

**LTC3331**  
**NANOPOWER BUCK-BOOST DC/DC WITH**  
**ENERGY HARVESTING BATTERY CHARGER**  
**DEMO CIRCUIT 2151A**

\* CAUTION: 50mA MAX

\* AC1  
 E1

\* AC2  
 E2

VIN  
 3V - 19V  
 E3

GND  
 E4

BB\_IN  
 2.0V - 4.2V  
 E5 125mA  
 +10mA  
 (IF VBB\_IN > VFLOAT)  
 GND  
 E6

U1

C1 C2 C3 C4 C5 C6 C7 C8

L1 L2 L3

cm 1

START  
 PB1

CHARGE  
 OFF  
 CHARGE  
 FAST CHARGE

JP12  
 GND  
 E18

VOUT  
 1.8V - 5.0V  
 50mA  
 E17

GND  
 E11

SHIP  
 SHIP  
 EXT  
 RUN  
 JP11

BAT\_IN  
 2.0V - 4.2V  
 GND  
 E12

E15

MH1

BAL  
 E13

SCAP  
 E14

MH4  
 GND  
 E10  
 EH\_ON  
 E7  
 PGVOUT  
 E9  
 CHARGE  
 E8

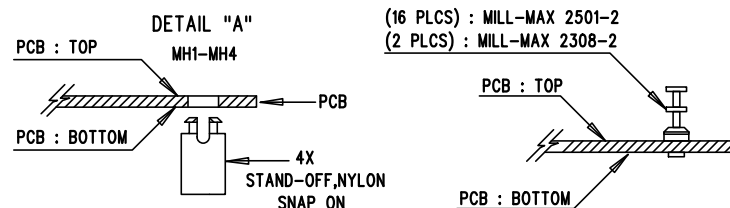
MH2

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MH3

1. WORKMANSHIP SHALL BE IN ACCORDANCE WITH IPC-A-610.
2. ASSEMBLY PROCESS SHALL INCLUDE: REFLOW SOLDER TOP SIDE SMD.  
MAXIMUM SOLDER TEMPERATURE IS 240 DEGREES CELCIUS.
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.
7. INSTALL TURRETS AND 4 STAND-OFFS AT FOUR CORNERS AS SHOWN BELOW:



8. PLACE JP11 IN SHIP POSITION WHEN BOARD IS NOT IN USE.

UVLO SELECTION						
UV3	UV2	UV1	UV0	UVLO RISING	UVLO FALLING	
0	0	0	0	4V	3V	
0	0	0	1	5V	4V	
0	0	1	0	6V	5V	
0	0	1	1	7V	6V	
0	1	0	0	8V	7V	
0	1	0	1	8V	5V	
0	1	1	0	10V	9V	
0	1	1	1	10V	5V	
1	0	0	0	12V	11V	
1	0	0	1	12V	5V	
1	0	1	0	14V	13V	
1	0	1	1	14V	5V	
1	1	0	0	16V	15V	
1	1	0	1	16V	5V	
1	1	1	0	18V	17V	
1	1	1	1	18V	5V	

## FLOAT SELECTION AND BATTERY DISCONNECT THRESHOLDS OUTPUT VOLTAGE SELECTION

LBSL	FLOAT1	FLOAT0	FLOAT	CONNECT	DISCONNECT
0	0	0	3.45V	2.37V	2.04V
0	0	1	4.0V	3.05V	2.70V
0	1	0	4.1V	3.05V	2.70V
0	1	1	4.2V	3.05V	2.70V
1	0	0	3.45V	2.86V	2.51V
1	0	1	4.0V	3.55V	3.20V
1	1	0	4.1V	3.55V	3.20V
1	1	1	4.2V	3.55V	3.20V

### OUTPUT VOLTAGE SELECTION

OUT2	OUT1	OUT0	VOUT
0	0	0	1.8V
0	0	1	2.5V
0	1	0	2.8V
0	1	1	3.0V
1	0	0	3.3V
1	0	1	3.6V
1	1	0	4.5V
1	1	1	5.0V

## ILIM SELECTION INSTALL

IPK2	IPK1	IPK0	ILIM
R3	R5	R7	5mA
R3	R5	R6	10mA
R3	R4	R7	15mA
R3	R4	R6	25mA
R2	R5	R7	50mA
R2	R5	R6	100mA
R2	R4	R7	150mA
R2	R4	R6	250mA

DC2151A-2.pcb - Thu Apr 17 09:43:23 2014