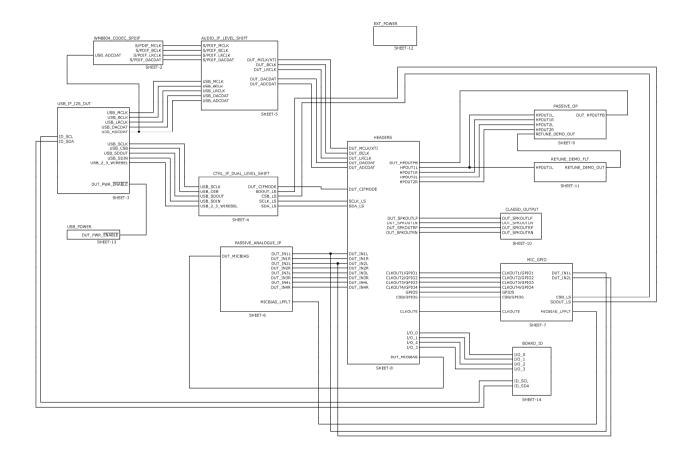


DOC TYPE:	SCHEMATIC AND LAYOUT
BOARD REFERENCE:	6243-EV1-REV1
BOARD TYPE:	Customer Main
WOLFSON DEVICE(S):	WM8962
DATE:	September 2010
DOC REVISION:	Rev 1.2

Customer Information 1 September 2010, Rev 1.2

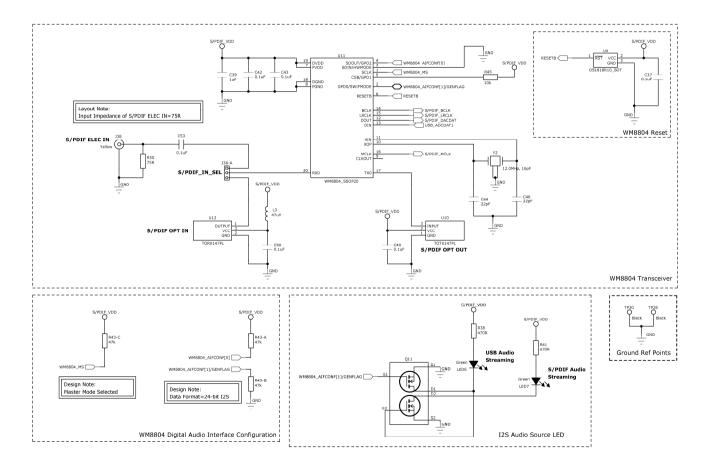
#### **SCHEMATIC**

Sheet 1: Top Level



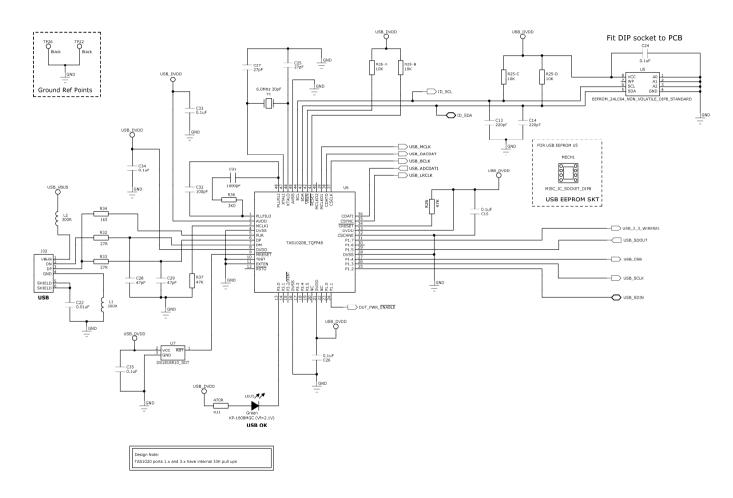


Sheet 2: S/PDIF

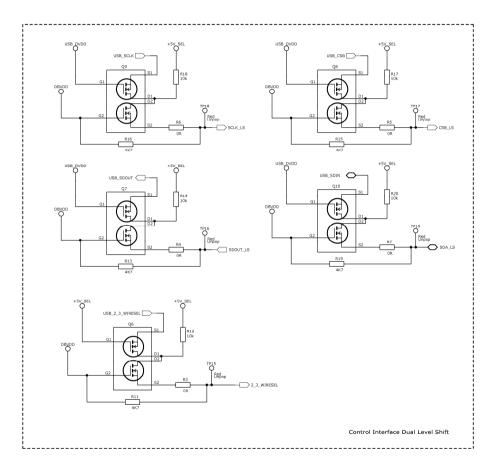


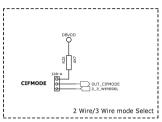


Sheet 3: USB I/F



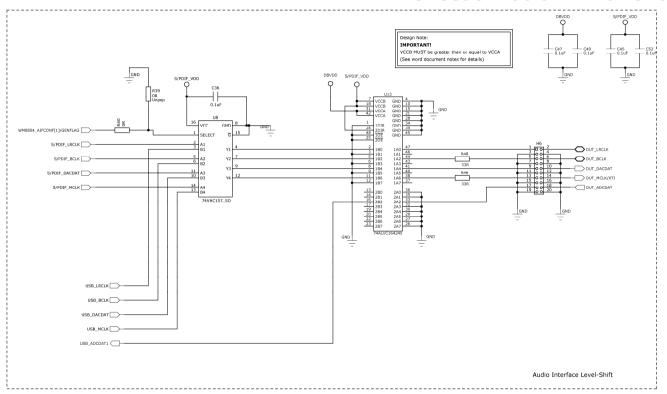
Sheet 4: Control I/F Level Shift







#### Sheet 5: Audio I/F Mux and Level Shift



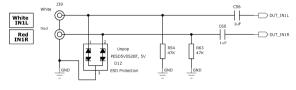


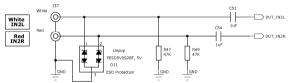
Customer Information 6 September 2010, Rev 1.2

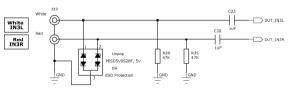
### **Sheet 6: Analogue Inputs**

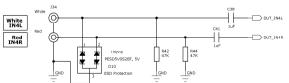


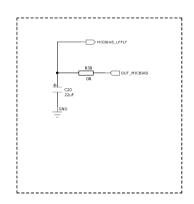






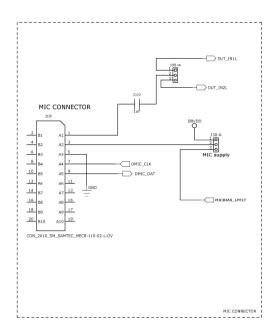


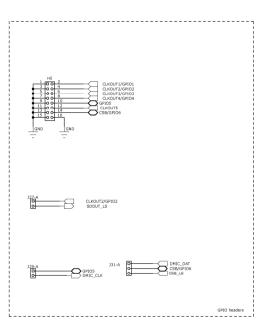






### Sheet 7: Microphone and GPIO

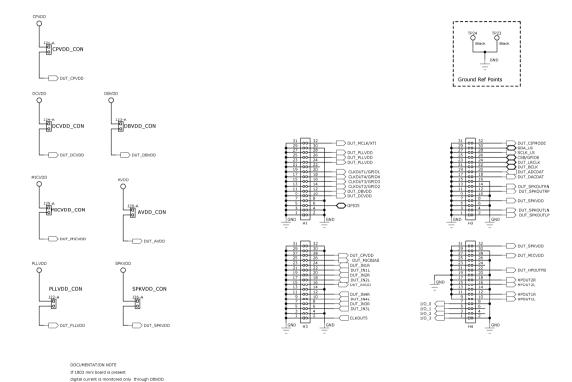




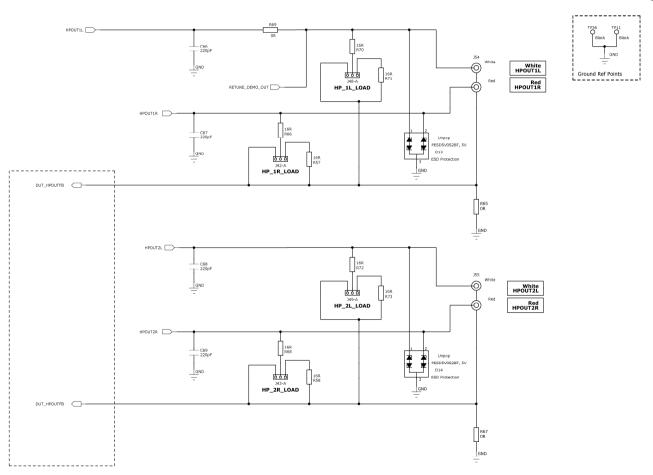
Customer Information 8 September 2010, Rev 1.2



**Sheet 8: Headers** 

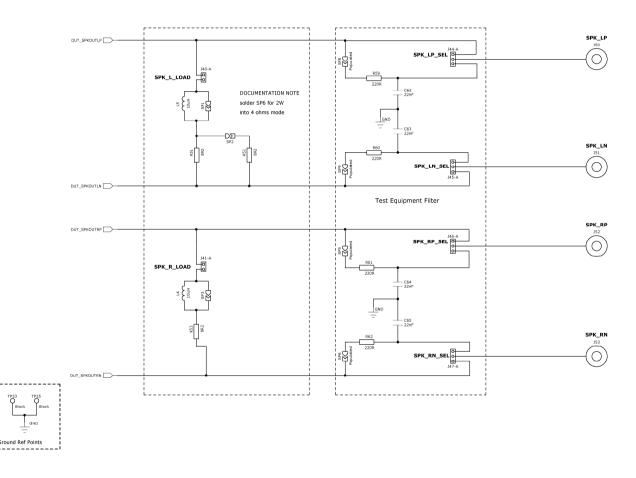


### **Sheet 9: Analogue Outputs**



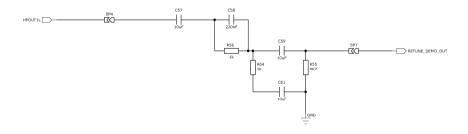


### Sheet 10: Class D Speaker Outputs



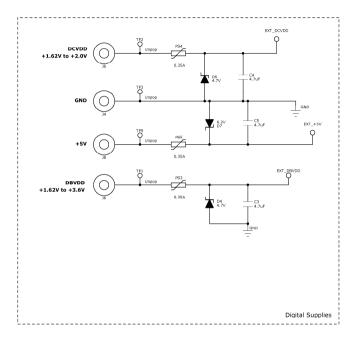
Customer Information 11 September 2010, Rev 1.2

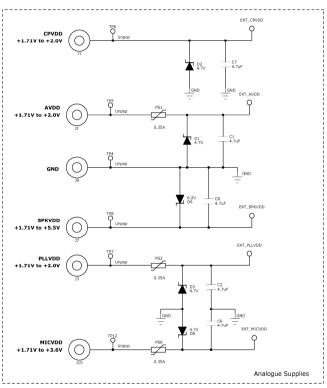
#### Sheet 11: ReTune™ Demo Filter



Customer Information 12 September 2010, Rev 1.2

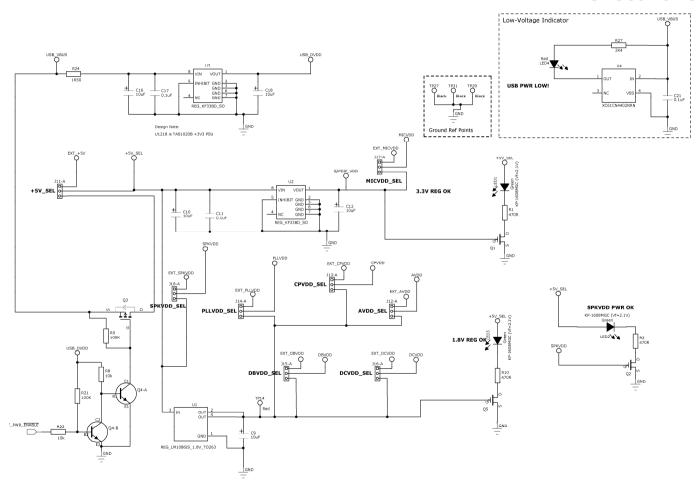
#### Sheet 12: External Power



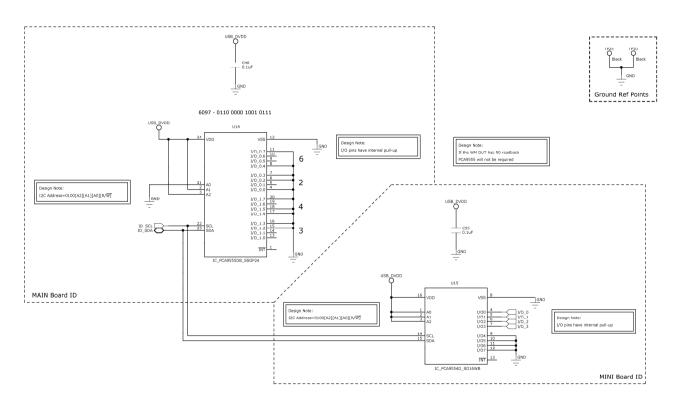


Customer Information 13 September 2010, Rev 1.2

#### Sheet 13: USB Power



Sheet 14: Board ID



Customer Information 15 September 2010, Rev 1.2

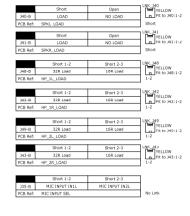


September 2010, Rev 1.2

#### **Sheet 15: Reference Tables**



	Short 1-2	Short 2-3	LNK_J16 □□□RED
J16-B	EXT DCVDD	USB DCVDD	n Fit to J16:
PCB Ref:	DCVDD_SEL		2-3
	Short 1-2	Short 2-3	LNK_315
J15-B	EXT DBVDD	USB DBVDD	RED Fit to J15:
PCB Ref:	DBVDD_SEL		2-3
	Short 1-2	Short 2-3	LNK_J12
J12-B	EXT AVDD	USB AVDD	Fit to J12:
PCB Ref:	AVDD_SEL		2-3
	Short 1-2	Short 2-3	LNK_217
J17-B	EXT MICVDD	USB MICVOD	RED Fit to J17:
PCB Ref:	MICVDD_SEL		2-3
	Short 1-2	Short 2-3	LNK_314
J14-B	EXT PLLVDD	USB PLLVDD	D Fit to J14:
PCB Ref:	PLLVDD_SEL		2-3
	Short 1-2	Short 2-3	LNK-13
J13-B	EXT CPVDD	USB CPVDD	Fit to J13:
PCB Ref:	CPVDD_SEL		2-3
	Short 1-2	Short 2-3	LNK_J18
J18-B	EXT SPKVDD	USB SPKVDD	Fit to J18:
PCB Ref:	SPKVDD_SEL		2-3
	Short 1-2	Short 2-3	LNK_J11 F⊞TRED
J11-B	EXT_+5V	USB_+5V	Fit to 311:
PCB Ref:	+5V SEL		2-3



			LNK_344
	Short 1-2	Short 2-3	YELLOW
J44-B	SPK_LP_PREFILT	SPK_LP_POSTFILT	Fit to 344:3
PCB Ref:	SPK_LP_SEL		1-2
			LNK_345
	Short 1-2	Short 2-3	YELLOW Fit to 345::
J45-B	SPK_LN_PREFILT	SPK_LN_POSTFILT	Hit to Jabi:
PCB Ref:	SPK_LN_SEL		1-2
			LNK_J46
	Short 1-2	Short 2-3	YELLOW
346-B	SPK_RP_PREFILT	SPK_RP_POSTFILT	Fit to 346::
PCB Ref:	SPK_RP_SEL		1-2
			LNK_J47
	Short 1-2	Short 2-3	YELLOW
347-B	SPK_RN_PREFILT	SPK_RN_POSTFILT	Fit to 347::
PCB Ref:	SPK_RN_SEL		1-2

**Customer Information** 

	Short 1-2	Short 2-3	YELLOW
J30-B	DBVDD (DMIC)	MICBIAS (AMIC)	Fit to J30:2
PCB Ref:	MIC supply		2-3
	Short 1-2	Short 2-3	LNK_336
J36+B	Electrical Input	Optical Input	YELLOW Fit to 136:1
PCB Ref:	S/PDIF_IN_SEL		1-2
			_
			7 LNK 31
	Short	Open	THE TYPLLOW
J27-B	SDOUT (3-wire mode)	GPI02	n Fit to J27:1
PCB Ref:	GPIO2 FUNCTION SELEC	т	
	Short	Open	7
J29-B	DMIC CLK	GPI05	
PCB Ref:	GPIOS FUNCTION SELEC	Т	Open
	Short 1-2	Short 2-3	LNK_331
J31-B	DMIC DAT	CSB (4-wire mode)	n Fit to J31:2
PCB Ref:	GPIO6 FUNCTION SELEC	Т	1-2
			_
			☐ LNK 128
	Short 1-2	Short 2-3	P YELLOW
J28+B	3-Wire Mode	Software Controlled	P Fit to J28:
PCB Ref:	CIEMODE		1-2

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### **BILL OF MATERIALS (BOM)**

Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
1	L4 L5	10uH Shielded SM Power 1.1A Inductor 'LPS4018 series'	Coilcraft	LPS4018-103ML
2	MSC1	Grip Seal Bag, 90x115mm	CPC	PA123
3	U13	74ALVC164245 16 Bit Dual Supply Bus Transceiver SSO	Philips	74ALVC164245DL
4	U6	USB Streaming Controller	Texas Instruments	TAS1020BPFB
5	C58	220nF 0603 SMD Ceramic Capacitor 10V X7R	MuRata	GRM188R71A224KA01D
6	C57 C59 C61	10uF 0603 SMD Ceramic Capacitor 6.3V X5R	MuRata	GRM188R60J106ME47D
7	U8	74VHC157 Quad 2-Input Mux SO	Fairchild Semiconductor	74VHC157MX
8	C25 C27	27pF 0603 SMD Ceramic Capacitor 50V NPO	Panasonic	ECJ-1VC1H270J
9	J38	Phono Socket PCB mount YELLOW	Dragon City	RS109 - Yellow
10	J50 J51 J52 J53	4mm Gold Plated Non-Insulated Binding Post - Red	ESR	070-251
11	H5	2x8 2.54mm pitch PCB Pin Header VERTICAL	Harwin	M20-9980845
12	H6	2x10 2.54mm pitch PCB Pin Header VERTICAL	Harwin	M20-9981045
13	H7 J20 J21 J22 J23 J24 J25 J26 J27 J29 J40 J41	1x2 PCB Pin Header 0.1" VERTICAL	Harwin	M20-9990245
14	J11 J12 J13 J14 J15 J16 J17 J18 J28 J30 J31 J35 J36 J42 J43 J44 J45 J46 J47 J48 J49	1x3 2.54mm Header Vertical	Harwin	M20-9990345
15	Q4	BC847BS NPN Dual Bipolar Transistor SOT363	Philips	BC847BS
16	J32	USB receptacle Type B	FCI	61729-0010BLF
17	MECH1	IC Socket DIL 8 WAY	Multicomp	2227MC-08-03-F1
18	PS1 PS2 PS3 PS4 PS5 PS6	0.35A Poly Switch 1210	Тусо	MICROSMD035F-2
19	L1 L2	300R 0805 BMB2A Ferrite Bead	Meggitt	BMB2A0300AN1
20	L3	47uH 1210 Surface Mount Inductor 'PA series'	Panasonic	ELJPA470KF
21	U12	TORX147PL Digital Audio Fiber Optic Receiver	Toshiba	TORX147PL
22	U10	Fiber Optic Transmitting Module for Digital Audio Interface	Toshiba	TOTX147PL
23	SC101 SC102 SC103 SC104 SC106 SC107 SC108 SC109	Slotted Panhead Screw - M3 thread; 12mm long	TR Fasteners	M312 PSSTMCZ100-

Customer Information 17 September 2010, Rev 1.2



Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
24	W101 W102 W103 W104 W106 W107	Plain M3 size washer	TR Fasteners	M3-FABRWAN100-
	W108 W109			
25	C9 C10 C12 C16 C18	10uF 10V SMD Tantalum Capacitor case A	Kemet	T491A106K010AT
26	C19 C23 C30 C38 C41 C51 C54 C56	1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	225524615663
	C60			
27	Q6 Q7 Q8 Q9 Q10 Q11	Si1902DL N- Channel Dual MOSFET SC-70	Vishay	SI1902DL-T1-E3
28	MISC2	Lead-free label, 15mm round	Pro Power	7827260
29	C20	22uF 10V SMD Tantalum Capacitor Case B	AVX	TAJB226K010R
30	R24	1R50 1206 SMD chip resistor 5% 0.25W	Vishay	2312 1551 1508
31	C11 C15 C17 C21 C24 C26 C33 C34	0.1uF 0603 SMD Ceramic Capacitor 16V X7R	Phycomp	2238 786 15649
	C35 C36 C37 C40 C42 C43 C45 C47			
	C48 C49 C50 C52 C53 C55			
32	C28 C29	47pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A470JAT2A
33	C13 C14 C66 C67 C68 C69	220pF 0603 SMD Ceramic Capacitor 50V NPO	AVX	06035A221JAT2A
34	P101 P102 P103 P104 P106 P107	Hexagonal brass M3 size spacer 20mm length	Harwin	R6379-02
	P108 P109			
35	C44 C46	22pF 0603 SMD Ceramic Capacitor 50V NPO	Phycomp	2238 867 15229
36	C22	0.01uF 0603 SMD Ceramic Capacitor 50V X7R	Phycomp	2238 586 15636
37	LED1 LED2 LED3 LED5	KP-1608MGC 0603 SMD Chip LED GREEN	Kingbright	KP-1608MGC
38	LED4	KP-1608SURC 0603 SMD Chip LED RED	Kingbright	KP-1608SURC
39	TP10 TP11 TP13 TP20 TP21 TP22	1.32mm PCB Test Terminal BLACK	Vero	20-2136
	TP23 TP24 TP25 TP26 TP27 TP28 TP29 TP30 TP31 TP32 TP33 TP34			
	TP35 TP36 TP37			
10		100 000 7 17 1 1050		200010111
40	TP14	1.32mm PCB Test Terminal RED	Vero	20-313141
41	C62 C63 C64 C65	22nF 1206 SMD Ceramic Capacitor 50V COG	MuRata	GRM3195C1H223JA01D
42	C1 C2 C3 C4 C5 C6 C7 C8	4.7uF 0805 SMD Ceramic Capacitor 16V X5R	Kemet	C0805C475K4PAC
43	R25	10K 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 03510 103
44	R43	47k 1206 SMD chip 4 resistor array 5% 0.063W	Phycomp	2350 035 10473
45	R51 R52 R53	8R2 1218 SMD chip resistor 1% 1W	Phycomp	2322 7357 8208
46	R8 R12 R14 R17 R18 R20 R22 R45	10k 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 10K

Customer Information 18 September 2010, Rev 1.2



Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
47	R9 R21	100K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 100K
48	R31	1K1 0603 SMD chip resistor 1% 0.1W	Multicomp	MC 0.063W 0603 1% 1K1
49	R34	1k5 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 1K5
50	R57 R58 R66 R68 R70 R71 R72 R73	16R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 16R
51	R27	2K4 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 2K4
52	R32 R33	27R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 27R
53	R36	3K0 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 3K
54	R46 R48	33R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 33R
55	R11 R13 R15 R16 R19 R23 R55	4K7 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 4K7
56	R26 R28 R35 R37 R42 R44 R47 R49 R54 R63	47K 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 47K
57	R50	75R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 1% 75R
58	R3 R4 R5 R6 R7 R29 R30 R40 R65 R67 R69	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
59	R59 R60 R61 R62	220R 1206 SMD chip resistor 1% 0.125W	Multicomp	MC 0.125W 1206 1% 220R
60	C32	100pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C101JCT
61	C31	1000pF 0603 SMD Ceramic Capacitor 50V NPO	Multicomp	U0603C102JCT
62	U1	1.5A low dropout positive regulator - 1.8V fixed	National Semiconductor	LM1086IS-1.8
63	Q3	P-Channel MOSFET 60v, Rds(on) = 0.17R - SOT23	Vishay	SI2309DS
64	D1 D2 D3 D4 D5 D8	1N5337B 4.7V 5W Zener Diode PTH	ON Semiconductor	1N5337BG
65	D6 D7	1N5341B 6.2V 5W Zener Diode PTH	ON Semiconductor	1N5341BG
66	U7 U9	DS1818 3.3V active-low Power-On-Reset chip SOT	Dallas Semiconductor	DS1818R-10+
67	U2 U3	KF33BD Very Low Drop +3.3V Voltage Regulator SO	ST Microelectronics	KF33BD
68	U5	EEPROM 8x8 i2c interface - with Wolfson "Standard" code	Microchip Technology	24LC64-I/P
69	Q1 Q2 Q5	BSS138 N-Channel enhancement Mode FET	Fairchild Semiconductor	BSS138
70	Y2	XTAL 12MHz 16pF SM GSX-433 Series	Golledge	GSX-433/111DF 12MHz
71	Y1	6.0MHz GSX-752A/351JF SM Crystal 30pF	Golledge	GSX-752A/351JF 6.0MHz

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Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
72	SP5 SP6 SP8 SP9	Surface mount shorting point	N/A	N/A
73	J1 J2 J3 J4 J5 J6 J7 J8 J9 J10	4mm Non-Insulated Panel Socket 16A	PJP	31101
74	J33 J34 J37 J39 J54 J55	Phono Socket PCB mount Pair Red/White	Rapid	20-1290
75	LNK_J11 LNK_J12 LNK_J13 LNK_J14 LNK_J15 LNK_J16 LNK_J17 LNK_J18 LNK_J20 LNK_J21 LNK_J22 LNK_J23 LNK_J24 LNK_J25 LNK_J26		Protech	22-3565
76	LNK1901 LNK1902 LNK1906 LNK1908 LNK1919 LNK1924 LNK1926 LNK1936 LNK2260 LNK2261 LNK2606 LNK2701 LNK2702 LNK2705 LNK2706 LNK_H6-5 5 LNK_H6-4 LNK_H6-3 LNK_H6-2 LNK_H6-1 LNK_J28 LNK_J30 LNK_J31 LNK_J36 LNK_J40 LNK_J41 LNK_J42 LNK_J43 LNK_J44 LNK_J45 LNK_J46 LN		Protech	22-3570
77	R56 R64	1k 0603 SMD chip resistor 1% 0.063W	TruOhm	72-9326
78	R1 R2 R10 R38 R41	470R 0603 SMD chip resistor 1% 0.063W	Tyco	01622949-1
79	LED6 LED7	KP-2012MGC 0805 SMD Chip LED GREEN	Kingbright	KP-2012MGC
80	U15	PCA9554D I2C I/O Expander	Philips	PCA9554D
81	C39	1uF 0603 SMD Ceramic Capacitor 6.3V X5R	MuRata	GRM188R60J105KA01D
82	U14	PCA9555DB I2C I/O Expander	NXP	483-7216
83	J19	2x10 way socket, mates with edge connector on 0.062" thick PCB	Samtec	MEC8-110-02-L-DV
84	H1 H2 H3 H4	2x16 2.54mm pitch PCB Pin Header VERTICAL	Toby	THD-16-R
85	U4	XC61C Low Power Consumption Voltage Detector	Torex	XC61CN4402NRN
86	PCB1	PCB	Kelan Circuits Ltd	6243-EV1-REV1

Customer Information 20 September 2010, Rev 1.2

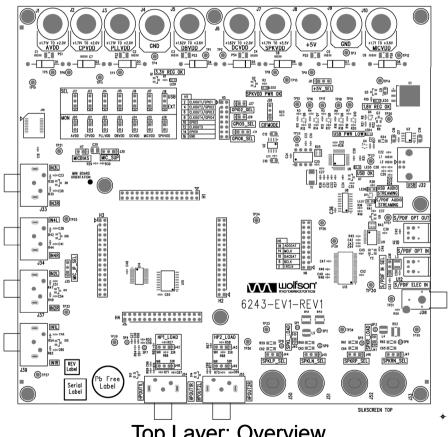


Item	RefDes	Description	Manufacturer	Manufacturer's Part Number
87	U11	WM8804 1:1 Digital Interface Transceiver with PLL	Wolfson Microelectronics	WM8804GEDS
Unpop				
88	TP15 TP16 TP17 TP18 TP19	1.32mm PCB Test Terminal RED	Vero	20-313141
89	D9 D10 D11 D12 D13 D14	TVS Diode PESD5V0S2BT Vrwm=5V dual ESD Protection SOT23	Philips	PESD5V0S2BT
90	R39	0R 0603 SMD chip resistor 1% 0.063W	Multicomp	MC 0.063W 0603 0R
91	SP1 SP2 SP3 SP4 SP7	Surface mount shorting point	N/A	N/A
92	TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP12	1.32mm off-board connection point	N/A	N/A

Customer Information 21 September 2010, Rev 1.2

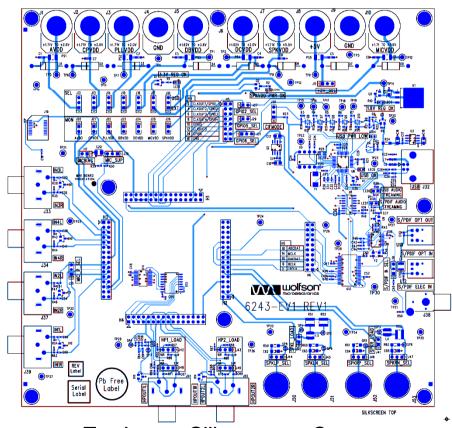


### **PCB LAYOUT**



Top Layer: Overview

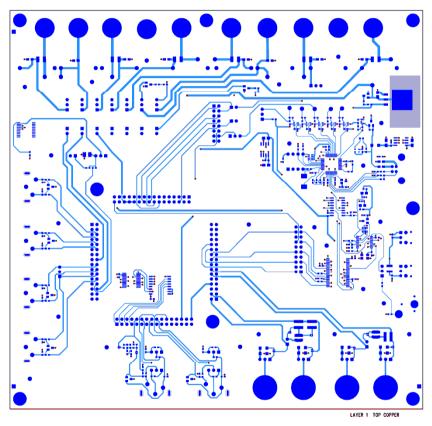




Top Layer: Silkscreen + Copper

Customer Information 23 September 2010, Rev 1.2

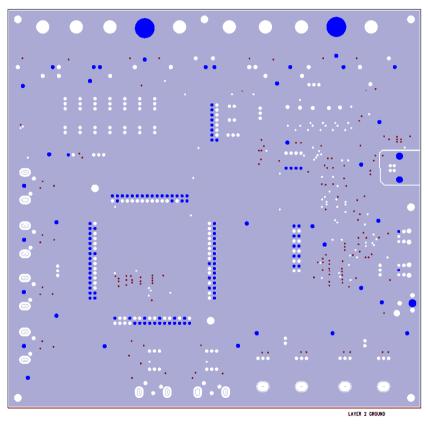




Top Layer: Copper

Customer Information 24 September 2010, Rev 1.2

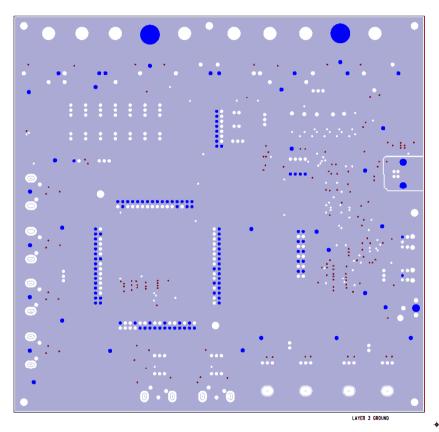




Layer 2: Copper

Customer Information 25 September 2010, Rev 1.2

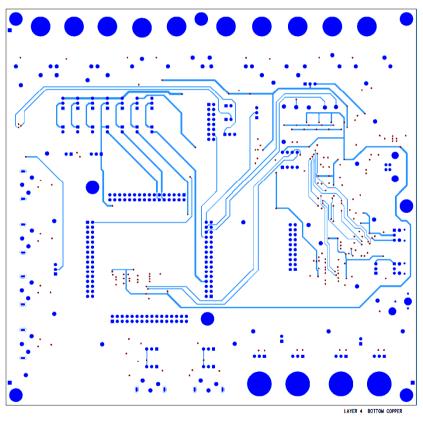




Layer 3: Copper

Customer Information 26 September 2010, Rev 1.2



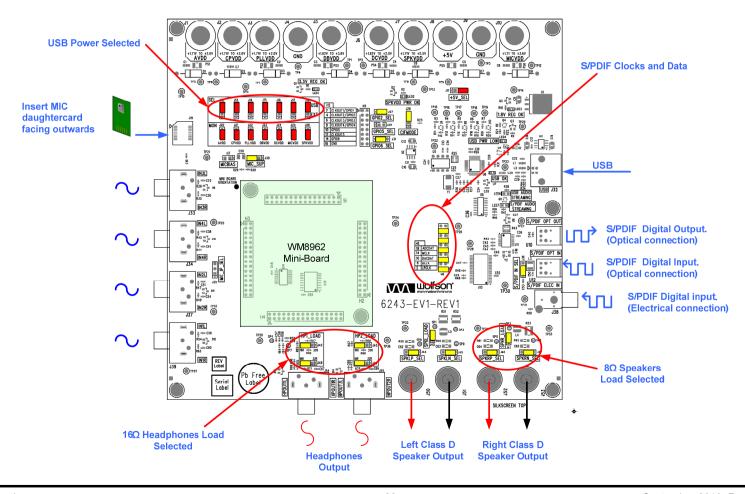


**Bottom Layer: Copper** 

Customer Information 27 September 2010, Rev 1.2



#### **GENERIC BOARD CONFIGURATION**



#### **TECHNICAL SUPPORT**

If you require more information or require technical support, please contact the nearest Wolfson Microelectronics regional office: http://www.wolfsonmicro.com/contact

or one of our global distributors: <a href="http://www.wolfsonmicro.com/distribution">http://www.wolfsonmicro.com/distribution</a>

Customer Information 29 September 2010, Rev 1.2



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