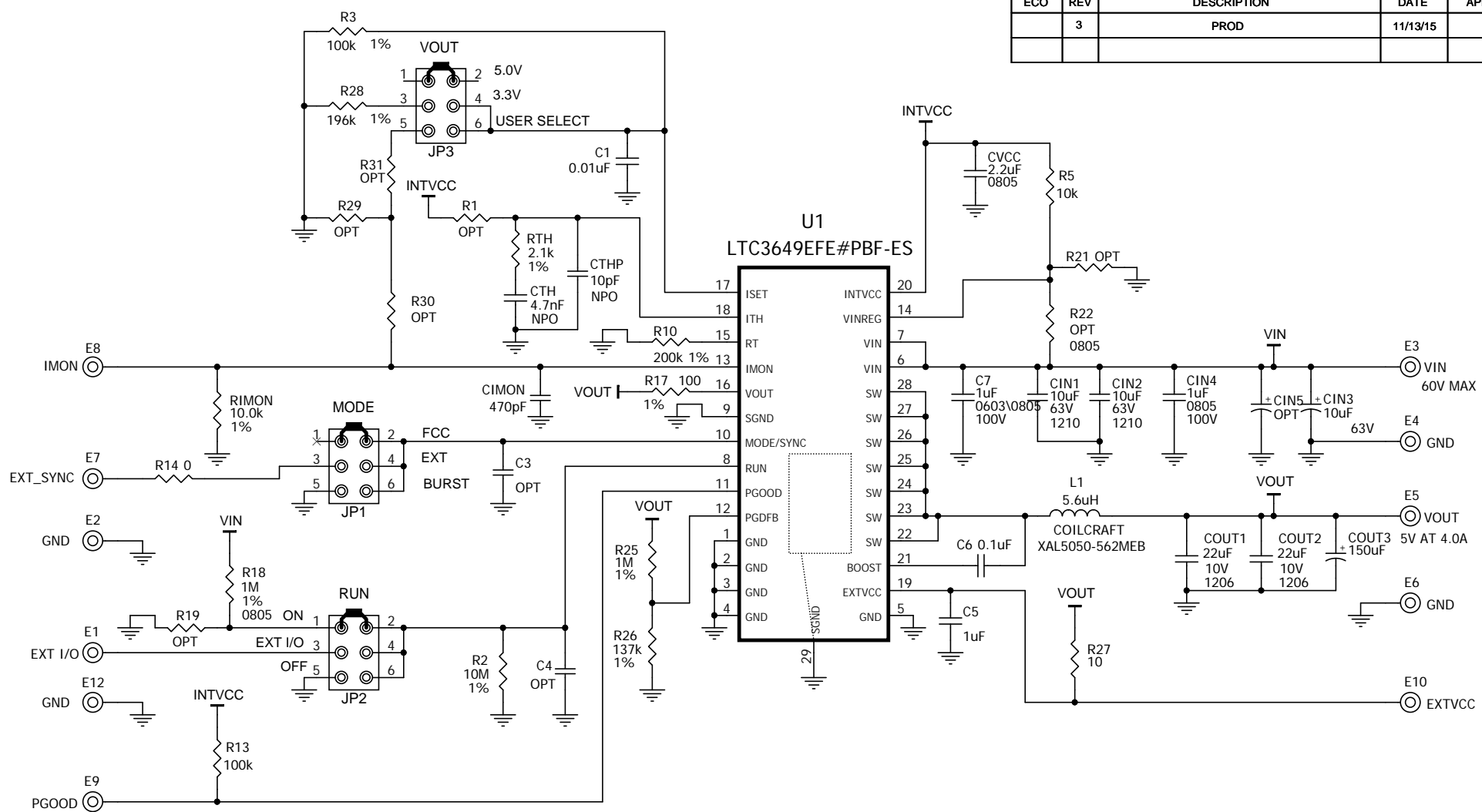


REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	APPROVED
	3	PROD	11/13/15	<i>AK</i>



NOTES: UNLESS OTHERWISE SPECIFIED,
1. ALL CAPACITORS AND RESISTORS ARE 0603.
2. ALL RESISTORS ARE 5%.


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.	<i>AK</i>
APP ENG.	<i>AK</i>
SCALE = NONE	



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Milpitas, CA 95035
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Fax: (408)434-0507
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TITLE: SCHEMATIC
HIGH VOLTAGE, MONOLITHIC
SYNCHRONOUS BUCK REGULATOR

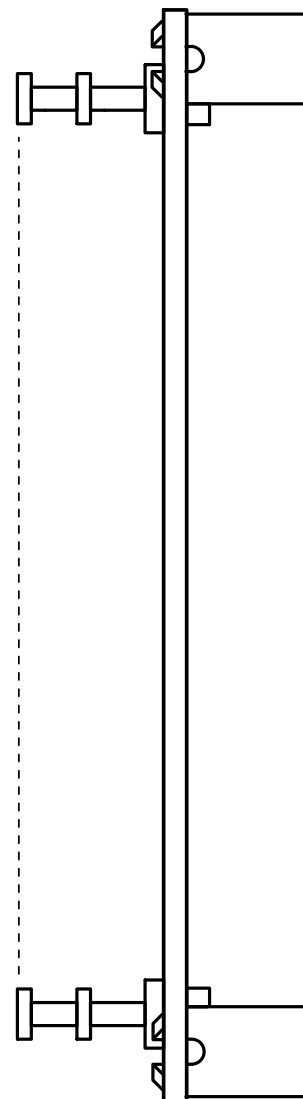
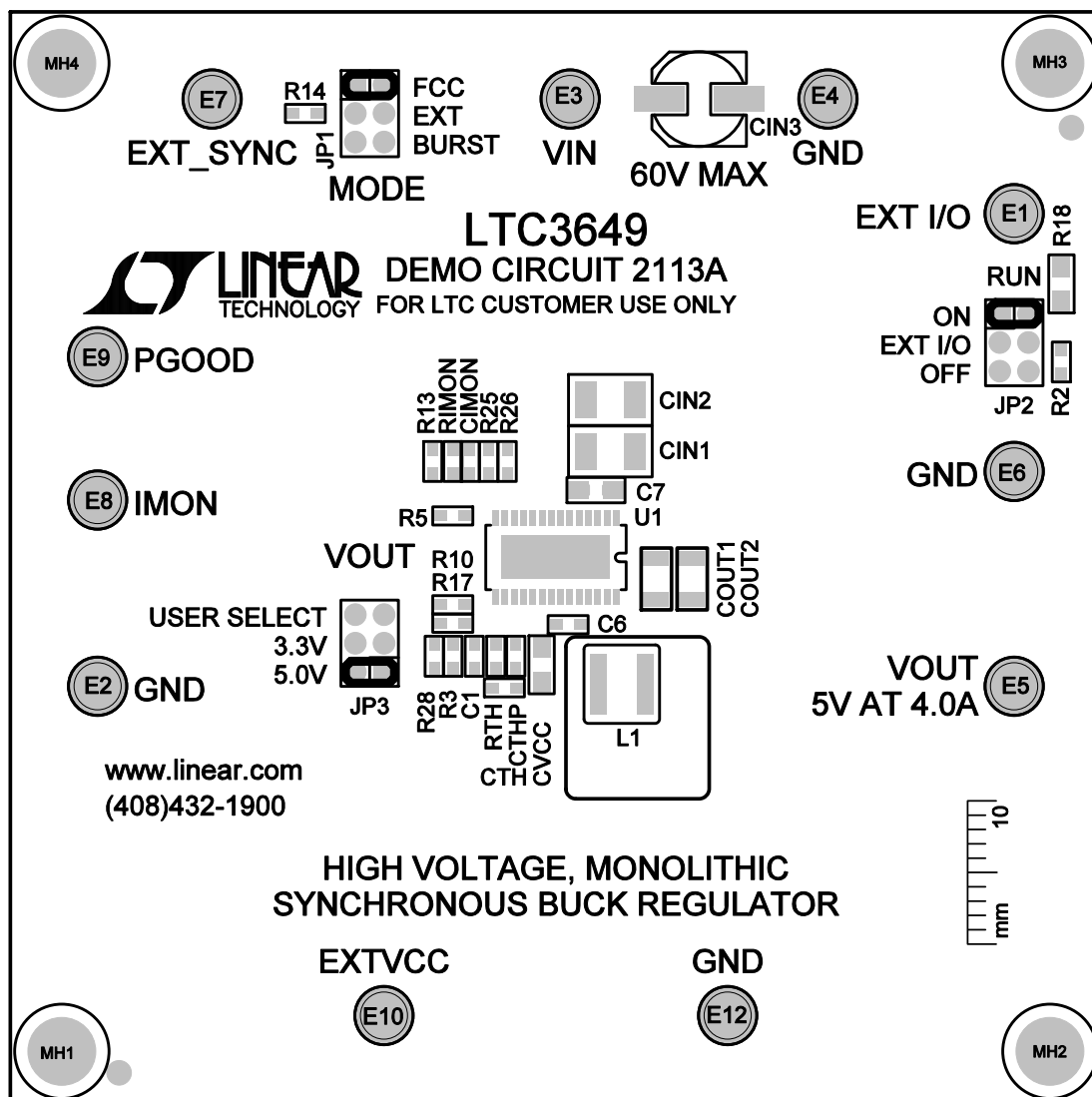
SIZE N/A	IC NO. LTC3649EFE#PBF-ES DEMO CIRCUIT 2113A	REV. 3
DATE: Thursday, January 21, 2016		SHEET 1 OF 1

	A	B	C	D	E
1	Item	Qty	Ref - Des	Desc	Manufacturer's Part Number
2	1	1	CIMON	CAP, 0603 470pF 10% 50V X7R	MURATA GRM188R71H471KA01D
3	2	2	CIN1,CIN2	CAP, 1210 10uF 10% 63V X7R	MURATA GRM32ER71J106KA12L
4	3	1	CIN3	CAP, 10uF 20% 63V ELEC	SUN ELECT. 63CE10KX
5	4	2	CIN4,C7	CAP, 0805 1uF 10% 100V X7S	TDK C2012X7S2A105K
6	5	0	CIN5	CAP, OPTION	OPTION
7	6	2	COUT1,COUT2	CAP, 1206 22uF 10% 10V X7R	MURATA GRM31CR71A226KE15L
8	7	1	COUT3	CAP, 3528 150uF 20% 6.3V POSCAP	PANASONIC 6TPE150MAZB
9	8	1	CTH	CAP, 0603 4.7nF 5% 50V NPO	TDK C1608C0G1H472J080AA
10	9	1	CTHP	CAP, 0603 10pF 5% 25V C0G	AVX 06033A100JAT2A
11	10	1	CVCC	CAP, 0805 2.2uF 10% 16V X7R	AVX 0805YC225KAT2A
12	11	1	C1	CAP, 0603 0.01uF 10% 50V X7R	AVX 06035C103KAT4A
13	12	0	C3,C4	CAP, 0603 OPTION	OPTION
14	13	1	C5	CAP, 0603 1uF 10% 16V X5R	AVX 0603YD105KAT2A
15	14	1	C6	CAP, 0603 0.1uF 10% 50V X7R	AVX 06035C104KAT2A
16	15	11	E1,E2,E3,E4,E5,E6,E7,E8,	TURRET	MILL MAX 2501-2-00-80-00-00-07-0
17			E9,E10,E12		
18	16	3	JP1,JP2,JP3	HEADER, 3PIN, DBL ROW 2mm	SULLINS, NRPN032PAEN
19	17	1	L1	IND, 5.6uH	COILCRAFT XAL5050-562MEB
20	18	4	MH1,MH2,MH3,MH4	STANDOFF, SNAP ON	KEYSTONE 8833
21	19	1	RIMON	RES, 0603 10.0K OHMS 1% 1/10W	VISHAY CRCW060310K0FKEA
22	20	1	RTH	RES, 0603 2.1k OHMS 1% 1/10W	VISHAY CRCW06032K10FKEA
23	21	0	R1,R19,R21,R29,R30,R31	RES, 0603 OPTION	OPTION
24	22	1	R2	RES, 0603 10M OHMS 1% 1/10W	VISHAY CRCW060310M0FKEA
25	23	1	R3	RES, 0603 100k OHMS 1% 1/10W	VISHAY CRCW0603100KFKEA
26	24	1	R5	RES, 0603 10k OHMS 5% 1/10W	VISHAY CRCW060310K0JNEA
27	25	1	R10	RES, 0603 200k OHMS 1% 1/10W	VISHAY CRCW0603200KFKEA
28	26	1	R13	RES, 0603 100k OHMS 5% 1/10W	VISHAY CRCW0603100KJNEA
29	27	1	R14	RES, 0603 0 OHM JUMPER	VISHAY CRCW06030000Z0EA
30	28	1	R17	RES, 0603 100 OHMS 1% 0.1W	VISHAY CRCW0603100RFKEA
31	29	1	R18	RES, 0805 1M OHMS 1% 1/8W	VISHAY CRCW08051M00FKEA
32	30	0	R22	RES, 0805 OPTION	VISHAY CRCW08051M00FKEA
33	31	1	R25	RES, 0603 1M OHMS 1% 1/10W	VISHAY CRCW06031M00FKEA
34	32	1	R26	RES, 0603 137k OHMS 1% 0.063W	VISHAY CRCW0603137KFKEA
35	33	1	R27	RES, 0603 10 OHMS 1% 0.1W	VISHAY CRCW060310R0FKEA
36	34	1	R28	RES, 0603 196k OHMS 1% 1/10W	VISHAY CRCW0603196KFKEA

	A	B	C	D	E
37	25	1	U1	IC, SYNCHRONOUS BUCK REGULATOR	LINEAR TECH. LTC3649EFE28#PBF-ES
38		3	XJP1,XJP2,XJP3	SHUNT	SAMTEC 2SN-BK-G

NOTES: UNLESS OTHERWISE SPECIFIED,

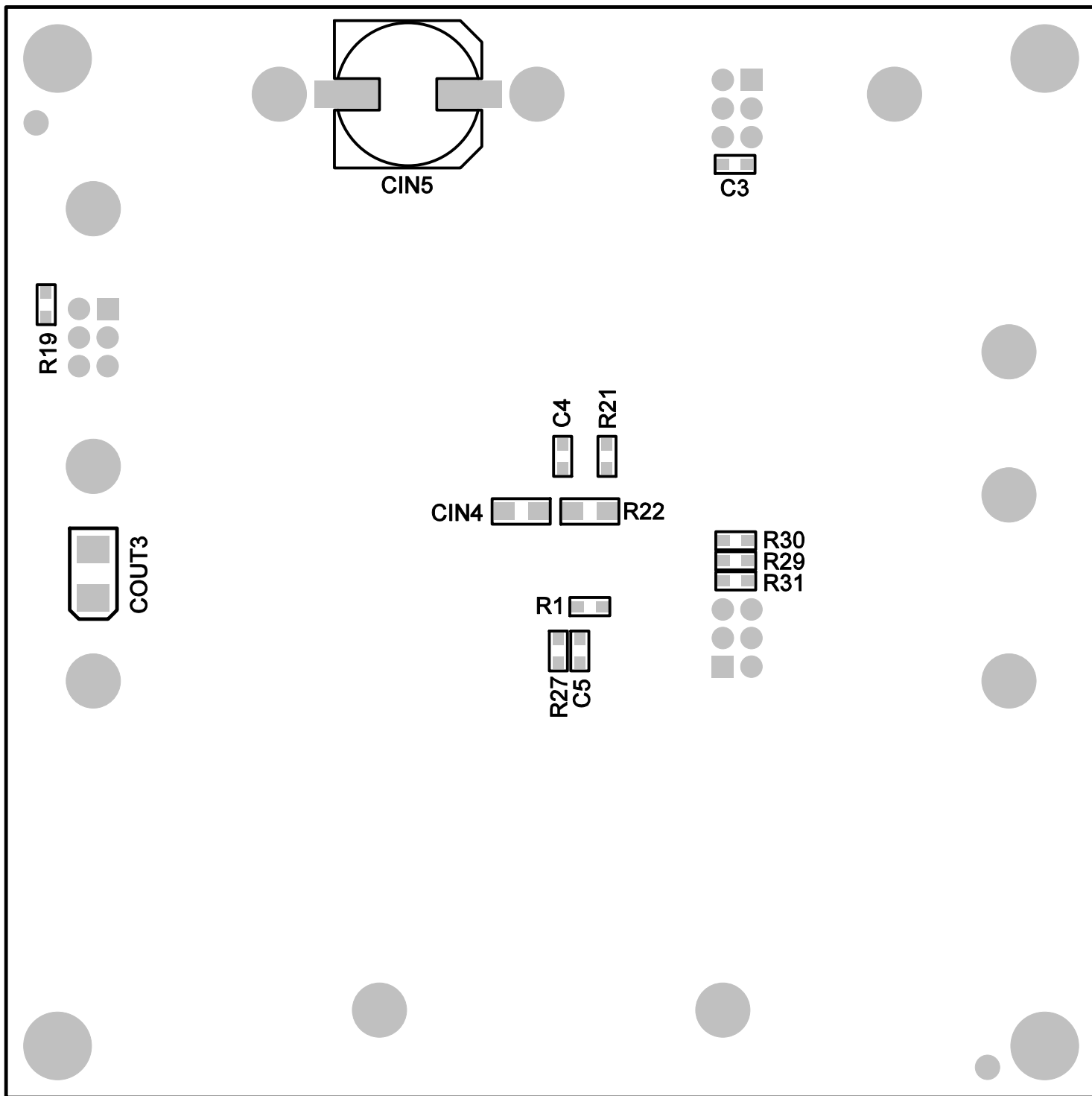
1. WORKMANSHIP SHALL BE IN ACCORDANCE WITH IPC-A-610.
2. INSTALL SHUNTS AS SHOWN.
3. DEPANELIZE BOARDS AFTER ASSEMBLY AND ROUTE-OUT THE BREAKOUT TABS ON FOUR SIDES OF THE BOARD EDGE.
4. PARTS TO OMIT WILL BE SPECIFIED ON THE BILL OF MATERIALS. LOCATIONS OF OMITTED PARTS SHALL BE FREE OF SOLDER. MASK THE SOLDER STENCIL WHERE SMT PARTS ARE OMITTED.
5. DO NOT APPLY ANY KIND OF ASSEMBLY STAMP OR QA STAMP TO ANY BOARD.



LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3
 11/13/15

TOP SILKSCREEN
 TOP ASSEMBLY

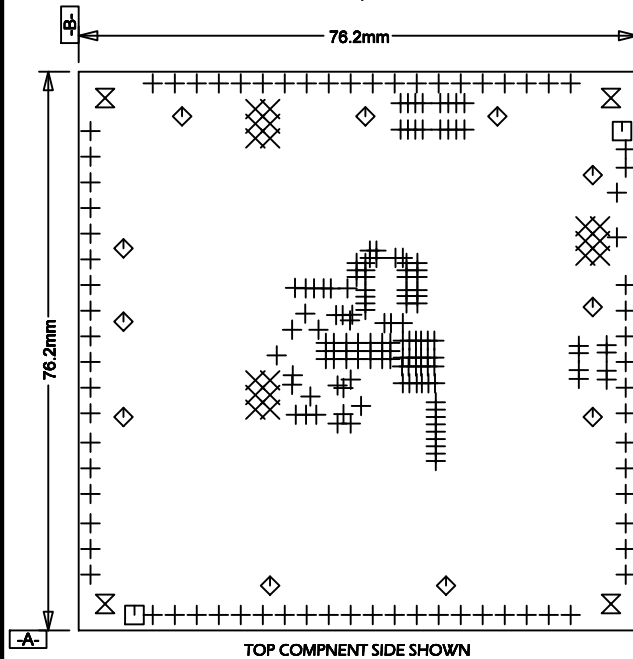


LINEAR TECHNOLOGY CORPORATION

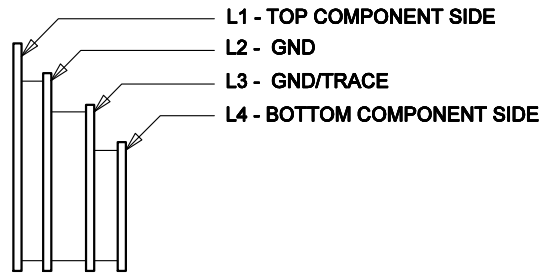
DC2113A REV 3
11/02/15

BOTTOM ASSEMBLY
BTTM SILKSCREEN

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LAYER STRUCTURE

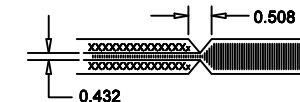


REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	APPROVED
	3	PROD	11/02/15	<i>Or X</i>

NOTES: UNLESS OTHERWISE SPECIFIED,

- ARTWORK P/N DC2113A REV 3.
- FAB PER IPC-A-600
- PCB SHALL MEET RoHS COMPLIANCE.
- MATERIAL:
 - LAMINATE: EPOXY FIBERGLASS, NEMA GRADE FR-4
FLAMMABILITY RATING: 94 V-2 MINIMUM .
 - THICKNESS: 1.6 +/- 0.1 mm
 - CLAD: 2 OZ. (50um) EXTERNAL LAYERS.
1 OZ. (25um) COPPER ON TWO INTERNAL LAYERS.
- FINISH:
 - COATING: SOLDERMASK OVER BARE COPPER,
COLOR, GREEN LPI.
 - PLATING: GOLD IMMERSION BOTH SIDES.
 - SILKSCREEN: BOTH SIDES WITH WHITE
NON-CONDUCTIVE INK.
- TOLERANCES:
 - WARPAGE: (0.075mm) MAX. ALONG THE LONGEST
DIAG. AS PER IPC-TM650 METHOD 2.4.22.
 - ETCHING: +0.03mm, -0.3mm OF MASTER PATTERN.
 - REGISTRATION: 0.075mm MAX.
 - MASK THICKNESS: 0.025mm MIN., 0.075mm MAX.
 - HOLE PLATING: 22um +/- 3um.
- SIZE:
 - CUT TO DIMENSIONS AND TOLERANCES SHOWN.
0.00 ARE PRIMARY DATUMS.
- HOLE DIAMETERS ARE POST-PLATED SIZES.
- DEBURR AND BREAK ALL SHARP EDGES.
- DO NOT ALTER ARTWORK e.g. TO ADD LOGO OR DATE CODE.
- SCORING:

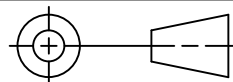


SIZE	QTY	SYM	PLATED	TOL
0.25	210	+	YES	+/-0.08
0.9	18	X	YES	+/-0.08
1.8	2	□	NO	+/- .13
2.4	11	◇	YES	+/- .13
4.75	4	⊗	NO	+/- .13

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ON ANGLE ±1°

.XX ± 0.25
.XXX ± 0.127

THIRD ANGLE PROJECTION



DO NOT SCALE DRAWING

CONTRACT NO.

APPROVALS

DATE

DRAWN

05/07/13

CHECKED

APPROVED

11/02/15

DESIGNED BY



1630 McCarthy Blvd.
Milpitas, CA 95035

www.linear.com
Phone: (408)432-1900
Fax: (408)434-0507

TITLE

FAB, LTC3649EFE28, HIGH VOLTAGE,
MONOLITHIC SYNCHRONOUS BUCK REGULATOR

SIZE
A

CAGE CODE

DWG NO.

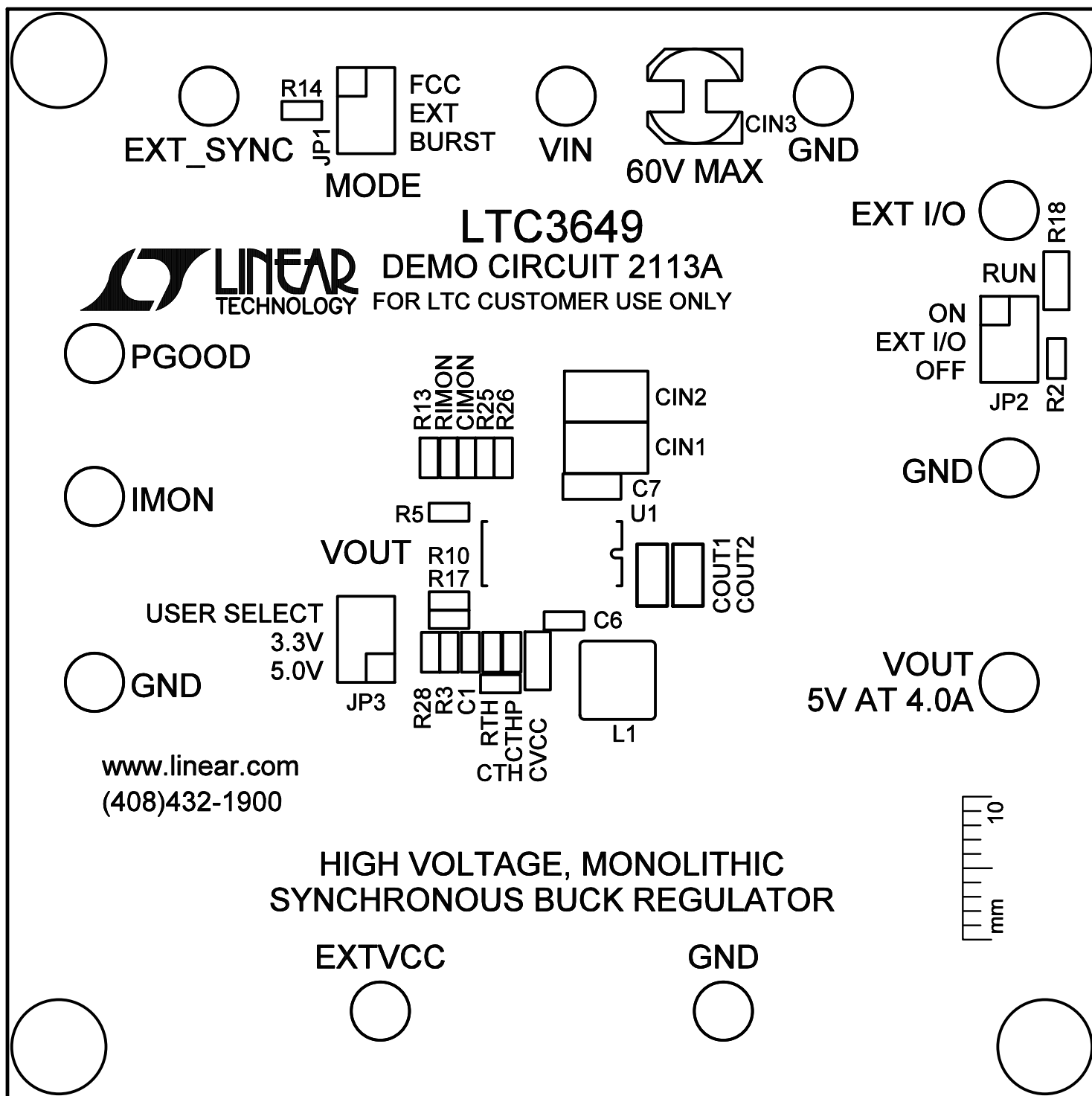
DC2113A

REV
3

SCALE 1/1

FILENAME: 2113a-3.PCB

SHEET 1 OF 1

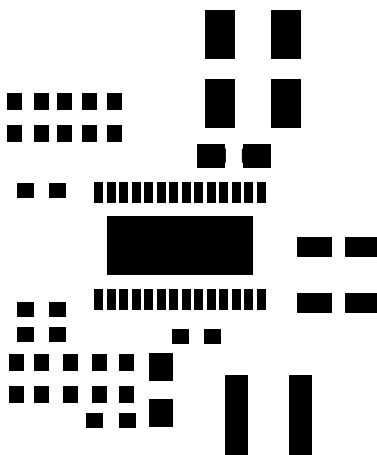


LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3

TOP SILKSCREEN

11/13/15

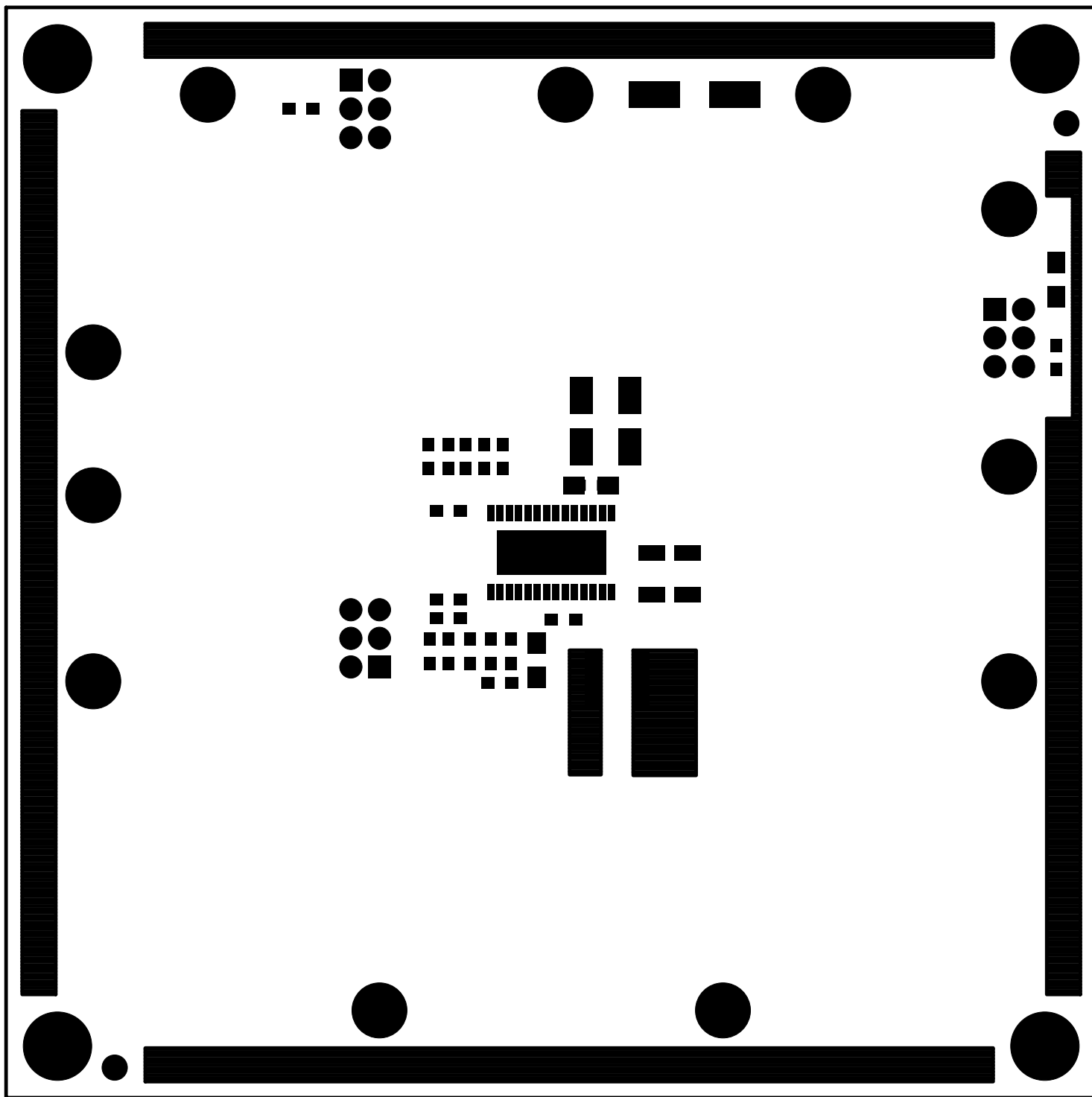


LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3

TOP PASTE

11/02/15

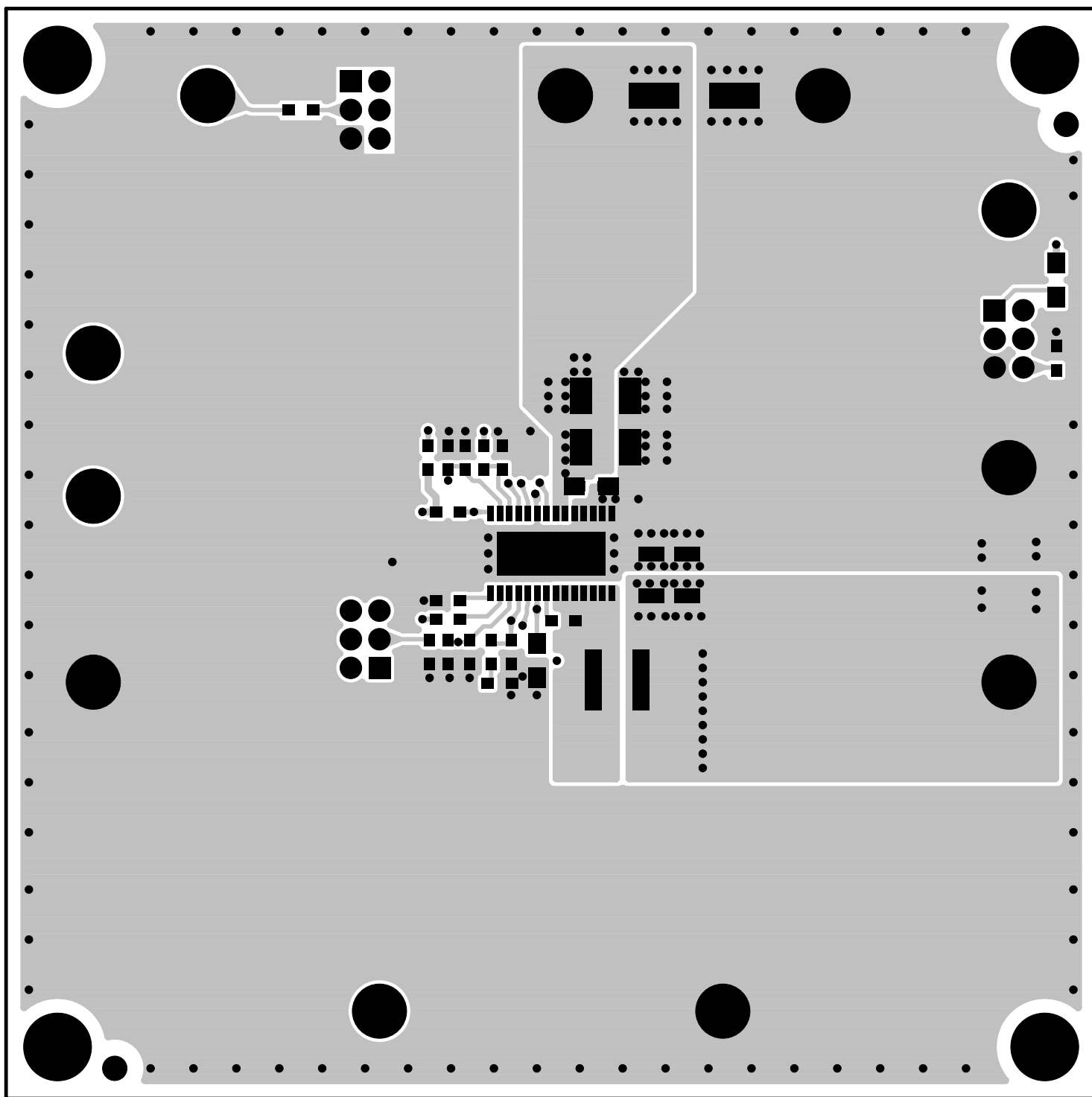


LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3

TOP SOLDERMASK

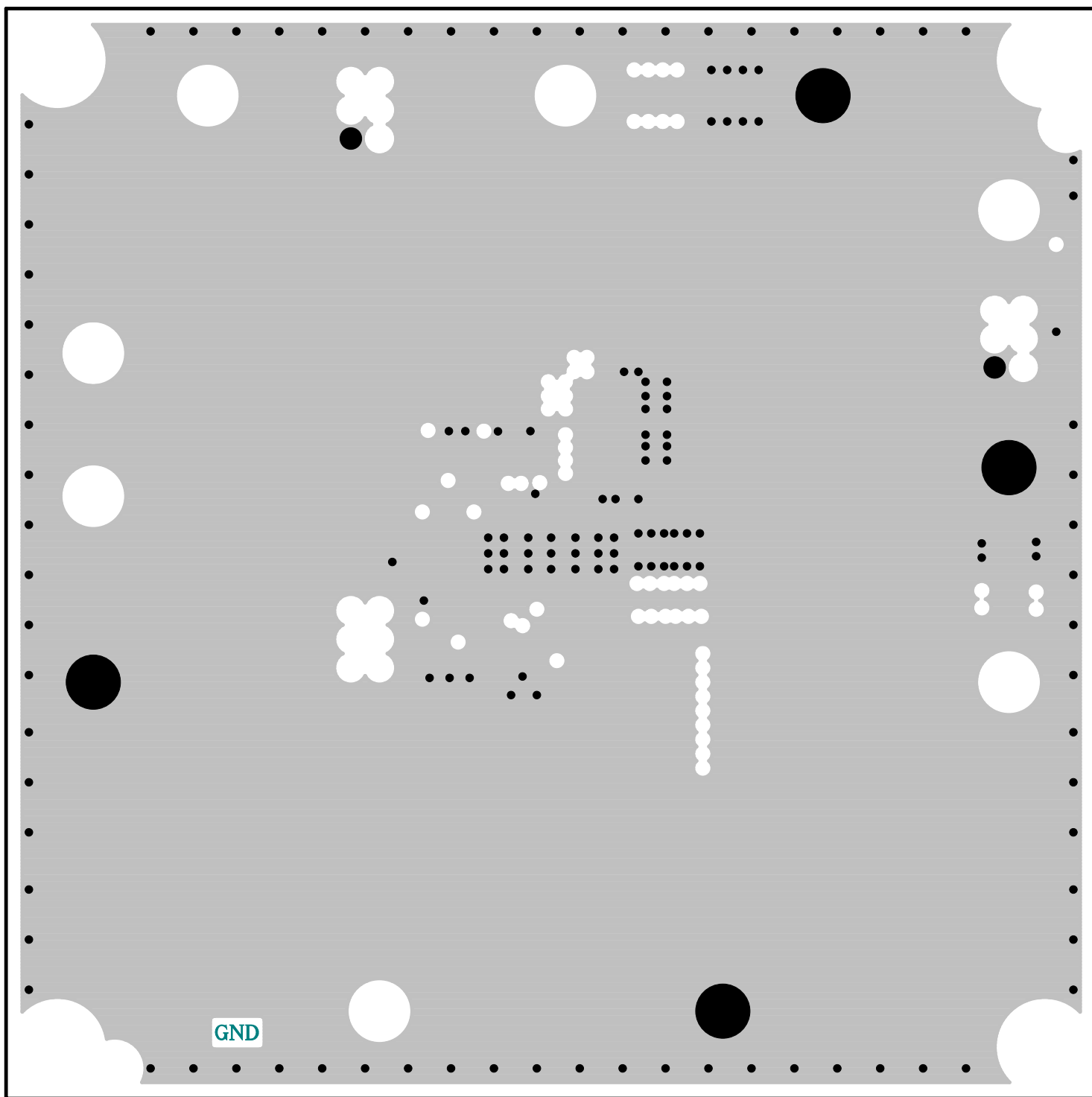
11/02/15



LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3
11/13/15

L1-TOP COMPONENT SIDE

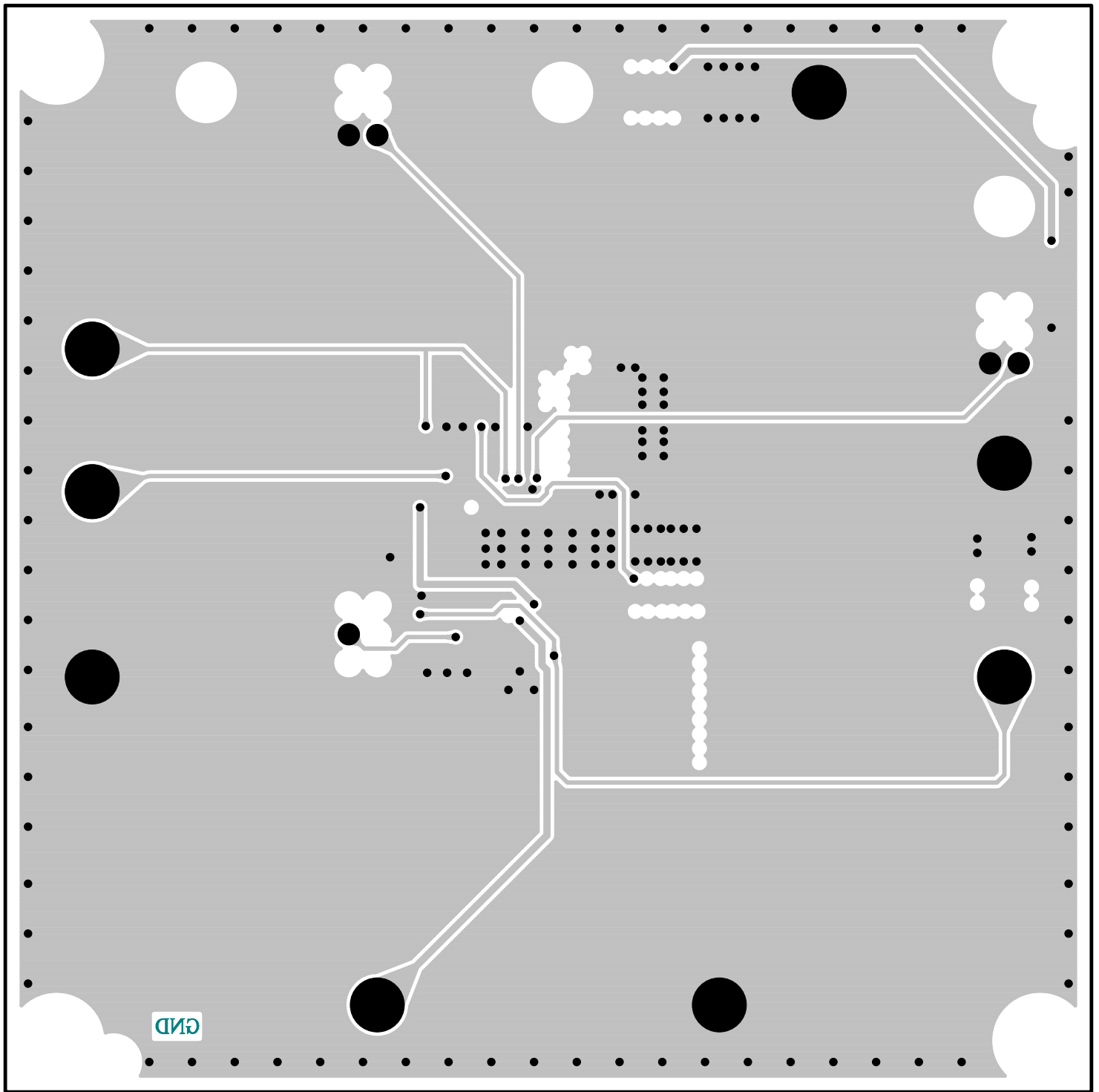


LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3

L2-GND

11/13/15

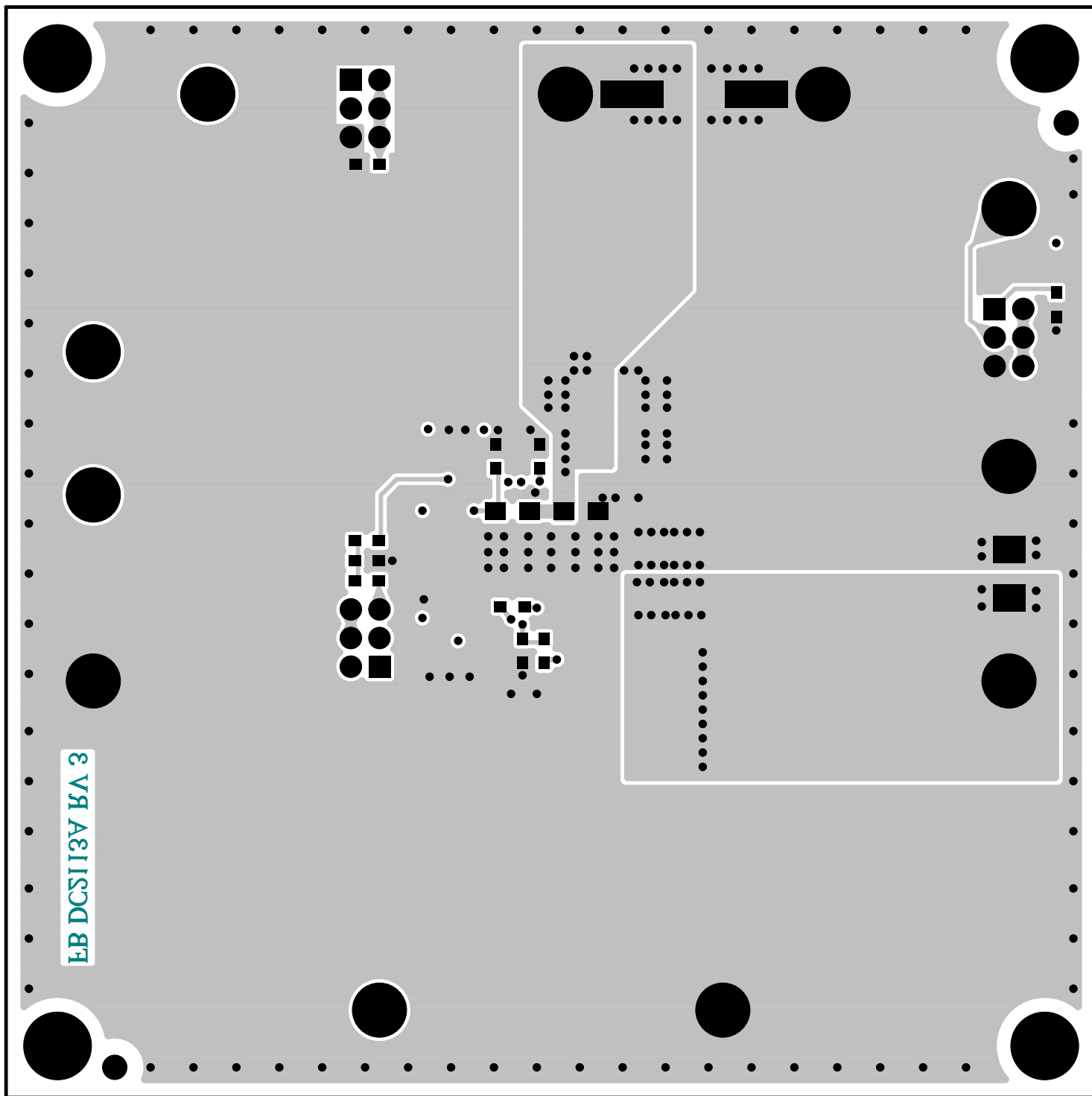


LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3

11/13/15

L3-GND/TRACE

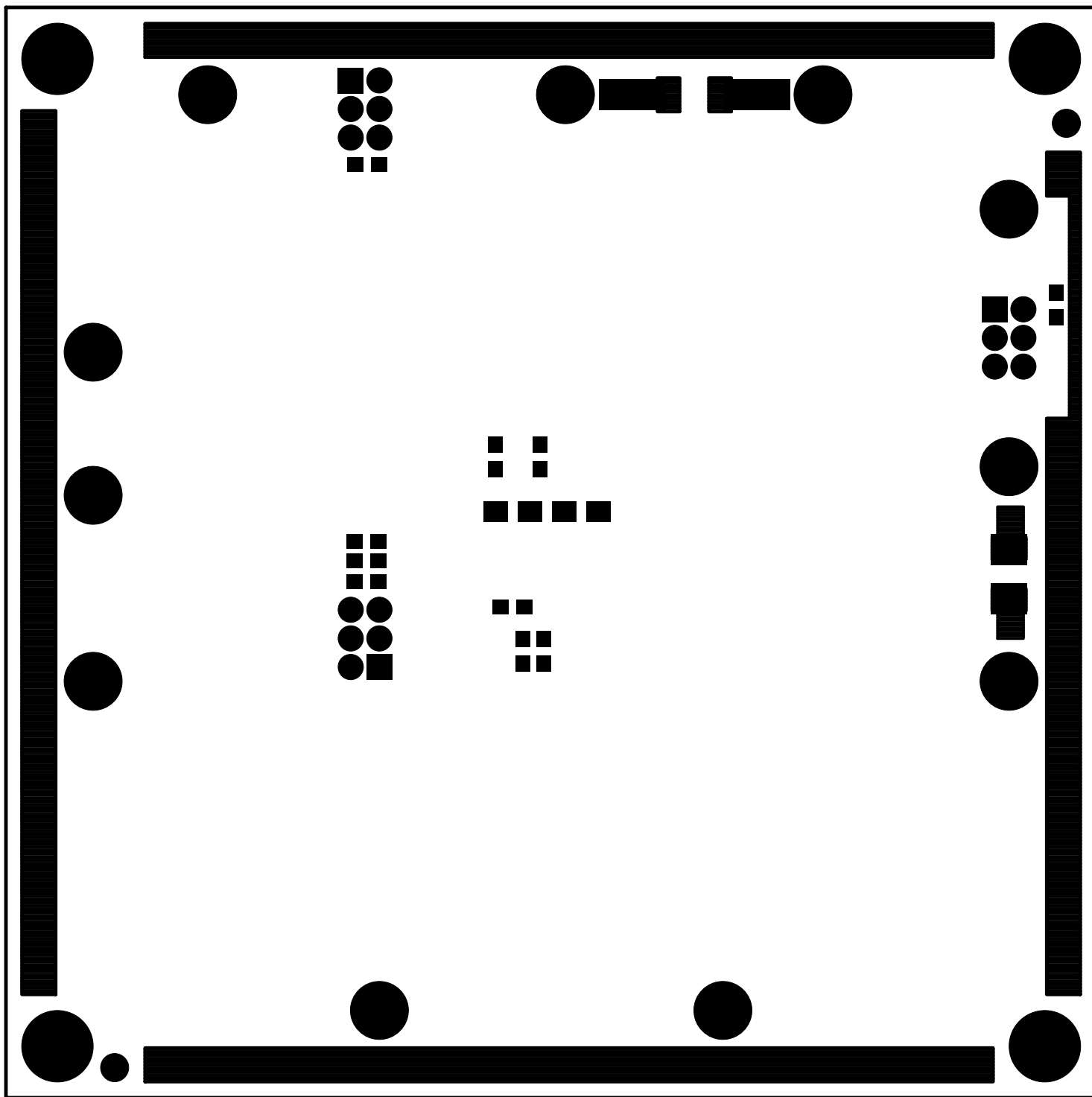


LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3

11/13/15

L4-BOTTOM COMPONENT SIDE

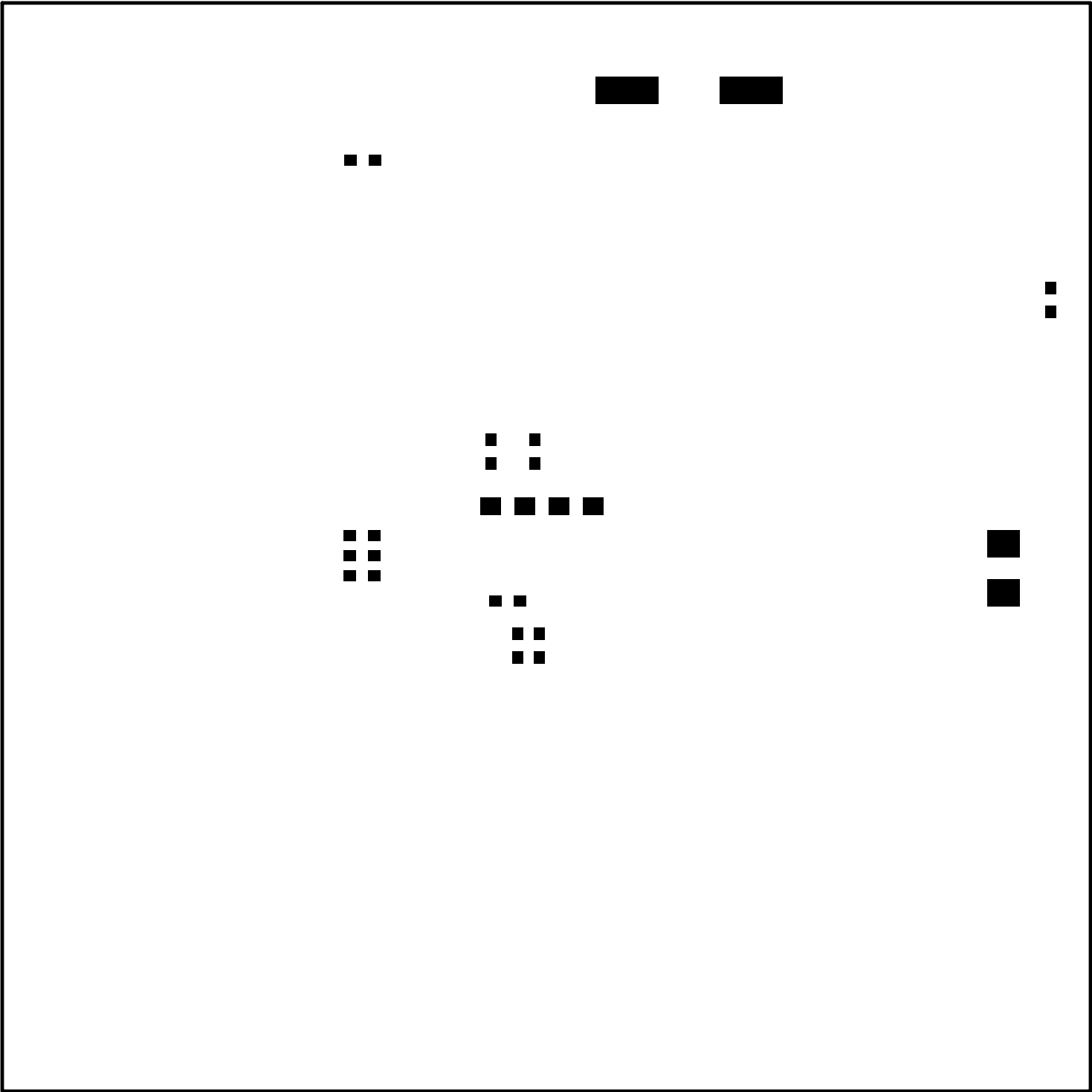


LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3

11/02/15

BTLM SOLDERMASK

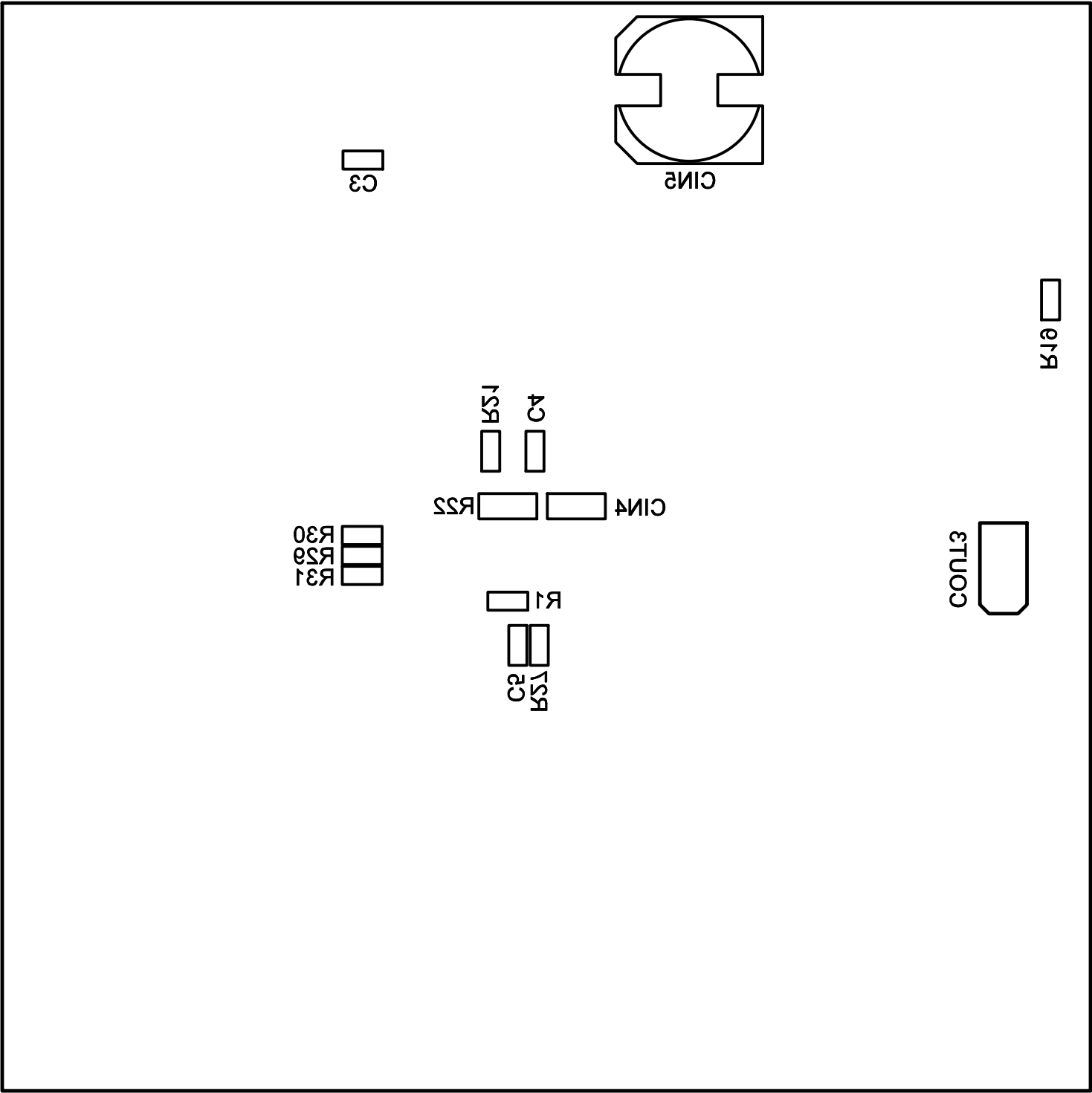


LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3

11/02/15

BTTM PASTE



LINEAR TECHNOLOGY CORPORATION

DC2113A REV 3

11/02/15

BTM SILKSCREEN