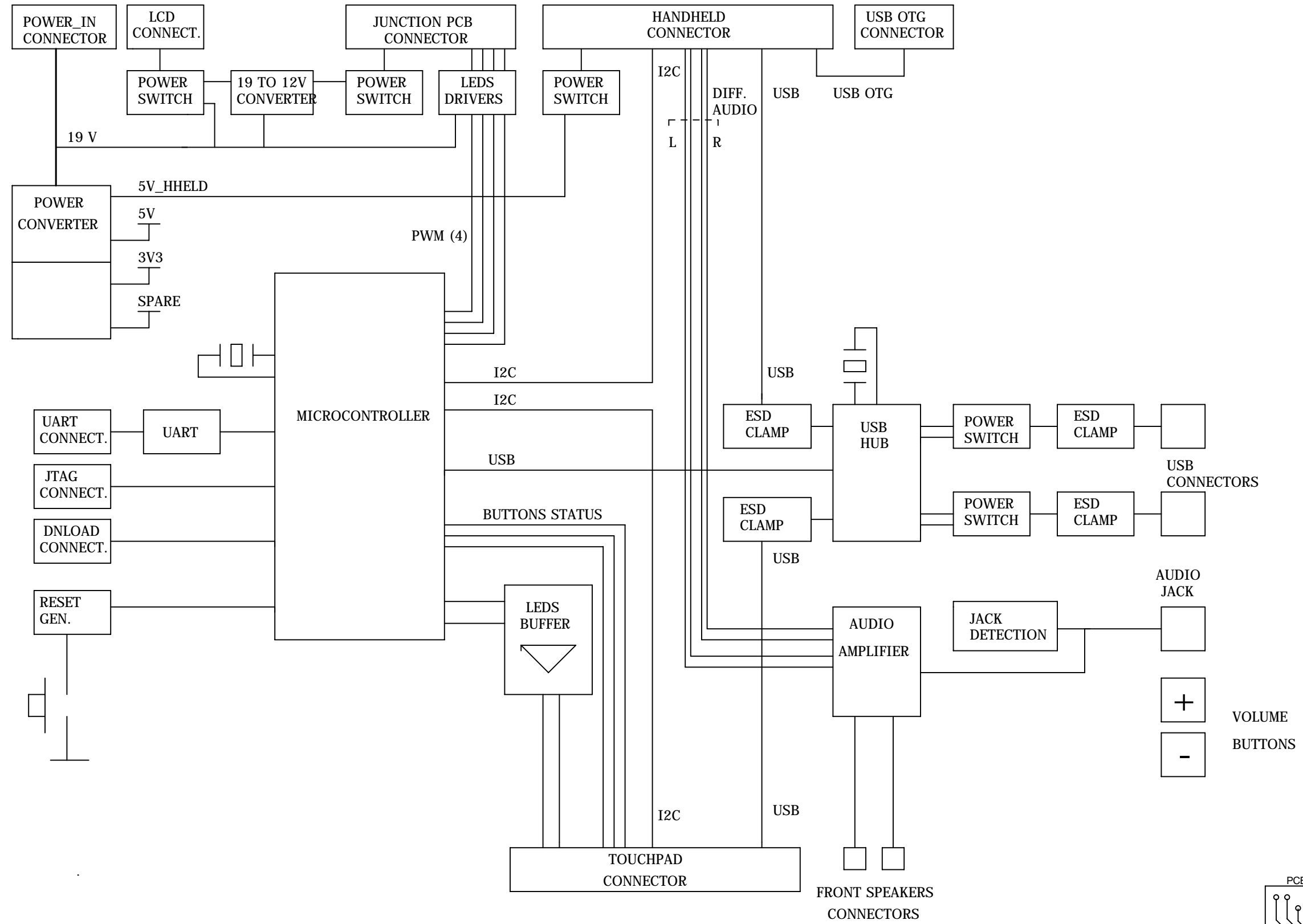
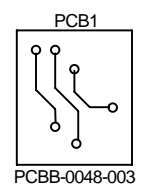


REV	MODIFICATION	BY
0.1	Initial Release	JB
2.0	Place 2 separate I2C buses	JB
3.0	Version change	JB



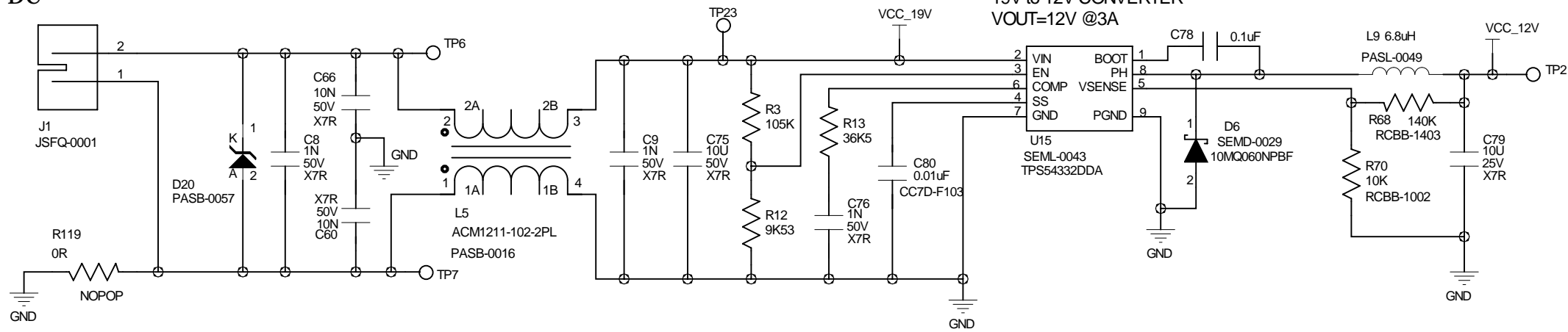
PAGE	DESCRIPTION
1	BLOCK DIAGRAM
2	POWER SUPPLIES
3	MICROCONTROLLER
4	POWER SWITCHES AND CONNECTOR
5	USB HUB AND POWER
6	AUDIO
7	LEDS DRIVERS



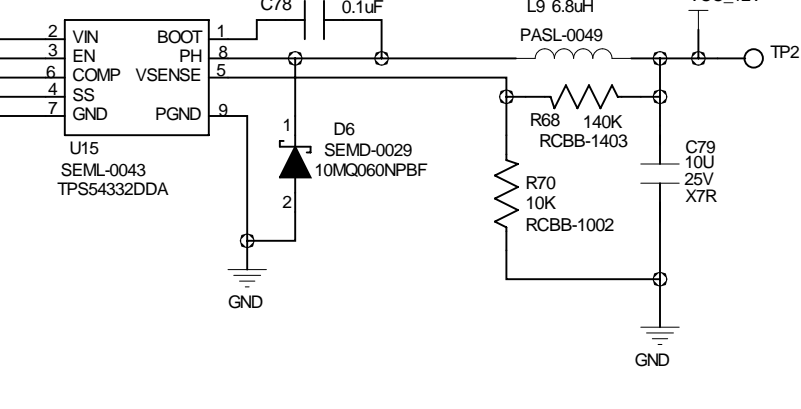
COMPANY:		Humanware™	
PROJECT		PCBA-0048-003	
TITLE:		BLOCK_DIAGRAM	
REV:		3.0	SHEET: 1 OF 7

DRAWN: Jean Berthiaume, ing.	DATED: 12 Feb 2013
CHECKED: HW team	DATED: <Checked Date>

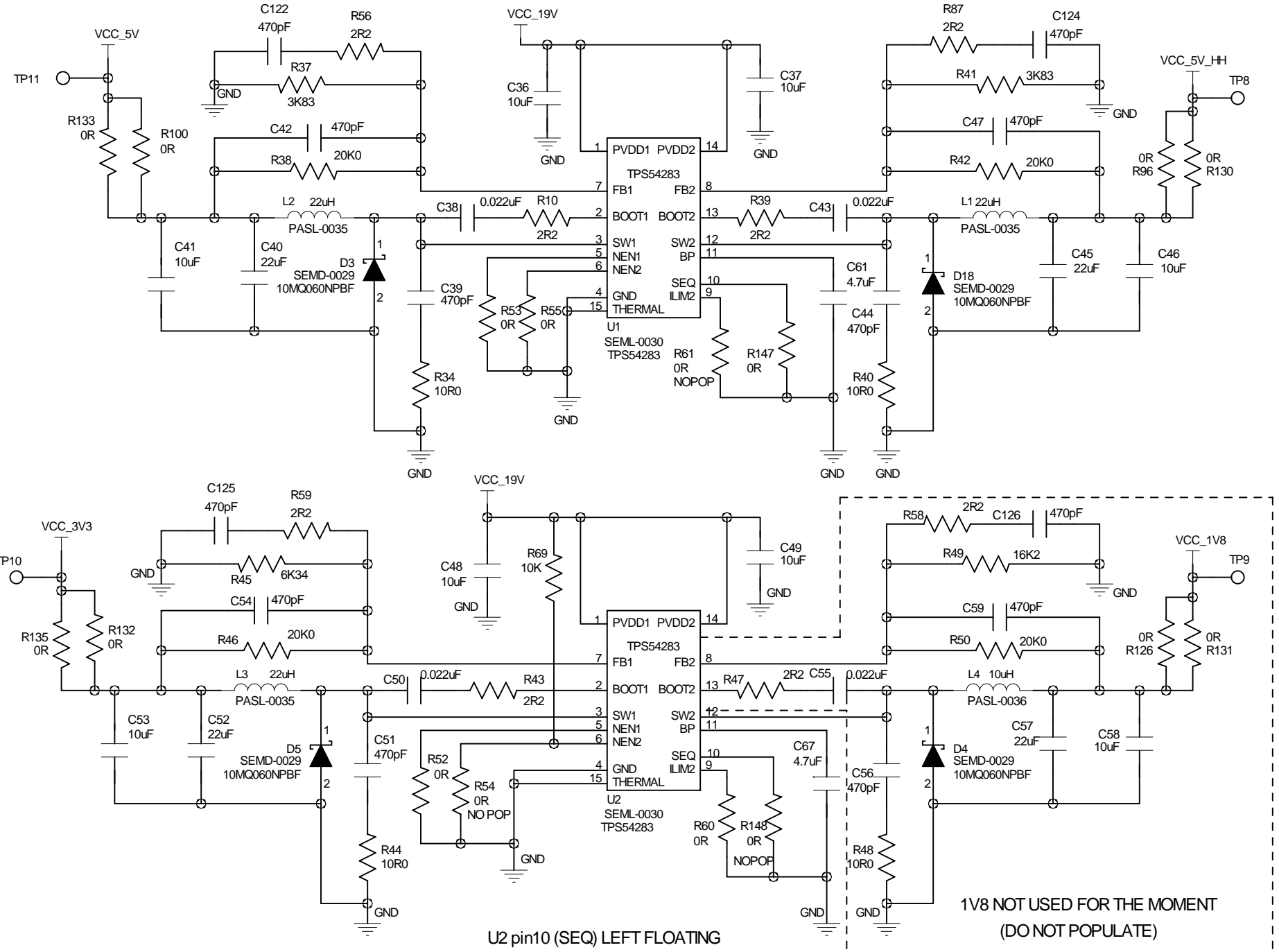
DC_INPUT
19V DC



19V to 12V CONVERTER
VOUT=12V @3A



REV	MODIFICATION	BY
2.0	Modify value of R41: correct for wire losses	
2.0	Do not populate 1V8 section	
3.0	U2 PIN10 Left floating	



LAYOUT NOTES:

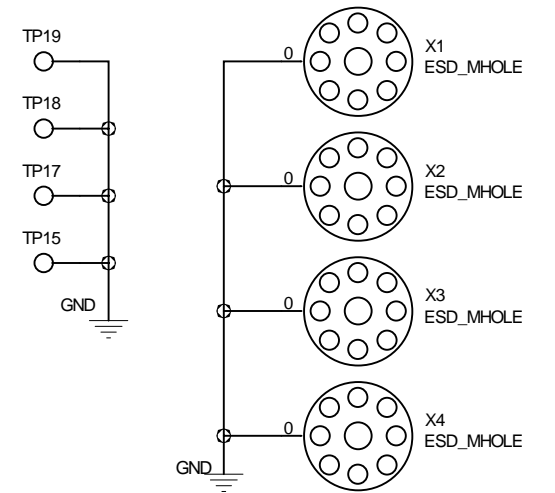
4 CORNERS MOUNTING HOLES:

EXTERNAL DIAMETER: 7.5 MM

INTERNAL DIMETER: 4.14 MM

ANNULAR RING NOT COVERED BY SOLDER MASK
ON BOTH SIDES OF BOARD FOR GROUNDING PURPOSE

GROUND TEST POINTS 4 CORNERS MOUNTING HOLES



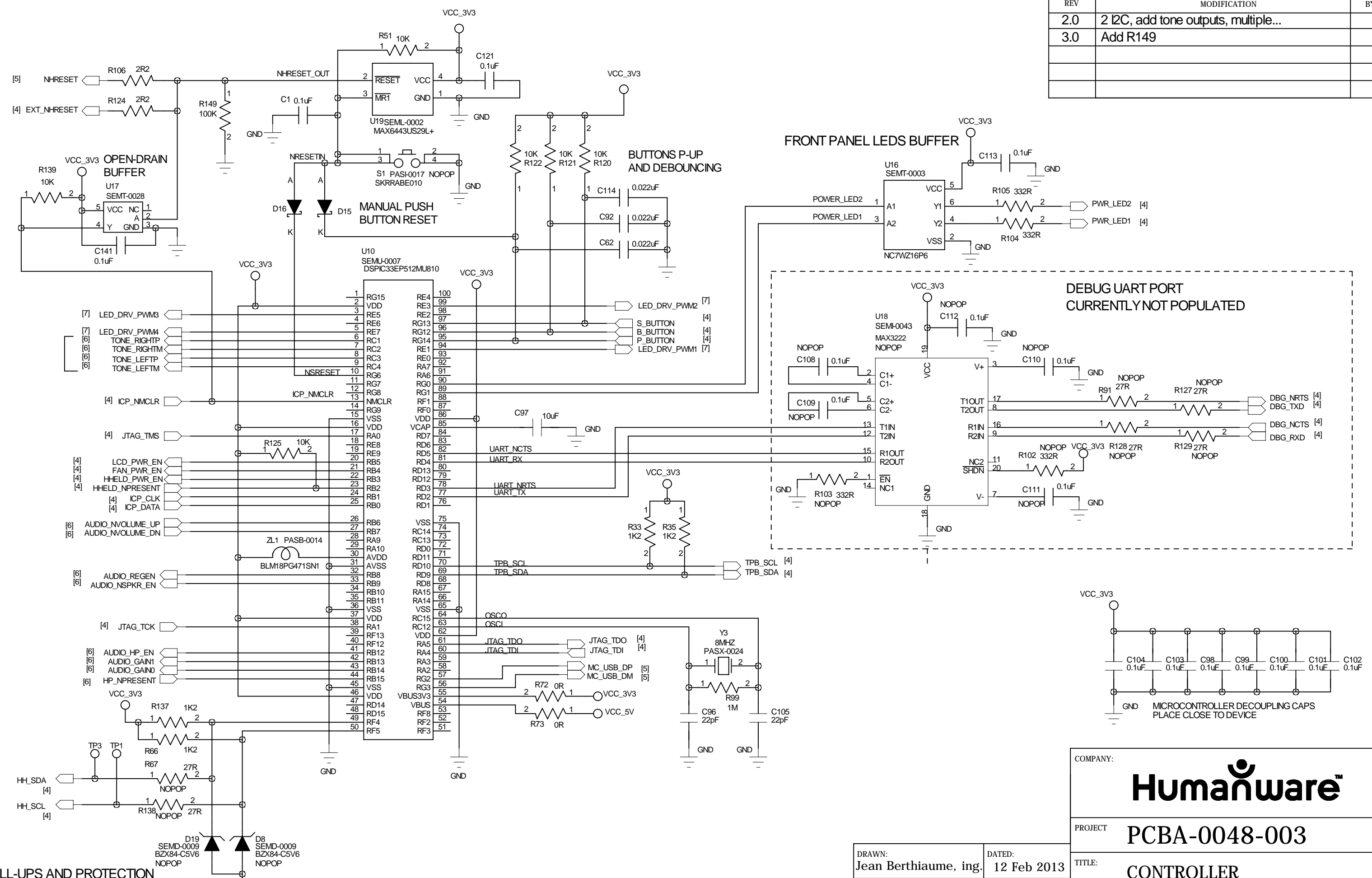
COMPANY:		Humanware™	
PROJECT		PCBA-0048-003	
TITLE:		POWER_SUPPLIES	
REV:		3.0	SHEET: 2 OF 7

DRAWN: Jean Berthiaume, ing.	DATED: 12 Feb 2013
CHECKED: HW team	DATED: <Checked Date>

1V8 NOT USED FOR THE MOMENT
(DO NOT POPULATE)

U2 pin10 (SEQ) LEFT FLOATING

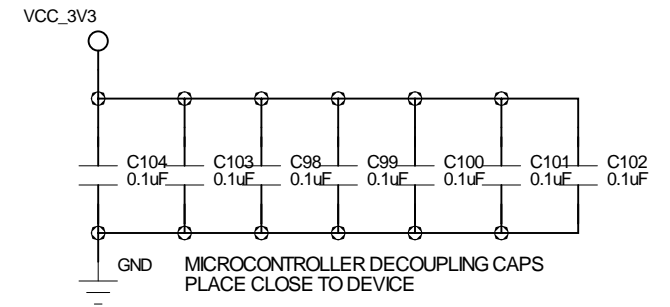
REV	MODIFICATION	BY
2.0	2 I2C, add tone outputs, multiple...	
3.0	Add R149	



I2C PULL-UPS AND PROTECTION
 I2C LINK TO HAND-HELD CURRENTLY NOT USED

FRONT PANEL LEDS BUFFER

DEBUG UART PORT
 CURRENTLY NOT POPULATED



DRAWN: Jean Berthiaume, ing.	DATED: 12 Feb 2013
CHECKED: HW team	DATED: <Checked Date>

COMPANY:

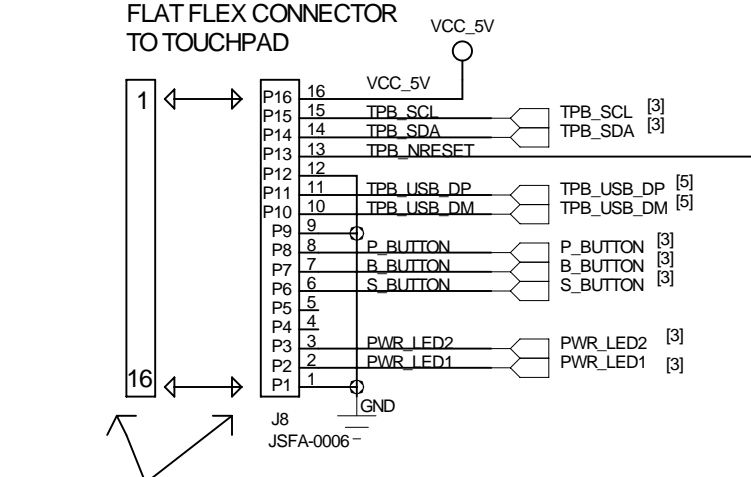
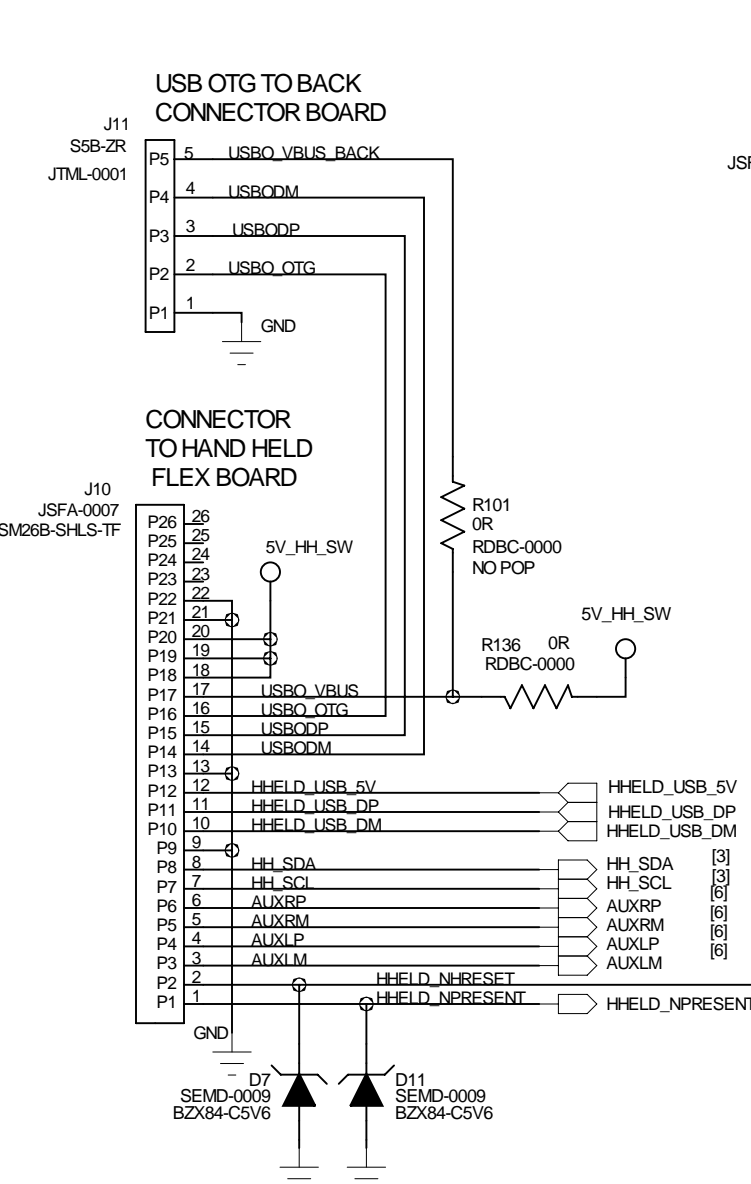
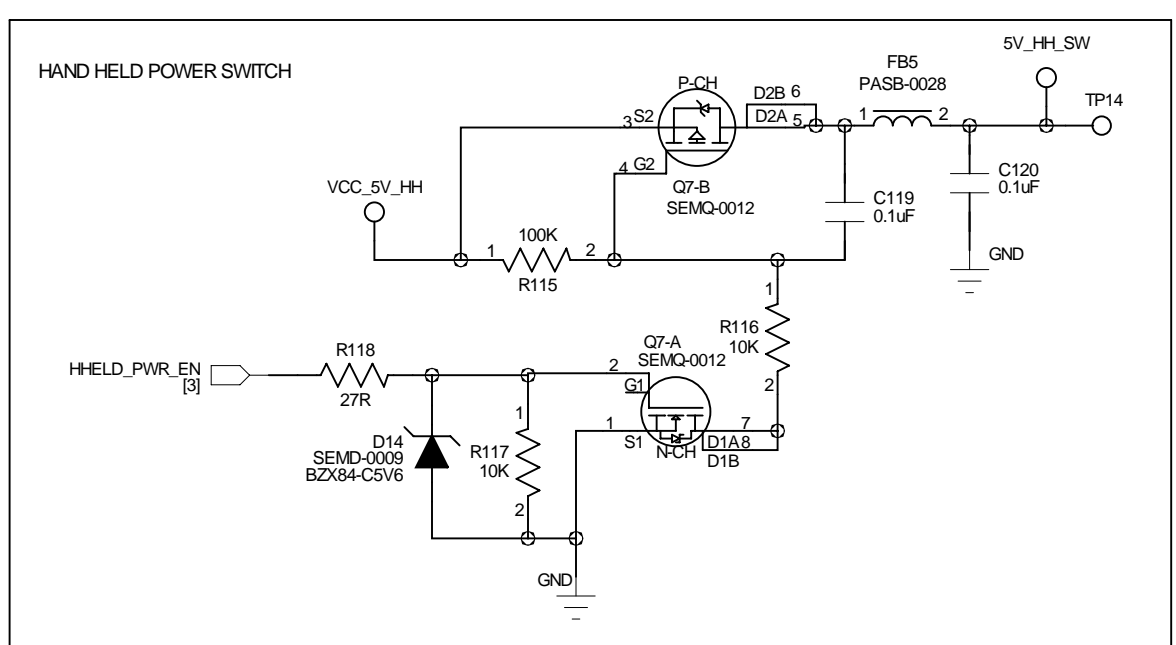
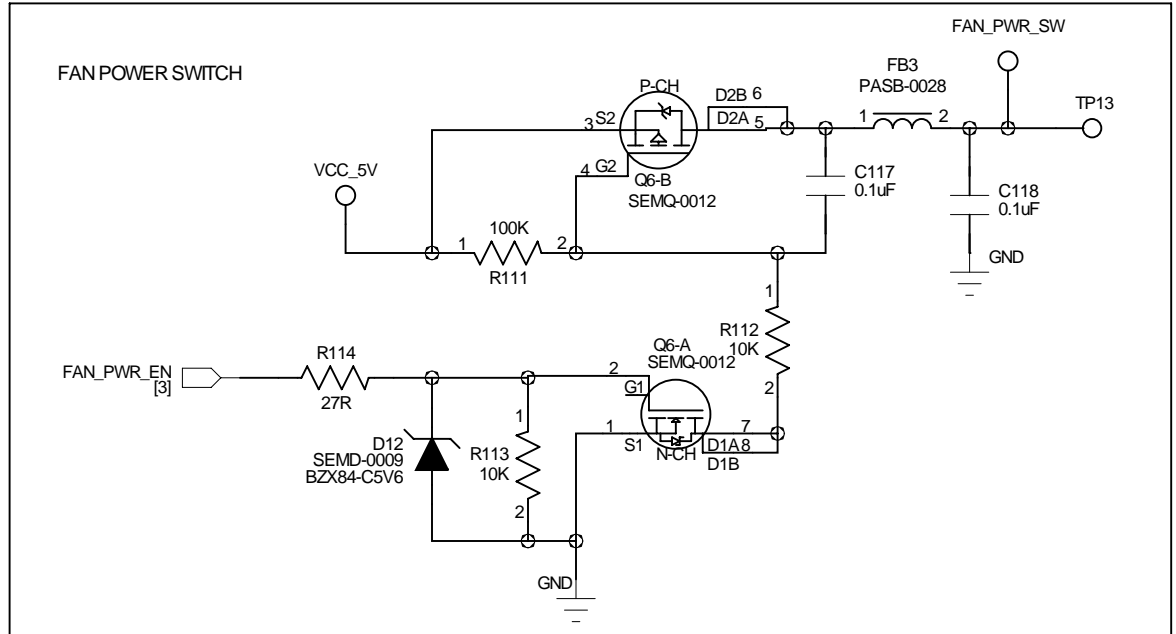
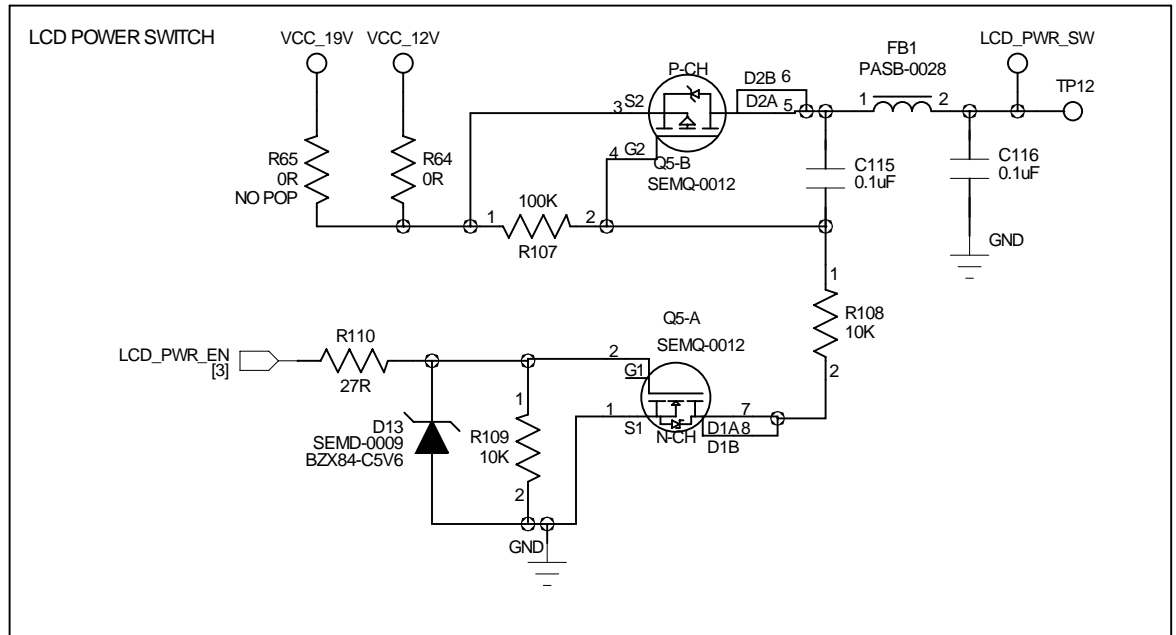
Humanware™

PROJECT: **PCBA-0048-003**

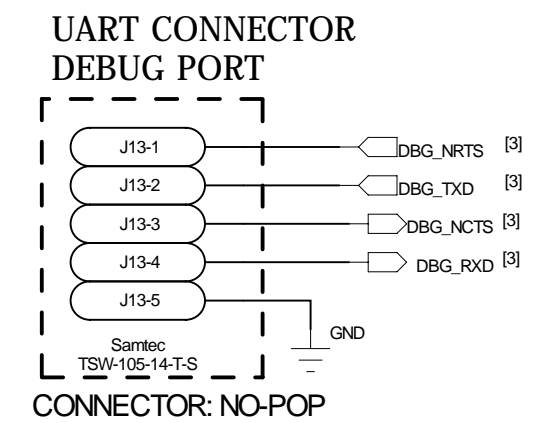
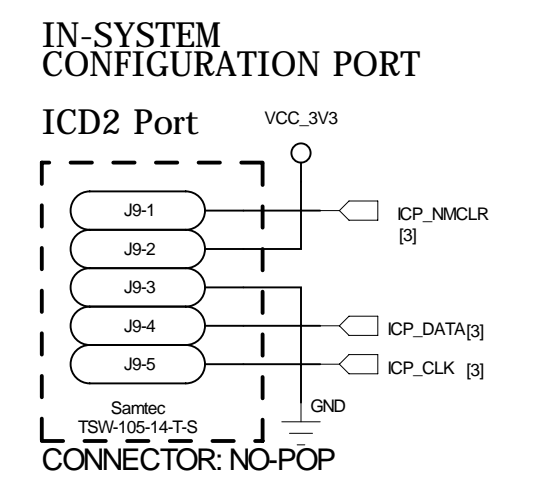
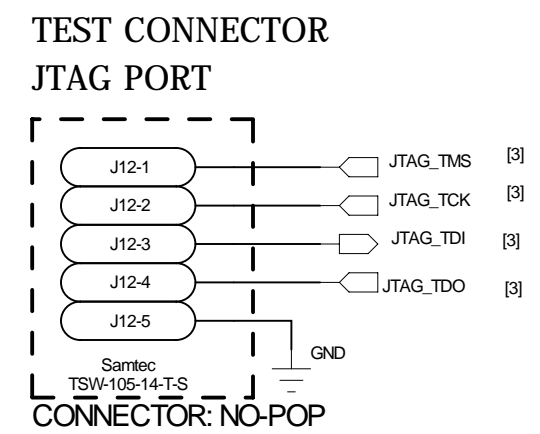
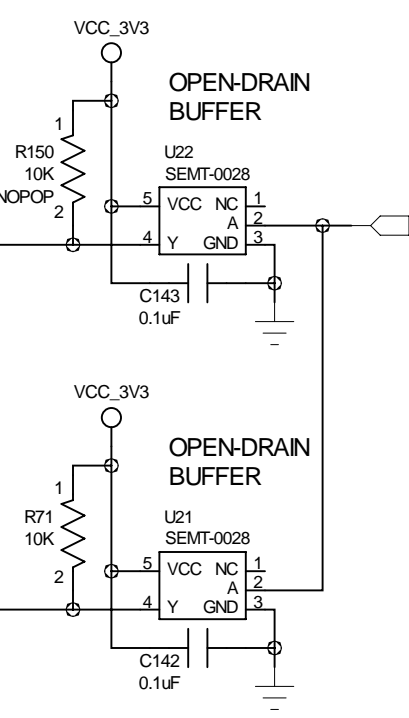
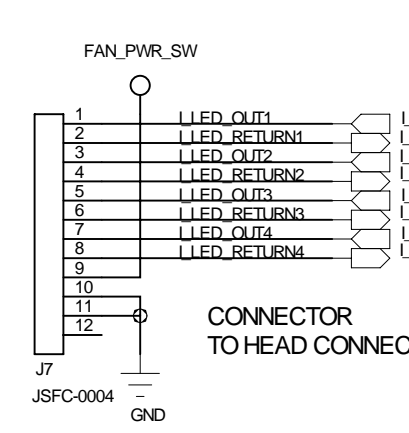
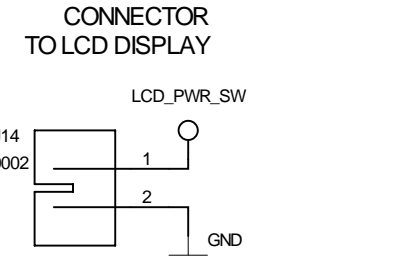
TITLE: **CONTROLLER**

REV: **3.0** SHEET: **3 OF 7**

REV	MODIFICATION	BY
2.0	Correct USB VBUS, fan is 5v, LCD is 12V	
2.0	Add touchpad auxiliary connector	
3.0	Add protection diode D7 + O-drain buffer U22	



WARNING:
2 CONNECTORS FACING EACH OTHER



COMPANY: **Humanware**

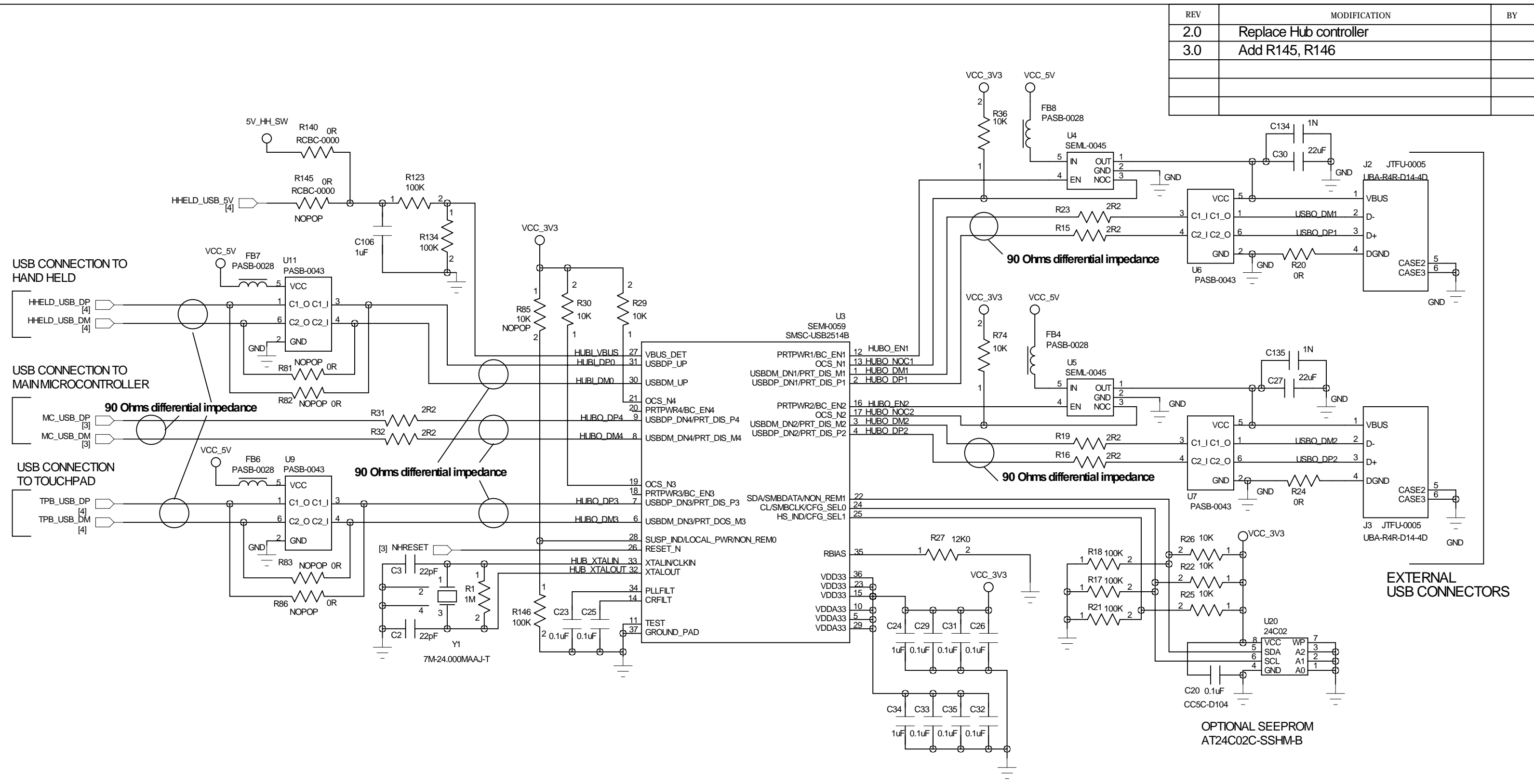
PROJECT: **PCBA-0048-003**

TITLE: **P_SWITCHES_AND_CONNECTORS**

REV: **3.0** SHEET: **4 OF 7**

DRAWN: Jean Berthiaume, ing.	DATED: 12 Feb 2013
CHECKED: HW team	DATED: <Checked Date>

REV	MODIFICATION	BY
2.0	Replace Hub controller	
3.0	Add R145, R146	



EXTERNAL USB CONNECTORS

OPTIONAL SEEPROM
AT24C02C-SSHM-B

COMPANY: **Humanware**

PROJECT: **PCBA-0048-003**

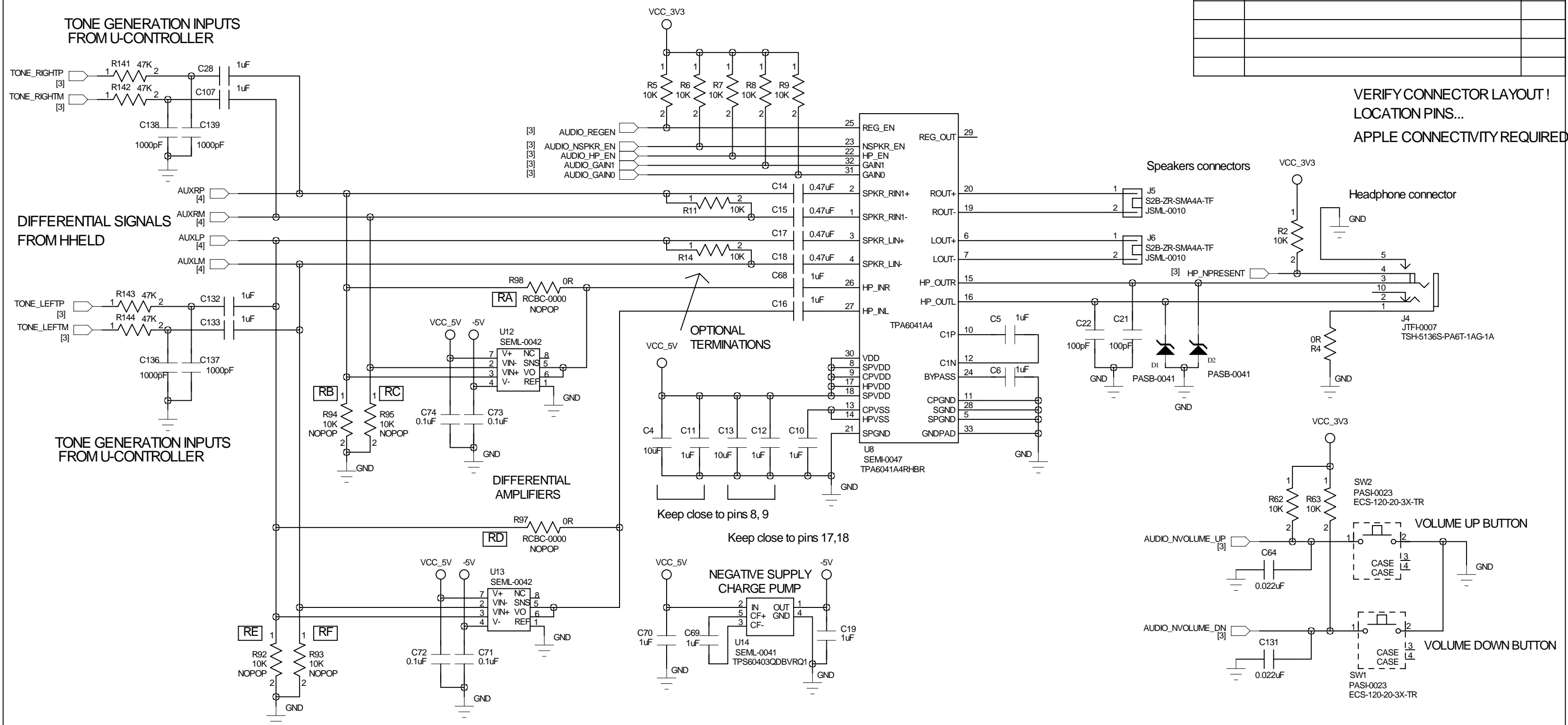
TITLE: **USB_HUB2**

REV: **3.0**

SHEET: 5 OF 9

DRAWN: Jean Berthiaume, ing.	DATED: 12 Feb 2013
CHECKED: HW team	DATED: <Checked Date>

REV	MODIFICATION	BY
2.0	Add tone inputs	



VERIFY CONNECTOR LAYOUT!
LOCATION PINS...
APPLE CONNECTIVITY REQUIRED?!

DIFFERENTIAL SIGNALS FROM HHLED

TONE GENERATION INPUTS FROM U-CONTROLLER

OPTIONAL TERMINATIONS

DIFFERENTIAL AMPLIFIERS

NEGATIVE SUPPLY CHARGE PUMP

Speakers connectors

Headphone connector

VOLUME UP BUTTON

VOLUME DOWN BUTTON

RA, RD RESISTORS ARE BYPASS
RB,RC, RE, RF ARE DUMMYLOADS

RA-RF RESISTORS ARE USED TO REMOVE DIFF AMPLIFIERS

Keep close to pins 8, 9

Keep close to pins 17,18

COMPANY:



PROJECT **PCBA-0048-003**

TITLE: **AUDIO**

DRAWN:
Jean Berthiaume, ing.

DATED:
12 Feb 2013

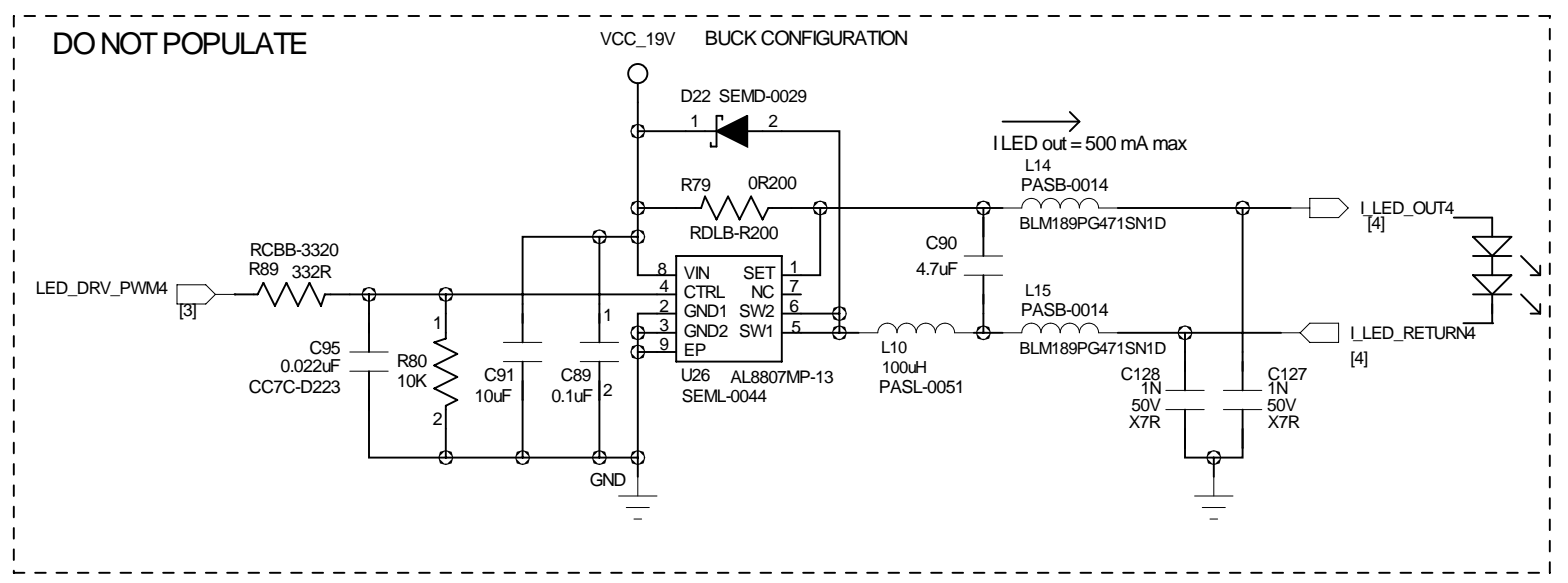
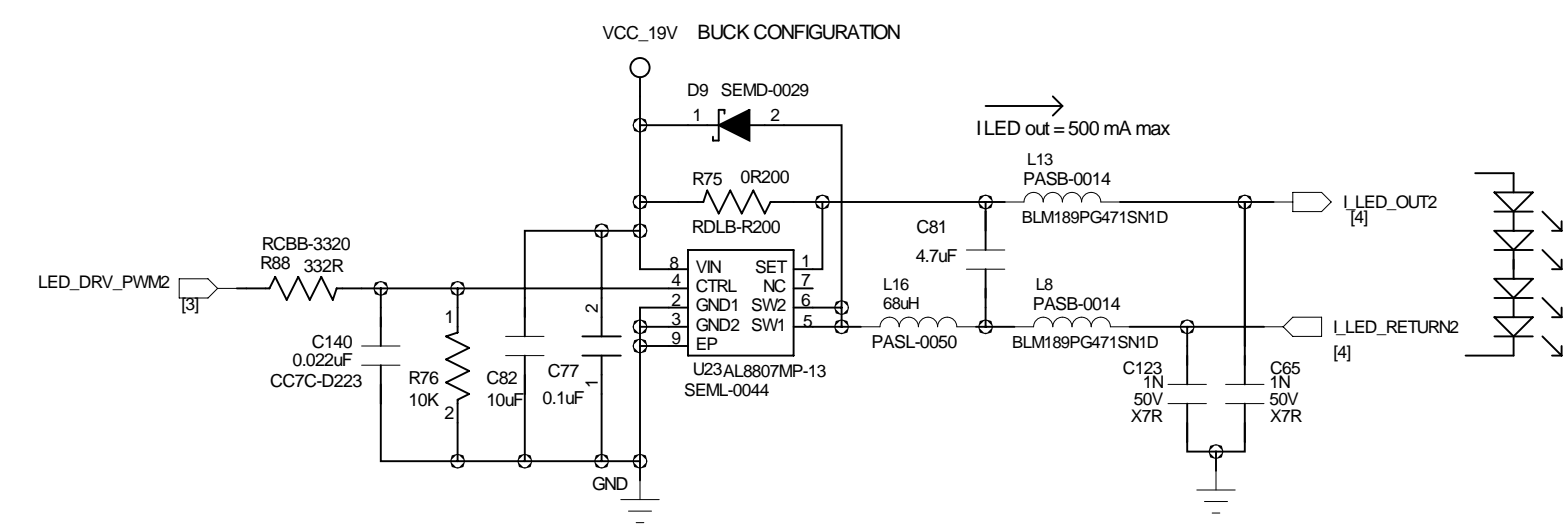
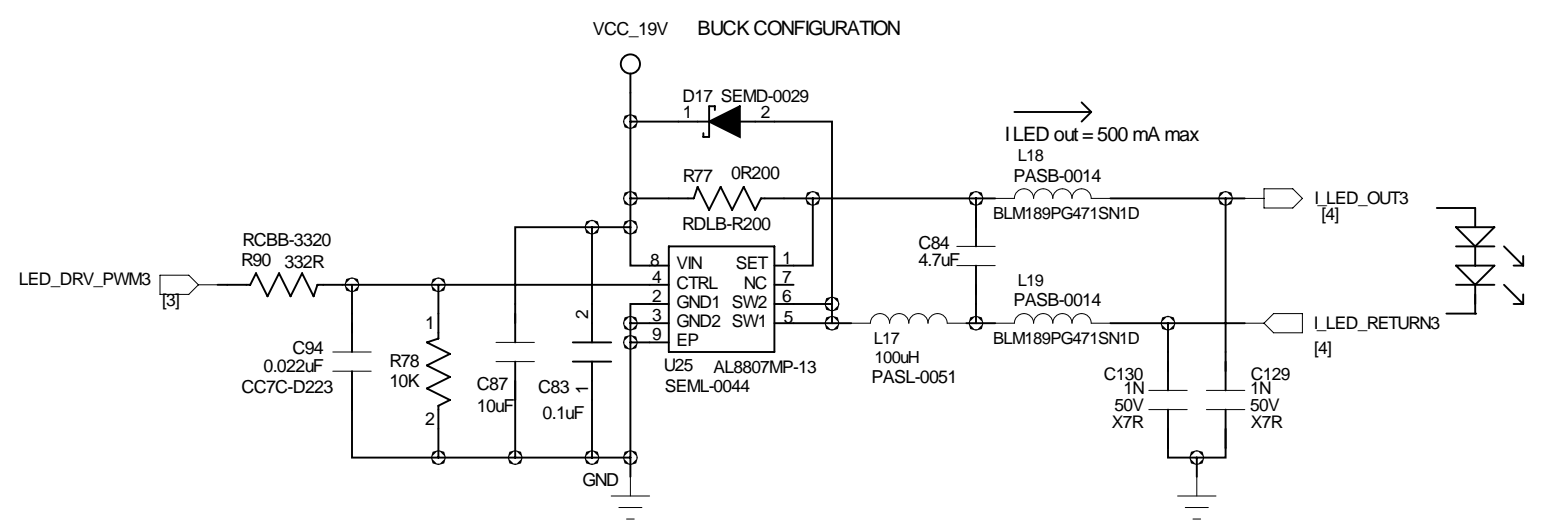
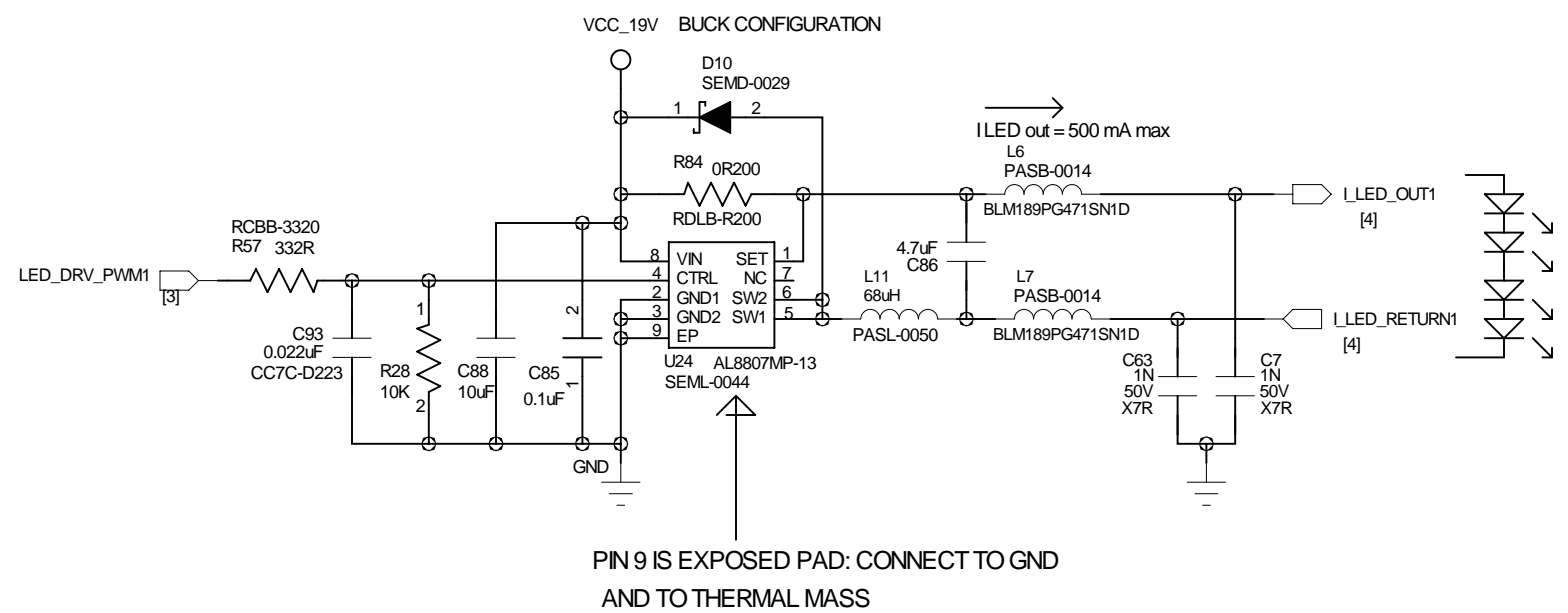
CHECKED:
HW team

DATED:
<Checked Date>

REV: **3.0**

SHEET: 6 OF 7

REV	MODIFICATION	BY
2.0	Replace pull-up by pull downs	



COMPANY: **Humanware™**

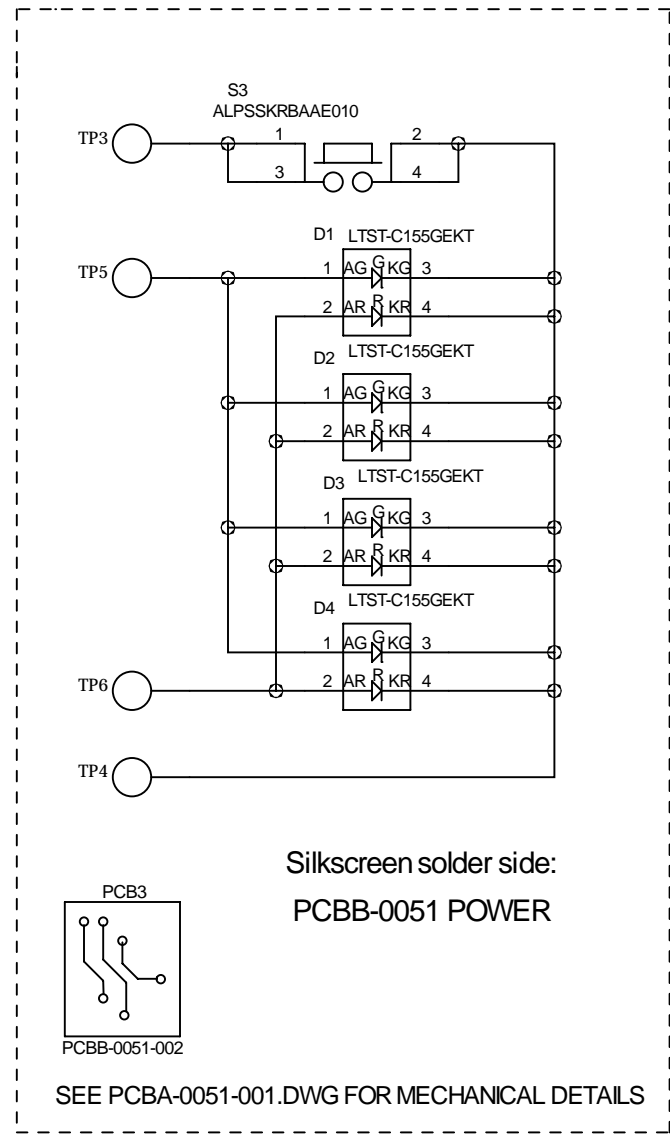
PROJECT: **PCBA-0048-003**

TITLE: **LED_DRIVERS**

REV: **3.0** SHEET: **7 OF 7**

DRAWN: Jean Berthiaume, ing.	DATED: 12 Feb 2013
CHECKED: HW team	DATED: <Checked Date>

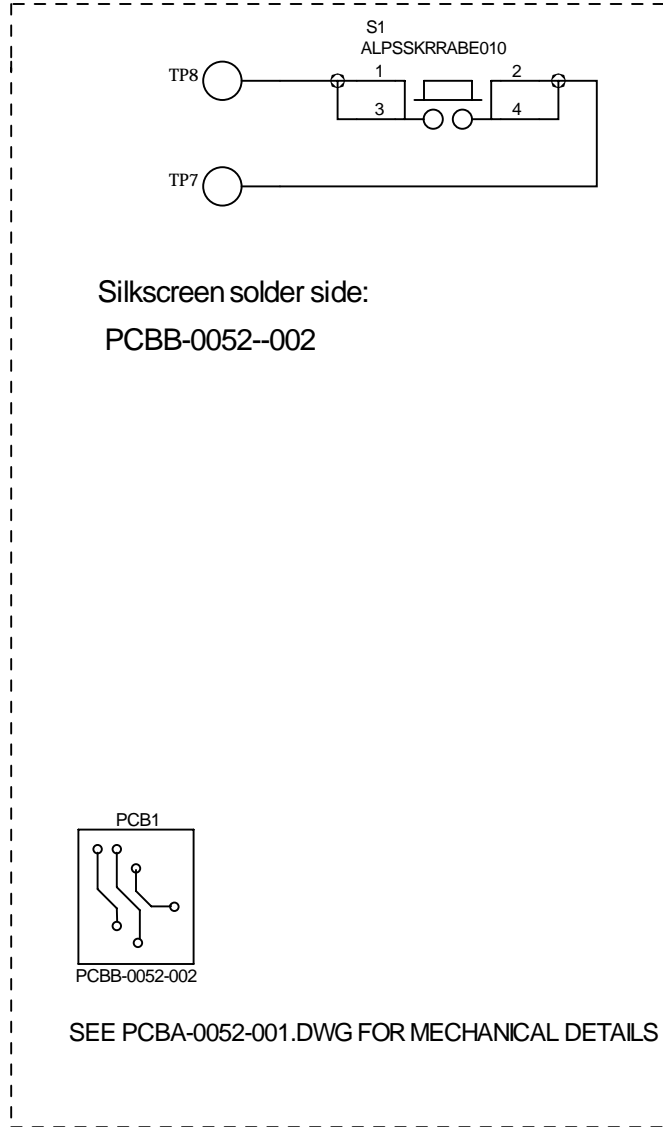
REV	MODIFICATION	BY
0.1	Initial Release	JB



COMPANY:		Humanware™	
PROJECT		PCBA-0051-002	
TITLE:		IRIS_BASE_TOUCHPAD_BUTTONS	
DRAWN:	JB	DATED:	2012-05-29
CHECKED:	<Checked By>	DATED:	<Checked Date>
REV:		0.0.1	SHEET: 1 OF 1

DRAWN:	JB	DATED:	2012-05-29
CHECKED:	<Checked By>	DATED:	<Checked Date>

REV	MODIFICATION	BY
0.1	Initial Release	JB



COMPANY:

PROJECT: **PCBA-0052-002**

TITLE: **IRIS_BASE_TOUCHPAD_BUTTONS**

REV: **0.0.1** SHEET: 1 OF 1

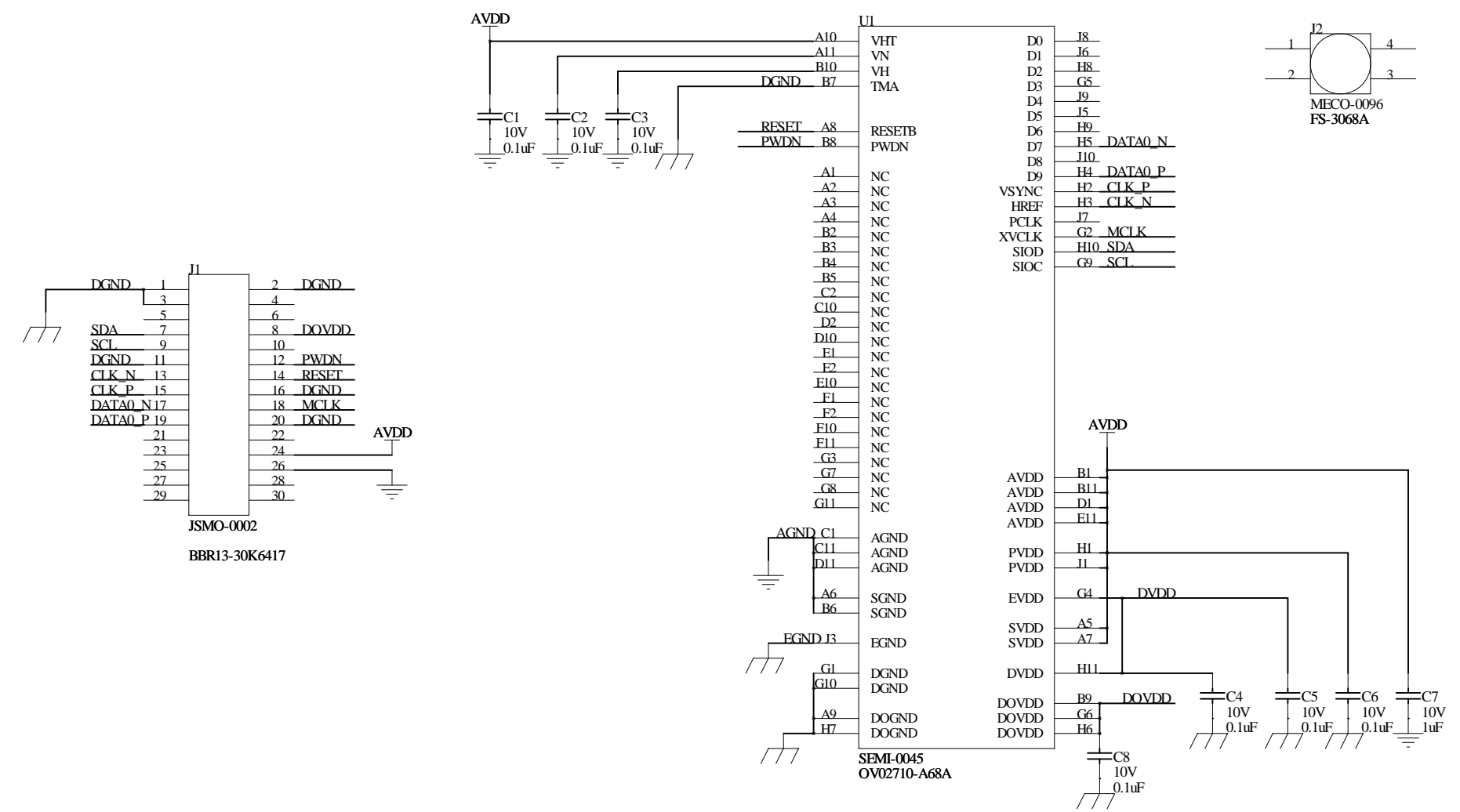
DRAWN:	JB	DATED:	2012-05-29
CHECKED:	<Checked By>	DATED:	<Checked Date>

A

B

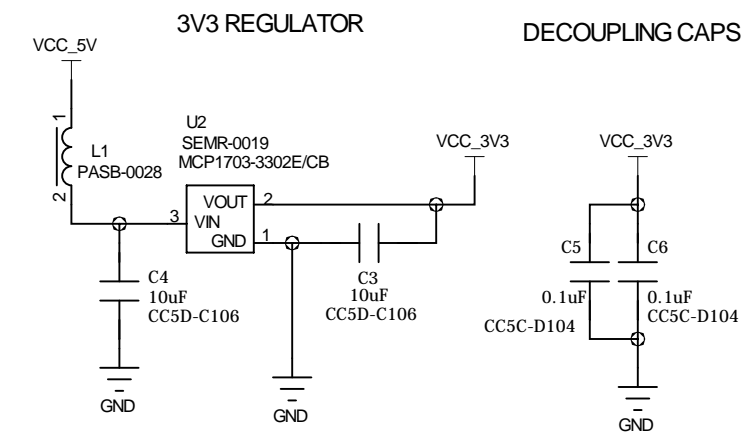
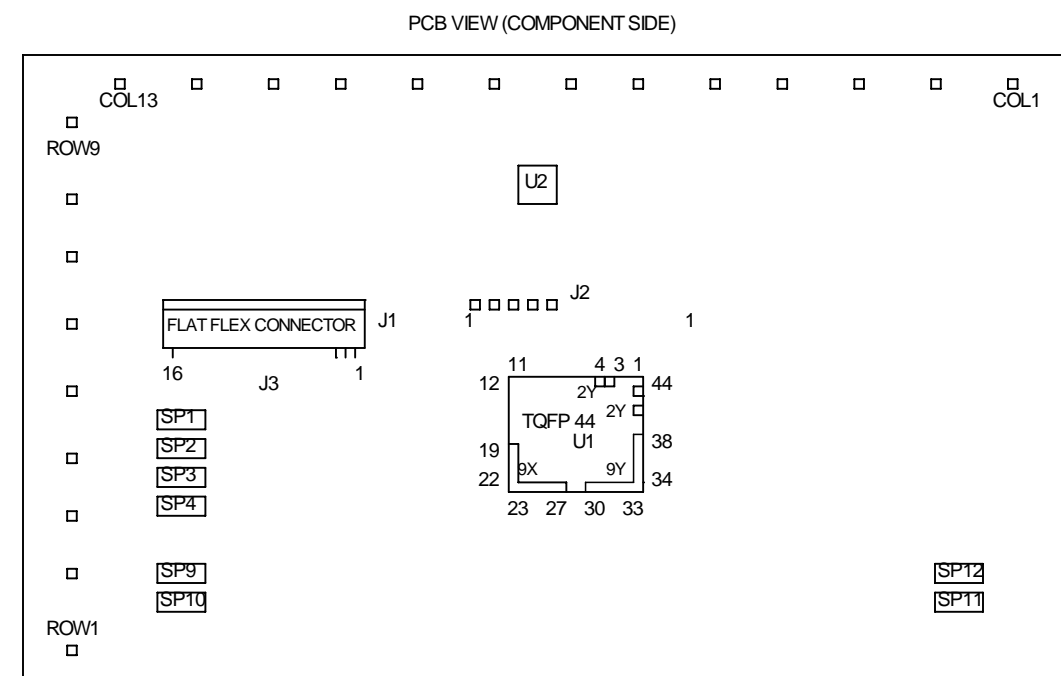
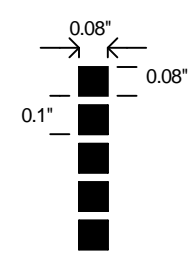
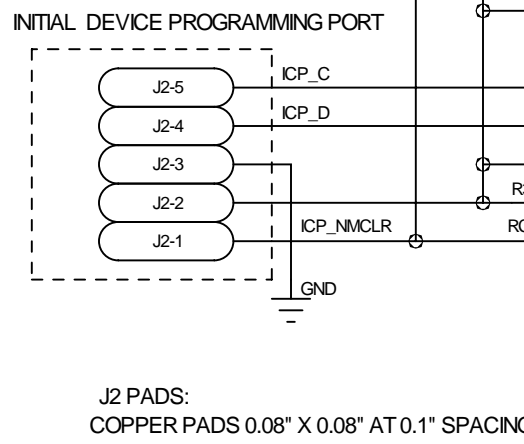
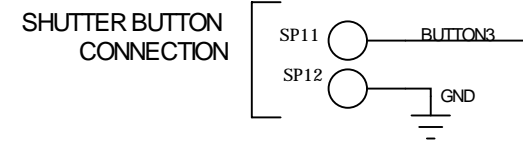
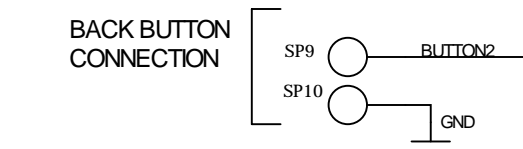
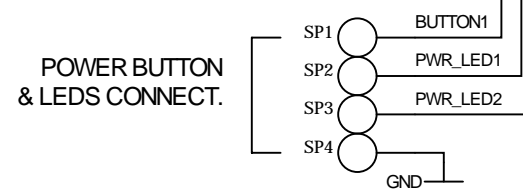
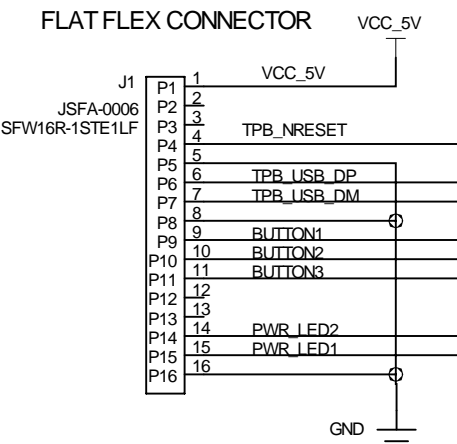
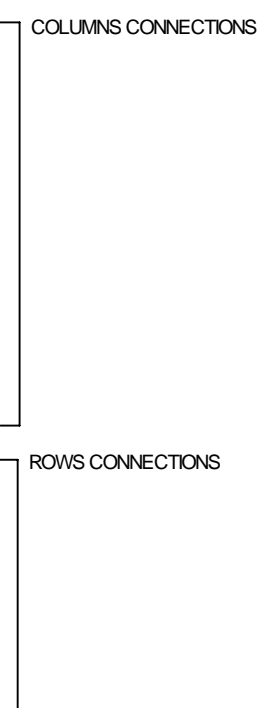
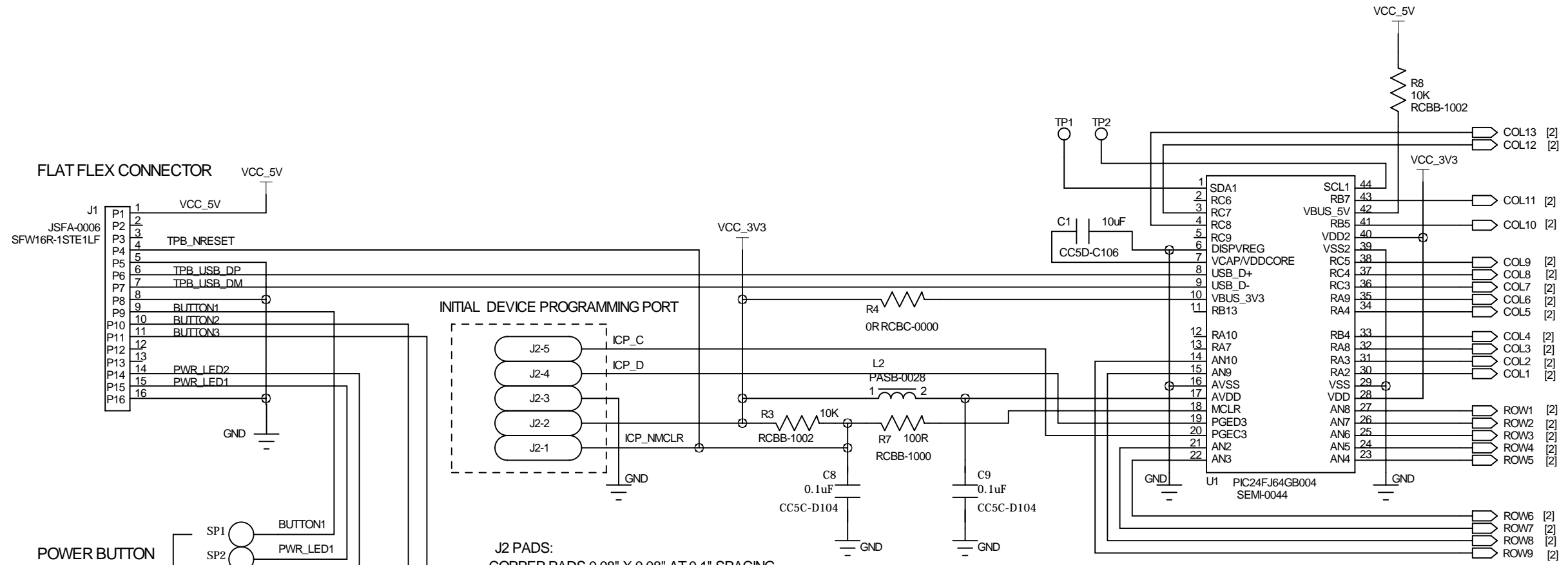
C

D



Project: PCBA-0053-1.0.1		Rev: 1.0.1
Date: 2012-08-06		Page: 1 of 1
© COPYRIGHT 2012 BRIOCONCEPT CONSULTING INC. 4593 Louis-B. Mayer, Laval, Canada (QC), H7P 6G5 450-681-2779		

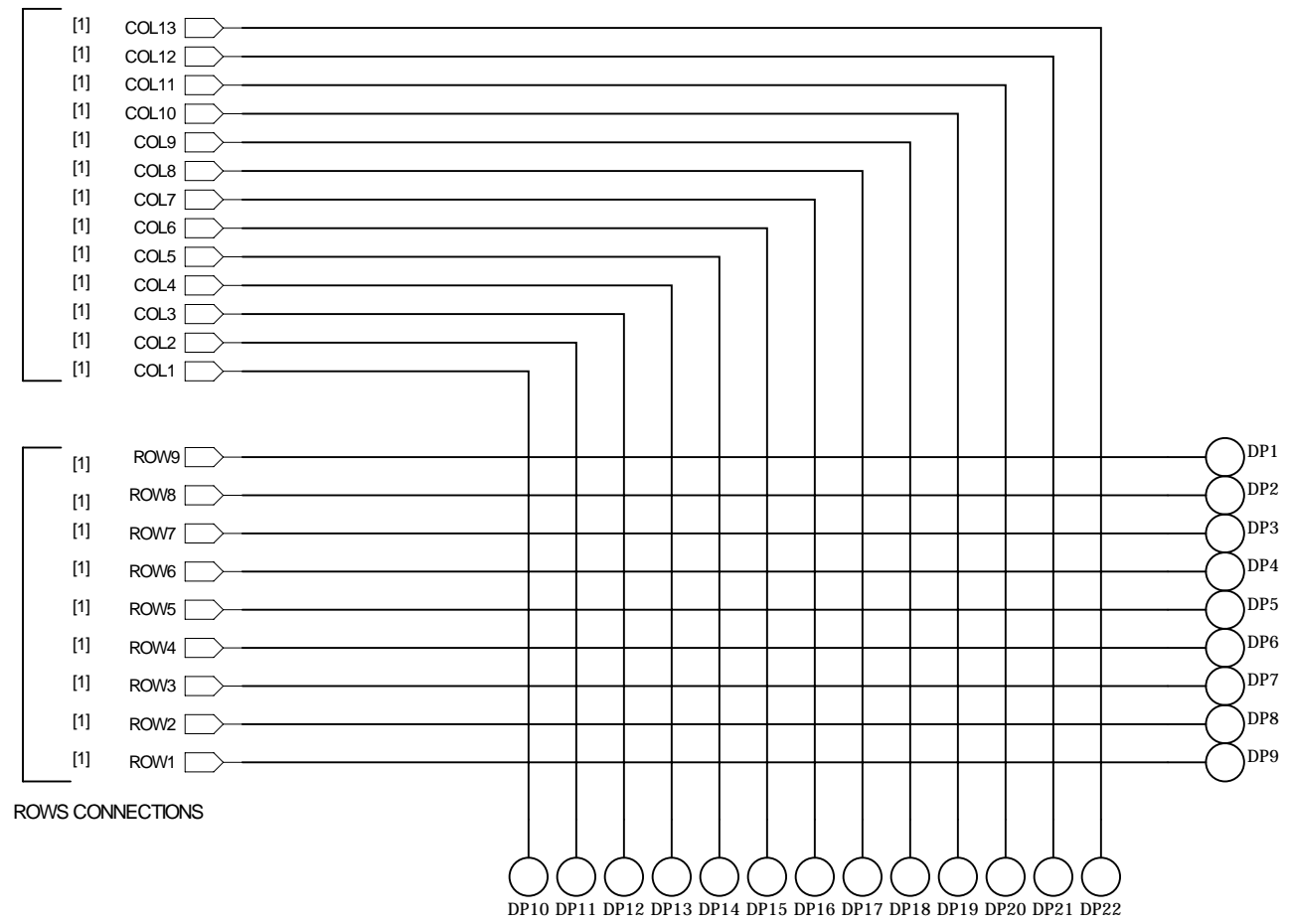
REV	MODIFICATION	BY
0.1	Initial Release	JB
2.1.0	Remove I2C, add ferrites	JB



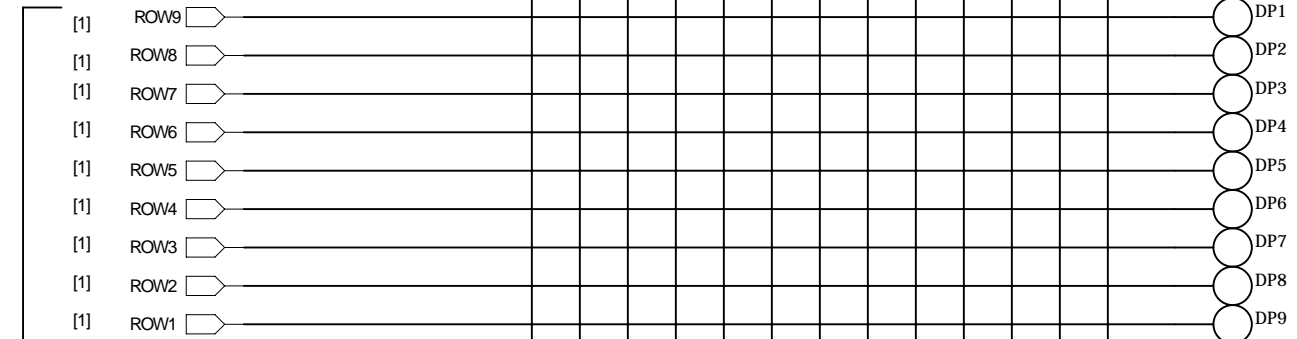
DRAWN: Jean Berthiaume, ING.	DATED: 2013-06-13
CHECKED: <Checked By>	DATED: 2013-06-17

COMPANY: Humanware™	
PROJECT PCBA-0054-2.1.0	
TITLE: IRIS_BASE_TOUCHPAD_CTL	
REV: 2.1.0	SHEET: 1 OF 2

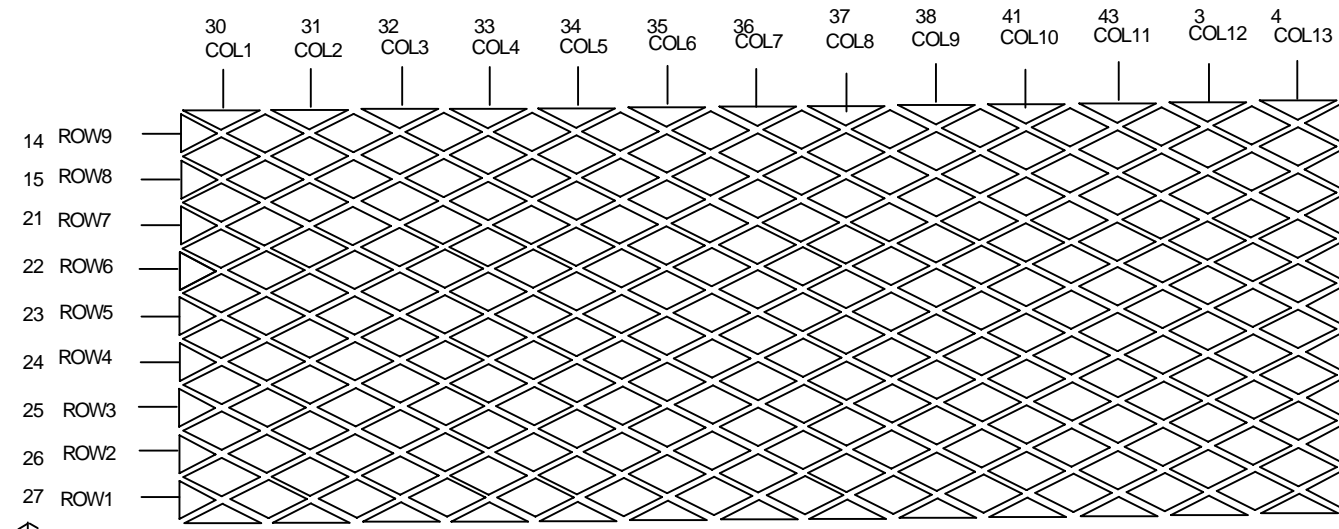
COLUMNS CONNECTIONS



ROWS CONNECTIONS

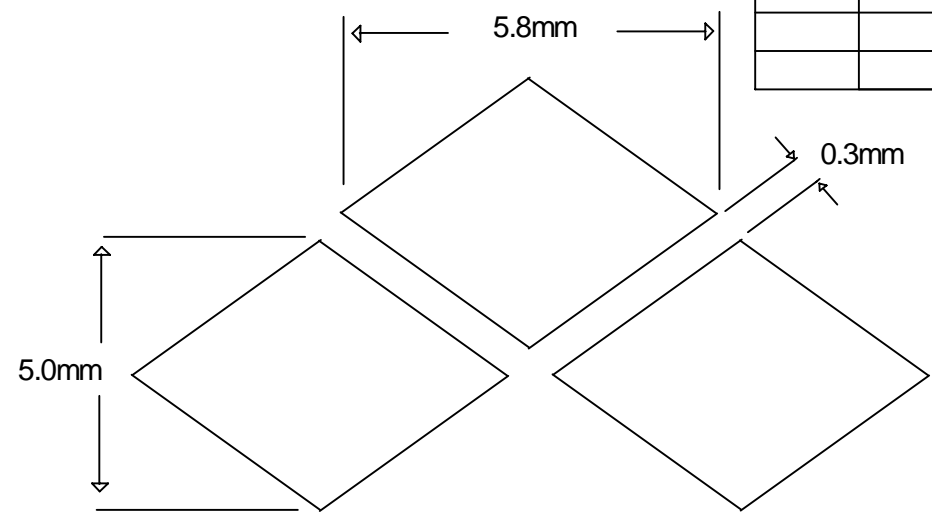


SENSOR AREA VIEW



CONTROLLER PIN
SENSOR ROW ASSIGNMENT

Diamond sensor pattern detail



REV	MODIFICATION	BY
	Remove ground from layer 2	
	USED 50% HATCHED GROUND ON LAYERS 3,4	

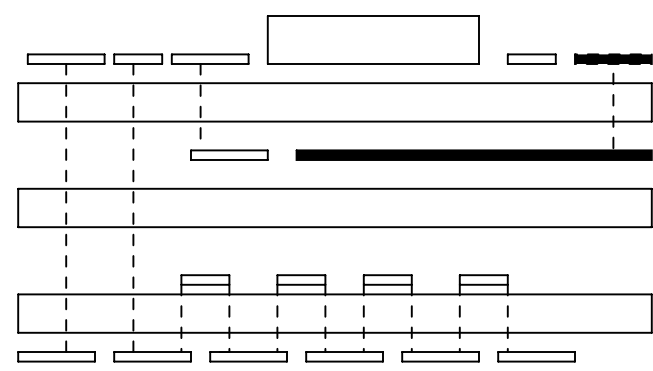
4 LAYERS STACKUP

LAYER4: COMPONENTS, POWER TRACES & 50% HATCHED GROUND FILL
BLIND VIAS TO LAYER 1

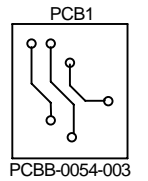
LAYER3: MINIMAL TRACES & GND FILL
BLIND VIAS TO LAYER 4
GND:50% HATCHED GROUND PLANE

LAYER2: ROW BRIDGES ONLY
BLIND VIAS TO LAYER1

LAYER1: SENSOR
BLIND VIAS TO LAYER 2
THROUGH VIAS TO LAYER 4 (ROW & COL ONLY!)



CONTROLLER PIN
SENSOR COLUMN ASSIGNMENT



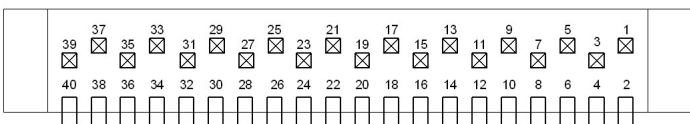
COMPANY:		Humanware™	
PROJECT		PCBA-0054-2.1.0	
TITLE:		IRIS_BASE_TOUCHPAD_SENSOR	
REV:	2.1.0	SHEET: 2 OF 2	

Jean	DRAWN: Berthiaume, ING.	DATED: 2013-06-13
	CHECKED: <Checked By>	DATED: 2013-06-17

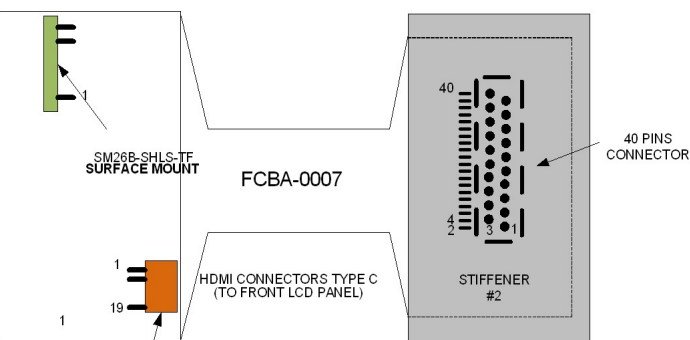
HDMI type C connector (HDMI REV1.3)			
PIN	signal	PIN	signal
1	TMDS DATA2 SHIELD	2	TMDS DATA2+
3	TMDS DATA2-	4	TMDS DATA1 SHIELD
5	TMDS DATA1+	6	TMDS DATA1-
7	TMDS DATA0 SHIELD	8	TMDS DATA0+
9	TMDS DATA0-	10	TMDS CLOCK SHIELD
11	TMDS CLOCK+	12	TMDS CLOCK-
13	DDC/CEC GROUND	14	CEC
15	SCL	16	SDA
17	RESERVED	18	+5v POWER
19	HOT PLUG DETECT	Shell	GROUND PLANE

(TE connectivity 2129261-1-1)

Handheld connector pin assignment
(Back view)

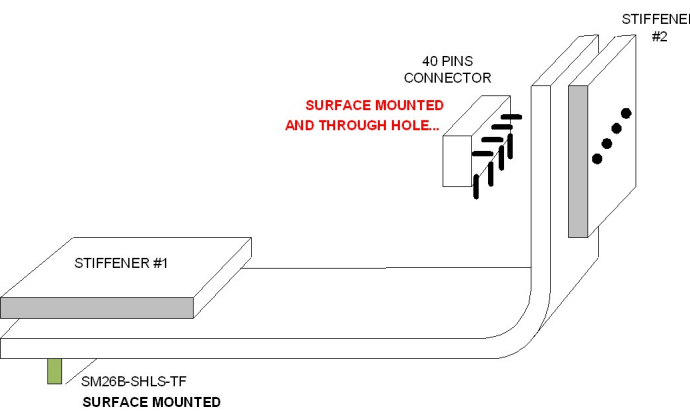


T/H	Pin #	Signal name	Description	Signal group	SMT	Pin #	Signal name	Description	Signal group
	1	HPD	HOT PLUG DETECT	HDMI Type C 13		2	SHCL GND	SHIELD GROUND	
	3	HPD	5V POWER			4	HTC-	TMDS CLOCK-	
	5	HTDA	DDC SCL			6	HTC+	TMDS CLOCK+	
	7	HTCL	DDC SCL			8	HTCS	CLOCK SHIELD	
	9	HTEC	CEC (USAGE 7)			10	HTD0	TMDS DATA0-	
	11	HTD1M	CEC (USAGE 7)			12	HTD0+	TMDS DATA0+	
	13	HTD2M	RESET FROM BASE			14	HTD0-	TMDS DATA0 SHIELD	
	15	AUXL-		AUDIO		16	HTD1-	TMDS DATA1-	
	17	AUXL+		AUDIO		18	HTD1+	TMDS DATA1+	
	19	AUXR-		AUDIO		20	HTD2-	TMDS DATA2 SHIELD	
	21	AUXR+		AUDIO		22	HTD2+	TMDS DATA2+	
	23	GND	Ground	POWER		24	HTD2-	TMDS DATA2-	
	25	SDC		IC		26	HTD2+	TMDS DATA2 SHIELD	HDMI Type C 13
	27	SDA		IC		28	USBO GND	USC RING GROUND	USB OTG
	29	GND	Ground	POWER		30	USBO D-	USB OTG DATA-	
	31	USBO OTG	USBO OTG	USB OTG		32	USBO D+	USB OTG DATA+	
	33	USBO 5V	USBO OTG POWER (VBUS)	USB		34	USBO D0ND	USB GROUND	
	35	5V	5V supply	POWER		36	USB D-	USB DATA-	
	37	5V	5V supply	POWER		38	USB D+	USB DATA+	
	39	5V	5V supply	POWER		40	USB 5V	USB POWER (VBUS)	

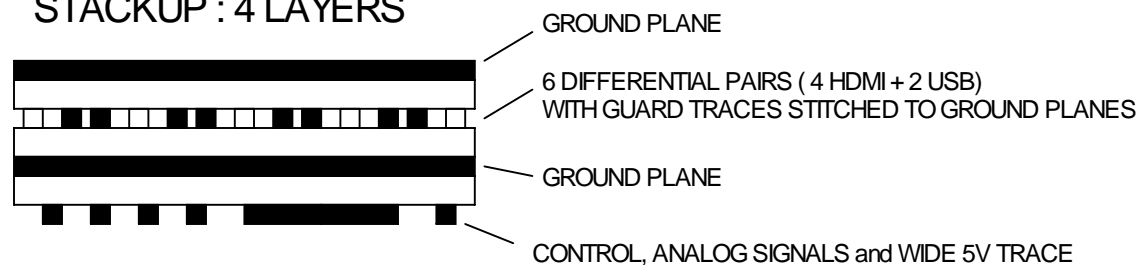


HDMI CONNECTOR TYPE C
SURFACE MOUNTED
WE685119136923

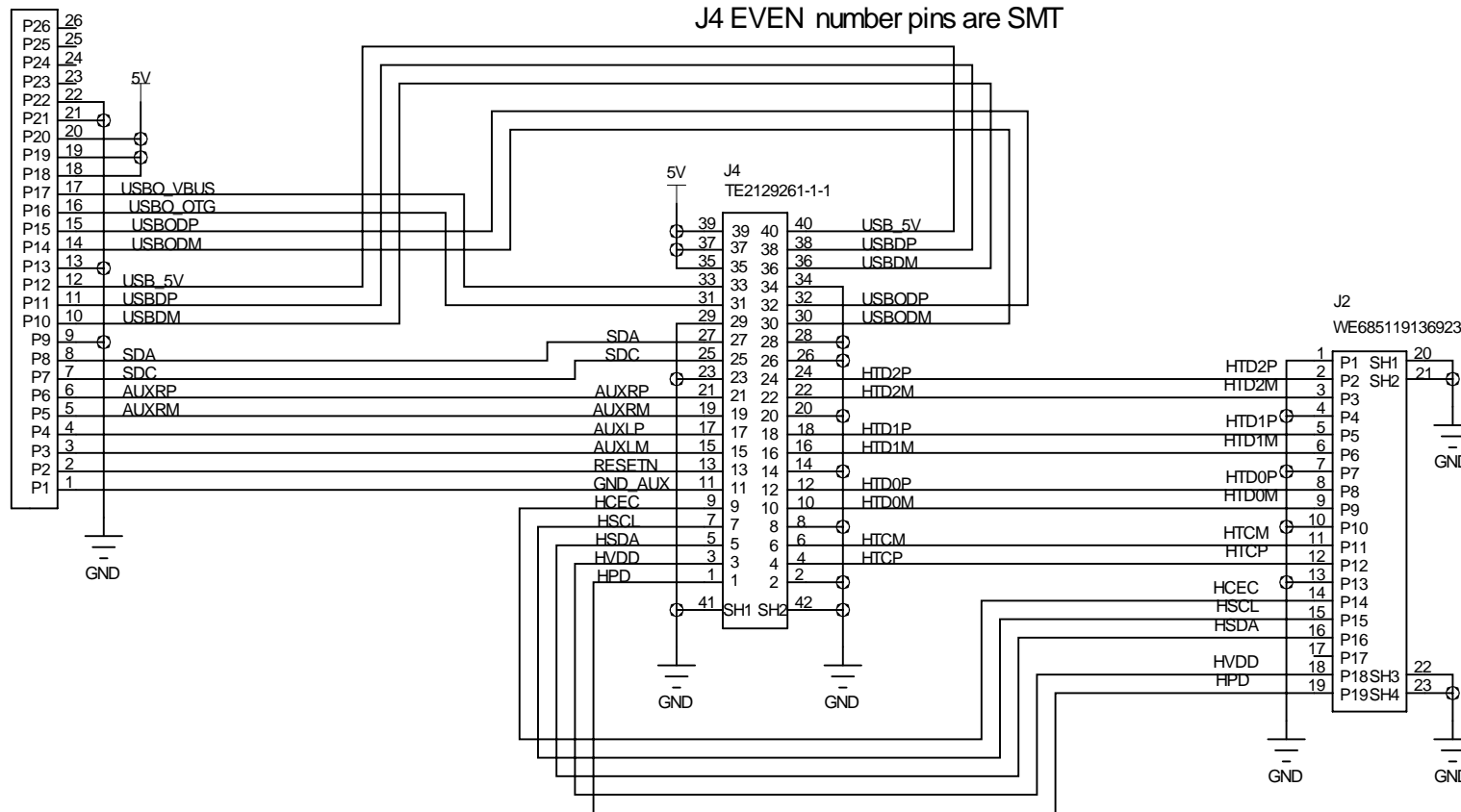
SIDE VIEW



STACKUP : 4 LAYERS



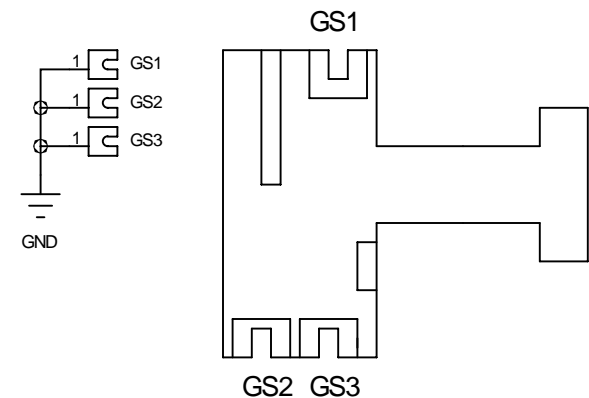
J3
SM26B-SHLS-TF



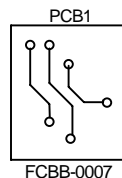
J4 ODD number pins are through hole
J4 EVEN number pins are SMT

REV	MODIFICATION	BY
0.1	Initial Release	JB
0.2	Change scl & sda pin assignment	JB
0.3	REMOVE CONNECTOR, REVISE STACKUP	JB
0.4	Change stackup, add conn. shield pins	JB
0.5	Change stackup, add guard traces, stitching	JB

3 x GROUNDING AREA AROUND MOUNTING SLOTS
ON CONNECTOR SIDE OF THE PCB
SIZE OF EACH AREA : 7mm x 7mm, gold flash



HDMI AND USB DIFFERENTIAL PAIRS IMPEDANCE: 100 OHMS
GUARD TRACES ON EACH SIDE OF EACH PAIR
GUARD TRACES STITCHED WITH VIAS TO BOTH GROUND PLANE
ONE STITCHING VIA EVERY 5MM
5V NET: TRACE AS WIDE AS POSSIBLE



FCBB-0007

COMPANY:		Humanware™	
PROJECT		FCBA-0007-005	
TITLE:		IRIS_BASE_HANDHELD_CONNECTION	
REV:		5.0	SHEET: 1 OF 1

DRAWN: Jean Berthiaume, ing.	DATED: 2013-12-13
CHECKED: <Checked By>	DATED: <Checked Date>