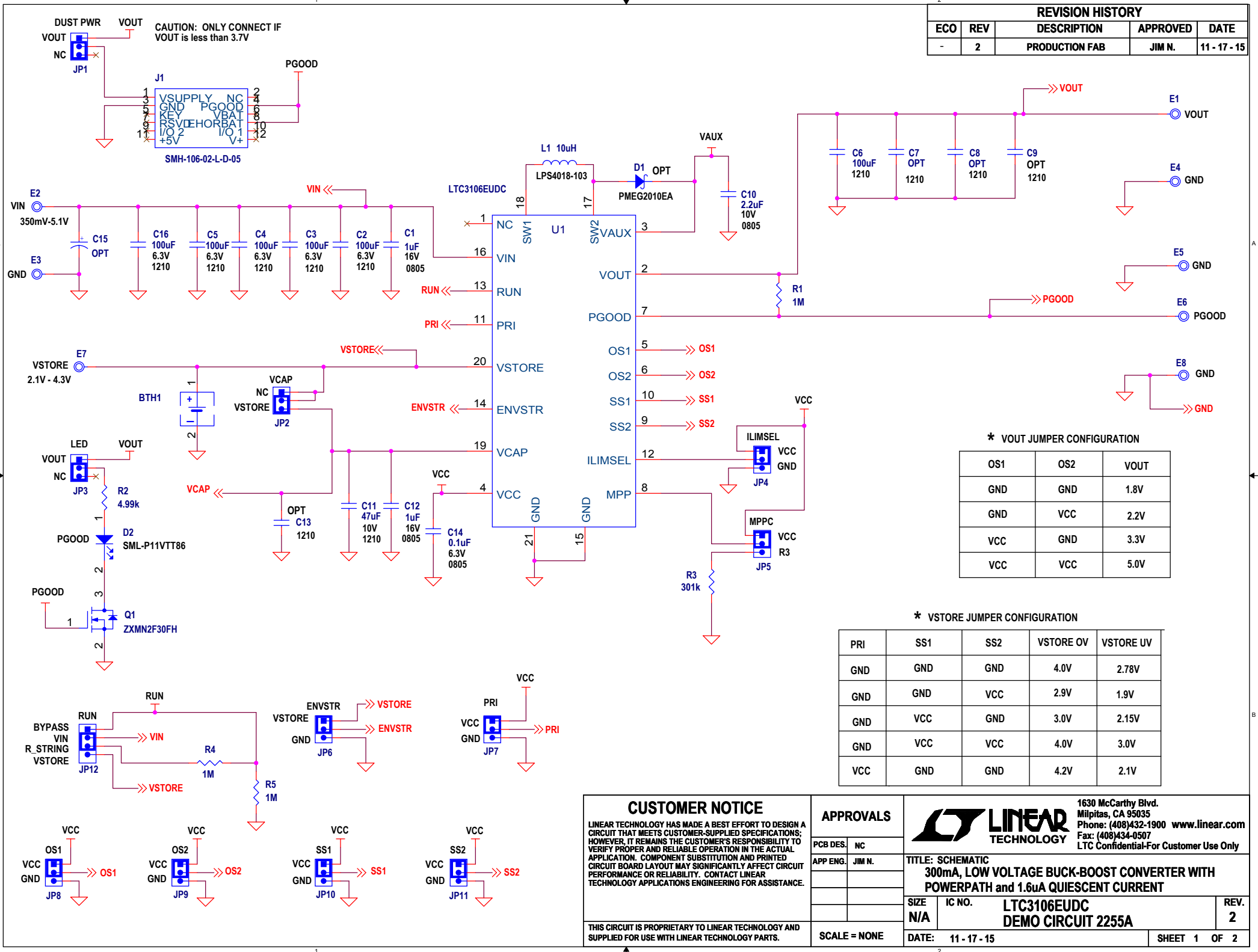
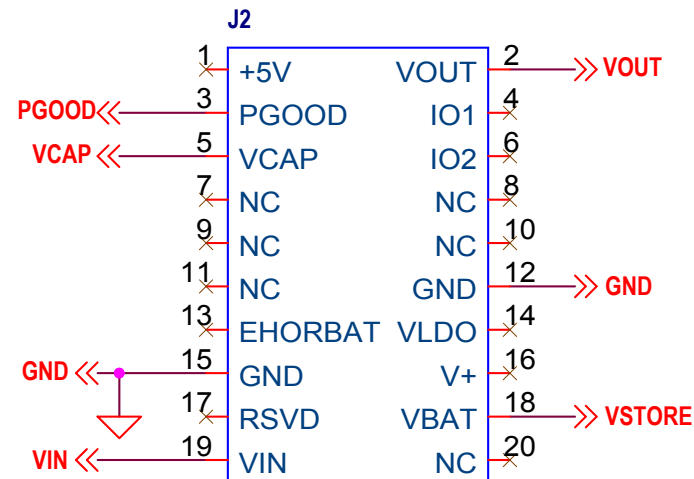


REVISION HISTORY				
ECO	REV	DESCRIPTION	APPROVED	DATE
-	2	PRODUCTION FAB	JIM N.	11 - 17 - 15





## 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.	NC
APP ENG.	JIM N.

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**  
**300mA, ULTRA LOW QUIESCENT CURRENT, BUCK-BOOST**  
**POWER MANAGER WITH MAXIMUM POWER POINT CONTROL**

SIZE <b>N/A</b>	IC NO. <b>LTC3106EUDC</b>	REV. <b>2</b>
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DATE: 11 - 17 - 15	SHEET 2 OF 2
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# Linear Technology Corporation

LTC3106EUDC#PBF

Bill Of Materials

Demo Bd. #2255A-2

QTY- 325

9/4/2015

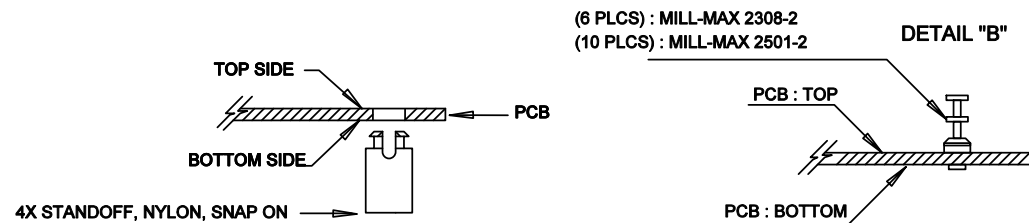
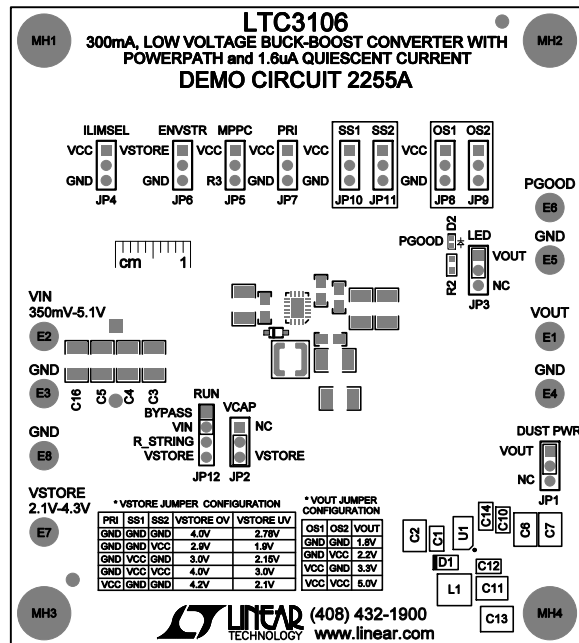
Item	Qty	Reference	Part Description	Manufacturer / Part #	Kit Qty	Pkg Qty	Balance	Parts/Purch.
				<b>NUMBER OF BOARDS =</b>	<b>325</b>			
1	2	C1,C12	CAP CER 1UF 16V 10% X7R 0805	TDK, C2012X7R1C105K125AA	650			
2	6	C2,C3,C4,C5,C6,C16	CAP CER 100UF 6.3V 20% X5R 1210	SAMSUNG, CL32A107MQVNNNE	1950			
3	0	C7,C8,C9,C13 (OPT)	1210 CASE SIZE		0			
4	1	C10	CAP CER 2.2UF 10V 20% X5R 0805	TDK, C2012X5R1A225M085AA	325			
5	1	C11	CAP CER 47UF 10V 20% X5R 1210	SAMSUNG, CL32A476MPJNNNE	325			
6	1	C14	CAP CER 0.1UF 6.3V 10% X7R 0805	KEMET, C0805C104K9RACTU	325			
7	0	C15 (OPT)	CAP 100MF -20% +80% 5.5V T/H	Eaton Bussmann, KR-5R5H104-R	0			
8	0	D1 (OPT)	DIODE SCHOTTKY 20V	NXP, PMEG2010EA	0			
9	1	D2	LED 0402 RED 50MW 20MA SMD	ROHM, SML-P11VTT86	325			
10	1	L1	INDUCTOR, SHIELDED 10uH	COILCRAFT, LPS4018-103	325			
11	3	R1,R4,R5	RES 1M OHM 1/10W 1% 0603 SMD	PANASONIC, ERJ-3EKF1004V	975			
12	1	R2	RES., CHIP, 4.99K, 1/10W, 0603	PANASONIC, ERJ-3EKF4991V	325			
13	1	R3	RES 301K OHM 1/10W 1% 0603 SMD	PANASONIC, ERJ-3EKF3013V	325			
14	1	U1	300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH POWERPATH and 1.6uA QUIESCENT CURRENT	Linear Technology, LTC3106EUDC#PBF	325			
15	1	BTH1	CR2032 COIN CELL BATTERY HOLDER,	WURTH, 79527141	325			
16	8	E1-E8	TESTPOINT, TURRET, .095"	MILL-MAX, 2501-2-00-80-00-00-07-0	2600			
17	11	JP1-JP11	3 PIN 0.079 SINGLE ROW HEADER	SAMTEC, TMM-103-02-L-S	3575			
18	12	JP1-JP12	SHUNT,	SAMTEC, 2SN-BK-G	3900			
19	1	JP12	4 PIN 0.079 SINGLE ROW HEADER	WURTH, 62000411121	325			
20	1	Q1	MOSFET N-CHAN 20V SOT23-3	DIODES INC, ZXMN2F30FHTA	325			
21	4	(STAND-OFFS)	STAND-OFF, NYLON 0.75" tall	KEYSTONE, 8834(SNAP ON)	1300			
22	1	J1	HEADER, 2X6, 12-PIN, SMT HORIZONTAL S	SAMTEC, SMH-106-02-L-D-05	325			
23	1	J2	CONN RECEPT 20POS .50" SMT	SAMTEC, SFMH-110-02-L-D-WT	325			
24	1		BATTERY, LITHIUM COIN 3V 20MM	PANASONIC, CR2032	325			
25	4		SPACER SELF-RETAIN #4SCREW 3/4"	WURTH, 702 937 000	1300			
26	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT #2255A-2	325			
27	2		STENCIL, TOP AND BOTTOM	STENCIL DC2255A-2	2			
28	1	BATTERY	CR2032 COIN CELL BATTERY	DURACELL, CR2032				
							<b>TOTAL</b>	<b>\$ -</b>

Item	Qty	Reference	Part Description	Manufacturer / Part #
		<b>REQUIRED CIRCUIT COMPONENTS:</b>		
1	2	C1,C12	CAP CER 1UF 16V 10% X7R 0805	TDK, C2012X7R1C105K125AA
2	6	C2,C3,C4,C5,C6,C16	CAP CER 100UF 6.3V 20% X5R 1210	SAMSUNG, CL32A107MQVNNNE
3	1	C10	CAP CER 2.2UF 10V 20% X5R 0805	TDK, C2012X5R1A225M085AA
4	1	C11	CAP CER 47UF 10V 20% X5R 1210	SAMSUNG, CL32A476MPJNNNE
5	1	C14	CAP CER 0.1UF 6.3V 10% X7R 0805	KEMET, C0805C104K9RACTU
6	3	R1,R4,R5	RES 1M OHM 1/10W 1% 0603 SMD	PANASONIC, ERJ-3EKF1004V
7	1	R2	RES., CHIP, 4.99K, 1/10W, 0603	PANASONIC, ERJ-3EKF4991V
8	1	R3	RES 301K OHM 1/10W 1% 0603 SMD	PANASONIC, ERJ-3EKF3013V
9	1	D2	LED 0402 RED 50MW 20MA SMD	ROHM, SML-P11VTT86
10	1	L1	INDUCTOR, SHIELDED 10uH	COILCRAFT, LPS4018-103
11	1	Q1	MOSFET N-CHAN 20V SOT23-3	DIODES INC, ZXMN2F30FHTA
12	1	U1	300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH POWERPATH and 1.6uA QUIESCENT CURRENT	LINEAR TECHNOLOGY, LTC3106EUDC#PBF
		<b>ADDITIONAL DEMO BOARD CIRCUIT COMPONENTS:</b>		
13	0	C7,C8,C9,C13	1210 CASE SIZE	
14	0	D1	DIODE SCHOTTKY 20V	NXP, PMEG2010EA
15	0	C15	CAP 100MF -20% +80% 5.5V T/H	Eaton Bussmann, KR-5R5H104-R
16	1	BATTERY	CR2032 COIN CELL BATTERY	DURACELL, CR2032
		<b>HARDWARE-FOR DEMO BOARD ONLY:</b>		
17	1	BTH1	CR2032 COIN CELL BATTERY HOLDER, SMD	WURTH, 79527141
18	8	E1-E8	TESTPOINT, TURRET, .095"	MILL-MAX, 2501-2-00-80-00-00-07-0
19	11	JP1-JP11	3 PIN 0.079 SINGLE ROW HEADER	SAMTEC, TMM-103-02-L-S
20	12	JP1-JP12	SHUNT,	SAMTEC, 2SN-BK-G
21	1	JP12	4 PIN 0.079 SINGLE ROW HEADER	WURTH, 62000411121
22	4	(STAND-OFFS)	STAND-OFF, NYLON 0.75" tall	KEYSTONE, 8834(SNAP ON)
23	1	J1	HEADER, 2X6, 12-PIN, SMT HORIZONTAL SOCK	SAMTEC, SMH-106-02-L-D-05
24	1	J2	CONN RECEPT 20POS .50" SMT	SAMTEC, SFMH-110-02-L-D-WT

REVISION HISTORY				
ECO	REV	DESCRIPTION	APP. ENG.	DATE
-	2	PRODUCTION FAB	JIM N.	08-27-15


## NOTES: UNLESS OTHERWISE SPECIFIED

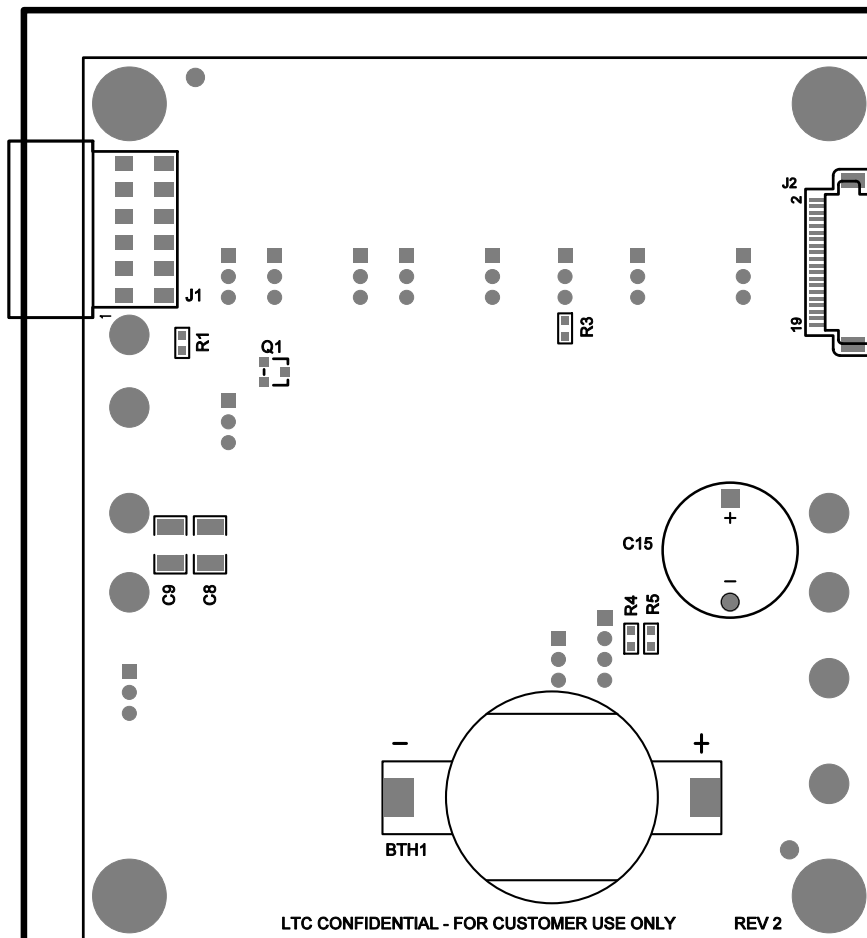
1. WORKMANSHIP SHALL BE IN ACCORDANCE WITH IPC-A-610.
2. ASSEMBLY REFLOW PROFILE SHALL BE IN ACCORDANCE WITH J-STD-020 WITH MAXIMUM SOLDER TEMPERATURE OF 250 DEGREES CELSIUS.
3. PARTS TO OMIT WILL BE SPECIFIED ON THE BILL OF MATERIALS  
LOCATIONS OF OMITTED PARTS SHALL BE FREE OF SOLDER.  
MASK THE SOLDER STENCIL WHERE SMT PARTS ARE OMITTED.
4. INSTALL SHUNTS AS SHOWN ON ASSY DRAWING.
5. DEPANELIZE BOARDS AFTER ASSEMBLY AND ROUTE-OUT THE BREAKOUT TABS ON FOUR SIDES OF THE BOARD EDGE.
6. APPLY ASSEMBLY STAMP OR QA STAMP TO BOTTOM OF BOARD (UNSHOWY AREA).
7. INSTALL TURRETS, STAND-OFFS AS SHOWN BELOW:



## 8. INSTALL LED D2 AS SHOWN BELOW:



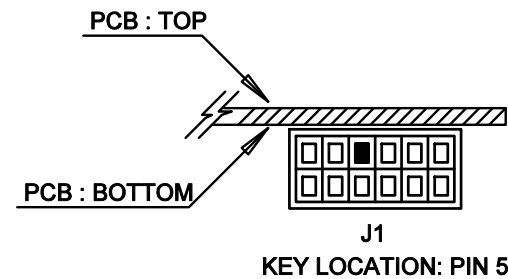
APPROVALS		 <div> 1630 MCCARTHY BLVD  MILPITAS, CA 95035  PH: (408)432-1900  www.linear.com  LTC CONFIDENTIAL-  FOR CUSTOMER USE ONLY </div>		
PCB DES.	NC			
APP ENG.	JIM N.			
		<b>TITLE: TOP ASSEMBLY DRAWING</b> 300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH POWERPATH and 1.8uA QUIESCENT CURRENT		
		SIZE	IC NO. LTC3106	REV. 2
		N/A	DEMO CIRCUIT 2255A	
SCALE = NONE		FILENAME: DC2255A-2.PCB		SHT 1 OF 1



## NOTES: UNLESS OTHERWISE SPECIFIED

1. ENSURE HEADER KEY FOR J1 IS INSTALLED AND LOCATED AS SHOWN BELOW:

### FRONT VIEW OF SMT HEADER



## APPROVALS

PCB DES.	NC
APP ENG.	JIM N.



1630 MCCARTHY BLVD  
MILPITAS, CA 95035  
PH: (408)432-1900  
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TITLE: BOTTOM ASSEMBLY DRAWING

300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH  
POWERPATH and 1.6uA QUIESCENT CURRENT

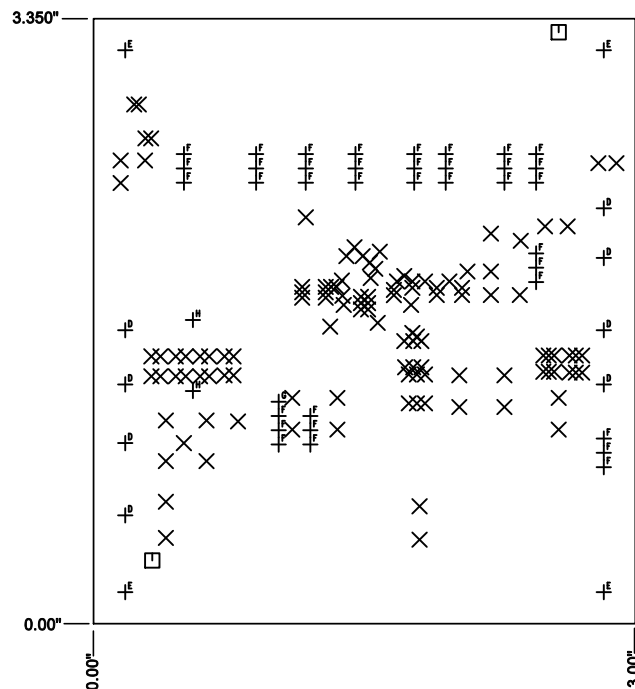
SIZE N/A	IC NO. LTC3106 DEMO CIRCUIT 2255A	REV 2
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SCALE = NONE

FILENAME: DC2255A-2.PCB

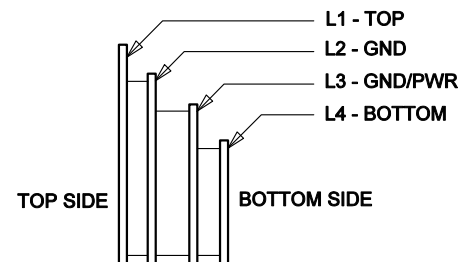
SHT 2 of 2

REVISION HISTORY			
ECO	REV	DESCRIPTION	APP. ENG.
-	2	PRODUCTION FAB	JIM N.
			DATE
			08-27-15



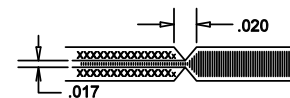
SIZE	QTY	SYM	PLATED	TOL
0.01	119	X	YES	+/-0.003
0.07	2	□	NO	+/-0.003
0.095	8	⊕	YES	+/-0.003
0.187	4	⊕	YES	+/-0.003
0.033	36	⊕	YES	+/-0.003
0.04	1	⊕	YES	+/-0.003
0.04528	2	⊕	YES	+/-0.003

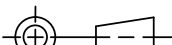

## LAYER STRUCTURE

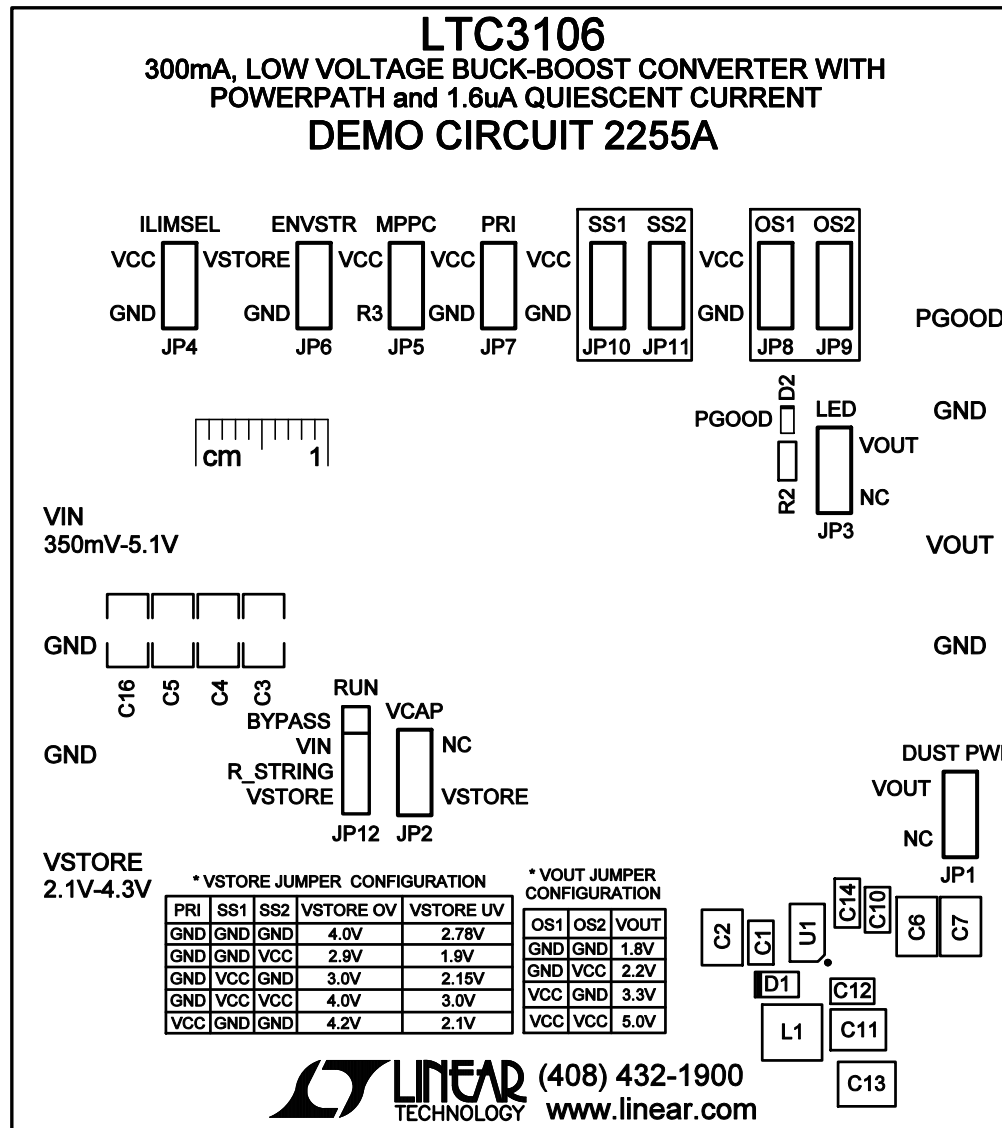


## NOTES: UNLESS OTHERWISE SPECIFIED

- FAB PER IPC-A-800.
- MATERIAL: -EPOXY FIBERGLASS, NEMA GRADE FR-4  
-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.  
(LEAD FREE SOLDER CAN BE USED FOR PROTOTYPE)  
-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.
- SCORING FOR PANELIZED PCB:



<div>UNLESS OTHERWISE SPECIFIED</div> <div>DIMENSIONS ARE IN INCHES</div> <div>TOLERANCES:</div> <div>0.XX" = 0.01"</div> <div>0.XXX" = 0.005"</div> <div>INTERPRET DIM AND TOL</div> <div>PER ASME Y14.5M-1994</div> <div>THIRD ANGLE PROJECTION</div> <div></div>	<div>APPROVALS</div>		<div></div> <div>1630 MCCARTHY BLVD MILPITAS, CA 95035 PH: (408)432-1900 www.linear.com LTC CONFIDENTIAL- FOR CUSTOMER USE ONLY</div>	
	PCB DES.	NC		
	APP ENG.	JIM N.	TITLE: FABRICATION DRAWING	
			300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH POWERPATH and 1.6uA QUIESCENT CURRENT	
			SIZE N/A	IC NO. LTC3106 DEMO CIRCUIT 2255A
SCALE = NONE		FILENAME: DC2255A-2.PCB		SHT 1 OF 1



**SILKSCREEN TOP**

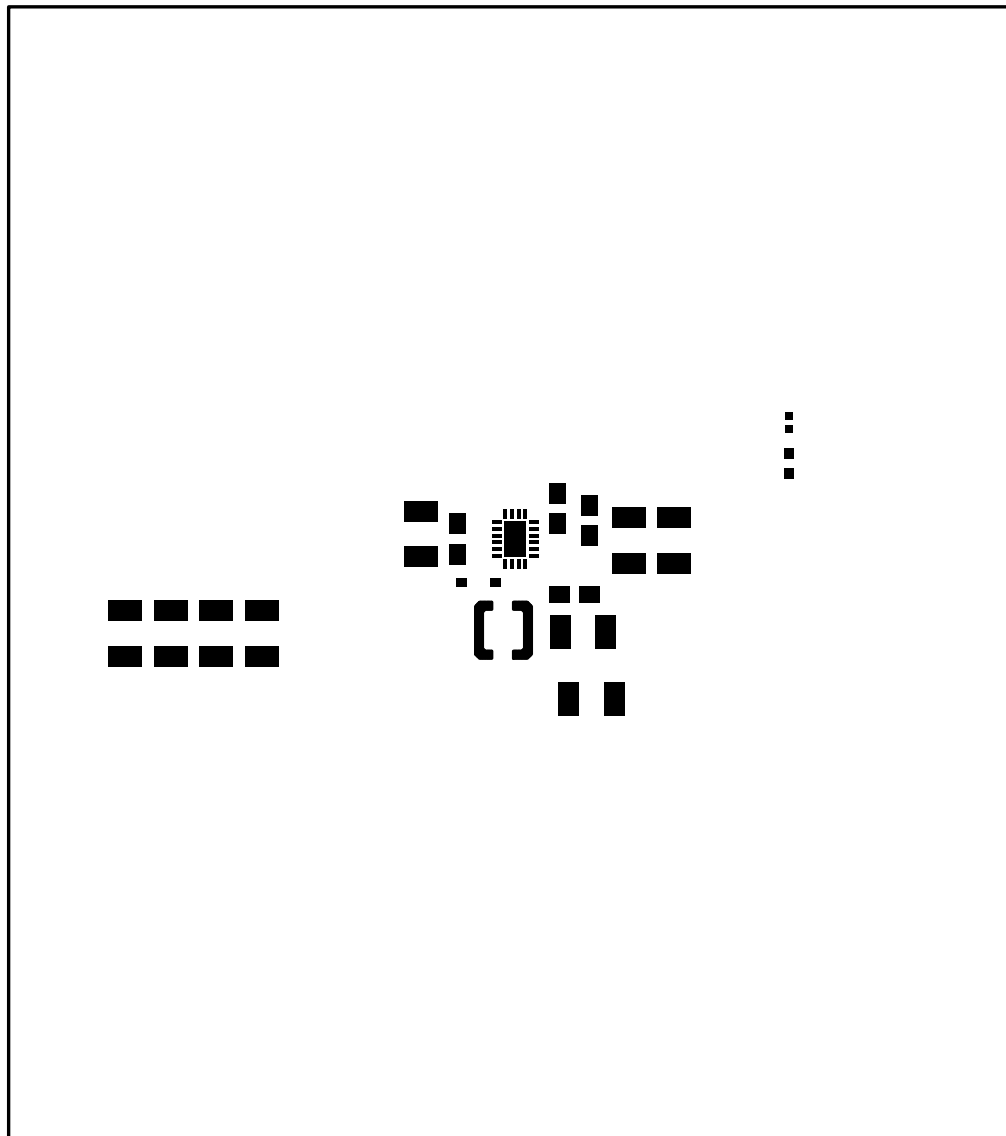
**LINEAR TECH. CORP.**

**DEMO CIRCUIT 2255A-2 \* LTC3106**

**300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH**  
**POWERPATH and 1.6uA QUIESCENT CURRENT**

**DATE: 08-27-15**





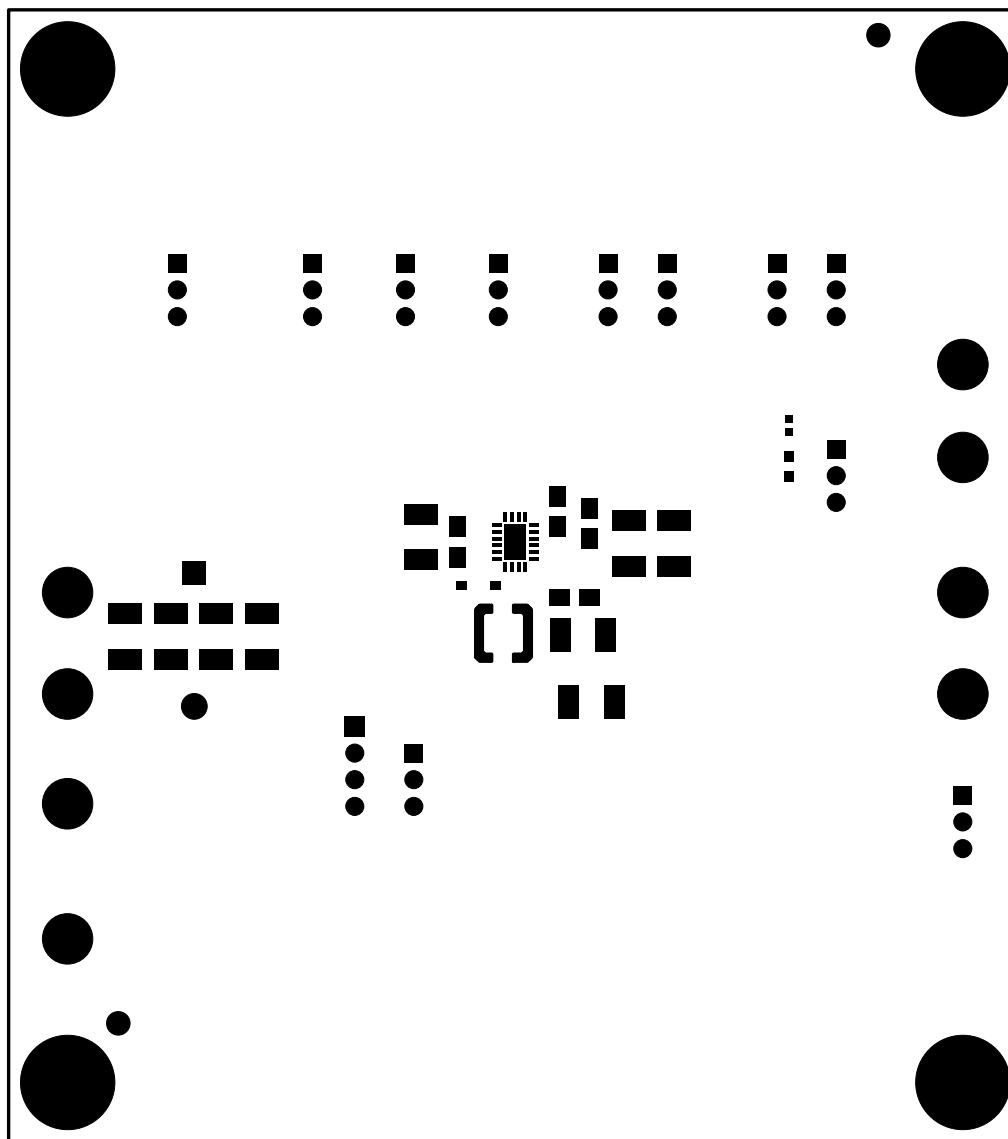
PASTEMASK TOP

LINEAR TECH. CORP.

DEMO CIRCUIT 2255A-2 \* LTC3106

300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH  
POWERPATH and 1.6uA QUIESCENT CURRENT

DATE: 08-27-15



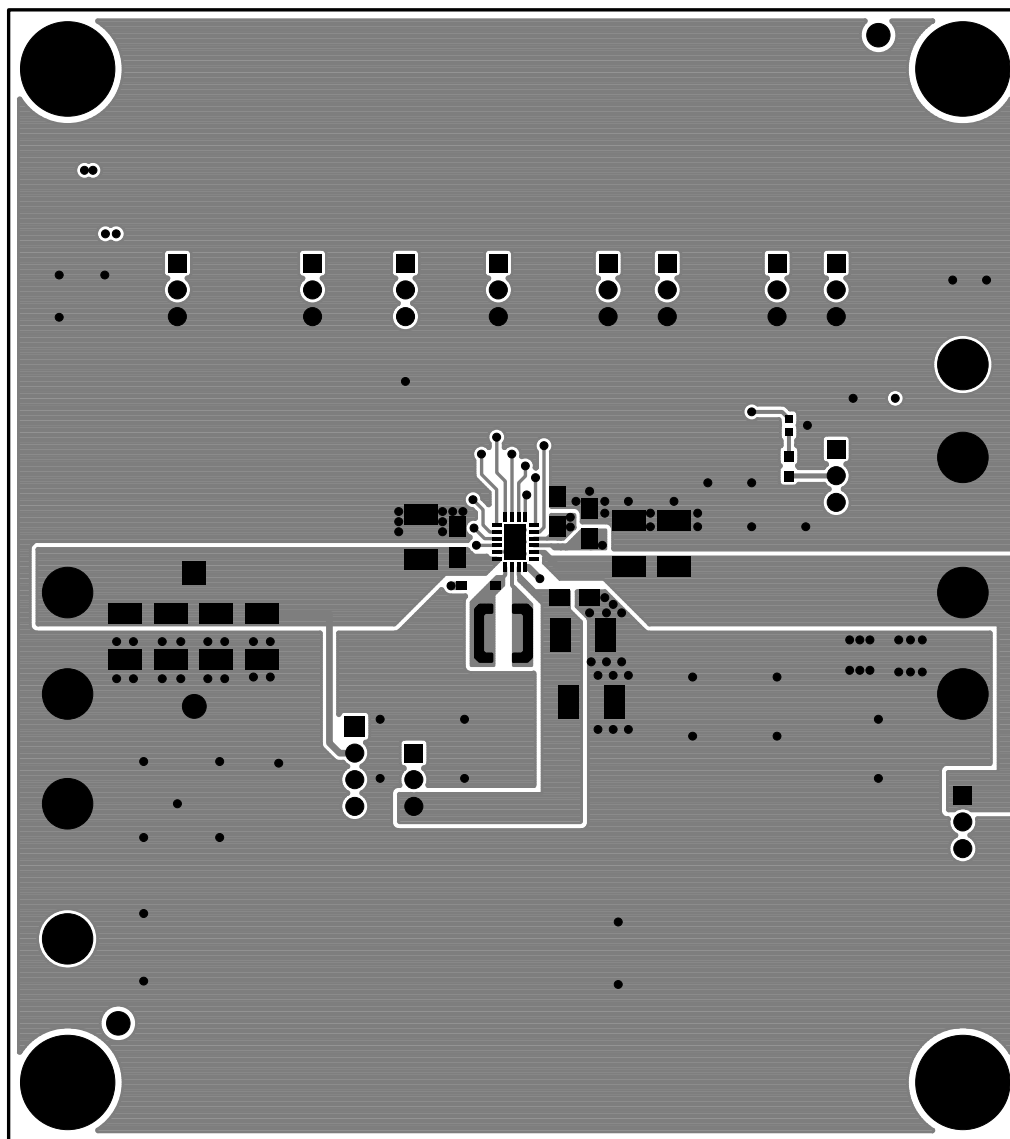
**SOLDERMASK TOP**

**LINEAR TECH. CORP.**

**DEMO CIRCUIT 2255A-2 \* LTC3106**

**300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH  
POWERPATH and 1.6uA QUIESCENT CURRENT**

**DATE: 08-27-15**



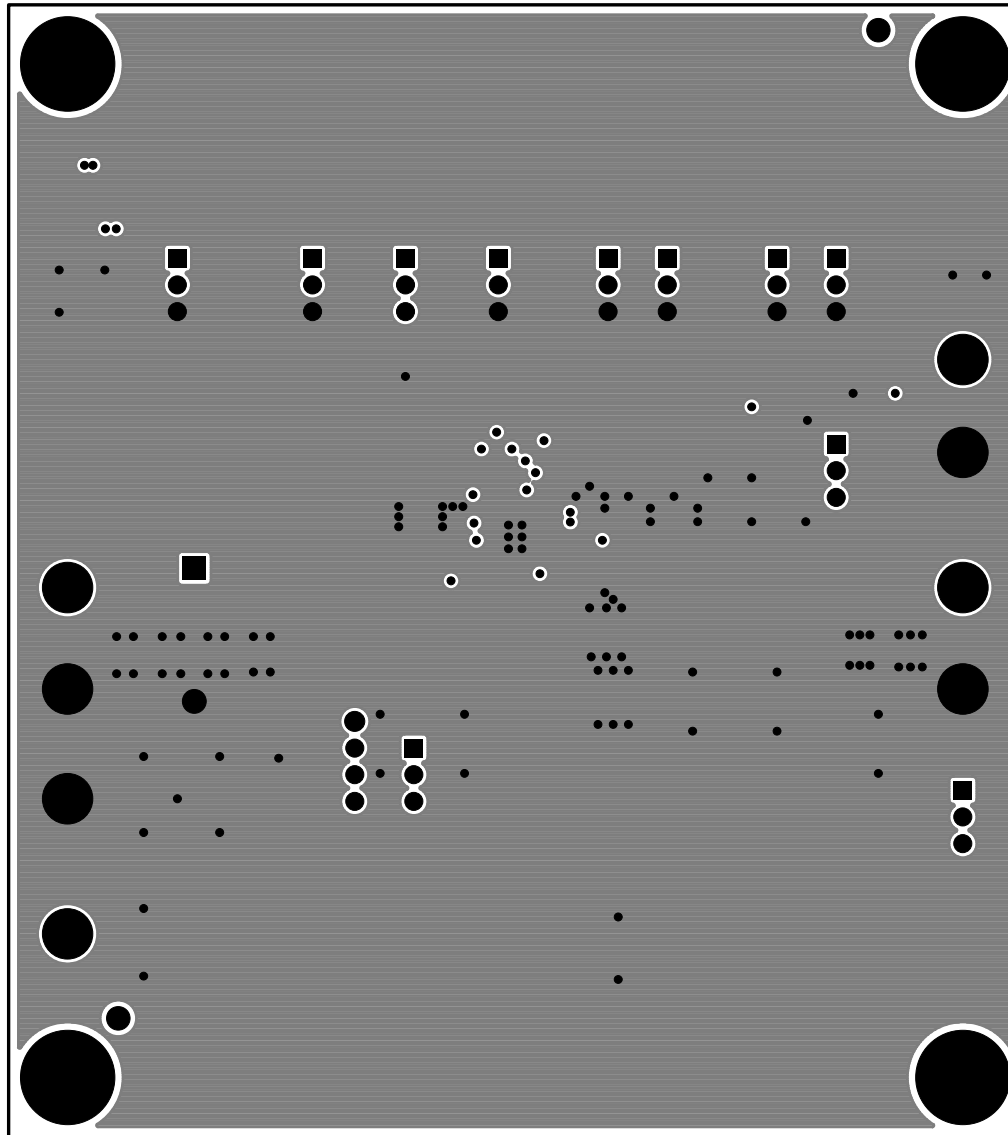
TOP SIDE

LINEAR TECH. CORP.

DEMO CIRCUIT 2255A-2 \* LTC3106

300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH  
POWERPATH and 1.6uA QUIESCENT CURRENT

DATE: 08-27-15



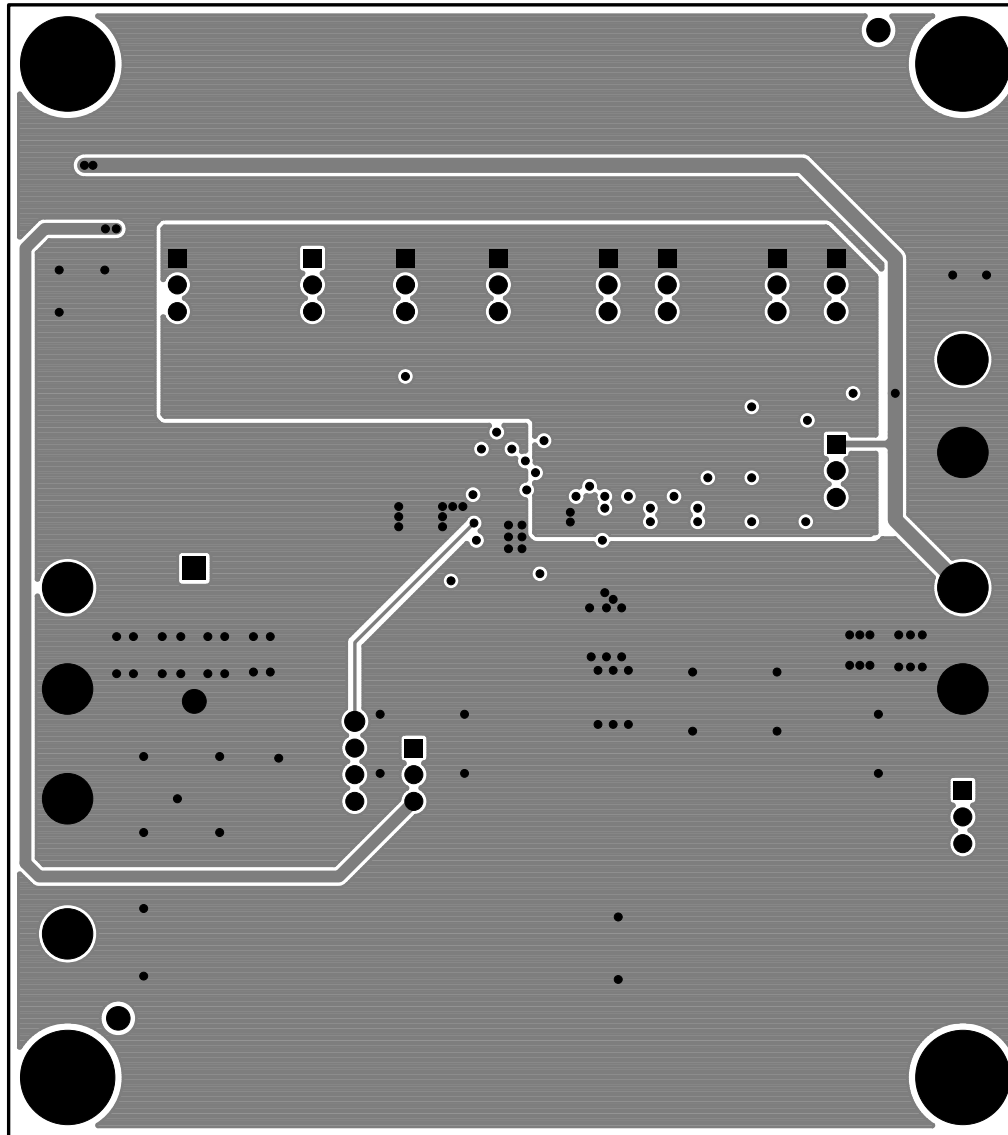
LAYER2

LINEAR TECH. CORP.

DEMO CIRCUIT 2255A-2 \* LTC3106

300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH  
POWERPATH and 1.6uA QUIESCENT CURRENT

DATE: 08-27-15



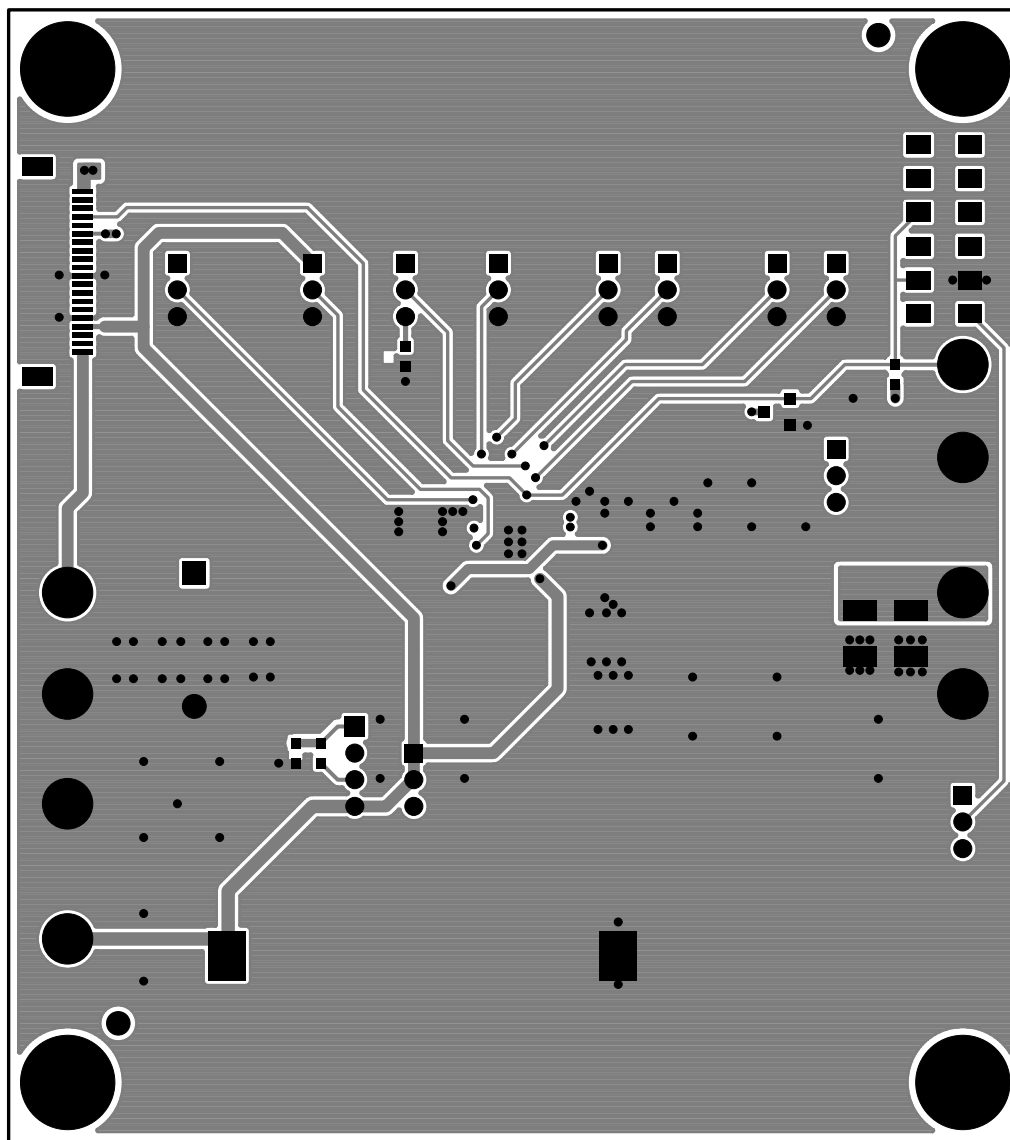
LAYER3

LINEAR TECH. CORP.

DEMO CIRCUIT 2255A-2 \* LTC3106

300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH  
POWERPATH and 1.6uA QUIESCENT CURRENT

DATE: 08-27-15



**BOTTOM SIDE**

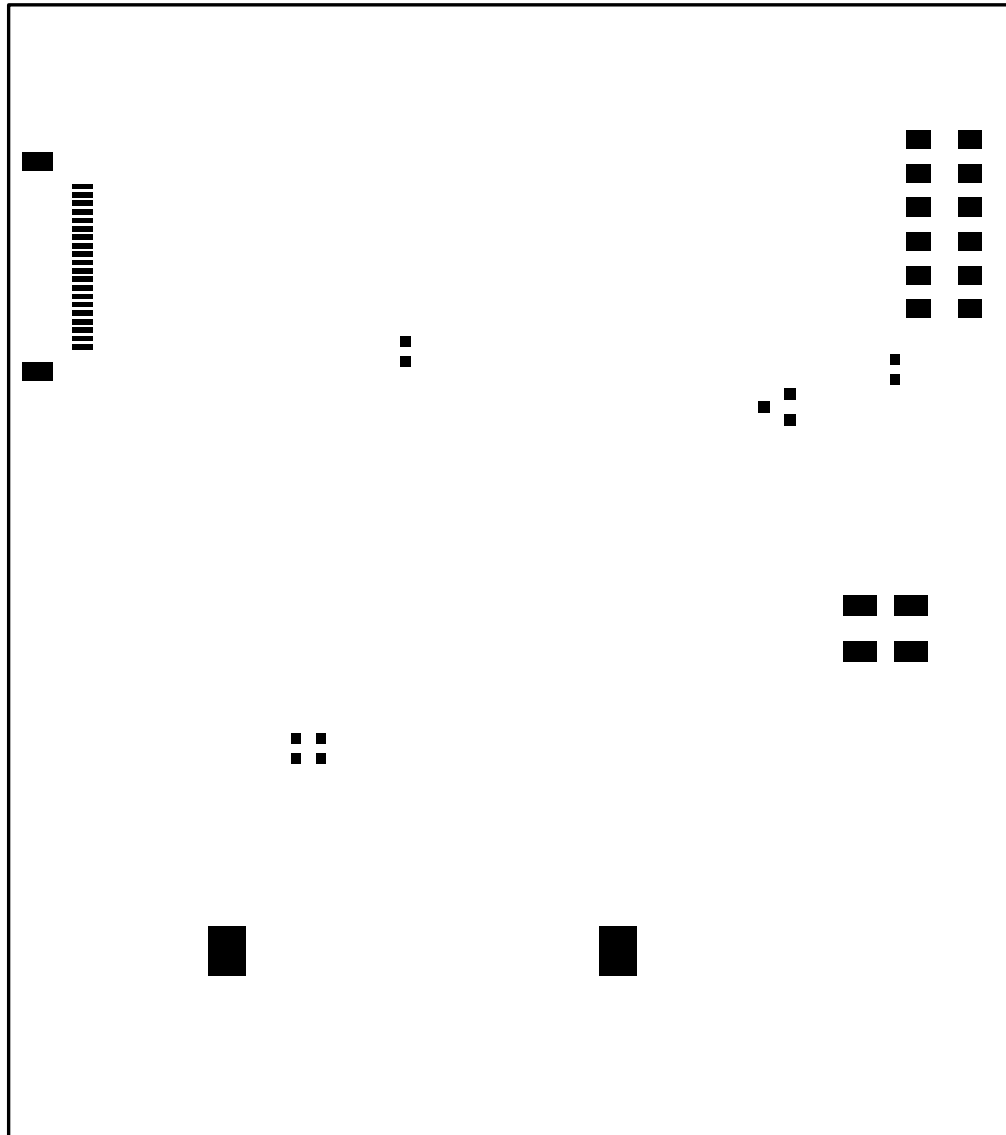
**LINEAR TECH. CORP.**

**DEMO CIRCUIT 2255A-2 \* LTC3106**

**300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH  
POWERPATH and 1.6uA QUIESCENT CURRENT**

**DATE: 08-27-15**





**PASTEMASK BOTTOM**

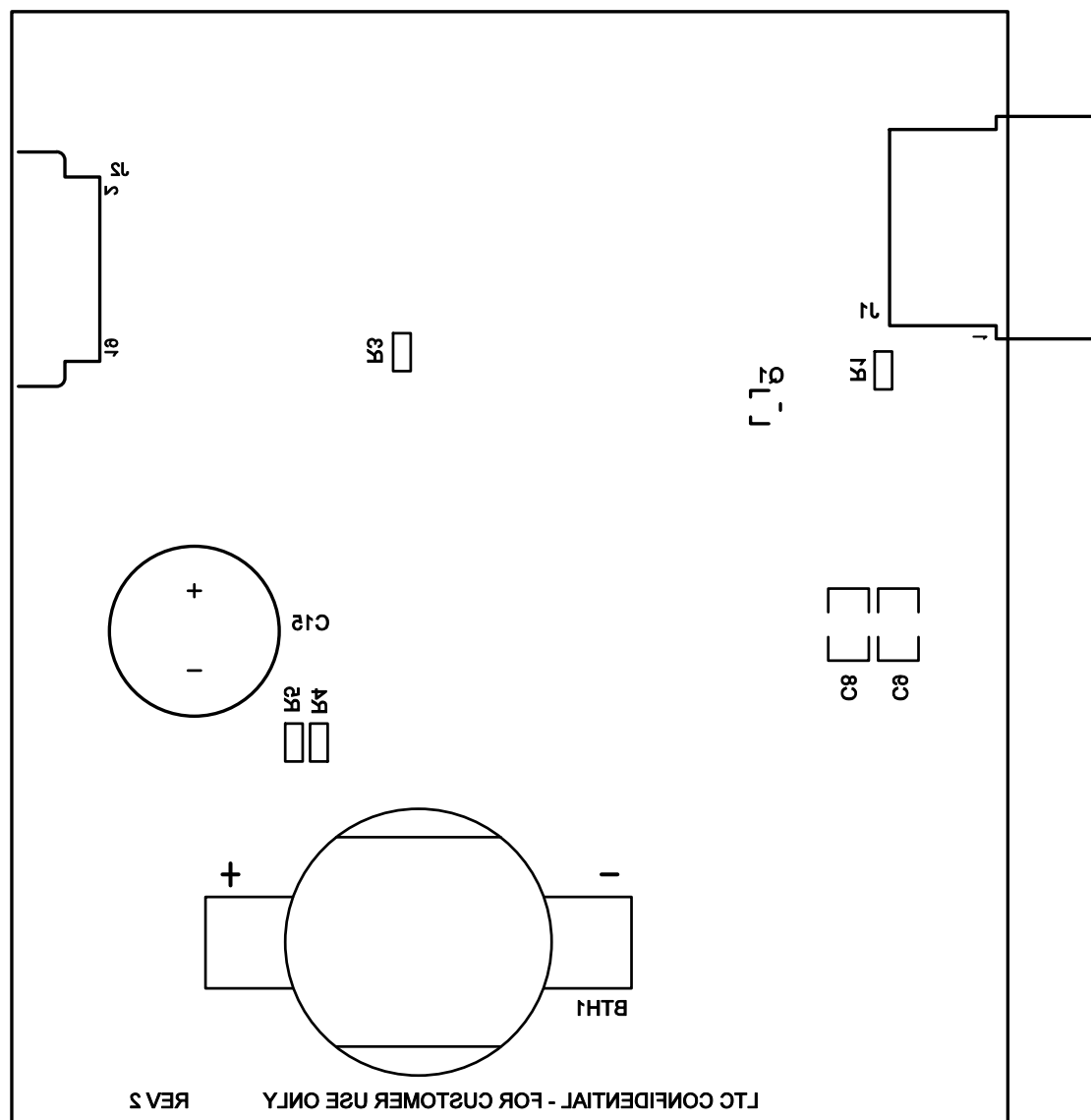
**LINEAR TECH. CORP.**

**DEMO CIRCUIT 2255A-2 \* LTC3106**

**300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH  
POWERPATH and 1.6uA QUIESCENT CURRENT**

**DATE: 08-27-15**





**SILKSCREEN BOTTOM**

**LINEAR TECH. CORP.**

**DEMO CIRCUIT 2255A-2 \* LTC3106**

**300mA, LOW VOLTAGE BUCK-BOOST CONVERTER WITH  
POWERPATH and 1.6uA QUIESCENT CURRENT**

**DATE: 08-27-15**