

mounting holes



to the bottom board

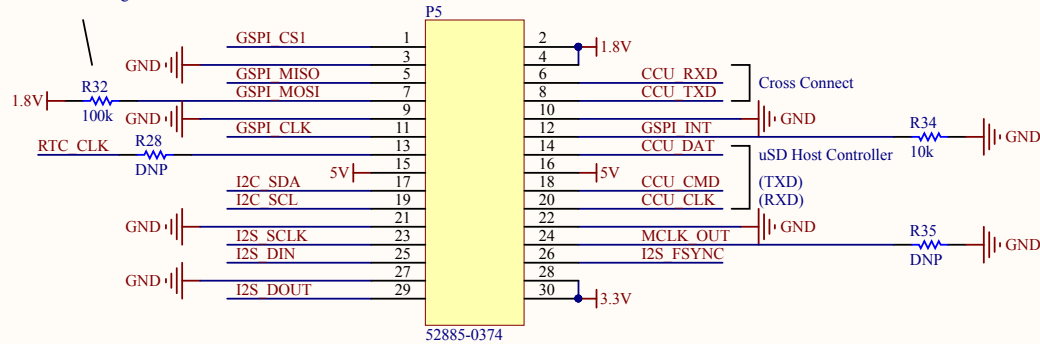
IF CC3200 is changed to operate off of wide input voltage range, the 1V8 tie needs to change to VBAT

I2C pullups

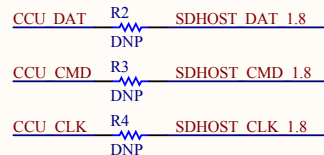
I2C Sensors

IF CC3200 is changed to operate off of wide input voltage range, the 1V8 tie needs to change to VBAT

to the top board



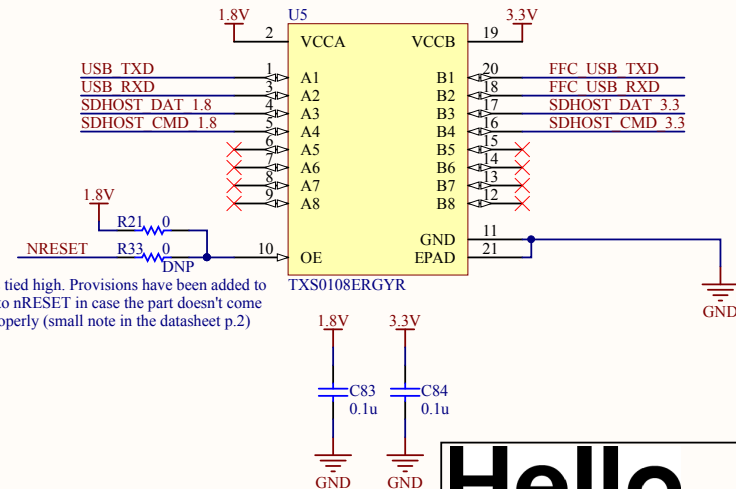
to the top board



to CC3200

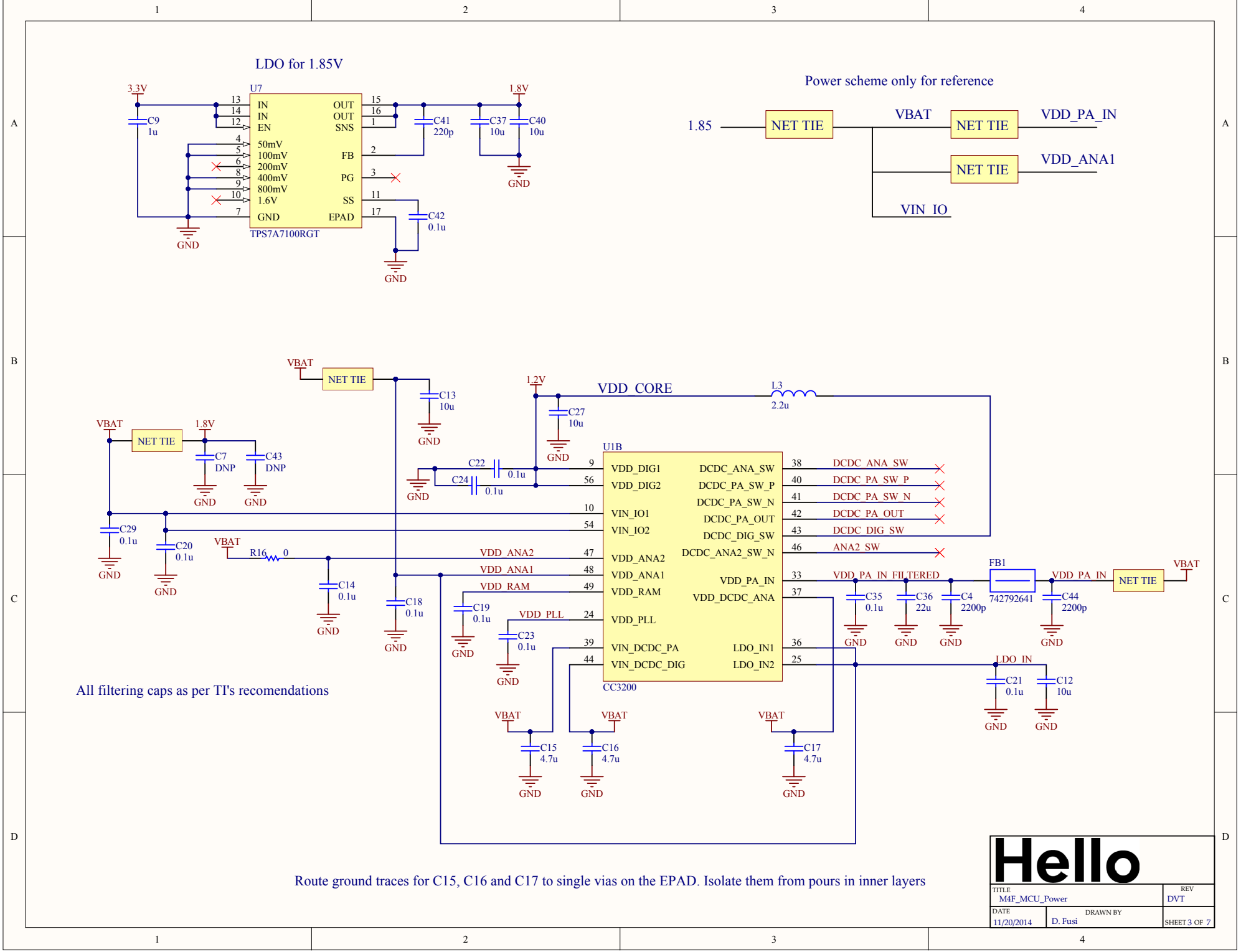
OE is tied high. Provisions have been added to tie it to nRESET in case the part doesn't come up properly (small note in the datasheet p.2)

8-bit level shifter



Hello

TITLE	Morpheus_middle	REV	DVT
DATE	11/20/2014	DRAWN BY	D. Fusi
			SHEET 2 OF 7



LDO for 1.85V

Power scheme only for reference

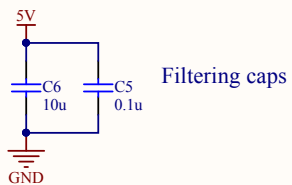
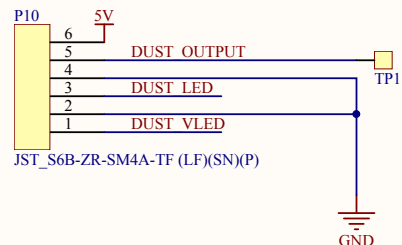
All filtering caps as per TI's recommendations

Route ground traces for C15, C16 and C17 to single vias on the EPAD. Isolate them from pours in inner layers

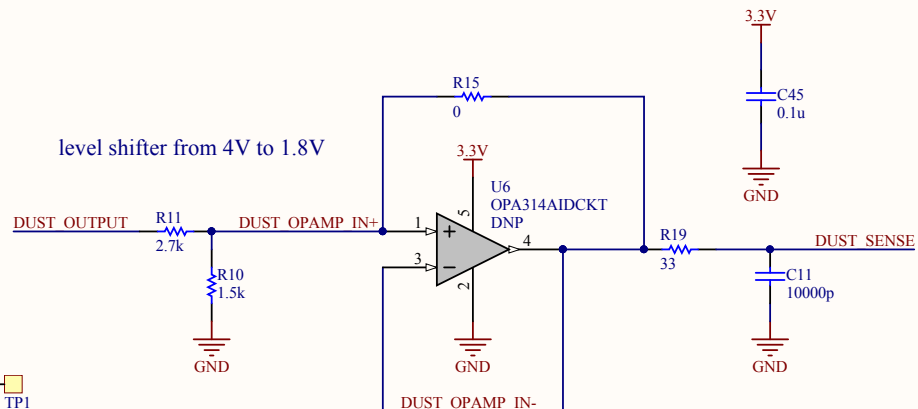
Hello

TITLE M4F_MCU_Power		REV DVT
DATE 11/20/2014	DRAWN BY D. Fusi	SHEET 3 OF 7

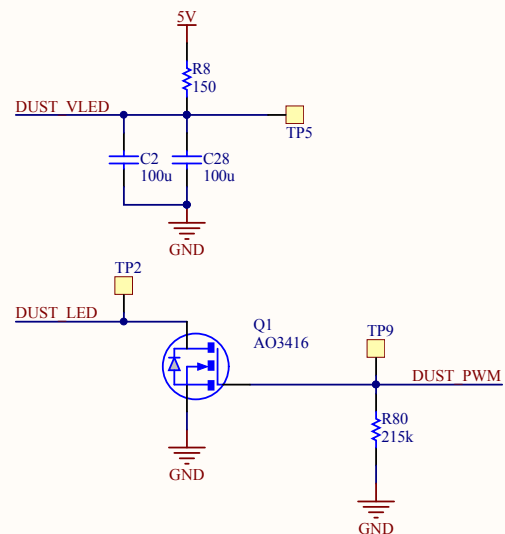
Connector for Sharp dust sensor GP2Y1010AU0F



level shifter from 4V to 1.8V

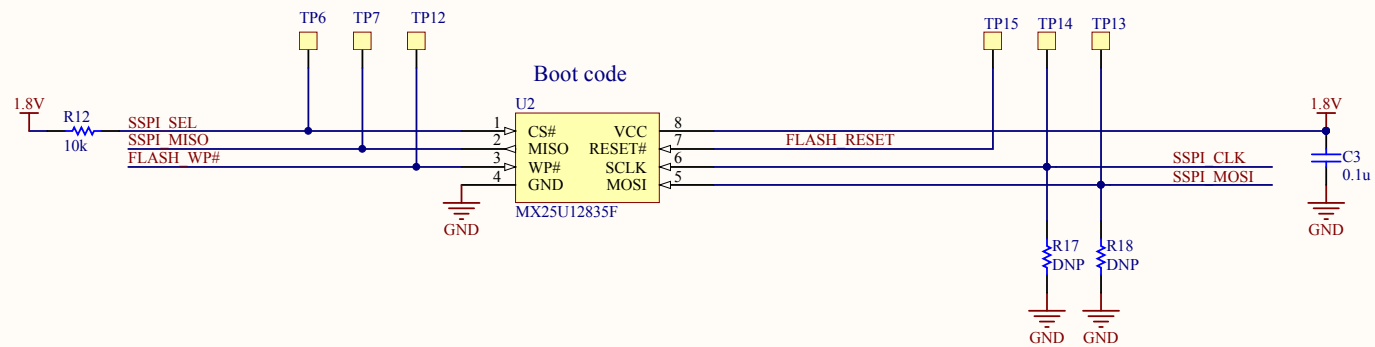


As on the GP2Y1010 datasheet

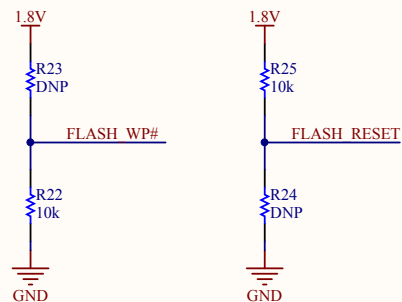


Hello

TITLE Air_quality		REV PVT
DATE 12/30/2014	DRAWN BY D. Fusi	SHEET 4 OF 7

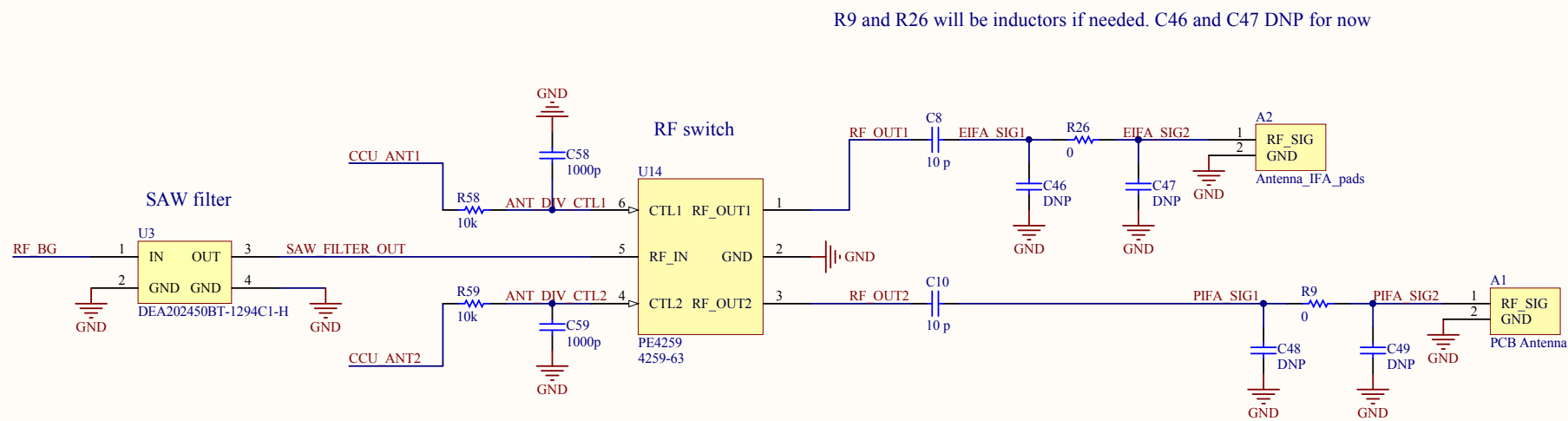


TI wants 17 and R18 to be installed but we've always been good without



Datasheet is unclear, so for now we pull reset high and WP low

<h1>Hello</h1>		
TITLE	Flash memory	REV
DATE	11/20/2014	DVT
DRAWN BY	D. Fusi	SHEET 5 OF 7



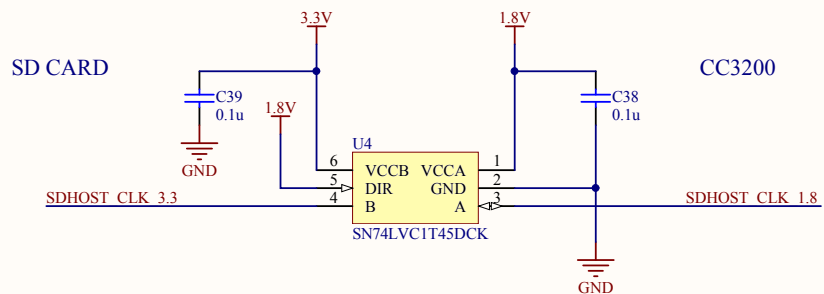
R9 and R26 will be inductors if needed. C46 and C47 DNP for now

RF components: Johanson 0201 L-05B0N6CV6S 250R05L0R2AV4S
Murata 0201 GJM0335C1ER20WB01
Murata 0402 GJM1555C1H100GB01D
Murata 0402 LQP15MN1N0B02

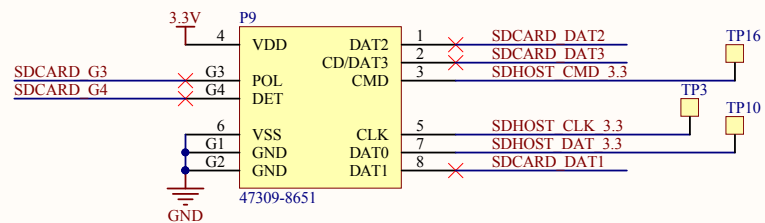
GJM series is better than GRM for RF

Hello		REV
		DVT
TITLE	M4F_MCU_Antennas	
DATE	DRAWN BY	SHEET 6 OF 7
11/20/2014	D. Fusi	

CLK needs a dedicated level shifter beacuse of speed



CMD and DAT shifter on dedicated level shifter



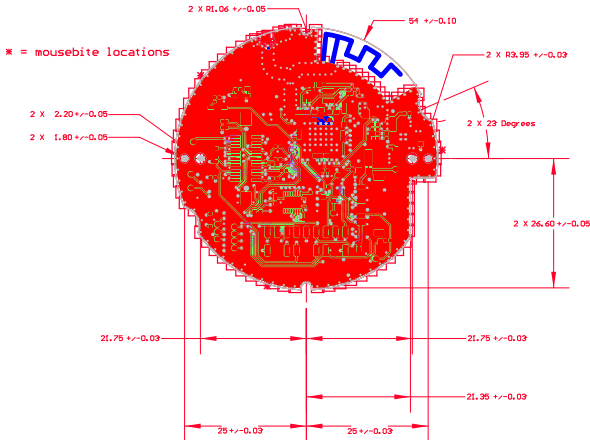
SD Card connector

Hello		
TITLE	REV	
SD_Card	DVT	
DATE	DRAWN BY	
11/20/2014	D. Fusi	SHEET 7 OF 7

Fabrication / Assembly Notes

- 1. Material: Rigid FR-4, RoHS compliant; material should meet or exceed requirements of IPC 4101/126. ITEQ IT-180A Pre-approved.
- 2. Number of electrical layers: 6
- 3. Trace / Space minimum: 5mil (all layers)
- 4. Thickness: 0.782mm (31mils) +/- 0.1mm finished
- 5. Finish: ENIG plating on exposed copper
- 6. Soldermask: per IPC-SM-840, color matte black, registration within +/- 76um of circuit layer
- 7. Silkscreens: do printed silkscreen on top and bottom layers, color white. Clip on pads.
- 8. Board must be lead free process compatible and able to withstand minimum of 5 cycles at 250 degrees celsius
- 9. All Test/QA/QC markings to be made on back side of PCB
- 10. x mousebites shall be no larger than 0.05 mm
- 11. All Dimensions are after plating/finishing
- 12. All components must be placed within +/- 0.10mm
- 13. This board has controlled impedences between Layers 5 and 6.
0.45mm traces on Bottom layer (Layer 6) are 50 ohm +/-5 Ohm controlled impedance traces referenced to layer 5.
Fab vendor to adjust trace width as needed but no smaller than .125mm without approval.

Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Paste				
2	Top Overlay				
3	Top Solder	Solder Resist	0.010mm	3.5	
4	Top Layer	Copper	0.025mm		
5	Dielectric1	FR-4	0.102mm	4.2	
6	Signal Layer 1	Copper	0.025mm		
7	Dielectric 5		0.152mm	4.2	
8	Signal Layer 2	Copper	0.025mm		
9	Dielectric 4		0.102mm	4.2	
10	GND	Copper	0.025mm		
11	Dielectric2		0.152mm	4.2	
12	PdR	Copper	0.025mm		
13	Dielectric3		0.102mm	4.2	
14	Bottom Layer	Copper	0.025mm		
15	Bottom Solder	Solder Resist	0.010mm	3.5	
16	Bottom Overlay				
17	Bottom Paste				



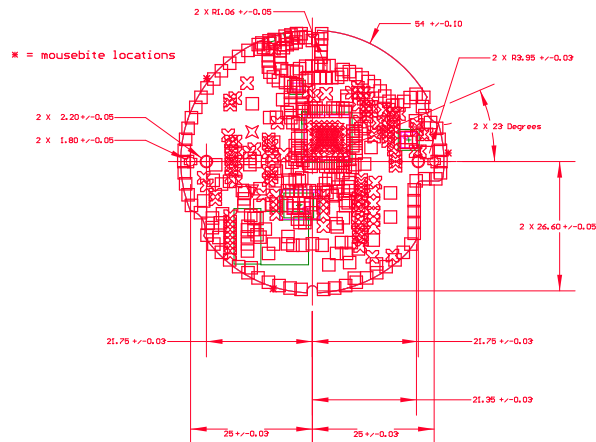
Symbol	Hit Count	Finished Hole Size	Plated	Hole Type
H	1	0.700mm (27.56mil)	NPTH	Round
V	1	0.900mm (35.43mil)	NPTH	Round
o	2	1.800mm (70.87mil)	NPTH	Round
o	2	2.200mm (86.61mil)	NPTH	Round
*	33	0.300mm (11.81mil)	PTH	Round
ss	122	0.305mm (12.01mil)	PTH	Round
□	312	0.200mm (7.87mil)	PTH	Round
	478 Total			

METRIC	DRAWER	DATE			
DIMENSIONS ARE IN MILLIMETERS TOLERANCES 0 > - < 2 0.10 2 > - < 10 0.10 10 > - < 50 0.10 50 > - < 100 0.15 100 > - < 200 0.20 200 > - 0.20 ANGLES 1.00					
DESIGNER rsb/dfusi	DATE 01/12/15	TITLE: Morpheus Middle Board			REV
PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF HELLO INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF HELLO INC IS PROHIBITED.			SIZE B	DWG. NO. 201-00004-A	REU
SCALE: 1:1			WEIGHT:	SHEET 1 OF 1	


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METRIC		DRAWN		DATE			
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TOLERANCES:		rsb/dfusi		01/12/15		TITLE: Morpheus Middle Board	
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10 > - < 50 0.10							
50 > - < 100 0.15							
100 > - < 200 0.20		THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF HELLO INC.					
200 > - 0.20							
ANGLES 1.00		ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF HELLO INC IS PROHIBITED.					
		SIZE B		DWG. NO. 201-00004-A		REV	
		SCALE: 1:1		WEIGHT:		SHEET 1 OF 1	

