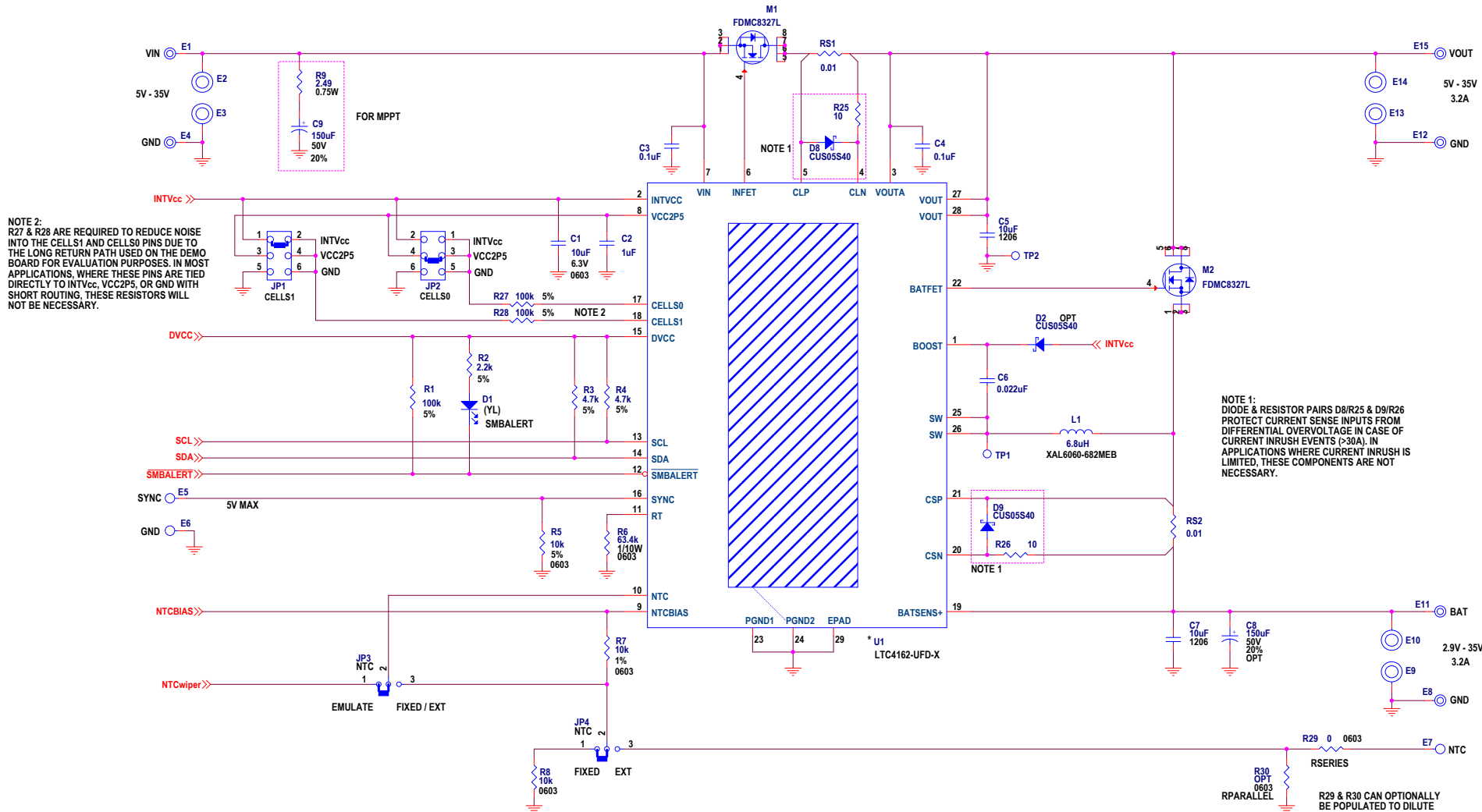


REVISION HISTORY				
ECO	REV	DESCRIPTION	APPROVED	DATE
-	11	PRODUCTION FAB	ZP	10-9-18



NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTORS: OHMS, 0402, 1%, 1/16W
2. CAPACITORS: 0402, 10%, 50V

* = DEFAULT

Li-Ion # OF CELLS	LiFePO4 # OF CELLS	LEAD-ACID # OF CELLS	VOLTAGE	CELLS1 PIN VOLTAGE	CELLS0 PIN VOLTAGE
1	1	3	6V	INTVcc	INTVcc
2*	2*	6*	12V*	INTVcc*	VCC2P5*
3	3	9	18V	INTVcc	GND
4	4	12	24V	VCC2P5	INTVcc
5	5	DISALLOWED	-	VCC2P5	VCC2P5
6	6	DISALLOWED	-	VCC2P5	GND
7	7	DISALLOWED	-	GND	INTVcc
8	8	DISALLOWED	-	GND	VCC2P5
DISALLOWED	9	DISALLOWED	-	GND	GND

* DEMO SKU# / U1 IC TABLE

		MPPT OFF BY DEFAULT		MPPT ON BY DEFAULT	
		SKU #	U1 USED	SKU #	U1 USED
LI-Ion	ADJUSTABLE	DC2038A-A	LTC4162EUF-D-LAD	DC2038A-J	LTC4162EUF-D-LADM
	4.0V FIXED	DC2038A-B	LTC4162EUF-D-L40	DC2038A-K	LTC4162EUF-D-L40M
	4.1V FIXED	DC2038A-C	LTC4162EUF-D-L41	DC2038A-L	LTC4162EUF-D-L41M
	4.2V FIXED	DC2038A-D	LTC4162EUF-D-L42	DC2038A-M	LTC4162EUF-D-L42M
LiFePO4	ADJUSTABLE	DC2038A-E	LTC4162EUF-D-FAD	DC2038A-N	LTC4162EUF-D-FADM
	3.6V FIXED	DC2038A-F	LTC4162EUF-D-FST	DC2038A-O	LTC4162EUF-D-FSTM
	3.8V FIXED	DC2038A-G	LTC4162EUF-D-FFS	DC2038A-P	LTC4162EUF-D-FFSM
LEAD ACID	ADJUSTABLE	DC2038A-H	LTC4162EUF-D-SAD	DC2038A-Q	LTC4162EUF-D-SADM
	FIXED	DC2038A-I	LTC4162EUF-D-SST	DC2038A-R	LTC4162EUF-D-SSTM

PCA ADDITIONAL PARTS

MH1	STANDOFF,NYLON,SNAP-ON,0.50"
MH2	STANDOFF,NYLON,SNAP-ON,0.50"
MH3	STANDOFF,NYLON,SNAP-ON,0.50"
MH4	STANDOFF,NYLON,SNAP-ON,0.50"
LB1	LABEL
PCB1	PCB, DC2038A REV11
STNCL1	TOOL, STENCIL, 700-DC2038A REV11

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.

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

APPROVALS

PCB DES: N. Carlone
APP ENG: Z. Pantely

IC NO.

LTC4162

SKU NO.

* SEE TABLE



www.analog.com

TITLE: DEMO CIRCUIT SCHEMATIC,
35V/3.2A MULTI-CELL STEP-DOWN BATTERY
CHARGER WITH POWERPATH AND I2C TELEMTRY

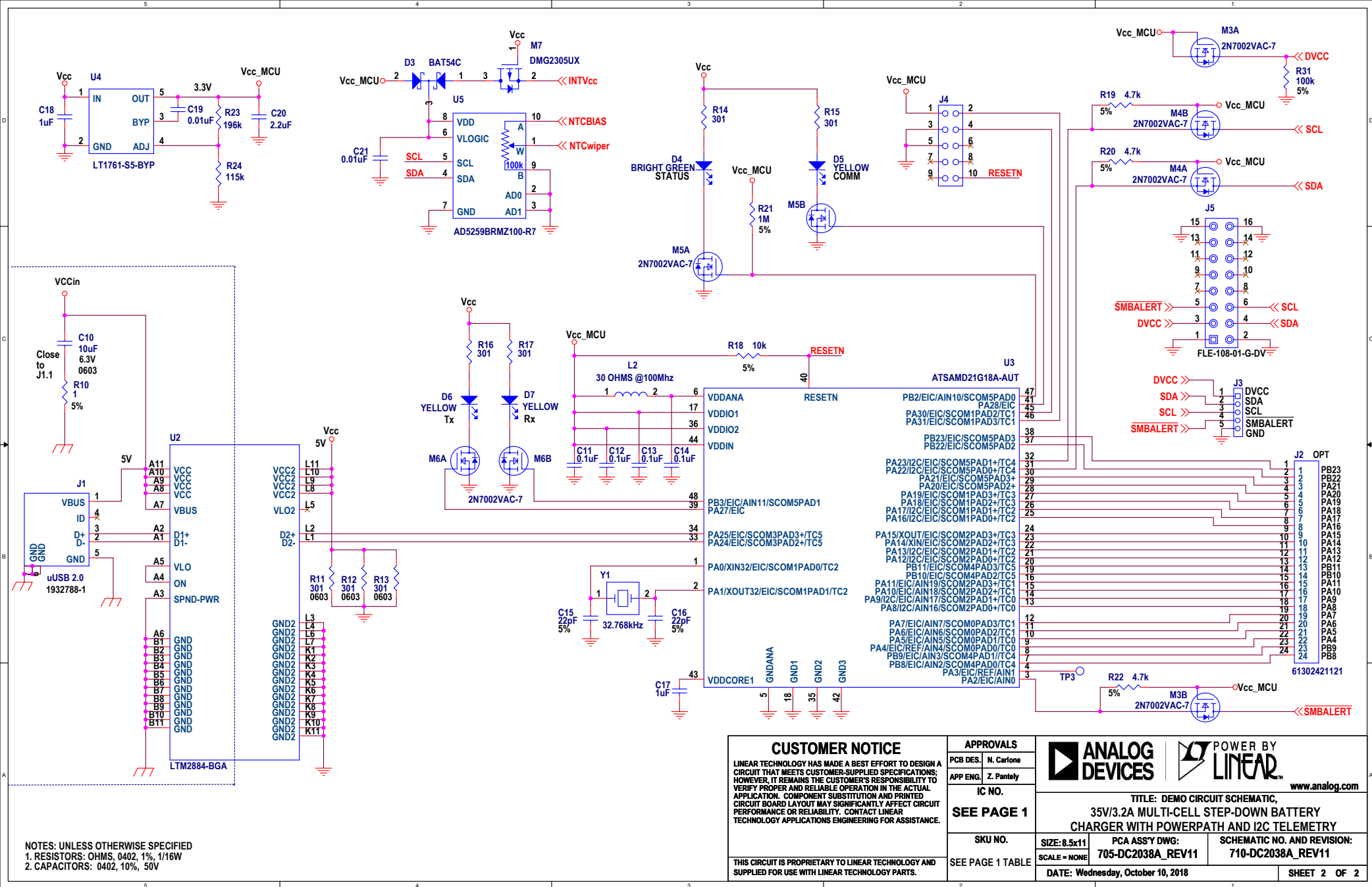
SIZE: 8.5x11
SCALE: NONE

PCA ASSY DWG:
705-DC2038A REV11

SCHEMATIC NO. AND REVISION:
710-DC2038A REV11

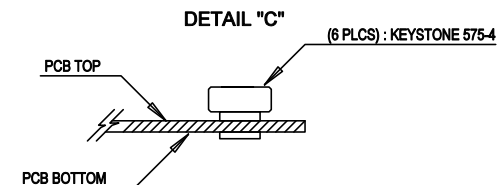
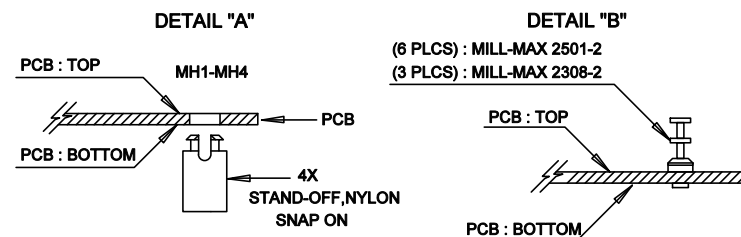
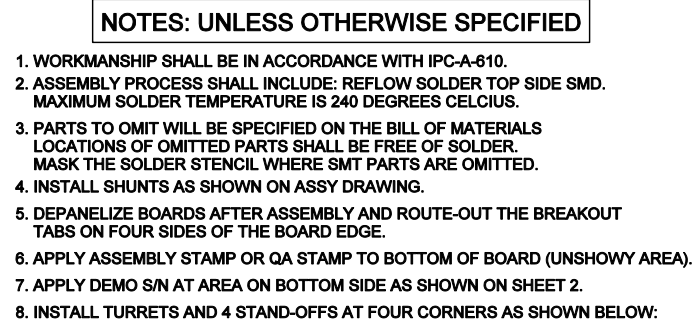
DATE: Wednesday, October 10, 2018

SHEET 1 OF 2





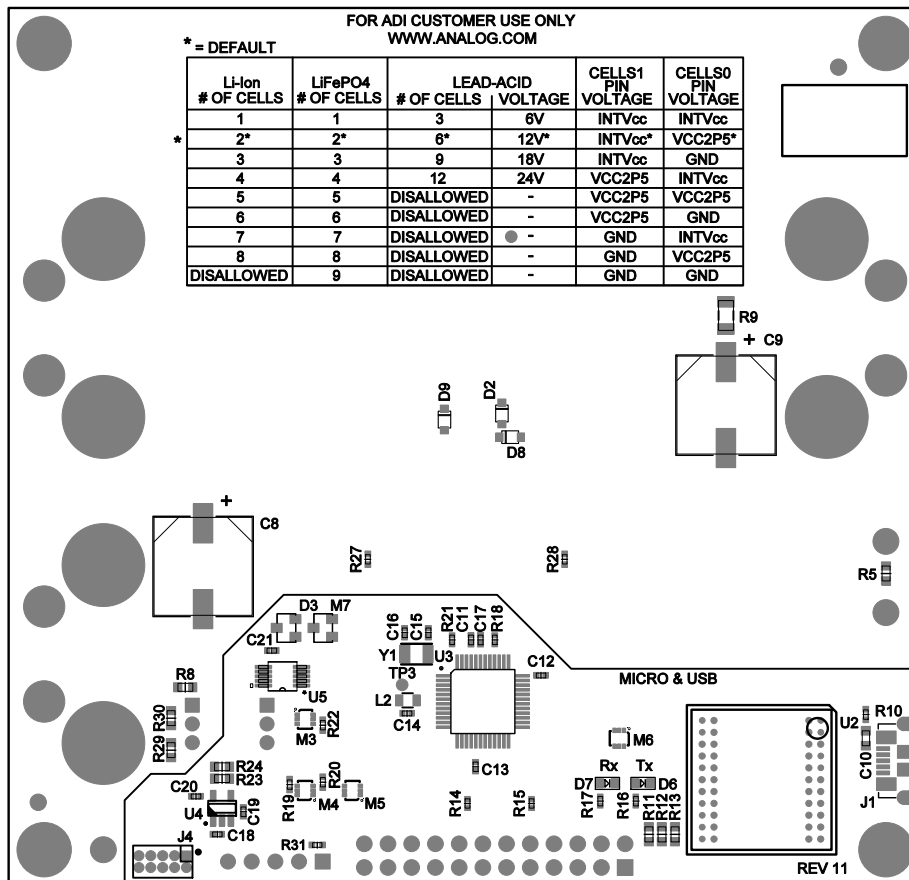
LINEAR TECHNOLOGY CORP.
MANUFACTURING BILL OF MATERIALS
SKU#-A) = DC2038A-A
IC NO.1(A) = LTC1626EUPD-LAD
PCA BOM(A) = 700-DC2038A-A_REV12
PCA ASSY DWG = 705-DC2038A_REV11
PCA SCHEMATIC = 710-DC2038A_REV11

Item Number	Quantity	Part Reference	Description	Manufacturer	Manufacturer PN	MFR PN Status	Value	PART_NUMBER	BOM Notes
1	2	C1,C10	CAP_10uF,XSR,6.3V,20%,0603	MURATA	GRM188R60J106ME47D	Y		150-3401	
				MURATA	GRM188R60J106ME47J	Y			
				TAIYO YUDEN	JMK107ABJ106MA-T	Y			
				AVX	060360106MAT2A	Y			
				NIC	NMCM603K5K106M6.3TRPF	Y			
2	1	C2	CAP_1uF,XSR,16V,10%,0402	TDK	C1608SR0J104K0080AB	Y	10uF	150-0250	
				AVX	0402YD105KAT2A	Y			
				TAIYO YUDEN	EMK105B105KV-F	Y			
				TDK	C1005KSR1C109K050BC	O	1uF		
				AVX	0402SC104KAT2A	Y			
3	2	C3,C4	CAP_0.1uF,X7R,50V,10%,0402	MURATA	GRM155R71H104KE14D	S		150-3240	
				TAIYO YUDEN	UMK105B7104KV-FR	Y			
				TDK	C1005K791H104K050BB	S	0.1uF		
				MURATA	GRM31CR61H106KA12L	L			
				TAIYO YUDEN	UMK3168B1106KL-T	Y			
4	2	C5,C7	CAP_10uF,XSR,50V,10%,1206	TDK	C3216KSR1H106K160AB	Y	10uF	150-0930	
				AVX	0402YD223KAT2A	Y			
				MURATA	GRM155R71C233KA01D	S	0.022uF		
				PANASONIC	EEEFK1H151P	Y	150uF		
				WURTH ELEKTRONIK	885012105010	Y	0.1uF		
5	1	C6	CAP_0.022uF,X7R,16V,10%,0402	WURTH ELEKTRONIK	885012050057	Y	22uF	150-2540	
6	1	C9	CAP_150uF,ALUM. ELECT_50V,20%,10x10.2mm RADIAL,FK Series, AEC-Q200	TDK	CGR02A18B1A105M0313BC	Y	1uF	150-2558	
7	4	C11,C12,C13,C14	CAP_0.1uF,XSR,10V,20%,0402	WURTH ELEKTRONIK	885012205050	Y	0.01uF	150-2542	
8	2	C15,C16	CAP_22uF,NP0,50V,5%,0402	WURTH ELEKTRONIK	885012105013	Y	2.2uF	150-2543	
9	2	C17,C18	CAP_1uF,RU,10V,20%,0402	TDK	C1005KSR1C109K050BC	O	1uF	150-2540	
10	2	C19,C21	CAP_0.01uF,X7R,25V,10%,0402	WURTH ELEKTRONIK	885012205050	Y	0.01uF	150-2542	
11	1	C20	CAP_2.2uF,XSR,10V,20%,0402	WURTH ELEKTRONIK	885012105013	Y	2.2uF	150-2543	
12	1	D1	LED,SUPER YELLOW,MILKY WHITE DIFF_0603	LUXEY	SML-LX5060R09FW-TR	Y		270-0090	
13	1	D3	DIODE,SCHOTTKY,30V,200mA,SOT23	DIODES INC.	BATS4C-7-F	Y		210-0084	
14	1	D4	LED,BRIGHT GREEN,WATERCLEAR,0603	WURTH ELEKTRONIK	150060V575000	Y		270-0072	
15	3	D5,D6,D7	LED,YELLOW,WATERCLEAR,0603	WURTH ELEKTRONIK	150060V575000	Y		270-0136	
16	2	D8,D9	DIODE,SCHOTTKY,40V,500mA,USC (SOD-323)	TOSHIBA	CUS05S40	Y		210-0322	
17	6	E1,E4,E8,E11,E12,E15	TEST POINT,TURRET,0.094",MTG. HOLE	MILL-MAX	2501-2-00-80-00-00-07-0	Y		260-0003	
18	6	E2,E3,E9,E10,E13,E14	CONN,BANANA JACK,FEMALE,THT,NON-INSULATED, SWAGE	KEYSTONE	575-4	Y		250-0428	
19	3	E5,E6,E7	TEST POINT,TURRET,0.064" MTG. HOLE	MILL-MAX	2308-2-00-80-00-00-07-0	Y		260-0004	
20	1	J1	CONN,uSB 2.0,ROTP,5-PIN6, 1 PORT,Reverse Mount, R/A HORZ.,Type B, Flangeless	TE CONNECTIVITY	1932786-1	Y		250-0536	
21	1	J3	CONN.,HDR,MALE,1x5,2.54mm,VERT, STR, THT	SAMTEC	TSW-105-07-L-S	Y		250-0599	
22	1	J4	CONN.,HDR,MALE,2x5,1.27mm,VERT, STR, THT	WURTH ELEKTRONIK	62201021121	Y		250-0763	
23	1	J5	CONN.,SOCKET,ROTP, FEMALE,2x8,1.27mm,VERT, STR, SMT,FLE Series	SAMTEC	FLE-108-01-L-DV	Y		250-0764	
24	2	JP1,JP2	CONN.,HDR,MALE,2x13,1.27mm,STR, VERT, SMT	WURTH ELEKTRONIK	62110621021	Y		250-0590	
25	2	JP3,JP4	CONN.,HDR,MALE,1x3,2mm,VERT, STR, THT,10u" AU	SAMTEC	TMM-103-02-L-S	Y		250-0422	
26	1	L1	IND.,6.8uH,PWR. SHIELDED,20%,5A,20.80mmxHMS,6.56mmxK6.36mm,AEC-Q200, XAL6060	Colcraft	XAL6060-682MEB	Y	6.8uH	200-0205	
27	1	L2	IND.,30 OHMS @100MHz,BEAD,5A,10mmxHMS,0805	COILCRAFT	XAL5060-682MEC	Y	30 OHMS @100MHz	200-0237	
28	1	L81	LABEL SPEC, DEMO BOARD SERIAL NUMBER	BRADY	THT-96-717-10	Y		895-0154	
29	2	M1,M2	XSTR,,MOSFET, N-CH,40V,14A,Power 33 (MLP 3.3Ax3.3) 8L	ON SEMICONDUCTOR	FDMC8327L	Y		240-0151	
30	4	M3,M4,M5,M6	XSTR,,MOSFET, DUAL N-CH,0.28A,SOT-563	DIODES INC.	2N7002VAC-7	Y		240-0199	
31	1	M7	XSTR,,MOSFET, P-CH,20V,4.2A,SOT23	DIODES INC.	DMG2305UX-7	Y		240-0373	
32	4	MH1,MH2,MH3,MH4	STANDOFF,NYLON,SNAP-ON,0.50"	KEYSTONE	8833	Y		763-0007	
33	1	PCB1	PCB, DC2038A	GORILLA CIRCUITS	600-DC2038A	Y		600-DC2038A	REV10
34	4	R1,R27,R28,R31	RES_100k OHMS,5%,1/16W,0402,AEC-Q200	NIC	NRC04104TRF	Y		100-0359	
				ROHM	MCR01MZP1104	Y			
				VISHAY	CRCW0402100KINED	Y	100k		
				VISHAY	CRCW0402222RFB	Y			
				NIC	NRC040472TRF	Y	2.2k		
35	1	R2	RES_2.2k OHMS,5%,1/16W,0402	NIC	NRC040472TRF	Y	2.2k	100-0324	
				VISHAY	CRCW04024K70INED	Y	4.7k		
				NIC	NRC06103TRF	Y			
				PANASONIC	ERJ3EY1103V	Y			
				VISHAY	CRCW060310K0JNEA	Y	10k		
36	5	R3,R4,R19,R20,R22	RES_4.7k OHMS,5%,1/16W,0402	VISHAY	CRCW0603364FKEA	Y	63.4k	100-2523	
				NIC	NRC0603142TRF	Y			
				VISHAY	CRCW060310K0FKEA	Y			
				NIC	NRC0603142TRF	Y			
				VISHAY	CRCW060310K0FKEA	Y			
37	1	R5	RES_10k OHMS,5%,1/10W,0603,AEC-Q200	KOA SPEER	RK73H1UTD1002F	Y		100-2012	
				PANASONIC	ERJ3EKF1002V	Y	10k		
				VISHAY	CRCW120624969KEAHP	Y	2.49		
				KOA SPEER	RK73B1ETTP1R01	Y			
				VISHAY	CRCW04021R00INED	Y	1		
38	1	R6	RES_63.4k OHMS,1%,1/10W,0603	PANASONIC	ERJ3EKF3010V	Y		100-0208	
				VISHAY	CRCW0603301RPFKEA	Y			
				NIC	NRC0402301RPFKEA	Y	301		
				VISHAY	CRCW0402301RPFKEA	Y	301		
				YAGEO	RC0402R-0710KL	Y	10k		
39	2	R7,R8	RES_10k OHMS,1%,1/10W,0603,AEC-Q200	VISHAY	CRCW04021M00INED	Y		100-0321	
				NIC	NRC04105TRF	Y	1M		
				VISHAY	CRCW0603115KPFKEA	Y			
				YAGEO	RCM03PR-07196KL	Y	196k		
				NIC	NRC06F1153TRF	Y			
40	1	R9	RES_196k OHMS,1%,1/10W,0603	VISHAY	CRCW0603115KPFKEA	Y	115k	100-2580	
				NIC	NRC04F10R0TRF	Y			
				VISHAY	CRCW040210R0PFKEA	Y	10		
				ROHM	MCR03E2P9000	Y	0		
				SUSUMU	PLR0816-R010-F-T1	Y	0.01		
41	1	R10	RES_1 OHM,5%,1/16W,0402	LINEAR TECH.	830-DC2038A	Y		100-0490	
				LINEAR TECH.	LTC1626EUPD-LADWPBF	Y			
				LINEAR TECH.	LTC1626EUPD-LADWTRPBF	Y			
				LINEAR TECH.	LTM2884CWPBF	Y			
				MICROCHIP	ATSAM021G18A-AUT	Y			
42	3	R11,R12,R13	RES_301 OHMS,1%,1/10W,0603,AEC-Q200	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
43	4	R14,R15,R16,R17	RES_301 OHMS,1%,1/10W,0402	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
44	1	R18	RES_10k OHMS,5%,1/16W,0402	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
45	1	R21	RES_1M OHM,5%,1/16W,0402	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
46	1	R23	RES_196k OHMS,1%,1/10W,0603	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
47	1	R24	RES_115k OHMS,1%,1/10W,0603	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
48	2	R25,R26	RES_10 OHMS,1%,1/16W,0402,AEC-Q200	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
49	1	R29	RES_0 OHM,1/10W,0603,1A, AEC-Q200	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
50	2	R51,R52	RES_0.01 OHM,1%,1/3W,0603, LONG-SIDE TERM.,SENSE	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
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				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
51	1	STNCL1	TOOL, STENCIL, 700-DC2038A	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
52	1	U1	IC,35V/3.2A MULTI-CELL STEP DOWN BATTERY CHARGER WITH POWERPATH AND I2C TELEMETRY, QFN-28(UFD) 4mmx5mm	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
53	1	U2	IC,Isolated USB Transceiver,3A,6A-44	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
54	1	U3	IC, MEMORY,MCU,32BIT, 256KB FLASH,TQFP48	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
55	1	U4	IC,REG LDO ADJ, 100mA,T5023-5	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
56	1	U5	IC,POT DGT1, 100K OHMS, 256POS,MSOP-10,Nonvolatile, I2C-Compatible	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
57	2	XP1,XP2	CONN.,SHUNT,FEMALE,1x2,1.27mm	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
58	2	XP3,XP4	CONN.,SHUNT,FEMALE,2 POS,2mm	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
59	1	Y1	CRYSTAL_32.768kHz,12.5pF,3.2x1.5mm SMD	LINEAR TECH.	L1716155-BYPWPBF	Y		100-0434	
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			
				LINEAR TECH.	L1716155-BYPWPBF	Y			



MPPT OFF BY DEFAULT		MPPT ON BY DEFAULT	
SKU #	U1	SKU #	U1
DC2038A-A	LTC4162EUF-D-LAD	DC2038A-J	LTC4162EUF-D-LADM
DC2038A-B	LTC4162EUF-D-L40	DC2038A-K	LTC4162EUF-D-L40M
DC2038A-C	LTC4162EUF-D-L41	DC2038A-L	LTC4162EUF-D-L41M
DC2038A-D	LTC4162EUF-D-L42	DC2038A-M	LTC4162EUF-D-L42M
DC2038A-E	LTC4162EUF-D-FAD	DC2038A-N	LTC4162EUF-D-FADM
DC2038A-F	LTC4162EUF-D-FST	DC2038A-O	LTC4162EUF-D-FSTM
DC2038A-G	LTC4162EUF-D-FFS	DC2038A-P	LTC4162EUF-D-FFSM
DC2038A-H	LTC4162EUF-D-SAD	DC2038A-Q	LTC4162EUF-D-SADM
DC2038A-I	LTC4162EUF-D-SST	DC2038A-R	LTC4162EUF-D-SSTM

APPROVALS		 ANALOG DEVICES  POWER BY LINEAR		1630 MCCARTHY BLVD MILPITAS, CA 95035 PH: (408)432-1900 WWW.ANALOG.COM	
PCB DES. NC		TITLE: TOP ASSEMBLY DRAWING: 35V/3.2A MULTI-CELL STEP DOWN BATTERY CHARGER WITH POWERPATH AND I2C TELEMETRY			
APP ENG. ZP					
		SIZE	IC NO.	LTC4162	REV.
		N/A	DEMO CIRCUIT 2038A-A/R		11
SCALE = NONE		SHT 1 of 2			



7 DEMO S/N LABEL
APPLY IN THIS AREA

APPROVALS

PCB DES.	NC
APP ENG.	ZP



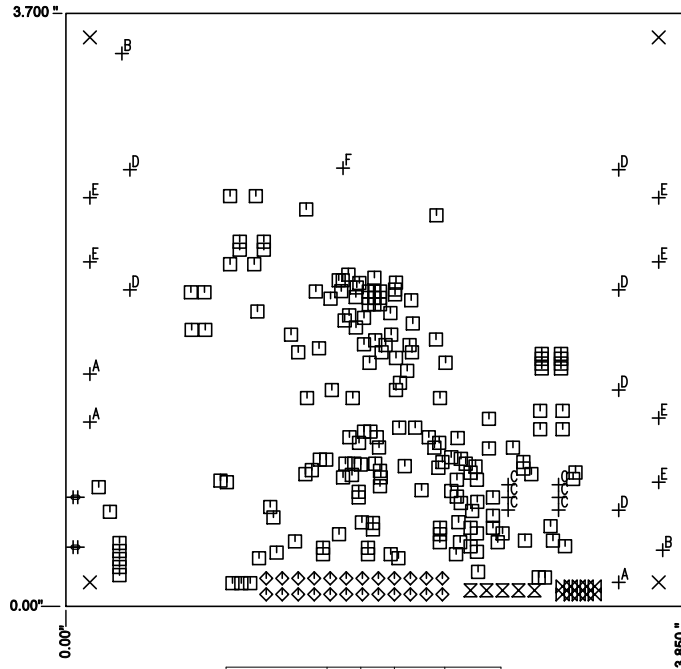
1630 MCCARTHY BLVD
MILPITAS, CA 95035
PH: (408)432-1800
WWW.ANALOG.COM

TITLE: BOTTOM ASSEMBLY DRAWING:
35V/3.2A MULTI-CELL STEP DOWN BATTERY
CHARGER WITH POWERPATH AND I2C TELEMTRY

SIZE	IC NO.	REV.
N/A	LTC4162 DEMO CIRCUIT 2038A-A/R	11

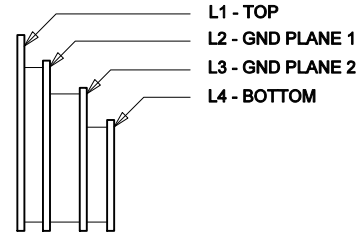
SCALE = NONE

SHT 2 of 2



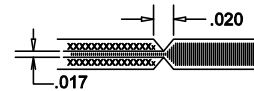
SIZE	QTY	SYM	PLATED	TOL
0.01	177	□	YES	+/-0.003
0.02559 x 0.05512	2	+	YES	+/-0.003
0.02756	10	⊠	YES	+/-0.003
0.037	1	⊢	YES	+/-0.003
0.04	6	⊢	YES	+/-0.003
0.042	5	⊠	YES	+/-0.003
0.04528	24	◇	YES	+/-0.003
0.065	3	⊢	YES	+/-0.003
0.07	2	⊢	NO	+/-0.003
0.095	6	⊢	YES	+/-0.003
0.19	4	×	YES	+/-0.003
0.204	6	⊢	YES	+/-0.003

LAYER STRUCTURE



NOTES: UNLESS OTHERWISE SPECIFIED

- FABRICATION:** FABRICATION AND ACCEPTANCE TO MEET THE REQUIREMENTS OF IPC-A-600 AND IPC/ANSI-MLL950-C CLASS 2, AOL .25 GENERAL INSPECTION LEVEL II.
- 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 1 OZ. CU ON THE INNER LAYERS.
-FLAMMABILITY RATING: 94 V-O 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.
-GOLD IMMERSION BOTH SIDES.
-TENT VIAS, TOP AND BOTTOM.
-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"





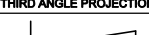
ADDITIONAL REQUIREMENT FOR PROTOTYPE FAB ONLY:

- OUTGOING INSPECTION REPORT (BASED ON ACTUAL MEASUREMENTS AND CROSS SECTION).

ADDITIONAL REQUIREMENTS FOR PRODUCTION FAB ONLY:

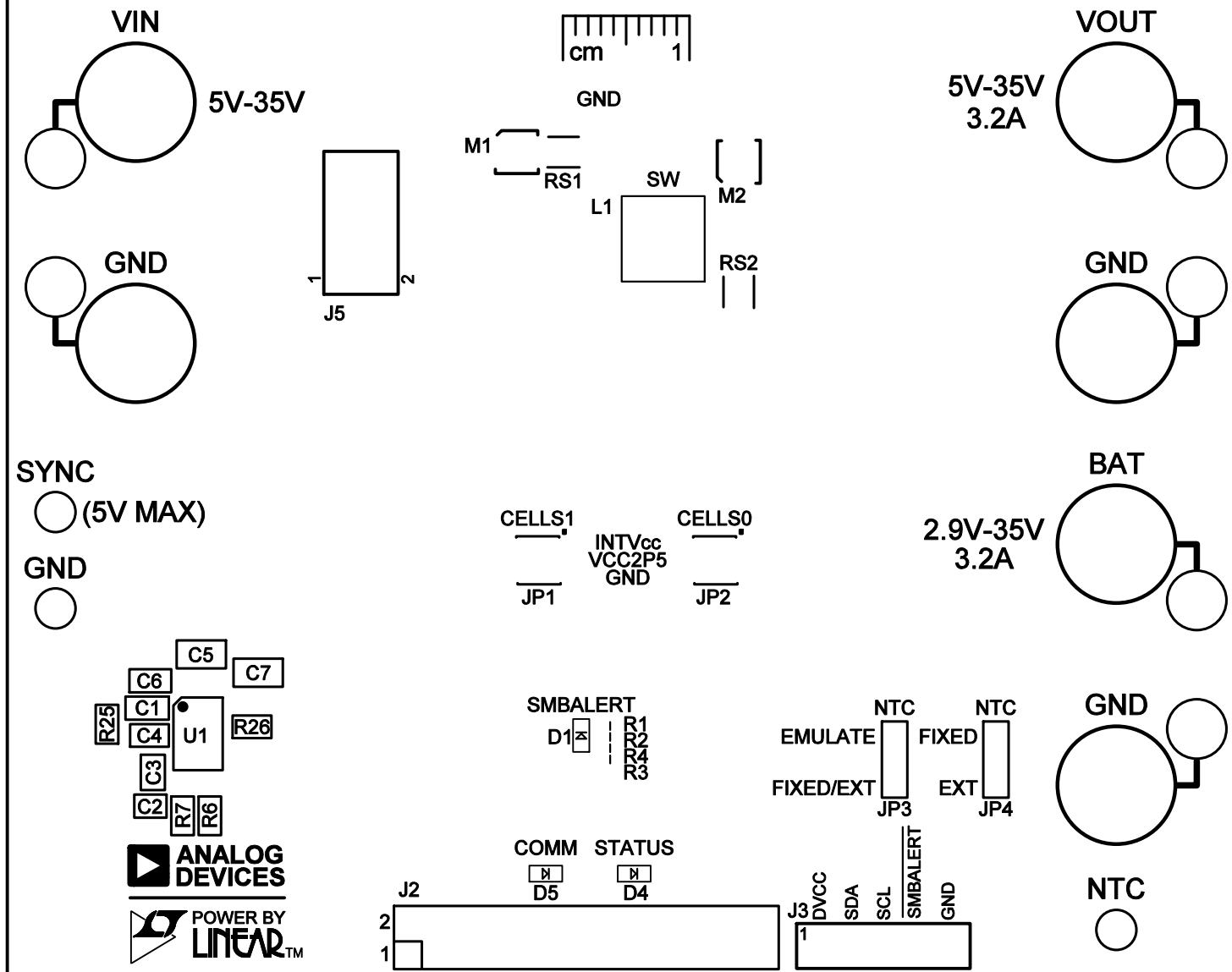
- PROVIDE COMPLIANCE CERTIFICATES FOR RoHS, REACH AND CONFLICT-FREE MINERALS.
- SOLDERABILITY BOARD WITH TEST RESULTS.
- OUTGOING INSPECTION REPORT (BASED ON ACTUAL MEASUREMENTS AND CROSS SECTION).
- VACUUM PACKED WITH DESICCANT.
- FULL PANEL WITH NO REJECT.

REVISION HISTORY				
ECO	REV	DESCRIPTION	APPR	DATE
-	11	PRODUCTION FAB	ZP	10-09-18

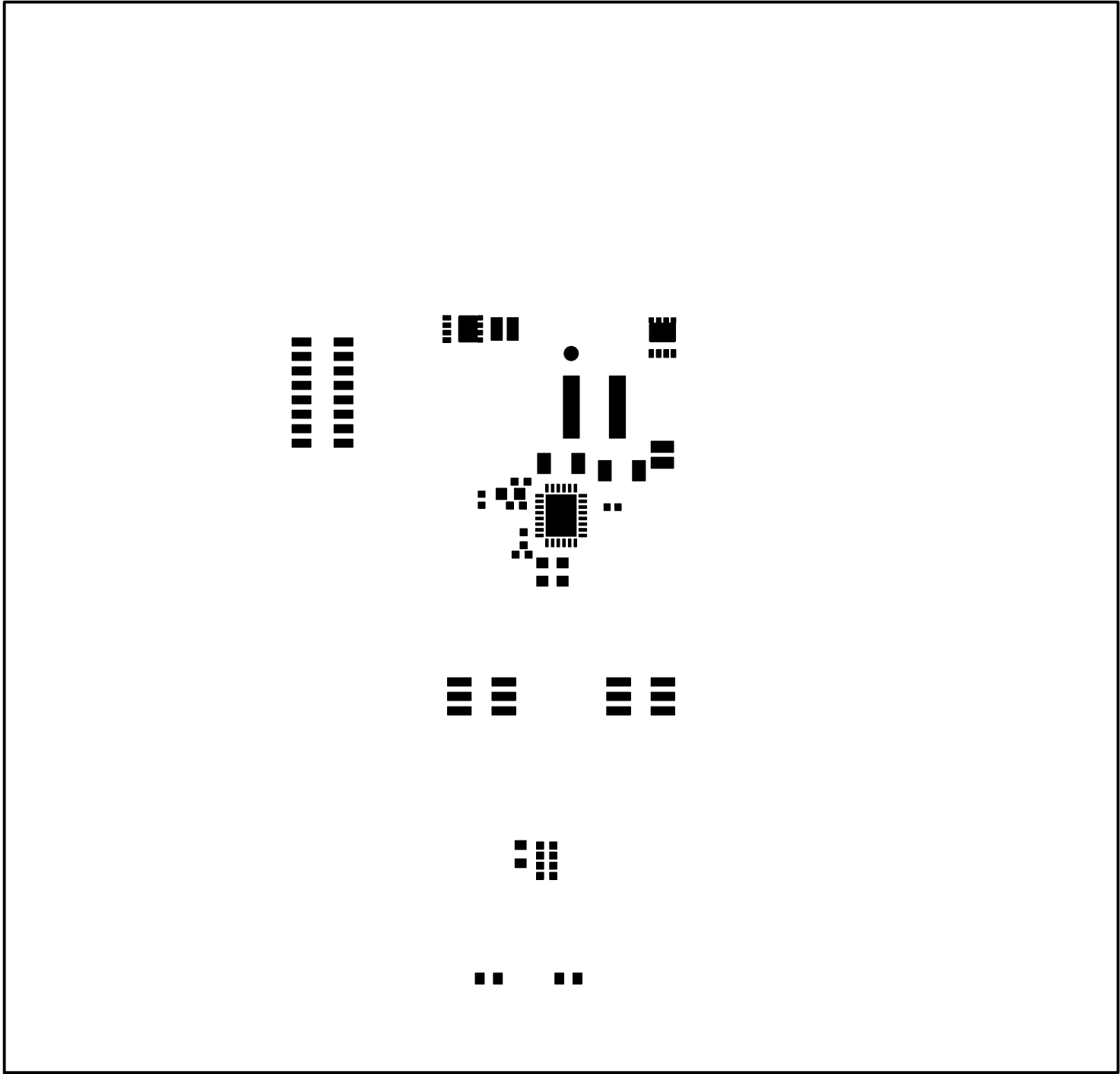
<div>UNLESS OTHERWISE SPECIFIED</div> <div>DIMENSIONS ARE IN INCHES</div> <div>TOLERANCES ON ANGLE: 1°</div> <div>0.004" = 0.01" ±</div> <div>0.0004" = 0.0008" ±</div> <div>INTERPRET DIM AND TOL</div> <div>PER ASME Y14.5M-1994</div>	APPROVALS		<div><div>ANALOG DEVICES</div><div><div>POWER BY LINEAR</div><div>1630 MCCARTHY BLVD MILPITAS, CA 95035 PH: (408)432-1800 WWW.ANALOG.COM</div></div></div>		
	PCB DES.	NC			
	APP ENG.	ZP			
	THIRD ANGLE PROJECTION				
	<div></div>				
DO NOT SCALE DRAWING		SCALE: NONE		TITLE: FABRICATION DRAWING: 35V/3.2A MULTI-CELL STEP DOWN BATTERY CHARGER WITH POWERPATH AND I2C TELEMETRY	
		SIZE	IC NO.	LTC4162	REV.
		N/A	DEMO CIRCUIT 2038A-A/R		11
					SHT 1 of 1

LTC4162 - XXXXXXXXXX

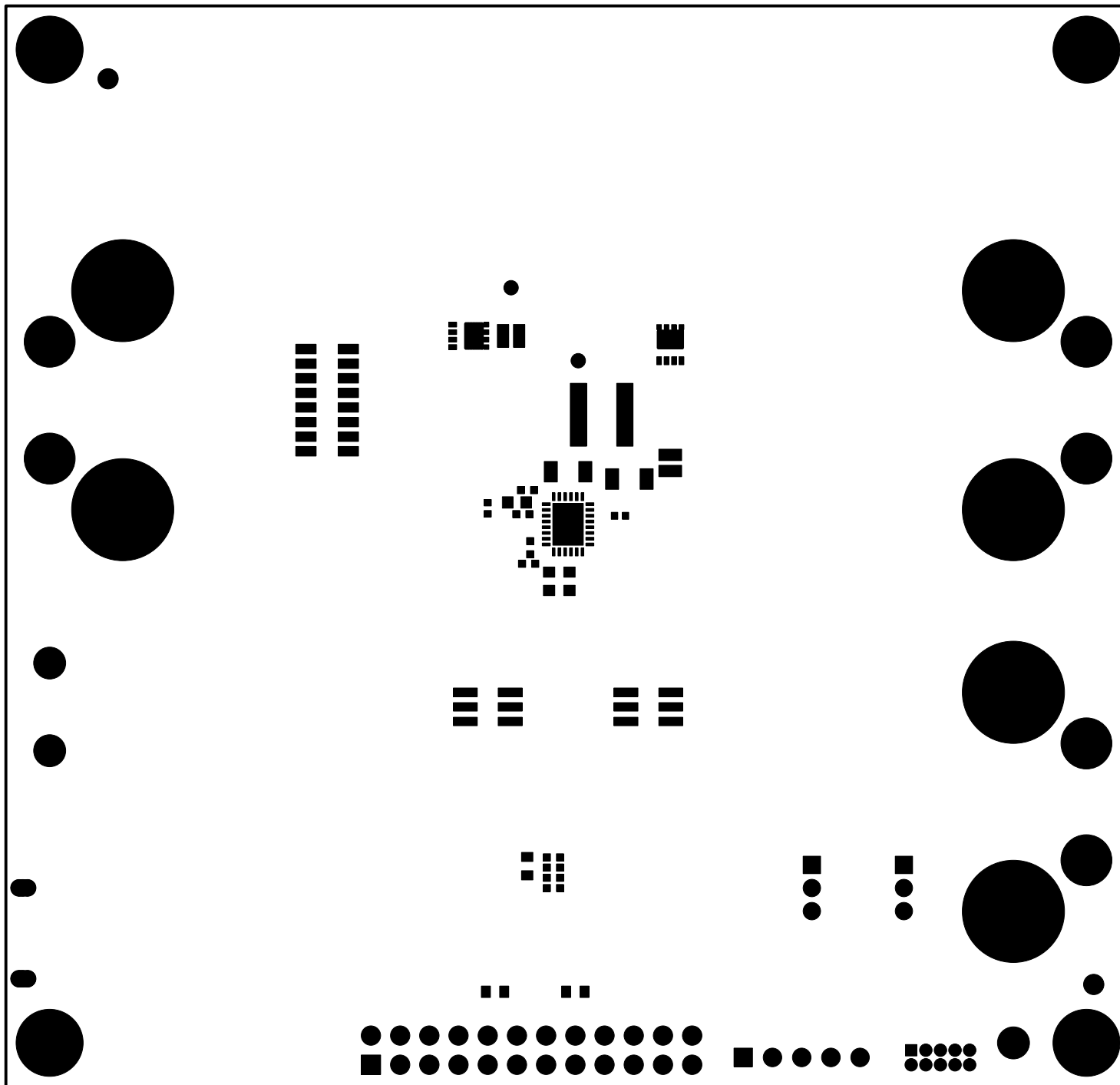
35V/3.2A MULTI-CELL STEP-DOWN BATTERY CHARGER WITH POWERPATH AND I²C TELEMETRY DEMO CIRCUIT 2038A - XXXXXX



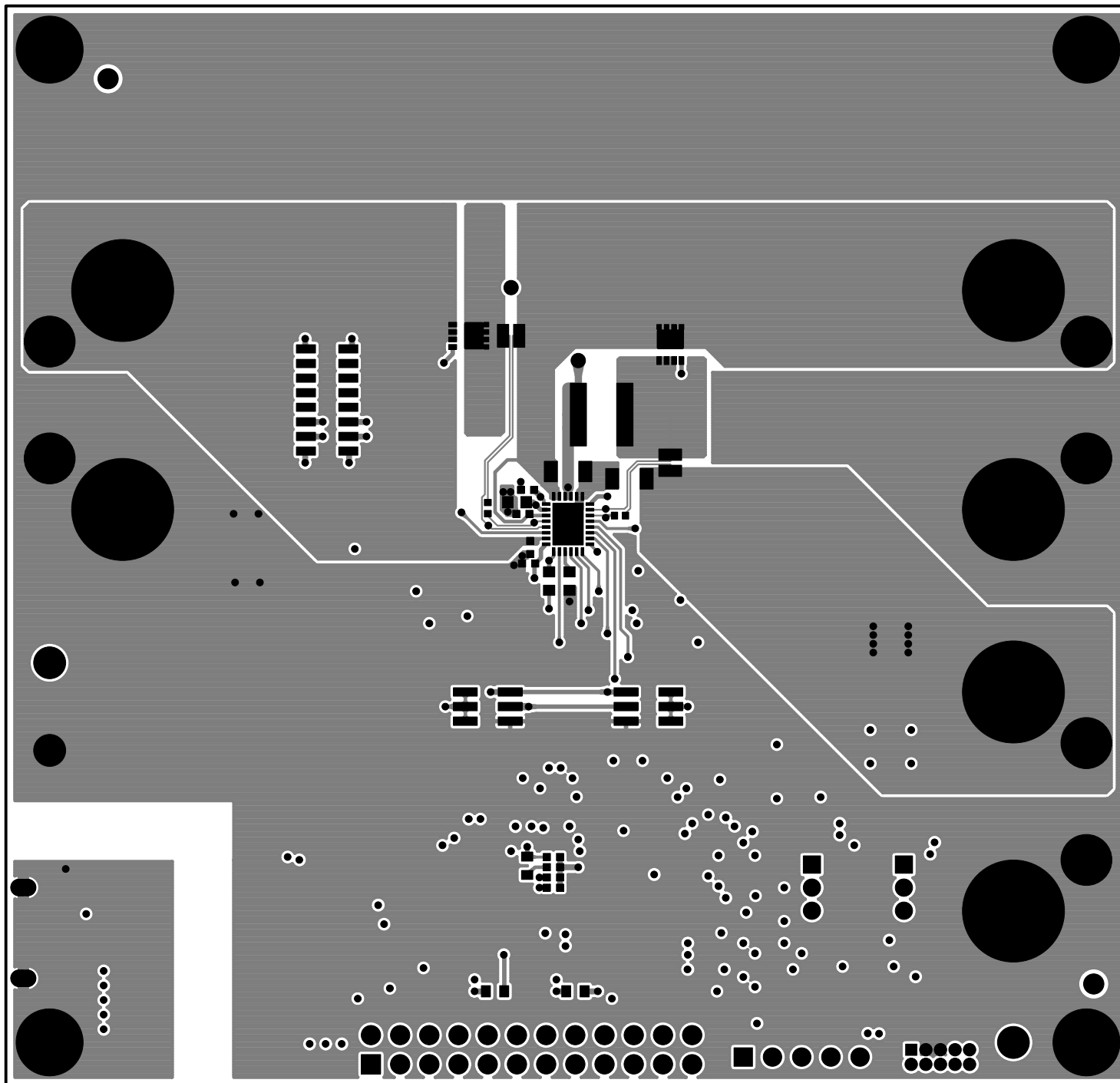
TOP SILKSCREEN



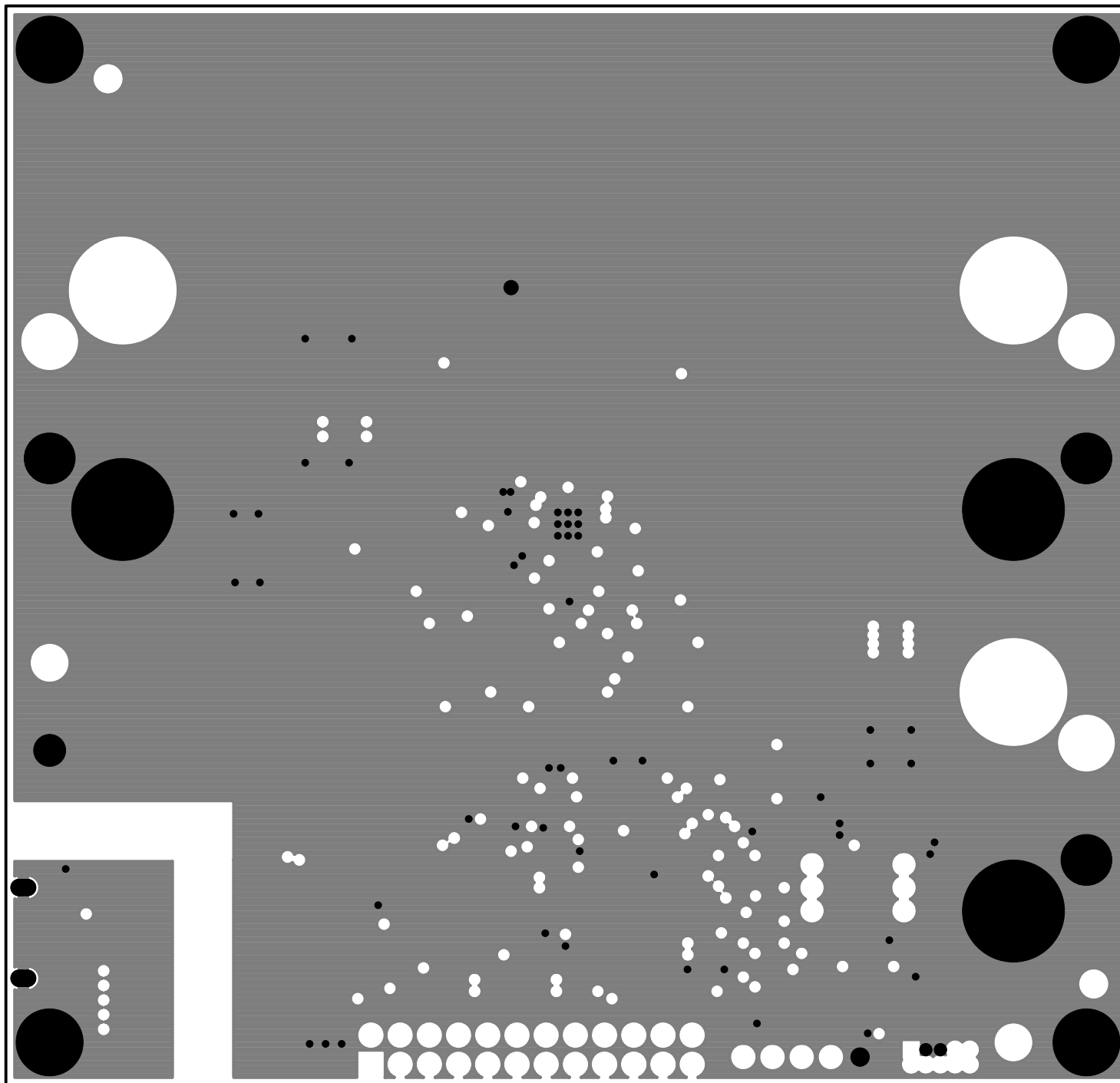
TOP SOLDER PASTE



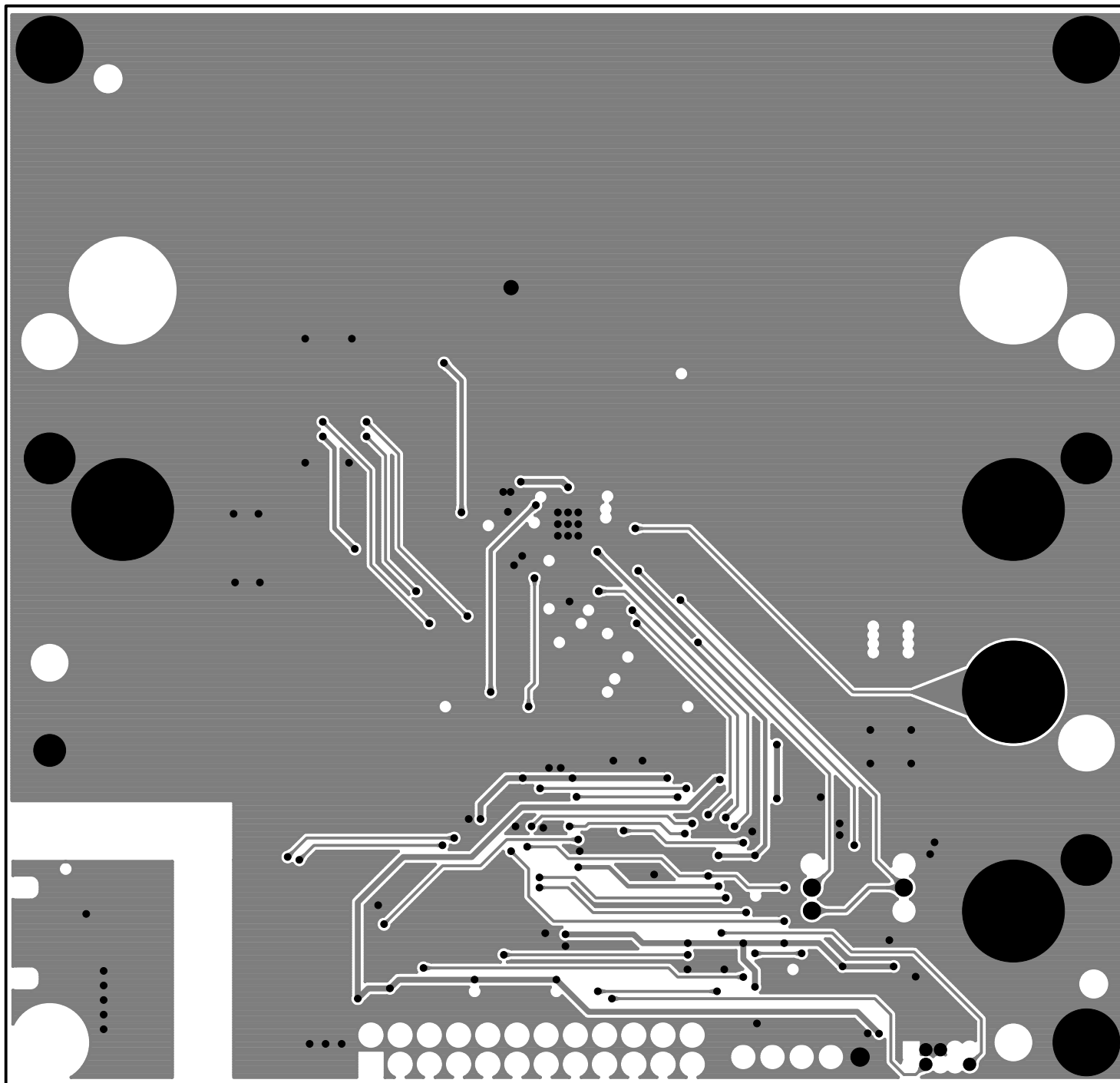
TOP SOLDER MASK



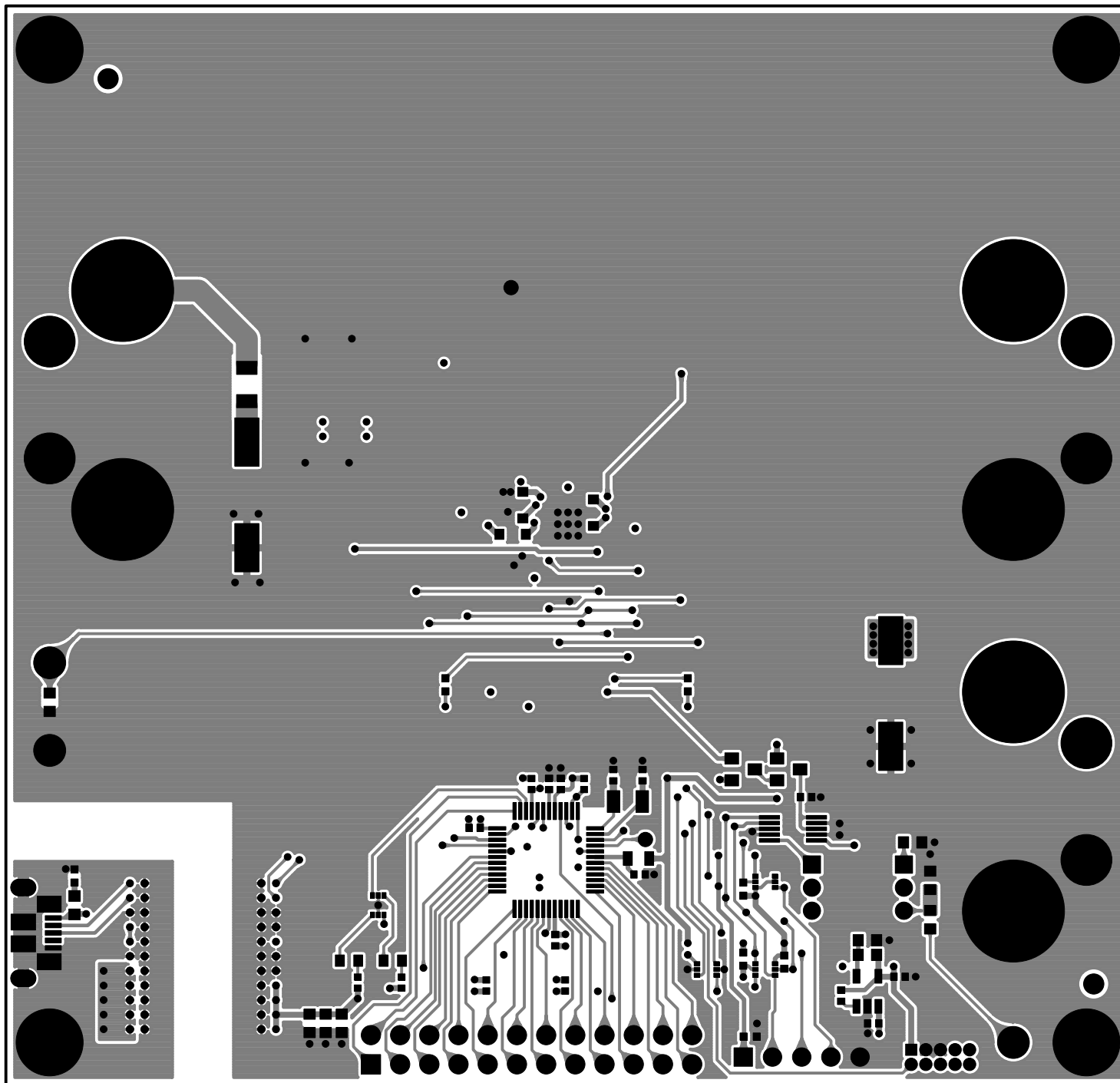
LAYER 1 - TOP SIDE



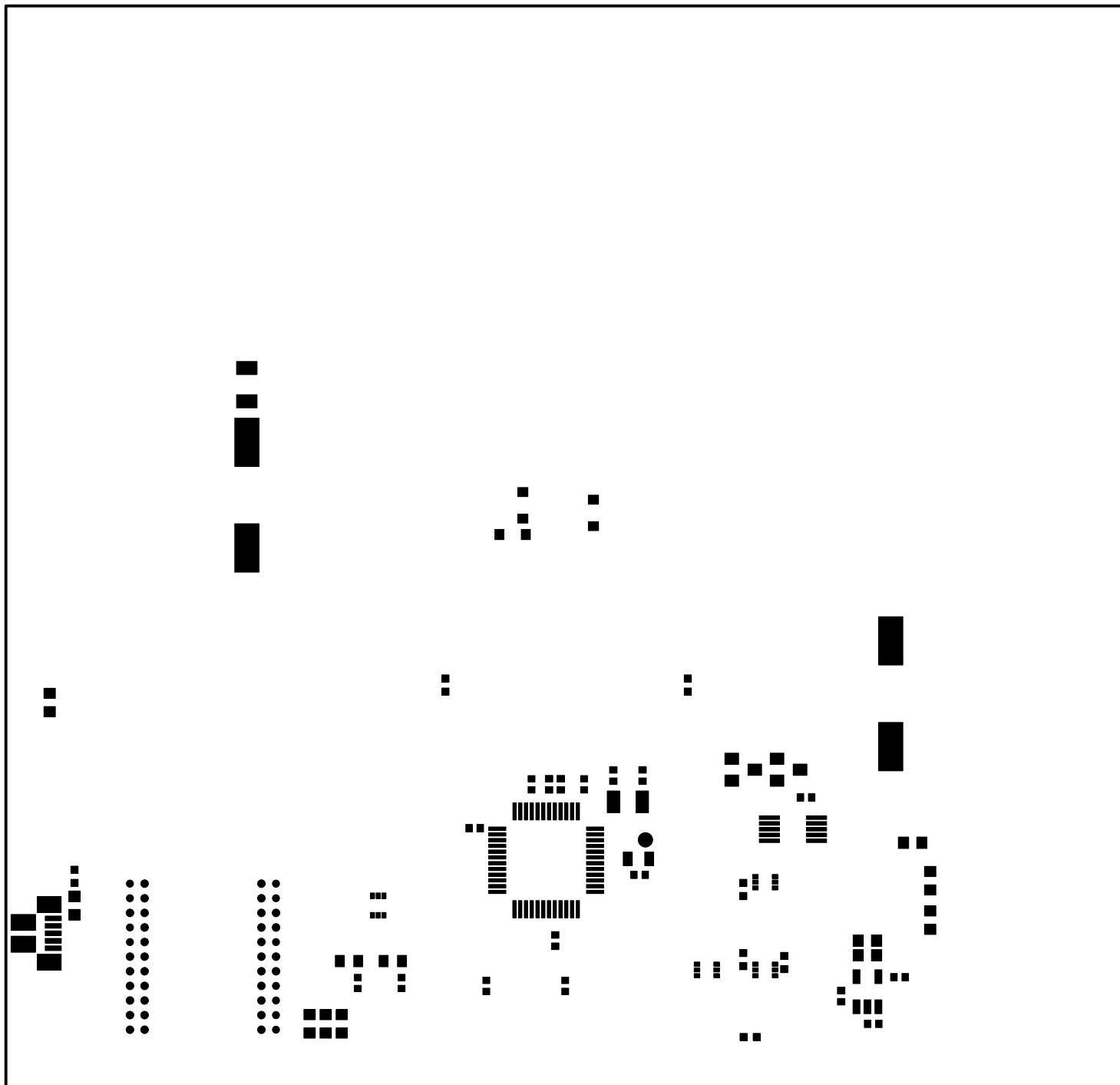
LAYER 2 - GND PLANE



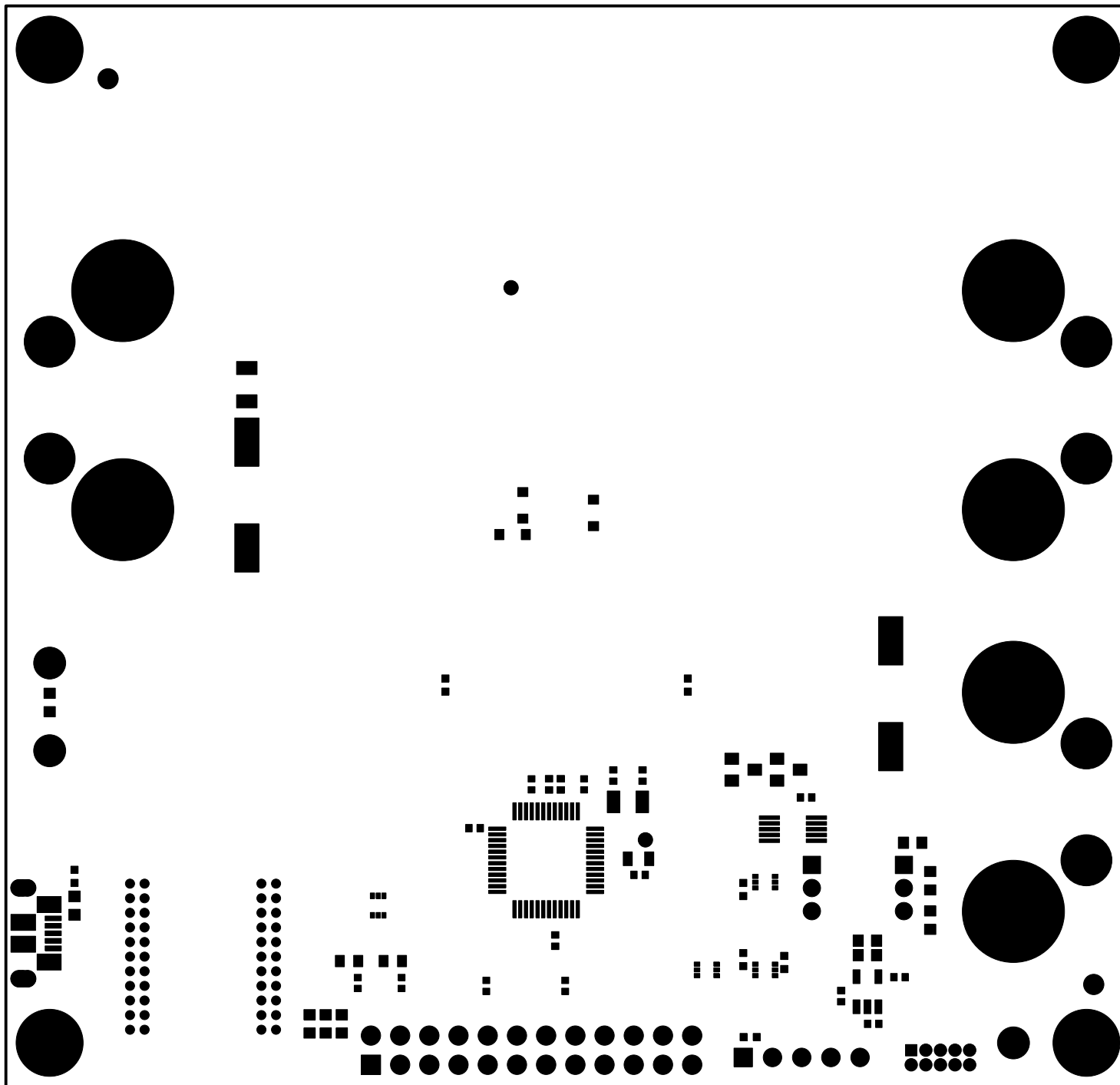
LAYER 3 - SIGNAL/PLANE



LAYER 4 - BOTTOM SIDE

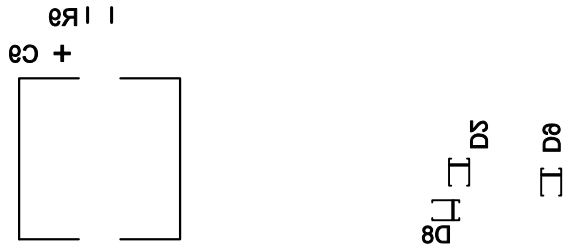
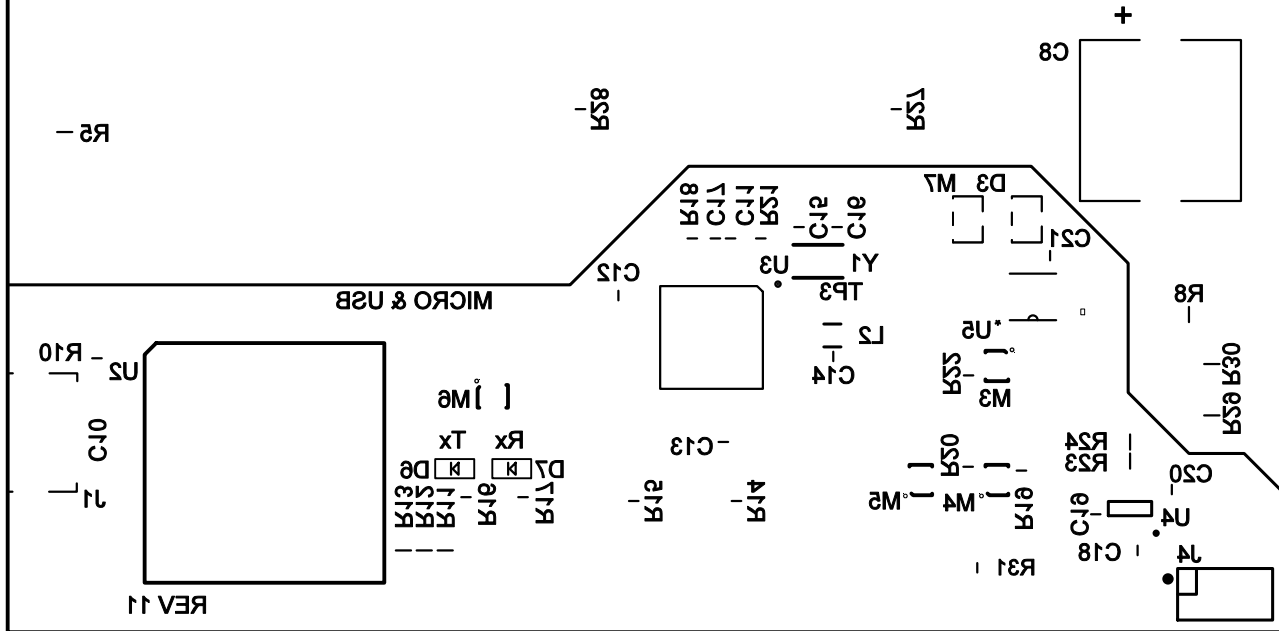


BOTTOM SOLDER PASTE



BOTTOM SOLDER MASK

BOTTOM SILKSCREEN



DISALLOWED	# OF CELLS	Li-ion	# OF CELLS	LiFePO4	# OF CELLS	LEAD-ACID	VOLTAGE	CELLS1	VOLTAGE	CELLS0	VOLTAGE
DISALLOWED	9	DISALLOWED	9	DISALLOWED	9	DISALLOWED	9V	INTVcc	INTVcc	INTVcc	INTVcc
DISALLOWED	8	DISALLOWED	8	DISALLOWED	8	DISALLOWED	12V*	INTVcc*	INTVcc*	INTVcc*	INTVcc*
DISALLOWED	7	DISALLOWED	7	DISALLOWED	7	DISALLOWED	18V	INTVcc	INTVcc	INTVcc	INTVcc
DISALLOWED	6	DISALLOWED	6	DISALLOWED	6	DISALLOWED	24V	VCCP5	VCCP5	VCCP5	VCCP5
DISALLOWED	5	DISALLOWED	5	DISALLOWED	5	DISALLOWED	-	VCCP5	VCCP5	VCCP5	VCCP5
DISALLOWED	4	DISALLOWED	4	DISALLOWED	4	DISALLOWED	-	VCCP5	VCCP5	VCCP5	VCCP5
DISALLOWED	3	DISALLOWED	3	DISALLOWED	3	DISALLOWED	-	VCCP5	VCCP5	VCCP5	VCCP5
DISALLOWED	2	DISALLOWED	2	DISALLOWED	2	DISALLOWED	-	VCCP5	VCCP5	VCCP5	VCCP5
DISALLOWED	1	DISALLOWED	1	DISALLOWED	1	DISALLOWED	-	VCCP5	VCCP5	VCCP5	VCCP5
DISALLOWED	0	DISALLOWED	0	DISALLOWED	0	DISALLOWED	-	VCCP5	VCCP5	VCCP5	VCCP5
DISALLOWED	0	DISALLOWED	0	DISALLOWED	0	DISALLOWED	-	VCCP5	VCCP5	VCCP5	VCCP5

* = DEFAULT
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