

## SERVICE MANUAL



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### SPECIFICATIONS:

Frequency Range	VHF (87.5MHz to 108MHz) Band 2 DAB (175MHz to 240MHz) Band 3 DAB (1453MHz to 1491MHz) L-Band
Aerial Input Impedence	50 ohms
Sensitivity	-97dBm Typical
Signal to Noise	105dB typical (DAB) 60dB typical (FM)
Frequency Response	20-20kHz +0.1 -0.3dB (NCT at Flat, DAB) 20-12kHz +0, -6dB (NCT at Flat, FM)
Distortion	<0.005% 1kHz 2vrms o/p (DAB) <0.3%, 1kHz 50KHz deviation (FM)
S/P DIF Output Sample Rate	48kHz
Input Voltage	230V AC~50Hz (UK/EU/AU) 115V AC~60Hz (CU/US)
Maximum Power Consumption	15W
Standby Power Consumption	9W
Dimensions (HxWxD)	70 x 430 x 305mm
Weight	3.9kg (12.3Lbs)

# **640T V2 SERVICE MANUAL**

## **TABLE OF CONTENTS**

Safety Precautions & Important Notes	3
Exploded Drawing	4
Exploded Drawing Parts List	5
Main PCB Schematic (Gyro 1   20 Module & Control Bus)	6
Main PCB Schematic (DAC, Filter & PSU)	7
Main PCB Board Layout (Top Side)	8
Main PCB Board Layout (Bottom Side)	9
Main PCB BOM	10-11
Mains Supply PCB Schematic	12
Mains Supply PCB Board Layout (Top Side)	13
Mains Supply PCB Board Layout (Bottom Side)	14
Mains Supply PCB BOM	15
Front Panel PCB Schematic	16
Front Panel PCB Board Layout (Top Side)	17
Front Panel PCB Board Layout (Bottom Side)	18
Front Panel PCB BOM	19
IC Layout Details	20-22

## SAFETY PRECAUTIONS & IMPORTANT NOTES

1. Check that the rear of the product indicates the correct supply voltage for your area.



2. The lightning flash with the arrowhead within an equilateral triangle is intended to alert the user or service agent to the presence of dangerous voltages within the product enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



3. The exclamation point within an equilateral triangle is intended to alert the user or service agent to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the appliance.

4. This product complies with EEC Low Voltage (73/23/EEC) and Electromagnetic Compatibility (89/336/EEC) Directives when used and serviced in accordance with this manual. For continued compliance all components marked safety and EMC critical must only be replaced by Cambridge Audio approved parts.

5. Any unauthorised design alterations or additions will void the manufacturer's warranty; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.

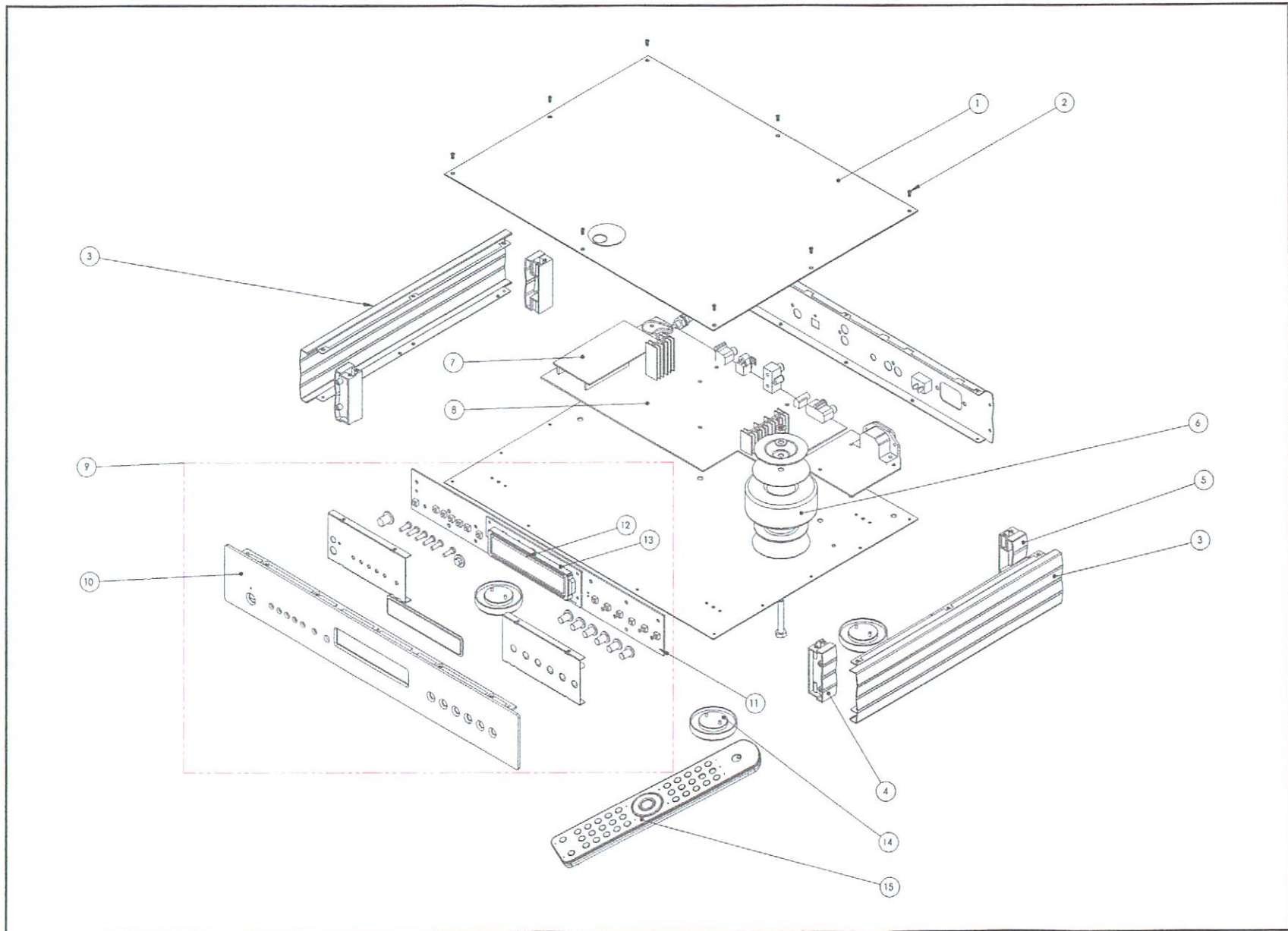
6. When servicing, care should be taken to observe the original routing and dressing of the leads and it should be confirmed that they have been returned to normal after re-assembly.

### **Notes on chip component replacement**

Never reuse a component that has been removed from a PCB

Notice that the minus side of a tantalum capacitor may be damaged by heat

# Cambridge Audio Azur 640T V2 DAB/FM Tuner



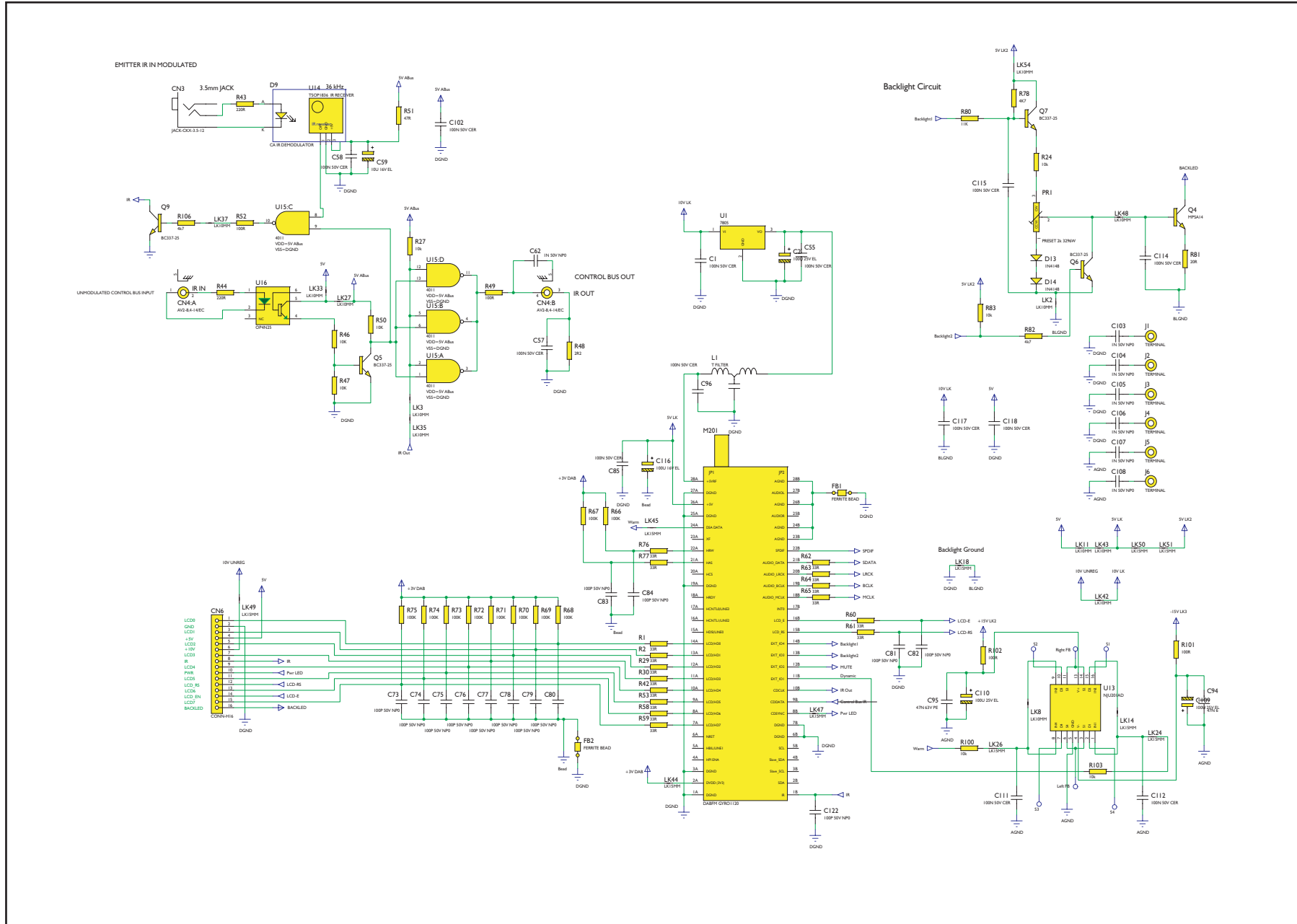
Exploded Drawing

## Cambridge Audio Azur 640T V2 DAB/FM Tuner

Drawing ref	AP Part	Description
1	PY507	Azur 640T Top Panel - Black
1	PY508	Azur 640T Top Panel - Silver
2	PY515	Screw M2.6 x 8 MMC Torx Recessed Head - Black
2	PY516	Screw M2.6 x 8 MMC Torx Recessed Head - Silver
3	PY1115	Small Side Panel - Black
3	PY810	Small Side Panel - Silver
4	PY1111	Small Support Front with Brass Inserts
5	PY1112	Small Support Rear with Brass Inserts
6	PY1200	TOROID.T07552A AC15V*2@0.1A 9V@1A 115/230V 60/50HZ
7	PY967	640T V2 DAB Module
8	PY1206	640T V2 DAB/FM&DAC Main PCBA Rev B W/T-Tape Res.
9	PY1201	Azur-640T V2 (Black) Front Panle Assy Rev A
9	PY1202	Azur 640T V2 (Silver) Front Panle Assy Rev A
10	PY1203	Azur 640T V2 Front Panel Artwork (Black) - AP191762
10	PY1204	Azur 640T V2 Front Panle Artwork - (Silver) - AP191762
11	PY1205	Azur 640T V2 Front Control PCB Assy Rev A
12	PY784	Azur 640T LCD Board Assy Including Backlight
13	PY806	Azur 640C LCD Backlight
14	PY531	Plastic Foot - (Black)
14	PY541	Plastic Foot - (Silver)
15	PY1207	Azur 640T V2 Remote Control Assy

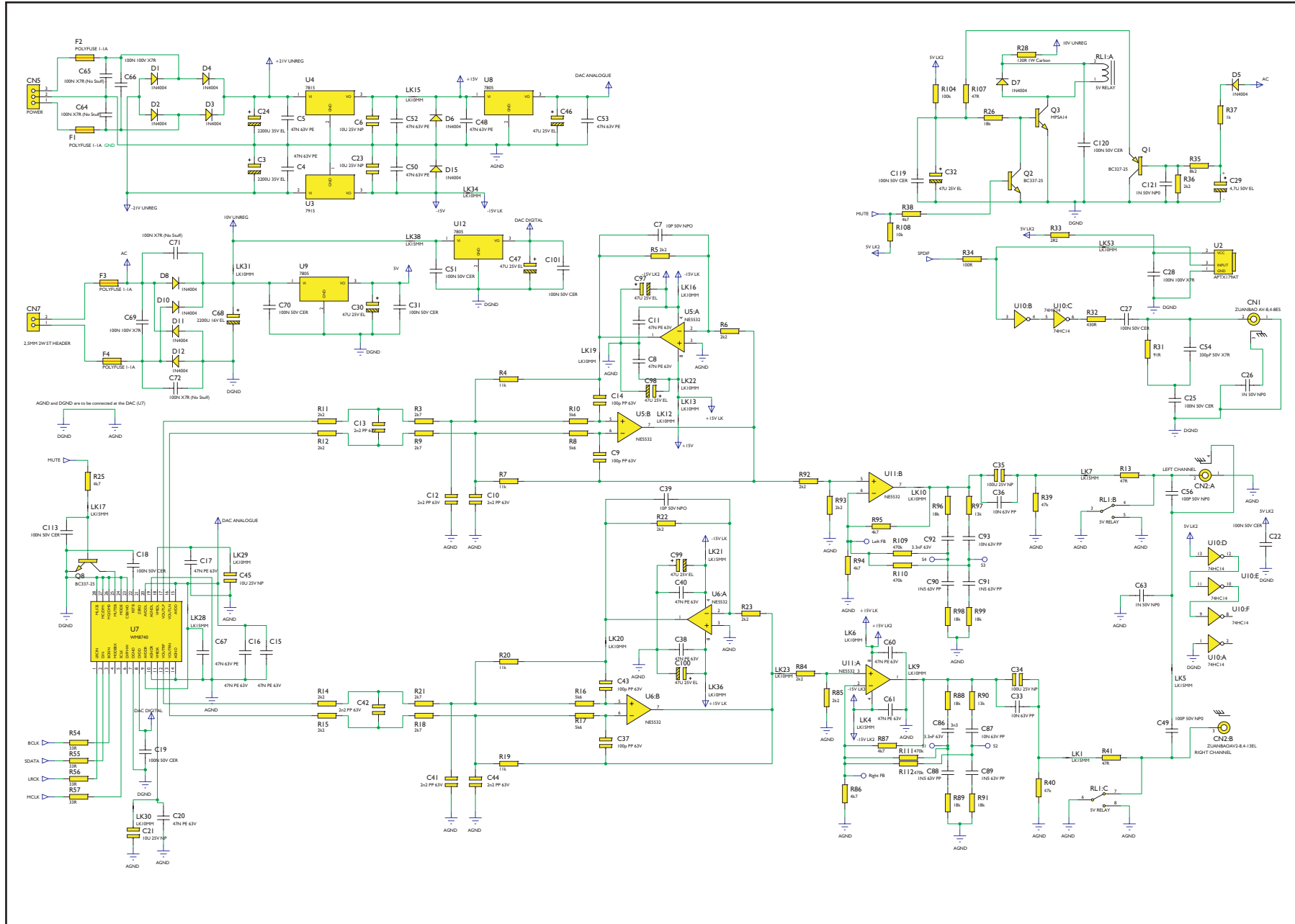
**All spare parts should be ordered from AP Hong Kong office**

# Cambridge Audio Azur 640T V2 DAB/FM Tuner



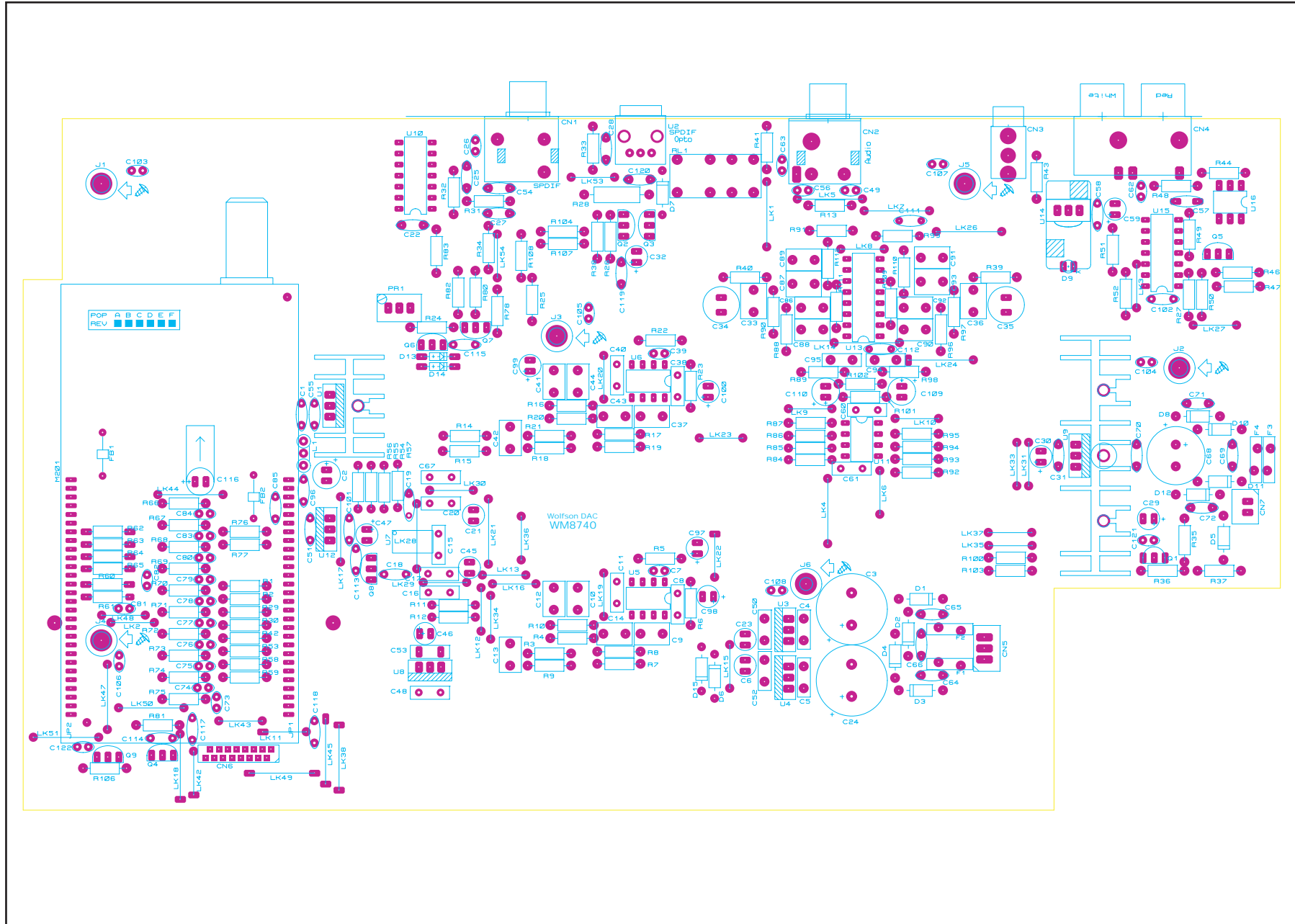
API9243/5 Main PCB Schematic (Gyro I120 Module & Control Bus)

# Cambridge Audio Azur 640T V2 DAB/FM Tuner



API9243/5 Main PCB Schematic (DAC, Filter & PSU)

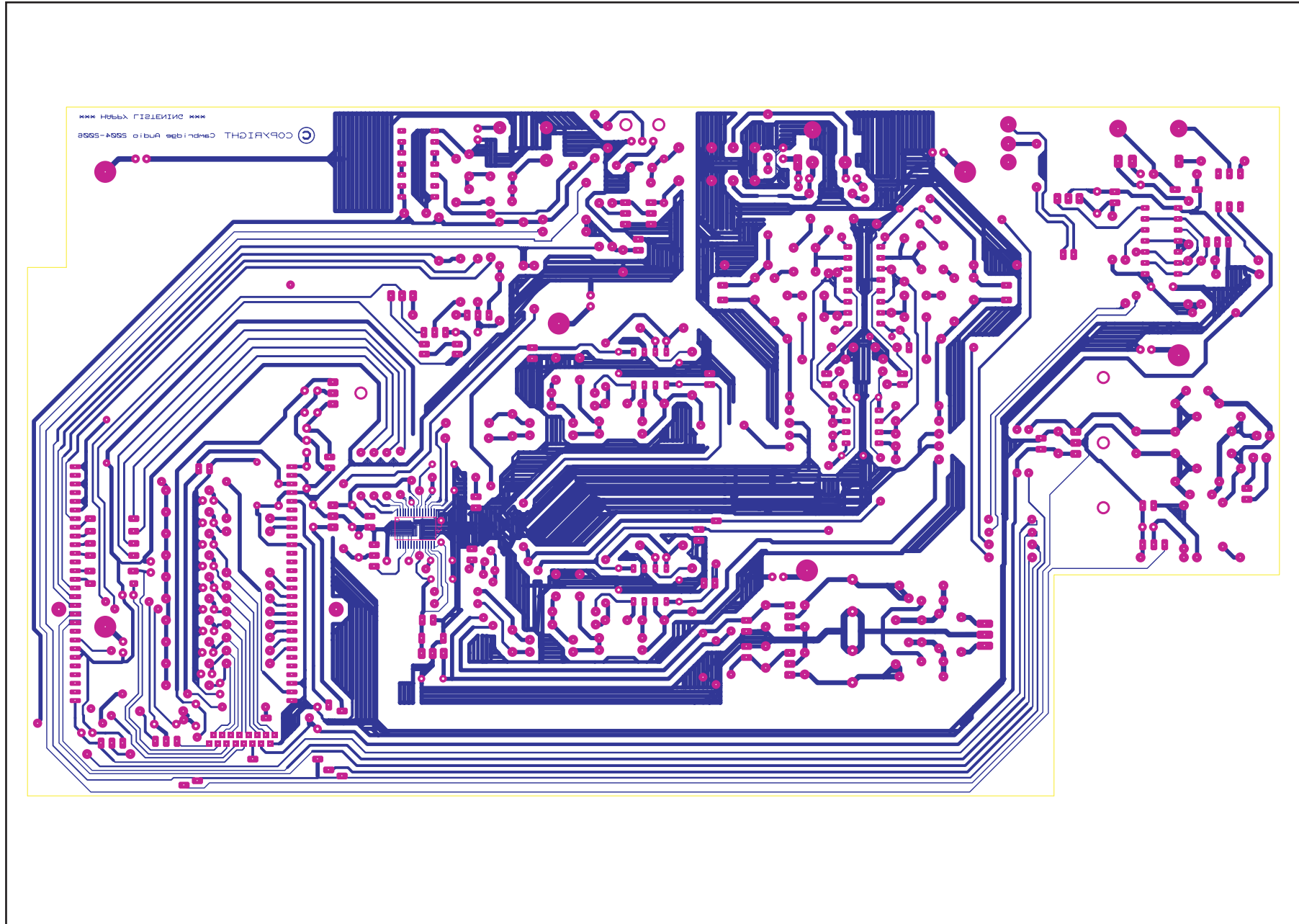
# Cambridge Audio Azur 640T V2 DAB/FM Tuner



API9243/5 Main PCB Board Layout (Top Side)



# Cambridge Audio Azur 640T V2 DAB/FM Tuner



API9243/5 Main PCB Board Layout (Bottom Side)

AP Part No	Value	Description	Factory Part No	Qty	Component Ident	Notes
	<b>RESISTORS</b>					
	33R	0.25W metal film		20	R1,R2,R29,R30,R42,R53-R65,R76,R77	
	2k7	0.25W metal film		4	R3,R9,R18,R21	
	11k	0.25W metal film		5	R4,R7,R19,R20,R80	
	2k2	0.25W metal film	1012-202014-000	13	R5,R6,R11,R12,R14,R15,R22,R23,R36,R84,R85,R92,R93	
	5k6	0.25W metal film		4	R8,R10,R16,R17	
	47R	0.25W metal film	1014-700014-000	4	R13,R41,R51,R107	
	22k	0.25W metal film		1	R25	
	18k	0.25W metal film		7	R26,R88,R89,R91,R96,R98,R99	
	10k	0.25W metal film	1011-003014-000	9	R24,R27,R46,R47,R50,R83,R100,R103,R108	
	91R	0.25W metal film	1019-100014-000	1	R31	
	430R	0.25W metal film		1	R32	
	2R2	0.25W metal film	1012-207014-000	2	R33,R48	
	100R	0.25W metal film	1011-001014-000	5	R34,R49,R52,R101,R102	
	8k2	0.25W metal film		1	R35	
	1k	0.25W metal film	1011-002014-000	1	R37	
	4k7	0.25W metal film	1014-702014-000	9	R25,R38,R78,R82,R86,R87,R94,R95,R106	
	220R	0.25W metal film	1012-201014-000	2	R43,R44	
	47k	0.25W metal film		2	R39,R40	
	100k	0.25W metal film	1011-004014-000	11	R66-R75,R104	
	20R	0.25W metal film		1	R81	
	470k	0.25W metal film		4	R109-R112	
	13k	0.25W metal film		2	R90,R97	
	130R	1W Carbon film		1	R28	Raise resistor off PCB
	<b>CAPACITORS</b>					
	100nF 50V	Ceramic	1100-104043-000	25	C1,C18,C19,C22,C25,C27,C31,C51,C55,C57,C58,C70,C85,C96,C101,C102,C111,C112,C113,C114,C115,C117-C120	
	47uF 25V	Polarised Electrolytic	1102-470024-000	8	C30,C32,C46,C47,C97-C100	
	2200uF 35V	Polarised Electrolytic	1102-222034-000	2	C3,C24	
	47nF 63V	Polyester Film	1117-473053-000	19	C4,C5,C8,C11,C15-	
	10uF 25V	Non Polar Electrolytic	1105-100024-000	4	C6,C21,C23,C45	
	10pF 50V	NPO Ceramic	1181-100042-000	2	C7,C39	
	100pF 63V	Polypropylene film	1114-101062-001	4	C9,C14,C37,C43	
	2.2nF 63V	Polypropylene film		6	C10,C12,C13,C41,C42,C44	
	1nF 50V	NPO Ceramic		10	C26,C62,C63,C103-C108,C121	
	100nF 100V	Ceramic	1106-104064-001	3	C28,C66,C69	
	4.7uF 50V	Polarised Electrolytic	1102-477044-000	1	C29	
	10nF 63V	Polypropylene film	1114-103062-001	4	C33,C36,C87,C93	
	100uF 25V	Non Polar Electrolytic	1105-101024-000	2	C34,C35	
	100pF 50V	NPO Ceramic	1181-101042-000	15	C49,C56,C73-C84,C122	
	330pF 50V	Ceramic		1	C54	
	10uF 16V	Polarised Electrolytic	1102-100014-000	1	C59	
	2200uF 16V	Polarised Electrolytic	1102-222014-000	1	C68	
	1.5nF 63V	Polypropylene film		4	C88-C91	
	3.3nF 63V	Polypropylene film		2	C86,C92	
	100u 16V	Polarised Electrolytic		1	C116	
	100u 25V	Polarised Electrolytic	1102-101024-000	3	C2,C109,C110	
	<b>TRANSISTORS</b>					
PY219		PNP Signal	1301-327000-100	1	Q1	BC237-25
PY214		NPN Signal	1300-337000-100	6	Q2,Q5-Q9	BC337-25
		NPN Darlington	1300-140000-100	2	Q3,Q4	MPSA14
	<b>DIODES</b>					
PY962		Rectifier	1401-140040-000	12	D1-D8,D10-D12,D15	
		Red LED		1	D9	
		Signal	1401-141480-000	2	D13,D14	
	<b>INTEGRATED CIRCUITS</b>					
	5V	Voltage Regulator	4178-050334-700	4	U1,U8,U9,U12	Mount U1 & U9 to Heatsink (7805)
PY363		Fibre Optic Transmitting Module	4117-900990-000	1	U2	APTX179AT
	-15V	Voltage Regulator	4179-150302-600	1	U3	7915
	15V	Voltage Regulator	4178-150301-800	1	U4	7815
PY259		Op Amp	4155-320052-900	3	U5,U6,U11	NE5532
PY585		DAC	4187-400990-000	1	U7	WM8740
PY343		Hex Inverter	4174-140052-900	1	U10	74HC14
		Quad CMOS Switch IC		1	U13	NJU201AD
		CMOS AND	4140-110052-900	1	U15	4011
PY1144		Opto Isolator	4142-500050-001	1	U16	OP4N25
	<b>CONNECTORS</b>					
	Single	Black, Gold Plated	2330-002901-001	1	CN1	
	Dual	White/Red, Gold Plated	2330-003911-032	1	CN2	
		Headphone Jack Black	2320-003911-007	1	CN3	
	Dual	Orange, Gold Plated	2330-004911-004	1	CN4	
	3 Way	Straight Header	2300-003100-004	1	CN5	
	28 Way	Module Connector		2	JP1, JP2	
	16 Way	FFC	2301-016901-000	1	CN6	
	2 Way	Straight Header	2300-002100-003	1	CN7	

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

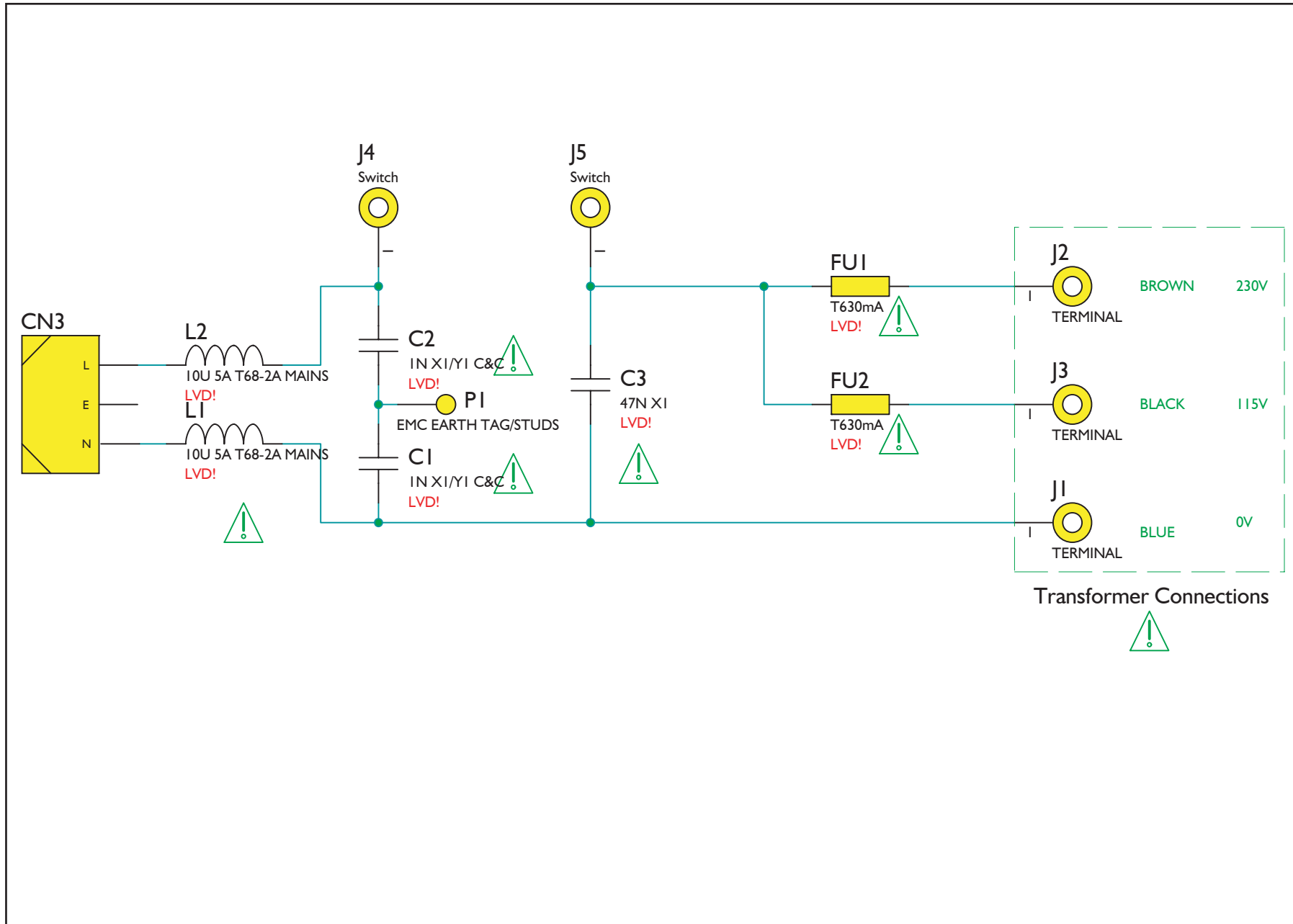
## Cambridge Audio 640T V2 DAB/FM Module &amp; DAC Main PCB BOM

AP19246/2

AP Part No	Value	Description	Factory Part No	Qty	Component Ident	Notes
	POTS					
	2k	3296W Multiturn Preset		1	PRI	Bourns Equivalent
	<b>MISCELLANEOUS</b>					
	1.1A	Polyfuse	4030-301100-001	4	F1-F4	
		Isolation cover for C116		1	C116	AP19629/1. To fit over C116 so that contact with Gyro module is avoided
	22nF 16V	T Filter	4003-306552-000	1	LI	
PY976	GYRO1120	DAB/FM Module		1	M201	Please use the specific module for 640T V2
PY584	5V	Relay	4050-000005-002	1	RL1	
		Ferrite Bead on 24 AWG link wire	1503-000000-100	2	FB1,FB2	

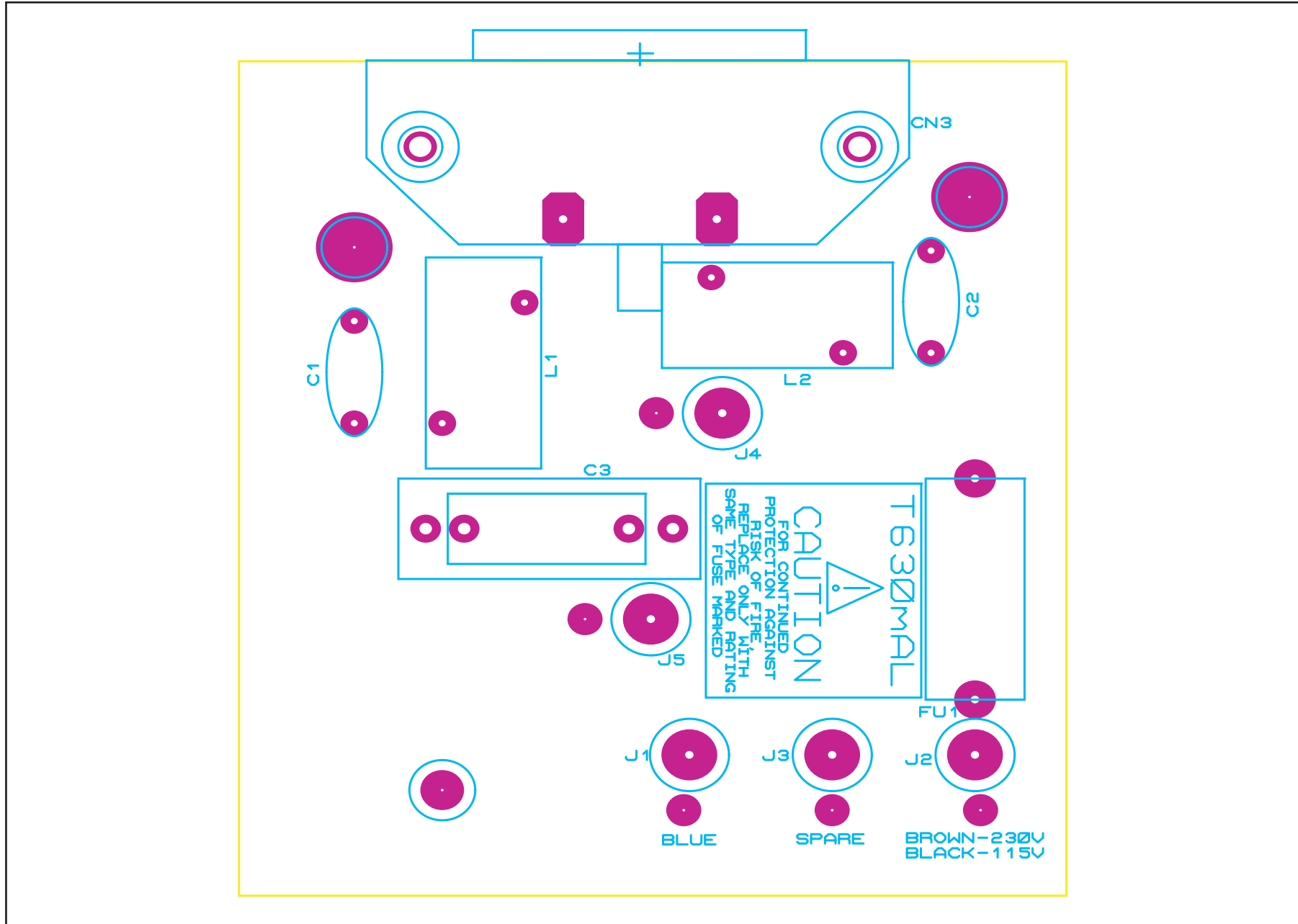
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# Cambridge Audio Azur 640T V2 DAB/FM Tuner



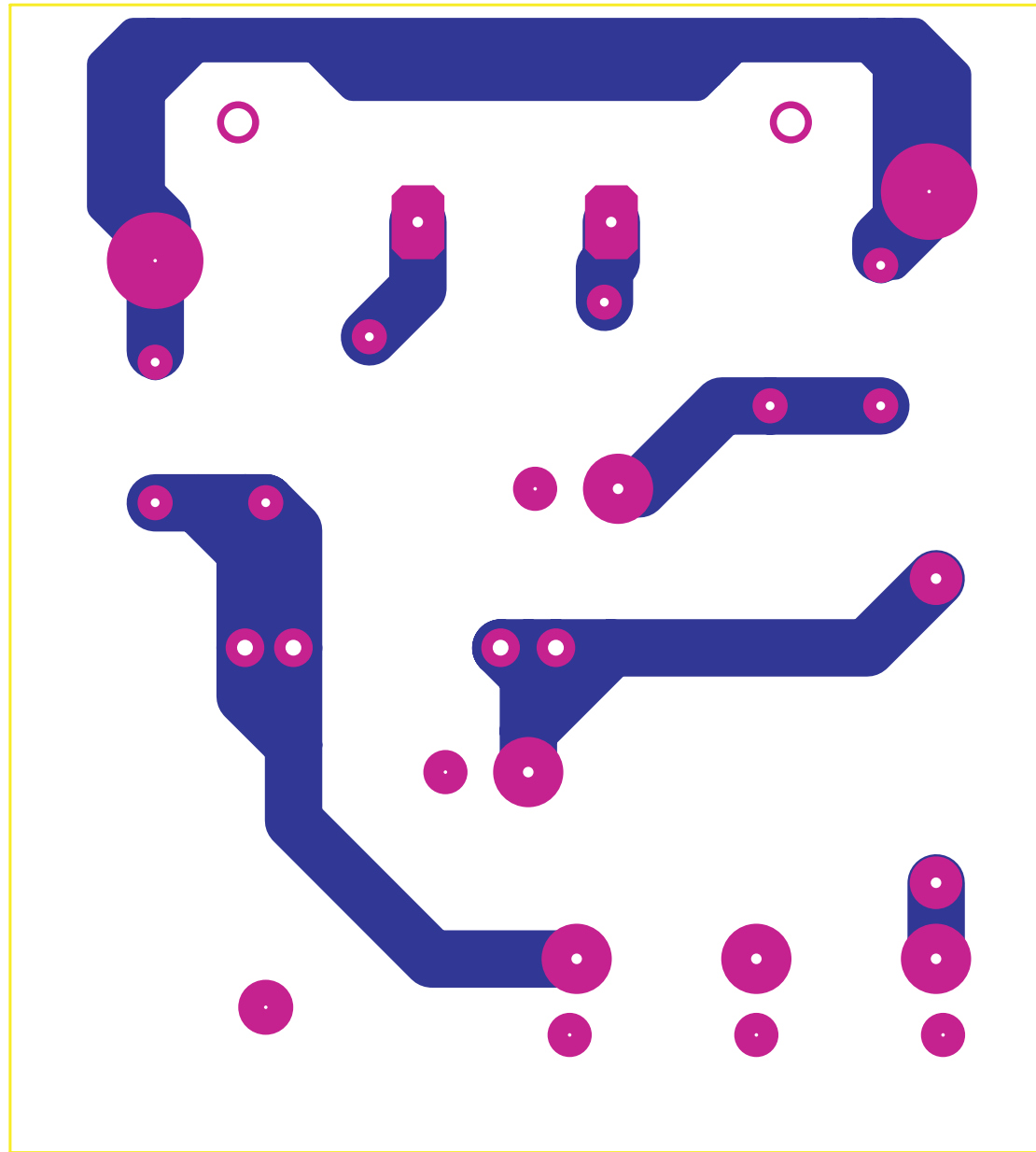
API9489/I Mains Supply PCB Schematic

# Cambridge Audio Azur 640T V2 DAB/FM Tuner



AP19489/I Mains Supply PCB Board Layout (Top Side)

**Cambridge Audio Azur 640T V2 DAB/FM Tuner**



**AP19489/I Mains Supply PCB Board Layout (Bottom Side)**

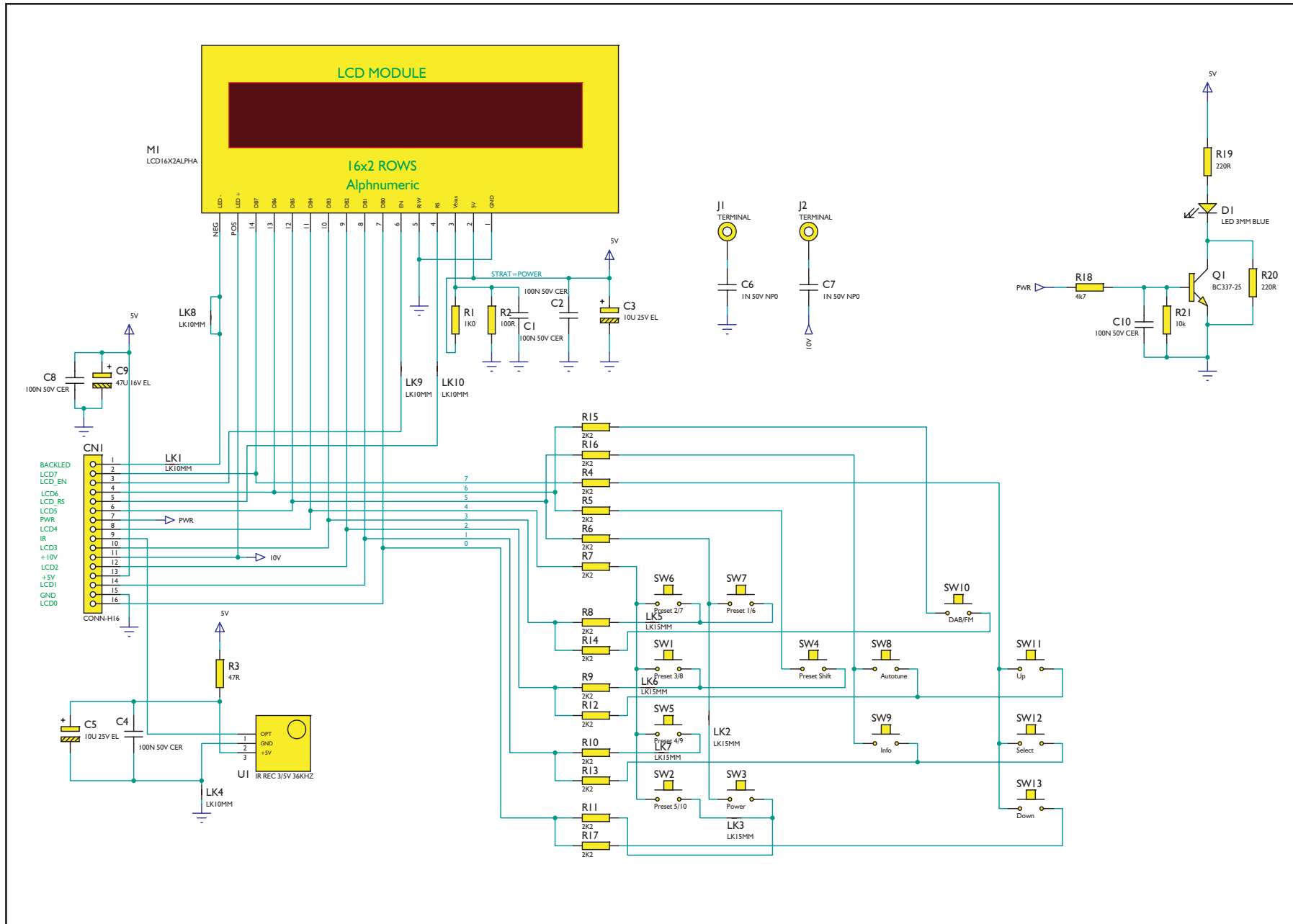
**Cambridge Audio 640T V2 Mains PCB BOM**

**AP19492A**

AP Part No	Value	Description	Factory Part No	Qty	Component Ident	Notes
	<b>CAPACITORS</b>					
	IN X1/Y1 C&C		1119-102104-000	2	C1,C2	Mains Suppression
	47N X1		1110-473094-000	1	C3	Mains Suppression
	<b>CONNECTORS</b>					
	IEC		2336-003910-002	1	CN3	Do not solder EARTH Pin (Middle Pin)
	<b>MISCELLANEOUS</b>					
	T630mA			1	FU1	

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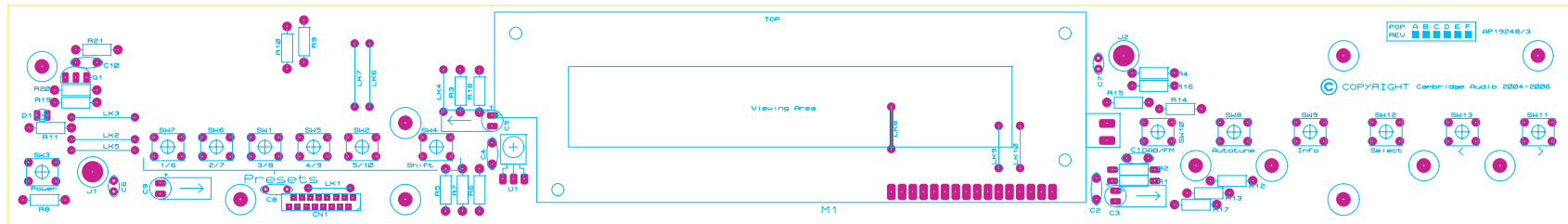
# Cambridge Audio Azur 640T V2 DAB/FM Tuner



AP19247/3 Front Panel PCB Schematic

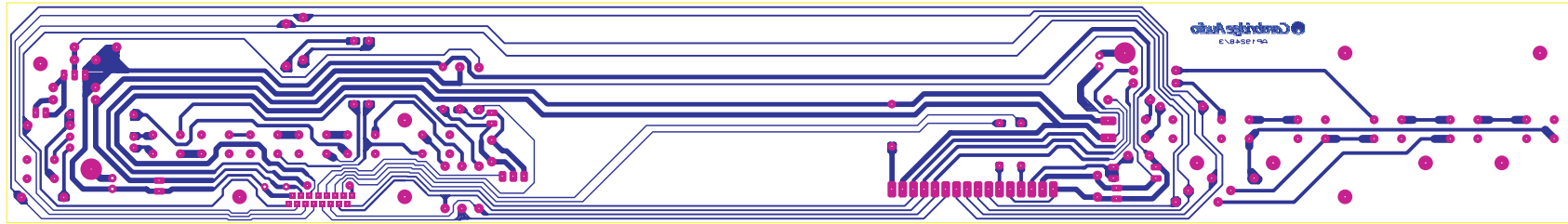


# Cambridge Audio Azur 640T V2 DAB/FM Tuner



AP19247/3 Front Panel PCB Board Layout (Top Side)

# Cambridge Audio Azur 640T V2 DAB/FM Tuner



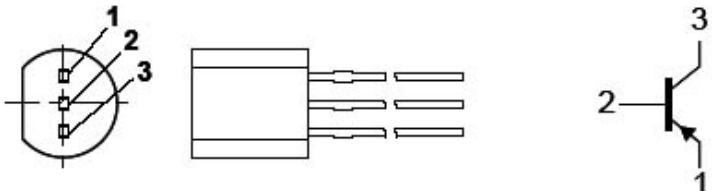
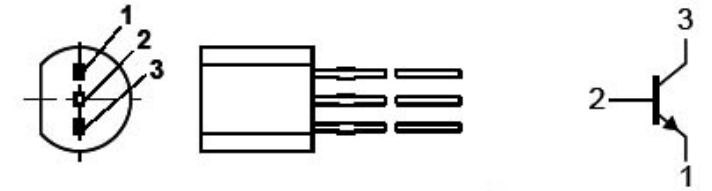
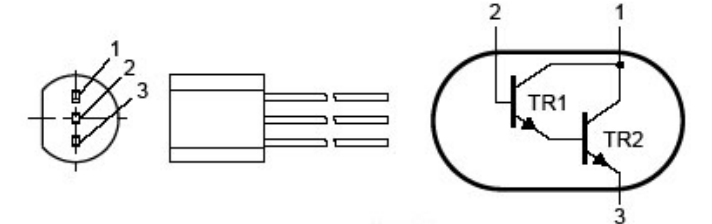
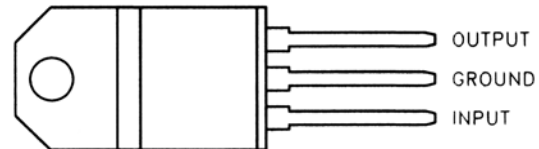
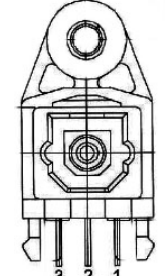
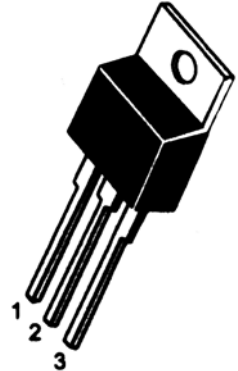
API9247/3 Front Panel PCB Board Layout (Bottom Side)

AP Part No	Value	Description	Factory Part No	Qty	Component Ident	Notes
	<b>RESISTORS</b>					
	1K0	0.25W metal film	1011-002014-000	1	R1	
	100R	0.25W metal film	1011-001014-000	1	R2	
	47R	0.25W metal film	1014-700014-000	1	R3	
	2K2	0.25W metal film	1012-202014-000	14	R4-R17	
	4k7	0.25W metal film	1014-702014-000	1	R18	
	220R	0.25W metal film	1012-201014-000	2	R19,R20	
	10k	0.25W metal film	1011-003014-000	1	R21	
	<b>CAPACITORS</b>					
	100N 50V	Ceramic	1100-104043-000	5	C1,C2,C4,C8,C10	
	1nF 50V	NPO Ceramic		2	C6,C7	
	47uF 16V	Polarised Electrolytic		1	C9	Lay Capacitors flat on PCB as shown by PCB silk.
	10uF 25V	Polarised Electrolytic	1102-100024-000	2	C3,C5	Lay Capacitors flat on PCB as shown by PCB silk. Make sure C5 does not clash with switch, SW4
	<b>TRANSISTORS</b>					
PY214		NPN Signal	1300-337000-100	1	Q1	BC337-25
	<b>DIODES</b>					
PY064		LED 3MM BLUE	3100-000030-003	1	D1	Raise 9mm off PCB to fit Front Panel
	<b>INTEGRATED CIRCUITS</b>					
PY755		IR REC 3/5V 36KHZ	3001-348360-000	1	U1	Raise off PCB and sit on Foam Pad - TSOP34836
	<b>CONNECTORS</b>					
	16 Way	FFC	2301-016901-000	1	CN1	
	16 Way	16-way, SIL pin header.	2370-016300-002	1	M1	Header for LCD Module
	<b>SWITCH</b>					
PY043		Tact Switch	2400-020200-000	13	SW1-SW13	
	<b>MISCELLANEOUS</b>					
PY784	I6X2ALPHA	LCD Module Assembly	9464-024003E191	1	M1	Positive Display, as used on the 640T V1 silver.

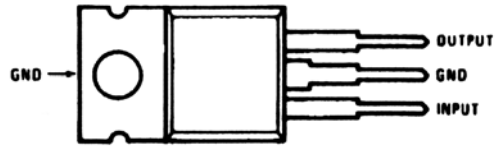
**Note: resistors, capacitors and other 'generic' electronic components are not usually stocked by the manufacturer. Please obtain these locally.**

# Cambridge Azur 640T V2 DAB/FM Tuner IC Pin Layout

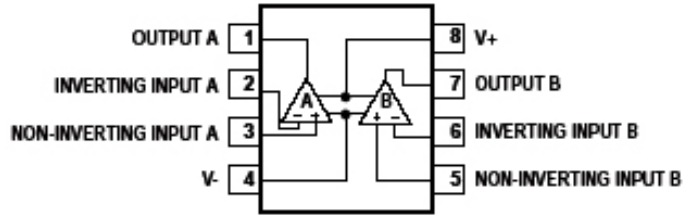
## Details

<p><b>BC327-25</b> DAC PCB - (Q1)</p>	
<p><b>BC337-25</b> DAC PCB - (Q2, Q5, Q6, Q7, Q8 &amp; Q9) Front Panel - (Q1)</p>	
<p><b>MPSA14</b> DAC PCB - (Q3 &amp; Q4)</p>	
<p><b>7805</b> DAC PCB - (U1, U8, U9 &amp; U12)</p>	
<p><b>APT X179AT</b> DAC PCB - (U2)</p>	 <p>PIN CONNECTION: 1: GND 2: VCC 3: INPUT</p>
<p><b>7915</b> DAC PCB - (U3)</p>	 <p>Pin 1. Ground 2. Input 3. Output</p>

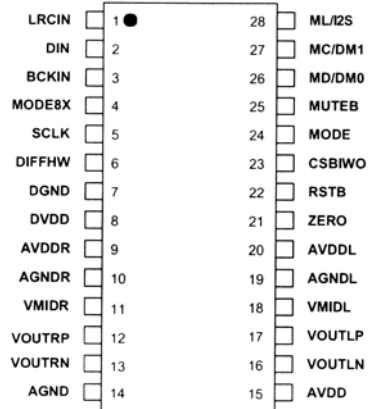
**7815**  
DAC PCB - (U4)



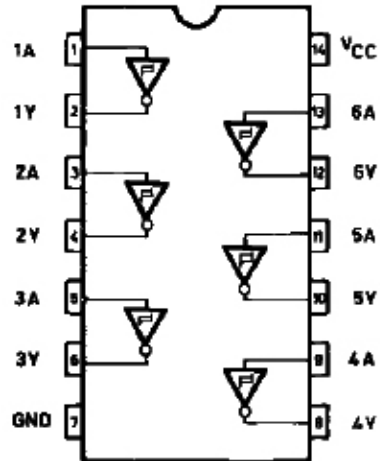
**NE5532**  
DAC PCB - (U5, U6 & U11)



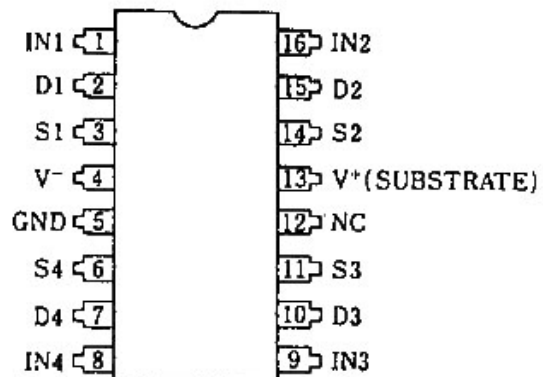
**WM8740**  
DAC PCB - (U7)



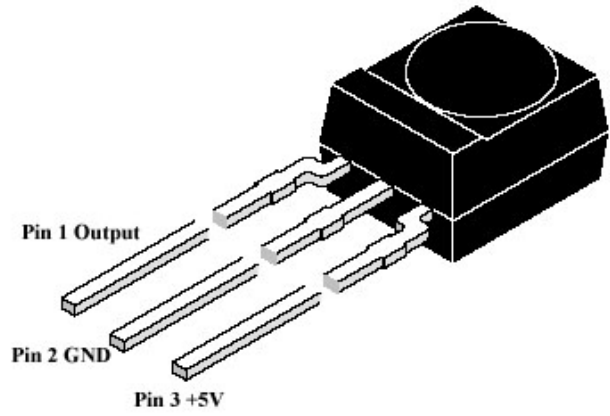
**74HC14**  
DAC PCB - (U10)



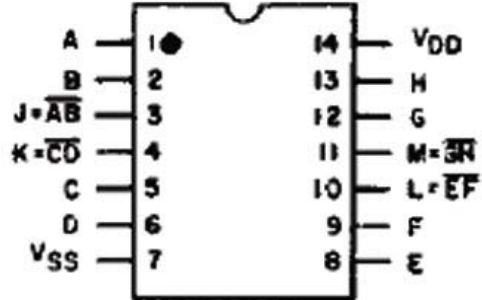
**NJU201AD**  
DAC PCB - (U13)



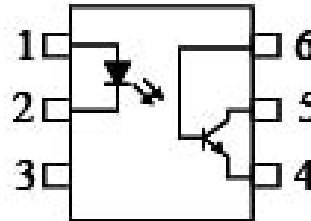
**TSOP1836**  
DAC PCB - (U14)



**4011**  
DAC PCB - (U15)



**OP4N25**  
DAC PCB - (U16)



**TSOP34836**  
Front Panel - (U1)

