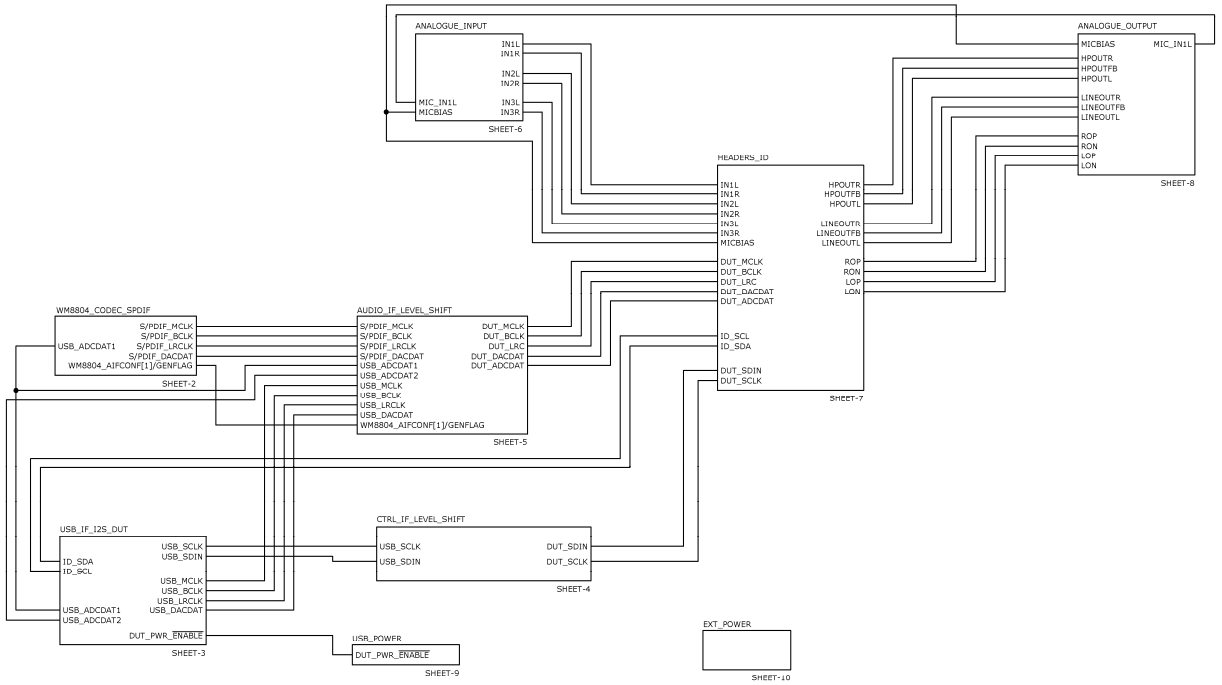
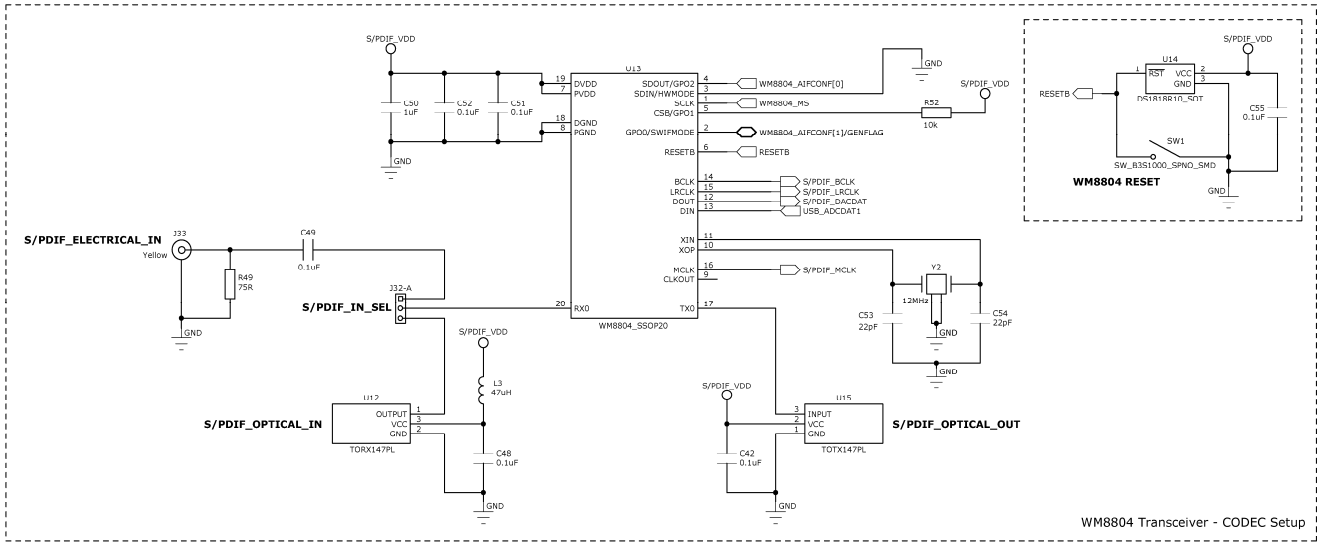
DOC TYPE:	SCHEMATIC AND LAYOUT
BOARD REFERENCE:	6201-EV1-REV3
BOARD TYPE:	Customer Main
WOLFSON DEVICE(S):	WM8903/WM8904/WM8910/WM8912
DATE:	April 2010
DOC REVISION:	Rev 1.0

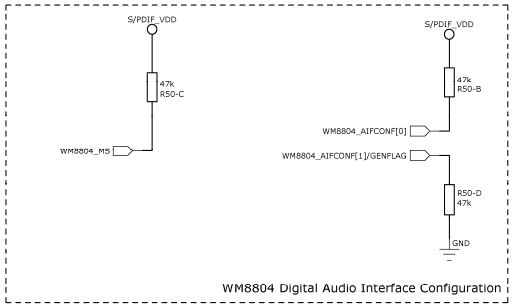
SCHEMATIC

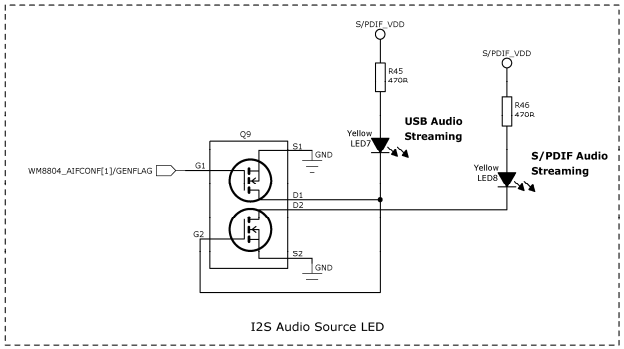
Sheet 1: Top Level

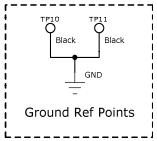


Sheet 2: S/PDIF Codec

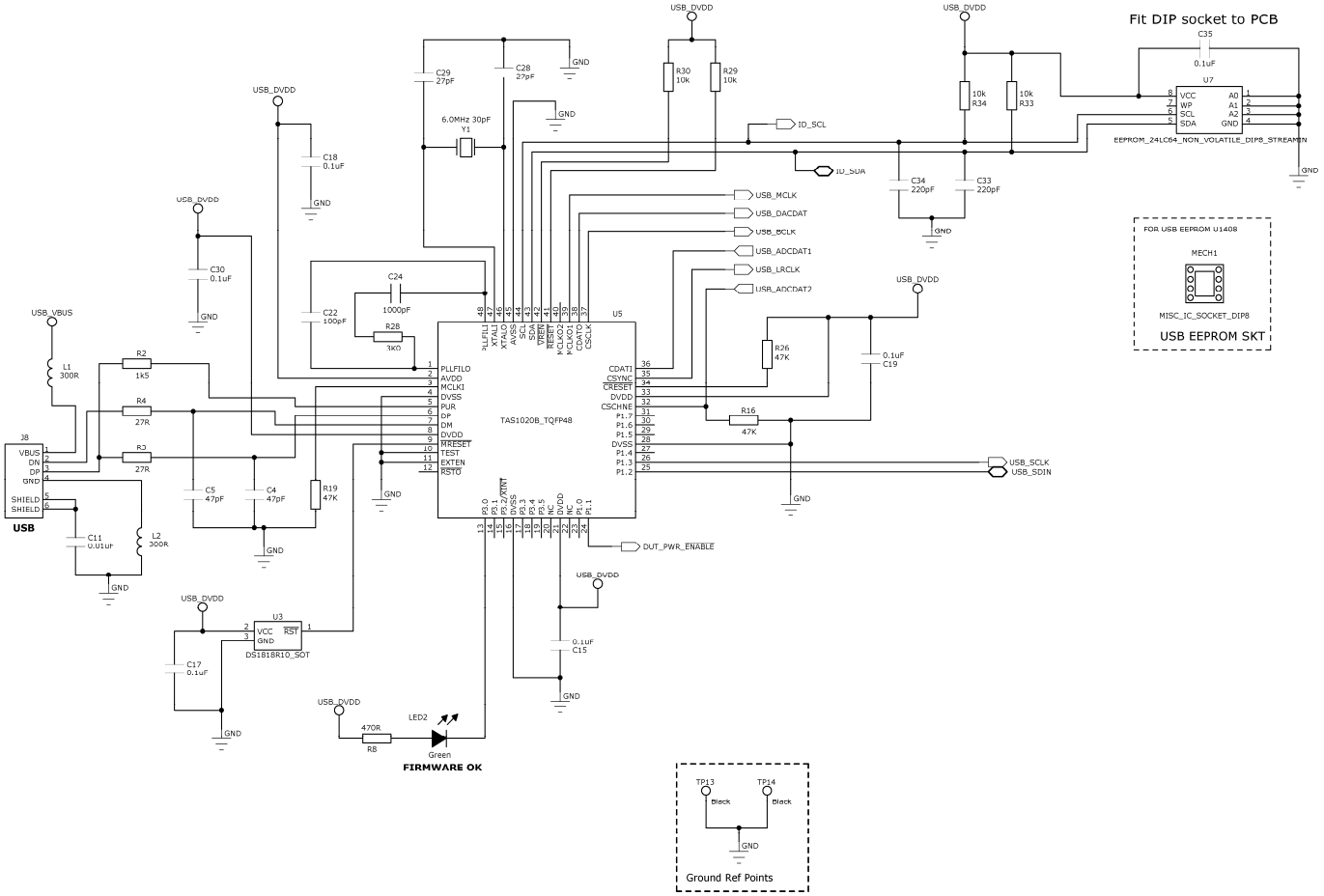




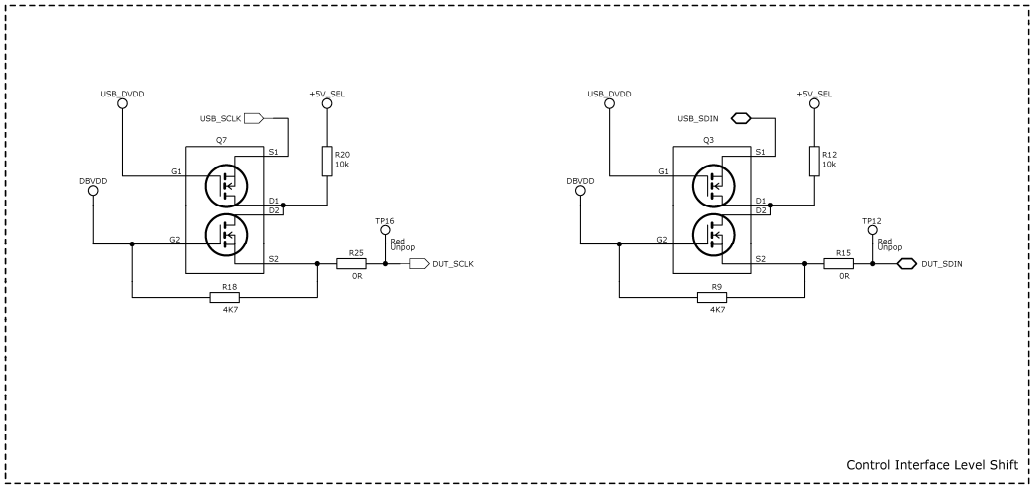


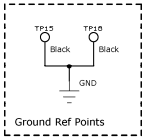


Sheet 3: USB Interface

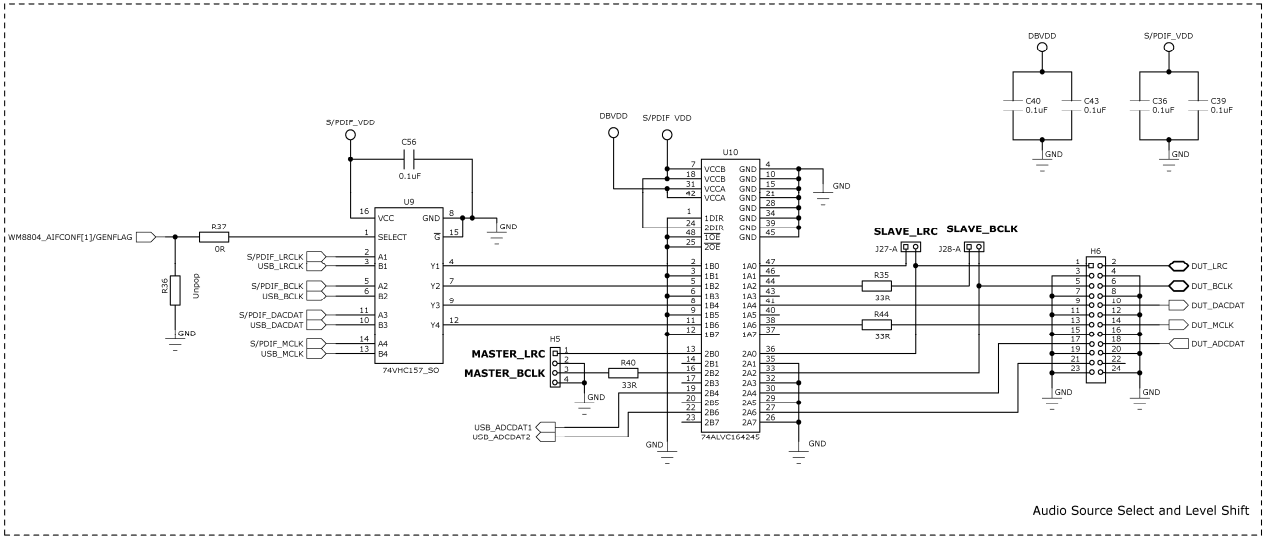


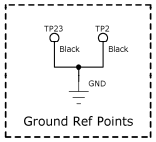
Sheet 4: Control IF Level Shift



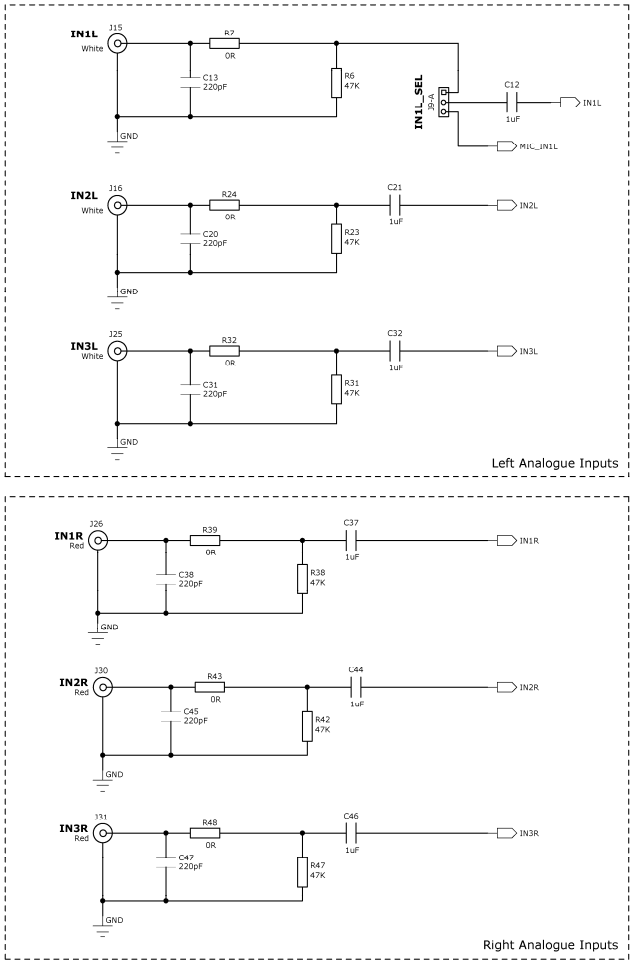


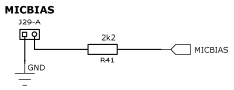
Sheet 5: Audio IF Level Shift

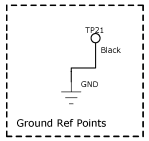




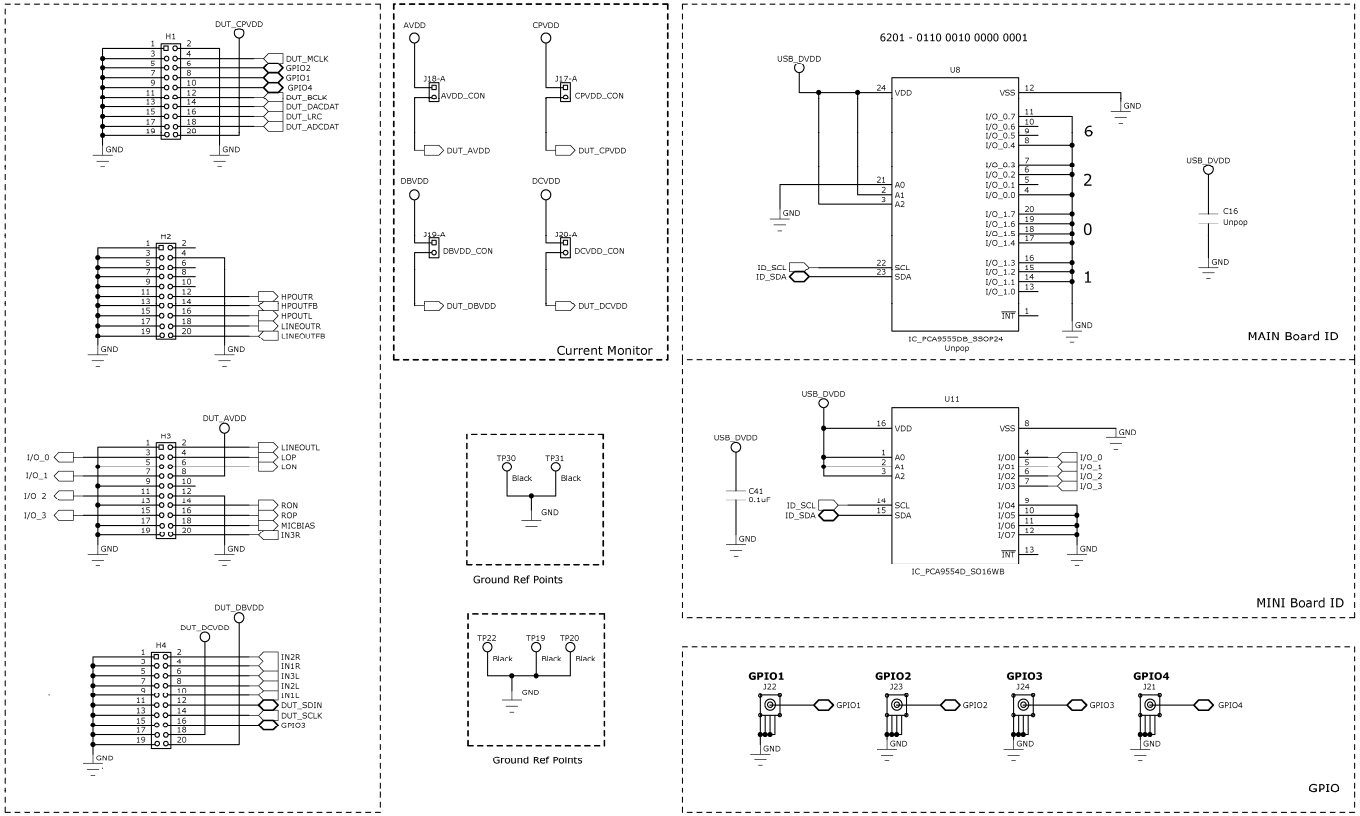
Sheet 6: Analogue Input



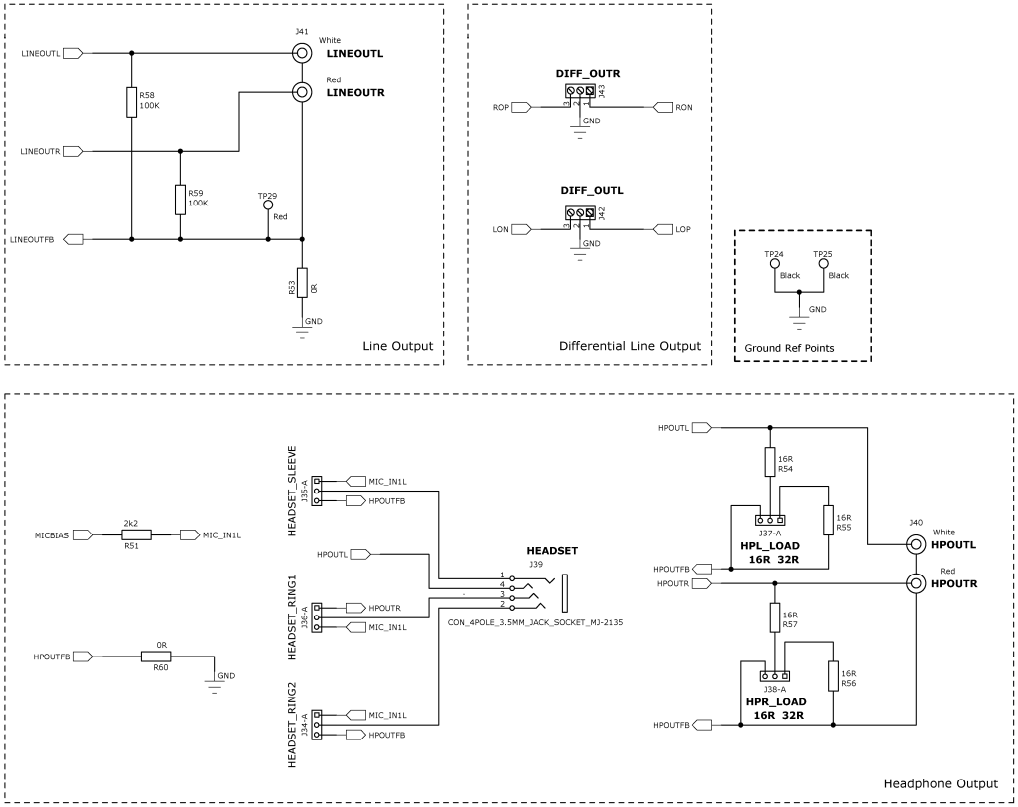




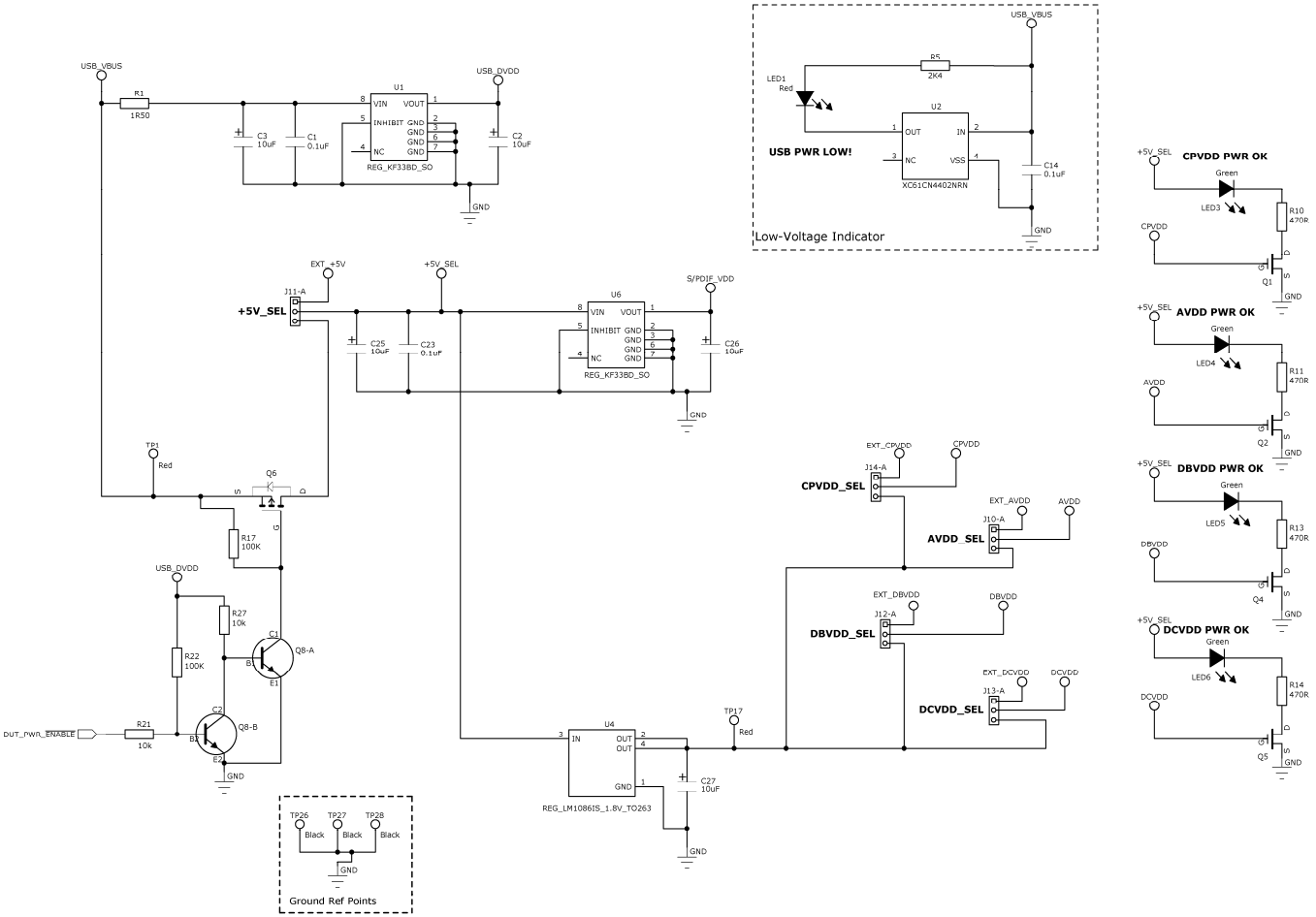
Sheet 7: Headers and ID



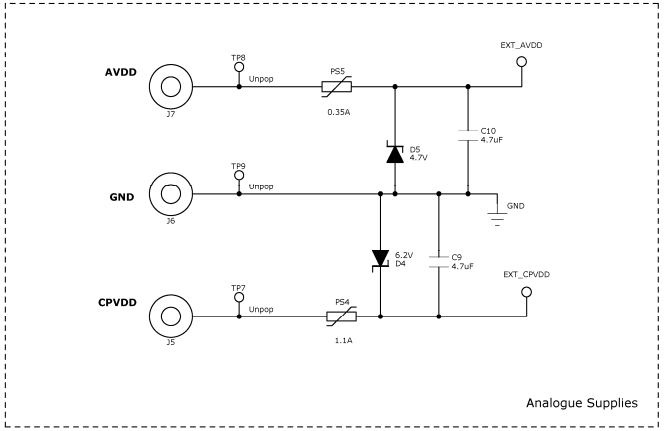
Sheet 8: Analogue Output

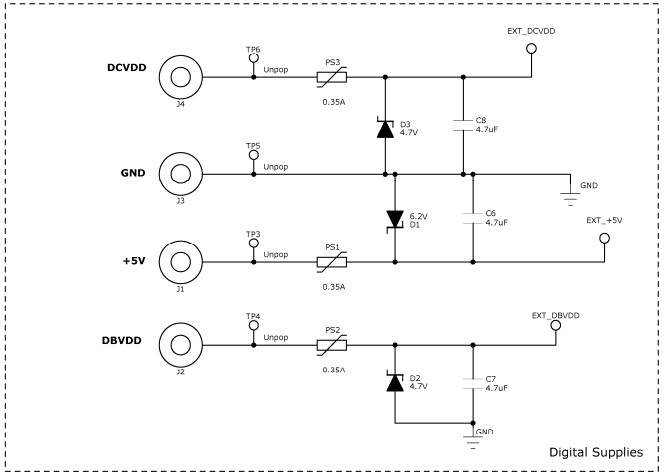


Sheet 9: USB Power

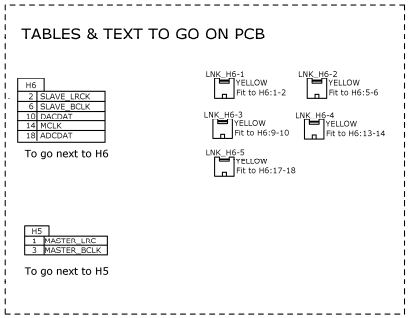


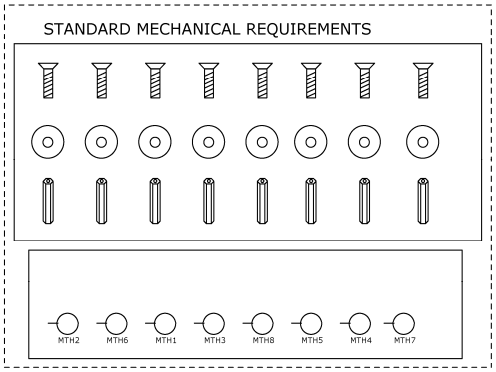
Sheet 10: External Power





Sheet 11: Mechanical Components





Sheet 12: Tables

	Short 1-2	Short 2-3	
J14-B	EXT CPVDD	USB CPVDD	LNK_J14 RED Fit to J14:2-3
PCB Ref:	CPVDD_SEL		2-3
Populated			

	Short 1-2	Short 2-3	
J10-B	EXT AVDD	USB AVDD	LNK_J10 RED Fit to J10:2-3
PCB Ref:	AVDD_SEL		2-3
Populated			

	Short 1-2	Short 2-3	
J12-B	EXT DBVDD	USB DBVDD	LNK_J12 RED Fit to J12:2-3
PCB Ref:	DBVDD_SEL		2-3
Populated			

	Short 1-2	Short 2-3	
J13-B	EXT DCVDD	USB DCVDD	LNK_J13 RED Fit to J13:2-3
PCB Ref:	DCVDD_SEL		2-3
Populated			

	Short 1-2	Short 2-3	
J11-B	EXT_+5V	USB_+5V	LNK_J11 RED Fit to J11:2-3
PCB Ref:	+5V_SEL		2-3
Populated			

	Short	Open	
J17-B	No Current Monitor	Current Monitor	LNK_J17 RED Fit to J17
PCB Ref:	CPVDD_CON		
Populated			

	Short	Open	
J18-B	No Current Monitor	Current Monitor	LNK_J18 RED Fit to J18
PCB Ref:	AVDD_CON		
Populated			

	Short	Open	
J20-B	No Current Monitor	Current Monitor	LNK_J20 RED Fit to J20
PCB Ref:	DCVDD_CON		
Populated			

	Short	Open	
J19-B	No Current Monitor	Current Monitor	LNK_J19 RED Fit to J19
PCB Ref:	DBVDD_CON		
Populated			

	Short 1-2	Short 2-3	
J32-B	Electrical Input	Optical Input	LNK_J32 YELLOW Fit to J32:1-2
PCB Ref:	S/PDIF_IN_SEL		1-2
Populated			

	Short	Open	
J27-B	Slave LRC to DUT	Master LRC from DUT	LNK_J27 YELLOW Fit to J27:1-2
PCB Ref:	SLAVE_LRC		Short
Populated			

	Short	Open	
J28-B	Slave BCLK to DUT	Master BCLK from DUT	LNK_J28 YELLOW Fit to J28:1-2
PCB Ref:	SLAVE_BCLK		Short
Populated			

	Short	Open	
J29-B			
PCB Ref:	MICBIAS		Open

	Short 1-2	Short 2-3	
J9-B	Phono	Headset Jack socket	LNK_J9 YELLOW Fit to J9:1-2
PCB Ref:	IN1L_SEL		1-2

	Short 1-2	Short 2-3	
J37-B	32R Load	16R Load	LNK_J37 YELLOW Fit to J37:1-2
PCB Ref:	HPL_LOAD		Open
Populated			

	Short 1-2	Short 2-3	
J38-B	32R Load	16R Load	LNK_J38 YELLOW Fit to J38:1-2
PCB Ref:	HPR_LOAD		Open
Populated			

	Short 1-2	Short 2-3	
J36-B	HPR	MIC	LNK_J36 YELLOW Fit to J36:1-2
PCB Ref:	HEADSET_RING1		1-2

	Short 1-2	Short 2-3	
J34-B	MIC	GND	LNK_J34 YELLOW Fit to J34:2-3
PCB Ref:	HEADSET_RING2		2-3

	Short 1-2	Short 2-3	
J35-B	MIC	GND	LNK_J35 YELLOW Fit to J35:1-2
PCB Ref:	HEADSET_SLEEVE		1-2

Bag of Links

LNK_SPARE1 YELLOW Put in grip seal bag	LNK_SPARE2 YELLOW Put in grip seal bag	LNK_SPARE3 YELLOW Put in grip seal bag
LNK_SPARE4 YELLOW Put in grip seal bag	LNK_SPARE5 YELLOW Put in grip seal bag	LNK_SPARE6 YELLOW Put in grip seal bag
LNK_SPARE7 YELLOW Put in grip seal bag	LNK_SPARE8 YELLOW Put in grip seal bag	LNK_SPARE9 YELLOW Put in grip seal bag

BILL OF MATERIALS (BOM)

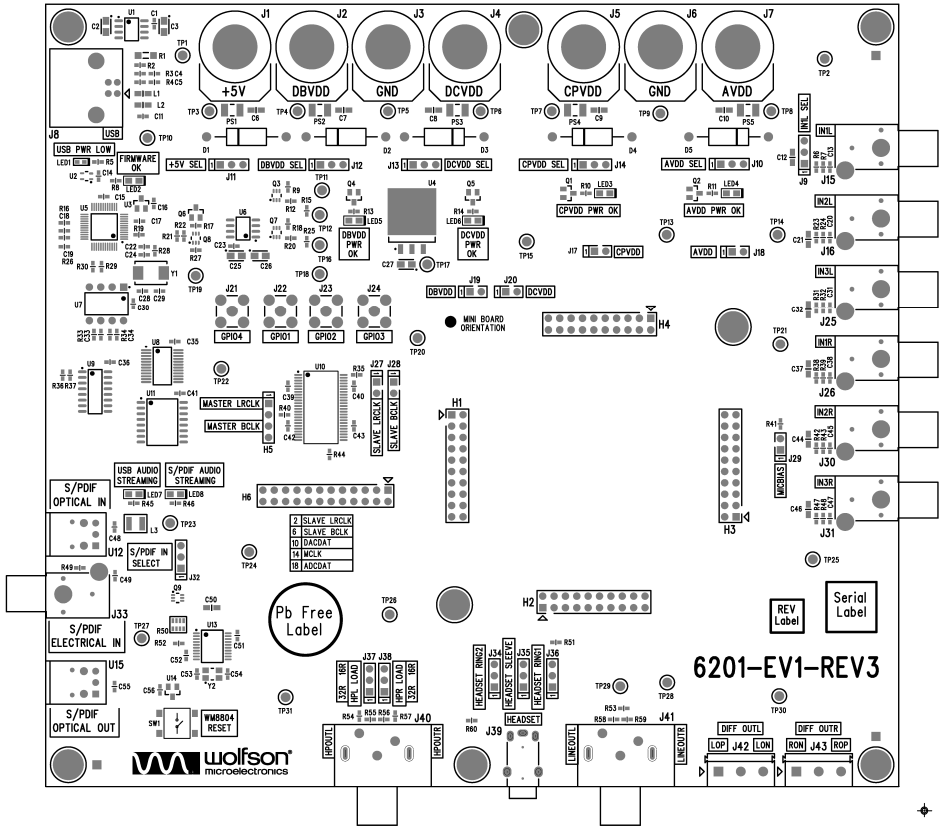
Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
1	MSC1	Grip Seal Bag, 90x115mm	CPC	PA123
2	U10	74ALVC164245 16 Bit Dual Supply Bus Transceiver SSO	Philips	74ALVC164245DL
3	U5	USB Streaming Controller	Texas Instruments	TAS1020BPFB
4	C28 C29	27pF 0603 SMD Ceramic Capacitor 50V NPO	Panasonic	ECJ-1VC1H270J
5	J33	Phono Socket PCB mount YELLOW	Dragon City	RS109 - Yellow
6	J26 J30 J31	Phono Socket PCB mount RED	Dragon City	RS-109 Red
7	J15 J16 J25	Phono Socket PCB mount WHITE	Dragon City	RS-109 White
8	H1 H2 H3 H4	2x10 2.54mm pitch PCB Pin Header VERTICAL	Harwin	M20-9981045
9	J17 J18 J19 J20 J27 J28 J29	1x2 PCB Pin Header 0.1" VERTICAL	Harwin	M20-9990245
10	J9 J10 J11 J12 J13 J14 J32 J34 J35 J36 J37 J38	1x3 2.54mm Header Vertical	Harwin	M20-9990345
11	H5	1x4 2.54mm PCB Header Vertical	Harwin	M20-9990445
12	Q8	BC847BS NPN Dual Bipolar Transistor SOT363	Philips	BC847BS
13	J8	USB receptacle Type B	FCI	61729-0010BLF
14	MECH1	IC Socket DIL 8 WAY	Multicomp	2227MC-08-03-F1
15	J21 J22 J23 J24	SMB Connector PCB Mount 50 Ohm VERTICAL	Amphenol	SMB1251B1-3GT30G-50
16	PS1 PS2 PS3 PS5	0.35A Poly Switch 1210	Tyco	MICROSMD035F-2
17	J42 J43	PCB mount 1X3 terminal block for 2.5mm wire guage	LUMBERG	KRM 03
18	L1 L2	300R 0805 BMB2A Ferrite Bead	Meggitt	BMB2A0300AN1
19	L3	47uH 1210 Surface Mount Inductor 'PA series'	Panasonic	ELJPA470KF
20	U12	TORX147PL Digital Audio Fiber Optic Receiver	Toshiba	TORX147PL
21	U15	Fiber Optic Transmitting Module for Digital Audio Interface	Toshiba	TOTX147PL
22	J39	4 Pole 3.5mm Jack Socket Pro-Signal	Pro Signal	MJ-2135
23	PS4	1.1A Poly Switch 1210	Raychem	MICROSMD110F-2
24	SC1 SC2 SC100 SC101 SC102 SC103 SC104 SC105	Slotted Panhead Screw - M3 thread; 12mm long	TR Fasteners	M312 PSSTMCZ100-
25	W1 W2 W100 W101 W102 W103 W104 W105	Plain M3 size washer	TR Fasteners	M3-FABRWAN100-
26	C2 C3 C25 C26 C27	10uF 10V SMD Tantalum Capacitor case A	Kemet	T491A106K010AT

Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
27	Q3 Q7 Q9	Si1902DL N- Channel Dual MOSFET SC-70	Vishay	SI1902DL-T1-E3
28	MISC2	Lead-free label, 15mm round	Pro Power	7827260
29	SW1	B3S1000 SPNO SMT PCB mount switch	Omron	B3S-1000
30	R1	1R50 1206 SMD chip resistor 5% 0.25W	Vishay	2312 1551 1508
31	C1 C14 C15 C17 C18 C19 C23 C30 C35 C36 C39 C40 C41 C42 C43 C48 C49 C51 C52 C55 C56	0.1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	2238 786 15649
32	C4 C5	47pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A470JAT2A
33	C13 C20 C31 C33 C34 C38 C45 C47	220pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A221JAT2A
34	P1 P2 P100 P101 P102 P103 P104 P105	Hexagonal brass M3 size spacer 20mm length	Harwin	R6379-02
35	C53 C54	22pF 0603 SMD Ceramic Capacitor 50V NPO	Phycomp	2238 867 15229
36	C11	0.01uF 0603 SMD Ceramic Capacitor 50V X7R	Phycomp	2238 586 15636
37	LED1	KP-1608SURC 0603 SMD Chip LED RED	Kingbright	KP-1608SURC
38	TP2 TP10 TP11 TP14 TP15 TP18 TP19 TP21 TP22 TP23 TP24 TP25 TP27 TP28 TP30 TP31	1.32mm PCB Test Terminal BLACK	Vero	20-2136
39	TP1 TP17 TP29	1.32mm PCB Test Terminal RED	Vero	20-313141
40	C6 C7 C8 C9 C10	4.7uF 0805 SMD Ceramic Capacitor 16V X5R	Kemet	C0805C475K4PAC
41	R50	47k 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 035 10473
42	R12 R20 R21 R27 R29 R30 R33 R34 R52	10k 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 10K
43	R17 R22 R58 R59	100K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 100K
44	R2	1k5 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 1K5
45	R54 R55 R56 R57	16R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 16R
46	R41 R51	2k2 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 2K2
47	R5	2K4 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 2K4
48	R3 R4	27R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 27R
49	R28	3K0 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 3K
50	R35 R40 R44	33R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 33R
51	R9 R18	4K7 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 4K7

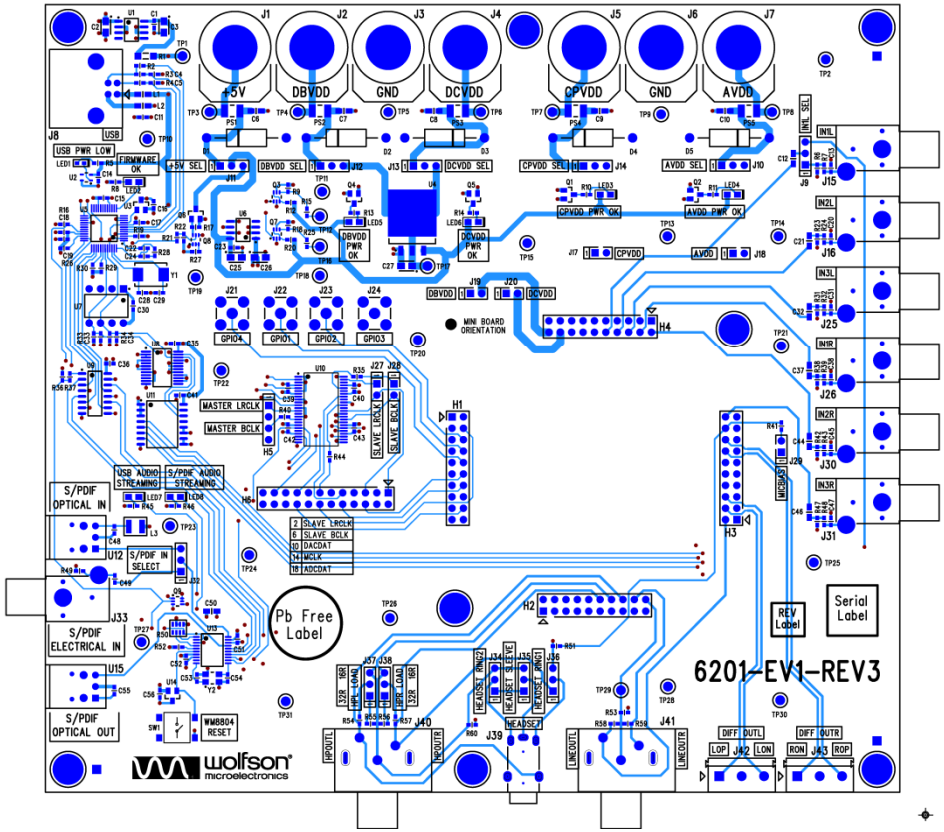
Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
52	R6 R16 R19 R23 R26 R31 R38 R42 R47	47K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 47K
53	R49	75R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 75R
54	R7 R15 R24 R25 R32 R37 R39 R43 R48 R53 R60	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
55	C22	100pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C101JCT
56	C24	1000pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C102JCT
57	C12 C21 C32 C37 C44 C46 C50	1uF 0805 SMD Ceramic Capacitor 10V X7R	Multicomp	N0805R105KCT
58	U4	1.5A low dropout positive regulator - 1.8V fixed	National Semiconductor	LM1086IS-1.8
59	Q6	P-Channel MOSFET 60v, Rds(on) = 0.17R - SOT23	Vishay	SI2309DS
60	D2 D3 D5	1N5337B 4.7V 5W Zener Diode PTH	ON Semiconductor	1N5337BG
61	D1 D4	1N5341B 6.2V 5W Zener Diode PTH	ON Semiconductor	1N5341BG
62	U3 U14	DS1818 3.3V active-low Power-On-Reset chip SOT	Dallas Semiconductor	DS1818R-10+
63	U1 U6	KF33BD Very Low Drop +3.3V Voltage Regulator SO	ST Microelectronics	KF33BD
64	U7	EEPROM 8x8 i2c interface - with Wolfson "Streaming" code	Microchip Technology	24LC64-I/P
65	Q1 Q2 Q4 Q5	BSS138 N-Channel enhancement Mode FET	Fairchild Semiconductor	BSS138
66	Y2	XTAL 12MHz 16pF SM GSX-433 Series	Golledge	GSX-433/111DF 12MHz
67	Y1	6.0MHz GSX-752A/351JF SM Crystal 30pF	Golledge	GSX-752A/351JF 6.0MHz
68	U9	74VHC157 Quad 2-Input Mux SO	Fairchild Semiconductor	74VHC157MX
69	J1 J2 J3 J4 J5 J6 J7	4mm Non-Insulated Panel Socket 16A	PJP	3110I
70	J40 J41	Phono Socket PCB mount Pair Red/White	Rapid	20-1290
71	LNK_J10 LNK_J11 LNK_J12 LNK_J13 LNK_J14 LNK_J17 LNK_J18 LNK_J19 LNK_J20	0.1" OPEN JUMPER LINK RED	Protech	22-3565

Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
72	LNK_H6-5 LNK_H6-4 LNK_H6-3 LNK_H6-2 LNK_H6-1 LNK_J9 LNK_J27 LNK_J28 LNK_J32 LNK_J34 LNK_J35 LNK_J36 LNK_J37 LNK_J38 LNK_SPARE1 LNK_SPARE2 LNK_SPARE3 LNK_SPARE4 LNK_SPARE5 LNK_SPARE6 LNK_SPARE7 LNK_SPARE8 LNK_SPARE9	0.1" OPEN JUMPER LINK YELLOW	Protech	22-3570
73	R8 R10 R11 R13 R14 R45 R46	470R 0603 SMD chip resistor 1% 0.063W	Tyco	01622949-1
74	LED2 LED3 LED4 LED5 LED6	KP-2012MGC 0805 SMD Chip LED GREEN	Kingbright	KP-2012MGC
75	LED7 LED8	KP-2012SYC 0805 SMD Chip LED YELLOW	Kingbright	KP-2012SYC
76	U11	PCA9554D I2C I/O Expander	Philips	PCA9554D
77	H6	2x12 2.54mm pitch PCB Pin Header VERTICAL	Toby	THD-12-R
78	U2	XC61C Low Power Consumption Voltage Detector	Torex	XC61CN4402NRN
79	PCB1	PCB	Kelan Circuits Ltd	6201-EV1-REV3
80	U13	WM8804 1:1 Digital Interface Transceiver with PLL	Wolfson Microelectronics	WM8804GEDS
Unpop				
81	C16	0.1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	2238 786 15649
82	TP13 TP20 TP26	1.32mm PCB Test Terminal BLACK	Vero	20-2136
83	TP12 TP16	1.32mm PCB Test Terminal RED	Vero	20-313141
84	R36	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
85	TP3 TP4 TP5 TP6 TP7 TP8 TP9	1.32mm off-board connection point	N/A	N/A
86	U8	PCA9555DB I2C I/O Expander	NXP	483-7216

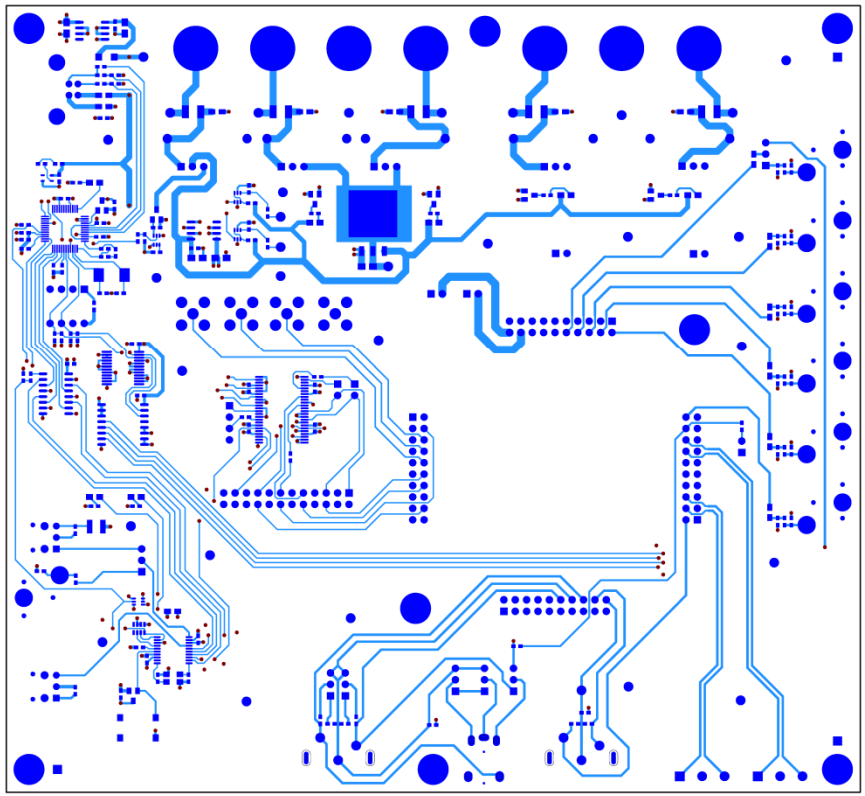
PCB LAYOUT



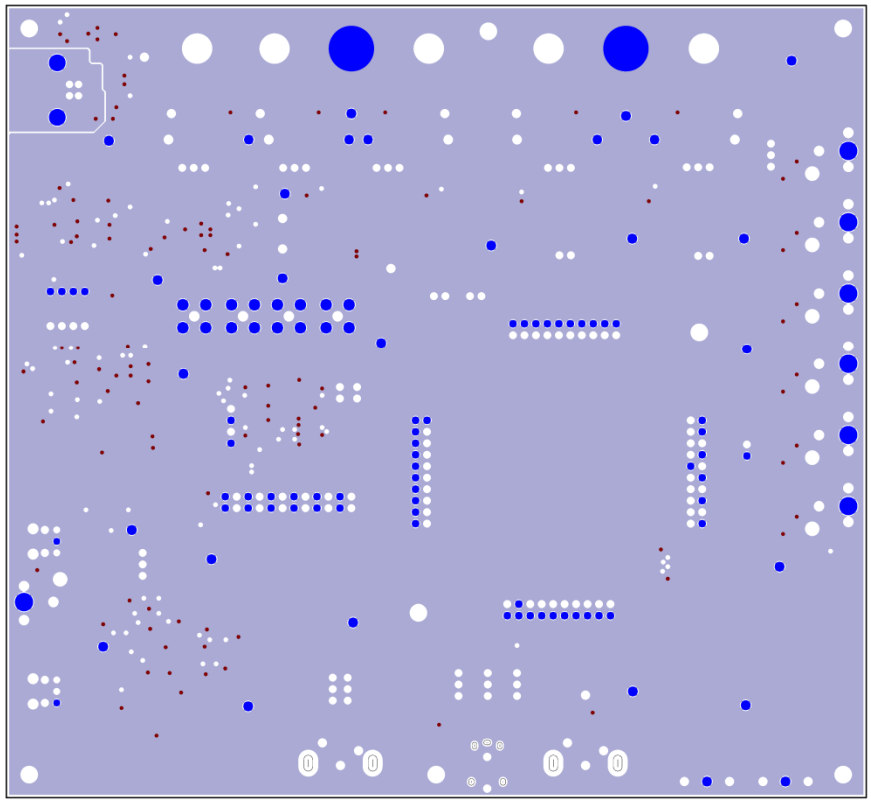
Top Layer: Overview



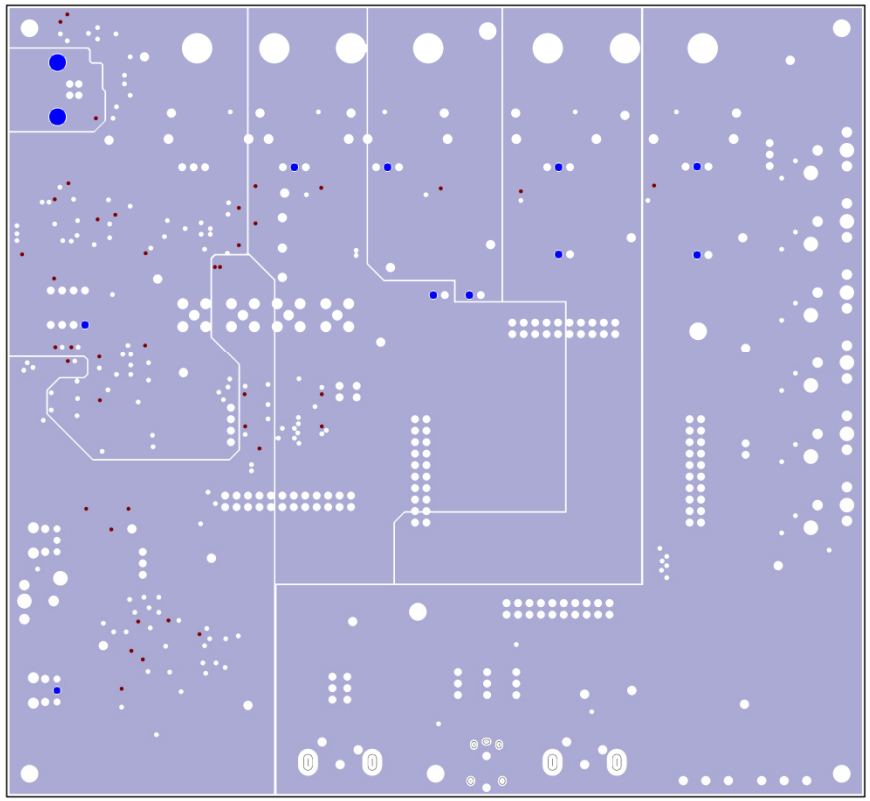
Top Layer: Silkscreen + Copper



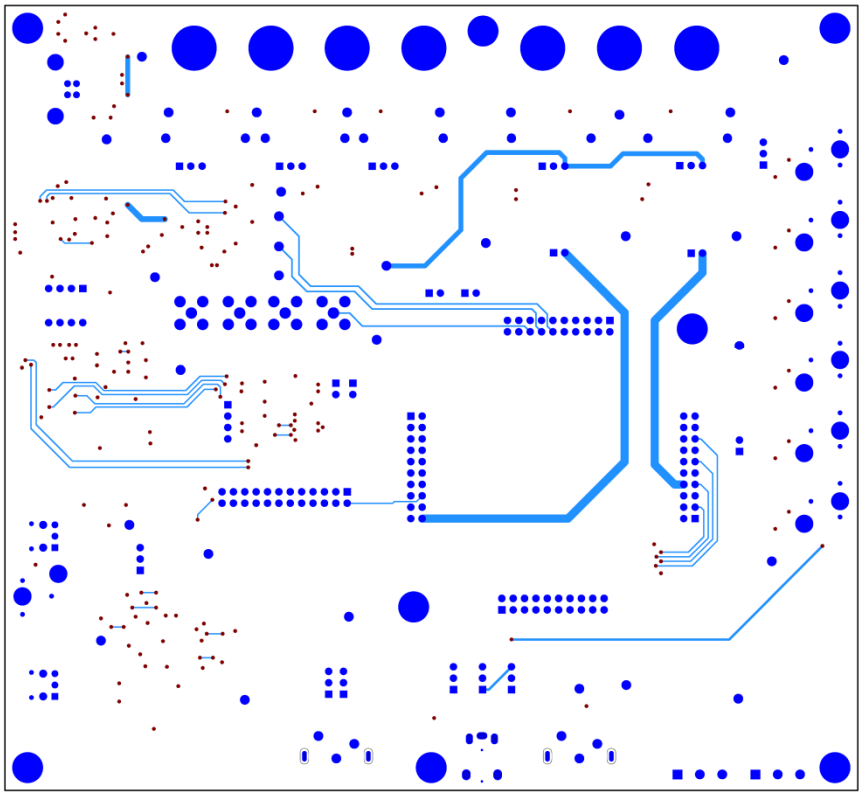
Top Layer: Copper



Layer 2: Copper

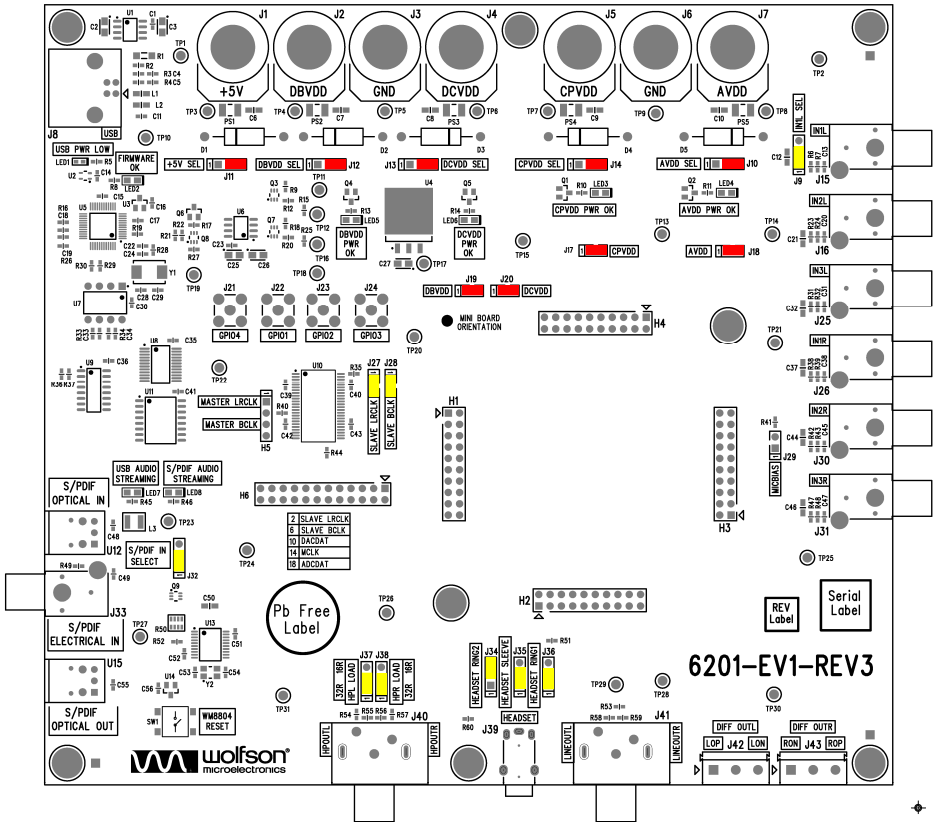


Layer 3: Copper



Bottom Layer: Copper

GENERIC BOARD CONFIGURATION



APPLICATION SUPPORT

If you require more information or require technical support, please contact the Wolfson Microelectronics Applications group through the following channels:

Email: apps@wolfsonmicro.com
Telephone Apps: +44 (0) 131 272 7070
Fax: +44 (0) 131 272 7001
Mail: Applications Engineering at the address on the last page

or contact your local Wolfson representative.

Additional information may be made available on our web site at: http://www.wolfsonmicro.com

IMPORTANT NOTICE

Wolfson Microelectronics plc ("Wolfson") products and services are sold subject to Wolfson's terms and conditions of sale, delivery and payment supplied at the time of order acknowledgement.

Wolfson warrants performance of its products to the specifications in effect at the date of shipment. Wolfson reserves the right to make changes to its products and specifications or to discontinue any product or service without notice. Customers should therefore obtain the latest version of relevant information from Wolfson to verify that the information is current.

Testing and other quality control techniques are utilised to the extent Wolfson deems necessary to support its warranty. Specific testing of all parameters of each device is not necessarily performed unless required by law or regulation.

In order to minimise risks associated with customer applications, the customer must use adequate design and operating safeguards to minimise inherent or procedural hazards. Wolfson is not liable for applications assistance or customer product design. The customer is solely responsible for its selection and use of Wolfson products. Wolfson is not liable for such selection or use nor for use of any circuitry other than circuitry entirely embodied in a Wolfson product.

Wolfson's products are not intended for use in life support systems, appliances, nuclear systems or systems where malfunction can reasonably be expected to result in personal injury, death or severe property or environmental damage. Any use of products by the customer for such purposes is at the customer's own risk.

Wolfson does not grant any licence (express or implied) under any patent right, copyright, mask work right or other intellectual property right of Wolfson covering or relating to any combination, machine, or process in which its products or services might be or are used. Any provision or publication of any third party's products or services does not constitute Wolfson's approval, licence, warranty or endorsement thereof. Any third party trade marks contained in this document belong to the respective third party owner.

Reproduction of information from Wolfson datasheets is permissible only if reproduction is without alteration and is accompanied by all associated copyright, proprietary and other notices (including this notice) and conditions. Wolfson is not liable for any unauthorised alteration of such information or for any reliance placed thereon.

Any representations made, warranties given, and/or liabilities accepted by any person which differ from those contained in this datasheet or in Wolfson's standard terms and conditions of sale, delivery and payment are made, given and/or accepted at that person's own risk. Wolfson is not liable for any such representations, warranties or liabilities or for any reliance placed thereon by any person.

ADDRESS:
Wolfson Microelectronics plc
Westfield House
26 Westfield Road
Edinburgh
EH11 2QB
United Kingdom
Tel :: +44 (0)131 272 7000
Fax :: +44 (0)131 272 7001
Email :: apps@wolfsonmicro.com