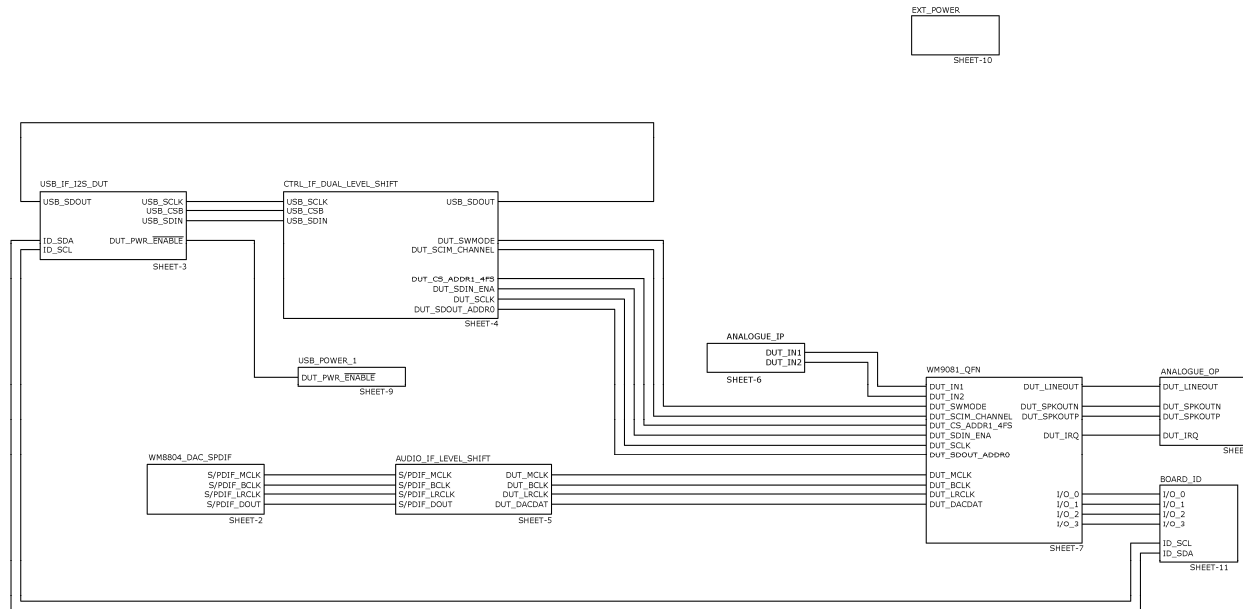
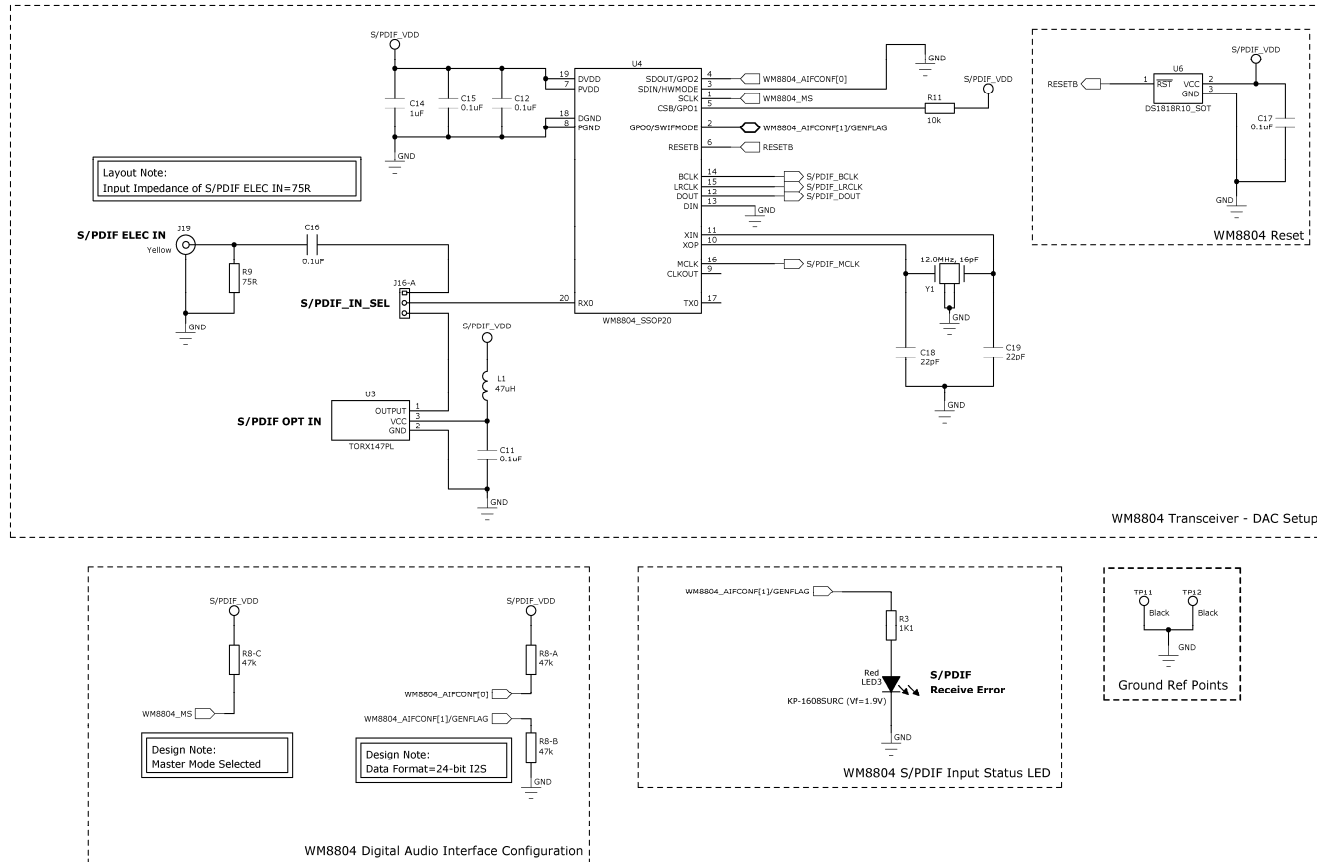


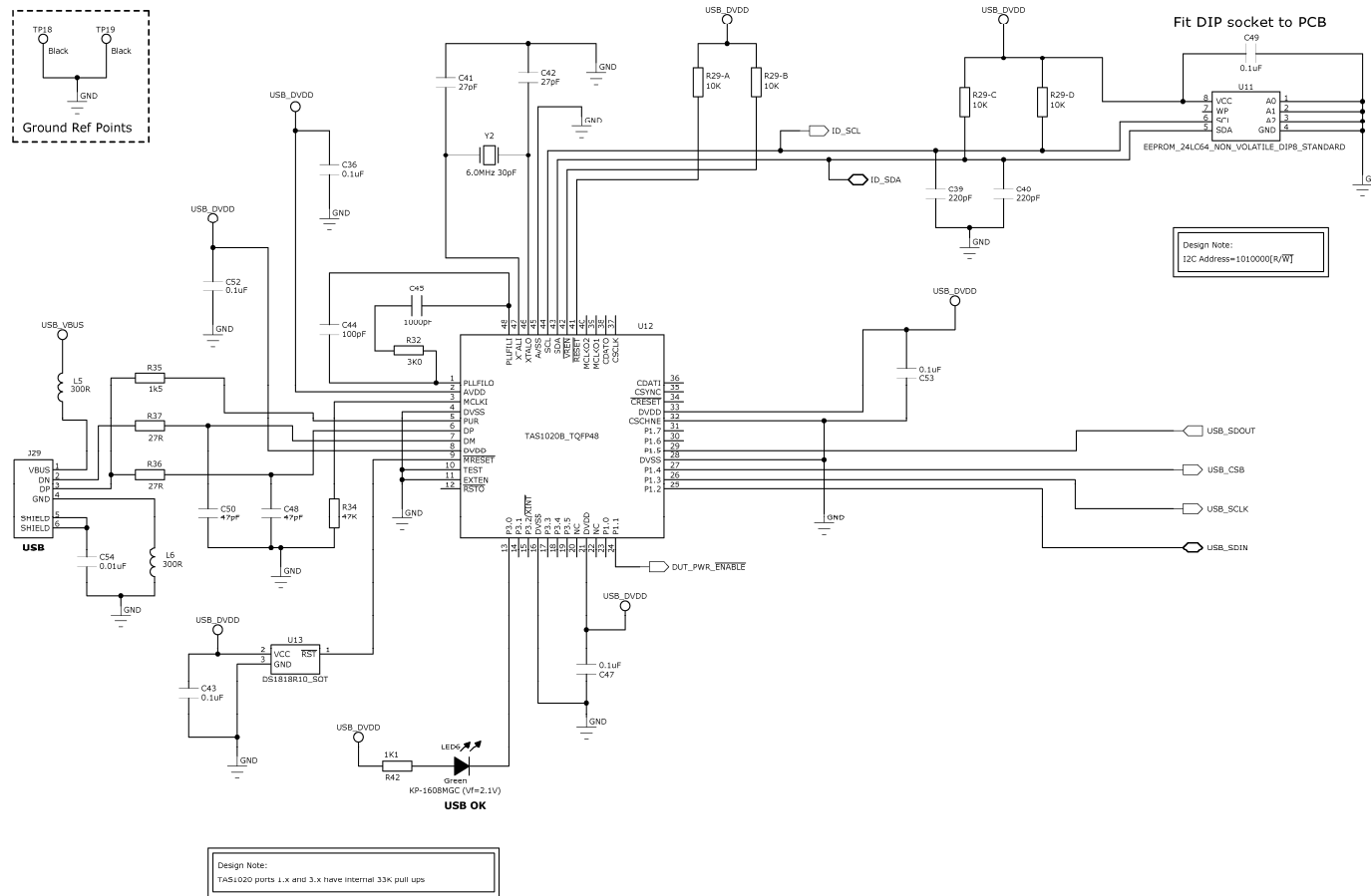
DOC TYPE:	SCHEMATIC AND LAYOUT
BOARD REFERENCE:	6222-EV1
BOARD TYPE:	Customer Main
WOLFSON DEVICE(S):	WM9081
DATE:	November 2008
DOC REVISION:	Rev 1.0

SCHEMATIC

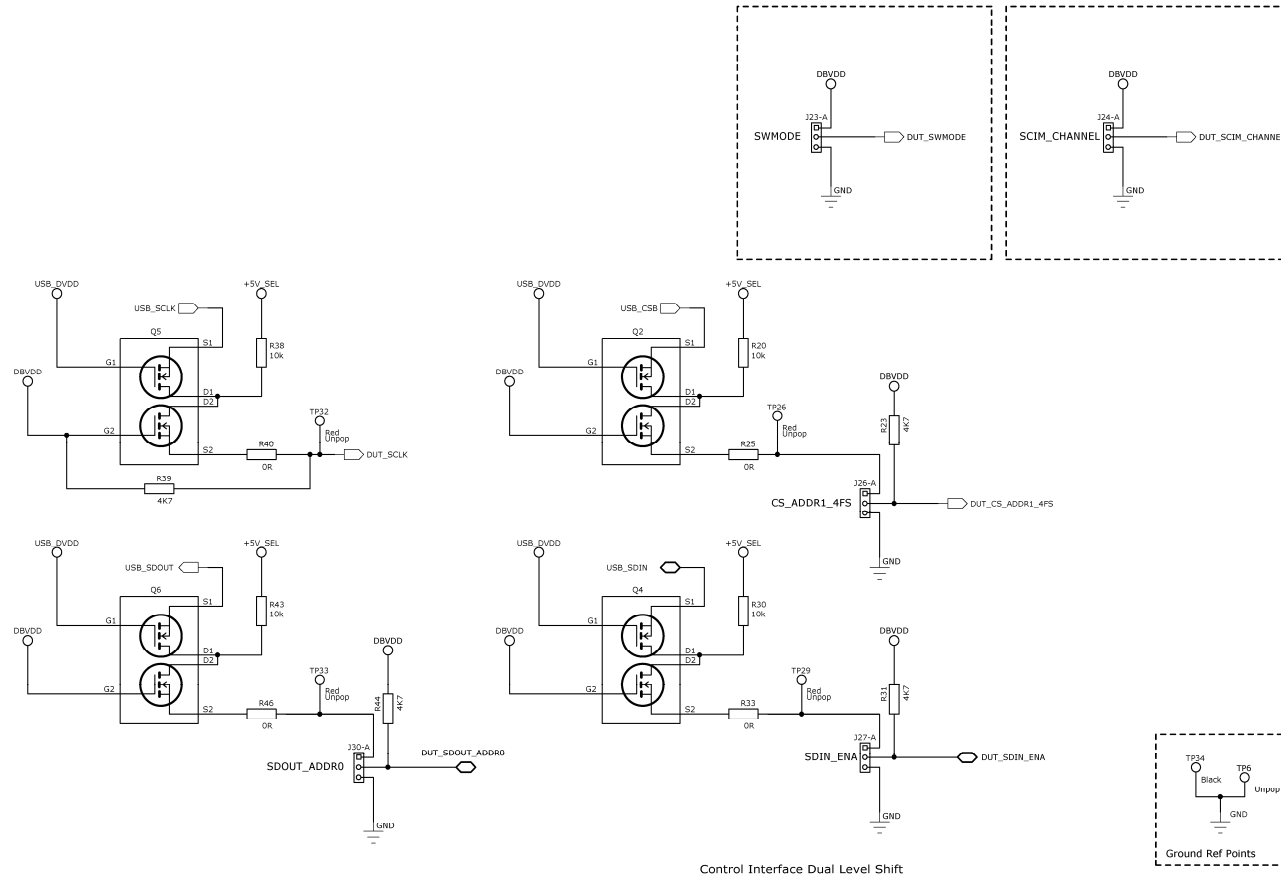
Sheet 1: Functional Diagram



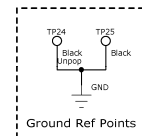
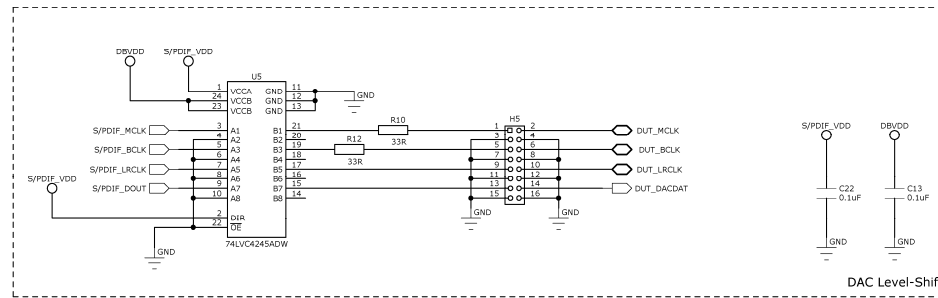


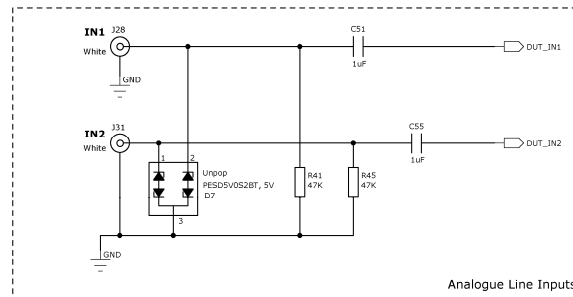


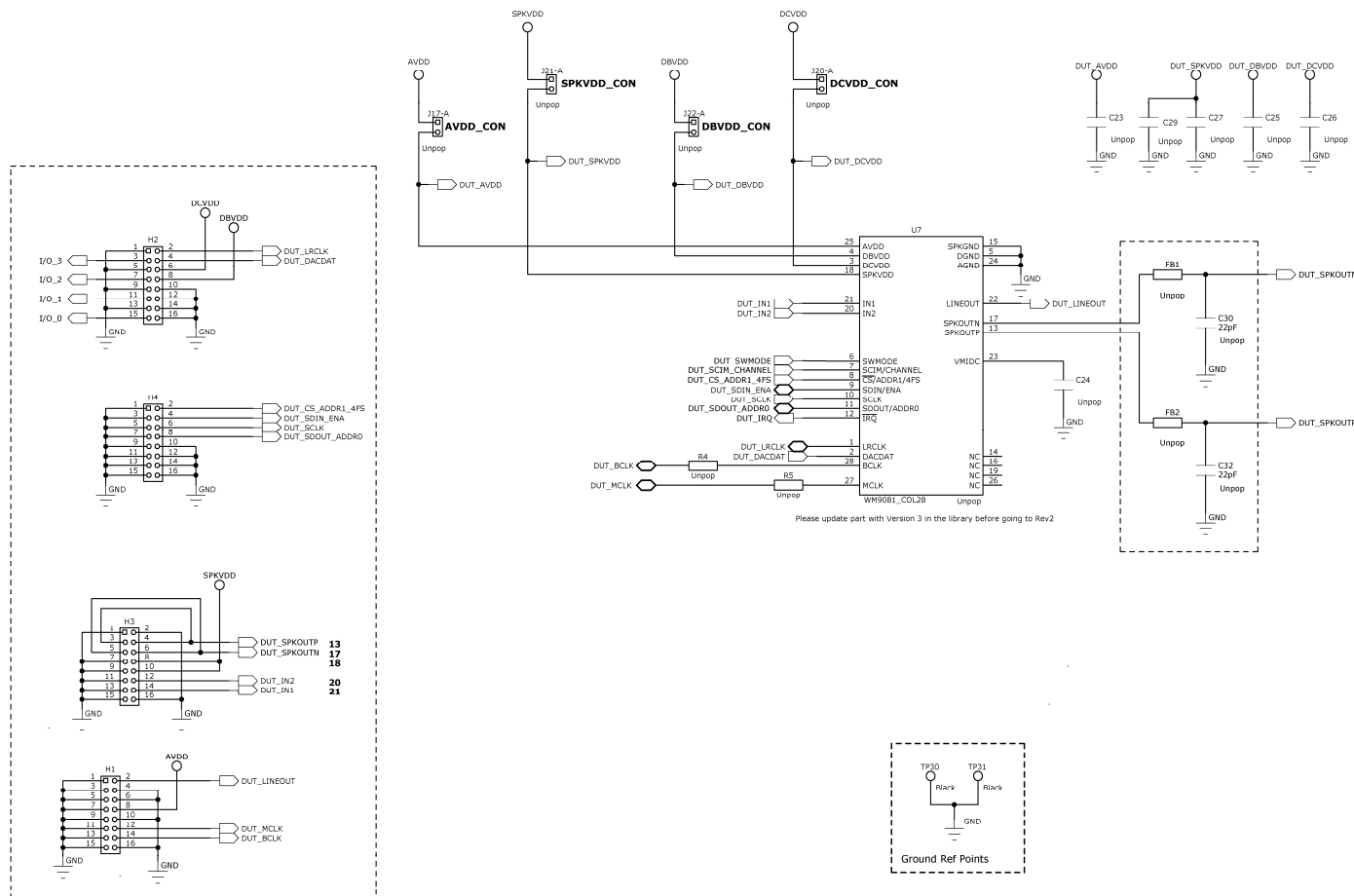
Sheet 4: Control I/F Level Shift



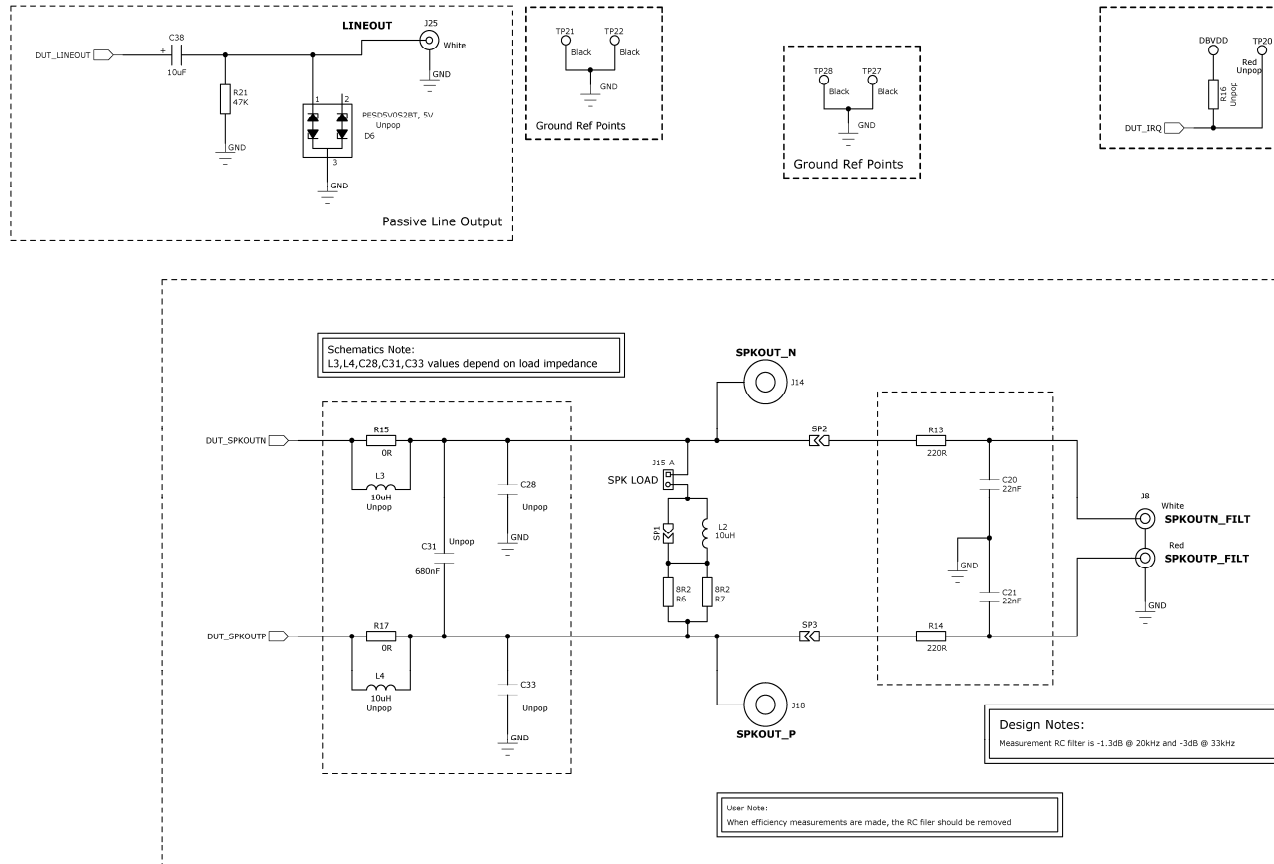
Sheet 5: Audio I/F Level Shift



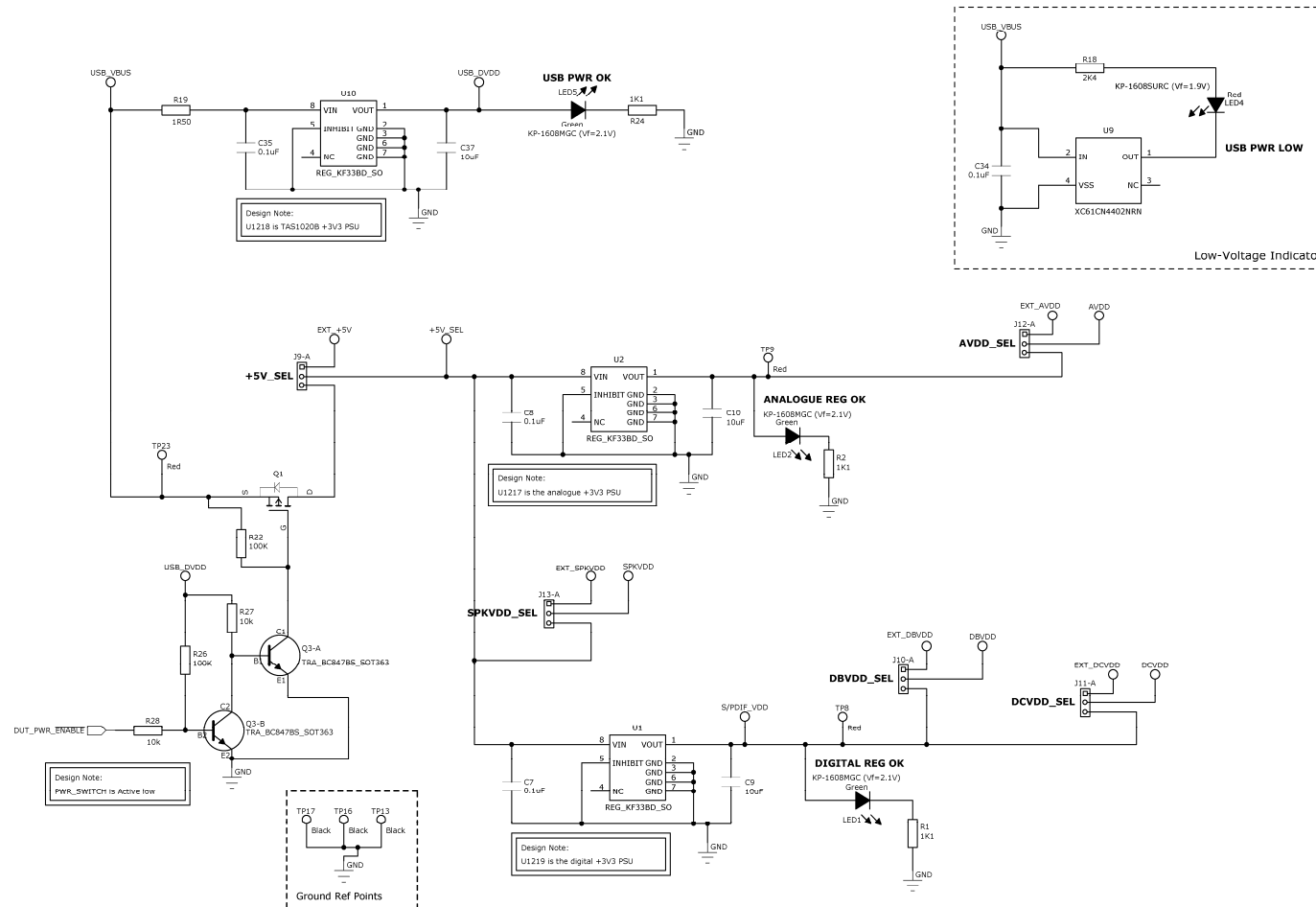




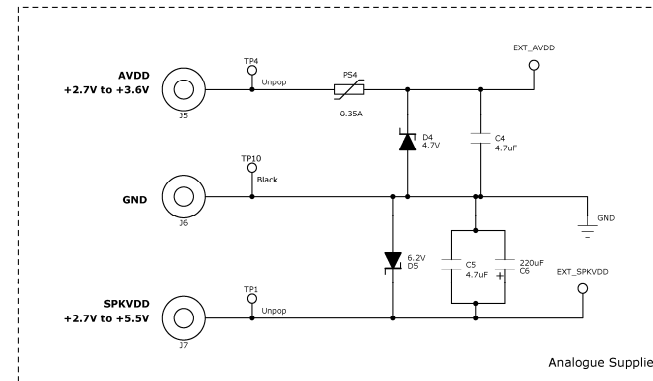
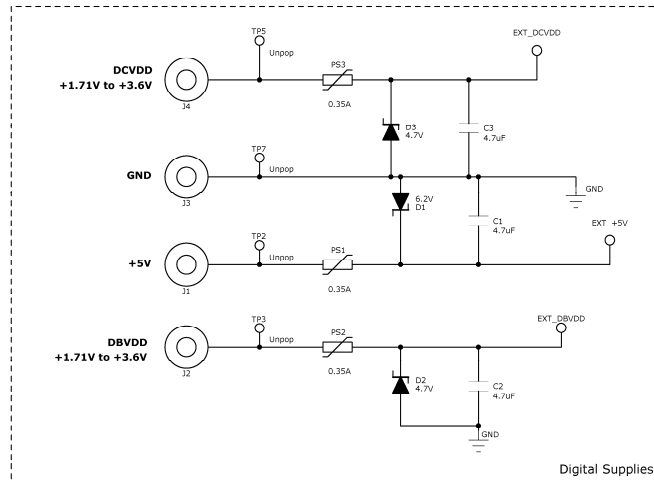
Sheet 8: Analogue Outputs

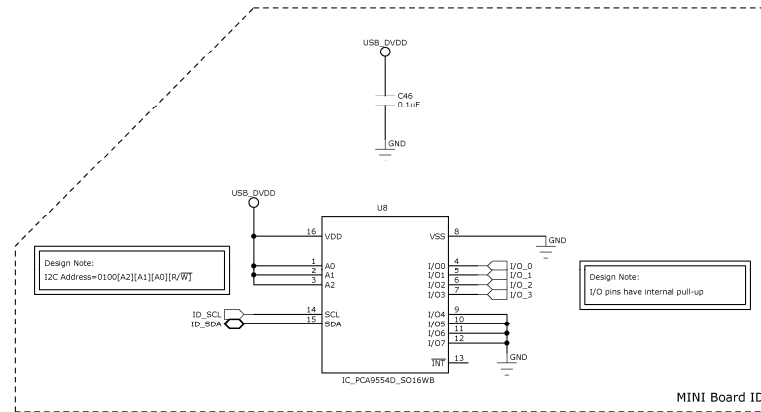
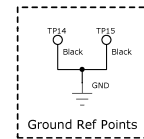


Sheet 9: USB Power Supply



Sheet 10: External Power Supply





	Short 1-2	Short 2-3
J12-B	EXT AVDD	USB AVDD
PCB Ref:	AVDD_SEL	

LNK12 RED
Fit to J12:2-3
2-3

	Short 1-2	Short 2-3
J9-B	EXT +5V	USB +5V
PCB Ref:	+5V_SEL	

LNK9 RED
Fit to J9:2-3
2-3

	Short 1-2	Short 2-3
J10-B	EXT DBVDD	USB DBVDD
PCB Ref:	DBVDD_SEL	

LNK10 RED
Fit to J10:2-3
2-3

	Short 1-2	Short 2-3
J11-B	EXT DCVDD	USB DCVDD
PCB Ref:	DCVDD_SEL	

LNK11 RED
Fit to J11:2-3
2-3

	Short 1-2	Short 2-3
J13-B	EXT SPKVDD	USB SPKVDD
PCB Ref:	SPKVDD_SEL	

LNK13 RED
Fit to J13:2-3
2-3

	Short	Open
J17-B	No Current Monitor	Current Monitor
PCB Ref:	AVDD_LUN	

Open

	Short	Open
J21-B	No Current Monitor	Current Monitor
PCB Ref:	SPKVDD_CON	

Open

	Short	Open
J22-B	No Current Monitor	Current Monitor
PCB Ref:	DBVDD_CON	

Open

	Short	Open
J20-B	No Current Monitor	Current Monitor
PCB Ref:	DCVDD_CON	

Open

	Short 1-2	Short 2-3
J16-B	Electrical Input	Optical Input
PCB Ref:	S/PDIF_IN_SEL	

LNK16 YELLOW
Fit to J16:1-2
1-2

	Short 1-2	Short 2-3
J23-B	SW mode	HW mode
PCB Ref:	SWMODE	

LNK23 YELLOW
Fit to J23:1-2
1-2

	Short 1-2	Short 2-3
J24-B	SW: I2C, HW: left CH	SW: SPI, HW: right CH
PCB Ref:	SCIM_CHANNEL	

LNK24 YELLOW
Fit to J24:1-2
1-2

	Short 1-2	Short 2-3
J26-B	CSB	GND
PCB Ref:	CS_ADDR1_AFS	

LNK26 YELLOW
Fit to J26:2-3
2-3

	Short 1-2	Short 2-3
J30-B	SDOUT	GND
PCB Ref:	SDOUT_ADDR0	

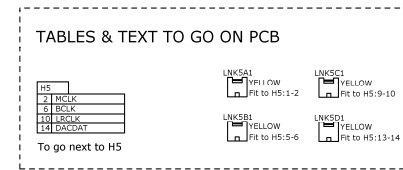
LNK30 YELLOW
Fit to J30:2-3
2-3

	Short 1-2	Short 2-3
J27-B	SDIN	GND
PCB Ref:	SDIN_ENA	

LNK27 YELLOW
Fit to J27:1-2
1-2

	Short	Open
J15-B	4R LOAD	NO LOAD
PCB Ref:	SPK_LOAD	

Open



BILL OF MATERIALS (BOM)

BOM rev: 1.03

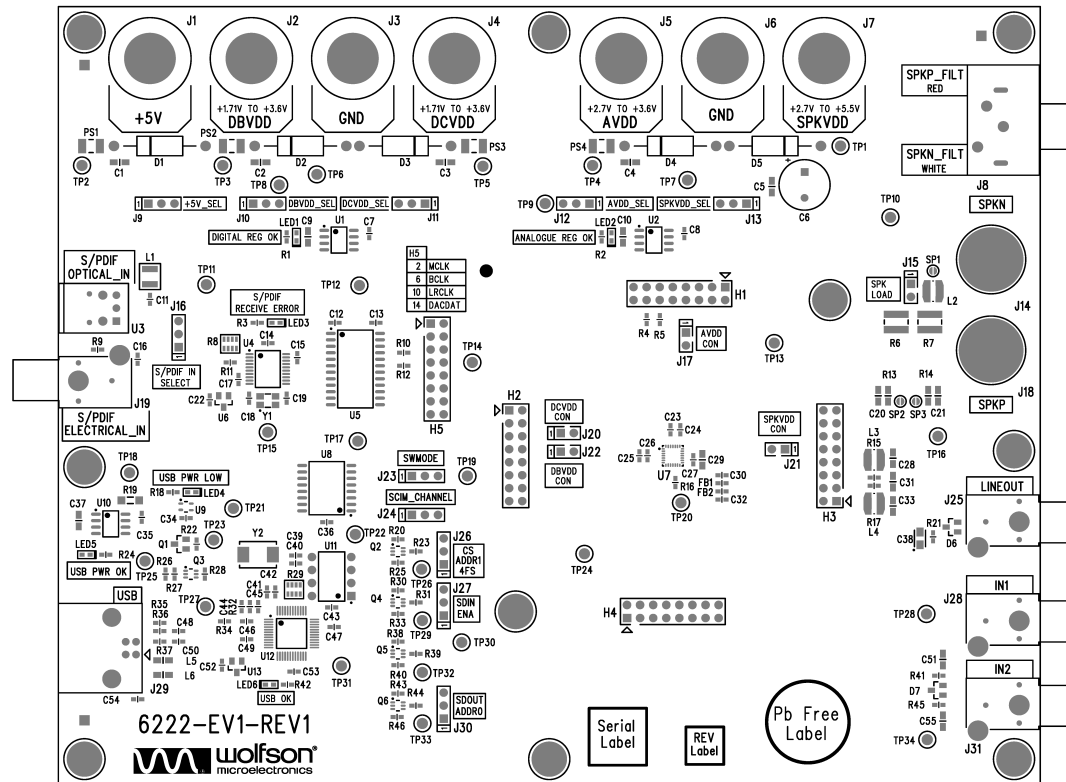
<i>Item</i>	<i>RefDes</i>	<i>Description</i>	<i>Manufacturer</i>	<i>Manufacturer's Part Number</i>
1	L2	10uH Shielded SM Power 1.1A Inductor ' LPS4018 series'	Coilcraft	LPS4018-103ML
2	MSC1	Grip Seal Bag, 90x115mm	CPC	PA123
3	U12	USB Streaming Controller	Texas Instruments	TAS1020BPFB
4	C9 C10 C37	10uF 0805 SMD Ceramic Capacitor 6.3V X5R	MuRata	GRM21BR60J106KE19L
5	C41 C42	27pF 0603 SMD Ceramic Capacitor 50V NPO	Panasonic	ECJ-1VC1H270J
6	J19	Phono Socket PCB mount YELLOW	Dragon City	RS109 - Yellow
7	J25 J28 J31	Phono Socket PCB mount WHITE	Dragon City	RS-109 White
8	J14	4mm Gold Plated Non-Insulated Panel Socket - Black	ESR	070-250
9	J18	4mm Gold Plated Non-Insulated Binding Post - Red	ESR	070-251
10	MISC2	Lead-free label, 15mm round	Brady	805794
11	H1 H2 H3 H4 H5	2x8 2.54mm pitch PCB Pin Header VERTICAL	Harwin	M20-9980845
12	J15	1x2 PCB Pin Header 0.1" VERTICAL	Harwin	M20-9990245
13	J9 J10 J11 J12 J13 J16 J23 J24 J26 J27 J30	1x3 2.54mm Header Vertical	Harwin	M20-9990345
14	Q3	BC847BS NPN Dual Bipolar Transistor SOT363	Philips	BC847BS
15	J29	USB receptacle Type B	FCI	61729-0010BLF
16	MECH1	IC Socket DIL 8 WAY	Multicomp	2227MC-08-03-F1
17	C38	10uF 10V SMD Tantalum Capacitor case A	Kemet	T491A106K010AT
18	PS1 PS2 PS3 PS4	0.35A Poly Switch 1210	Tyco	MICROSMD035F-2
19	L5 L6	300R 0805 BMB2A Ferrite Bead	Meggitt	BMB2A0300AN1
20	L1	47uH 1210 Surface Mount Inductor 'PA series'	Panasonic	ELJPA470KF
21	U3	TORX147PL Digital Audio Fiber Optic Receiver	Toshiba	TORX147PL
22	SC1 SC2 SC3 SC4 SC100 SC101 SC102 SC103 SC104 SC105	Slotted Panhead Screw - M3 thread; 12mm long	TR Fasteners	M312 PSSTMCZ100-
23	W1 W2 W3 W4 W100 W101 W102 W103 W104 W105	Plain M3 size washer	TR Fasteners	M3-FABRWAN100-
24	Q2 Q4 Q5 Q6	Si1902DL N- Channel Dual MOSFET SC-70	Vishay	SI1902DL-T1-E3
25	C20 C21	22nF 0805 SMD Ceramic Capacitor 25V X7R	Phycomp	2238 910 15641
26	R19	1R50 1206 SMD chip resistor 5% 0.25W	Vishay	2312 1551 1508

<i>Item</i>	<i>RefDes</i>	<i>Description</i>	<i>Manufacturer</i>	<i>Manufacturer's Part Number</i>
27	C7 C8 C11 C12 C13 C15 C16 C17 C22 C34 C35 C36 C43 C46 C47 C49 C52 C53	0.1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	2238 786 15649
28	C48 C50	47pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A470JAT2A
29	C39 C40	220pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A221JAT2A
30	P1 P2 P3 P4 P100 P101 P102 P103 P104 P105	Hexagonal brass M3 size spacer 20mm length	Harwin	R6379-02
31	C18 C19	22pF 0603 SMD Ceramic Capacitor 50V NPO	Phycomp	2238 867 15229
32	C54	0.01uF 0603 SMD Ceramic Capacitor 50V X7R	Phycomp	2238 586 15636
33	LED1 LED2 LED5 LED6	KP-1608MGC 0603 SMD Chip LED GREEN	Kingbright	KP-1608MGC
34	LED3 LED4	KP-1608SURC 0603 SMD Chip LED RED	Kingbright	KP-1608SURC
35	TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP21 TP22 TP25 TP27 TP28 TP30 TP31 TP34	1.32mm PCB Test Terminal BLACK	Vero	20-2136
36	TP8 TP9 TP23	1.32mm PCB Test Terminal RED	Vero	20-313141
37	C1 C2 C3 C4 C5	4.7uF 0805 SMD Ceramic Capacitor 16V X5R	Kemet	C0805C475K4PAC
38	R29	10K 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 03510 103
39	R8	47k 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 035 10473
40	R6 R7	8R2 1218 SMD chip resistor 1% 1W	Phycomp	2322 7357 8208
41	R11 R20 R27 R28 R30 R38 R43	10k 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 10K
42	R22 R26	100K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 100K
43	R1 R2 R3 R24 R42	1K1 0603 SMD chip resistor 1% 0.1W	Multicomp	MC 0.063W 0603 1% 1K1
44	R35	1k5 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 1K5
45	R18	2K4 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 2K4
46	R36 R37	27R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 27R
47	R32	3K0 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 3K
48	R10 R12	33R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 33R
49	R23 R31 R39 R44	4K7 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 4K7
50	R21 R34 R41 R45	47K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 47K
51	R9	75R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 75R
52	R15 R17 R25 R33 R40 R46	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
53	R13 R14	220R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 220R

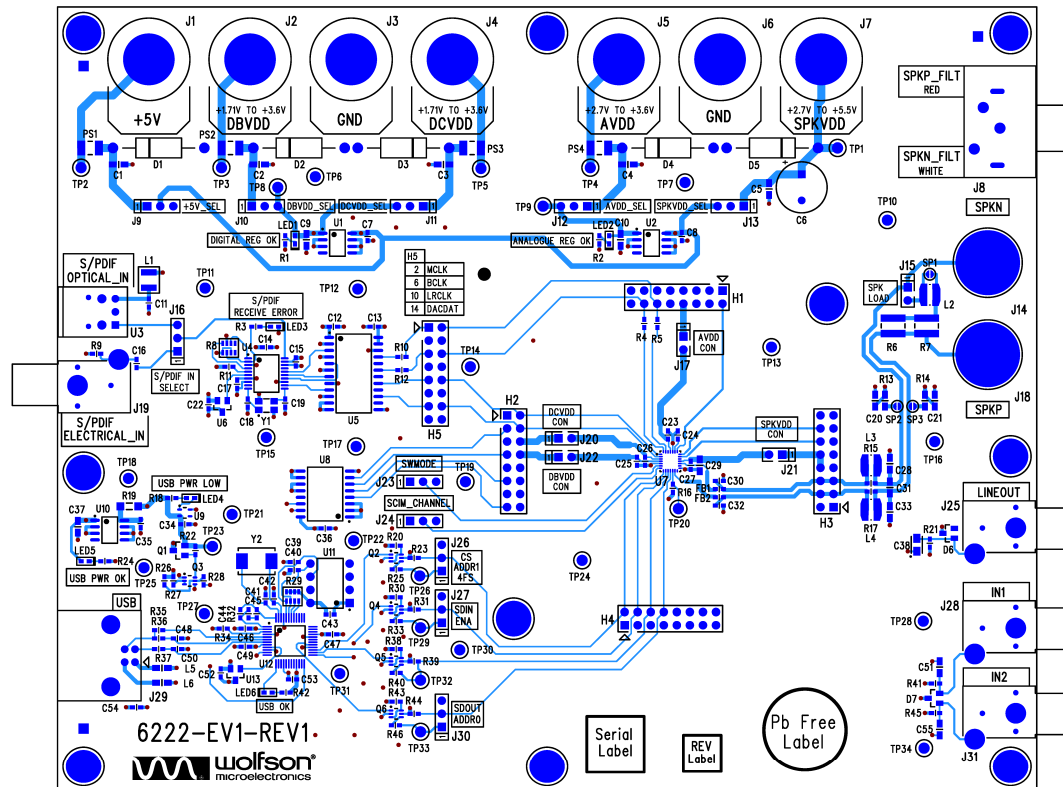
<i>Item</i>	<i>RefDes</i>	<i>Description</i>	<i>Manufacturer</i>	<i>Manufacturer's Part Number</i>
54	C44	100pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C101JCT
55	C45	1000pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C102JCT
56	C51 C55	1uF 0805 SMD Ceramic Capacitor 10V X7R	Multicomp	N0805R105KCT
57	Q1	P-Channel MOSFET 60v, Rds(on) = 0.17R - SOT23	Vishay	SI2309DS
58	D2 D3 D4	1N5337B 4.7V 5W Zener Diode PTH	ON Semiconductor	1N5337BG
59	D1 D5	1N5341B 6.2V 5W Zener Diode PTH	ON Semiconductor	1N5341BG
60	U6 U13	DS1818 3.3V active-low Power-On-Reset chip SOT	Dallas Semiconductor	DS1818R-10+
61	U1 U2 U10	KF33BD Very Low Drop +3.3V Voltage Regulator SO	ST Microelectronics	KF33BD
62	U11	EEPROM 8x8 i2c interface - with Wolfson "Standard" code	Microchip Technology	24LC64-I/P
63	Y1	XTAL 12MHz 16pF SM GSX-433 Series	Golledge	GSX-433/111DF 12MHz
64	Y2	6.0MHz GSX-752A/351JF SM Crystal 30pF	Golledge	GSX-752A/351JF 6.0MHz
65	J1 J2 J3 J4 J5 J6 J7	4mm Non-Insulated Panel Socket 16A	PJP	3110I
66	J8	Phono Socket PCB mount Pair Red/White	Rapid	20-1290
67	LNK9 LNK10 LNK11 LNK12 LNK13 LNK_SPARE5 LNK_SPARE6 LNK_SPARE7 LNK_SPARE8 LNK_SPARE9	0.1" OPEN JUMPER LINK RED	Protech	22-3565
68	LNK5C LNK5B LNK5A LNK5D LNK16 LNK23 LNK24 LNK26 LNK27 LNK30 LNK_SPARE0 LNK_SPARE1 LNK_SPARE2 LNK_SPARE3 LNK_SPARE4	0.1" OPEN JUMPER LINK YELLOW	Protech	22-3570
69	C6	220uF 10 Dia 5 pitch Low Impedance TH Cap. 35V 20%	Panasonic	EEUFC1V221
70	U5	74LVC4245A Octal Dual Supply(5V, 1.5-3.6V) Transceiver SO	Philips	74LVC4245AD
71	U8	PCA9554D I2C I/O Expander	Philips	PCA9554D
72	C14	1uF 0603 SMD Ceramic Capacitor 6.3V X5R	MuRata	GRM188R60J105KA01D

<i>Item</i>	<i>RefDes</i>	<i>Description</i>	<i>Manufacturer</i>	<i>Manufacturer's Part Number</i>
73	U9	XC61C Low Power Consumption Voltage Detector	Torex	XC61CN4402NRN
74	PCB1	PCB	Kelan Circuits Ltd	6222-EV1-REV1
75	U4	WM8804 1:1 Digital Interface Transceiver with PLL	Wolfson Microelectronics	WM8804GEDS
Unpop				
76	L3 L4	10uH Shielded SM Power 1.1A Inductor ' LPS4018 series'	Coilcraft	LPS4018-103ML
77	C23 C24	4.7uF 0603 SMD Ceramic Capacitor 6.3V X5R	MuRata	GRM188R60J475KE19D
78	J17 J20 J21 J22	1x2 PCB Pin Header 0.1" VERTICAL	Harwin	M20-9990245
79	C29	4.7uF 0805 SMD Ceramic Capacitor 10V X7R	Taiyo Yuden	LMK212BJ475KG-TR
80	C31	680nF 0805 SMD Ceramic Capacitor 50V X7R	Kemet	C0805C684K5RAC
81	C28 C33	22pF 0805 SMD Ceramic Capacitor 100V NPO	AVX	08051A220JAT2A
82	C25 C26 C27	0.1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	2238 786 15649
83	C30 C32	22pF 0603 SMD Ceramic Capacitor 50V NPO	Phycomp	2238 867 15229
84	TP24	1.32mm PCB Test Terminal BLACK	Vero	20-2136
85	TP20 TP26 TP29 TP32 TP33	1.32mm PCB Test Terminal RED	Vero	20-313141
86	D6 D7	TVS Diode PESD5V0S2BT V _{rwm} =5V dual ESD Protection SOT23	Philips	PESD5V0S2BT
87	R16	100K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 100K
88	R4 R5	10R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 10R
89	FB1 FB2	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
90	U7	WM9081 Audio DAC with 2.6W Speaker Driver, Compressor and Parametric EQ	Wolfson Microelectronics	WM9081GICN

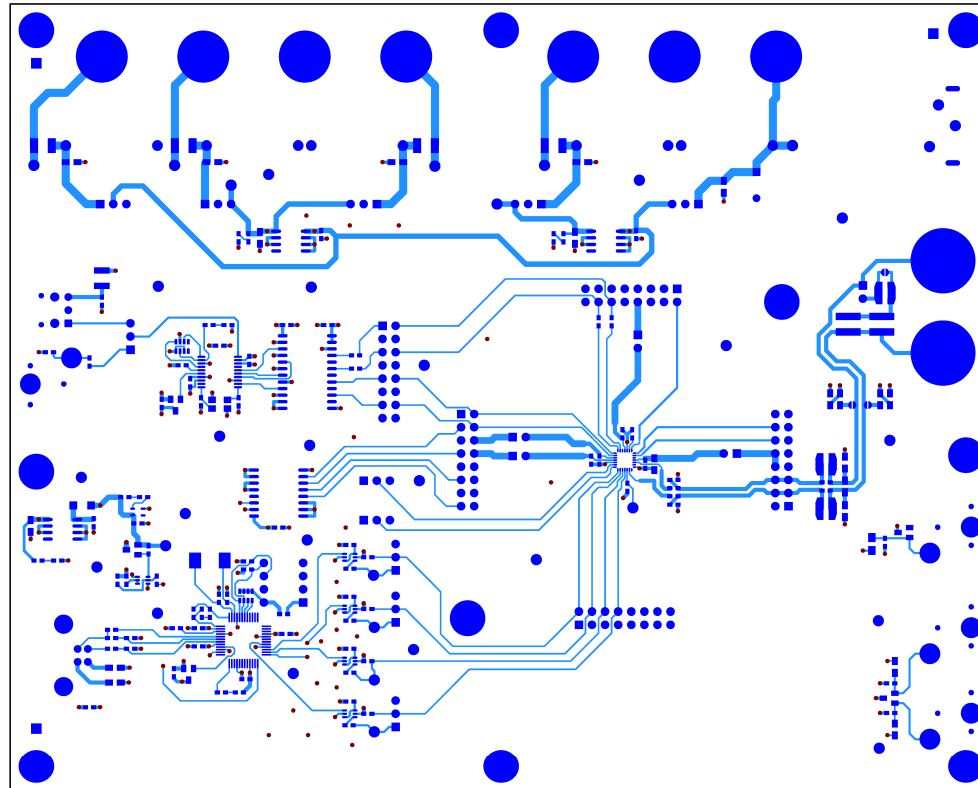
PCB LAYOUT



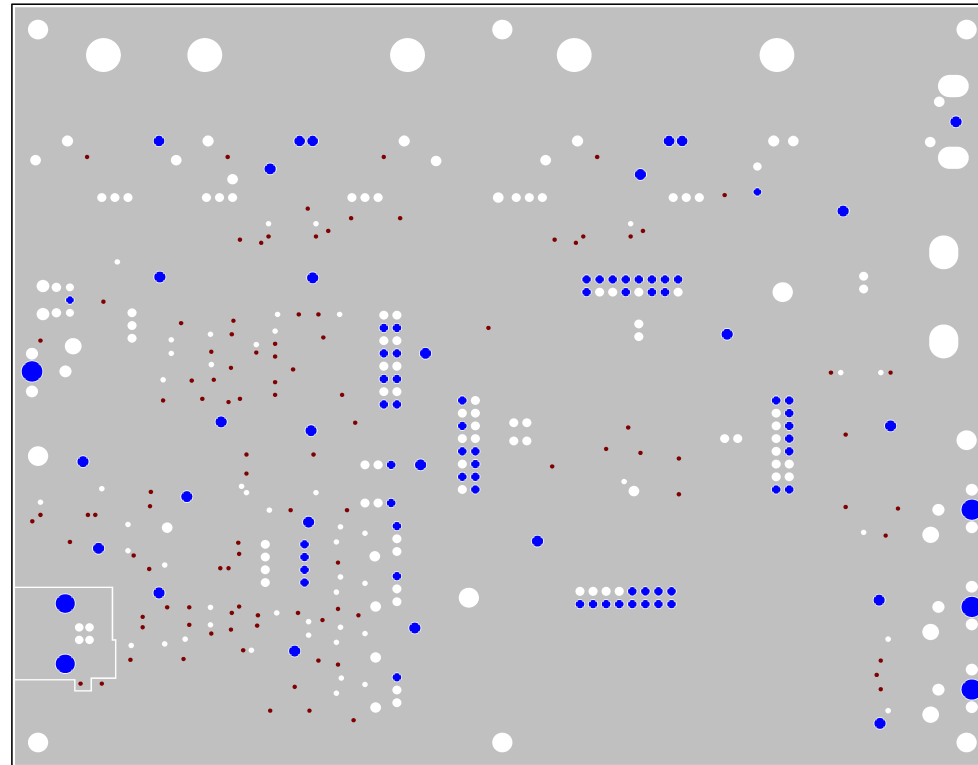
Top Layer: Overview



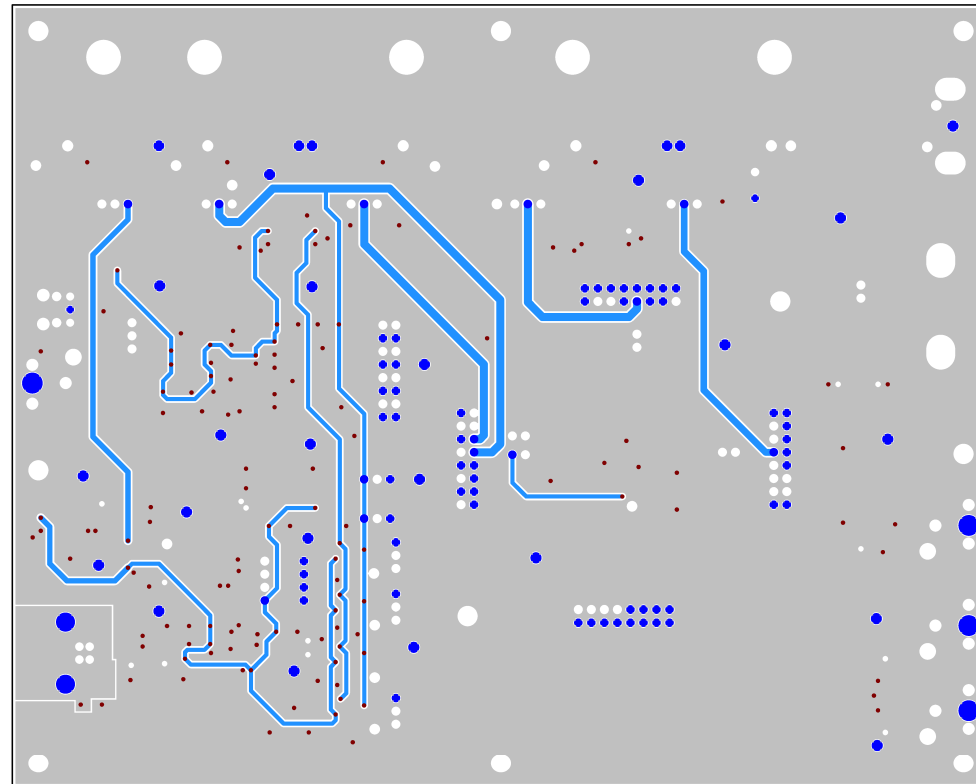
Top Layer: Silkscreen + Copper



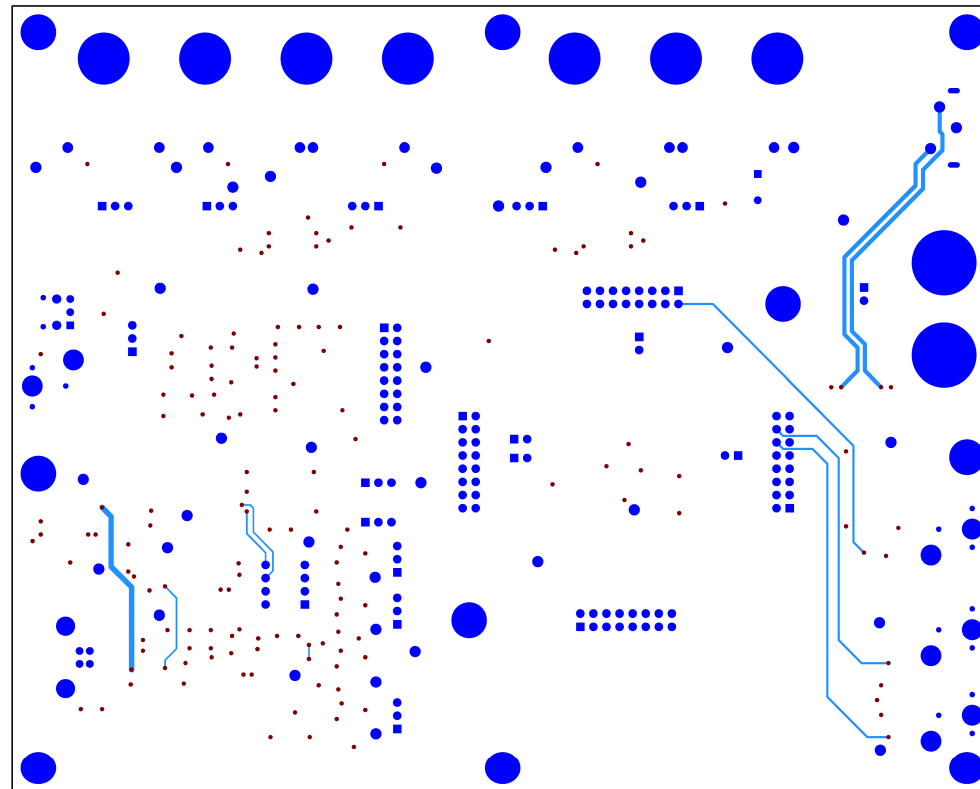
Top Layer: Copper



Layer 2: Copper

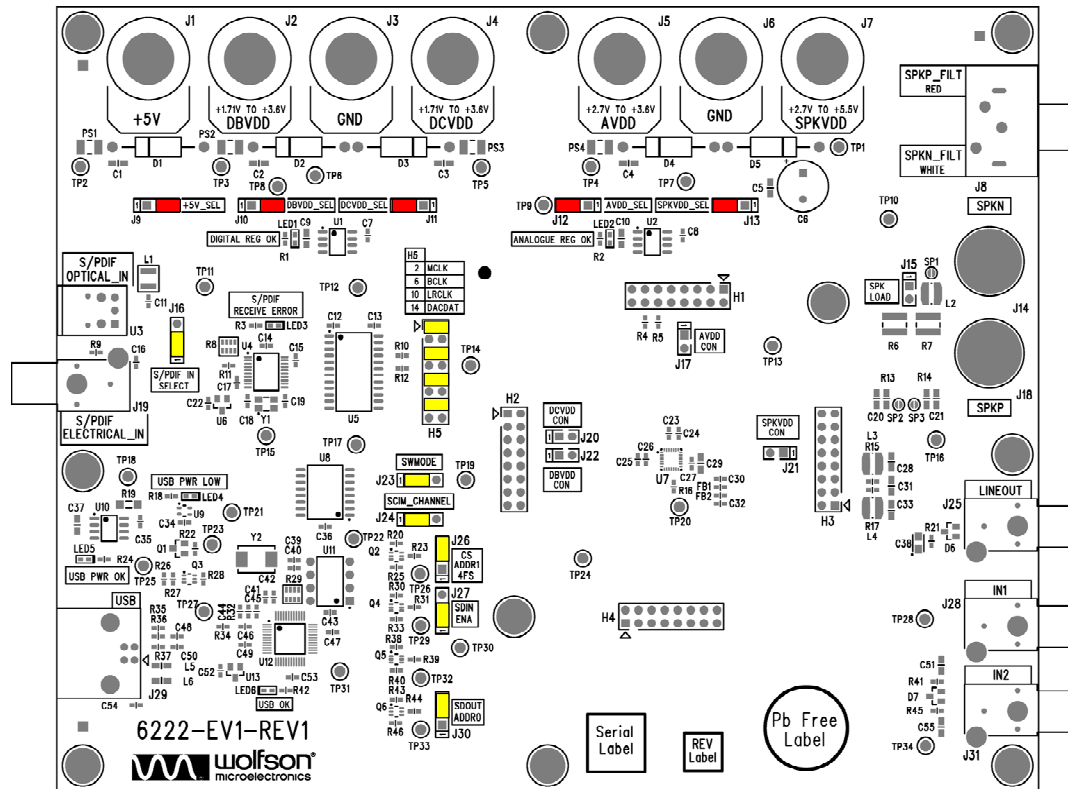


Layer 3: Copper



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