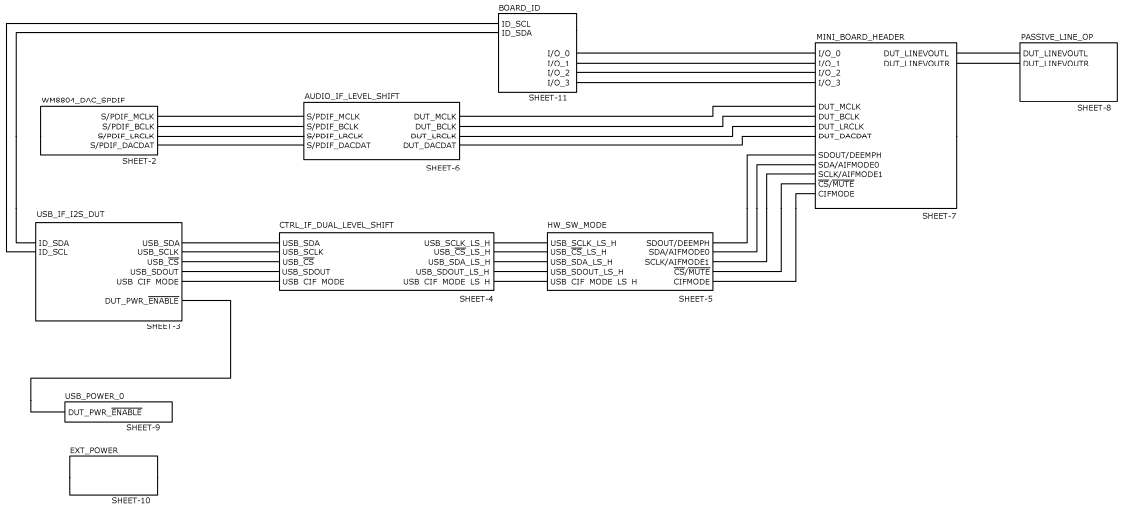
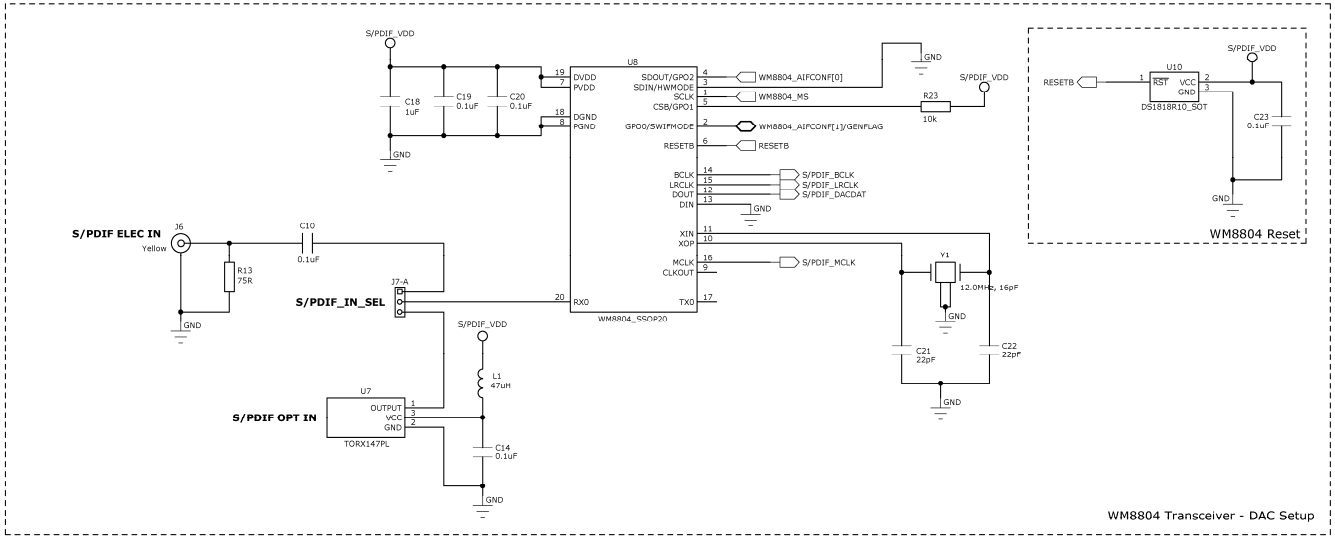
DOC TYPE:	SCHEMATIC AND LAYOUT
BOARD REFERENCE:	6228-EV1
BOARD TYPE:	Customer Main Board
WOLFSON DEVICE(S):	WM8523, WM8524
DATE:	March 2009
DOC REVISION:	Rev 1.0

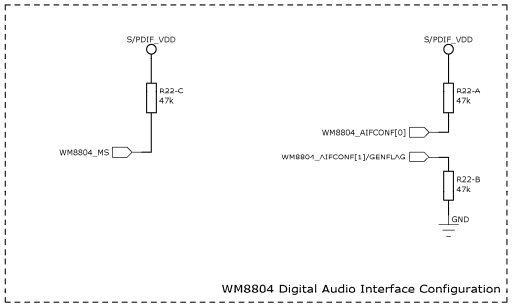
SCHEMATIC

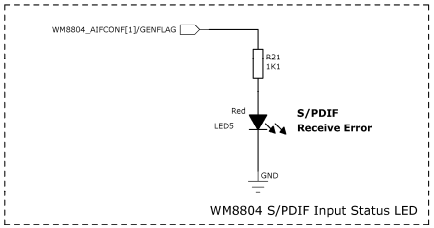
Sheet 1: Functional Diagram

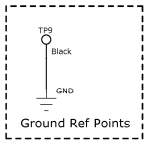


Sheet 2: S/PDIF Input

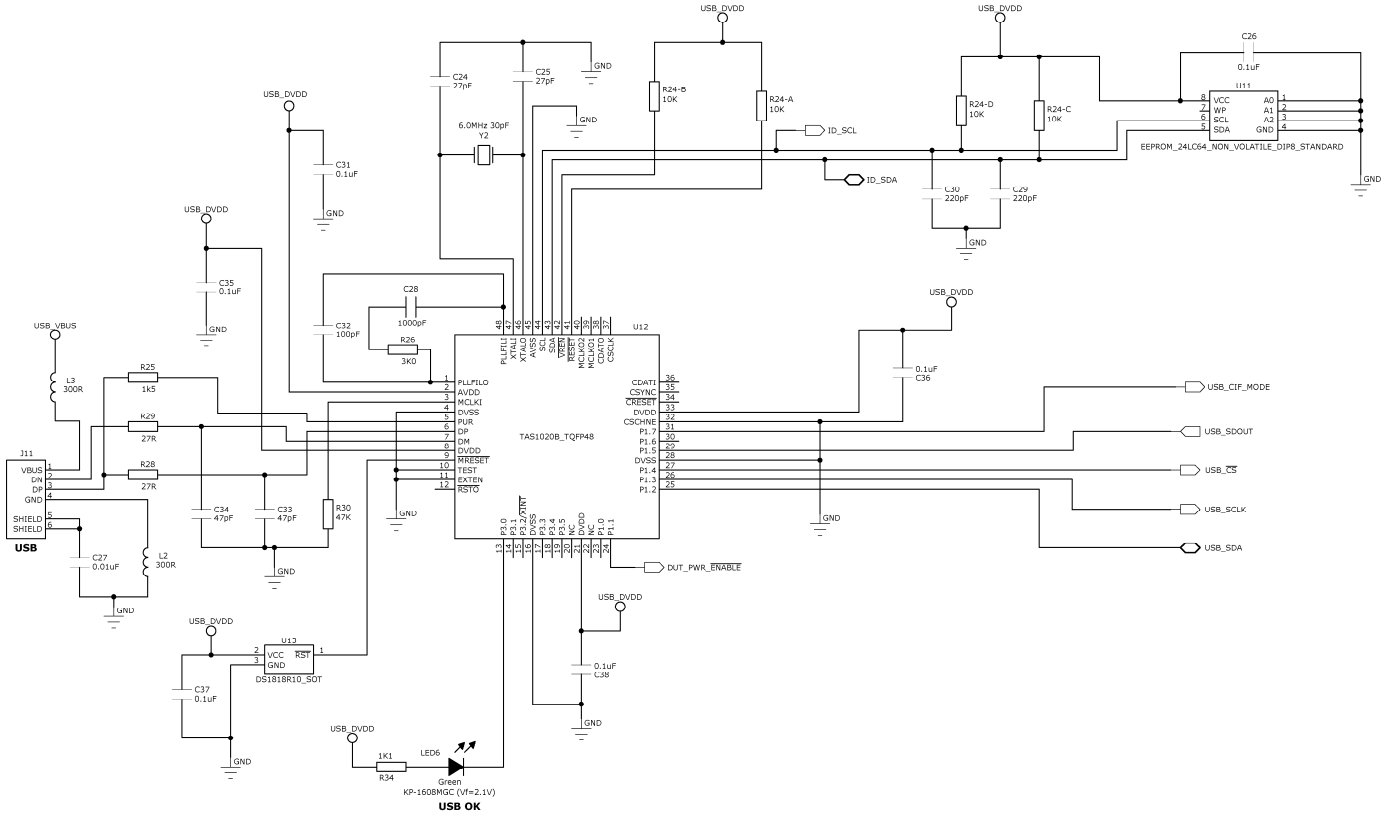




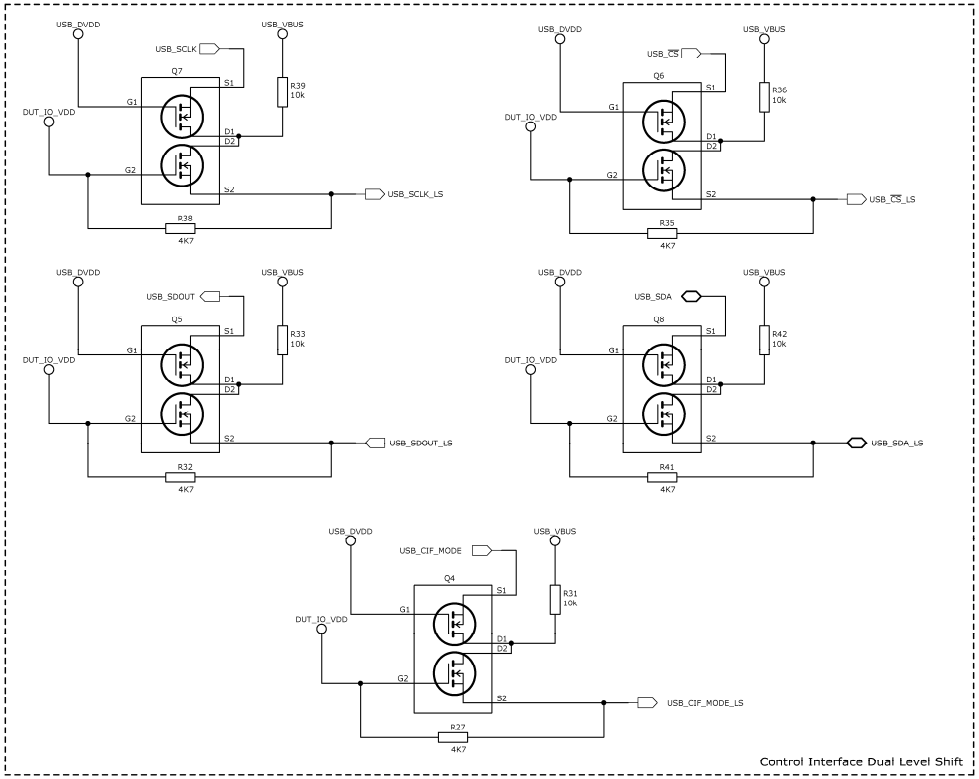


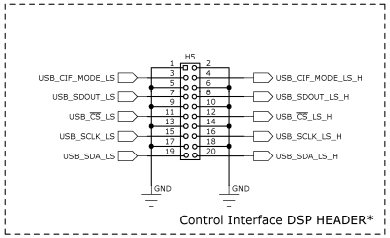


Sheet 3: USB Interface

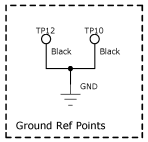


Sheet 4: Control Interface Level Shift

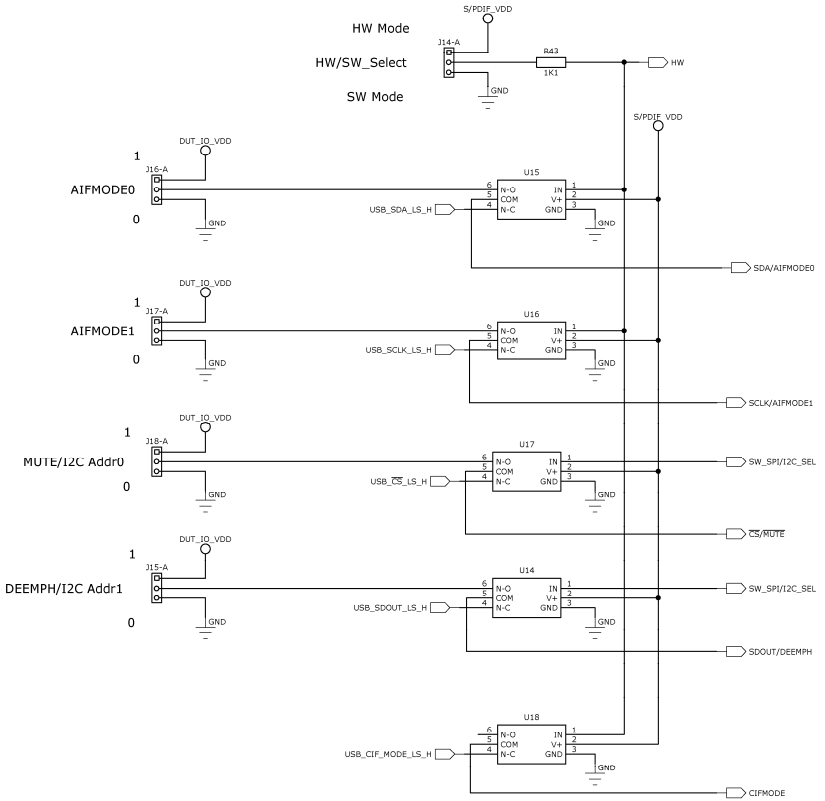


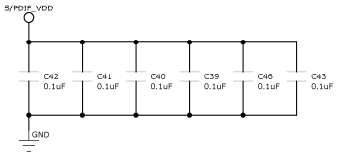


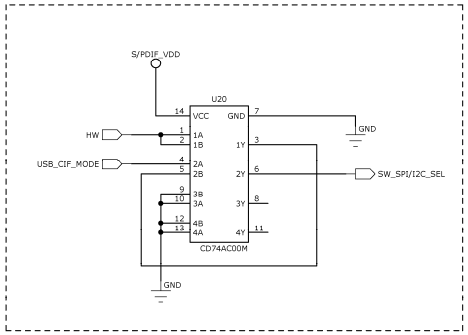
*CAUTION - REFERENCED TO DUT DIGITAL I/O VOLTAGE



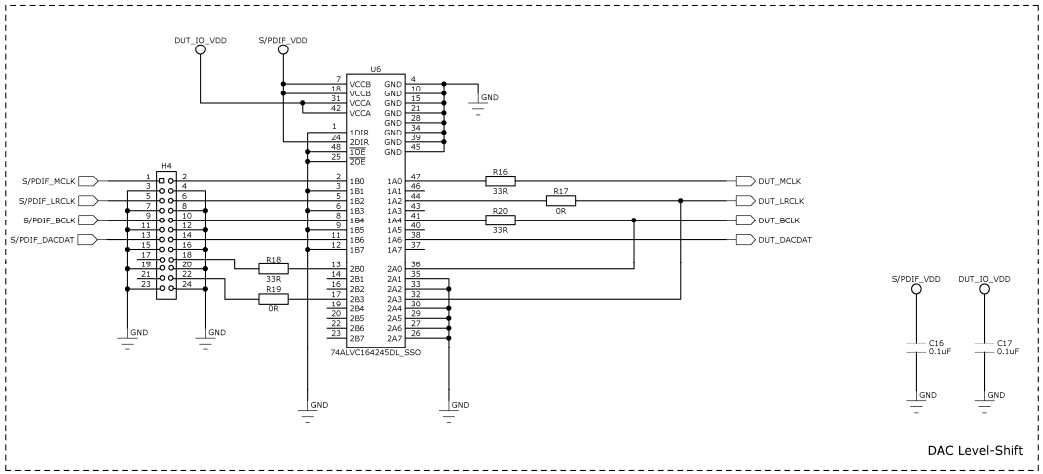
Sheet 5: HW / SW Select



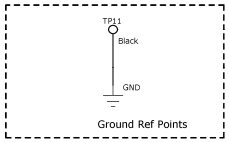


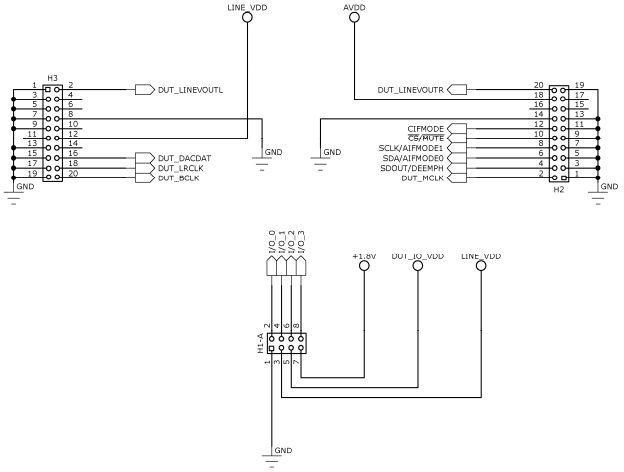


Sheet 6: Audio Interface Level Shift

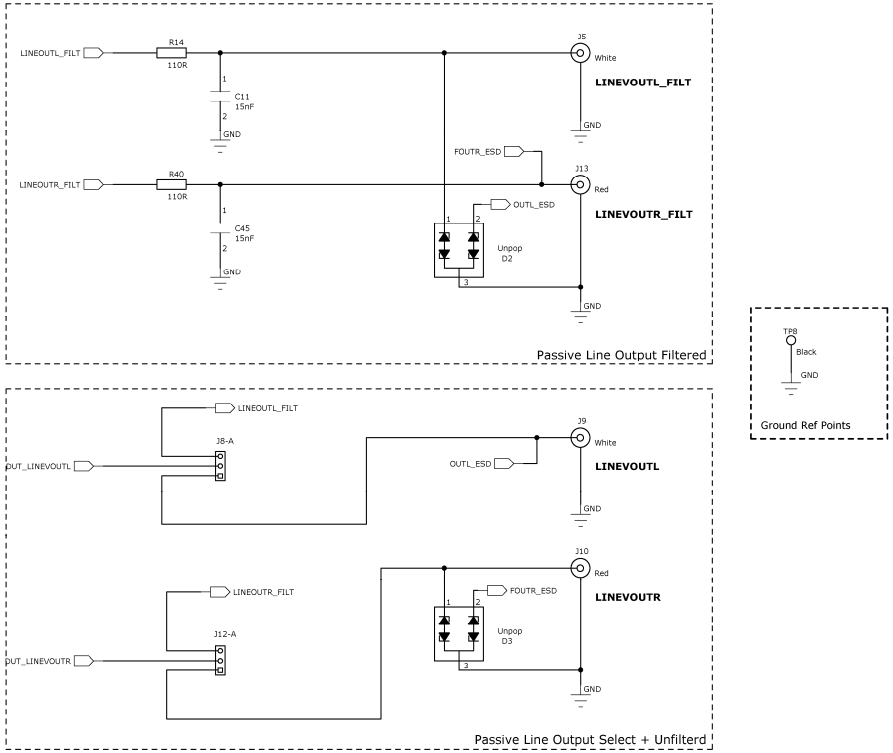


Sheet 7: Mini Board Connections

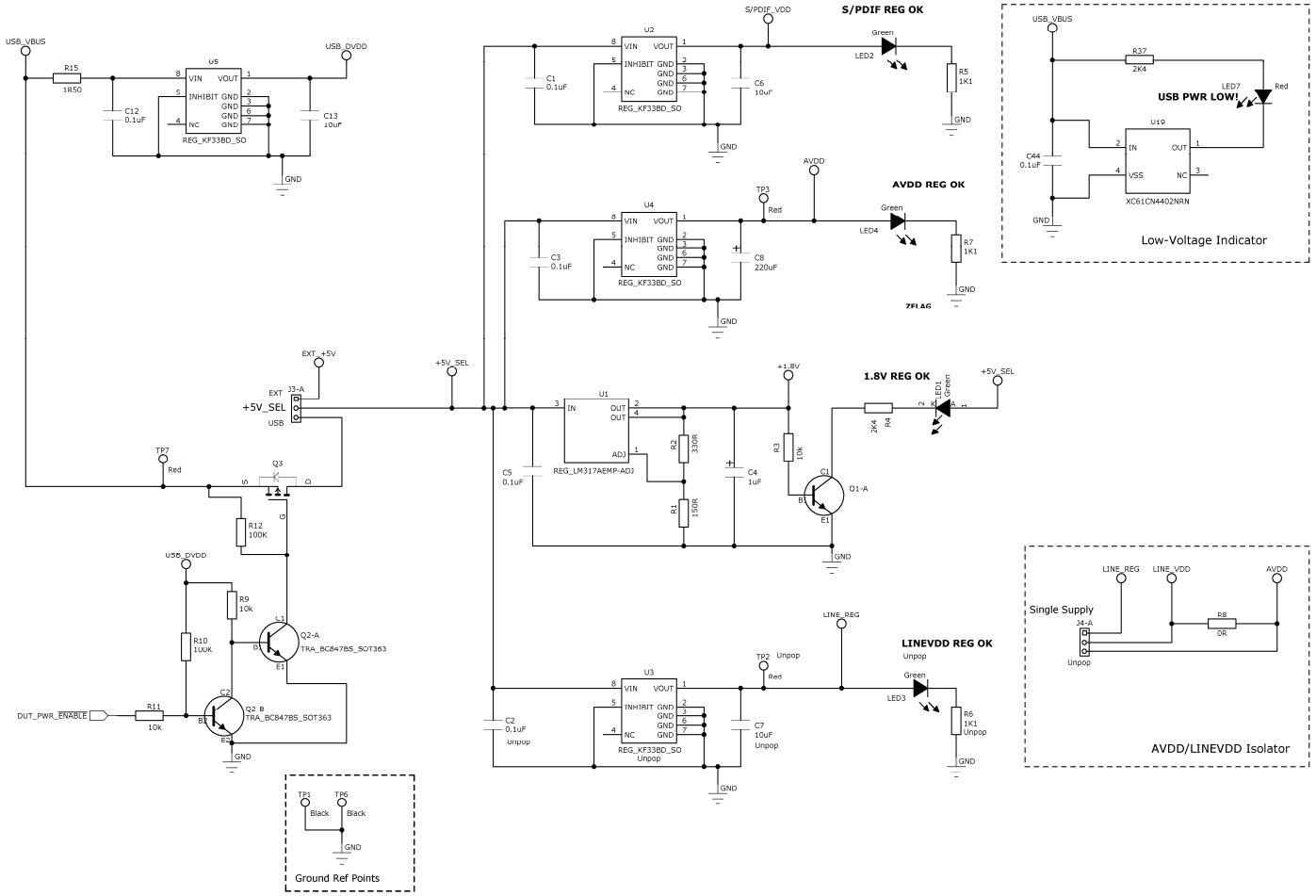




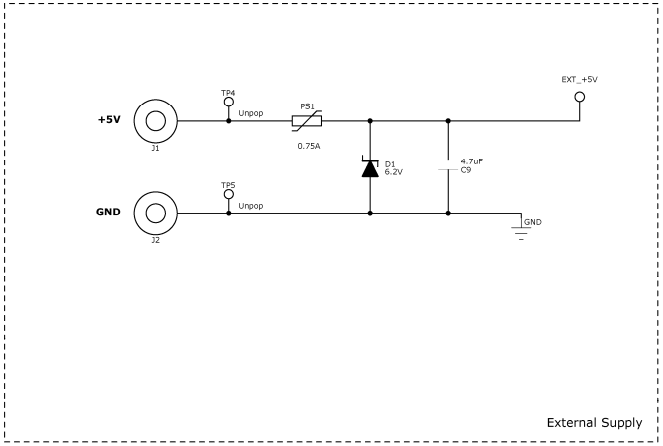
Sheet 8: Analogue Outputs



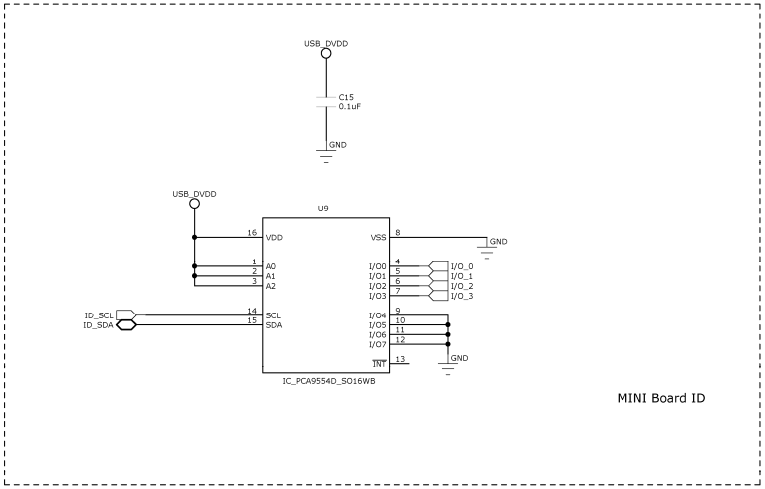
Sheet 9: USB Power



Sheet 10: External Power



Sheet 11: Board ID



Sheet 12: Reference Tables

	Short 1-2	Short 2-3
J3-B	EXT	USB
PCB Ref: +5V_SEL		

LNK_J3: RED, Fit to J3:2-3 — 2-3

	Short 1-2	Short 2-3
J7-B	Electrical Input	Optical Input
PCB Ref: S/PDIF_IN_SEL		

LNK_J7: YELLOW, Fit to J7:1-2 — 1-2

	Short 1-2	Short 2-3
J14-B	HW Mode	SW Mode
PCB Ref: HW/SW_Select		

LNK_J14: YELLOW, Fit to J14:1-2 — 1-2

	Short 1-2	Short 2-3
J16-B	1	0
PCB Ref: AIFMODE0		

LNK_J16: YELLOW, Fit to J16:1-2 — 1-2

	Short 1-2	Short 2-3
J17-B	1	0
PCB Ref: AIFMODE1		

LNK_J17: YELLOW, Fit to J17:2-3 — 2-3

	Short 1-2	Short 2-3
J18-B	1	0
PCB Ref: MUTE/I2C Addr0		

LNK_J18: YELLOW, Fit to J18:1-2 — 1-2

	Short 1-2	Short 2-3
J15-B	1	0
PCB Ref: DEEMPH/I2C Addr1		

LNK_J15: YELLOW, Fit to J15:2-3 — 2-3

	Short 1-2	Short 2-3
J12-B	NO FILTER	FILTER
PCB Ref: OUTR Filter Select		

LNK_J12: YELLOW, Fit to J12:2-3 — 2-3

	Short 1-2	Short 2-3
J8-B	NO FILTER	FILTER
PCB Ref: OUTL Filter Select		

LNK_J8: YELLOW, Fit to J8:2-3 — 2-3

	Short 1-2	Short 2-3
J4-B	AVDD/LINEVDD Isolated	AVDD = LINEVDD
PCB Ref: Single Supply		

Unpop

Default: USB Power, DUT Slave, Electrical S/PDIF, HW Mode, I2S Format, No DEEMPH, No MUTE, Filtered Output
: When HW/SW_Select = SW Mode, default I2C address = 36

BILL OF MATERIALS (BOM)

BOM Revision: 1.08

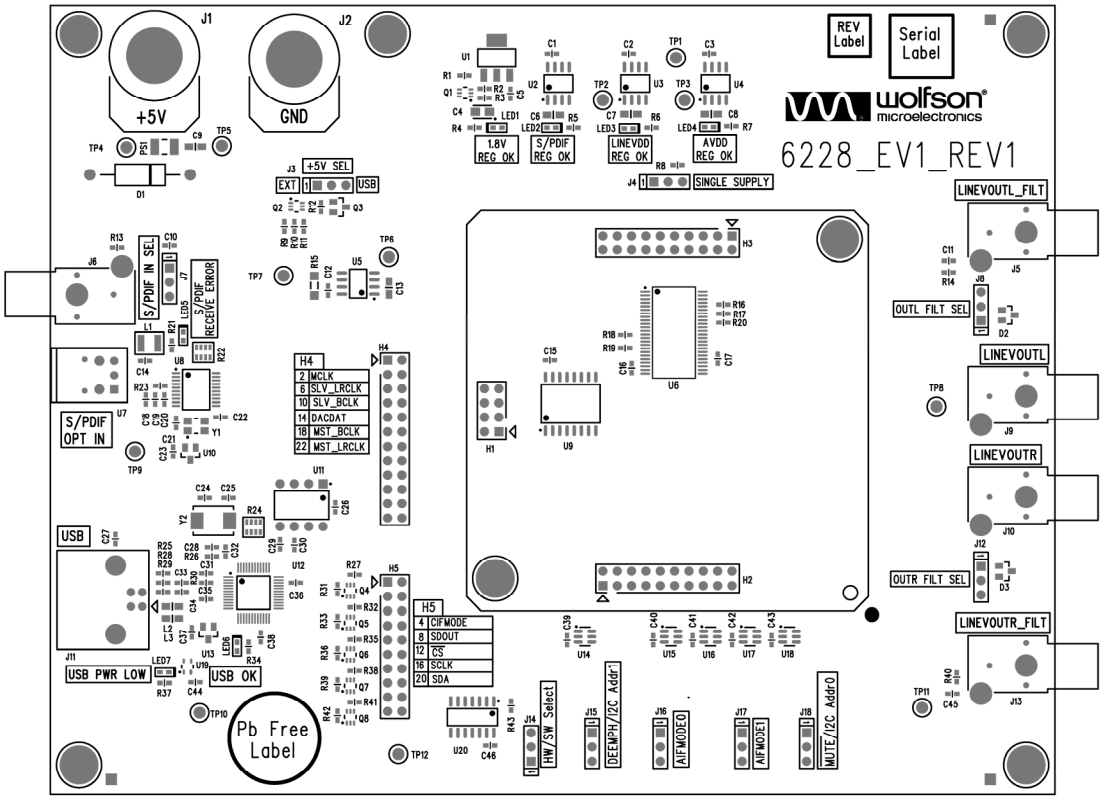
Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
1	U6	74ALVC164245 16 Bit Dual Supply Bus Transceiver SSO	Philips	74ALVC164245DL
2	U12	USB Streaming Controller	Texas Instruments	TAS1020BPFB
3	C6 C13	10uF 0805 SMD Ceramic Capacitor 6.3V X5R	MuRata	GRM21BR60J106KE19L
4	C24 C25	27pF 0603 SMD Ceramic Capacitor 50V NPO	Panasonic	ECJ-1VC1H270J
5	J6	Phono Socket PCB mount YELLOW	Dragon City	RS109 - Yellow
6	J10 J13	Phono Socket PCB mount RED	Dragon City	RS-109 Red
7	J5 J9	Phono Socket PCB mount WHITE	Dragon City	RS-109 White
8	MISC2	Lead-free label, 15mm round	Brady	Y436425
9	H1	2x4 2.54mm pitch PCB Pin Header VERTICAL	Harwin	M20-9980445
10	H2 H3 H5	2x10 2.54mm pitch PCB Pin Header VERTICAL	Harwin	M20-9981045
11	J3 J7 J8 J12 J14 J15 J16 J17 J18	1x3 2.54mm Header Vertical	Harwin	M20-9990345
12	Q1 Q2	BC847BS NPN Dual Bipolar Transistor SOT363	Philips	BC847BS
13	J11	USB receptacle Type B	FCI	61729-0010BLF
14	U20	Quad 2 I/P NAND Gate	Texas Instruments	CD74AC00M
15	MECH1	IC Socket DIL 8 WAY	Multicomp	2227MC-08-03-F1
16	L2 L3	300R 0805 BMB2A Ferrite Bead	Meggitt	BMB2A0300AN1
17	L1	47uH 1210 Surface Mount Inductor 'PA series'	Panasonic	ELJPA470KF
18	U7	TORX147PL Digital Audio Fiber Optic Receiver	Toshiba	TORX147PL
19	PS1	0.75A Poly Switch 1210	Raychem	MICROSMD075F-2
20	U14 U15 U16 U17 U18	Low Voltage Single Supply Analog Switch	ANALOG DEVICES	ADG719BRTZ-500RL7
21	SC1 SC100 SC101 SC102 SC103 SC104 SC105	Slotted Panhead Screw - M3 thread; 12mm long	TR Fasteners	M312 PSSTMCZ100-
22	W1 W100 W101 W102 W103 W104 W105	Plain M3 size washer	TR Fasteners	M3-FABRWAN100-
23	Q4 Q5 Q6 Q7 Q8	Si1902DL N- Channel Dual MOSFET SC-70	Vishay	SI1902DL-T1-E3
24	C11 C45	15nF 0603 SMD Ceramic Capacitor 25V NPO	Kemet	C0603C153J3GAC 7867
25	C8	220uF 4V SMD Tantalum Capacitor case P	Vishay	298D227X0004P2T
26	R15	1R50 1206 SMD chip resistor 5% 0.25W	Vishay	2312 1551 1508

Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
27	C1 C3 C5 C10 C12 C14 C15 C16 C17 C19 C20 C23 C26 C31 C35 C36 C37 C38 C39 C40 C41 C42 C43 C44 C46	0.1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	2238 786 15649
28	C33 C34	47pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A470JAT2A
29	C29 C30	220pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A221JAT2A
30	P1 P100 P101 P102 P103 P104 P105	Hexagonal brass M3 size spacer 20mm length	Harwin	R6379-02
31	C21 C22	22pF 0603 SMD Ceramic Capacitor 50V NPO	Phycomp	2238 867 15229
32	C27	0.01uF 0603 SMD Ceramic Capacitor 50V X7R	Phycomp	2238 586 15636
33	LED1 LED2 LED4 LED6	KP-1608MGC 0603 SMD Chip LED GREEN	Kingbright	KP-1608MGC
34	LED5 LED7	KP-1608SURC 0603 SMD Chip LED RED	Kingbright	KP-1608SURC
35	TP1 TP6 TP8 TP9 TP10 TP11 TP12	1.32mm PCB Test Terminal BLACK	Vero	20-2136
36	TP3 TP7	1.32mm PCB Test Terminal RED	Vero	20-313141
37	C9	4.7uF 0805 SMD Ceramic Capacitor 16V X5R	Kemet	C0805C475K4PAC
38	R24	10K 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 03510 103
39	R22	47k 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 035 10473
40	R3 R9 R11 R23 R31 R33 R36 R39 R42	10k 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 10K
41	R10 R12	100K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 100K
42	R14 R40	110R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 110R
43	R5 R7 R21 R34 R43	1K1 0603 SMD chip resistor 1% 0.1W	Multicomp	MC 0.063W 0603 1% 1K1
44	R1	150R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 150R
45	R25	1k5 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 1K5
46	R4 R37	2K4 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 2K4
47	R28 R29	27R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 27R
48	R26	3K0 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 3K
49	R2	330R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 330R
50	R16 R18 R20	33R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 33R
51	R27 R32 R35 R38 R41	4K7 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 4K7
52	R30	47K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 47K
53	R13	75R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 75R

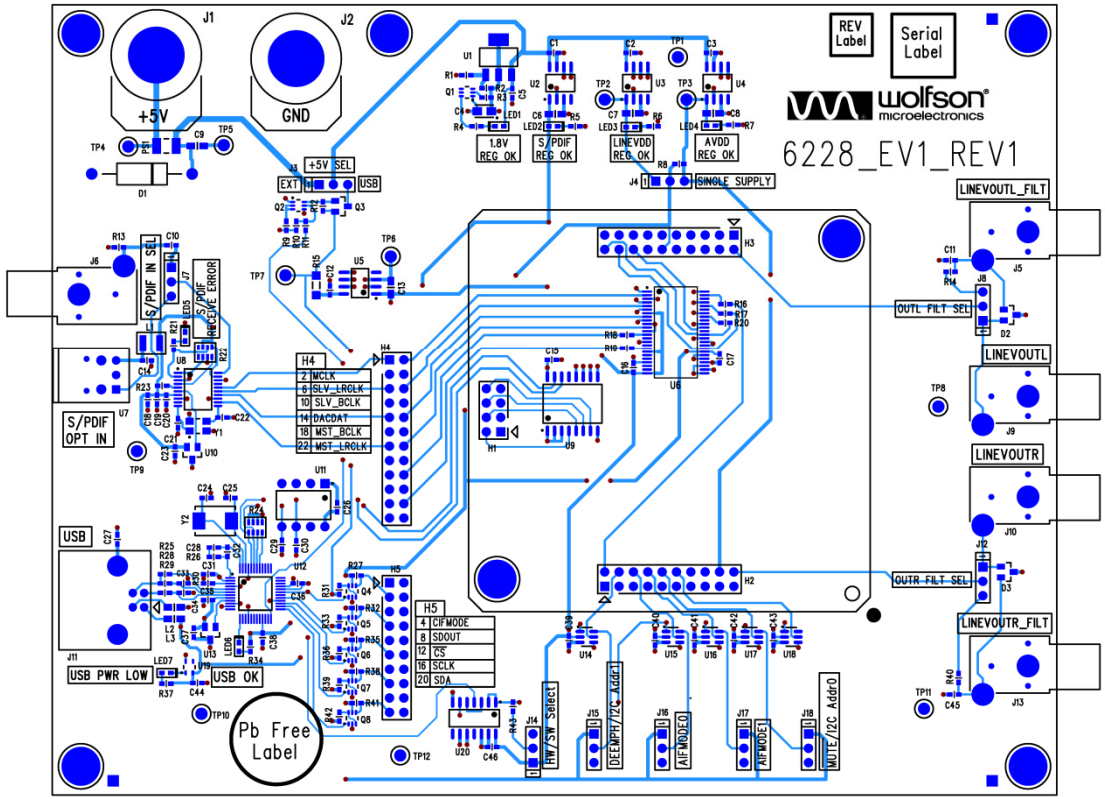
Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
54	R8 R17 R19	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
55	C32	100pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C101JCT
56	C28	1000pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C102JCT
57	Q3	P-Channel MOSFET 60v, Rds(on) = 0.17R - SOT23	Vishay	SI2309DS
58	D1	1N5341B 6.2V 5W Zener Diode PTH	ON Semiconductor	1N5341BG
59	U10 U13	DS1818 3.3V active-low Power-On-Reset chip SOT	Dallas Semiconductor	DS1818R-10+
60	U2 U4 U5	KF33BD Very Low Drop +3.3V Voltage Regulator SO	ST Microelectronics	KF33BD
61	U11	EEPROM 8x8 i2c interface - with Wolfson "Standard" code	Microchip Technology	24LC64-I/P
62	U1	REG LM317A 1.2 - 25V 1A ADJUSTABLE	National Semiconductor	LM317AEMP
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	4mm Non-Insulated Panel Socket 16A	PJP	3110I
66	LNK_J3	0.1" OPEN JUMPER LINK RED	Protech	22-3565
67	LNK_H5-5 LNK_H4-4 LNK_H5-4 LNK_H4-3 LNK_H5-3 LNK_H4-2 LNK_H5-2 LNK_H4-1 LNK_H5-1 LNK_J7 LNK_J8 LNK_J12 LNK_J14 LNK_J15 LNK_J16 LNK_J17 LNK_J18	0.1" OPEN JUMPER LINK YELLOW	Protech	22-3570
68	C4	Tantalum Capacitor SMD-A 1uF - 25V - AVX	AVX	THJA105K025RJN
69	U9	PCA9554D I2C I/O Expander	Philips	PCA9554D
70	C18	1uF 0603 SMD Ceramic Capacitor 6.3V X5R	MuRata	GRM188R60J105KA01D
71	H4	2x12 2.54mm pitch PCB Pin Header VERTICAL	Toby	THD-12-R
72	U19	XC61C Low Power Consumption Voltage Detector	Torex	XC61CN4402NRN
73	PCB1	PCB	Lyncolec	6228-EV1-REV1
74	U8	WM8804 1:1 Digital Interface Transceiver with PLL	Wolfson Microelectronics	WM8804GEDS

Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
Unpop				
75	C7	10uF 0805 SMD Ceramic Capacitor 6.3V X5R	MuRata	GRM21BR60J106KE19L
76	J4	1x3 2.54mm Header Vertical	Harwin	M20-9990345
77	C2	0.1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	2238 786 15649
78	LED3	KP-1608MGC 0603 SMD Chip LED GREEN	Kingbright	KP-1608MGC
79	TP2	1.32mm PCB Test Terminal RED	Vero	20-313141
80	D2 D3	TVS Diode PESD5V0S2BT Vrwm=5V dual ESD Protection SOT23	Philips	PESD5V0S2BT
81	R6	1K1 0603 SMD chip resistor 1% 0.1W	Multicomp	MC 0.063W 0603 1% 1K1
82	U3	KF33BD Very Low Drop +3.3V Voltage Regulator SO	ST Microelectronics	KF33BD
83	TP4 TP5	1.32mm off-board connection point	N/A	N/A

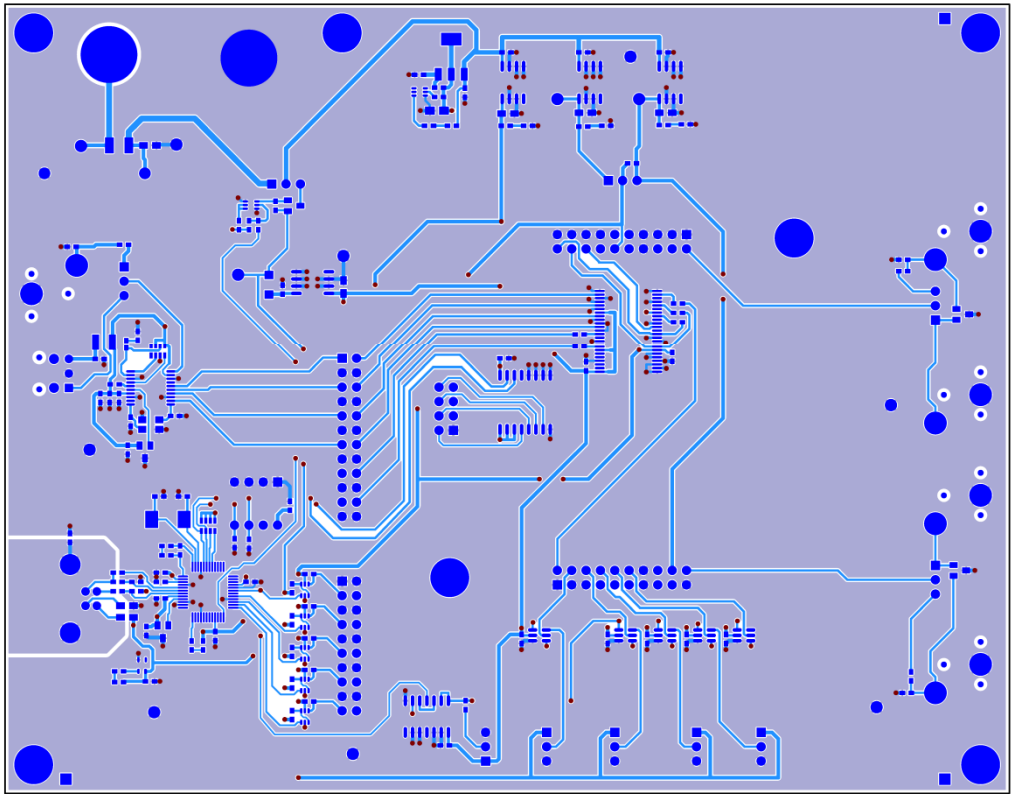
PCB LAYOUT



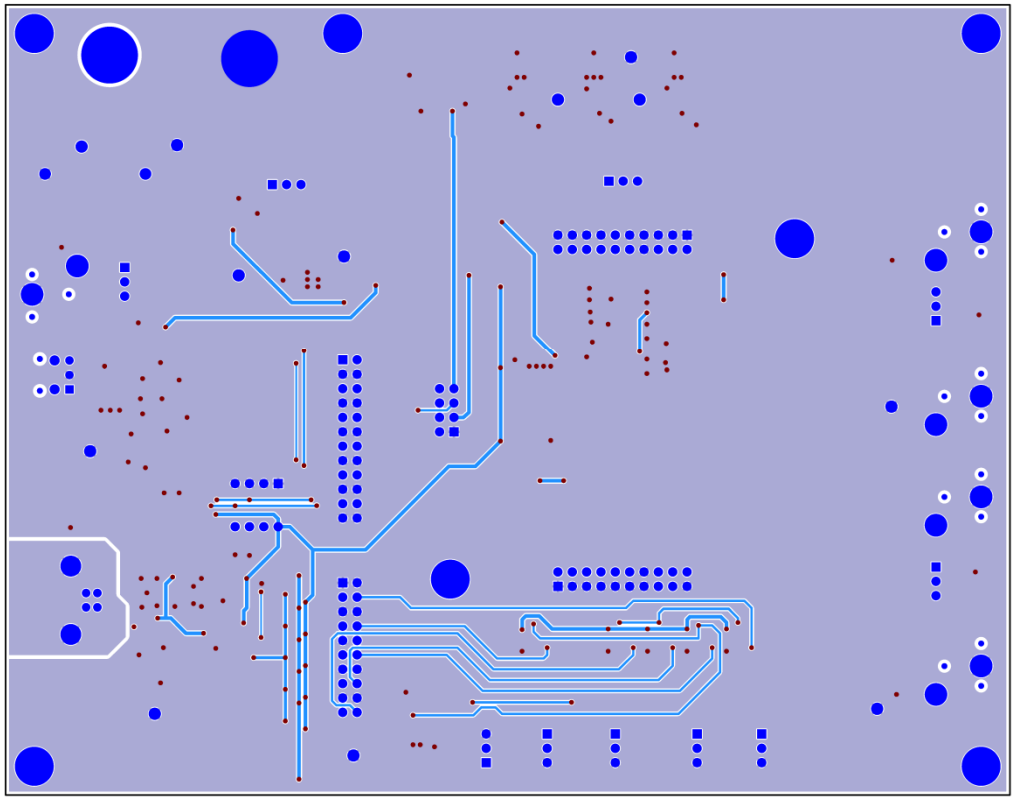
Top Layer: Overview



Top Layer: Silkscreen + Copper



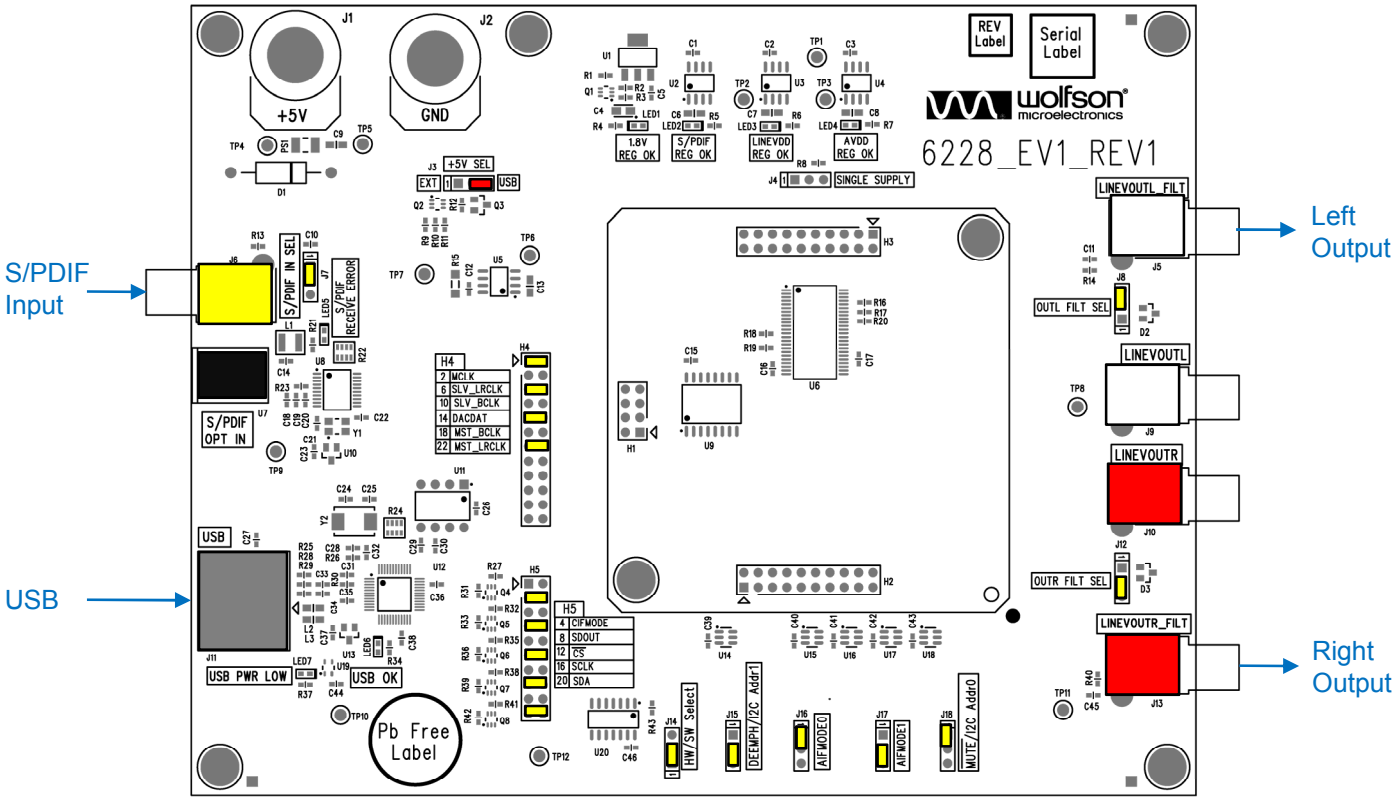
Top Layer: Copper



Bottom Layer: Copper

GENERIC BOARD CONFIGURATION

Default: USB Power, DUT Slave, Electrical S/PDIF, HW Mode, I2S Format, No DEEMPH, No MUTE, Filtered Output.



APPLICATION SUPPORT

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

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