



Cambridge Audio

Service Manual

CXN



Specifications

Technical specifications

DAC	Dual Wolfson WM8740 24-bit DACs
Digital filter	2nd Generation ATF2 up-sampling to 24-bit/384KHz
Analogue filter	2-Pole Dual Differential Bessel
USB Audio Input	USB Type B conforms to USB Audio profile 1.0 or 2.0 (user selectable) and DSD via USB
Digital audio inputs	S/PDIF Coaxial and TOSLINK Optical
Compatibility	UPnP, Local USB media, USB audio 1.0 and 2.0, S/PDIF Toslink and Coaxial, Airplay, BT100 Bluetooth receiver (not supplied), Internet radio, Spotify Connect
Audio formats	ALAC, WAV, FLAC, AIFF, WMA, MP3, AAC, HE AAC, AAC+, OGG Vorbis
Max power consumption	30W
Standby power consumption	0.5W
Dimensions (H x W x D)	maximum including sockets and controls 85 x 430 x 305mm (3.4 x 16.9 x 12.2")
Weight	3.5Kg (7.7Lbs)

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This guide is designed to make installing and using this product as easy as possible. Information in this document has been carefully checked for accuracy at the time of printing; however, Cambridge Audio's policy is one of continuous improvement, therefore design and specifications are subject to change without prior notice.

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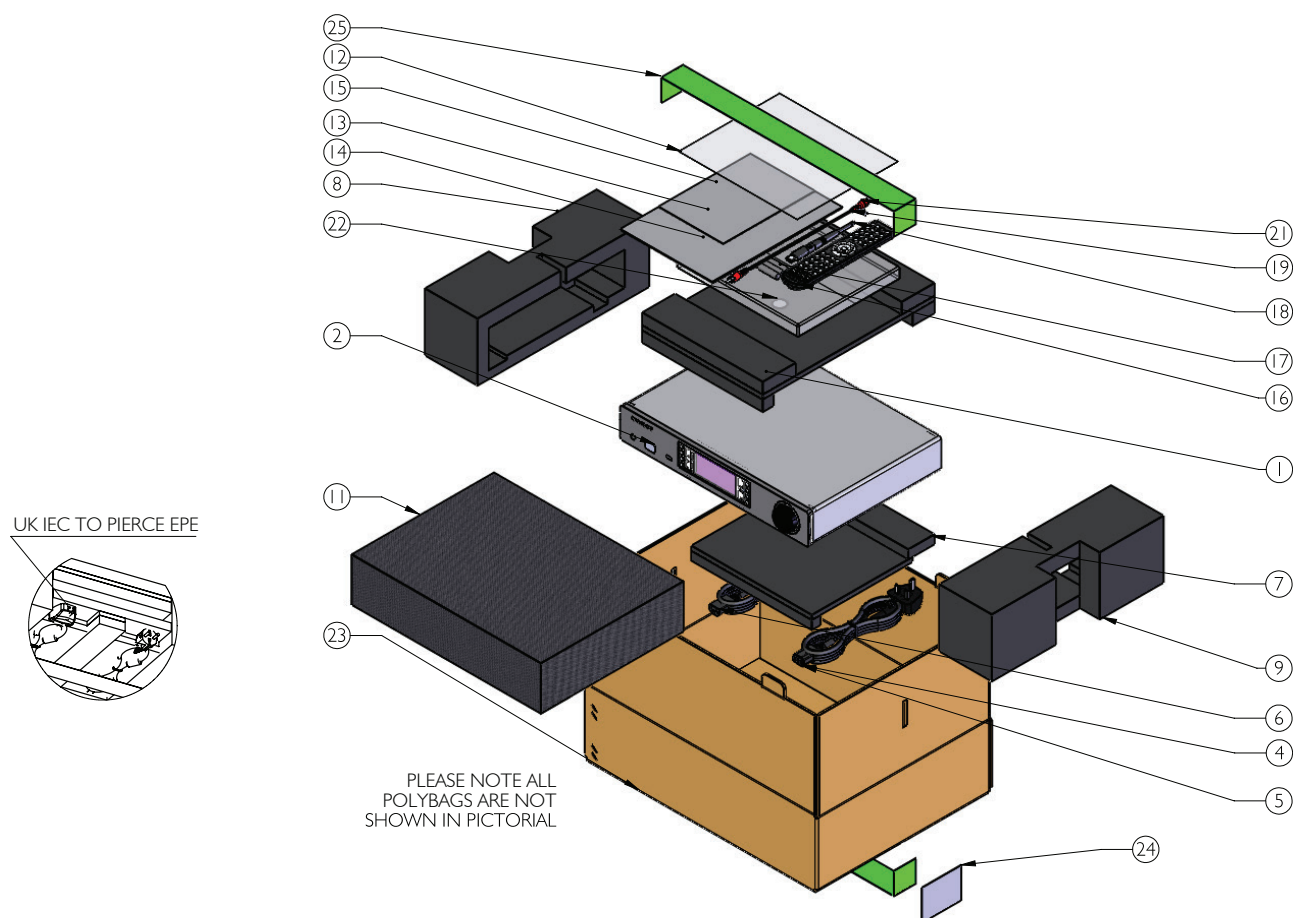
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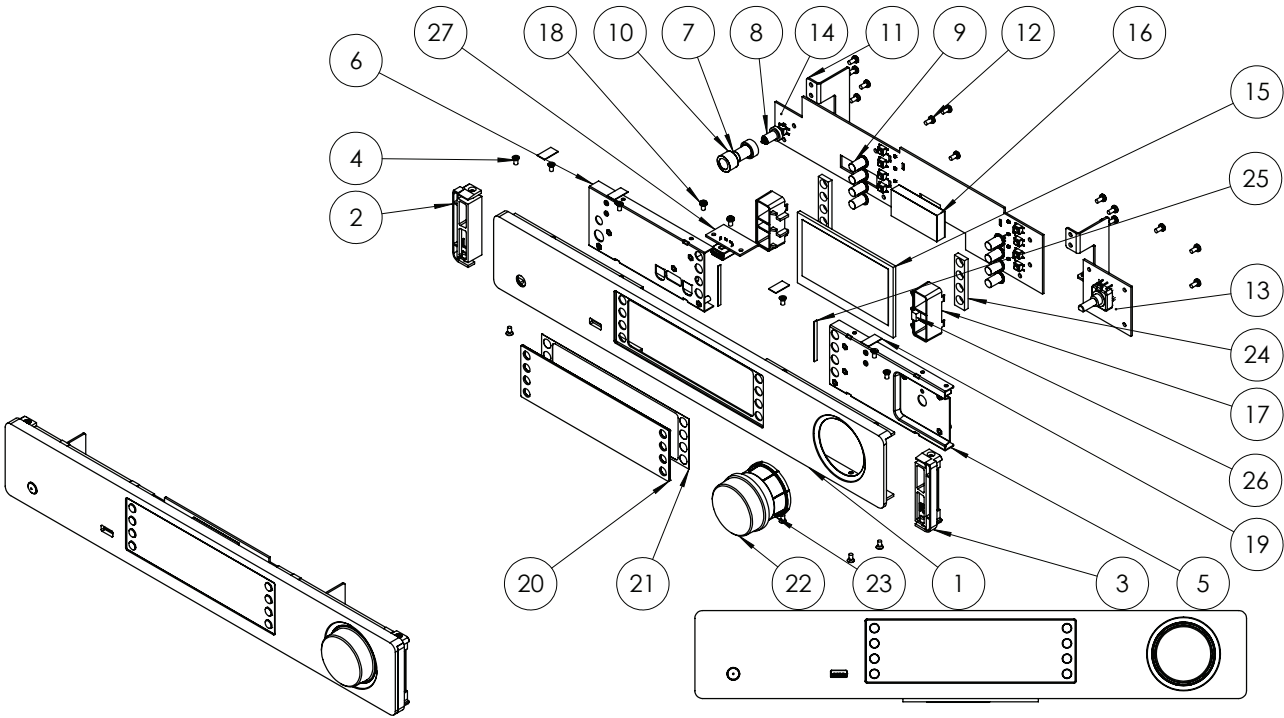
Exploded Diagram

exploded view ref	Description	Service Part Number
16	remote control (CXN, CXC, CXA)	PZ804
18	Edimax Wi Fi dongle	PZ716



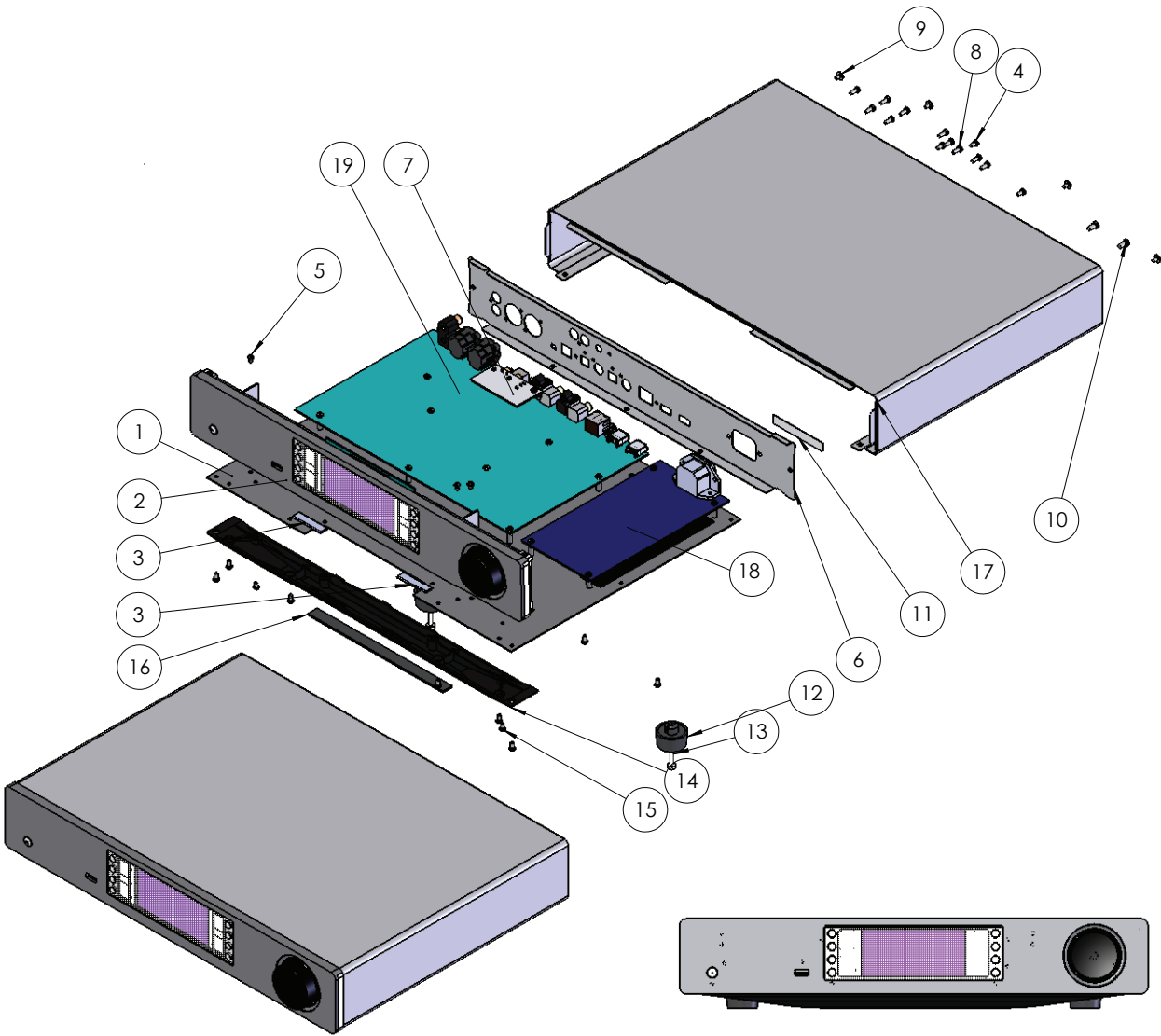
Front Panel Exploded Diagram

Exploded diagram ref	Description	Service Part Number
14	Front panel PCB Assy including display	PKA012
15	4.3 inch TFT Display	PZ786
	Complete front panel including metalwork in black	PKA013
	Complete front panel including metalwork in silver	PKA014
22	Knob in black (order with insert PKA042)	PZ840
22	Knob in silver (order with insert PKA042)	PZ841
23	Knob insert CXN/CXA60/80	PKA042

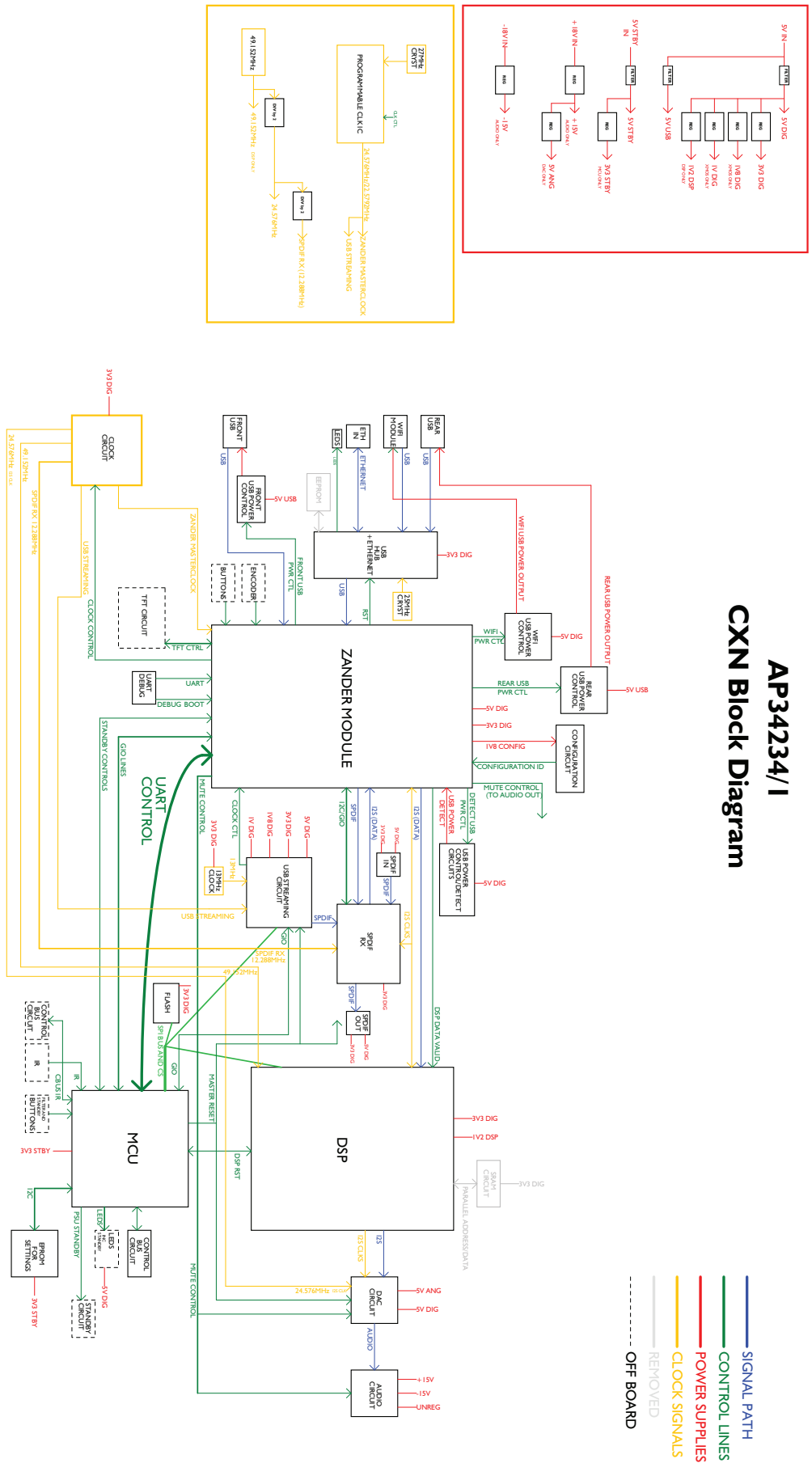


Product Assy Exploded Diagram

exploded diagram ref	Description	Service Part Number
7	Control Bus PCB	PKA011
19	Audio PCB (main board)	PKA010
18	SMPS PCB Assy (same as SM6 v2)	PF505
17	Top cover black	PKA015
17	Top cover silver	PKA016

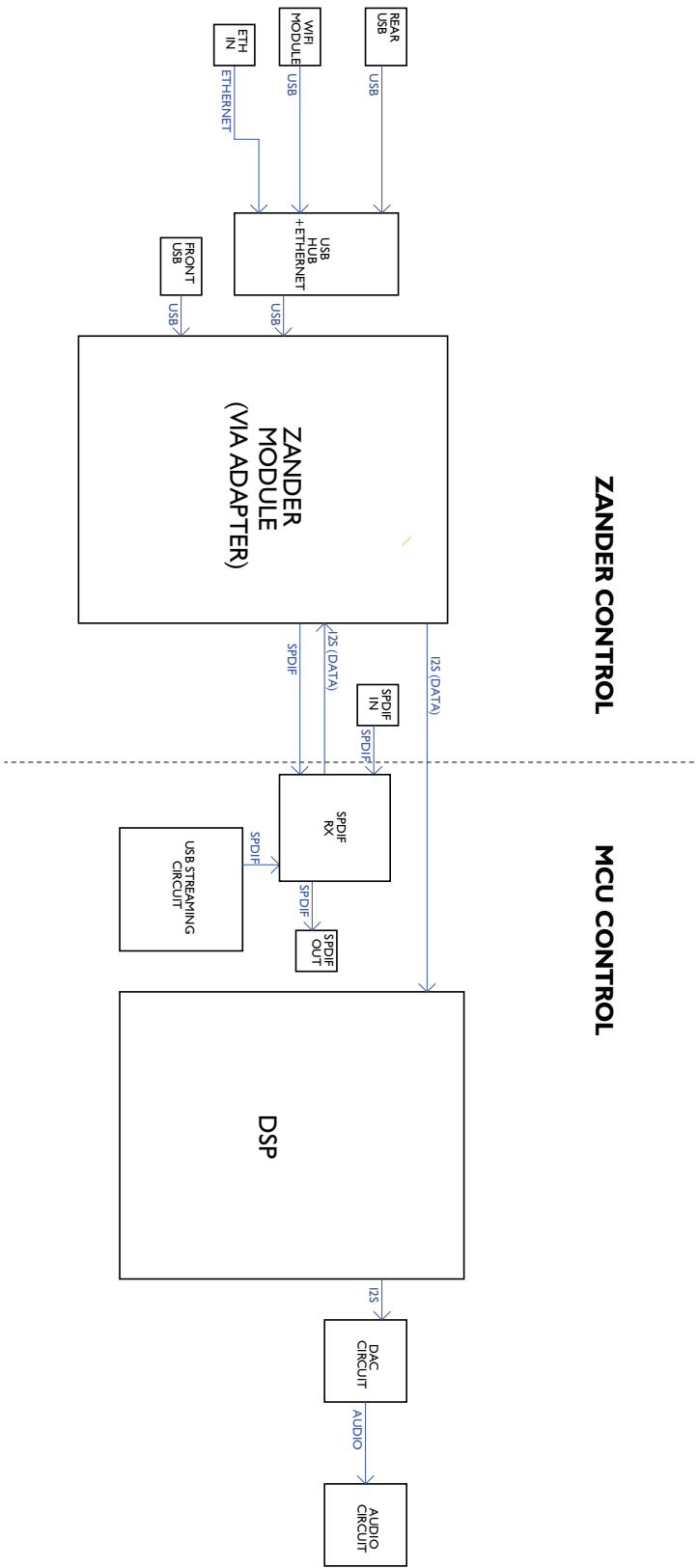


CXN Block Diagram - Master



CXN Block Diagram - Signal Path

CXN Signal Path Block Daigram

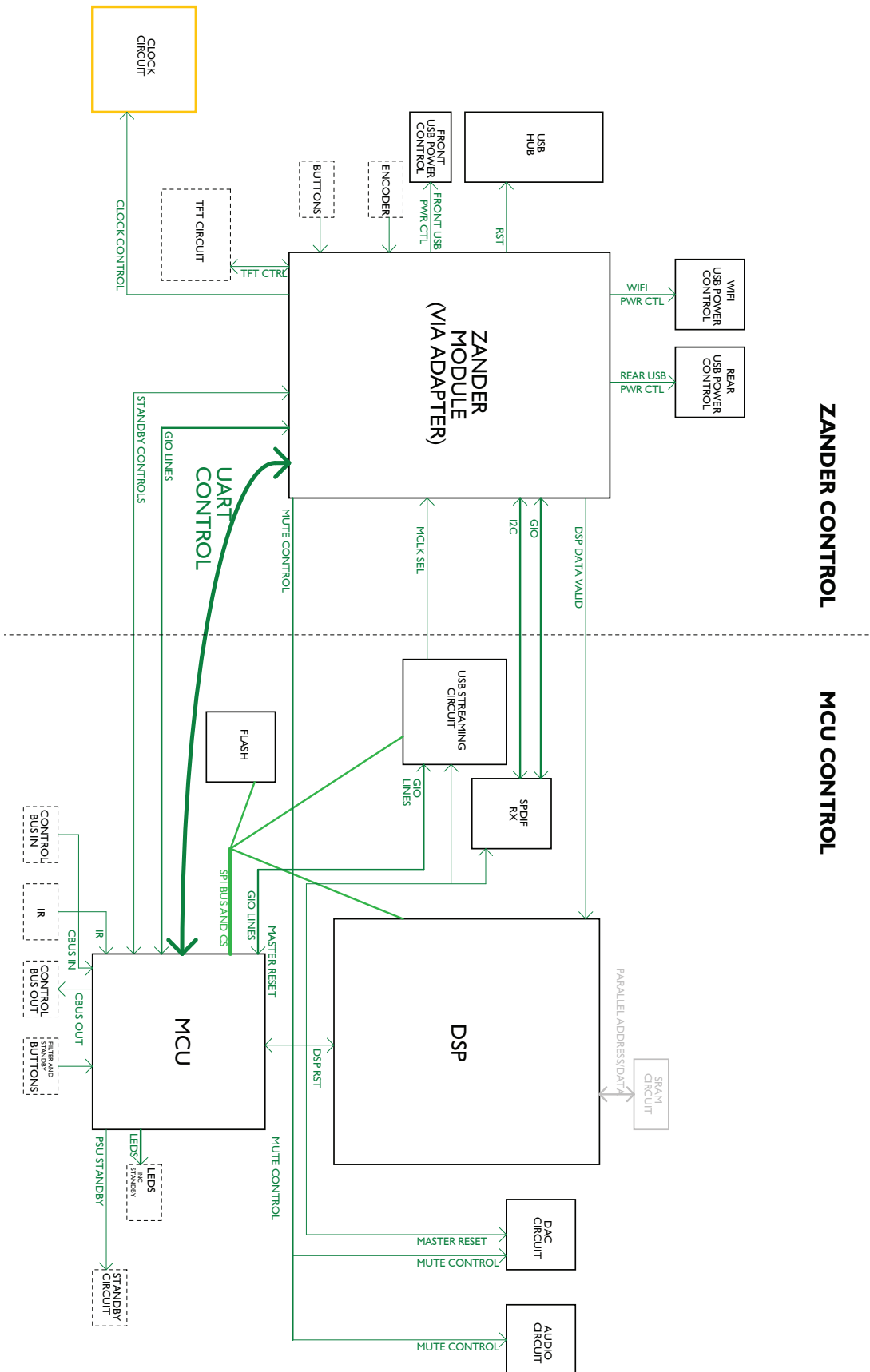


NOTES

ZANDER HAS DIRECT CONTROL OF SPDIF RX AND ALL MUTING
WHEN ZANDER IS AUDIO SOURCE I2S IS DIRECT TO DSP
SPDIF RX I2S OUTPUT IS ROUTED VIA ZANDER TO DSP

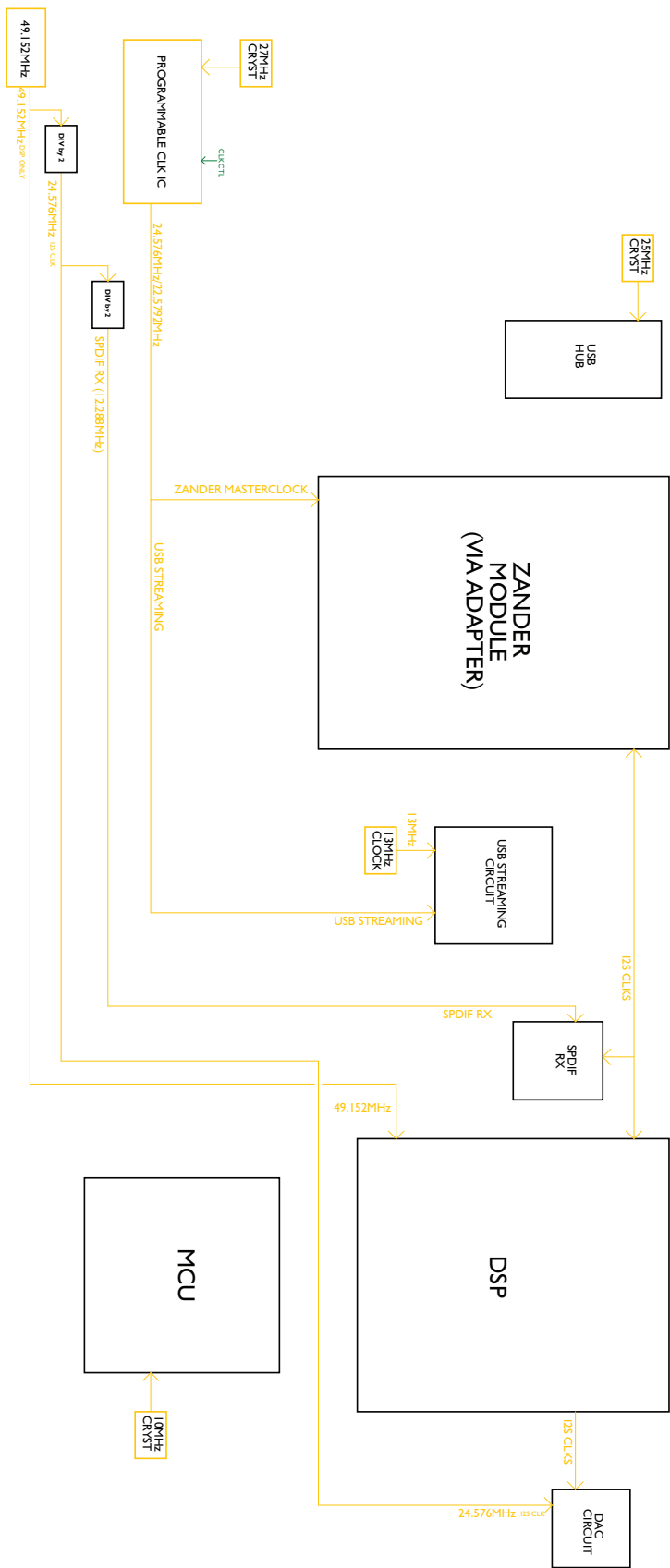
CXN Block Diagram - Control Lines

CXN Control Lines Block Diagram

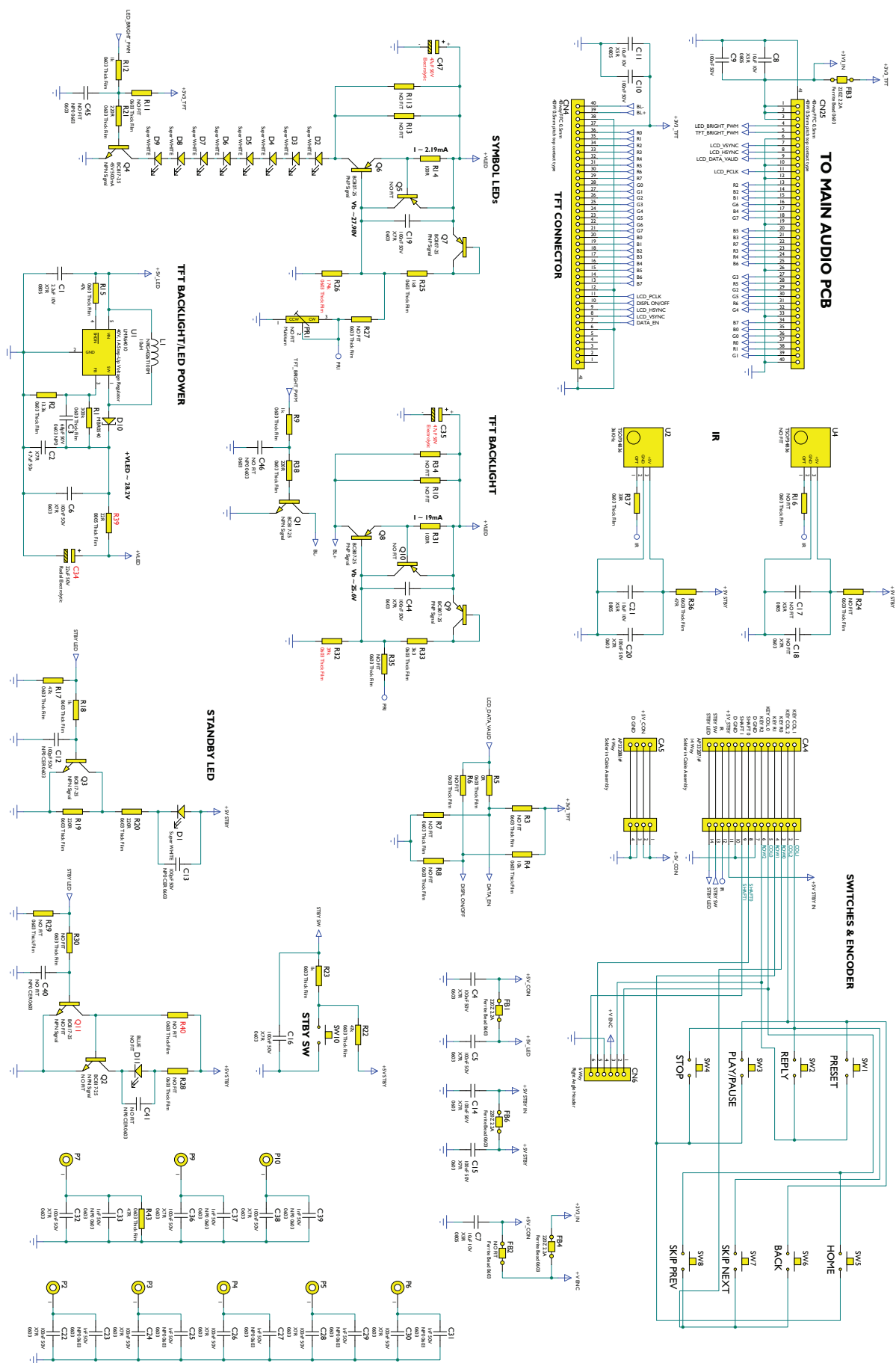


CXN Block Diagram - Clock Signals

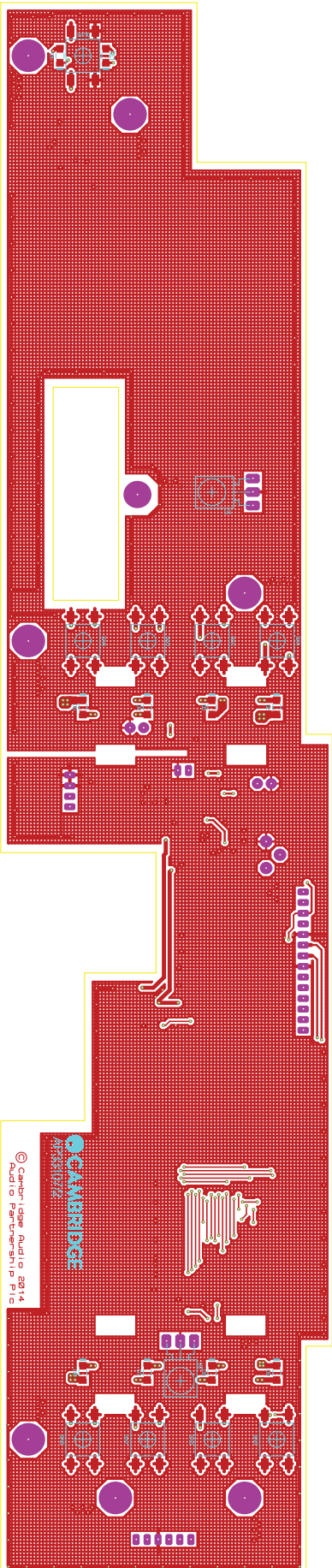
CXN Clock Signals Block Diagram



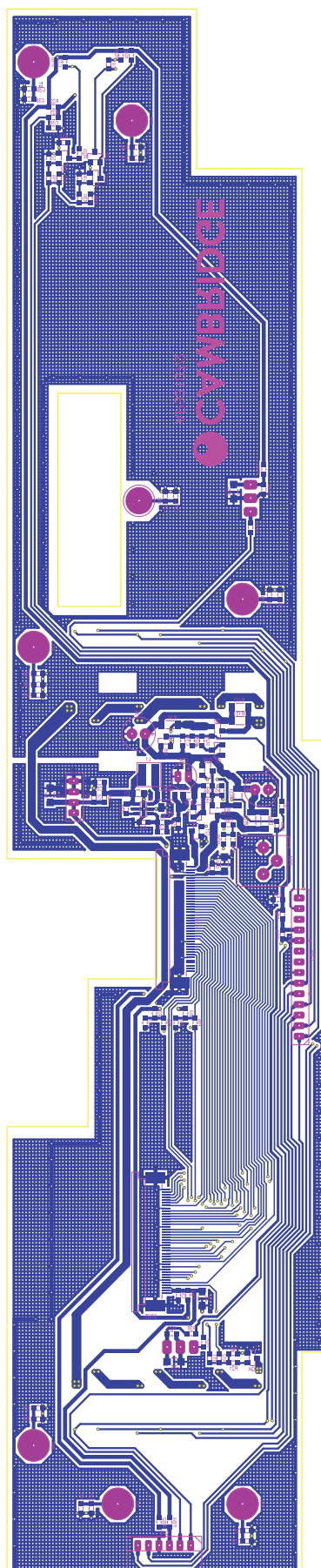
CXN Front Panel PCB Schematic



Front Panel Top



Front Panel Bottom

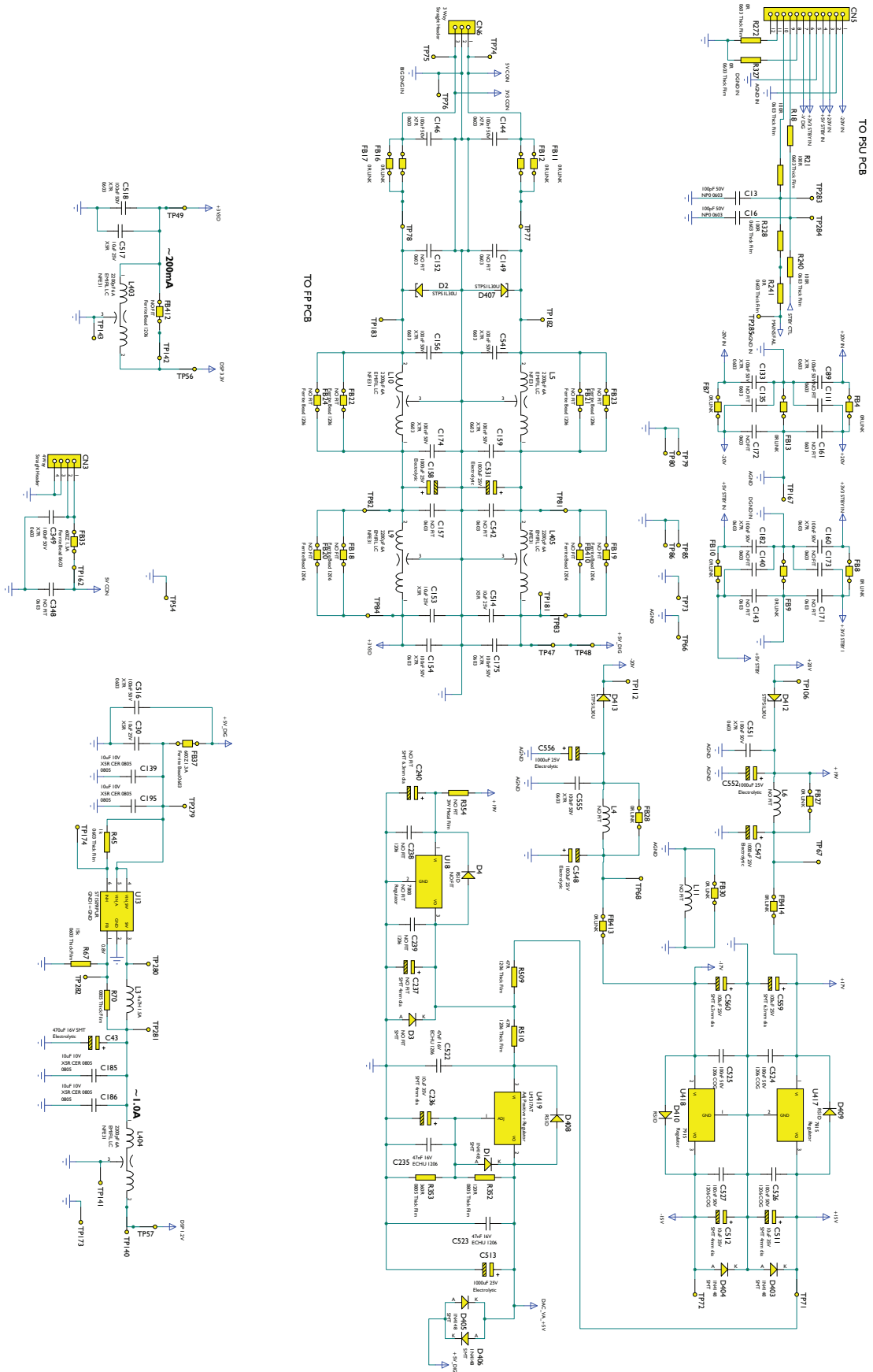


Front panel PCB BOM

Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo	Notes	Service Part
13.3k	0603 Thick Film	1	R2		1%	0603		
NO FIT		13	R3, R6-R8, R11, R16, R24, R27-R30, R35, R40					
0R	0603 Thick Film	1	R5		50mR	0603		
NO FIT		4	R10, R13, R34, R113					
22R	0805 Thick Film	1	R39		1%	0805		
33R	0603 Thick Film	1	R37		1%	0603		
47R	0603 Thick Film	2	R36, R43		1%	0603		
100R	1206 Thick Film	2	R14, R31		1%	1206		
220R	0603 Thick Film	4	R19-R21, R38		1%	0603		
1k	0603 Thick Film	4	R9, R12, R18, R23		1%	0603		
1k8	0603 Thick Film	1	R25		1%	0603		
3k3	0603 Thick Film	1	R33		1%	0603		
10k	0603 Thick Film	1	R4		1%	0603		
39k	0603 Thick Film	1	R32		1%	0603		
47k	0603 Thick Film	3	R15, R17, R22		1%	0603		
174k	0603 Thick Film	1	R26		1%	0603		
300k	0603 Thick Film	1	R1		1%	0603		
RESISTORS VARIABLE								
NO FIT		1	PR1					
CAPACITORS								
NO FIT		1	C17					
NO FIT		1	C18					
NO FIT		2	C40-C41					
NO FIT		2	C45-C46					
68pF 50V	0603 NP0	1	C3		5%	0603		
100pF 50V	NP0 CER 0603	2	C12-C13		5%	0603		
1nF 50V	NP0 0603	8	C23, C25, C27, C29, C31, C33, C37, C39		5%	0603		
100nF 50V	X7R	19	C4-C6, C9-C10, C14-C16, C19-C20, C22, C24, C26, C28, C30, C32, C36, C38, C44		10%	0603		
2.2uF 10V	X7R	1	C1		10%	0805		
4.7uF 50v	X7R	1	C2		10%	1206		
10uF 10V	X5R	4	C7-C8, C11, C21		10%	0805		
22uF 50V	Radial Electrolytic	1	C34	061054 (RX Series)	20%	5mm Dia 2mm Pitch		
47uF 50V	Electrolytic	2	C35, C47	061056 (RX Series)	20%	6mm Dia		
DIODES								
WHITE LED	Super WHITE	9	D1-D9	KPT-2012VWF-A-Y2C		0805		
0.5A 40V	Schottky Diode	1	D10	MBR0540		SOD123		
NO FIT		1	D11					
INDUCTORS								
220Z 2.2A	Ferrite Bead 0603	4	FB1, FB3-FB4, FB6	BLM18KG221SN1D		0603	220Z @100MHz	
NO FIT		1	FB2					
10uH	Inductor	1	L1	NRG4026T100M		4mm x 4mm		
INTEGRATED CIRCUITS								
Step Up Regulator	40V, 1A Step-Up Voltage Regulator	1	U1	LMR64010		SOT23-5		PKA041
36KHz	IR Receiver	1	U2	TSOP34836		Through Hole		PY755
NO FIT		1	U4					
SWITCHES								
	Surface Mount Tactile	9	SW1-SW8, SW10	TD-03XA				PY1821
TRANSISTORS								
45V 500mA	NPN Signal	3	Q1, Q3-Q4	BC817-25		SOT23		PY1847
NO FIT		1	Q2					
NO FIT		2	Q5, Q10					
45V 500mA	PNP Signal	4	Q6-Q9	BC807-25		SOT23		PY1848
NO FIT		1	Q11					

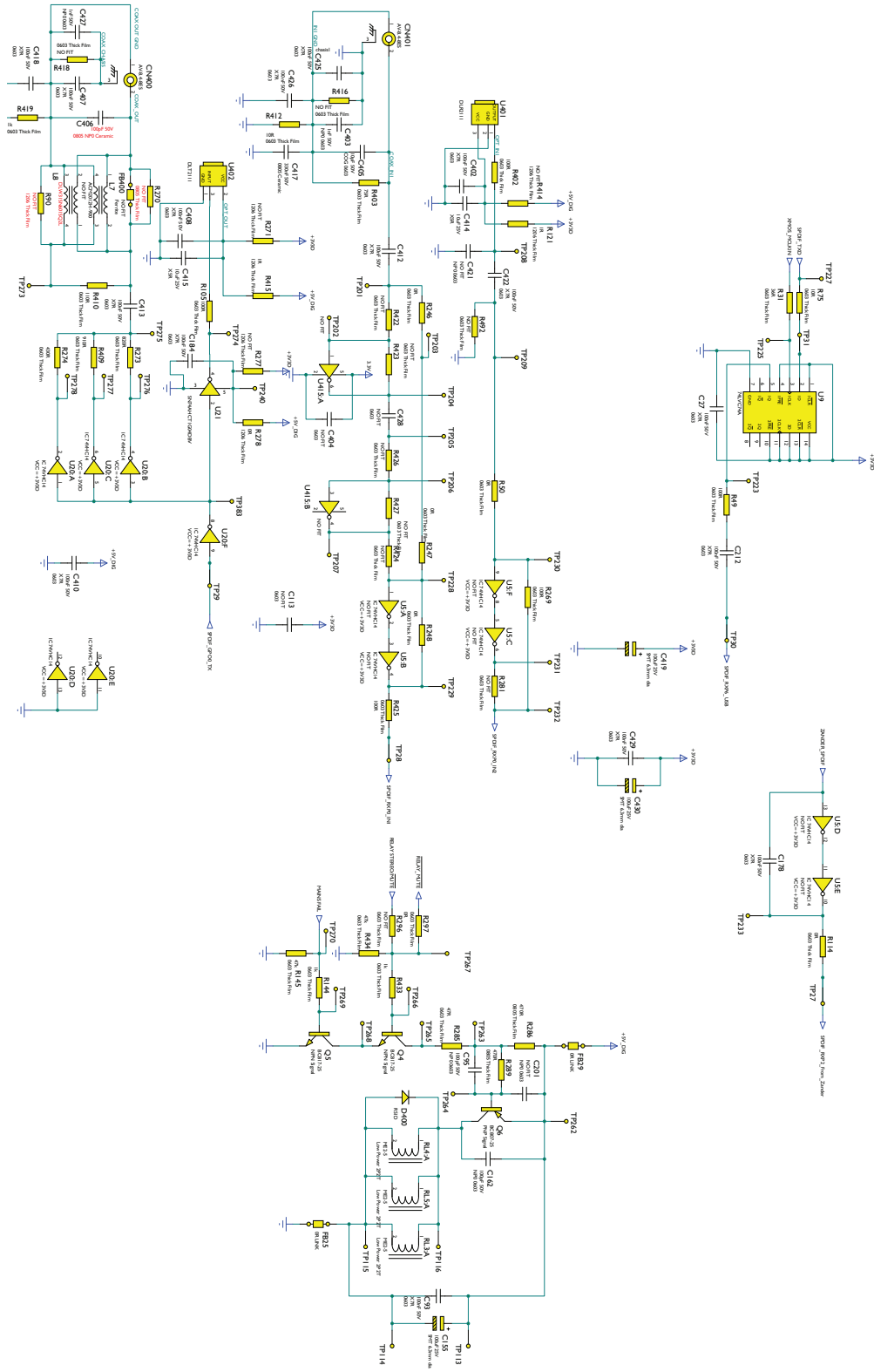
Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

Audio PCB Schematic Power Supply

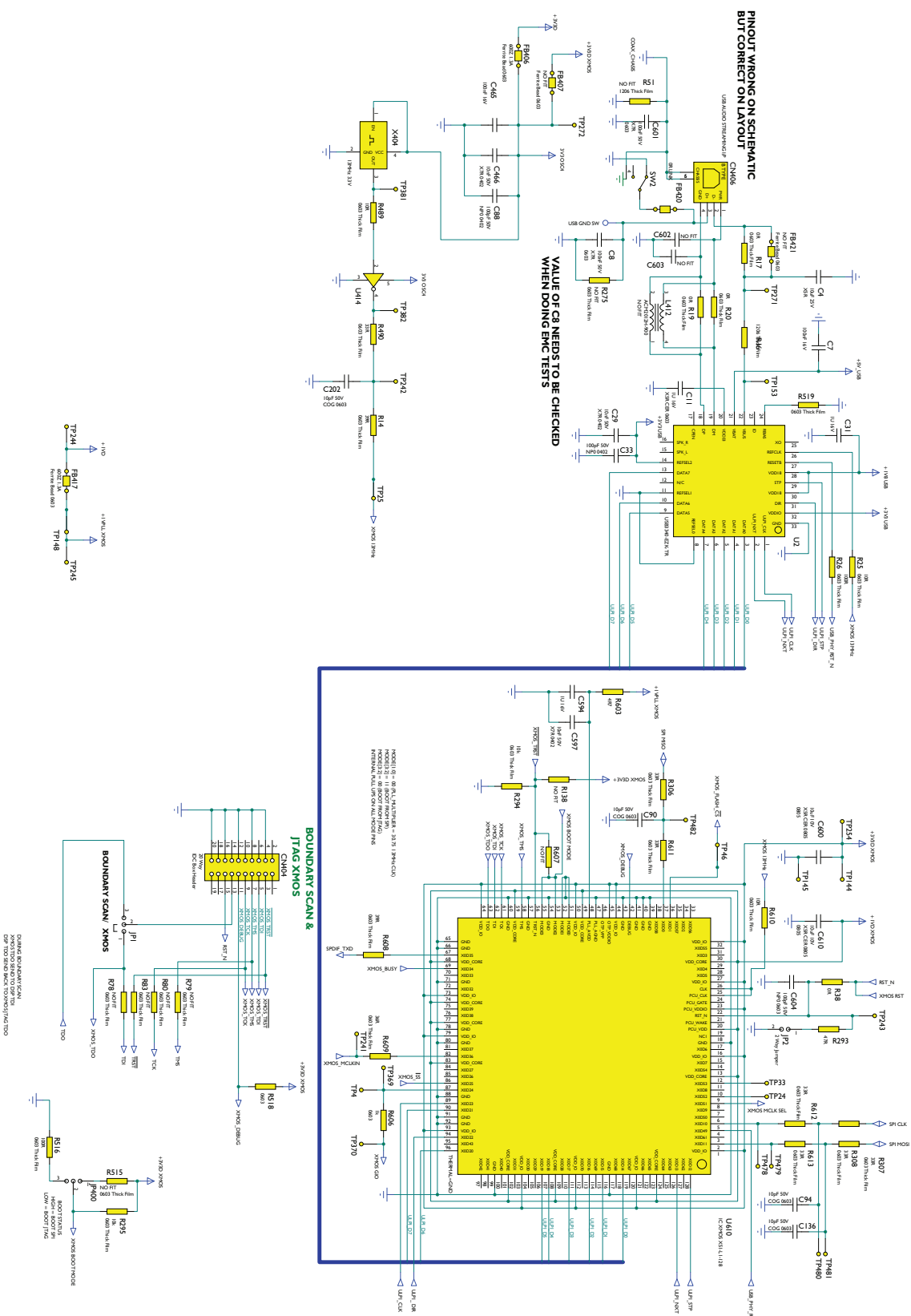




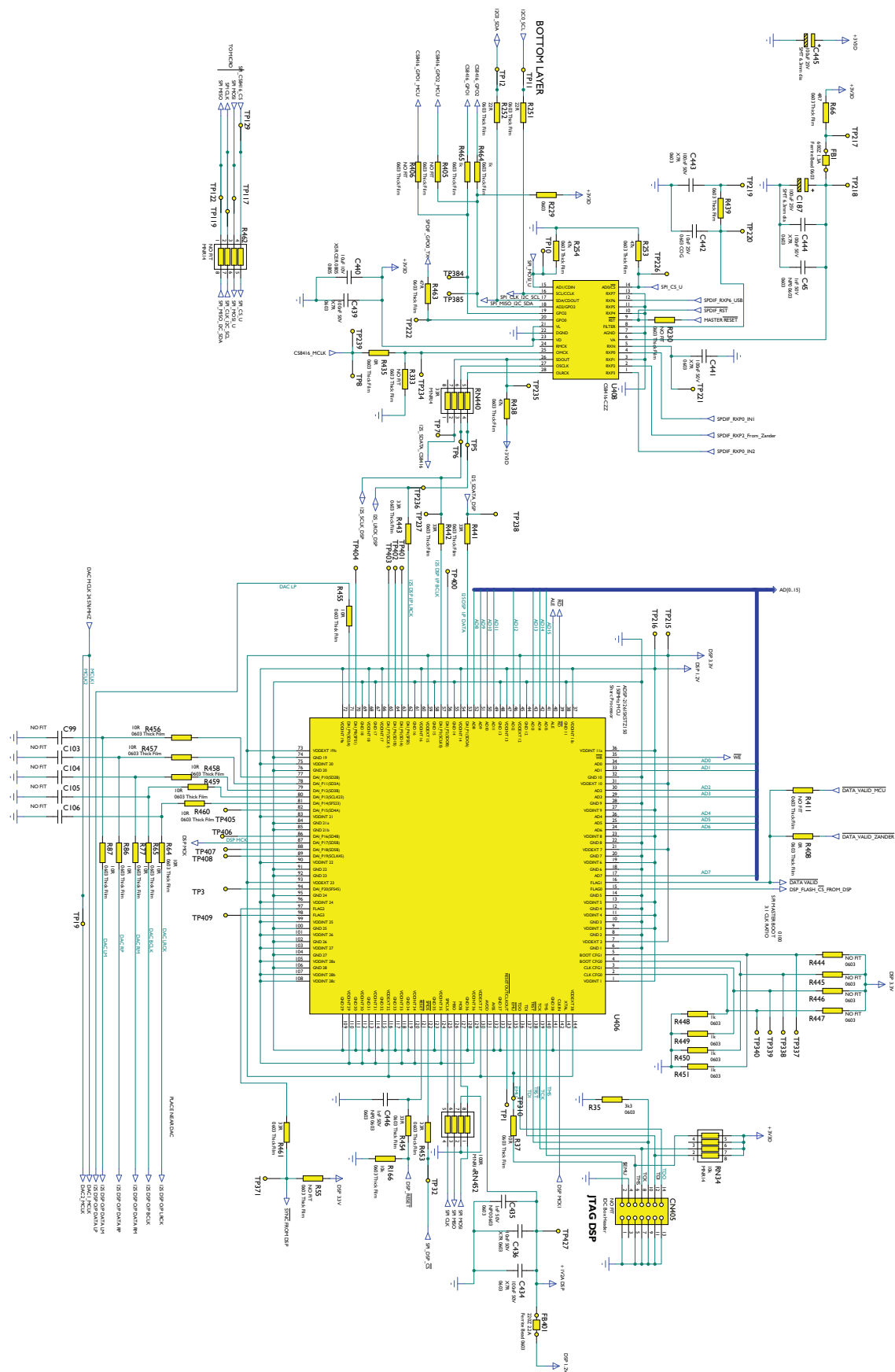
Audio PCB Schematic SPDIF I/O Reply



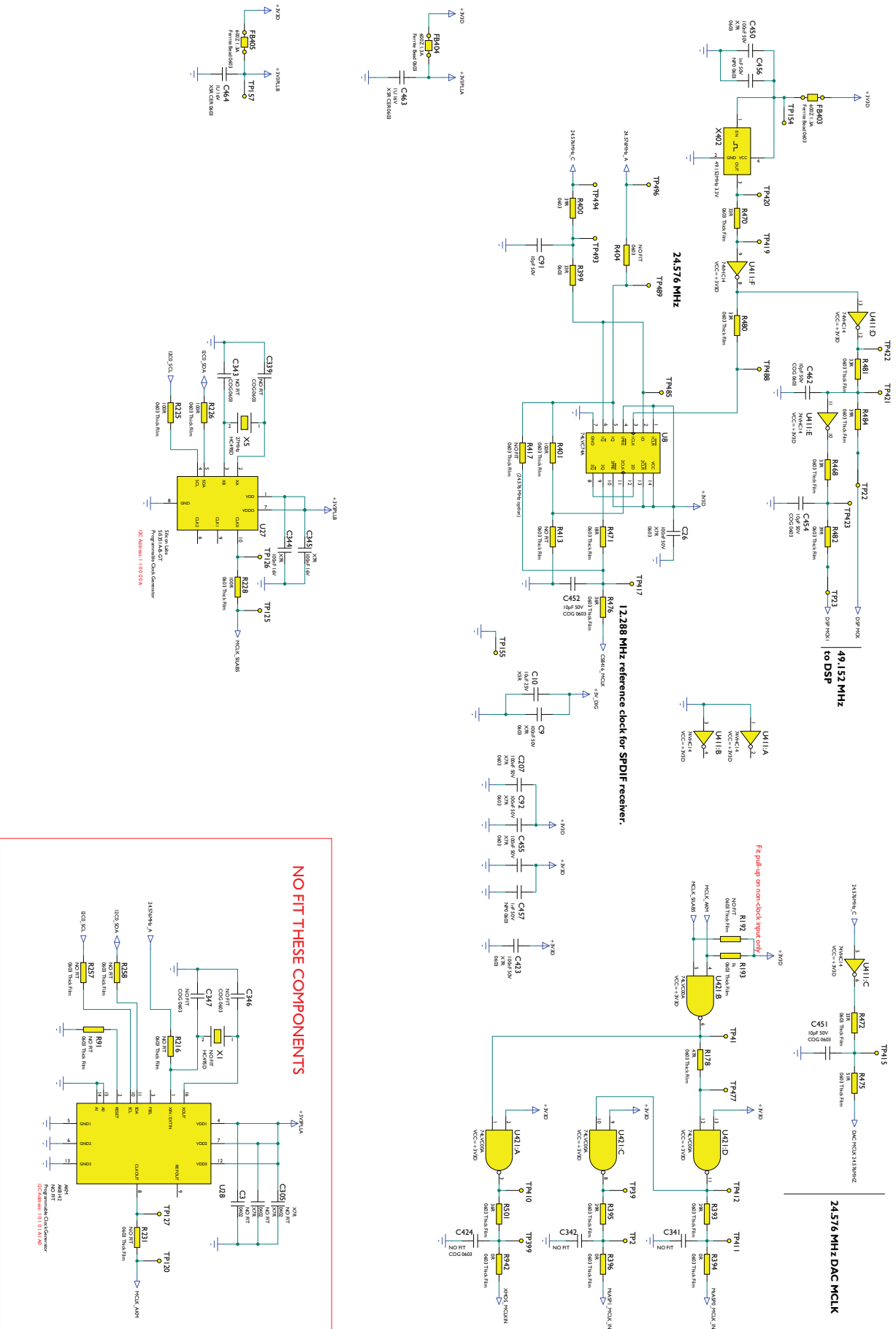
Audio PCB Schematic USB Streaming PHY



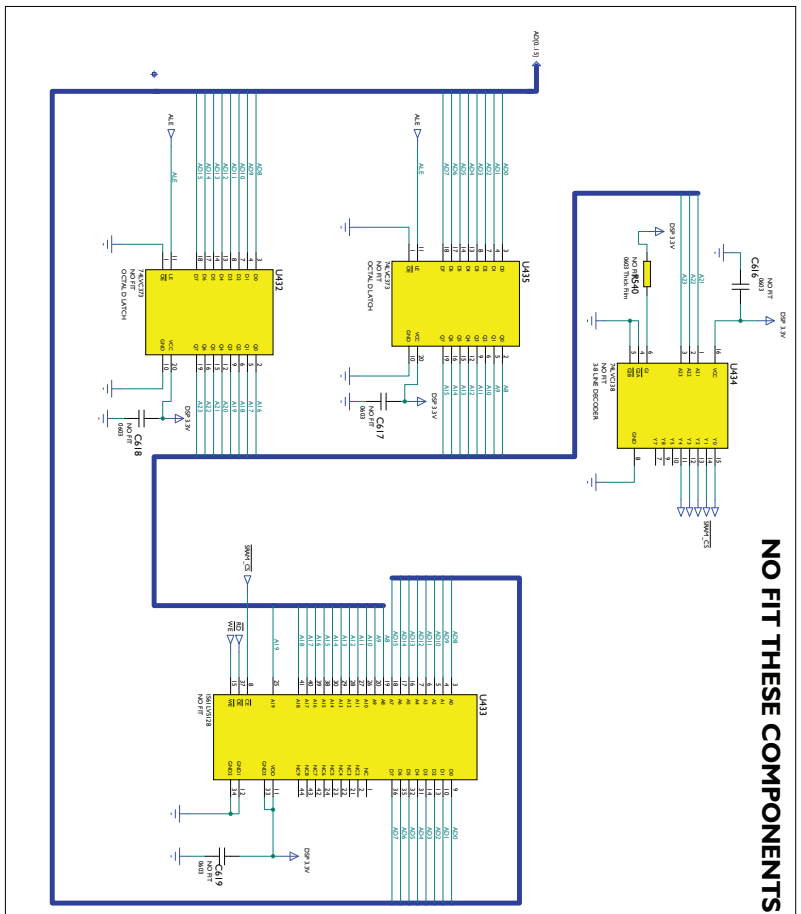
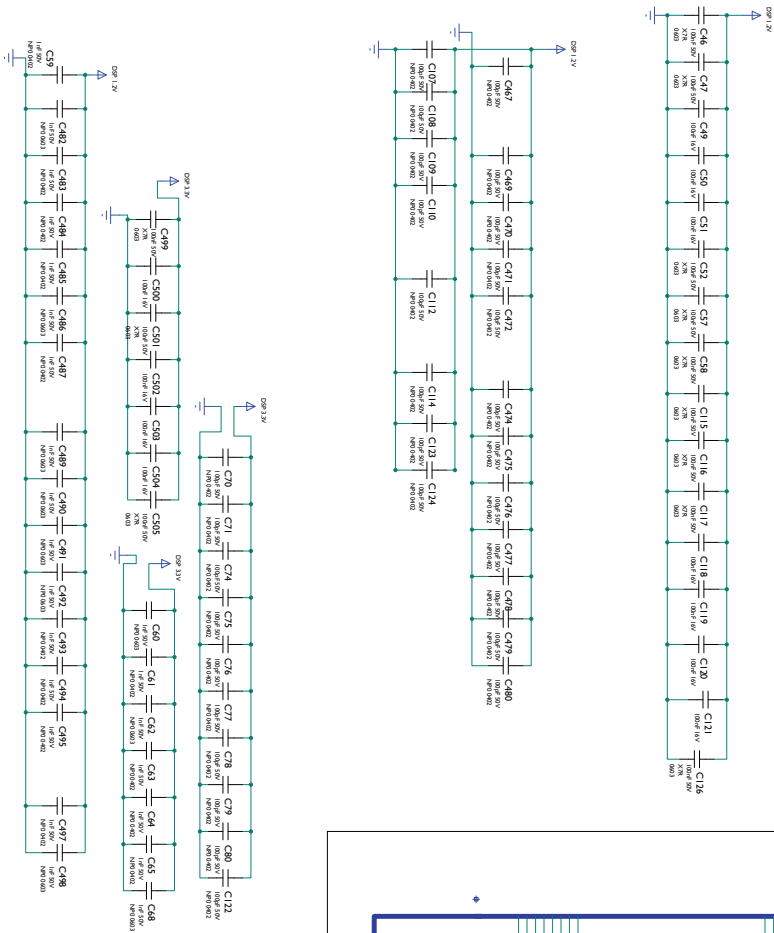
Audio PCB Schematic DSP and DIR

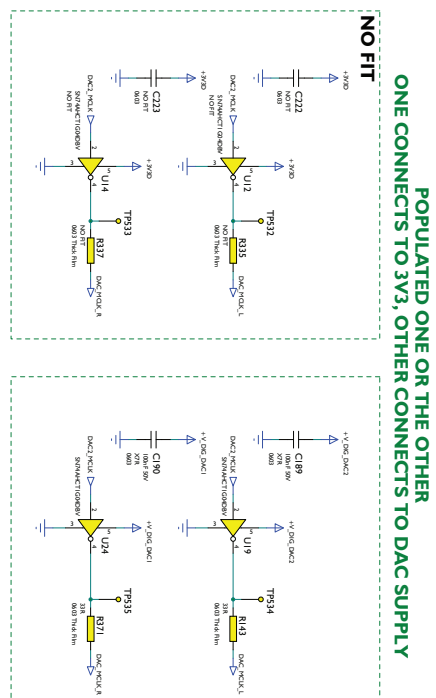


Audio PCB Schematic Masterclocks

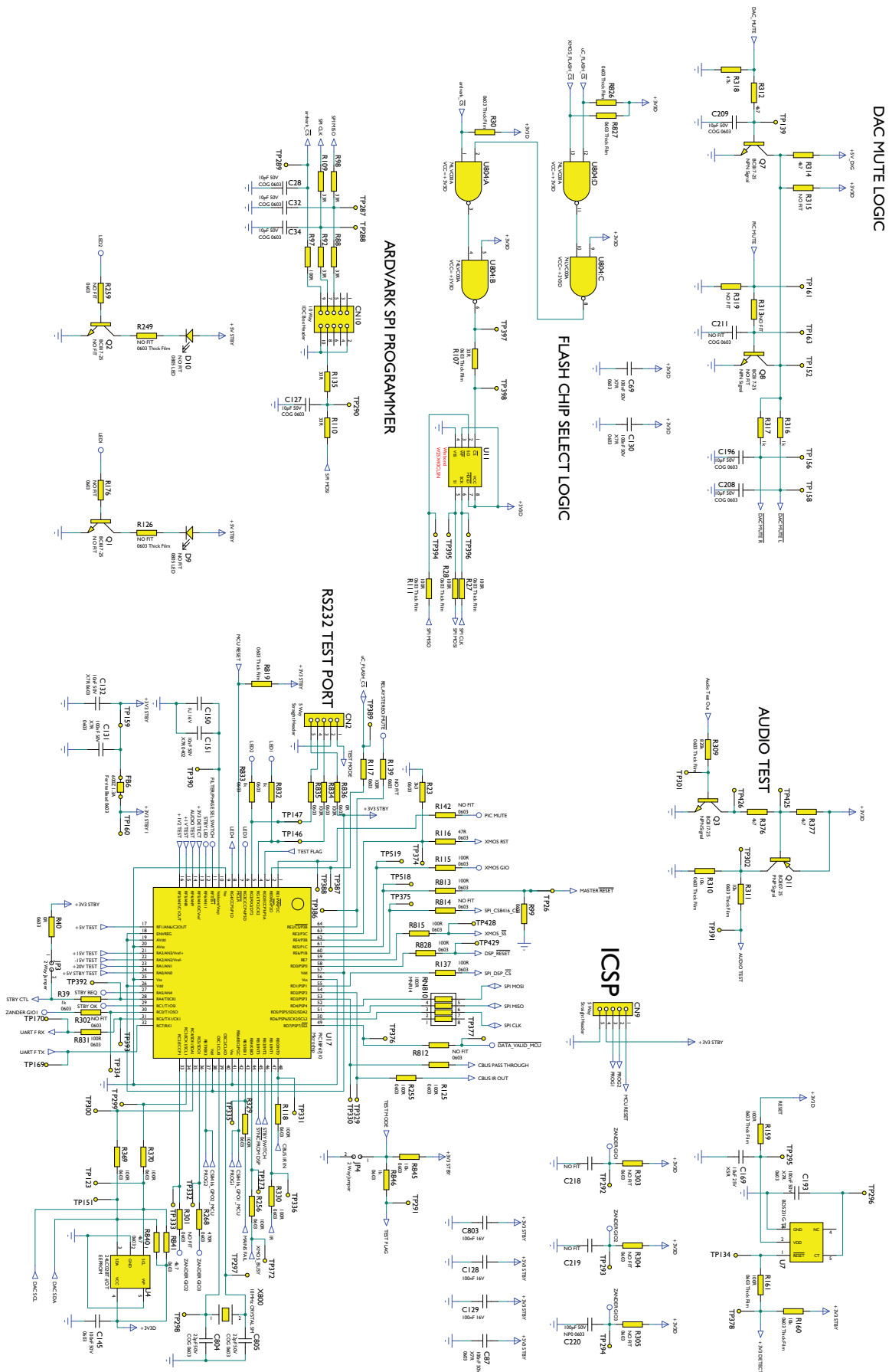


Audio PCB Schematic DSP Decoupling & SRAM

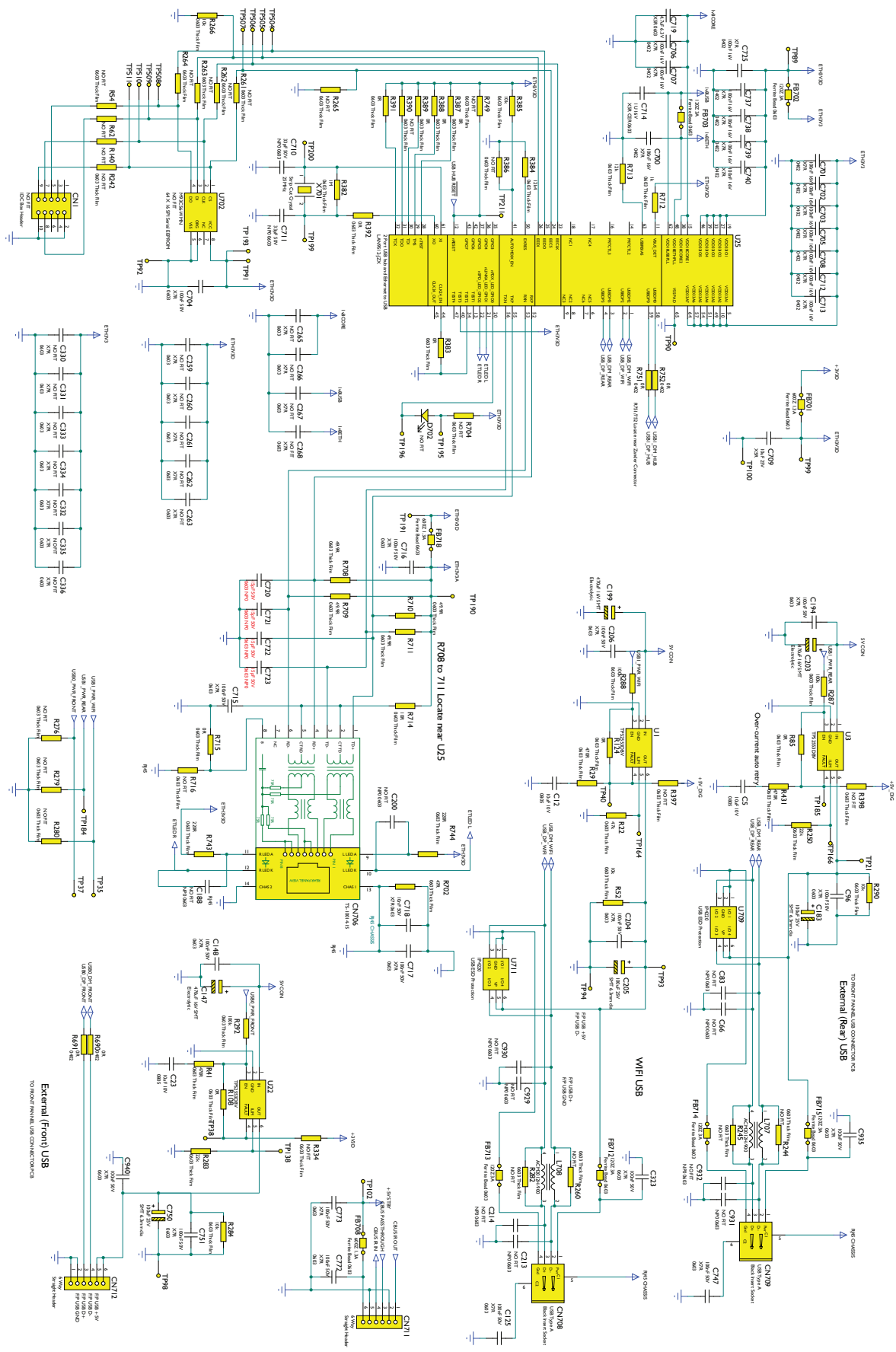




Audio PCB Schematic MCU and Flash

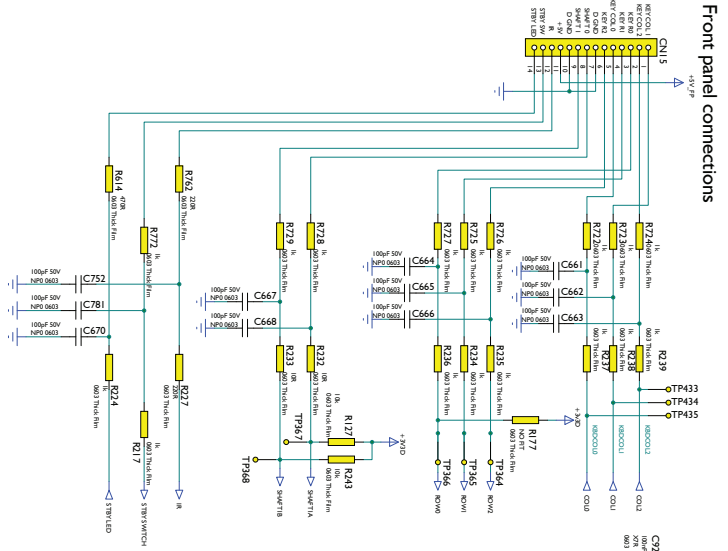


Audio PCB Schematic Ethernet and USB HUB

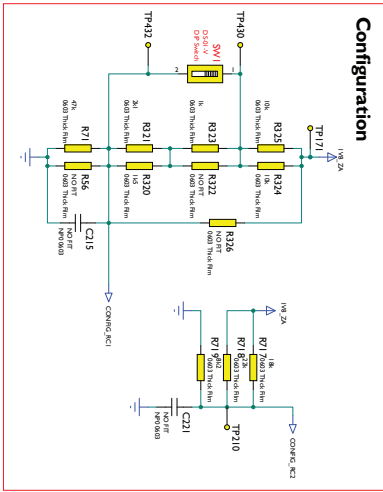


Audio PCB Schematic ZANDER

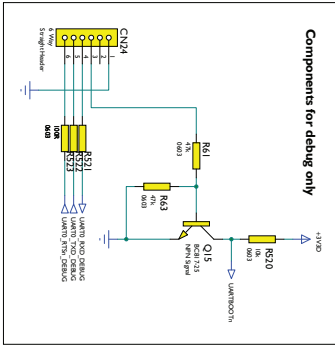
Front panel connections



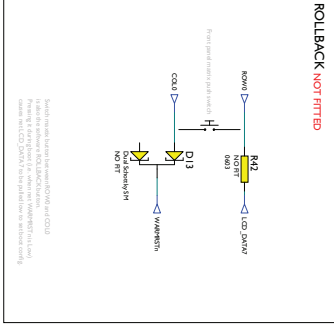
Configuration



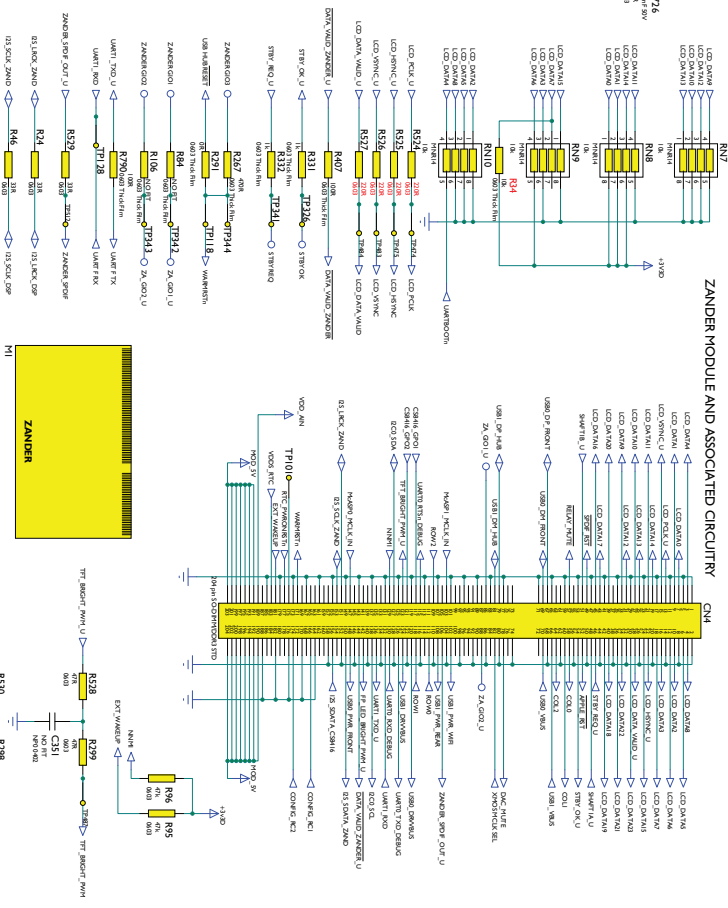
Components for debug only



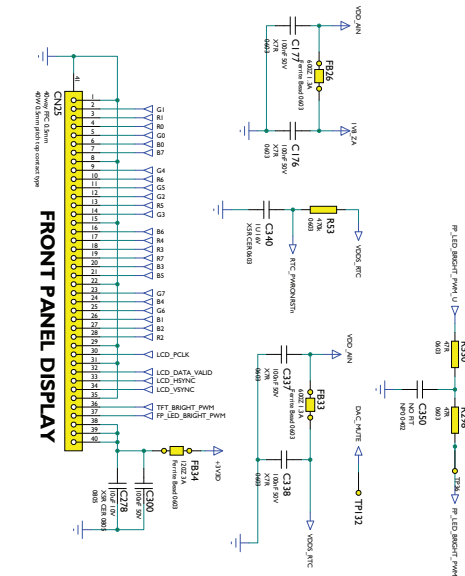
ROLLBACK NOT FITTED

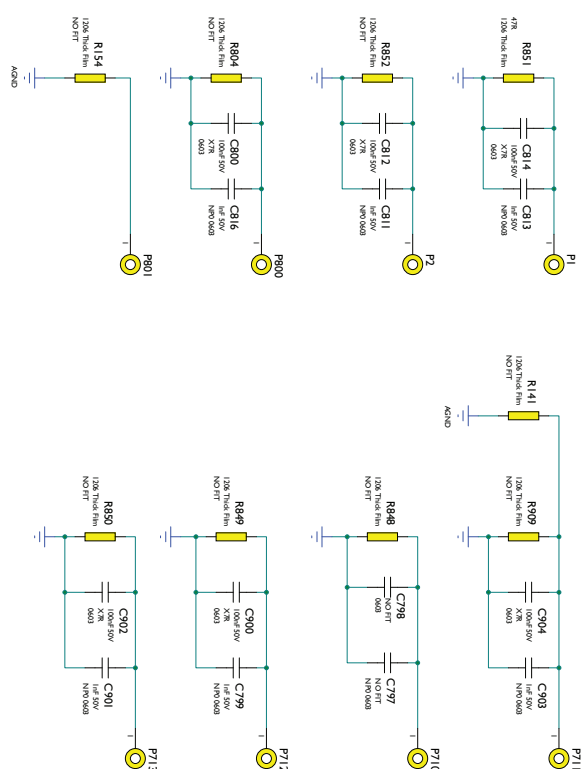
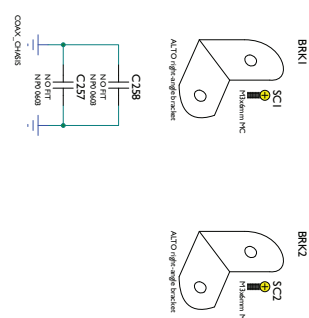


ZANDER MODULE AND ASSOCIATED CIRCUITRY

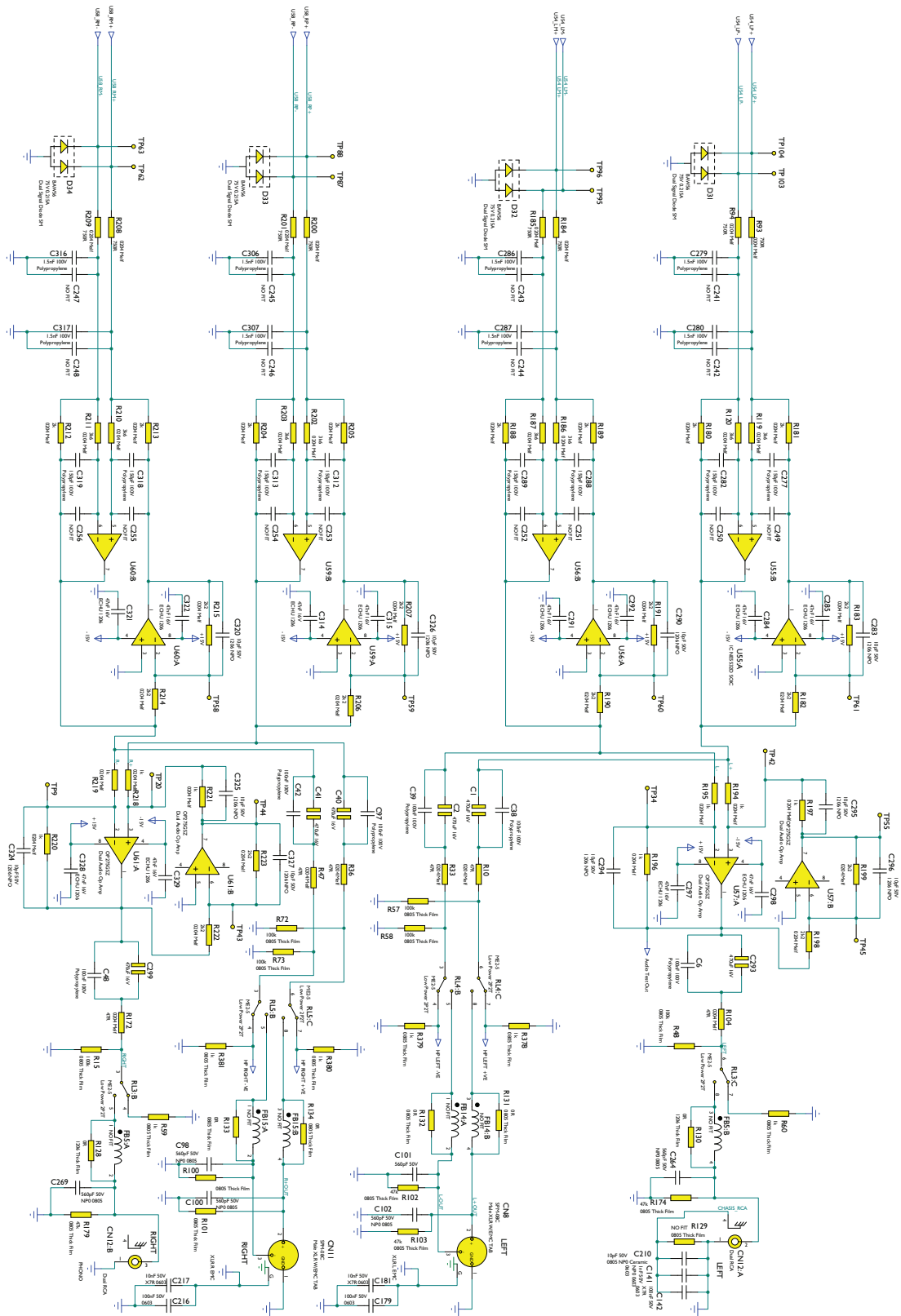


FRONT PANEL DISPLAY





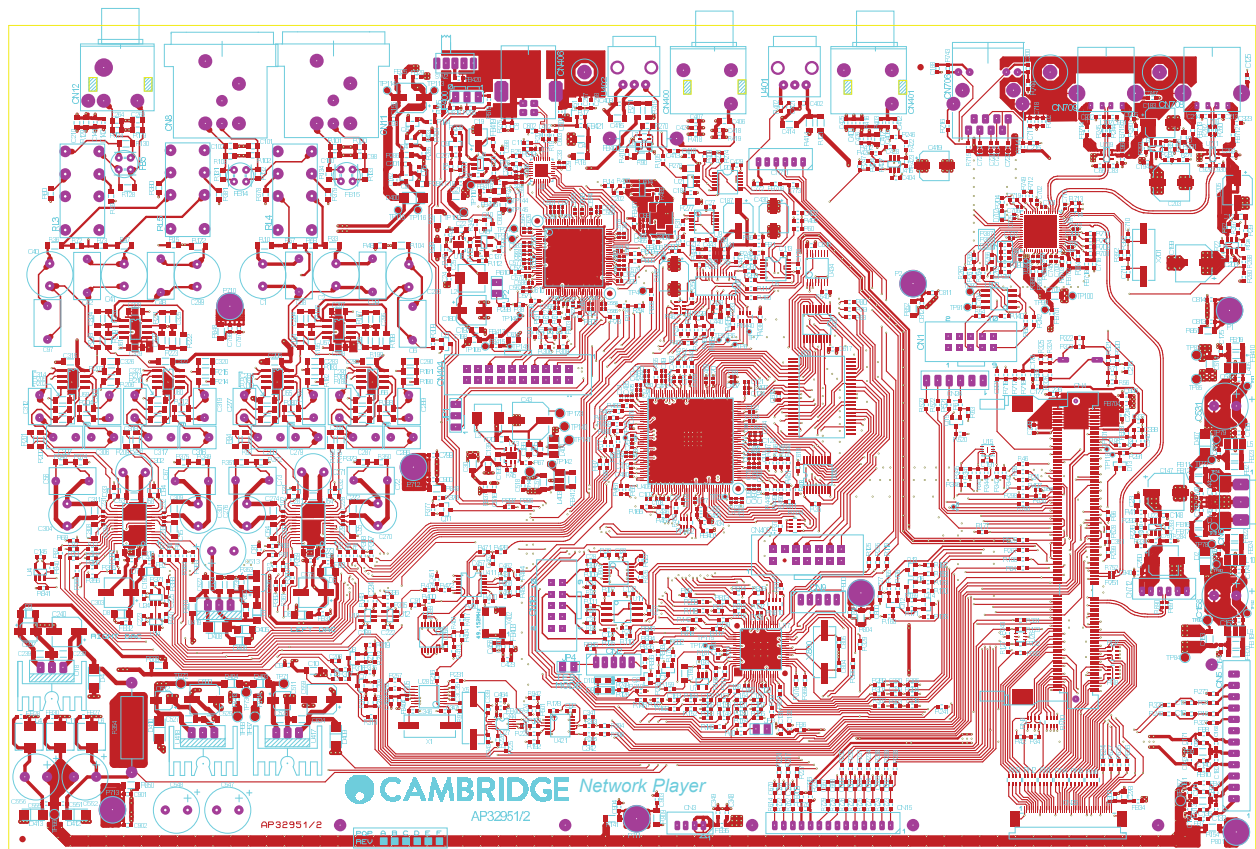
Audio PCB Schematic ANALOGUE STAGE



Audio PCB Top

TOP COPPER LAYER

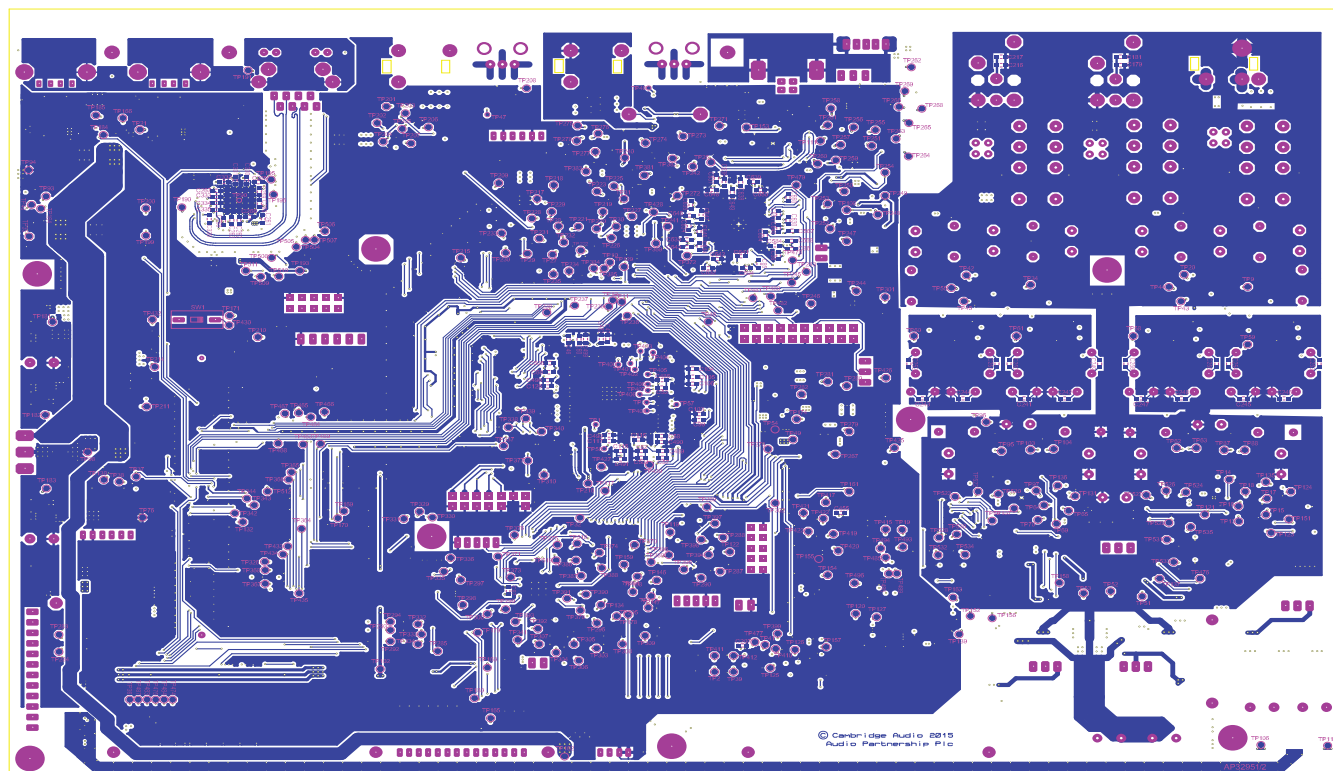
TOP SILK LAYER



Audio PCB Bottom

BOTTOM COPPER LAYER

BOTTOM SILK LAYER



Audio PCB BOM

Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo	Notes	Service Part
RESISTORS								
0R	0603 Thick Film	36	R17, R19-R20, R38, R40, R50, R85, R108, R114, R122-R124, R241, R246-R248, R272, R291, R297, R327, R355, R362, R368, R383, R387-R389, R391-R392, R394, R396, R408, R435, R715, R836, R942		50mR	0603		
NO FIT		13	R32, R51, R141, R154, R271, R277, R414, R804, R848-R850, R852, R909					
NO FIT		101	R42, R54-R56, R62, R78-R80, R83-R84, R91, R106, R126, R138-R140, R142, R147-R149, R163, R176-R177, R192, R216, R230-R231, R242, R244-R245, R249, R257-R265, R275-R276, R279-R282, R296, R301-R305, R313, R315, R319, R322, R326, R333-R335, R337, R339, R341, R344, R356, R358-R360, R364-R366, R386, R390, R397-R398, R404-R406, R411, R413, R416-R418, R422-R424, R426-R427, R444-R447, R492, R515, R540, R607, R704, R716, R749, R812, R814					
0R	1206 Thick Film	4	R76, R128, R130, R278		50mR	1206		
NO FIT		1	R90					
NO FIT		10	R129, R270, R348-R351, R372-R375					
0R	0805 Thick Film	4	R131-R134		50mR	0805		
NO FIT		1	R354					
NO FIT		1	R462					
0R	0402 Thick Film	4	R690-R691, R751-R752		50mR	0402		
49.9R	0603 Thick Film	4	R708-R711		1%	0603		
1R	1206 Thick Film	2	R121, R415		1%	1206		
4R7	0603 Thick Film	2	R66, R603		1%	0603		
10R	0603 Thick Film	21	R25, R37, R64-R65, R75, R77, R86-R87, R112, R232-R233, R412, R455-R460, R489, R610, R714		1%	0603		
10R	0805 Thick Film	1	R74		1%	0805		
18R	0603 Thick Film	1	R471		1%	0603		
22R	0603 Thick Film	2	R251-R252		1%	0603		
33R	0603 Thick Film	32	R24, R46, R88-R89, R92, R98, R107, R109-R110, R135, R143, R306-R308, R371, R399, R441-R443, R453-R454, R461, R468, R470, R472, R480-R481, R490, R529, R611-R613		1%	0603		
33R	MNR14	1	RN440		10%	MNR14		
36R	0603 Thick Film	4	R31, R476, R501, R609		1%	0603		
39R	0603 Thick Film	9	R14, R336, R338, R393, R395, R400, R482, R484, R608		1%	0603		
47R	0204 Melf	6	R10, R33, R36, R47, R104, R172		1%	0204		
47R	0603 Thick Film	10	R116, R178, R285, R293, R298-R299, R463, R528, R530, R702		1%	0603		
47R	1206 Thick Film	3	R509-R510, R851		1%	1206		
51R	0603 Thick Film	1	R475		1%	0603		
75R	0603 Thick Film	1	R403		1%	0603		
100R	0603 Thick Film	62	R1-R5, R7-R9, R12-R13, R18, R21, R26-R28, R49, R81-R82, R97, R105, R111, R115, R117-R118, R125, R137, R159, R161, R225-R226, R228, R240, R255-R256, R269, R328-R330, R342-R343, R345, R357, R361, R363, R367, R369-R370, R401-R402, R407, R425, R516, R521-R523, R790, R813, R815, R828, R831, R834-R835		1%	0603		
100R	MNR14	2	RN452, RN810		10%	MNR14		
110R	0603 Thick Film	1	R410		1%	0603		
120R	0805 Thick Film	1	R352		1%	0805		
220R	0603 Thick Film	8	R227, R524-R527, R743-R744, R762		1%	0603		
220R	MNR14	6	RN1-RN6		10%	MNR14		
360R	0805 Thick Film	1	R353		1%	0805		
430R	0603 Thick Film	1	R274		1%	0603		
470R	0603 Thick Film	6	R29, R41, R267-R268, R431, R614		1%	0603		
470R	0805 Thick Film	2	R286, R289		1%	0805		
750R	0204 Melf	8	R93-R94, R184-R185, R200-R201, R208-R209		1%	0204		
820R	0603 Thick Film	1	R273		1%	0603		
910R	0603 Thick Film	1	R409		1%	0603		
1k	0603 Thick Film	40	R39, R45, R144, R193, R217, R224, R234-R239, R316-R317, R323, R331-R332, R419, R433, R439, R448-R451, R464-R465, R606, R712, R722-R729, R772, R832-R833, R846		1%	0603		
1k	0805 Thick Film	6	R59-R60, R378-R381		1%	0805		

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

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1k	0204 Melf	8	R194-R197, R218-R221	1%	0204		
1k5	0603 Thick Film	2	R6, R320	1%	0603		
2k	0204 Melf	8	R180-R181, R188-R189, R204-R205, R212-R213	1%	0204		
2k1	0603 Thick Film	1	R321	1%	0603		
2k2	0204 Melf	12	R182-R183, R190-R191, R198-R199, R206-R207, R214-R215, R222-R223	1%	0204		
3k	0603 Thick Film	1	R43	1%	0603		
3k3	0603 Thick Film	2	R23, R35	1%	0603		
3k6	0204 Melf	8	R119-R120, R186-R187, R202-R203, R210-R211	1%	0204		
4k7	0603 Thick Film	6	R312, R314, R376-R377, R840-R841	1%	0603		
7k5	0805 Thick Film	1	R70	1%	0805		
8k06	0603 Thick Film	1	R519	1%	0603		
8k2	0603 Thick Film	1	R719	1%	0603		
10k	0603 Thick Film	33	R30, R34, R52, R68-R69, R99, R127, R136, R146, R151, R157, R160, R162, R166, R169, R243, R266, R284, R290, R294-R295, R310-R311, R324-R325, R346-R347, R385, R520, R819, R826-R827, R845	1%	0603		
10k	MNR14	5	RN7-RN10, RN34	10%	MNR14		
12k	0603 Thick Film	2	R44, R713	1%	0603		
12k4	0603 Thick Film	1	R384	1%	0603		
15k	0603 Thick Film	1	R67	1%	0603		
18k	0603 Thick Film	1	R717	1%	0603		
20k	1206 Thick Film	1	R16	1%	1206		
22k	0603 Thick Film	8	R113, R152-R153, R155, R164, R250, R283, R718	1%	0603		
47k	0603 Thick Film	21	R11, R22, R61, R63, R71, R95-R96, R145, R156, R158, R165, R170-R171, R229, R253-R254, R318, R340, R434, R438, R518	1%	0603		
47k	0805 Thick Film	6	R100-R103, R174, R179	1%	0805		
68k	0603 Thick Film	1	R150	1%	0603		
100k	0805 Thick Film	6	R15, R48, R57-R58, R72-R73	1%	0805		
100k	0603 Thick Film	3	R287-R288, R292	1%	0603		
470k	0603 Thick Film	5	R53, R167-R168, R173, R175	1%	0603		
820k	0603 Thick Film	1	R309	1%	0603		
1M	0603 Thick Film	1	R382	1%	0603		
CAPACITORS							
NO FIT		3	C3, C35, C305				
NO FIT		2	C19, C237				
NO FIT		66	C20, C66, C83, C99, C103-C106, C111, C113, C135, C140, C143, C149, C152, C157, C161, C171-C173, C201, C213-C215, C218-C219, C221-C223, C226-C227, C241-C258, C404, C421, C428, C542, C602-C603, C616-C619, C776, C797-C798, C929-C932				
NO FIT		2	C188, C200				
NO FIT		8	C192, C228-C234				
NO FIT		4	C211, C341-C342, C424				
NO FIT		2	C238-C239				
NO FIT		1	C240				
NO FIT		16	C259-C263, C265-C268, C330-C336				
NO FIT		2	C339, C343				
NO FIT		2	C346-C347				
NO FIT		1	C348				
NO FIT		2	C350-C351				
10pF 50V	COG 0603	19	C28, C32, C34, C90-C91, C94, C127, C136, C196, C202, C208-C209, C224-C225, C405, C451-C452, C454, C462	5%	0603		
10pF 50V	0805 NP0 Ceramic	1	C210	5%	0805		
10pF 50V	1206 NPO	10	C283, C290, C294-C296, C320, C324-C327	5%	1206		
15pF 50V	0603 NP0	4	C720-C723	5%	0603		
18pF 50V	COG 0603	1	C25	5%	0603		
22pF 50V	COG 0603	2	C804-C805	5%	0603		
33pF 50V	NP0 0603	2	C710-C711	5%	0603		
100pF 50V	NP0 0603	19	C13, C16, C81-C82, C95, C162, C220, C604, C661-C668, C670, C752, C781	10%	0603		

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

100pF 50V	NP0 0402	59	C33, C70-C71, C74-C80, C88, C107-C110, C112, C114, C122-C124, C467, C469-C472, C474-C480, C553-C554, C557-C558, C569-C576, C585-C593, C596, C599, C620-C621, C625-C626		5%	0402		
100pF 50V	0805 NP0 Ceramic	1	C406		5%	0805		
150pF 100V	Polypropylene	8	C277, C282, C288-C289, C312-C313, C318-C319	FKP2D001501D00J	5%	5mm Pitch Box		
560pF 50V	NP0 0805	6	C98, C100-C102, C264, C269		5%	0805		
1nF 50V	NP0 0603	33	C44-C45, C60, C62, C68, C134, C141, C163-C168, C170, C403, C427, C435, C446, C456-C457, C482, C486, C489-C492, C498, C799, C811, C813, C816, C901, C903		5%	0603		
1nF 50V	NP0 0402	13	C59, C61, C63-C65, C483-C485, C487, C493-C495, C497		5%	0402		
1.5nF 100V	Polypropylene	8	C279-C280, C286-C287, C306-C307, C316-C317	FKP2D011501D00J	5%	5mm Pitch Box		
10nF 50V	X7R 0402	20	C14, C17, C29, C37, C84, C151, C466, C561-C566, C577-C579, C581-C583, C597		10%	0402		
10nF 50V	X7R 0603	6	C24, C132, C181, C217, C436, C718		10%	0603		
10nF 25V	0603 COG	3	C442, C636, C643		5%	0603		
47nF 16V	ECHU 1206	25	C15, C53-C55, C235, C272, C274, C281, C284-C285, C291-C292, C297-C298, C308-C309, C311, C314-C315, C321-C322, C328-C329, C522-C523	ECHU1C473GX5	2%	1206		
100nF 100V	Polypropylene	10	C6, C38-C39, C42, C48, C56, C67, C72-C73, C97	MKP4D031002D00K	10%	7.5mm Pitch Box		
100nF 16V	X7R	33	C7, C49-C51, C118-C121, C128-C129, C344-C345, C465, C500, C502-C504, C700-C703, C705-C708, C712-C713, C725, C737-C740, C803		10%	0402		
100nF 50V	X7R	135	C8-C9, C18, C26-C27, C36, C46-C47, C52, C57-C58, C69, C85-C87, C89, C92-C93, C96, C115-C117, C125-C126, C130-C131, C133, C138, C142, C144-C146, C148, C154, C156, C159-C160, C174-C179, C182, C184, C189-C191, C193-C194, C204, C206-C207, C212, C216, C300, C323, C337-C338, C349, C402, C407-C408, C410, C412-C413, C418, C422-C423, C425-C426, C429, C434, C439, C441, C443-C444, C450, C455, C499, C501, C505, C516, C518, C541, C551, C555, C567, C568, C584, C595, C596, C801, C630, C632-C635, C637-C642, C644-C651, C660, C704, C715-C717, C724, C726-C728, C747, C751, C772-C773, C775, C800, C812, C814, C900, C902, C904, C926, C935, C940		10%	0603		
100nF 50V	1206 COG	6	C273, C310, C524-C527	C3216C0G1H104J160AA	5%	1206		
330nF 50V	0805 Ceramic	1	C417		10%	0805		
1U 16V	X5R CER 0603	8	C11, C31, C150, C340, C463-C464, C594, C714		10%	0603		
4.7uF 6.3V	X5R 0603	1	C719		10%	0603		
10uF 25V	X5R	11	C4, C10, C21, C30, C153, C169, C414-C415, C514, C517, C709		10%	1206		
10uF 10V	X5R CER 0805	15	C5, C12, C22-C23, C137, C139, C185-C186, C195, C197-C198, C278, C440, C600, C610		10%	0805		
10uF 35V	Low ESR Electrolytic	3	C236, C511-C512	VKZ035M100CA1L	20%	SMT 4mm dia		
10uF 35V	NP Electrolytic	4	C270, C276, C301, C304	NP1V100M-XXD11WP00*	20%	5mm Dia X 11mm		
47uF 16V	NP Electrolytic	2	C271, C302	NP1C470M-XXE11WP00*	20%	6.3mm Dia X 11.5mm		
100uF 25V	Low ESR Electrolytic	13	C155, C180, C183, C187, C205, C275, C303, C419, C430, C445, C559-C560, C750	VLZ025M101EA6L	20%	SMT 6.3mm dia		
470uF 16V	NP Electrolytic	6	C1-C2, C40-C41, C293, C299	NP1C471M-XXG16WP00*	10%	10mm Dia X 16mm		
470uF 16V SMT	Electrolytic	1	C43		20%	8mm Dia		
470uF 16V SMT	Electrolytic	3	C147, C199, C203	VXV477M016S0ANH03K	20%	8mm Dia		
1000uF 25V	Electrolytic	7	C158, C513, C531, C547-C548, C552, C556	RK1E102M-XXG20WP00	20%	10mm dia	Must be rated at 105 deg C	
CRYSTALS								
NO FIT		1	X1					
27MHz	Strip Cut Crystal	1	X5		30ppm	HC49SD		
49.152MHz 3.3V	SMD oscillator	1	X402	149-B Series	50ppm	5mm x 7mm SMD		
13MHz 3.3V	SMD oscillator	1	X404	149-B Series	50ppm	5mm x 7mm SMD		
25MHz	Strip Cut Crystal	1	X701		30ppm	HC49SD		
10MHz	Strip Cut Crystal	1	X800		50ppm	HC49SD		
DIODES								

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1N4148	SMT	5	D1, D403-D406	1N4148		SOD80		
1A 30V	Schottky Rectifier	4	D2, D407, D412-D413	STPS1L30U		DO214		
NO FIT		5	D3, D5-D8					
NO FIT		1	D4					
NO FIT		2	D9-D10					
NO FIT		1	D13					
75V 0.215A	Dual Signal Diode SM	4	D31-D34	BAW56		SOT23		
200V	1.0A SM Rectifier	4	D400, D408-D410	RS1D		DO214		
NO FIT		1	D702					
INDUCTORS								
600Z 1.3A	Ferrite Bead 0603	15	FB1, FB6, FB26, FB33, FB35, FB37, FB403-FB406, FB417, FB701, FB704, FB708, FB718	BLM18KG601SN1D		0603	600Z @100MHz	
220Z 2.2A	Ferrite Bead 0603	6	FB2-FB3, FB401, FB415-FB416, FB418	BLM18KG221SN1D		0603	220Z @100MHz	
0R LINK	0603 Thick Film	13	FB4, FB7-FB8, FB10, FB25, FB27-FB30, FB413-FB414, FB420, FB709		50mR	0603		
NO FIT		3	FB5, FB14-FB15					
0R LINK	1206 Thick Film	6	FB9, FB11-FB13, FB16-FB17		50mR	1206		
NO FIT		9	FB18-FB24, FB410, FB412					
NO FIT		3	FB31-FB32, FB419					
120Z 3A	Ferrite Bead 0603	7	FB34, FB702-FB703, FB712-FB715	BLM18KG121TN1D		0603	120Z @100MHz	
NO FIT		1	FB400					
NO FIT		2	FB407, FB421					
4u7H 1.5A	4.7uH 1.5A	2	L2-L3	ELL6PG4R7N	20%	ELL6PG		
NO FIT		3	L4, L6, L11					
2200pF 6A	EMIFIL LC	6	L5, L9-L10, L403-L405	NFE31PT222Z1E9		NFE31		
NO FIT		2	L7, L412					
COMMON MODE CHOKE	260mA 600OHM@100MHz	1	L8	DLW31SN601SQ2L				
COMMON MODE CHOKE	300mA 900OHM@100MHz	2	L707-L708	ACM2012H-900		2012 SMD		
INTEGRATED CIRCUITS								
TPS2553DBV	USB Power Switch	3	U1, U3, U22	TPS2553DBV		SOT23-6		PF508
USB 2.0 PHY	USB2.0 ULPI PHY W/SWITCH	1	U2	USB3340-EZK-TR		QFN32 5x5mm W/ PAD		PZ713
2k	EEPROM	1	U4	24LC02BT-I/OT		SOT23-5		PY1854
NO FIT		1	U5					
NO FIT		1	U6					
3.1V	VOLTAGE DETECTOR IC	2	U7, U10	BD5231G-TR		SOT23-5		PF509
74LVC74A	Dual D type	2	U8-U9	SN74LVC74APW		TSSOP14		
W25X40CLSN	4Mbit SPI Flash	1	U11	W25X40CLSN		SO8	Programme with AP33467/# before Populating	PZ630
NO FIT		2	U12, U14					
2A 1.5MHz PWM	PWM	2	U13, U16	ST1S09IPUR		DFN6		
2C class 6	Apple Authentication Coproc	1	U15	MFI337S3959		DFN-2.5x2.5 EP 0.5mm pitch	Coproc 2C Class 6	
8bit Flash Micro	128k	1	U17	PIC18F67J10		64 PIN TQFP	Programme with AP33466/#. Please add version label	PY1853
NO FIT		1	U18					
74AHCT1G04	Single Inverter	3	U19, U21, U24	SN74AHCT1G04DBV		SOT23-5		
74VHC14	Hex Schmitt Inverter	2	U20, U411	74VHC14MTC		TSSOP14		PMA189
LAN9512	2 Port USB hub and Ethernet to USB	1	U25	LAN9512-JZX		64 Pin QFN with pad		

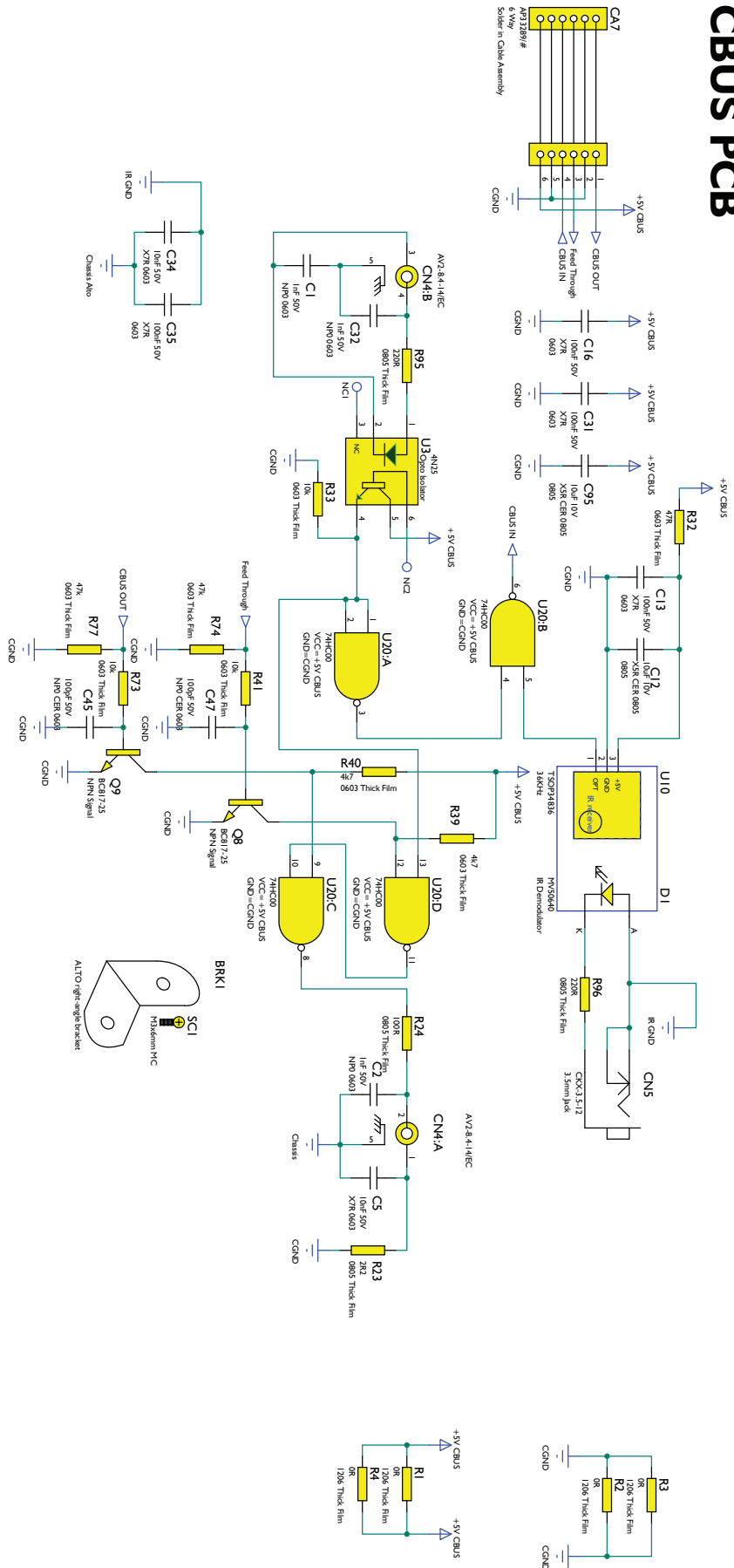
Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

NO FIT		1	U26				
Si5351A-B	Programmable Clock Generator	1	U27	Si5351A-B-GT		10-MSOP	
NO FIT		1	U28				
WM8740	24bit/192kHz DAC	2	U54, U58	WM8740SEDS		SSOP28	PY585
NE5532	Dual Audio Op Amp	4	U55-U56, U59-U60	NE5532D		SOIC08	PY1162
OP275	Dual Audio Op Amp	2	U57, U61	OP275GSZ		SOIC08	PF780
25Mbps	TOSLink Receiver	1	U401	DLR2111		Through Hole	25Mbps PMA151
25Mbps	TOSLink Transmitter	1	U402	DLT2111		Through Hole	25Mbps
150MHz MCU	Sharc Processor	1	U406	ADSP-21261SKSTZ150		LQFP144	PZ663
CS8416	SPDIF RX IC	1	U408	CS8416-CZZ		TSSOP28	PY980
74AHC1G04	Single Inverter	1	U414	SN74AHC1G04DBV		SOT23-5	
NO FIT		1	U415				
15V 1A	Regulator	1	U417	7815		Through Hole	
-15V 1A	Regulator	1	U418	7915		Through Hole	
LM317AT	Adj Positive +Regulator	1	U419	LM317AT		TO-220 (3 Pin) TH	PF510
74LVC00A	Quad NAND Gate	2	U421, U804	SN74LVC00APW		TSSOP 14	
NO FIT		2	U432, U435				
NO FIT		1	U433				
NO FIT		1	U434				
MCU	Single Core L1 XMOS	1	U610	XS1-L01A-TQ128-C5		TQFP128	PZ405
NO FIT		1	U702				
IP4220	USB ESD Protection	2	U709, U711	IP4220CZ6		SOT457	
MODULES							
ZANDER	ZANDER STREAMING MODULE	1	M1	AP31999/#			PZ778
RELAY							
5V Coil, 2A Contacts	Low Power 2P2T	3	RL3-RL5	ME2-5		Through Hole	PF392
SWITCHES							
1 Way	DIP Switch	1	SW1	DS-01-V		DIL02	
Miniature slide switch	SPDT SHORTING	1	SW2	SK-12D12-G4			
TRANSISTORS							
NO FIT		3	Q1-Q2, Q8				
45V 500mA	NPN Signal	6	Q3-Q5, Q7, Q10, Q15	BC817-25		SOT23	PY1847
45V 500mA	PNP Signal	3	Q6, Q9, Q11	BC807-25		SOT23	PY1848
-65V 100mA	PNP Small Signal	2	Q12, Q14	BC856B		SOT23	
65V 100mA	NPN Small Signal	2	Q13, Q16	BC846		SOT23	PY1624

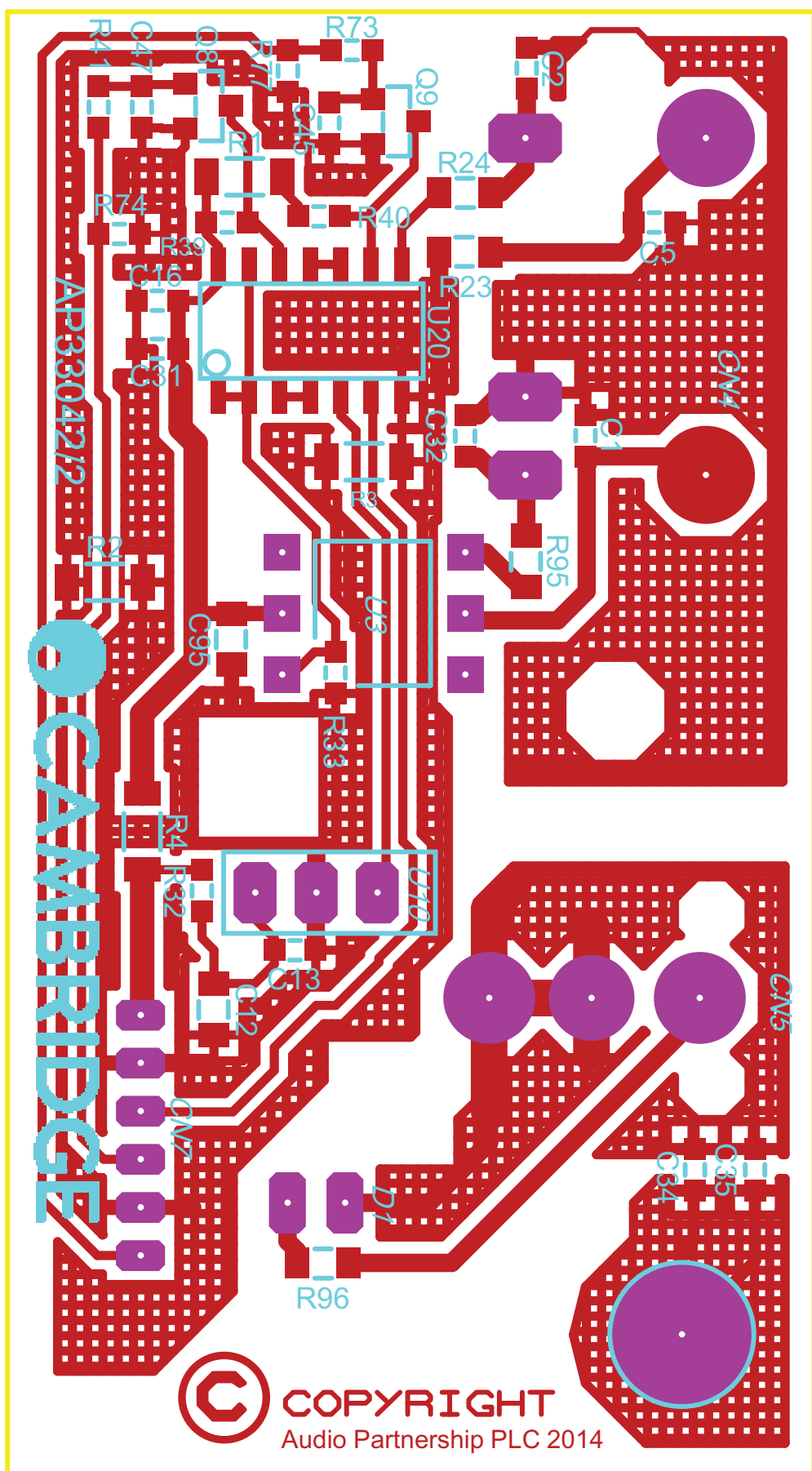
Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

BUS PCB Schematic

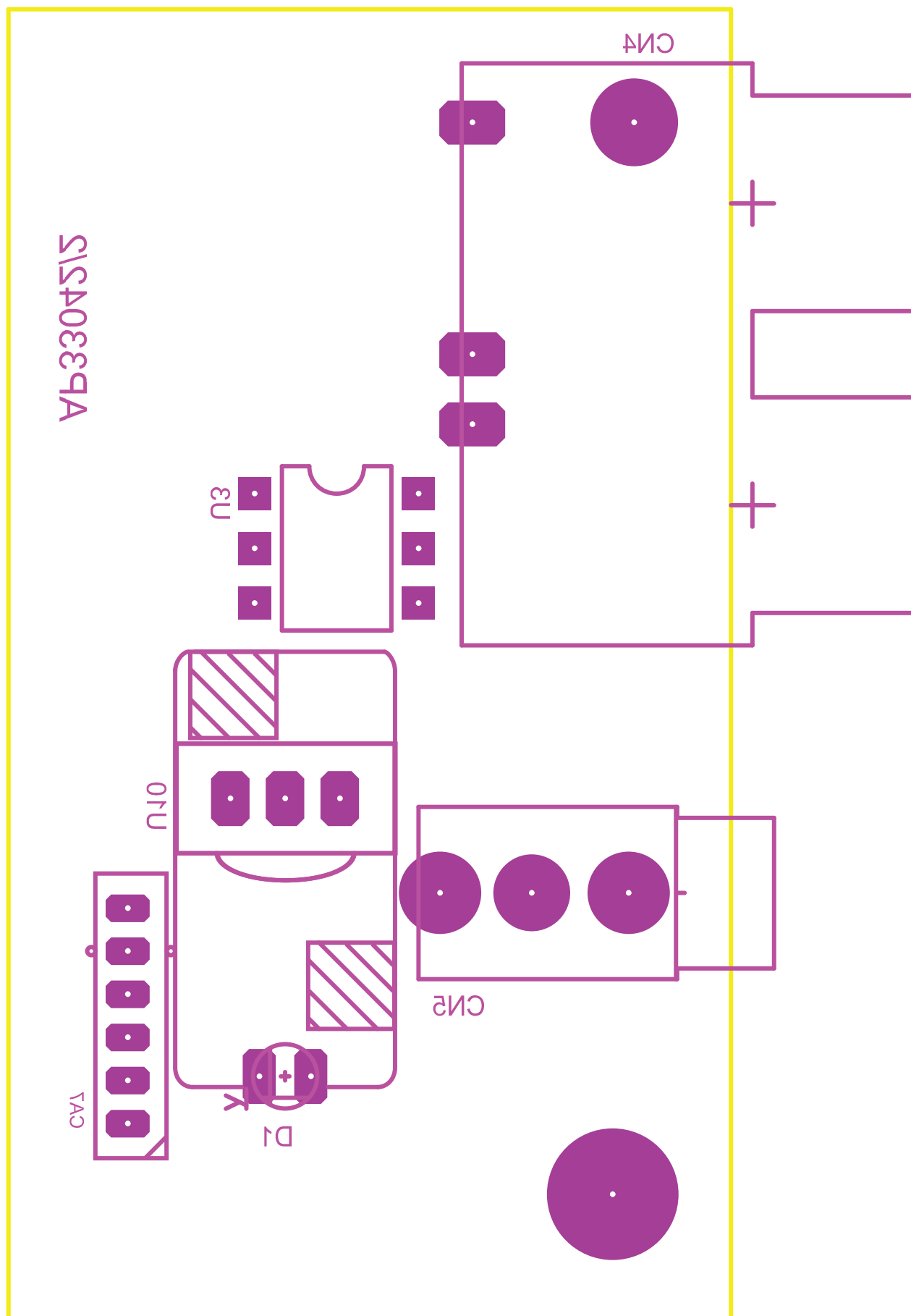
CBUS PCB



Control BUS Top



Control BUS Bottom



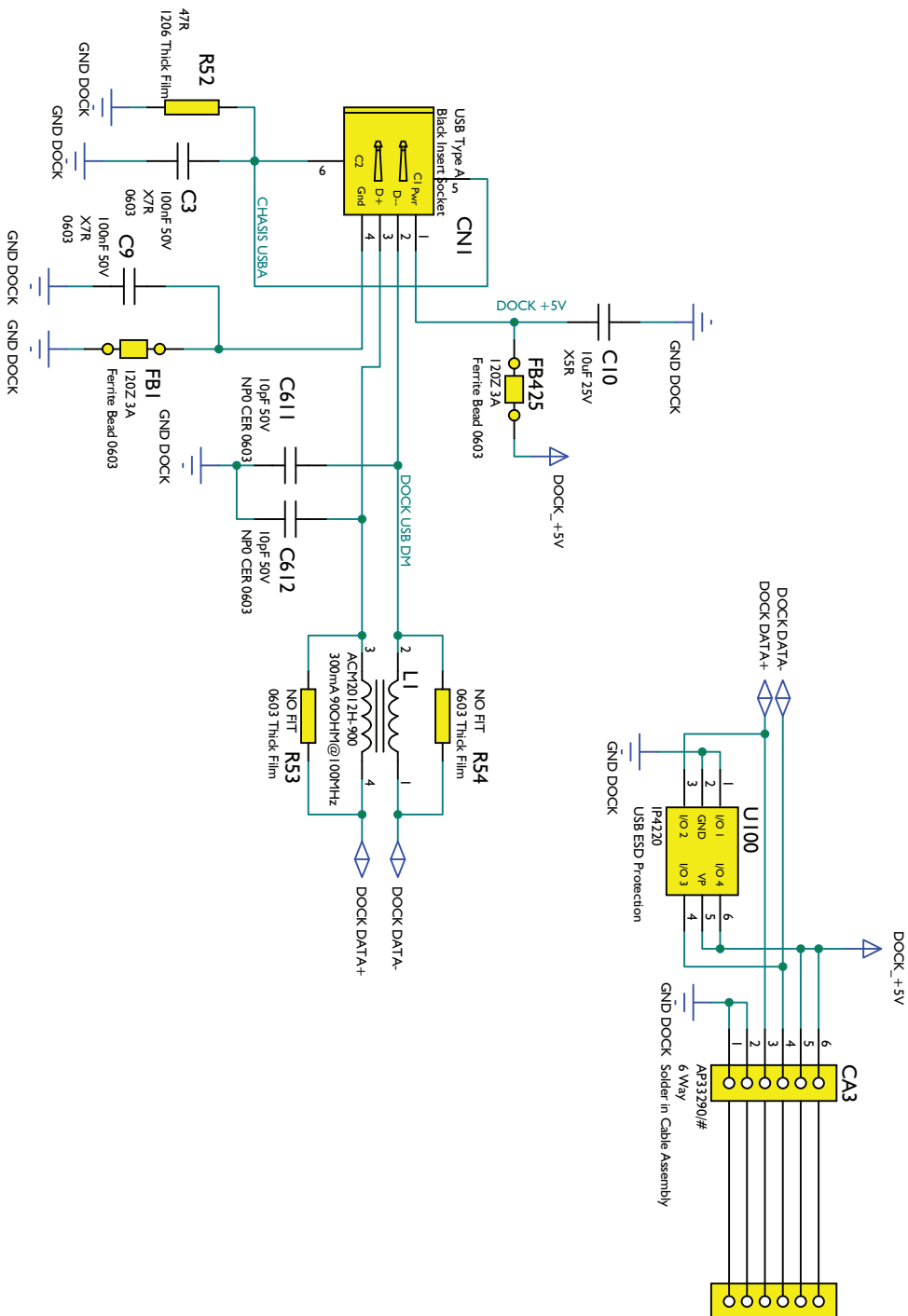
Control BUS BOM

Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo	Notes	Service Part
RESISTORS								
0R	1206 Thick Film	4	R1-R4		50mR	1206		
2R2	0805 Thick Film	1	R23		1%	0805		
47R	0603 Thick Film	1	R32		1%	0603		
100R	0805 Thick Film	1	R24		1%	0805		
220R	0805 Thick Film	2	R95-R96		1%	0805		
4k7	0603 Thick Film	2	R39-R40		1%	0603		
10k	0603 Thick Film	3	R33, R41, R73		1%	0603		
47k	0603 Thick Film	2	R74, R77		1%	0603		
CAPACITORS								
100pF 50V	NP0 CER 0603	2	C45, C47		5%	0603		
1nF 50V	NP0 0603	3	C1-C2, C32		5%	0603		
10nF 50V	X7R 0603	2	C5, C34		10%	0603		
100nF 50V	X7R	4	C13, C16, C31, C35		10%	0603		
10uF 10V	X5R CER 0805	2	C12, C95		10%	0805		
CONNECTORS								
2 Way	Horizontal Gold Plated RCA	1	CN4	AV2-8.4-14/EC		Through Hole		
Mono 3.5mm	3.5mm Jack	1	CN5	CKX-3.5-12		Through Hole		
DIODES								
3mm Red LED	IR Demodulator	1	D1	MV50640				
INTEGRATED CIRCUITS								
Opto IC	Opto Isolator	1	U3	4N25		DIL06		PY1144
36KHz	IR Receiver	1	U10	TSOP34836		Through Hole		PY755
74HC00	NAND Gate	1	U20	SN74HC00D		SMD SO14	CD4011BCM Fairchild / MC14011BD ON / Philips HEF4011BT	
TRANSISTORS								
45V 500mA	NPN Signal	2	Q8-Q9	BC817-25		SOT23	1300-817000-500	PY1847

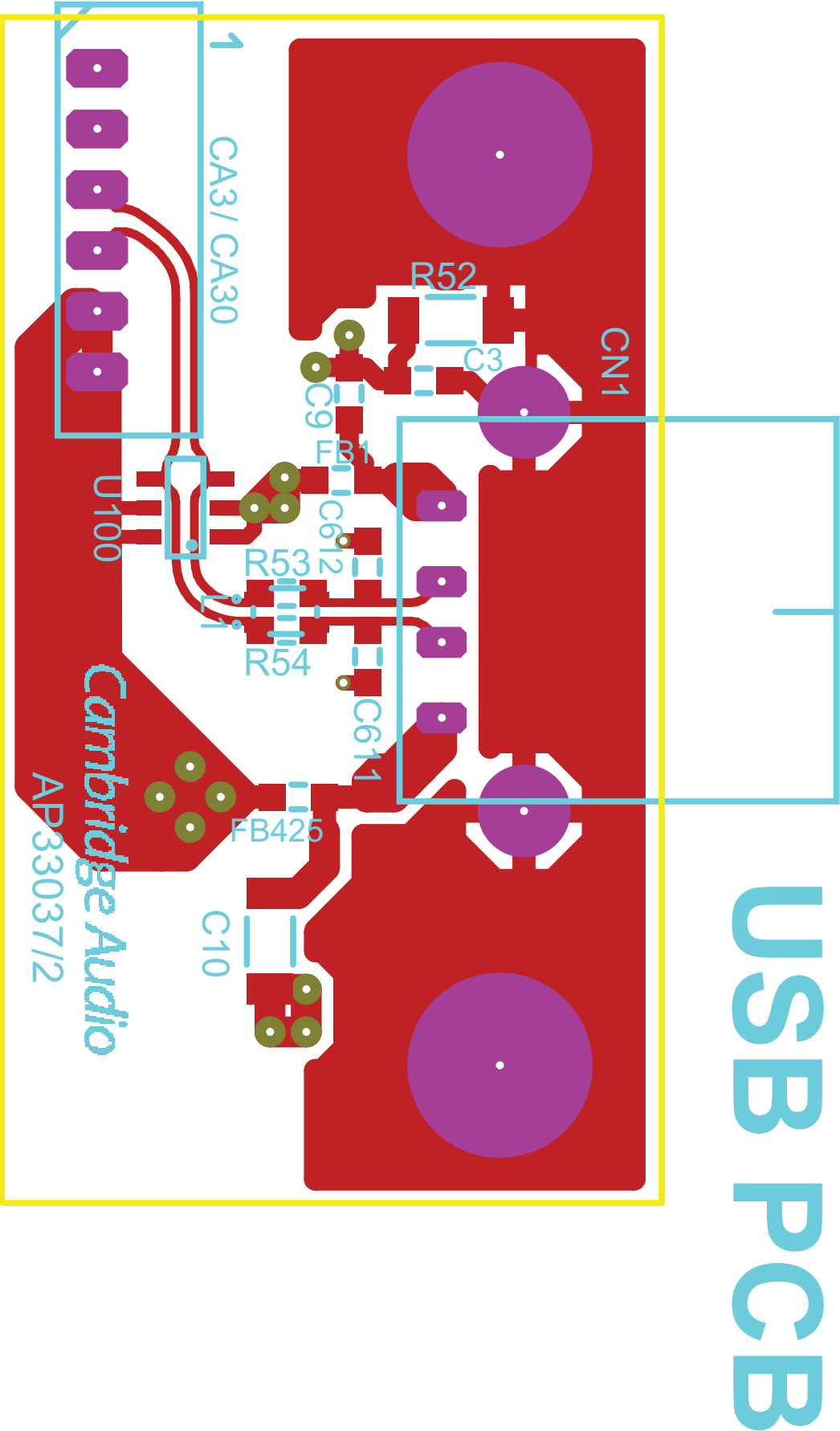
Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.

FRONT PANEL USB PCB (CXN)

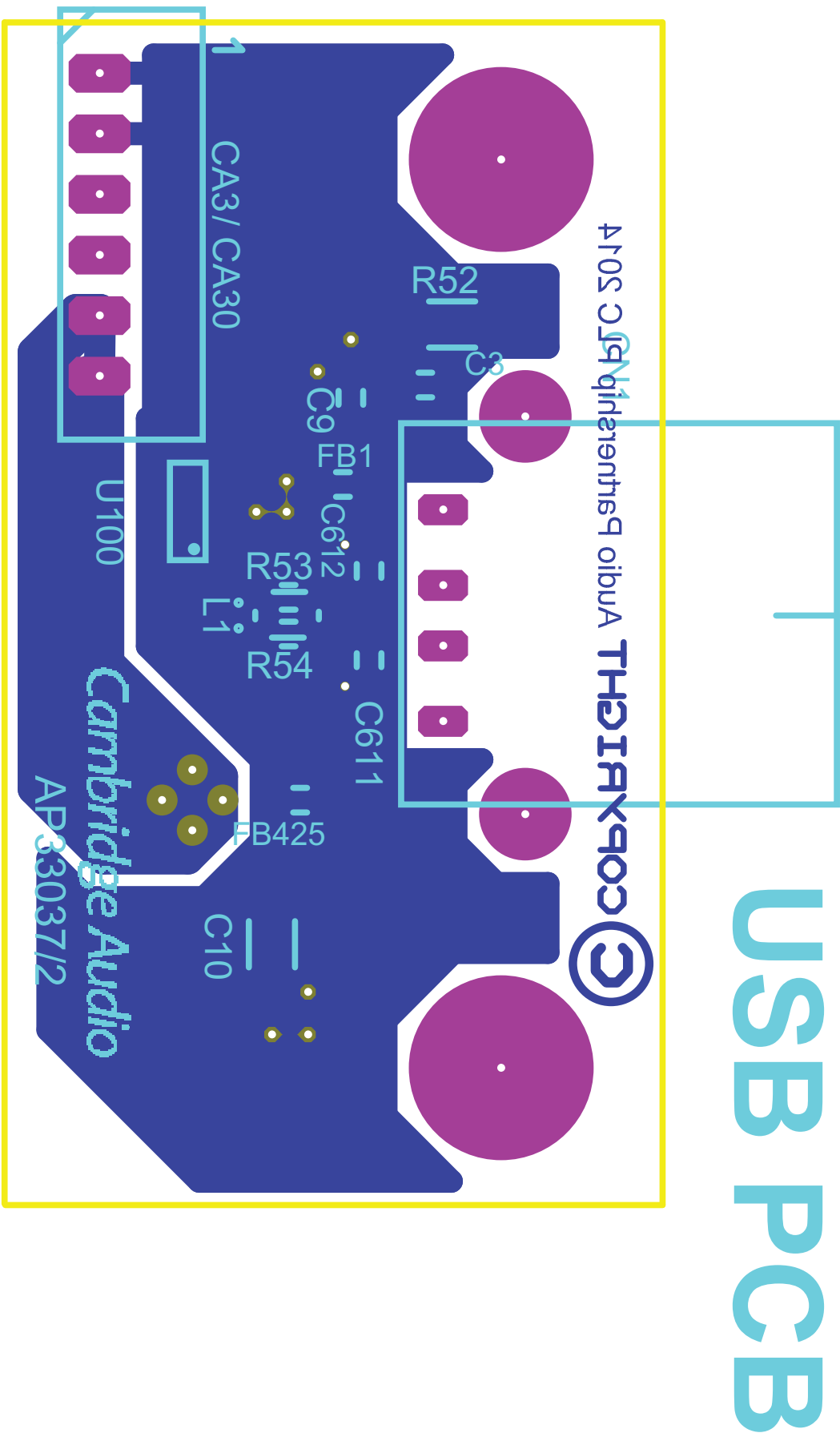
Front DAUGHTER PCB Schematic



Front Panel DAUGHTER Top PCB



Front Panel DAUGHTER Bottom PCB



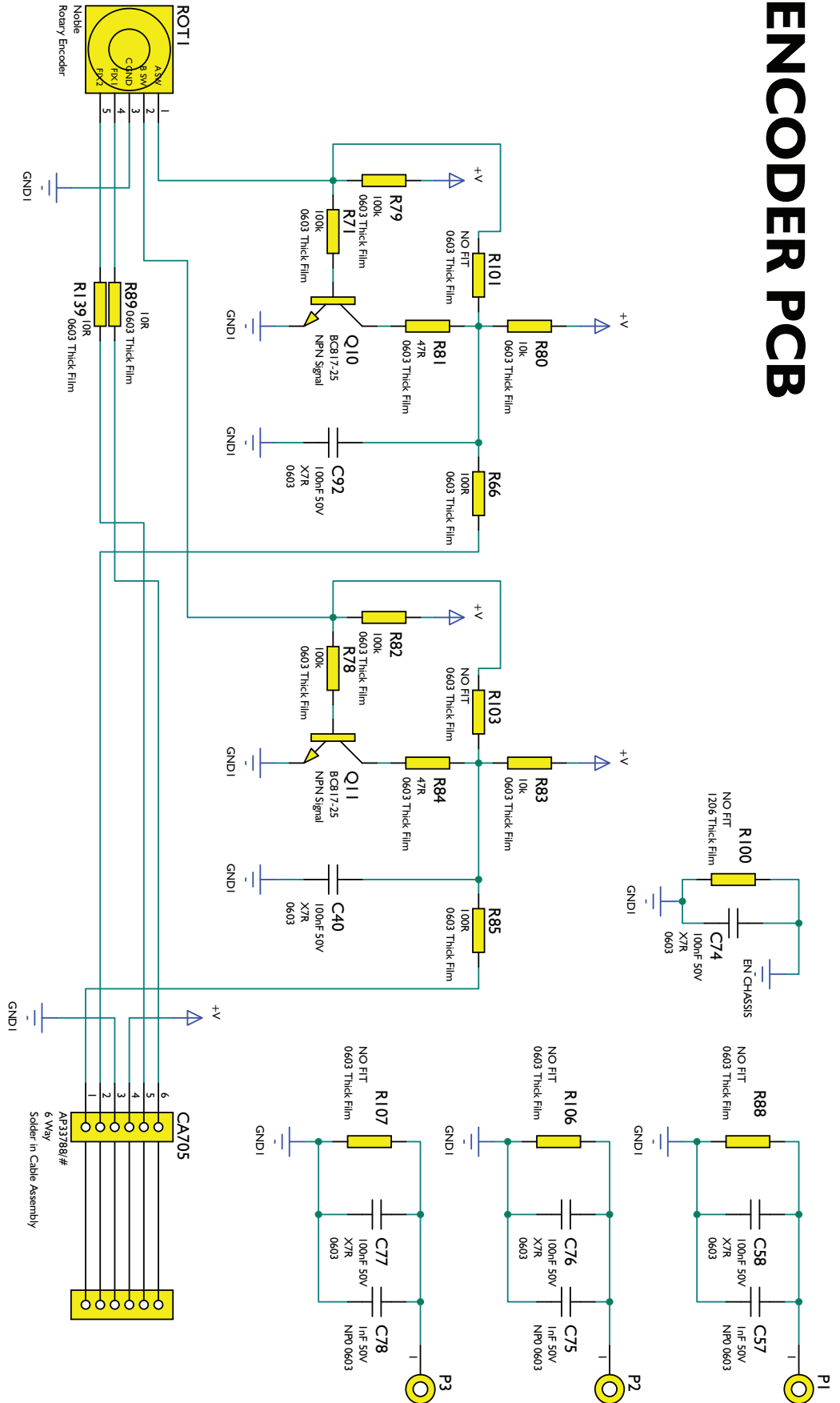
Front Panel DAUGHTER PCB BOM

Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackageInfo	Notes	Service Part
RESISTORS								
NO FIT		2	R53-R54					
47R	1206 Thick Film	1	R52		1%	1206		
CAPACITORS								
10pF 50V	NP0 CER 0603	2	C611-C612		5%	0603		
100nF 50V	X7R	2	C3, C9		10%	0603		
10uF 25V	X5R	1	C10		10%	1206		
CONNECTORS								
USB Type A	Black Insert Socket	1	CN1	18004-X11X102N		Horizontal PCB Mount		
INDUCTORS								
120Z 3A	Ferrite Bead 0603	2	FB1, FB425	BLM18KG121TN1D		0603	120Z @100MHz	
COMMON MODE CHOKE	300mA 90OHM@100MHz	1	L1	ACM2012H-900				
INTEGRATED CIRCUITS								
IP4220	USB ESD Protection	1	U100	IP4220CZ6		SOT457		

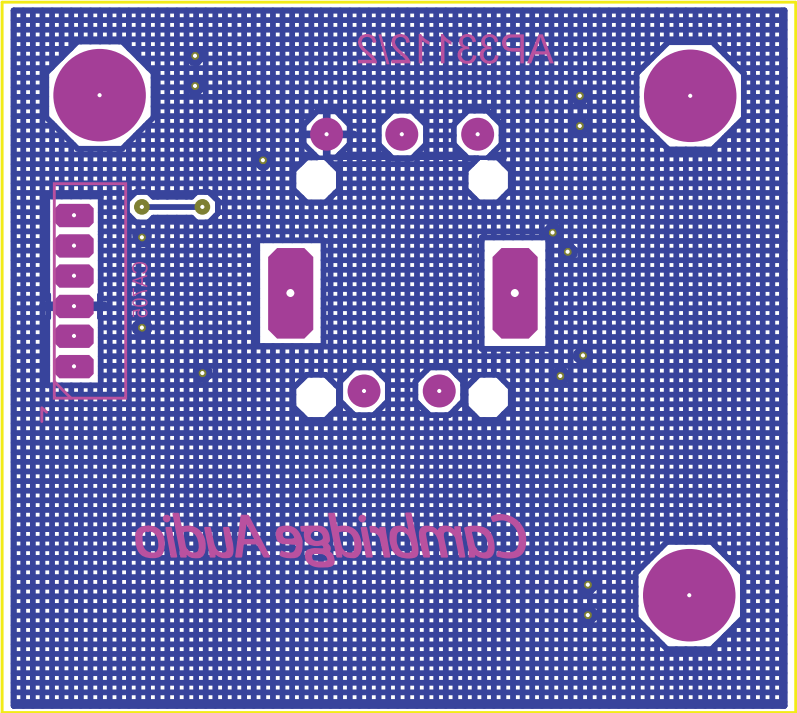
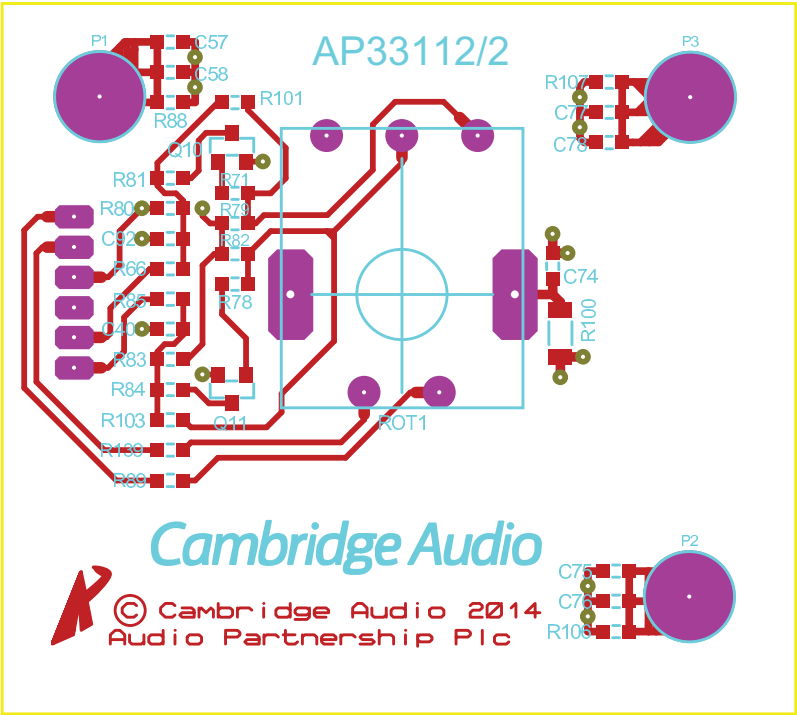
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ENCODER PCB Schematic

ENCODER PCB



ENCODER Top & Bottom



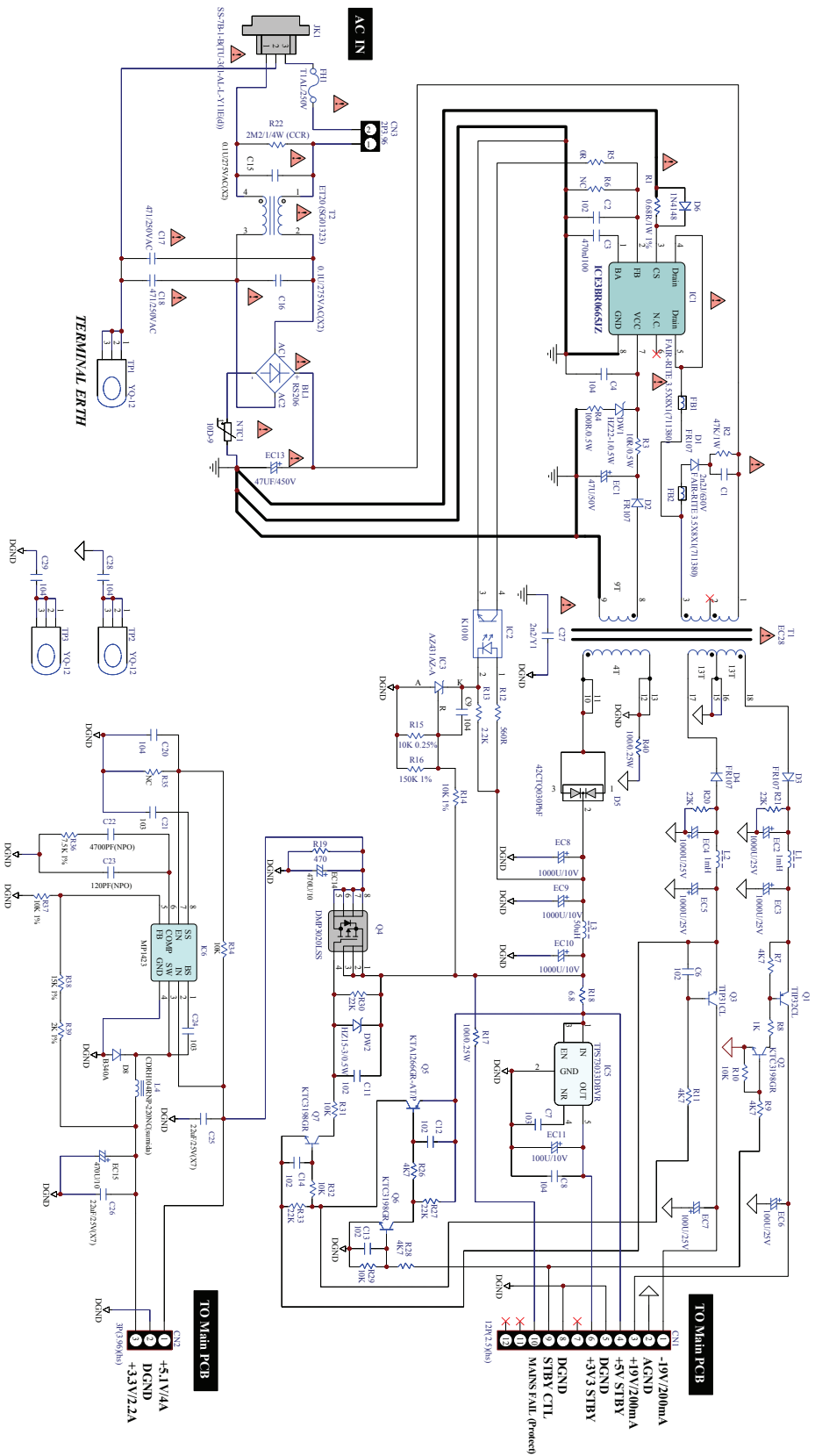
ENCODER PCB BOM

Value	Description/Type	Qty	Component Ident	ManPN	Tolerance	PackagelInfo	Notes	Service Part
RESISTORS								
NO FIT		5	R88, R101, R103, R106-R107					
NO FIT		1	R100					
10R	0603 Thick Film	2	R89, R139		1%	0603		
47R	0603 Thick Film	2	R81, R84		1%	0603		
100R	0603 Thick Film	2	R66, R85		1%	0603		
10k	0603 Thick Film	2	R80, R83		1%	0603		
100k	0603 Thick Film	4	R71, R78-R79, R82		1%	0603		
CAPACITORS								
1nF 50V	NP0 0603	3	C57, C75, C78		5%	0603		
100nF 50V	X7R	6	C40, C58, C74, C76-C77, C92		10%	0603		
TRANSISTORS								
45V 500mA	NPN Signal	2	Q10-Q11	BC817-25		SOT23		PY1847
MISCELLANEOUS								
12mm Shaft, No Detent with Push Switch	Rotary Encoder	1	ROT1	REB162(9X5) PVBS19FINB1-2-24E				PKA040

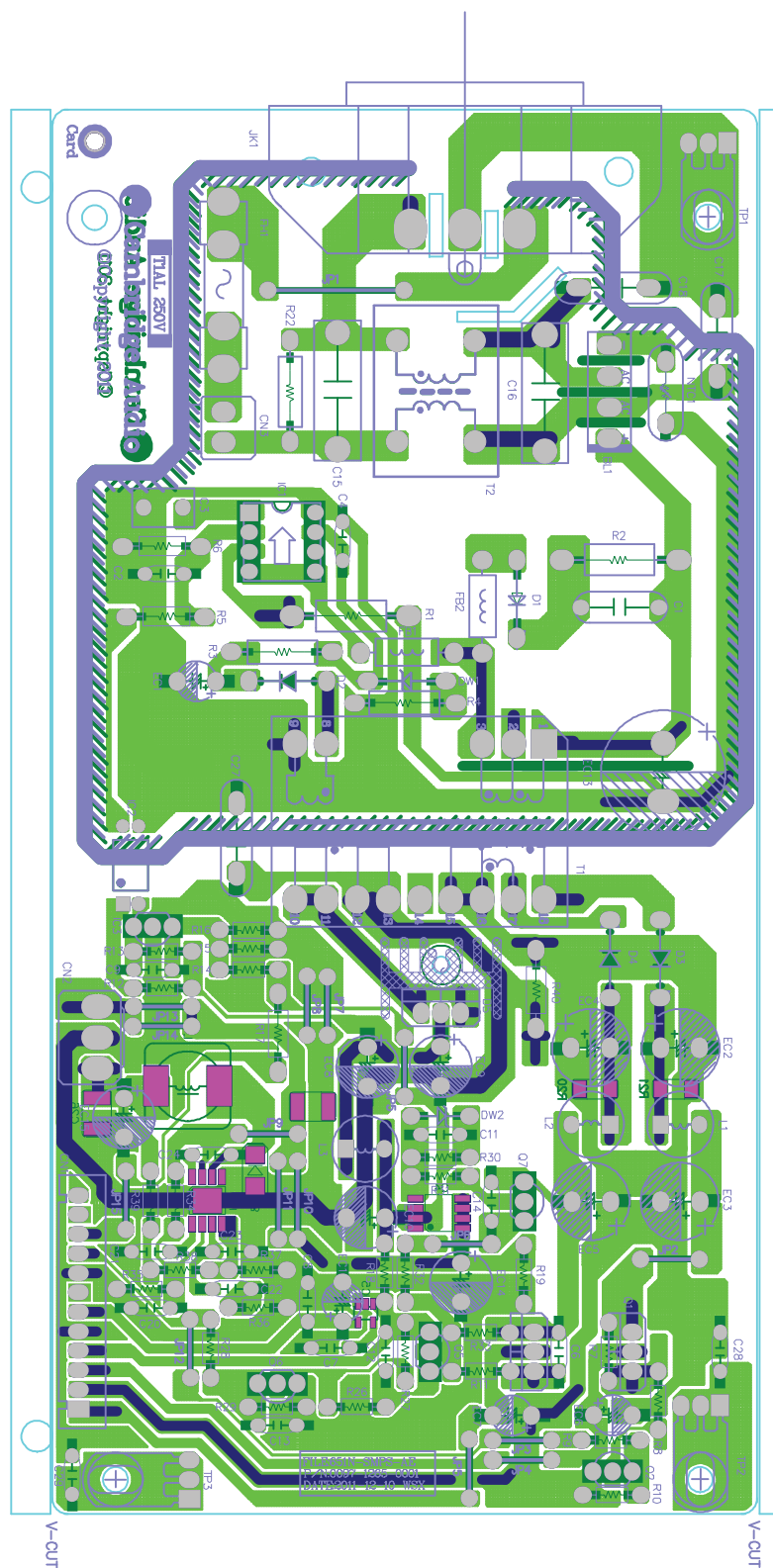
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SMPS Schematic PCB

KF-YL-03



SMPS PCB LAYOUT



SMPS PCB BOM

Used		Part Type	Designator
1		NC	R35
1		NC	R6
1	Jumper	OR	R5
1	CF Resistor ±5% 1/8W	6.8	R18
1	CF Resistor ±5% 1/8W	470	R19
1	CF Resistor ±5% 1/8W	560R	R12
1	CF Resistor ±5% 1/8W	1K	R8
1	CF Resistor ±5% 1/8W	2.2K	R13
5	CF Resistor ±5% 1/8W	4K7	R7 R9 R11 R26 R28
5	CF Resistor ±5% 1/8W	10K	R10 R29 R31 R32 R34
3	CF Resistor ±5% 1/8W	22K	R27 R30 R33
1	Metal Film Resistor ±1% 1/8W	2K 1%	R39
1	Metal Film Resistor ±1% 1/8W	7.5K 1%	R36
3	Metal Film Resistor ±1% 1/8W	10K 1%	R14 R15 R37
1	Metal Film Resistor ±1% 1/8W	15K 1%	R38
1	Metal Film Resistor ±1% 1/8W	150K 1%	R16
2	CF Resistor ±5% 1/4W	100/0.25W	R17 R40
1	CC Resistor ±5% 1/4W	2M2/1/4W (CCR)	R22
1	CF Resistor ±5% 1/2W	10R/0.5W	R3
1	CF Resistor ±5% 1/2W	100R/0.5W	R4
1	CF Resistor ±5% 1W	47K/1W	R2
1	Resistor ±5% 2W	0.68R/1W 1%	R1
2	1206 Thick Film	22K	R20 R21
1	NTC	10D-9	NTC1
1	Elect. Cap	47uF/50V	EC1
1	Elect. Cap	47uF/450V	EC13
1	Elect. Cap	100uF/10V	EC11
2	Elect. Cap	100uF/25V	EC6 EC7
2	Elect. Cap	470uF/10V	EC14 EC15
3	Elect. Cap	1000uF/10V	EC8 EC9 EC10
4	Elect. Cap	1000uF/25V	EC2 EC3 EC4 EC5
1	Cer Cap.	120PF	C23
6	Cer Cap.	0.001uF	C2 C6 C11 C12 C13 C14
1	Cer Cap.	0.0047uF	C22
3	Cer Cap.	0.01uF	C7 C21 C24
6	Cer Cap.	0.1uF	C4 C8 C9 C20 C28 C29
2	1210 Cer X7R	22uF/25V(X7)	C25 C26
1	Polyester Cap.	470nJ100	C3
2	X1 Y1 Mains Rated	471/250VAC	C17 C18
1	X1 Y1 Mains Rated	2n2/Y1	C27
2	X2 Mains Rated	0.1u/275VAC(X2)	C15 C16
1	Cap	2n2J/630V	C1
1	Connector	2P3.96	CN3
1	Wire	3P(3.96)-Wire	CN2
1	Wire	12P(2.5)-Wire	CN1
1	IC	AZ431AZ-A	IC3
1	IC	ICE3BR0665JZ	IC1
1	IC	K1010	IC2
1	IC	MP1423	IC6
1	IC	TPS73033DBVR	IC5
1	Inductor	50uH	L3
2	Inductor	1mH	L1 L2
1	Inductor	CDRH104RNP-220NC(sumida)	L4
2	Inductor	FAIR-RITE 3.5X8X1(711380)	FB1 FB2
1	Transformer	EC28	T1
1	Filter	ET20 (SG01323)	T2
4	Diode	FR107	D1 D2 D3 D4
1	Diode	1N4148	D6
1	Diode	42CTQ030PbF	D5
1	Diode	B340A	D8
1	Diode	RS206	BL1
1	Diode	HZ15-3/0.5W	DW2
1	Diode	HZ22-1/0.5W	DW1
1	Diode	DMP3020LSS	Q4
1	Transistor	KTA1266GR-AT/P or 2SA1015	Q5
3	Transistor	KTC3198GR or 2SC2458	Q2 Q6 Q7
1	Transistor	TIP31CL	Q3
1	Transistor	TIP32CL	Q1
1	AC socket	SS-7B-1-B(TU-301-AL-LY11E(d))	JK1
1	Fuse	T1AL/250V	FH1
3		YQ-12	TP1 TP2 TP3

Note: Resistors, capacitors and other generic components are not usually stocked by the manufacturer. Please obtain these locally.