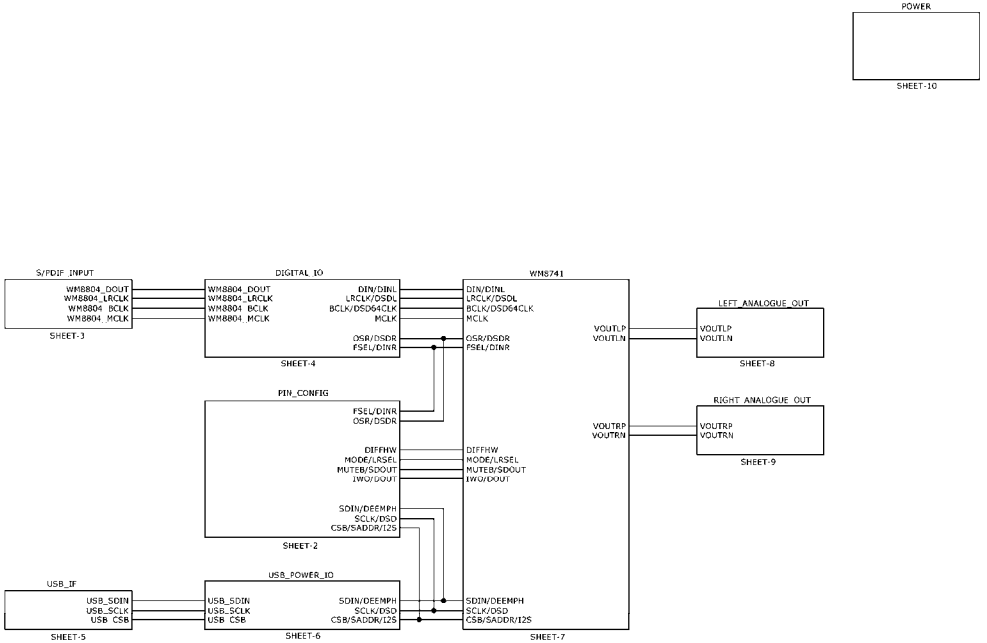
WM8741-6060-DS28-EV2-REV1
Schematic and Layout

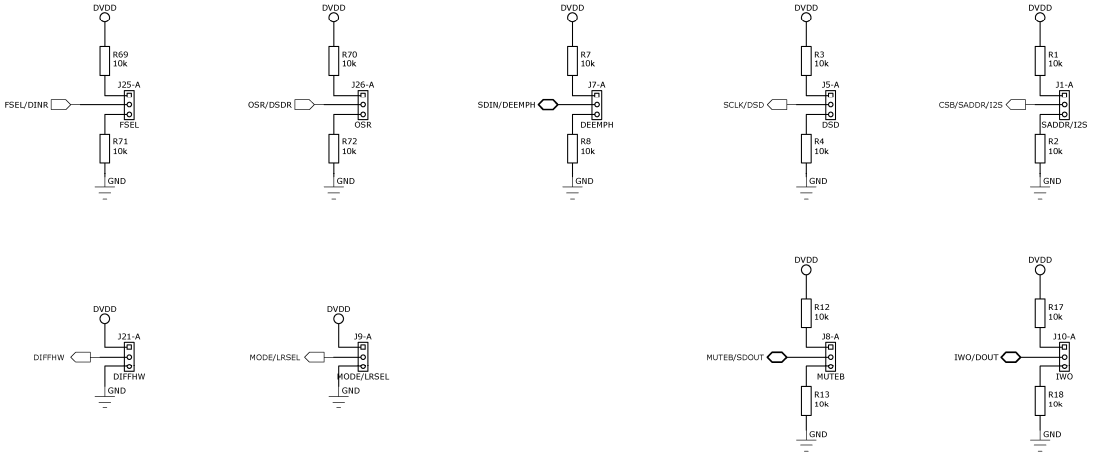
DOC TYPE:	SCHEMATIC AND LAYOUT
BOARD REFERENCE:	WM8741-6060-DS28-EV2-REV1
BOARD TYPE:	Customer Standalone
WOLFSON DEVICE(S):	WM8741
DATE:	October 2008
DOC REVISION:	Rev 1.0

SCHEMATIC

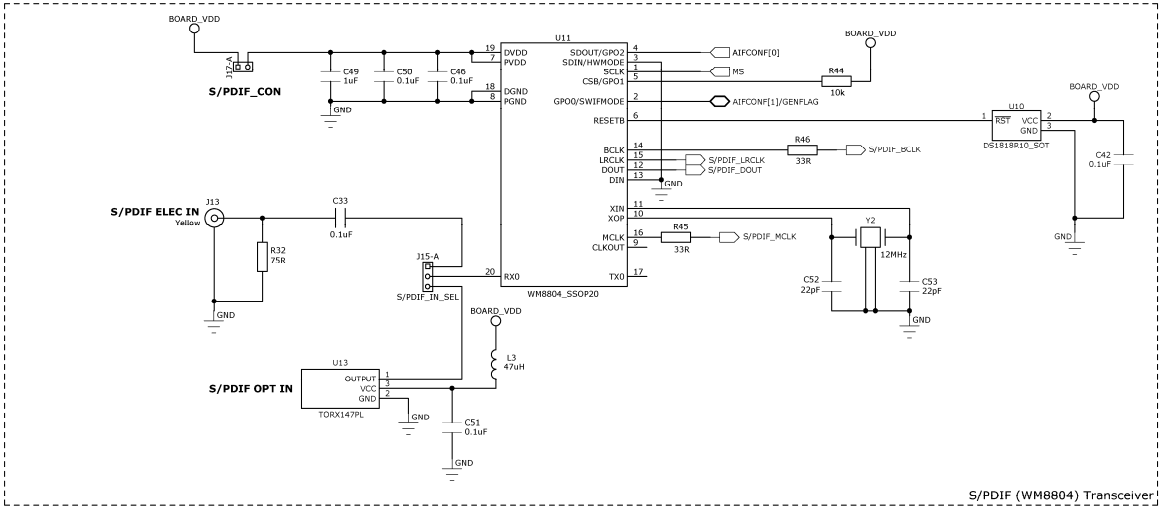
Sheet 1: Functional Diagram

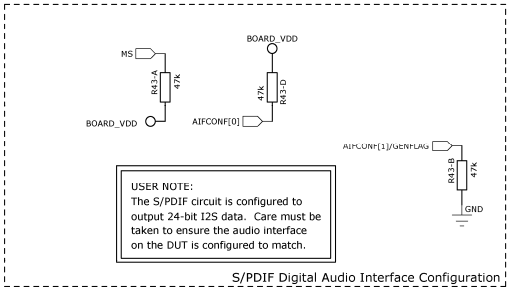


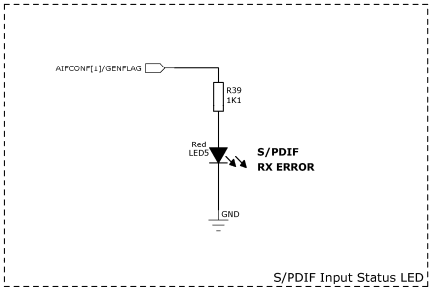
Sheet 2: Pin Configuration

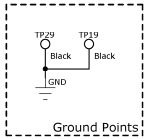


Sheet 3: S/PDIF Input

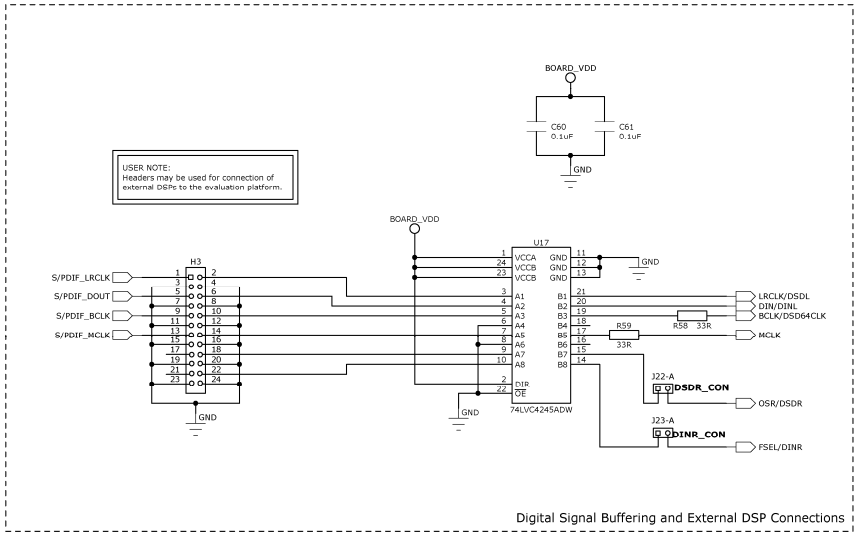






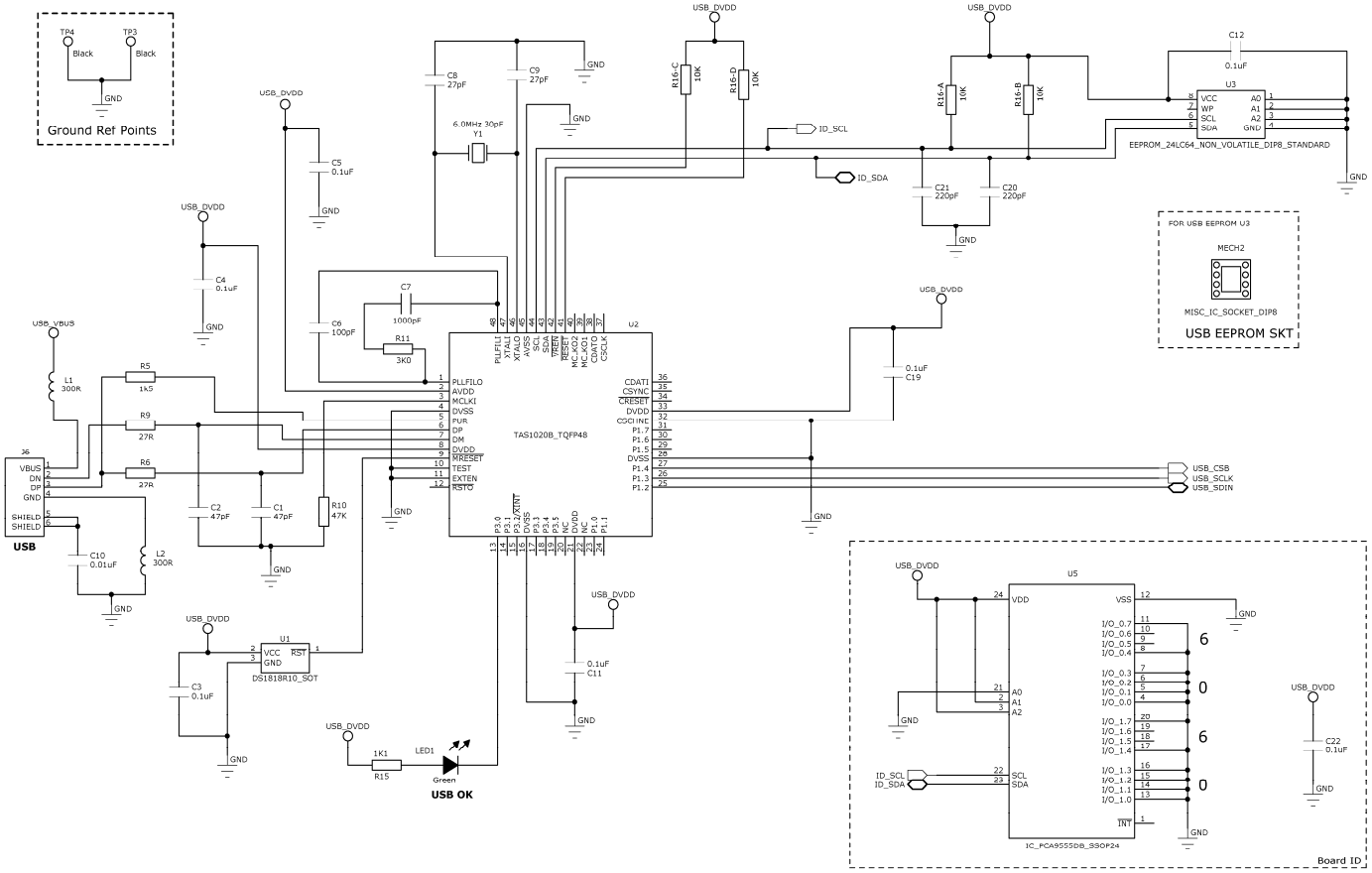


Sheet 4: Digital I/O

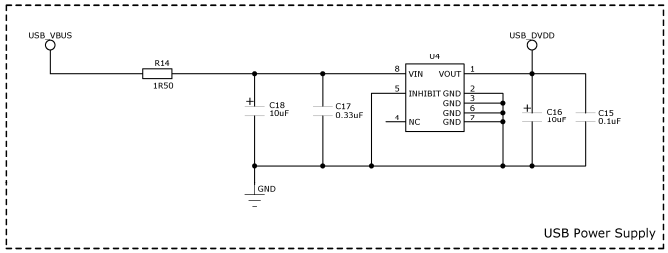


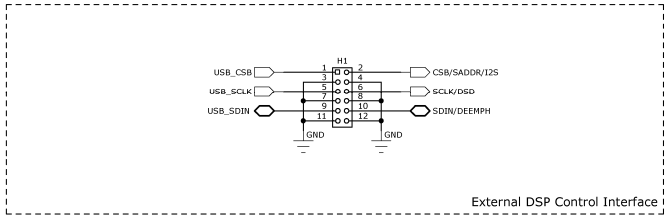
Digital Signal Buffering and External DSP Connections

Sheet 5: USB Interface

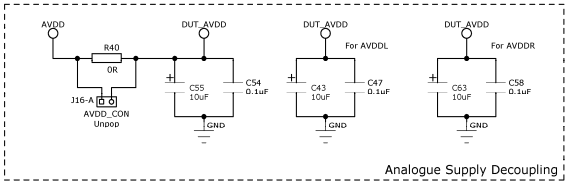


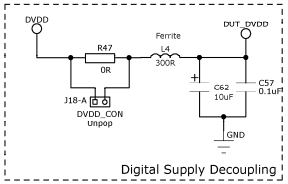
Sheet 6: USB Power and I/O

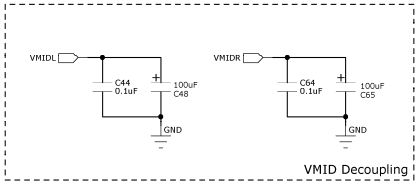


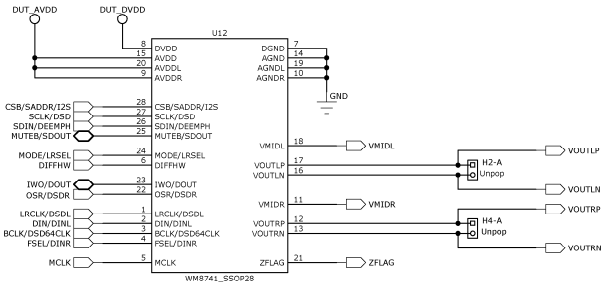


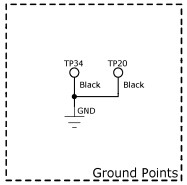
Sheet 7: WM8741

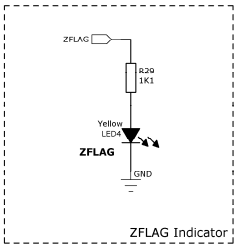




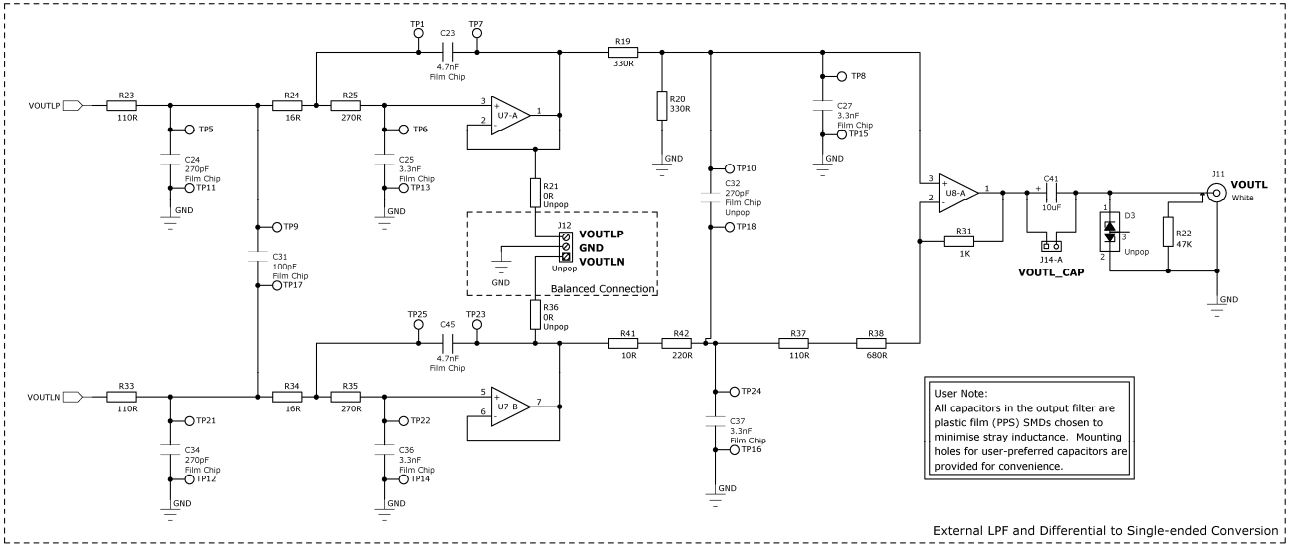




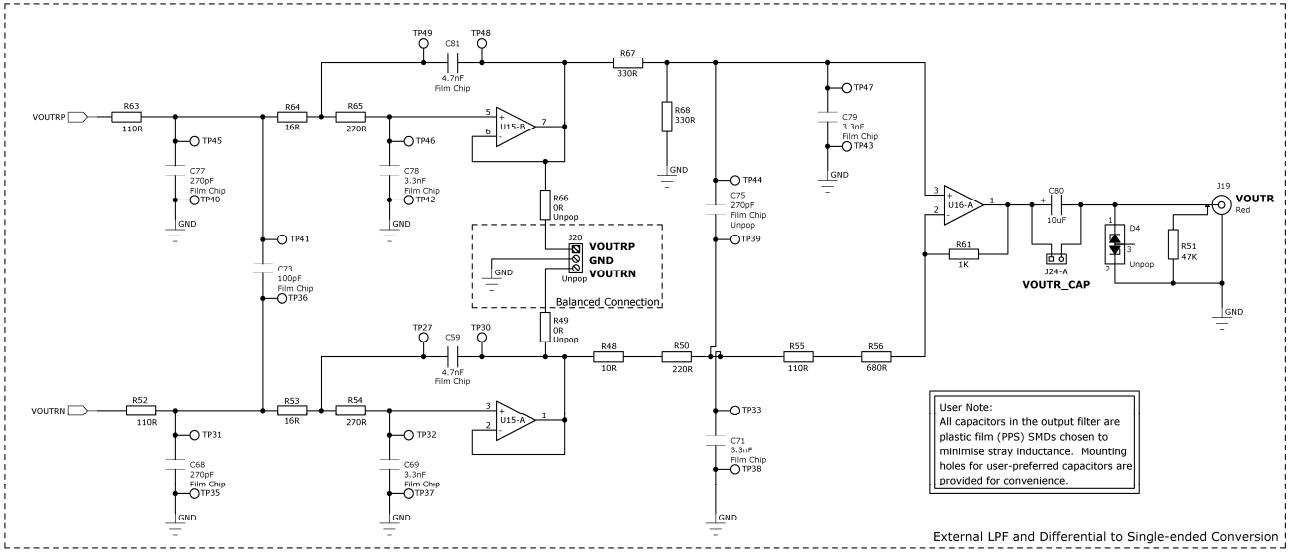


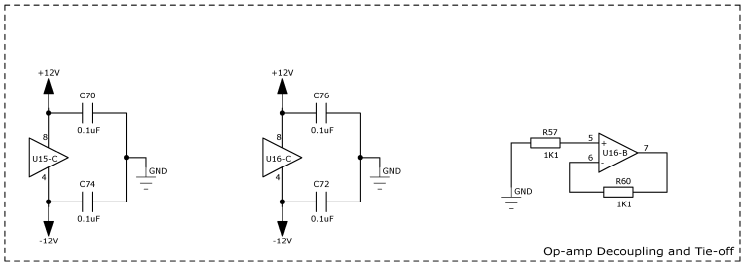


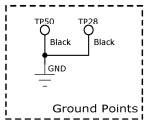
Sheet 8: Left Analogue Output



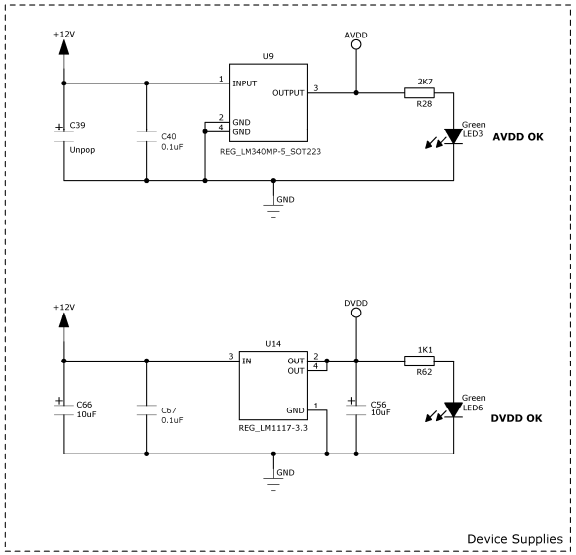
Sheet 9: Right Analogue Output

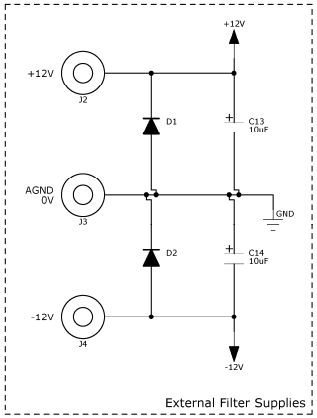


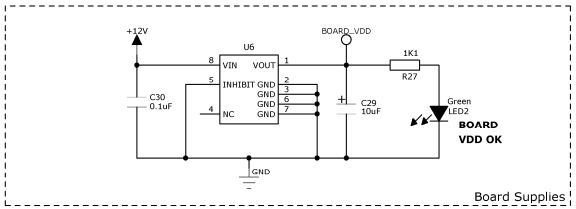




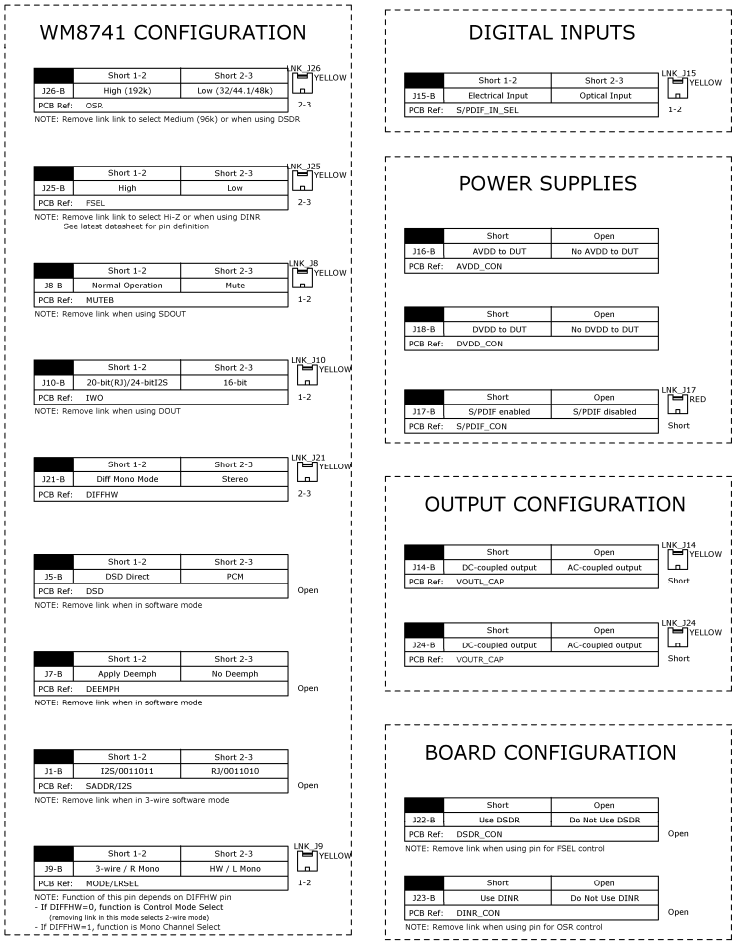
Sheet 10: Power







Sheet 11: Reference Tables



BILL OF MATERIALS (BOM)

BOM Revision: 1.09

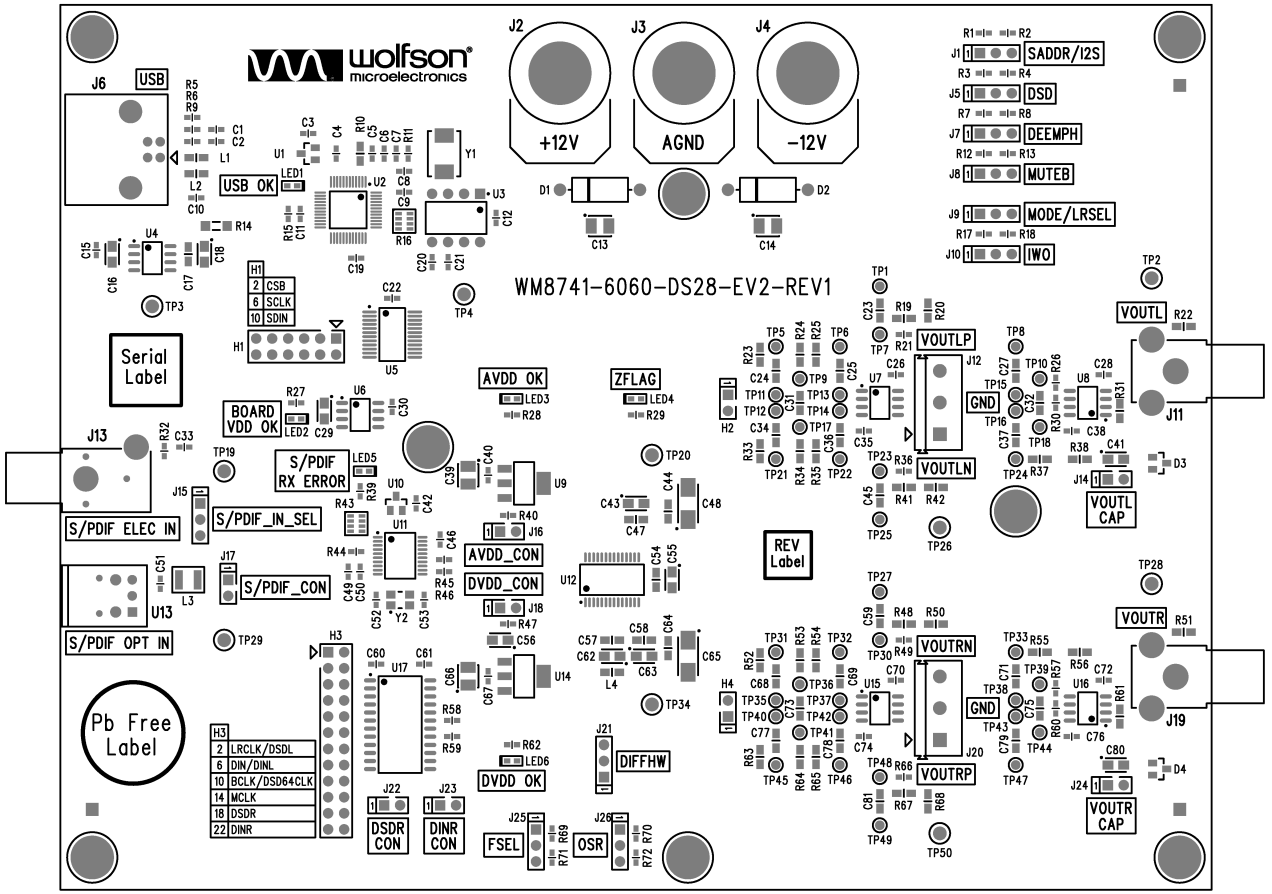
Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
1	MISC2	Grip Seal Bag, 90x115mm	CPC	PA123
2	U2	USB Streaming Controller	Texas Instruments	TAS1020BPFB
3	C44 C47 C54 C57 C58 C64	0.1uF 0805 SMD Ceramic Capacitor 50V X7R	Panasonic	ECJ-2YB1H104K
4	C8 C9	27pF 0603 SMD Ceramic Capacitor 50V NPO	Panasonic	ECJ-1VC1H270J
5	J13	Phono Socket PCB mount YELLOW	Dragon City	RS109 - Yellow
6	MISC3	Lead-free label, 15mm round	Brady	805794
7	H1	2x6 2.54mm pitch PCB Pin Header VERTICAL	Harwin	M20-9980645
8	J14 J17 J22 J23 J24	1x2 PCB Pin Header 0.1" VERTICAL	Harwin	M20-9990245
9	J1 J5 J7 J8 J9 J10 J15 J21 J25 J26	1x3 2.54mm Header Vertical	Harwin	M20-9990345
10	J6	USB receptacle Type B	FCI	61729-0010BLF
11	MECH2	IC Socket DIL 8 WAY	Multicomp	2227MC-08-03-F1
12	C48 C65	100uF 6.3V SMD Low ESR Tantalum Capacitor case C	AVX	TPSC107K006R0075
13	C16 C18 C29 C41 C43 C55 C56 C62 C63 C80	10uF 10V SMD Tantalum Capacitor case A	Kemet	T491A106K010AT
14	L1 L2 L4	300R 0805 BMB2A Ferrite Bead	Meggitt	BMB2A0300AN1
15	C24 C34 C68 C77	270pF 0805 SMD Film Chip Capacitor 50V PPS	Panasonic	ECHU1H271GX5
16	L3	47uH 1210 Surface Mount Inductor 'PA series'	Panasonic	ELJPA470KF
17	U13	TORX147PL Digital Audio Fiber Optic Receiver	Toshiba	TORX147PL
18	J19	Phono Socket PCB mount Gold/Red	PRO SIGNAL	PSG01545
19	J11	Phono Socket PCB mount GOLD/WHITE	PRO SIGNAL	PSG01546
20	SC1 SC2 SC3 SC4 SC5 SC6 SC7 SC8	Slotted Panhead Screw - M3 thread; 12mm long	TR FASTENERS	M312 PSSTMCZ100-
21	W1 W2 W3 W4 W5 W6 W7 W8	Plain M3 size washer	TR Fasteners	M3-FABRWAN100-
22	R14	1R50 1206 SMD chip resistor 5% 0.25W	Vishay BC	2312 1551 1508
23	C17	0.33uF 0805 SMD Ceramic Capacitor 16V X7R	Phycomp	2222 780 15656
24	C3 C4 C5 C11 C12 C15 C19 C22 C26 C28 C30 C33 C35 C38 C40 C42 C46 C50 C51 C60 C61 C67 C70 C72 C74 C76	0.1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	2238 786 15649
25	C1 C2	47pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A470JAT2A
26	C20 C21	220pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A221JAT2A

Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
27	C13 C14 C66	Tantalum Capacitor SMD-B 10uF - 16V - AVX	AVX	TAJB106K016R
28	P1 P2 P3 P4 P5 P6 P7 P8	Hexagonal brass M3 size spacer 20mm length	Harwin	R6379-02
29	C52 C53	22pF 0603 SMD Ceramic Capacitor 50V NPO	Phycomp	2238 867 15229
30	C10	0.01uF 0603 SMD Ceramic Capacitor 50V X7R	Phycomp	2238 586 15636
31	LED1 LED2 LED3 LED6	KP-1608MGC 0603 SMD Chip LED GREEN	Kingbright	KP-1608MGC
32	LED4	KP-1608SYC 0603 SMD Chip LED YELLOW	Kingbright	KP-1608SYC
33	LED5	KP-1608SURC 0603 SMD Chip LED RED	Kingbright	KP-1608SURC
34	TP2 TP3 TP4 TP19 TP20 TP26 TP28 TP29 TP34 TP50	1.32mm PCB Test Terminal BLACK	VERO	20-2136
35	R16	10K 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 03510 103
36	R43	47k 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 035 10473
37	R1 R2 R3 R4 R7 R8 R12 R13 R17 R18 R44 R69 R70 R71 R72	10k 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 10K
38	R15 R26 R27 R29 R30 R39 R57 R60 R62	1K1 0603 SMD chip resistor 1% 0.1W	MULTICOMP	MC 0.063W 0603 1% 1K1
39	R5	1k5 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 1K5
40	R28	2K7 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 2K7
41	R6 R9	27R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 27R
42	R11	3K0 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 3K
43	R45 R46 R58 R59	33R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 33R
44	R32	75R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 75R
45	R40 R47	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
46	R41 R48	10R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 10R
47	R23 R33 R37 R52 R55 R63	110R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 110R
48	R42 R50	220R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 220R
49	R25 R35 R54 R65	270R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 270R
50	R19 R20 R67 R68	330R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 330R
51	R10 R22 R51	47K 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 47K
52	R38 R56	680R 0805 SMD chip resistor 1% 0.1W	Multicomp	MC 0.1W 0805 1% 680R
53	C6	100pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C101JCT
54	C7	1000pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C102JCT
55	D1 D2	1N4002 100Vrrm Power Diode DO41	Fairchild Semiconductor	1N4002

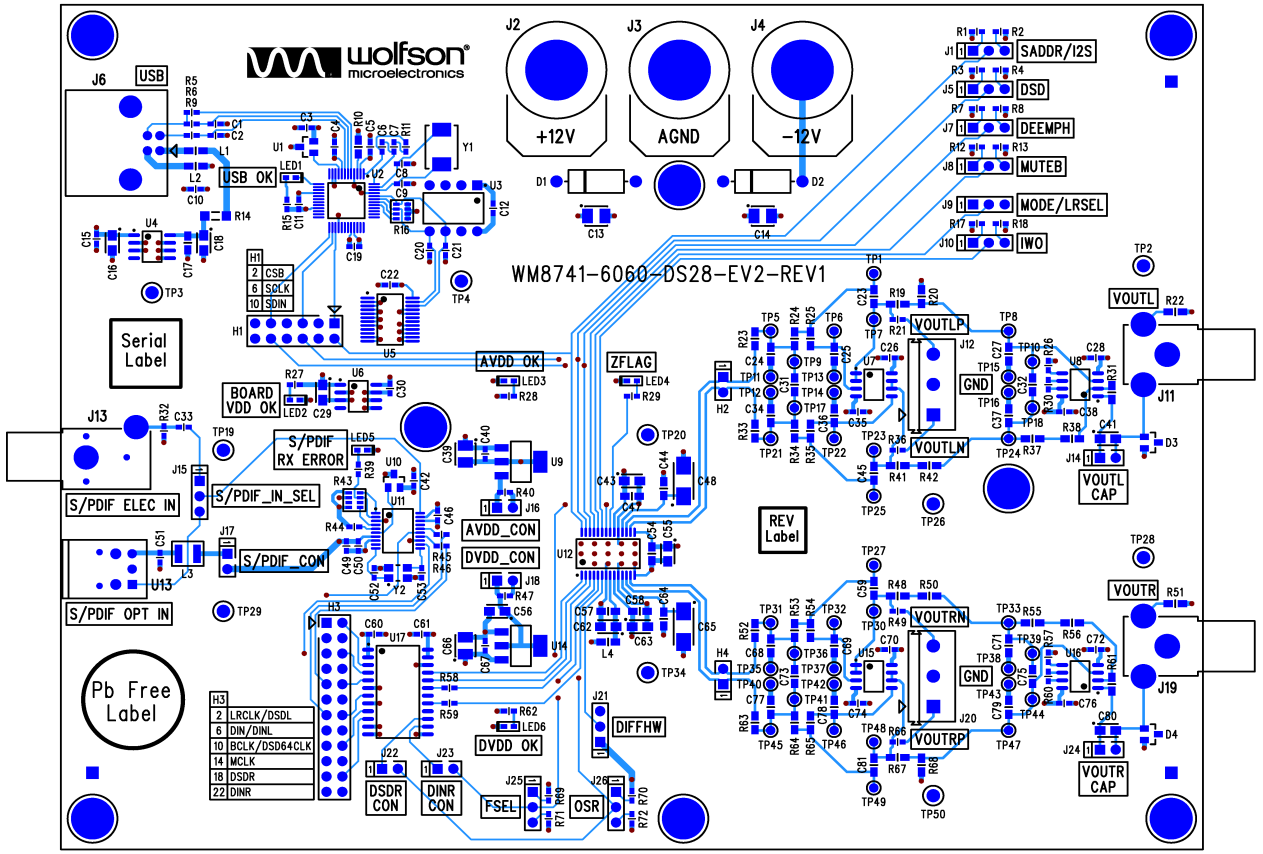
Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
56	C25 C27 C36 C37 C69 C71 C78 C79	3.3nF 0805 SMD Film Chip Capacitor 16V PPS	Panasonic	ECHU1C332GX5
57	C23 C45 C59 C81	4.7nF 0805 SMD Film Chip Capacitor 16V PPS	Panasonic	ECHU1C472GX5
58	C31 C73	100pF 0805 SMD Film Chip Capacitor 50V PPS	Panasonic	ECHU1H101GX5
59	U1 U10	DS1818 3.3V active-low Power-On-Reset chip SOT	Dallas Semiconductor	DS1818R-10+
60	U4 U6	LE33CD Very Low Drop +3.3V Voltage Regulator SO	SGS Thomson Microelectronics	LE33CD
61	U3	EEPROM 8x8 i2c interface - with Wolfson "Standard" code	Microchip Technology	24LC64-I/P
62	U9	LM340 Series 3 -Terminal Positive Regulators	National Semiconductor	LM340MP-5.0
63	R24 R34 R53 R64	16R 0805 SMD chip resistor 1% 0.125W	Rohm	MCR10EZHEF160
64	Y2	XTAL 12MHz 16pF SM GSX-433 Series	Golledge	GSX-433/111DF 12MHz
65	Y1	6.0MHz GSX-752A/351JF SM Crystal 30pF	Golledge	GSX-752A/351JF 6.0MHz
66	J2 J3 J4	4mm Non-Insulated Panel Socket 16A	PJP	3110I
67	LNK1 LNK2 LNK_J17	0.1" OPEN JUMPER LINK RED	Protech	22-3565
68	LNK3 LNK4 LNK5 LNK6 LNK7 LNK_H3-4 LNK_H1-3 LNK_H3-3 LNK_H1-2 LNK_H3-2 LNK_H3-1 LNK_H1-1 LNK_J8 LNK_J9 LNK_J10 LNK_J14 LNK_J15 LNK_J21 LNK_J24 LNK_J25 LNK_J26	0.1" OPEN JUMPER LINK YELLOW	Protech	22-3570
69	R31 R61	1K 0805 SMD chip resistor 1% 0.1W	TruOhm	72-0799
70	U17	74LVC4245A Octal Dual Supply(5V, 1.5-3.6V) Transceiver SO	Philips	74LVC4245AD
71	U7 U8 U15 U16	Dual split supply Opamp SO8 OPA2227	TI	OPA2227UA
72	U14	REG LM1117 3.3V 0.8A LINEAR	National Semiconductor	LM1117MP-3.3
73	C49	1uF 0603 SMD Ceramic Capacitor 6.3V X5R	Murata	GRM188R60J105KA01D
74	U5	PCA9555DB I2C I/O Expander	NXP	483-7216
75	H3	2x12 2.54mm pitch PCB Pin Header VERTICAL	Toby	THD-12-R
76	PCB1	PCB	Lyncolec	WM8741-6060-DS28-EV2-REV1

Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
77	U12	WM8741 24-bit 192kHz DAC with Advanced Digital Filtering SSOP28	Wolfson Microelectronics	WM8741GEDS
78	U11	WM8804 1:1 Digital Interface Transceiver with PLL	Wolfson Microelectronics	WM8804GEDS
Unpop				
79	TP1 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP21 TP22 TP23 TP24 TP25 TP27 TP30 TP31 TP32 TP33 TP35 TP36 TP37 TP38 TP39 TP40 TP41 TP42 TP43 TP44 TP45 TP46 TP47 TP48 TP49	1.0mm PCB Hole test point		
80	H2 H4 J16 J18	1x2 PCB Pin Header 0.1" VERTICAL	Harwin	M20-9990245
81	J12 J20	PCB mount 1X3 terminal block for 2.5mm wire guage	LUMBERG	KRM 03
82	C32 C75	270pF 0805 SMD Film Chip Capacitor 50V PPS	Panasonic	ECHU1H271GX5
83	C39	Tantalum Capacitor SMD-B 10uF - 16V - AVX	AVX	TAJB106K016R
84	R21 R36 R49 R66	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
85	D3 D4	TVS Diode ESDA14V2L Vrwm=12V dual ESD Protection SOT23	ST Microelectronics	ESDA14V2L

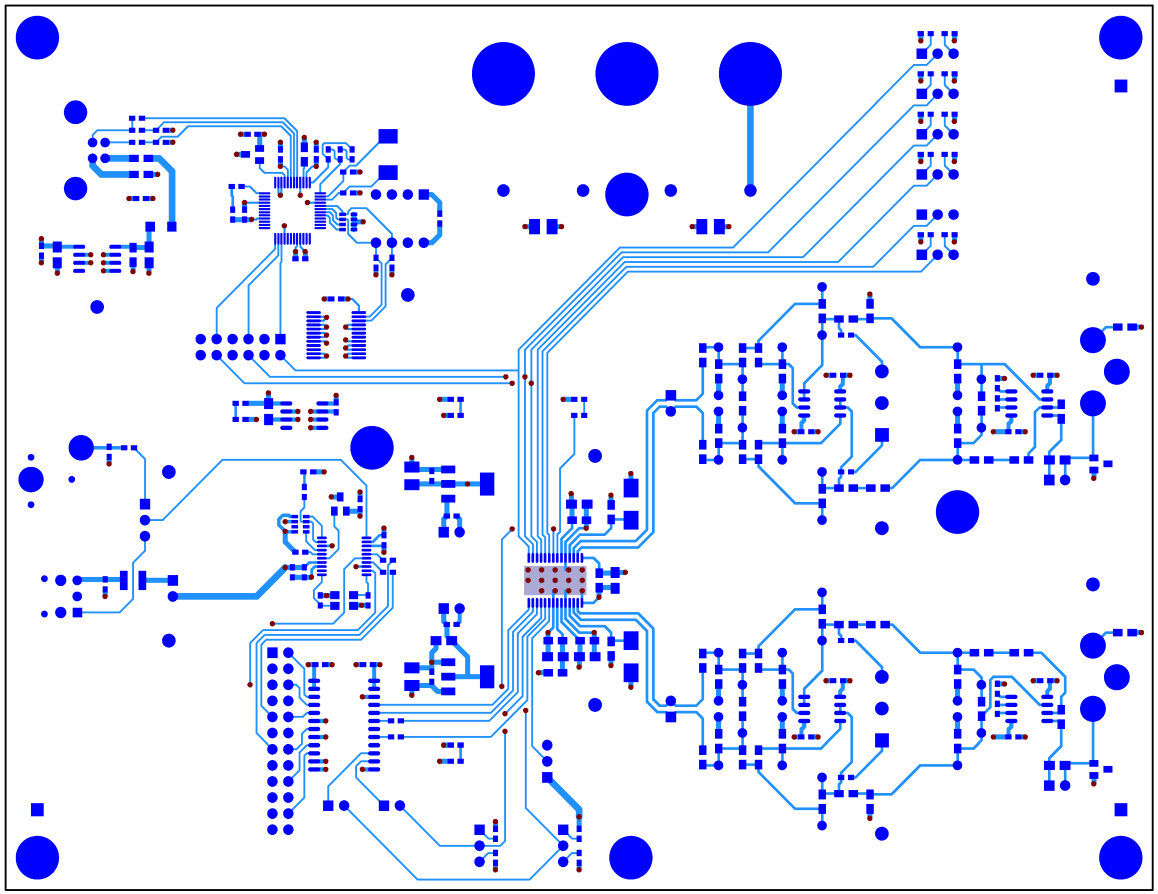
PCB LAYOUT



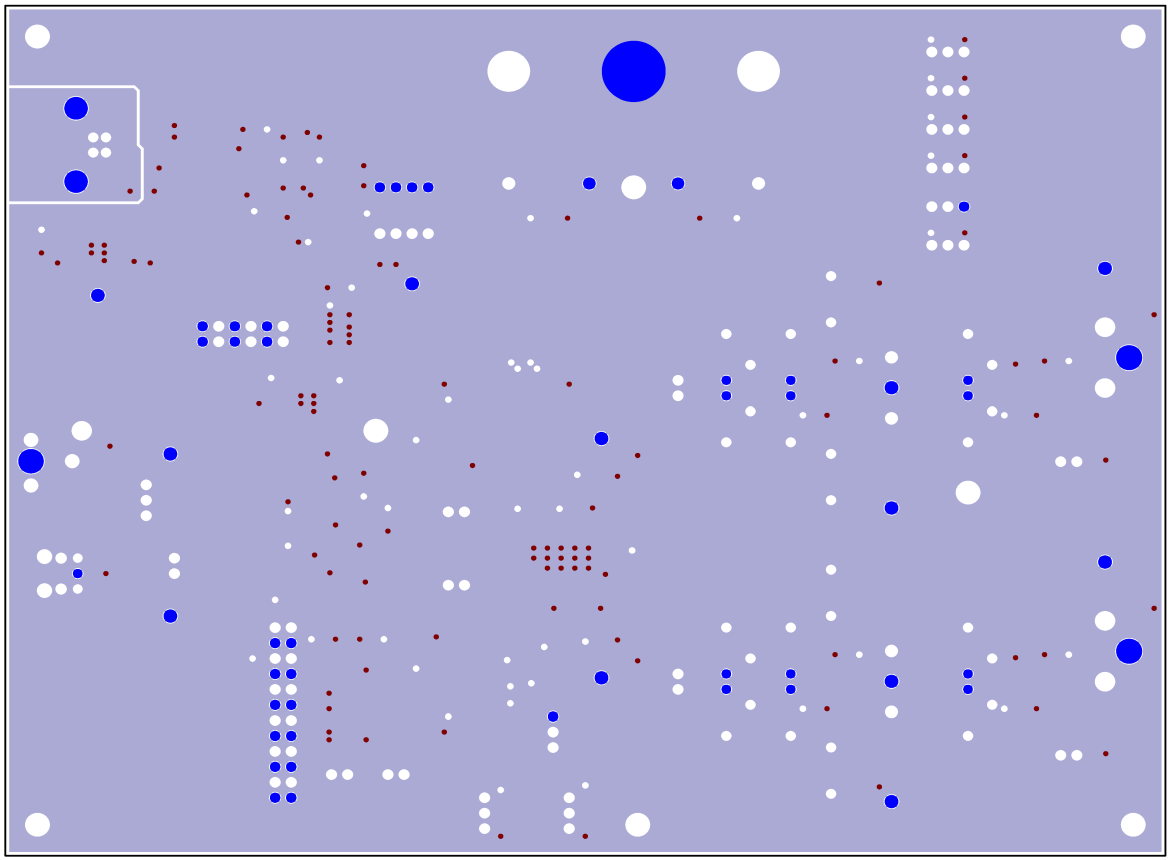
Top Layer: Overview



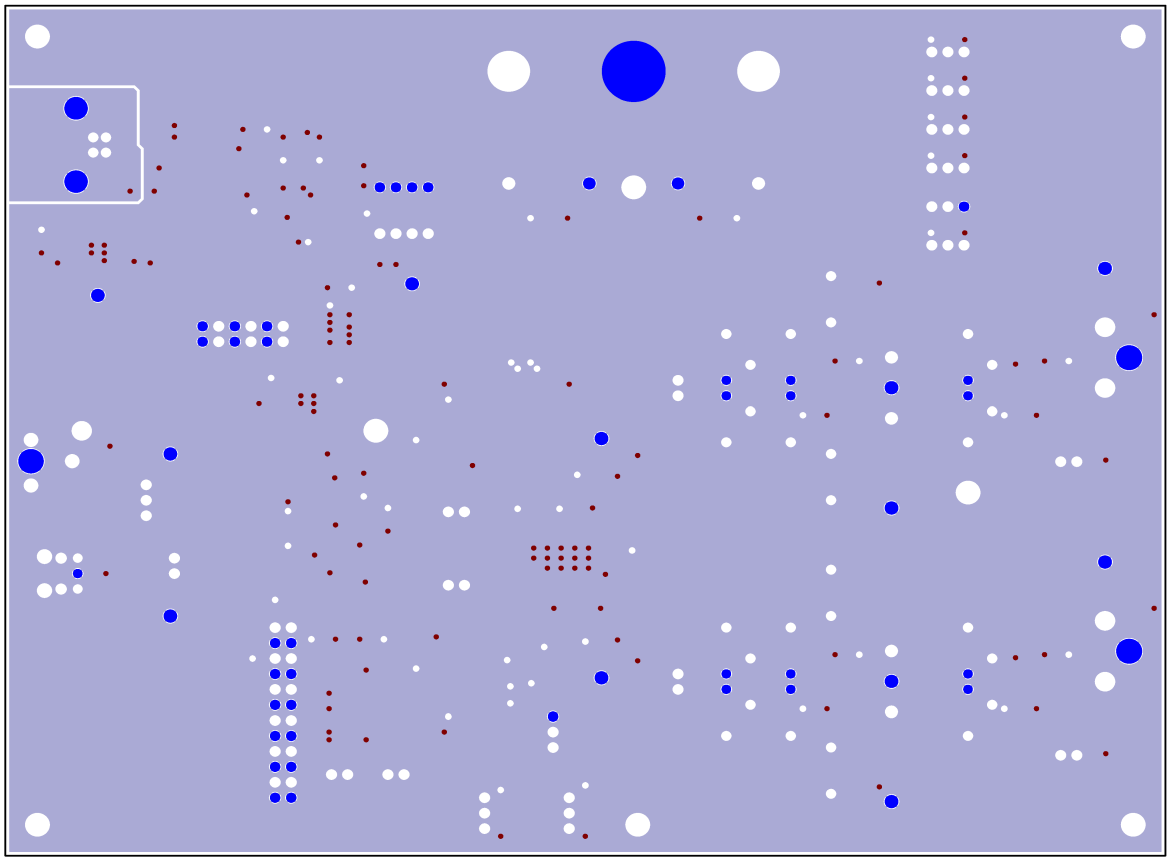
Top Layer: Silkscreen + Copper



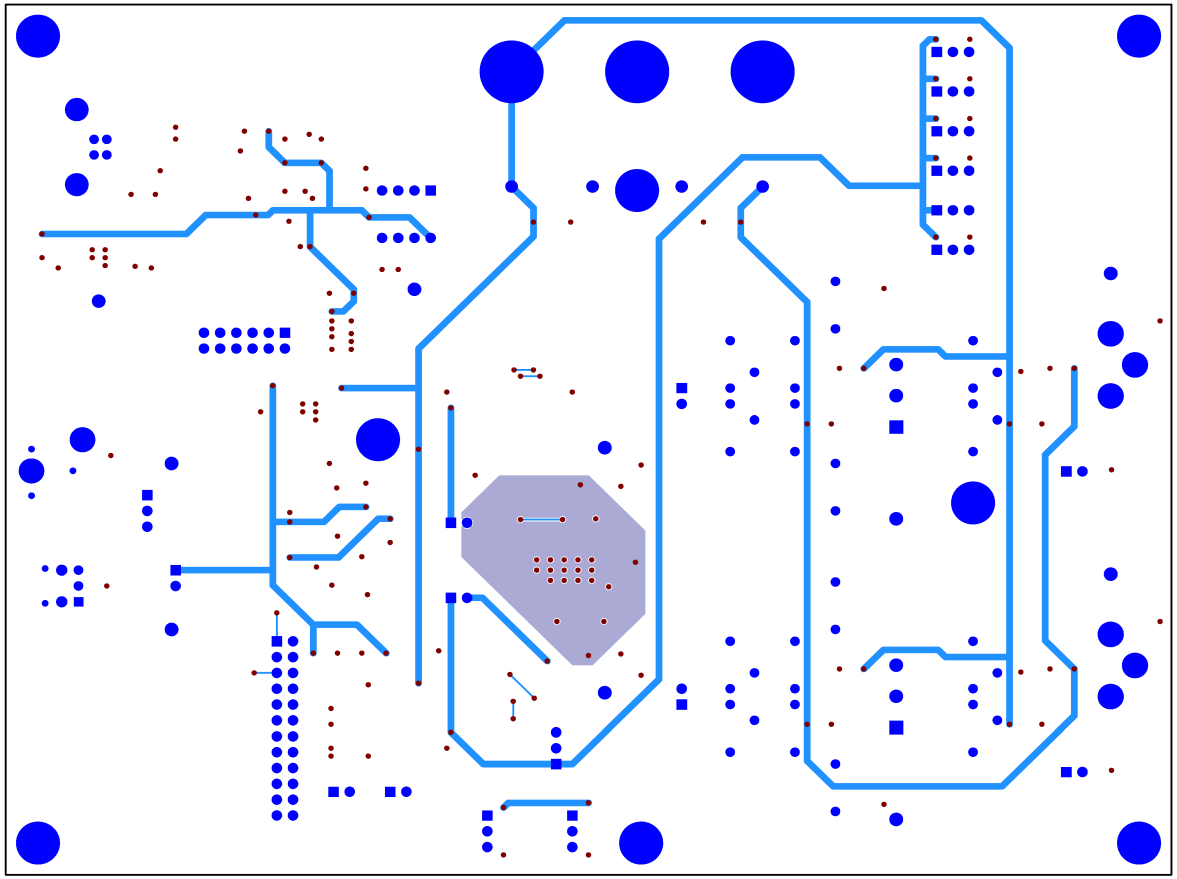
Top Layer: Copper



Layer 2: Copper



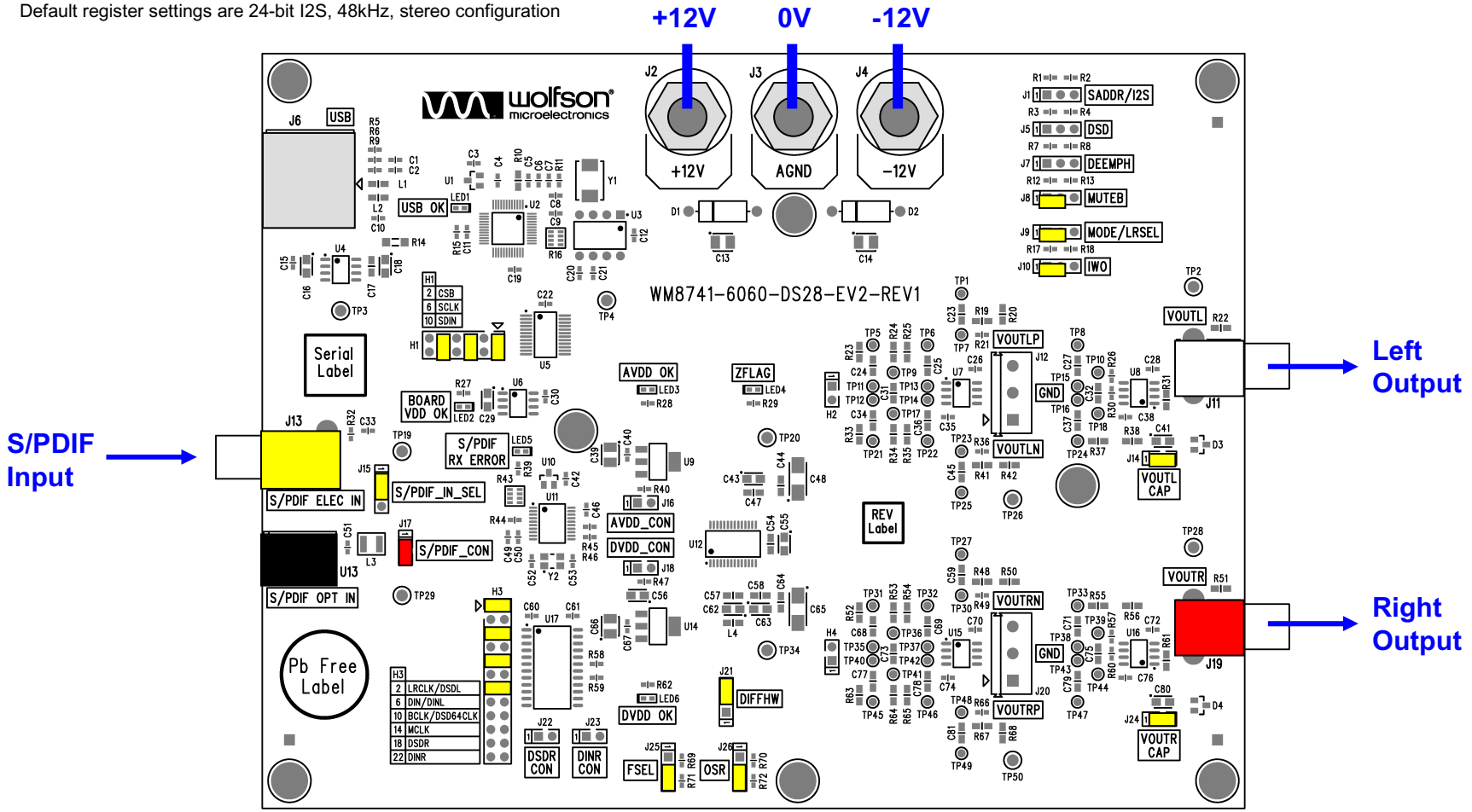
Layer 3: Copper



Bottom Layer: Copper

GENERIC BOARD CONFIGURATION

3-wire software control mode
Default register settings are 24-bit I2S, 48kHz, stereo 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

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