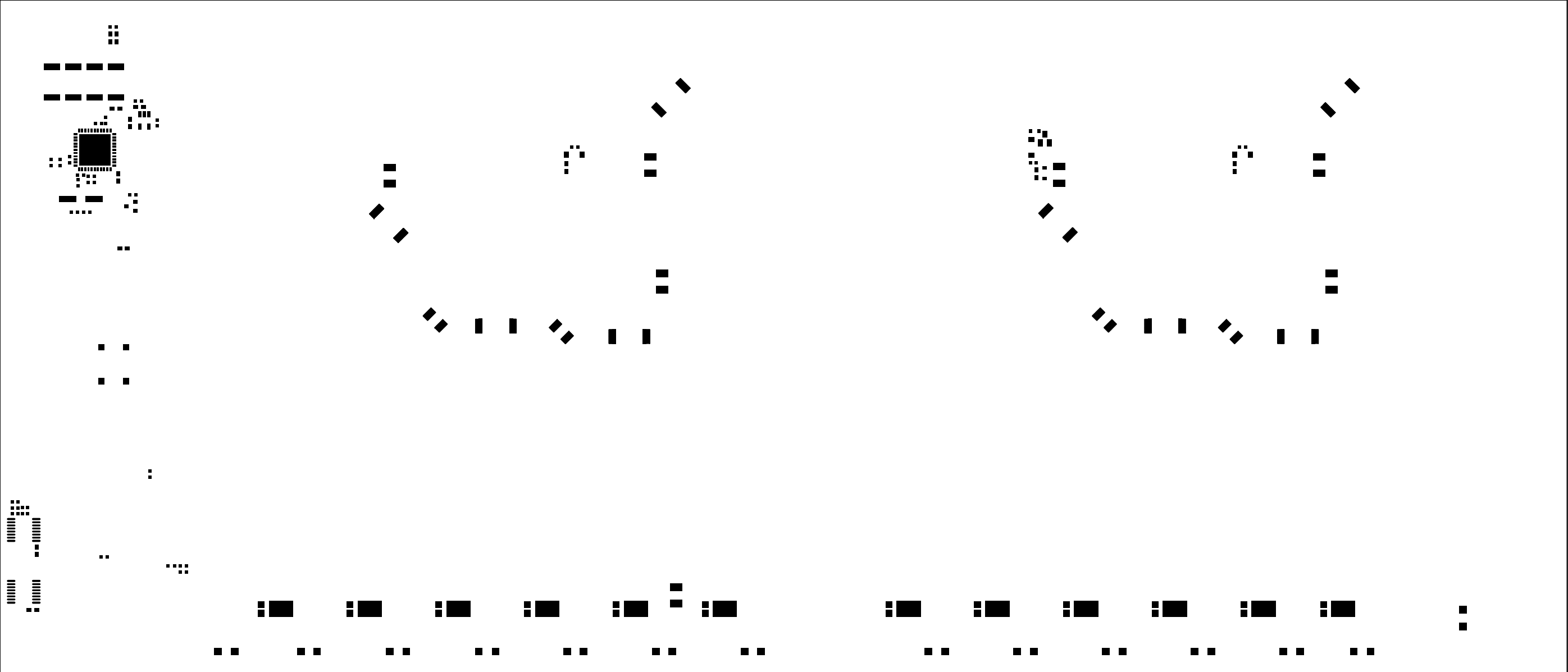
LAYER 2 - C1/C12 PLANES  
LINEAR TECHNOLOGY  
DEMO CIRCUIT 2100B-1-A/D\* LTC3300-1/LTC6804-2  
HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER  
02-25-15



LAYER 3 - V-/ C6 GND PLANES  
LINEAR TECHNOLOGY  
DEMO CIRCUIT 2100B-1-A/D\* LTC3300-1/LTC6804-2  
HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER  
02-25-15

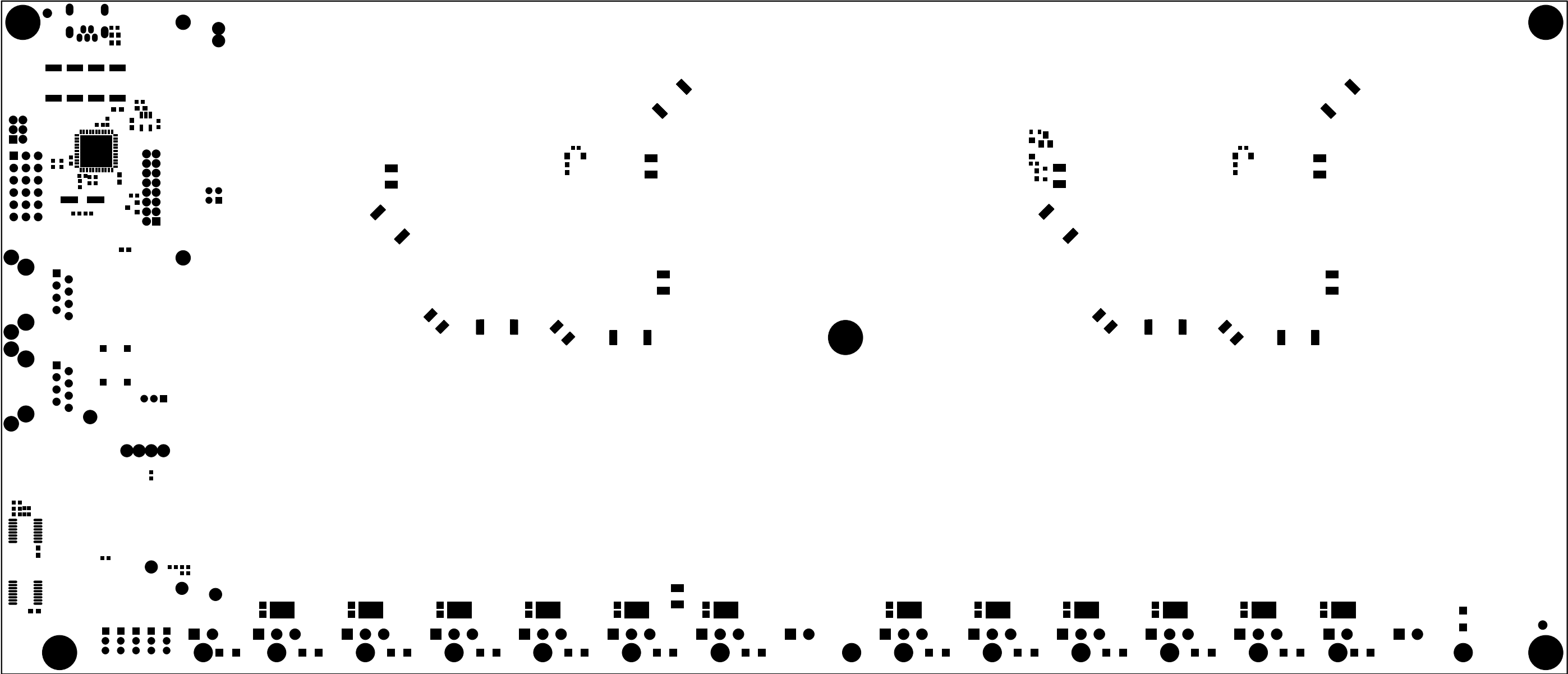


LAYER 4 - BOTTOM SIDE-TOP6/BOT6 PLANES  
LINEAR TECHNOLOGY  
DEMO CIRCUIT 2100B-1-A/D\* LTC3300-1/LTC6804-2  
HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER  
02-25-15



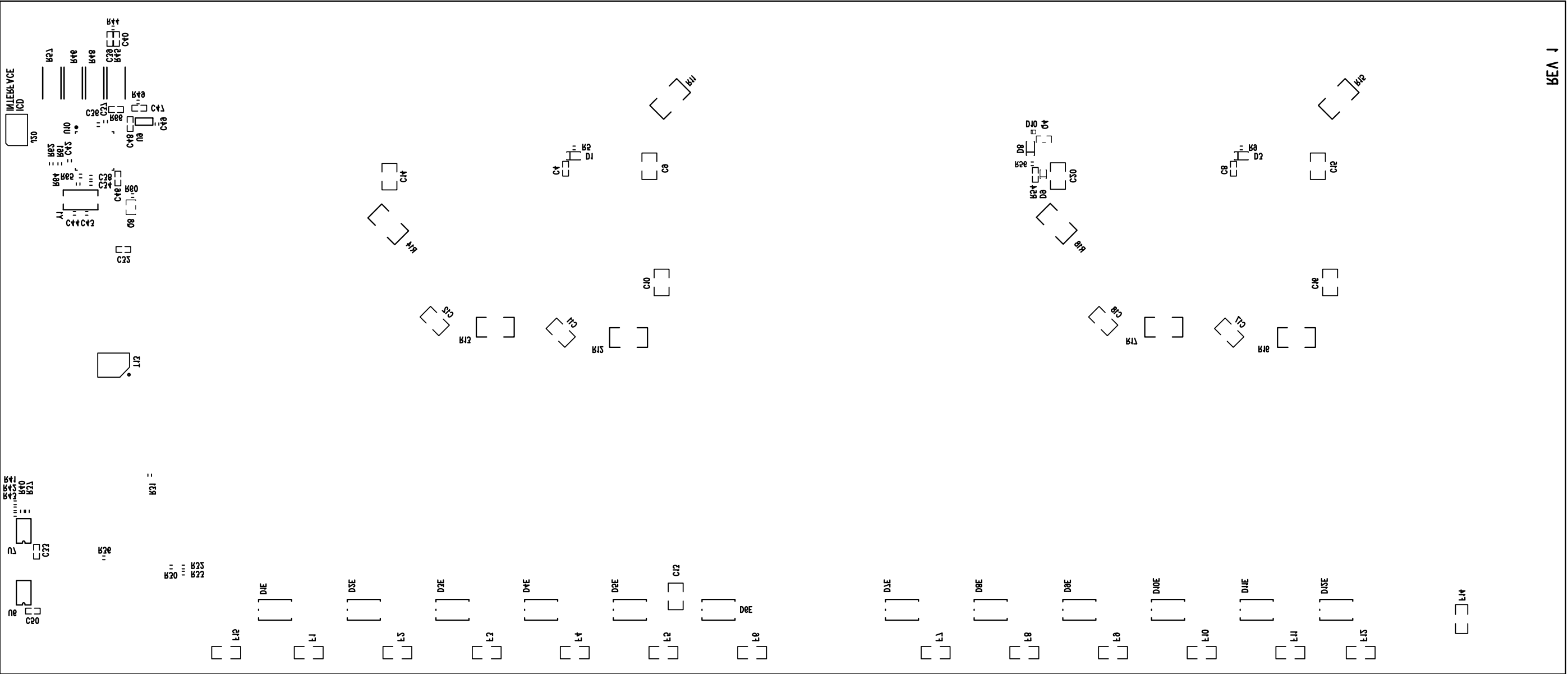
BOTTOM SOLDER PASTE  
LINEAR TECHNOLOGY  
DEMO CIRCUIT 2100B-1-A/D\* LTC3300-1/LTC6804-2  
HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER  
02-25-15





BOTTOM SOLDER MASK  
LINEAR TECHNOLOGY  
DEMO CIRCUIT 2100B-1-A/D\* LTC3300-1/LTC6804-2  
HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER  
02-25-15

REV J



BOTTOM SILKSCREEN  
LINEAR TECHNOLOGY  
DEMO CIRCUIT 2100B-1-A/D\* LTC3300-1/LTC6804-2  
HIGH EFFICIENCY BIDIRECTIONAL MULTICELL BATTERY BALANCER  
02-25-15