

# 640A Integrated Amplifier

Issue Date: 16<sup>th</sup> December 2003 (Revised May 2008)

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## SERVICE MANUAL – AP14676/1



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## SPECIFICATIONS:

<b>Power Output:</b>	65 watts into 8 Ohms 100 watts into 4 Ohms
<b>Input Impedance:</b>	47k Ohms
<b>Loudspeaker Impedance:</b>	4 to 8 Ohms
<b>Line:</b>	380mV
<b>Phono (using optional phono stage):</b>	1.75mV
<b>Total Harmonic Distortion (into 8 Ohms 80% rated power):</b>	0.005% THD (No weighting) @ 1kHz 0.003% THD (A weighted) @ 1kHz 0.01% THD (No weighting) @ 20Hz - 20kHz
<b>Frequency Response:</b>	5Hz to 50kHz +/- 1dB
<b>Bass:</b>	+/- 10dB @ 100Hz
<b>Treble:</b>	+/- 10dB @ 10kHz
<b>Signal to Noise Ratio (No weighting):</b>	92dB
<b>Slew rate (into 8 ohms):</b>	40V/uS
<b>Max. Power Consumption:</b>	615 watts
<b>Dimensions (mm):</b>	430 x 320 x 100
<b>Weight:</b>	7 kg/15.4 lbs

# **640A SERVICE MANUAL**

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## **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

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## **Cambridge Audio Azur 640A Amplifier Bias Setup**

To set the bias on the 640A Amplifier:

Measure the voltage across R22 and R100 (Left channel) individually; they should be adjusted using Preset R116 so that the voltage measured on each resistor is greater than 13mV. This procedure should then be repeated for the Right channel by measuring the voltage across R52 and R69 whilst adjusting Preset R68 so that the voltage measured on each resistor is greater than 13mV.

## Cambridge Azur 640A Amplifier (Main Assembly BOM Silver Unit)

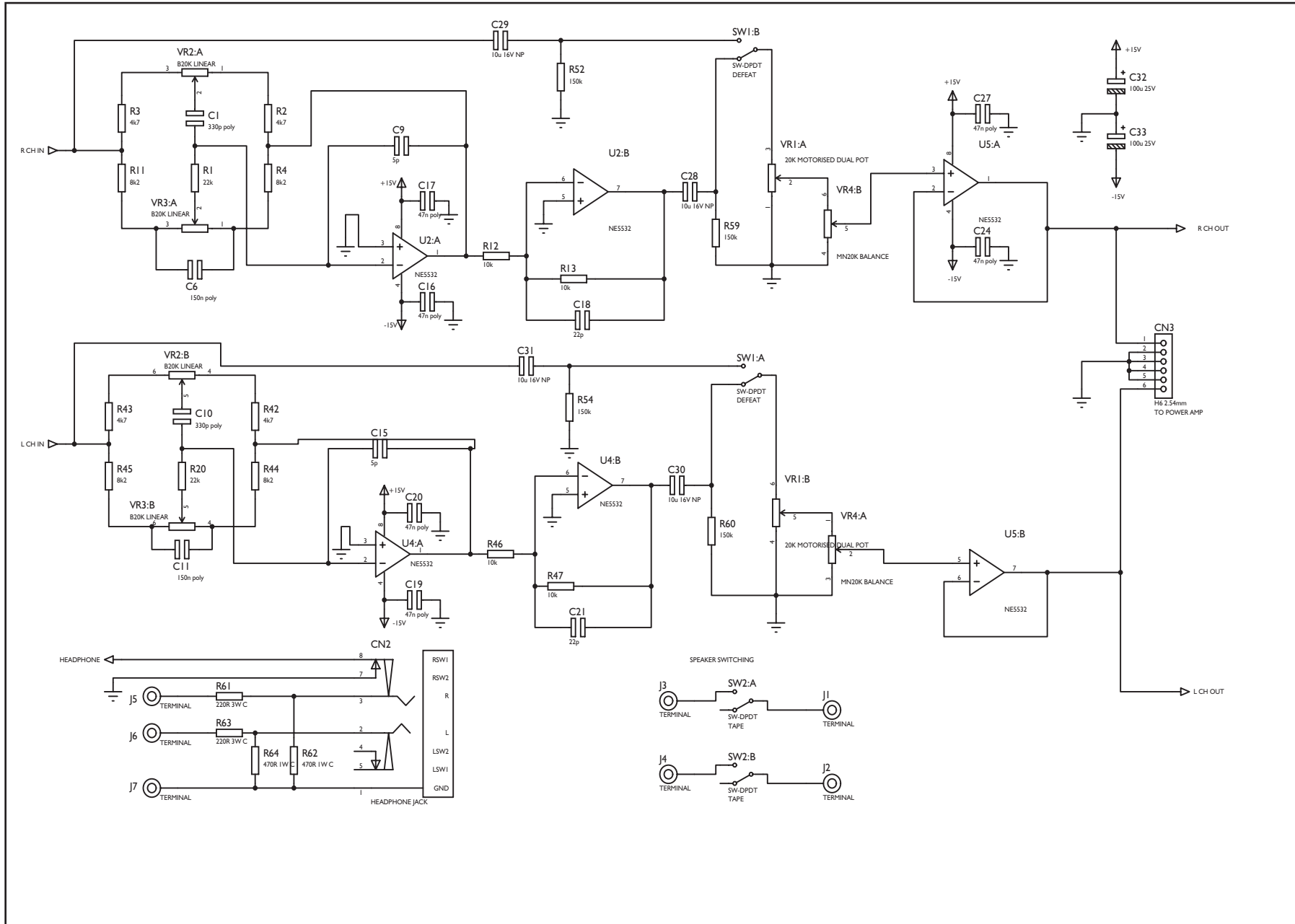
API3133/6

AP PART No.	DRAWING NO	DESCRIPTION	QTY	COMMENTS
		NEW CAMBRIDGE AMP PACKED UK VERSION	1	
	API3074/1	POLY ENDCAP PACKAGING	2	
	API3075/1	CARTON PACKAGING W/HANDLE	1	PRINTED TO ARTWORK AP.....
	API36131/1	CAMBRIDGE AUDIO NON-WOVEN BLUE BAG FOR REMOTE	1	PACK REMOTE CONTROL INSIDE,
		CAMBRIDGE NEW STYLE REMOTE COMPLETE	1	MOUNTED INTO POLY ENDCAP PACKING IN REBATE PROVIDED
		AAA ALKALINE BATTERIES	3	FOR REMOTE. PLACE IN INSTRUCTION MANUAL POLYBAG
PY540	API3969/1	AMPLIFICATION INSTRUCTION MANUAL	1	
	API3933/2	CARTON LABEL (MODEL NO.) UK Silver	1	FOR BOX
		SERIAL NUMBER LABEL, BLANK (6.5X35.5mm)	3	1 X REAR PANEL, 1 X BOX, 1 X SHIPPING CARTON
		ISO 9002 LABEL	1	AFFIXED TO REAR PANEL ABOVE IEC SOCKET
	API0087/2	"MADE UNDER LICENCE IN PRC" STICKER	1	AFFIXED TO REAR PANEL BELOW IEC SOCKET
		POLYBAG 173X260X4C mm	1	FOR INSTRUCTION MANUAL OWNERS CERTIFICATE AND REMOTE BATTERIES
	API3611/1	CAMBRIDGE AUDIO NON-WOVEN BLUE BAG 120mm HEIGHT	1	PACK AMP UNIT INSIDE
		1830mm AC IEC POWER CORD SET BS STANDARD FUSED 3 AMP	1	MUST BE BS APPROVED
		RED TAPE SEAL FOR CAMBRIDGE CARTON	1	
		NEW CAMBRIDGE AMP UK VERSION ASSEMBLED & TESTED	1	
		FRONT PANEL ASSEMBLY		
PY592	API0209/3	CAMBRIDGE SELECTOR KNOB MK3	3	
	API0224/1	CAMBRIDGE KNOB INSERT MK2	3	INSERT INTO SELECTOR KNOBS
PY590		CAMBRIDGE NEW RANGE AMP VOLUME KNOB	1	
PY581	API2740/2	CAMBRIDGE NEW RANGE AMP FRONT PANEL (PUNCHED AND PRINTED)	1	SCREENED WITH ARTWORK API3679/2
	API2935/1	CAMBRIDGE NEW RANGE AMP IR LENS	1	GLUED IN PLACE ON THE FRONT PANEL
	API2746/2	CAMBRIDGE NEW RANGE AMP SUB PLATE	1	FASTENED IN PLACE IN BETWEEN THE LEDGES ON THE FRONT PANEL
	API2931/1	CAMBRIDGE NEW RANGE AMP LIGHTGUIDE	5	FASTEN TO SUBPLATE
		M3 X 6 POZI PAN STP SCREW	5	AFFIXES LIGHTGUIDES TO SUBPLATE
		M3 X 6 C/S POZI MACHINE SCREW	8	FASTEN THE SUB PLATE TO THE FRONT PANEL
	API1782/1	OPUS CONTROL BOX BUTTON	1	POSITION IN PLACE ON THE FRONT PANEL
	API3585/1	CAMBRIDGE NEW RANGE AMP 9mm TAC SWITCH CUSHION	1	POSITION ON THE SUBPLATE OVER THE POWER BUTTON CUT AND AFFIX USING ADHESIVE PROVIDED ON THE CUSHION.
	API2925/1	CAMBRIDGE NEW RANGE AMP 7mm TAC SWITCH BUTTON	6	POSITION IN PLACE ON THE FRONT PANEL
	API2934/1	CAMBRIDGE NEW RANGE AMP 7mm TAC SWITCH CUSHION	6	POSITION ON THE SUBPLATE OVER THE POWER BUTTON CUT AND AFFIX USING ADHESIVE PROVIDED ON THE CUSHION.
	API2926/2	CAMBRIDGE NEW RANGE AMP 7mm PUSH SWITCH BUTTON	2	POSITION IN PLACE ON THE FRONT PANEL
		CONTROL PCB ASSEMBLY (FRONT PANEL SWITCH PCB)		
		M3 X 6 POZI PAN MACHINE SCREW	10	USED FOR FIXING THE CONTROL PCB'S TO THE SUBPLATE STANDOFF'S
	API3388/3	A600 FRONT PANEL PCB CABLE	1	CONNECTS TO FRONT PANEL SWITCH PCB AND RUNS ALONG FRONT PANEL CONNECTING THE SWITCH PCB TO THE POWER SWITCH AND THE IR PCB'S

AP PART No.	DRAWING NO	DESCRIPTION	QTY	COMMENTS
	API3453/2	A600 INPUT PCB TO FRONT PANEL SWITCH PCB	1	ATTACH FRONT PANEL PCB TO INPUT PCB AS PER DRAWING
		CABLE TIE 2.5mm X 100mm	2	ATTACH CABLE LOOM TO SUB PANEL
	API3391/2	A600 VOLUME MOTOR CABLE	1	ATTACH VOLUME POT MOTOR TO FRONT PANEL SWITCH PCB
	API3394/2	A600 AMP PCB TO FRONT PANEL CONTROL PCB CABLE	1	ATTACH FRONT PANEL PCB TO AMP PCB AS PER DRAWING
		BOTTOM PANEL ASSEMBLY		
	API2734/1	CAMBRIDGE NEW RANGE AMP BOTTOM PANEL	1	
PY541	API2652/2	CAMBRIDGE NEW RANGE FOOT MOULDING	4	POSITION IN PLACE ON BOTTOM PANEL
PY544	API2883/3	CAMBRIDGE NEW RANGE FOOT PAD	4	AFFIX ON FOOT USING ADHESIVE SURFACE
		M3 X 6 PLASTITE POZI PAN	4	AFFIX FEET TO BOTTOM PANEL
		12.7mm PLASTIC PCB STANDOFF	9	PUSH SNAP FIT ON BOTTOM PANEL
		M3 X 6 POZI PAN TAPTITE SCREW	12	TO AFFIX SUPPORT BRACKETS (POWER AMP ASSEMBLY) TO BOTTOM PANEL
		M4 X 12 POZI PAN MACHINE BOLT	2	FIX THROUGH EARTHING POINT HOLES ON BOTTOM PANEL
		M4 NUT STANDARD	2	USED TO FIX ABOVE BOLTS
		M4 LOCK WASHER	2	FOR EARTH BOLTS
		M6 X 60 POZI PAN MACHINE BOLT	1	USED TO FIX MAIN TRANSFORMER IN PLACE THROUGH THE BOTTOM PANEL
	API2629/5	230V 194VA TOROID TRANSFORMER	1	
		NEOPRENE TRANSFORMER INSULATION WASHERS	2	TO FIT EITHER SIDE OF TRANSFORMER
		TRANSFORMER METAL BOTTOM PLATE	1	TO FIT UNDER BOTTOM PLATE ON M6 BOLT
		M6 LOCK WASHER	1	PLACE ABOVE TRANSFORMER ON M6 BOLT
		TRANSFORMER METAL TOP PLATE	1	PLACE ON TOP OF TRANSFORMER
		M6 NUT STANDARD	1	USED TO FIX ABOVE BOLT
		INPUT PCB ASSEMBLY	1	FIXES IN THE CORRECT POSITION ONTO THE PLASTIC PCB STANDOFFS
	API2715/4	BARE INPUT PCB	1	
		M2.6 X 6 POZI PAN MACHINE SCREW	10	TO AFFIX BOTTOM PANEL TO SIDE, FRONT AND REAR PANELS
		M2.6 X 10 POZI PAN PLASTITE	4	FIX CORNERS OF BOTTOM PANEL TO PLASTIC INSERTS
		SIDE PANEL ASSEMBLY	2	
	API2726/1	CAMBRIDGE AUDIO NEW RANGE PRESSED SIDE PANEL (3 RIDGE)	2	POSITION IN PLACE ON PLASTIC FRONT INSERTS
	API2729/1	CAMBRIDGE AUDIO NEW RANGE FRONT PLASTIC SUPPORT (3 RIDGE)	2	POSITION AT FRONT WITHIN SIDE PANELS
	API2730/1	CAMBRIDGE AUDIO NEW RANGE REAR PLASTIC SUPPORT (3 RIDGE)	2	POSITION AT REAR WITHIN SIDE PANELS
		M2.6 X 10 C/S POZI PLASTITE	8	TO AFFIX SIDE PANELS TO PLASTIC INSERTS
		A600 REAR PANEL ASSEMBLY	1	
	API2919/2	CAMBRIDGE AUDIO NEW RANGE AMP REAR PANEL PRINTED	1	SCREENED WITH ARTWORK API3665/2 THEN POSITION ON REAR PLASTIC SUPPORTS
		M3 X 10 POZI PAN PLASTITE	4	TO AFFIX REAR PANEL TO REAR PLASTIC INSERTS
		M3 X 8 POZI PAN PLASTITE	9	TO FIX SPEAKER TERMINAL PCB AND ALSO FIX PHONO SOCKETS ON THE INPUT BOARD TO THE REAR PANEL
		M4 X 8 POZI PAN TAPTITE	2	FIXES THE IEC SOCKET MOUNTED ON THE POWER BOARD TO THE REAR PANEL
		M3X12 MACHINE SCREW WITH PLASTIC KNOB AND EXTERNAL TOOTH ZINC WASHER	1	PHONO GND SCREW ON REAR PANEL

AP PART No.	DRAWING NO	DESCRIPTION	QTY	COMMENTS
	API 3389/2	A600 AMP PCB TO INPUT PCB POWER CABLE	1	FIT AS PER DRAWING - JST CONNECTORS
	API 3393/2	A600 AMP PCB TO MAINS PCB CABLE	1	FIT AS PER DRAWING - JST CONNECTORS
	API 3396/2	A600 INPUT PCB TO AMP PCB SIGNAL CABLE	1	FIT AS PER DRAWING - JST CONNECTORS
	API 3392/2	A600 AMP PCB TO SPEAKER PCB CABLE	1	FIT AS PER DRAWING - JST CONNECTORS
		SELF ADHESIVE CABLE TIE FIXING PAD 19mm X 19mm	3	2X SIDE PANEL, 1X REAR PANEL TO ATTACH API 3395/1 LOOM TO SIDE OF CHASSIS
		CABLE TIE 2.5mm X 100mm	10	(PLEASE FOLLOW EXAMPLE ON MANUFACTURING SAMPLE UNIT OR USE AS NECESSARY)
	API 3340/1	A600 LIDDING TAPE FOR FRONT AND REAR PANELS	2	FIX TO THE CORRECT SURFACES FOR LID
	API 3342/1	A600 LIDDING TAPE FOR SIDE PANELS	2	FIX TO THE CORRECT SURFACES FOR LID
PY542	API 2733/2	CAMBRIDGE AUDIO NEW RANGE TOP PANEL WITH VENTS	1	POSITION ON TOP OF THE PRODUCT
PY516		M2.6 x 8 M/C Torx Recessed Plated	8	TOP PANEL SCREWS

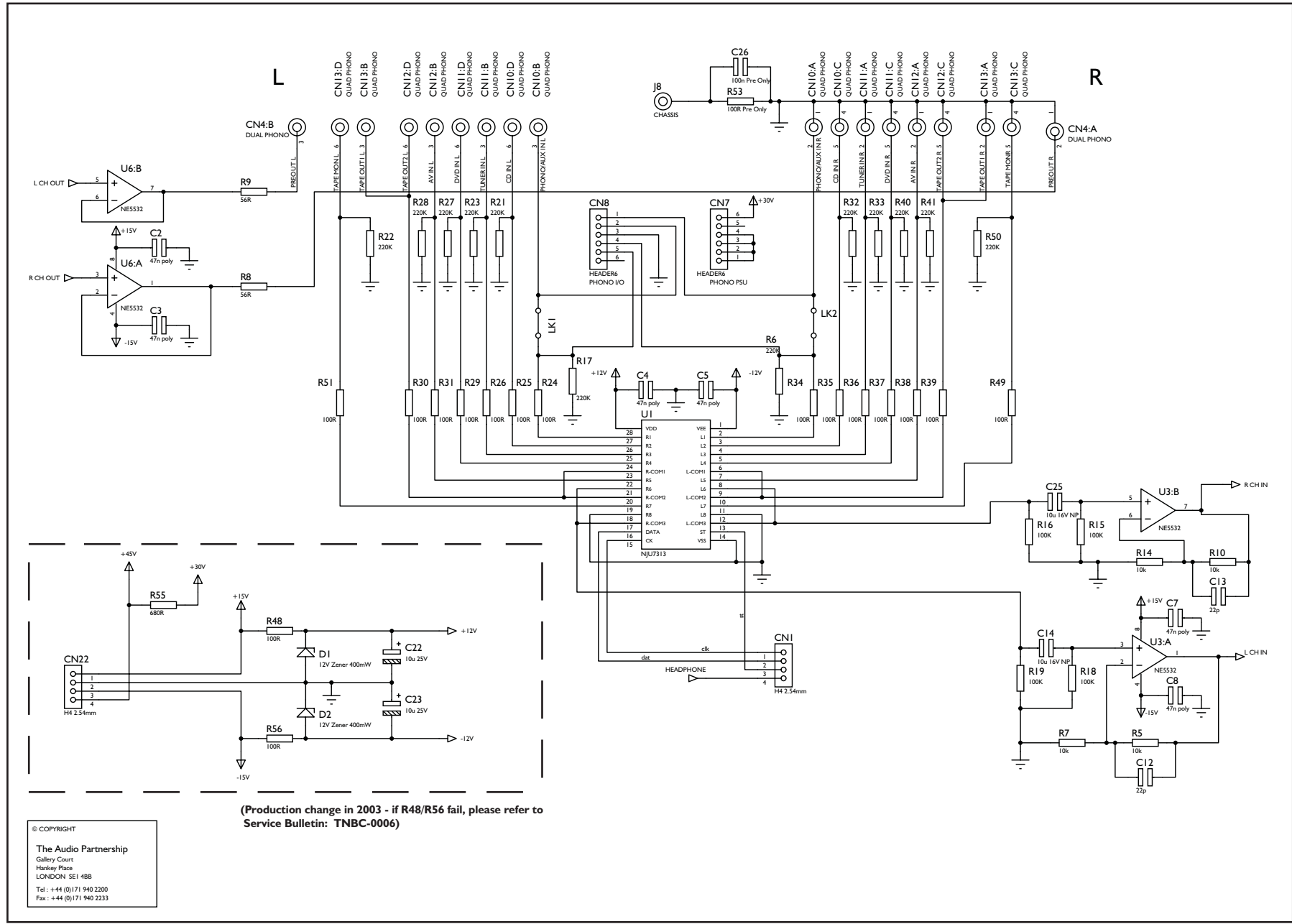
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**API2714/5 Input & Tone PCB Schematic (Tone Control)**



# Cambridge Audio Azur 640A Integrated Amplifier

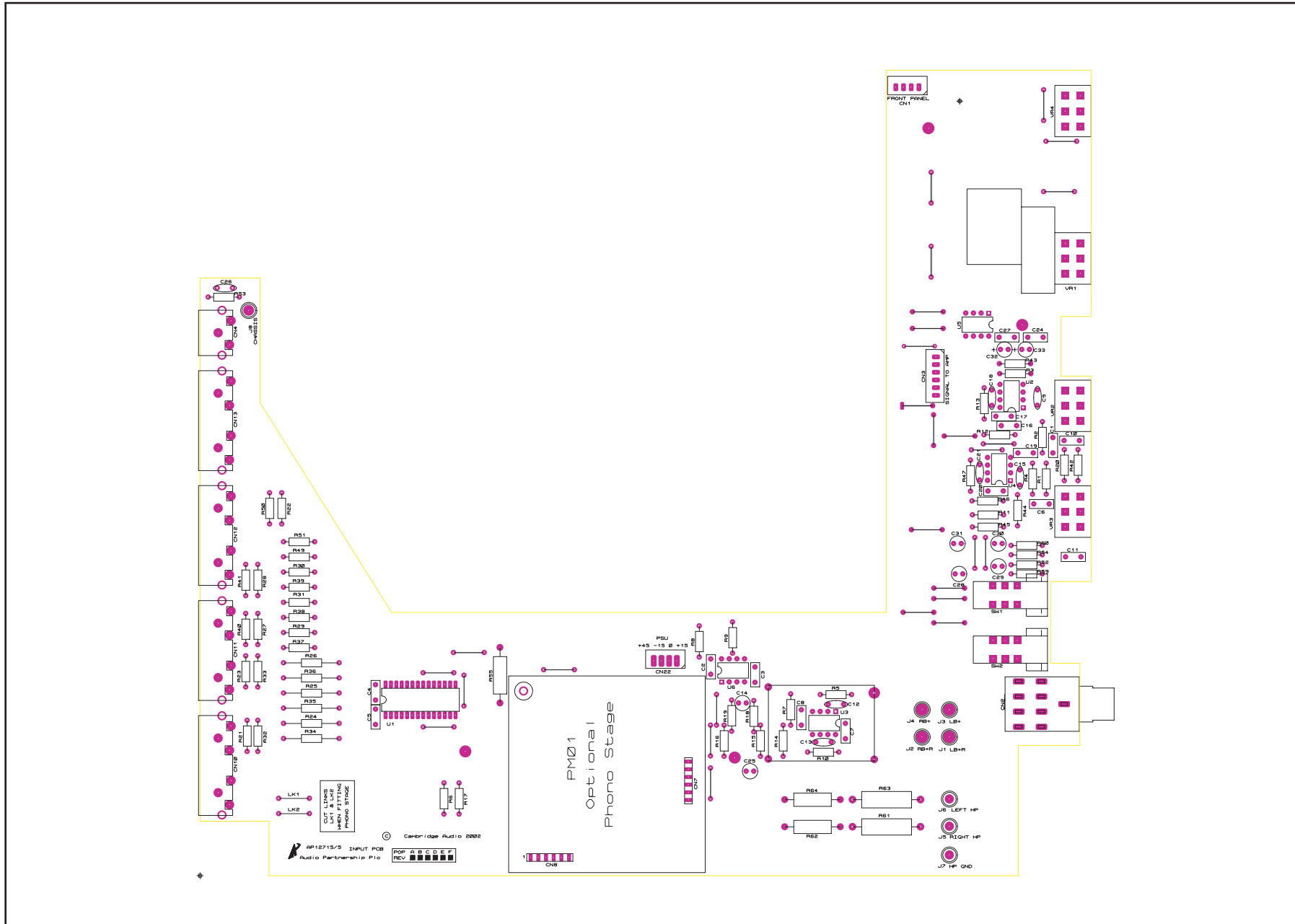


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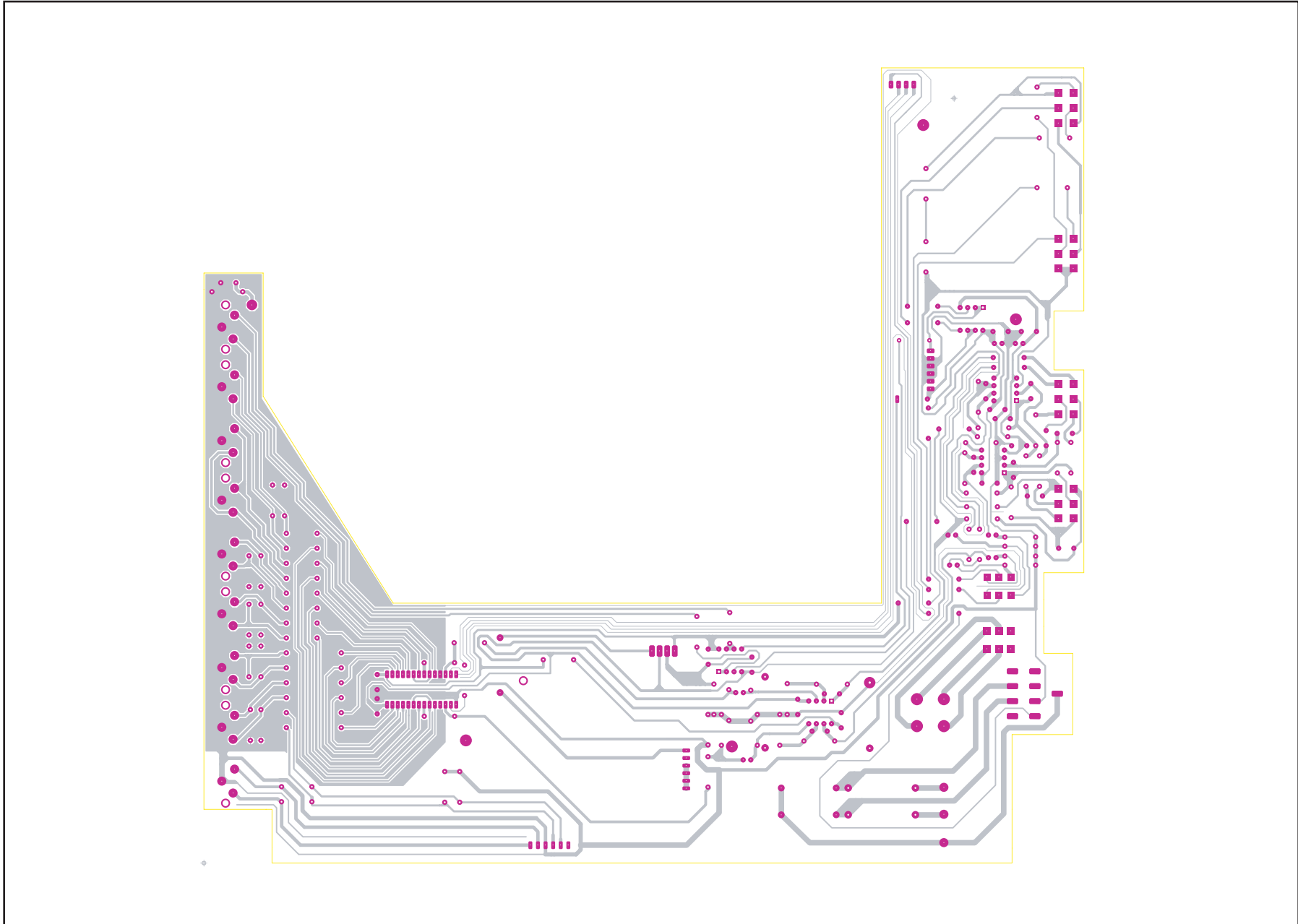
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**API2714/6 Input & Tone PCB Schematic (Input Select)**

# Cambridge Audio Azur 640A Integrated Amplifier



# Cambridge Audio Azur 640A Integrated Amplifier

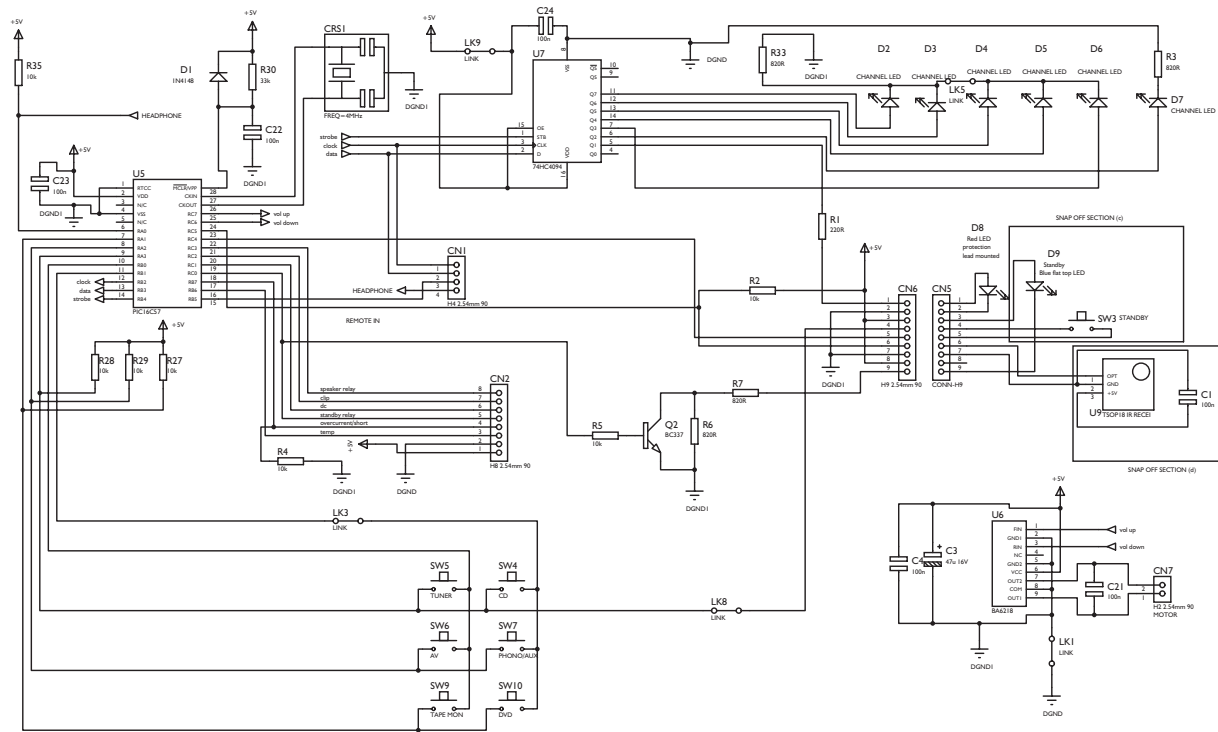


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## API2714/5 Input & Tone PCB Layout (Bottom Side)

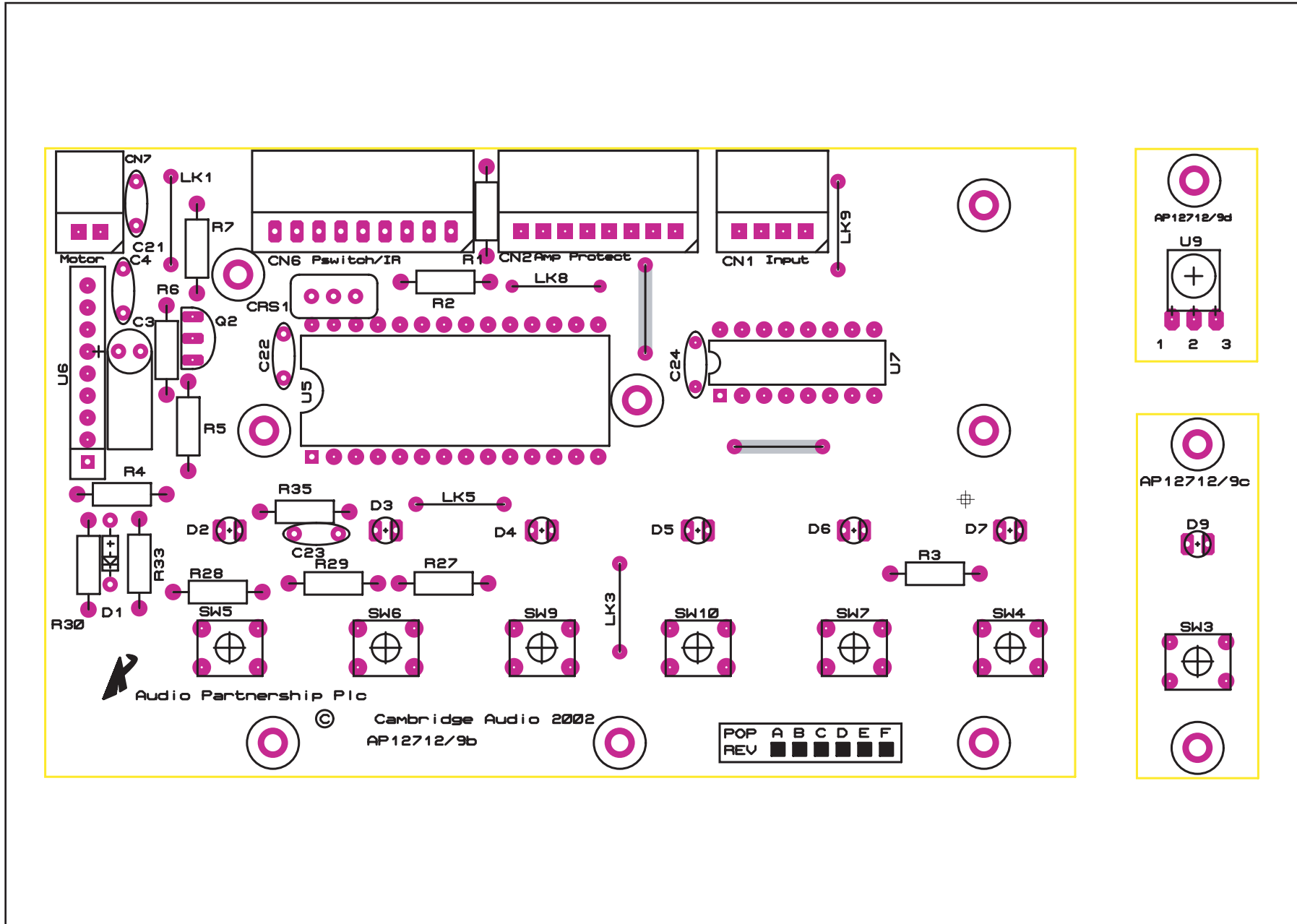
AP PART No.	DRAWING NO	DESCRIPTION	QTY	DESIGNATOR	COMMENTS
	API2715/5	BARE INPUT PCB	1		
		220R 3W CARBON FILM RESISTOR	2	R61, R63	
		470R 1W CARBON FILM RESISTOR	2	R62, R64	
		680R 1W CARBON FILM RESISTOR	1	R55	
		56R 0.25W METAL FILM RESISTOR	2	R8, R9	
		100R 0.25W METAL FILM RESISTOR	14	R24, R25, R26, R29, R30, R31, R34, R35, R36, R37, R38, R39, R49, R51	
		4k7 0.25W METAL FILM RESISTOR	4	R2, R3, R42, R43	
		8k2 0.25W METAL FILM RESISTOR	4	R4, R11, R44, R45	
		10k 0.25W METAL FILM RESISTOR	8	R5, R7, R10, R12, R13, R14, R46, R47	
		22k 0.25W METAL FILM RESISTOR	2	R1, R20	
		100k 0.25W METAL FILM RESISTOR	4	R15, R16, R18, R19	
		150k 0.25W METAL FILM RESISTOR	4	R52, R54, R59, R60	
		220k 0.25W METAL FILM RESISTOR	12	R6, R17, R21, R22, R23, R27, R28, R32, R33, R40, R41, R50	
		5p CERAMIC 50/100V 5mm PITCH CAPACITOR	4	C9, C15	
		22p CERAMIC 50/100V 5mm PITCH CAPACITOR	4	C12, C13, C18, C21	
		330p POLY 50/100V 5mm PITCH CAPACITOR	2	C1, C10	
		47n POLY 50/100V 5mm PITCH CAPACITOR	12	C2, C3, C4, C5, C7, C8, C16, C17, C19, C20, C24, C27	
		150n POLY 50/100V 5mm PITCH CAPACITOR	2	C6, C11	
		10u 35V NON POLAR ELECTROLYTIC CAPACITOR	6	C14, C25, C28, C29, C30, C31	
		100u 25V ELECTROLYTIC CAPACITOR	2	C32, C33	
PY487		NJU 7313 AUDIO SWITCH IC	1	U1	
PY108		NE5532 OP AMP	5	U2, U3, U4, U5, U6	
		4 WAY JST CONNECTOR 2.54mm PITCH	3	CN1, CN22	
		6 WAY JST CONNECTOR 2.54mm PITCH	1	CN3	
		ZUANBAO CK-6.35-08A (SILVER BEZEL) HEADPHONE JACK	1	CN2	
		ZUANBAO AV2-8.4-9 GOLD DUAL PHONO SOCKET	1	CN4	
		ZUANBAO AV4-8.4-9 GOLD QUAD PHONO SOCKET	4	CN10, CN11, CN12, CN13	
		6 WAY PIN HEADER 2.54mm PITCH 13mm LONG	2	CN7, CN8	AS PER EXISTING A500 INPUT PCB
		DPDT WEALTH PBS-22HOI-T18-SL SWITCH	2	SW1, SW2	
PY004		20k MOTORISED DUAL LOG POT RM16 WITH 22mm LEGS	1	VR1	
PY535		B20k LINEAR POT	2	VR2, VR3	
PY005		MN20k BALANCE POT	1	VR4	
		LINK WIRE 24SWG 20mm LONG	30	LK1, LK2, ALL BLANK LINK POSITIONS	
		M3 X 14 POZI PAN MACHINE SCREW BLACK	1		USED TO FIT OPTIONAL PHONO STAGE
		M3 LOCKWASHER	1		USED TO FIT OPTIONAL PHONO STAGE
		M3 NUT BLACK	2		USED TO FIT OPTIONAL PHONO STAGE
	API3395/2	640A INPUT PCB TO SPEAKER PCB LOOM	1		CONNECT AS PER DRAWING TO INPUT PCB BEFORE FITTING INPUT PCB TO CHASSIS
	API0001/2	CAMBRIDGE AUDIO SCREENING CAN	1		EMBOSSED WITH ARTWORK API0018/1

# Cambridge Azur 640A Integrated Amplifier



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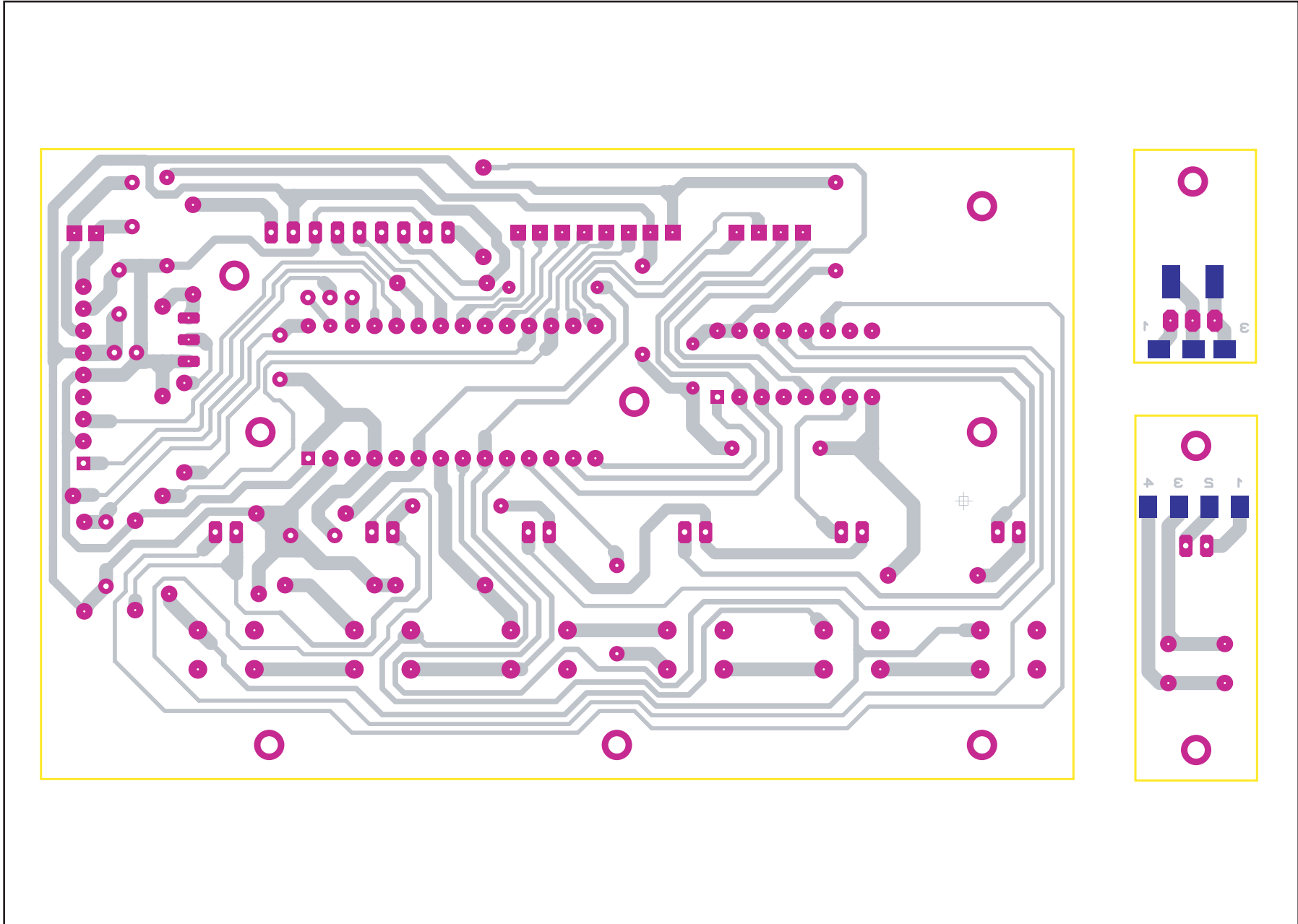
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**API2711/9 Front Panel PCB Layout (Top Side)**

# Cambridge Azur 640A Integrated Amplifier



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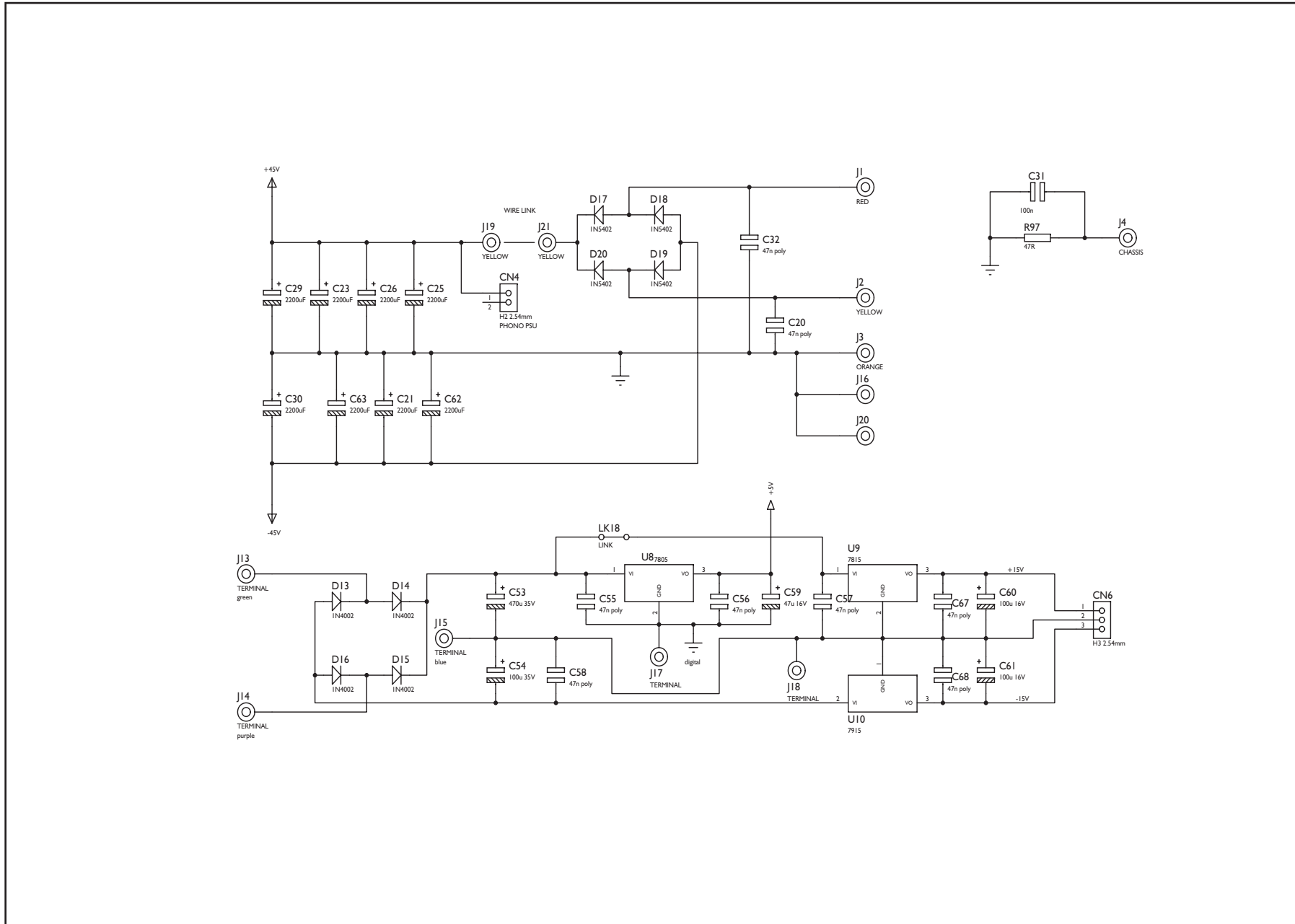
**API2711/9 Front Panel PCB Layout (Bottom Side)**

## Cambridge Azur Front Panel PCB BOM

AP PART No.	DRAWING NO	DESCRIPTION	QTY	DESIGNATOR	COMMENTS
		CONTROL PCB ASSEMBLY (FRONT PANEL)			
	API2712/8b	CONTROL PCB SNAP OFF (FRONT PANEL)	1		
		220R 0.25W 1% METAL FILM RESISTOR	2	R1	
		820R 0.25W 1% METAL FILM RESISTOR	2	R3,R6,R7 R33	
		10k 0.25W 1% METAL FILM RESISTOR	6	R2, R4,R5, R27, R28, R29, R35	
		33k 0.25W 1% METAL FILM RESISTOR	1	R30	
		100n CERAMIC 50/100V 5mm PITCH CAPACITOR	5	C4, C21, C22, C23, C24	
		47u 16V ELECTROLYTIC CAPACITOR	1	C3	
		4MHz CRYSTAL RESONATOR WITH BUILT IN CAPS (3 TERMINAL)	1	CRS1	
PY597		PIC16C57C -04P MICROPROCESSOR IC	1	U5	TO BE PROGRAMMED WITH API3424/I HEX CODE
		28 PIN 0.6" TURNED PIN SOCKET FOR ABOVE PIC	1	(U5)	
PY260		BA6218 MOTOR DRIVE IC	1	U6	
PY524		74HC4094 SHIFT REGISTER IC	1	U7	
PY214		BC337 NPN TRANSISTOR	1	Q2	
		1N4148 SIGNAL DIODE	1	D1	
PY064		FLAT TOP BLUE LEDS (AS PER CURRENT CAMBRIDGE)	6	D2, D3, D4, D5, D6, D7	
		3mm STANDARD DIFFUSED RED LED	1	D8	TO BE FITTED TO CABLE AS PER DRAWING API3388/3 AND THEN GLUED INTO THE 'PROTECTION' LIGHT GUIDE FITTED TO THE SUB PANEL
		2 WAY JST CONNECTOR 2.54mm PITCH 90 DEGREE MOUNTED	1	CN7	
		4 WAY JST CONNECTOR 2.54mm PITCH 90 DEGREE MOUNTED	1	CN1	
		8 WAY JST CONNECTOR 2.54mm PITCH 90 DEGREE MOUNTED	1	CN2	
		9 WAY JST CONNECTOR 2.54mm PITCH 90 DEGREE MOUNTED	1	CN6	
		TACTILE SWITCH	1	SW3	
		LINK WIRE 24SWG 20mm LONG	7	LK1, LK3, LK5, LK8, LK9, X, X,	
		CONTROL PCB ASSEMBLY (POWER SWITCH)			
	API2712/8c	CONTROL PCB SNAPOFF (POWER SWITCH)	1		FASTENEND IN PLACE TO STANDOFFS SUPPLIED ON SUB PLATE.
		TACTILE SWITCH	6	SW4, SW5, SW6, SW7, SW9, SW10	AS PER CAMBRIDGE D500SE
PY064		FLAT TOP BLUE LEDS (AS PER CURRENT CAMBRIDGE)	1	D9	
		CONTROL PCB ASSEMBLY (I/R RECEIVER)			
	API2712/8d	CONTROL PCB SNAPOFF (IR RECEIVER)	1		FIXED INTO PEENED HOLE ON SUBPLATE
PD092		TSOP18 IR RECEIVER MODULE (VISHAY)	1	U9	
		100n CERAMIC 50/100V 5mm PITCH CAPACITOR	1	C1	TO BE MOUNTED ON BACK OF PCB
		M3 X 6 POZI PAN TAPTITE SCREW	1		FOR FIXING IR SNAP OFF PCB TO SUB PANEL
		1mm NYLON WASHER	1		USED AS A SPACER FOR API271 I/5d



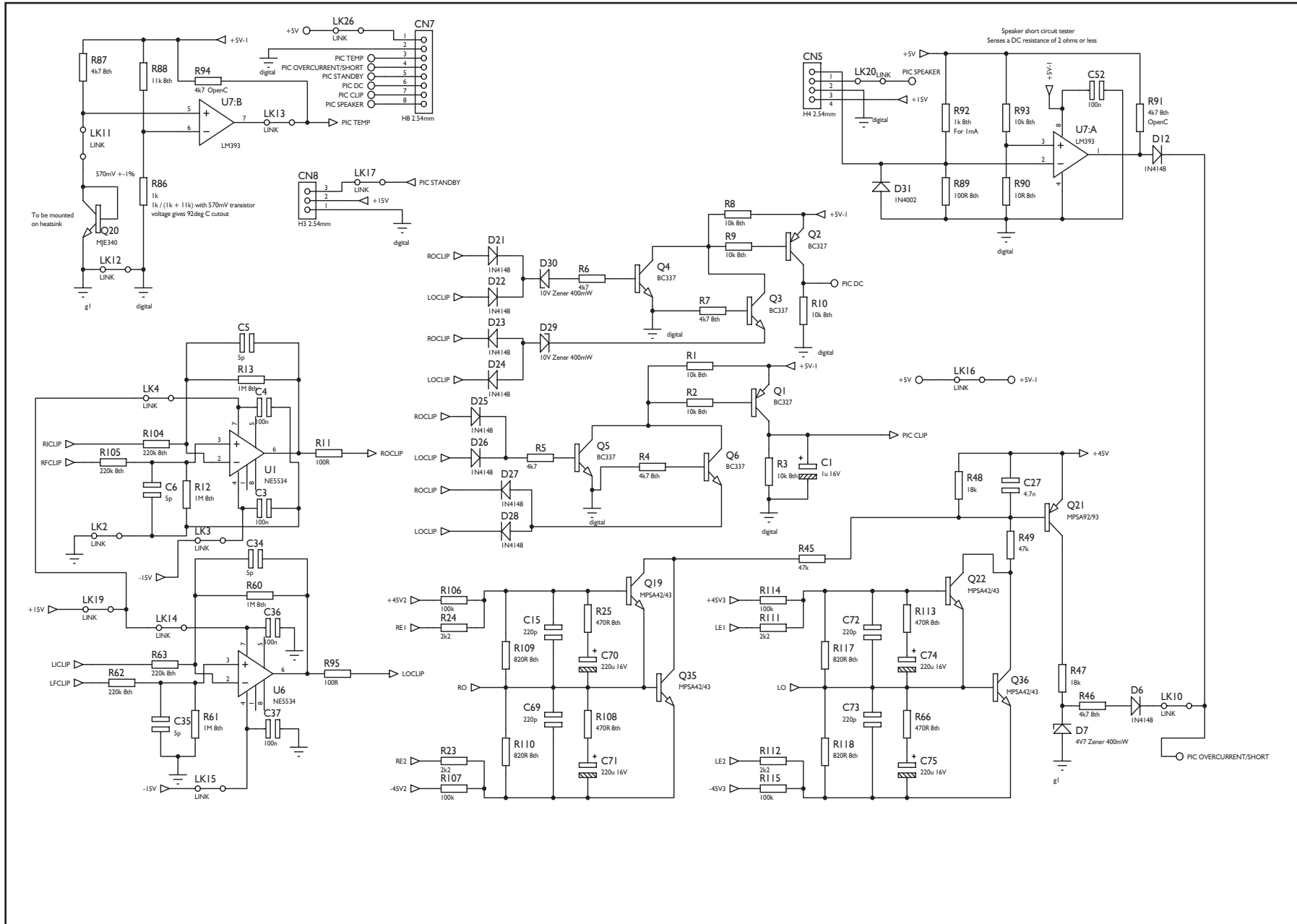
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## API2707/6 Power Amp Schematic (Power Supply)

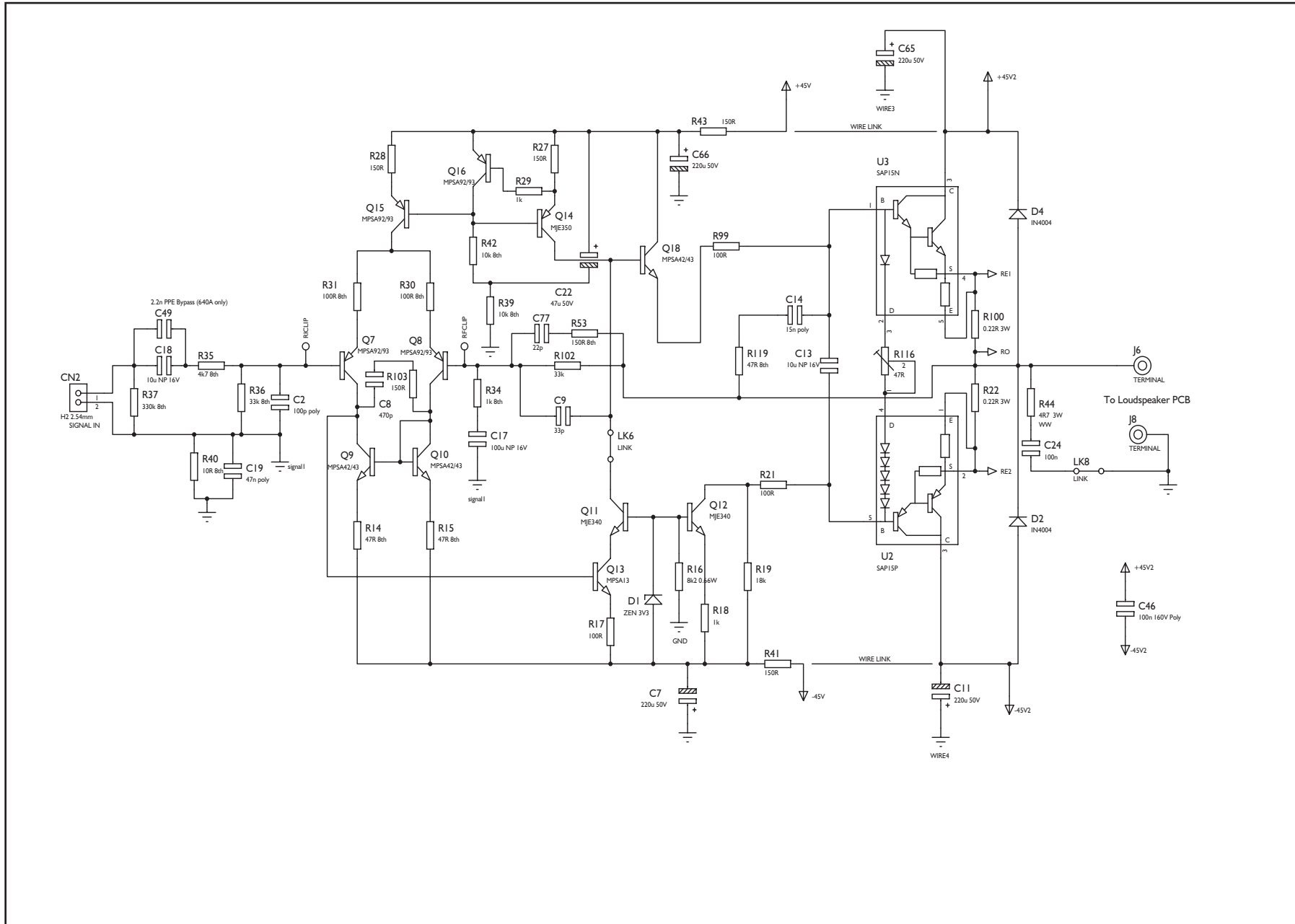
# Cambridge Azur 640A Integrated Amplifier



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## API2707/6 Power Amp Schematic (Protection)

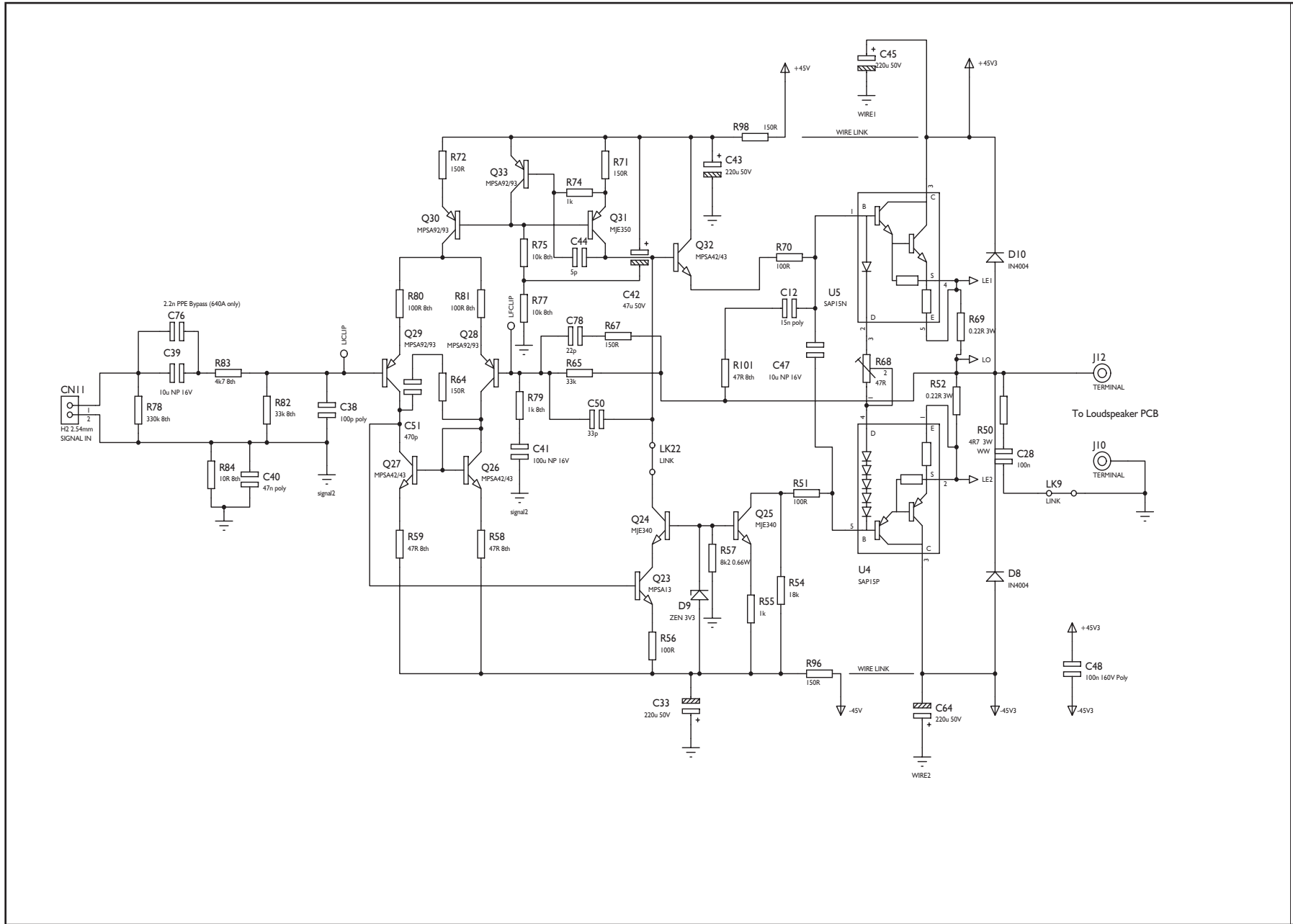
# Cambridge Azur 640A Integrated Amplifier



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## API2707/6 Power Amp Schematic (Left Channel)

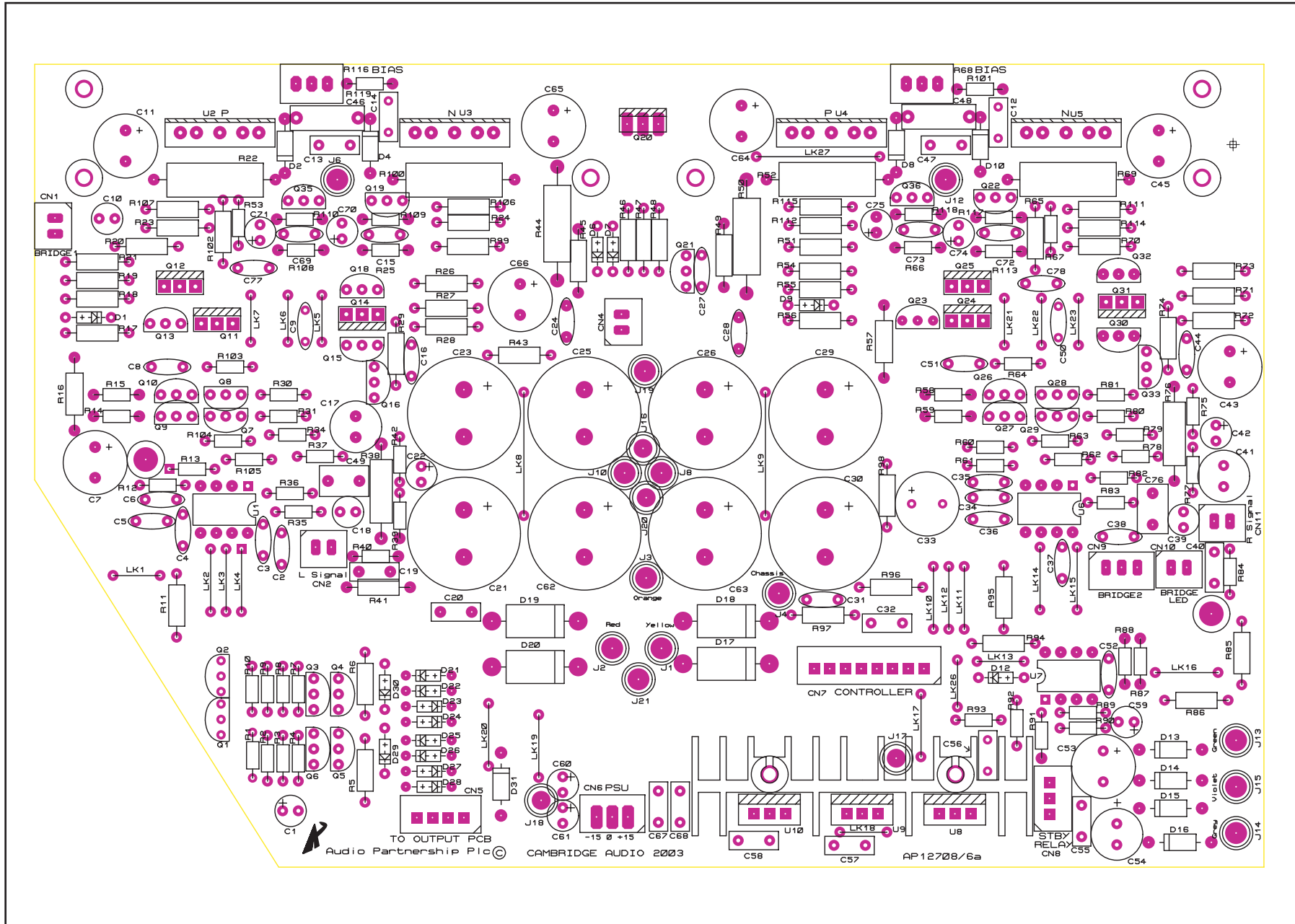
# Cambridge Azur 640A Integrated Amplifier



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## API2707/6 Power Amp Schematic (Right Channel)

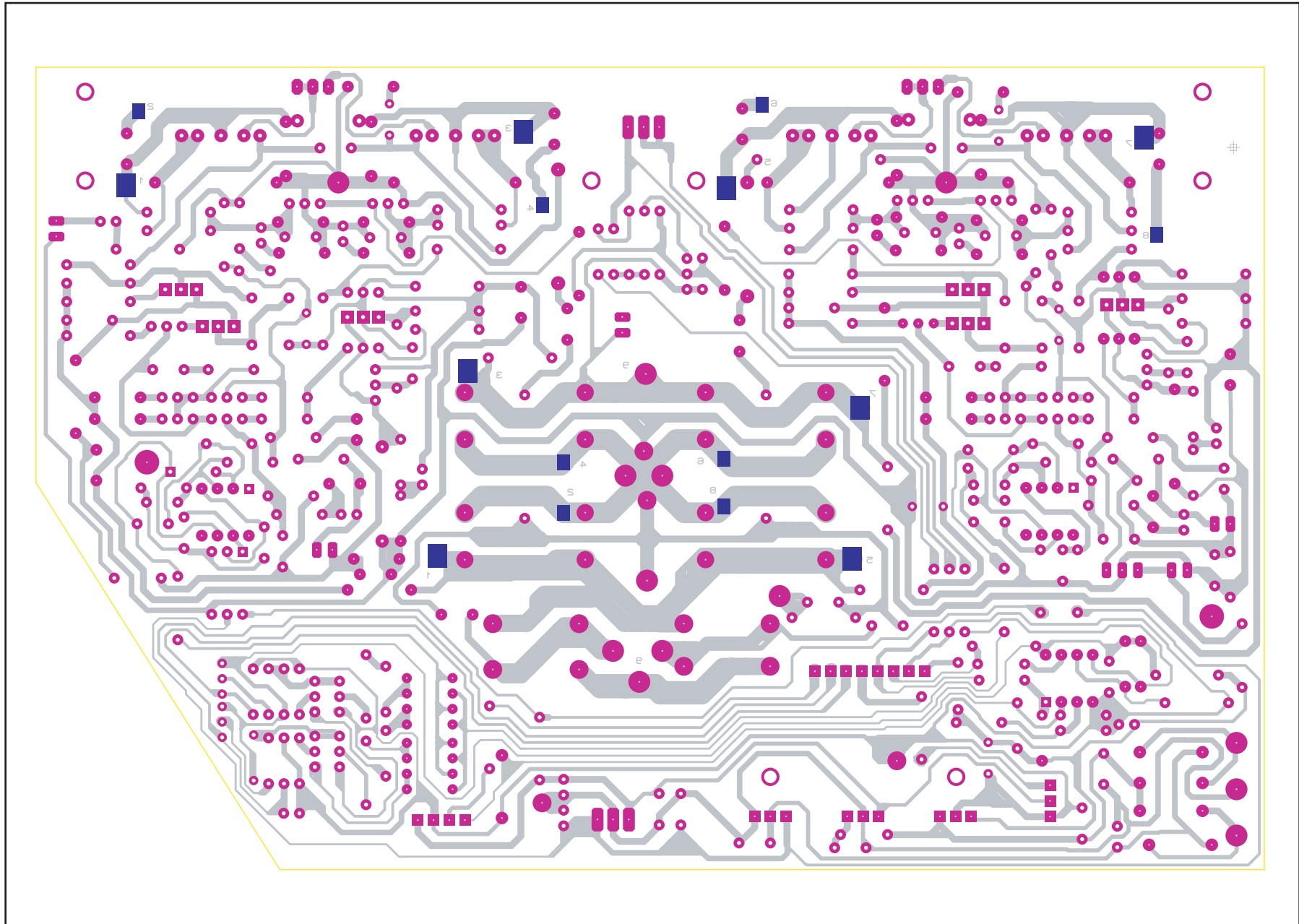
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## API2707/6 Power Amp PCB Layout (Top Side)

# Cambridge Azur 640A Integrated Amplifier



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## API2707/6 Power Amp PCB Layout (Bottom Side)

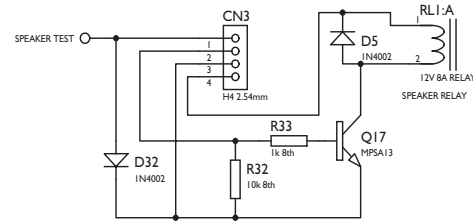
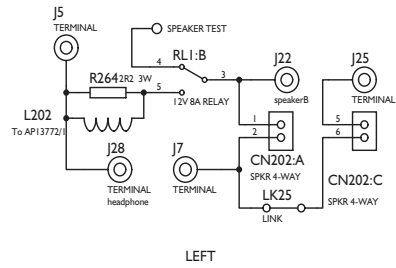
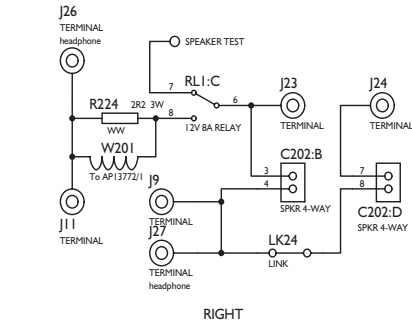
AP PART No.	DRAWING NO	DESCRIPTION	QTY	DESIGNATOR	COMMENTS
		POWER AMP PCB ASSEMBLY	1		FIXES IN THE CORRECT POSITION ONTO THE PLASTIC PCB STANDOFFS AND SUPPORT BRACKET
	API2708/6a	BARE POWER AMP PCB	1		
		0.22R 3W WIREWOUND RESISTOR	4	R22, R52, R69, R100	MUST BE RAISED OFF PCB DUE TO HEAT
		4R7 3W WIREWOUND RESISTOR	2	R44, R50	MUST BE RAISED OFF PCB DUE TO HEAT
		8k2 0.66W CARBON FILM RESISTOR	2	R16, R57	
		10R 0.125W 1% METAL FILM RESISTOR	3	R40, R84, R90	
		47R 0.125W 1% METAL FILM RESISTOR	6	R14, R15, R58, R59, R101, R119	
		100R 0.125W 1% METAL FILM RESISTOR	5	R30, R31, R80, R81, R89	
		150R 0.125W 1% METAL FILM RESISTOR	4	R53, R64, R67, R103	
		470R 0.125W 1% METAL FILM RESISTOR	4	R25, R66, R108, R113	
		820R 0.125W 1% METAL FILM RESISTOR	4	R109, R110, R117, R118	
		1k 0.125W 1% METAL FILM RESISTOR	3	R34, R79, R92	
		4k7 0.125W 1% METAL FILM RESISTOR	7	R4, R7, R35, R46, R83, R87, R91	
		10k 0.125W 1% METAL FILM RESISTOR	11	R1, R2, R3, R8, R9, R10, R39, R42, R75, R77, R93	
		33k 0.125W 1% METAL FILM RESISTOR	2	R36, R82	
		220k 0.125W 1% METAL FILM RESISTOR	4	R62, R63, R104, R105	
		330k 0.125W 1% METAL FILM RESISTOR	2	R37, R78	
		1M 0.125W 1% METAL FILM RESISTOR	4	R12, R13, R60, R61	
		47R 0.5W 10% CERMET VERTICAL PRESET 2.54mm PITCH	2	R68, R116	
		47R 0.25W 1% METAL FILM RESISTOR	1	R97	
		100R 0.25W 1% METAL FILM RESISTOR	8	R11, R17, R21, R51, R56, R70, R95, R99	
		150R 0.25W 1% METAL FILM RESISTOR	8	R27, R28, R41, R43, R71, R72, R96, R98	
		1k 0.25W 1% METAL FILM RESISTOR	5	R18, R29, R55, R74, R86	
		2k2 0.25W 1% METAL FILM RESISTOR	4	R23, R24, R111, R112	
		4k7 0.25W 1% METAL FILM RESISTOR	3	R5, R6, R94	
		11k 0.25W 1% METAL FILM RESISTOR	1	R88	
		18k 0.25W 1% METAL FILM RESISTOR	4	R19, R47, R48, R54	
		33k 0.25W 1% METAL FILM RESISTOR	2	R65, R102	
		47k 0.25W 1% METAL FILM RESISTOR	2	R45, R49	
		100k 0.25W 1% METAL FILM RESISTOR	4	R106, R107, R114, R115	
		5p CERAMIC COG 50/100V 5mm PITCH CAPACITOR	6	C5, C6, C16, C34, C35, C44	
		22p CERAMIC COG 50/100V 5mm PITCH CAPACITOR	2	C77, C78	
		2n2 POLYPROPYLENE VISHAY KPI830 50/100V 5mm PITCH CAPACITOR	2	C49, C76	KPI830-222-255
		33p POLY 50/100V 5mm PITCH CAPACITOR	2	C9, C50	
		100p POLY 50/100V 5mm PITCH CAPACITOR	2	C2, C38	
		220p CERAMIC 50/100V 5mm PITCH CAPACITOR	4	C15, C69, C72, C73	
		470p CERAMIC 50/100V COG 5mm PITCH CAPACITOR	2	C8, C51	

AP PART No.	DRAWING NO	DESCRIPTION	QTY	DESIGNATOR	COMMENTS
		4.7n CERAMIC 50/100V 5mm PITCH CAPACITOR	1	C27	
		15n POLY 50/100V 5mm PITCH CAPACITOR	2	C12, C14	
		47n POLY 50/100V 5mm PITCH CAPACITOR	10	C19, C20, C32, C40, C55, C56, C57, C58, C67, C68	
		100n CERAMIC 50/100V 5mm PITCH CAPACITOR	10	C3, C4, C24, C28, C31, C36, C37, C46, C48, C52	
		10u 35V NON POLAR ELECTROLYTIC CAPACITOR	4	C13, C18, C39, C47	
		100u 16V NON POLAR ELECTROLYTIC CAPACITOR	2	C17, C41	
		1u 16V ELECTROLYTIC CAPACITOR	1	C1	
		47u 16V ELECTROLYTIC CAPACITOR	1	C59	
		47u 50V ELECTROLYTIC CAPACITOR	2	C22, C42	
		100u 16V ELECTROLYTIC CAPACITOR	2	C60, C61	
		100u 35V ELECTROLYTIC CAPACITOR	1	C54	
		220u 16V ELECTROLYTIC CAPACITOR	4	C70, C71, C74, C75	
		220u 50V ELECTROLYTIC CAPACITOR	8	C7, C11, C33, C43, C45, C64, C65, C66	
		470u 35V ELECTROLYTIC CAPACITOR	1	C53	
		2200u 50V ELECTROLYTIC CAPACITOR	8	C21, C23, C25, C26, C29, C30, C62, C63	
PD077		NE5534 SINGLE OP AMP	2	U1, U6	
PY010		SAP15NO POWER TRANSISTOR	2	U3, U5	
PY016		SAP15PO POWER TRANSISTOR	2	U2, U4	
PY539		LM393 DUAL COMPARATOR	1	U7	
		7805 5V REGULATOR	1	U8	
		7815 15V REGULATOR	1	U9	
		7915 -15V REGULATOR	1	U10	
PY219		BC327 PNP TRANSISTOR	2	Q1, Q2	
PY214		BC337 NPN TRANSISTOR	4	Q3, Q4, Q5, Q6	
PY021		MPAS92/93 PNP TRANSISTOR	9	Q7, Q8, Q15, Q16, Q21, Q28, Q29, Q30, Q33	
PY013		MPAS42/43 NPN TRANSISTOR	10	Q9, Q10, Q18, Q19, Q22, Q26, Q27, Q32, Q35, Q36	
PY012		MJE340 NPN TRANSISTOR	5	Q11, Q12, Q20, Q24, Q25	
PY018		MJE350 PNP TRANSISTOR	2	Q14, Q31	
PY536		MPSA13 DARLINGTON NPN TRANSISTOR	2	Q13, Q23	
		1N4004 RECTIFIER DIODE	10	D2, D4, D8, D10, D13, D14, D15, D16, D31, D32	
		1N5402 RECTIFIER DIODE	4	D17, D18, D19, D20	MUST BE RAISED OFF PCB DUE TO HEAT
		1N4148 SIGNAL DIODE	10	D6, D12, D21, D22, D23, D24, D25, D26, D27, D28	
		3V3 400mW ZENER DIODE	2	D1, D9	
		4V7 400mW ZENER DIODE	1	D7	
		10V 400mW ZENER DIODE	2	D29, D30	
		2 WAY JST CONNECTOR 2.54mm PITCH	3	CN2, CN4, CN11	
		3 WAY JST CONNECTOR 2.54mm PITCH	2	CN6, CN8	
		4 WAY JST CONNECTOR 2.54mm PITCH	1	CN5	
		8 WAY JST CONNECTOR 2.54mm PITCH	1	CN7	

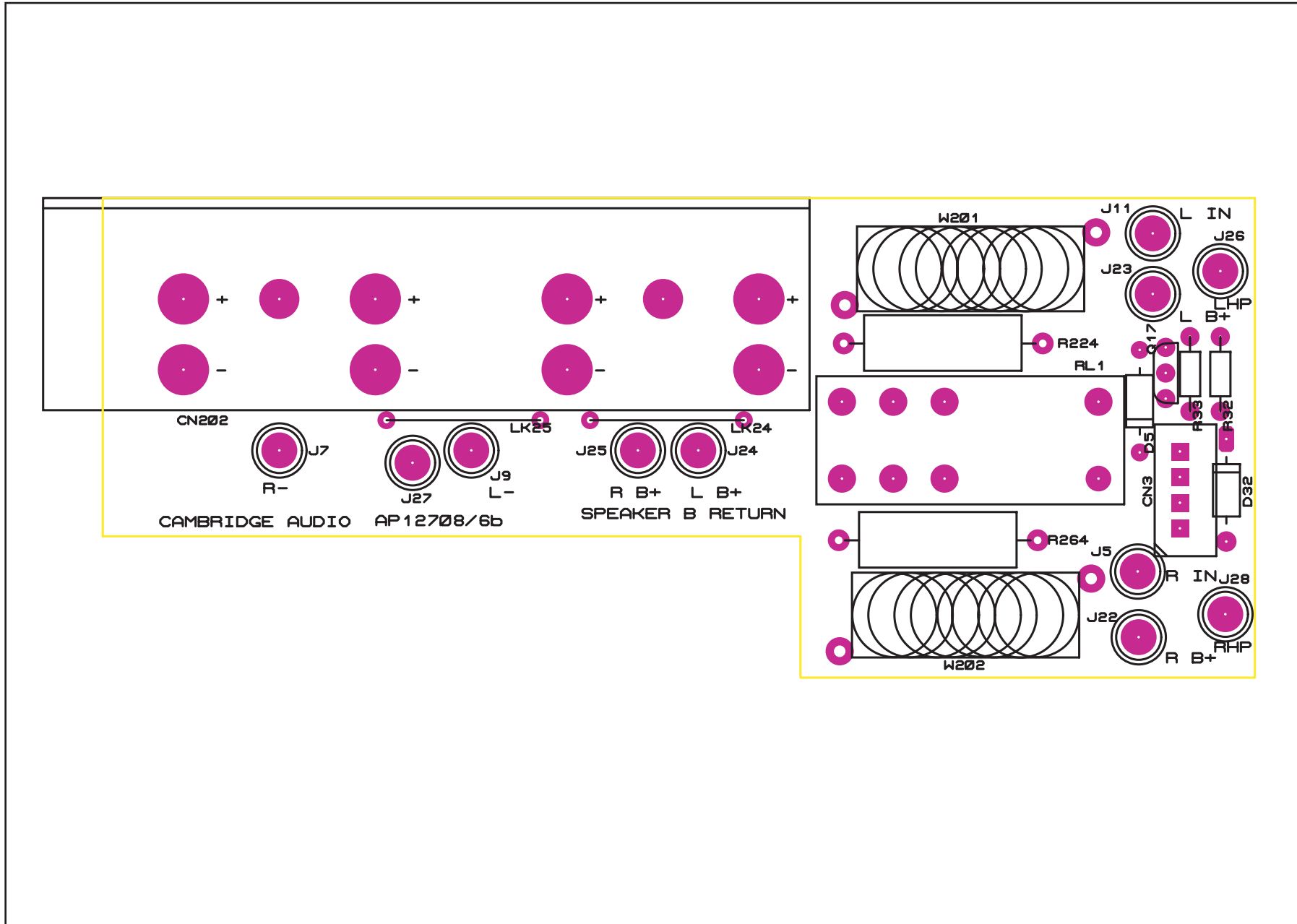


AP PART No.	DRAWING NO	DESCRIPTION	QTY	DESIGNATOR	COMMENTS
		LINK WIRE 24SWG 20mm LONG	19	LK2, LK3, LK4, LK6, LK8, LK9, LK10, LK11, LK12, LK13, LK14, LK15, LK16, LK17, LK18, LK19, LK20, LK22, LK26	
	API03492	HEATSINK AND PCB SUPPORT BRACKET	4		FIT TO POWER AMP PCB
	API0417/3	SHELF HEATSINK ASSEMBLY	2		FIT TO POWER AMP PCB
		M3 X 8 POZI PAN MACHINE SCREW BLACK	12		USED TO AFFIX AMP BOARD AND SHELF HEATSINK ASSEMBLY TOGETHER
		M3 X 12 POZI PAN MACHINE SCREW BLACK	6		4X USED TO FIX OUTPUT TRANSISTORS TO HEATSINK, 2X USED TO FIT API2932/1 HEAT SENSOR BRACKET TO HEATSINK ASSEMBLY
		MICA THERMAL PAD	4		POSITION IN BETWEEN OUTPUT TRANSISTORS AND SHELF HEATSINK ASSEMBLY WITH APPROPRIATE HEATSINK COMPOUND
		M3 LOCK WASHER	4		USED FOR FIXING M3X12 OUTPUT TRANSISTOR FIXING SCREWS
		M3 NUT BLACK	4		USED FOR FIXING M3X12 OUTPUT TRANSISTOR FIXING SCREWS
	API2932/1	CAMBRIDGE AUDIO NEW RANGE AMP HEAT SENSOR BRACKET	1		POSITON IN PLACE ON THE SHELF HEATSINK ASSEMBLY
	API3580/1	CAMBRIDGE AUDIO AZUR 640 AMP HEATSSENSOR INSULATION TOP SHEET	1		TO INSULATE API2932/1HEAT SENSOR BRACKET FROM Q20, AND FROM HEATSINK ASSEMBLY. APPLY HEATSINK COMPOUND.
	API3581/1	CAMBRIDGE AUDIO AZUR 640 AMP HEATSSENSOR INSULATION BOTTOM SHEET			TO INSULATE API2932/1HEAT SENSOR BRACKET FROM Q20, AND FROM HEATSINK ASSEMBLY. APPLY HEATSINK COMPOUND.
		M3 X 5 POZI PAN MACHINE SCREW BLACK	1		USED TO FIX TRANSISTOR Q20 ON AMP PCB TO HEAT SENSOR BRACKET, MUST BE TIGHT TO GET Q20 TO RESPOND TO HEATSINK TEMNPERATURE EFFECTIVELY
	API2106/1	3 WAY TO220 HEATSINK	1	(U8, U9, U10)	U8 MUST NOT USE AN INSULATION KIT ALTHOUGH IT MUST STILL USE HEATSINK COMPOUND TO INSURE ADEQUATE HEAT TRANSFER
		TO220 INSULATING KIT	2	U9 AND U10 ONLY	
		M3 X 6 TAPTITE POZI PAN MACHINE SCREW	5		2X FIT HEATSINK TO PCB, 3X FIT U8, U9, U10 TO HEATSINK
	API3387/2	A600 MAINS PCB TO AMP PCB LOOM	1		TO BE FITTED TO POWER AMP PCB BEFORE FITTING IT TO CHASSIS
	API3390/1	A600 AMP PCB TO SPEAKER TERMINAL PCB LOOM	1		TO BE FITTED TO POWER AMP PCB BEFORE FITTING IT TO CHASSIS
	API3399/3	A600 AMP PCB UNDERSIDE LINKS	1		TO BE FITTED TO UNDERSIDE OF AMP PCB BEFORE FITTING IT TO CHASSIS

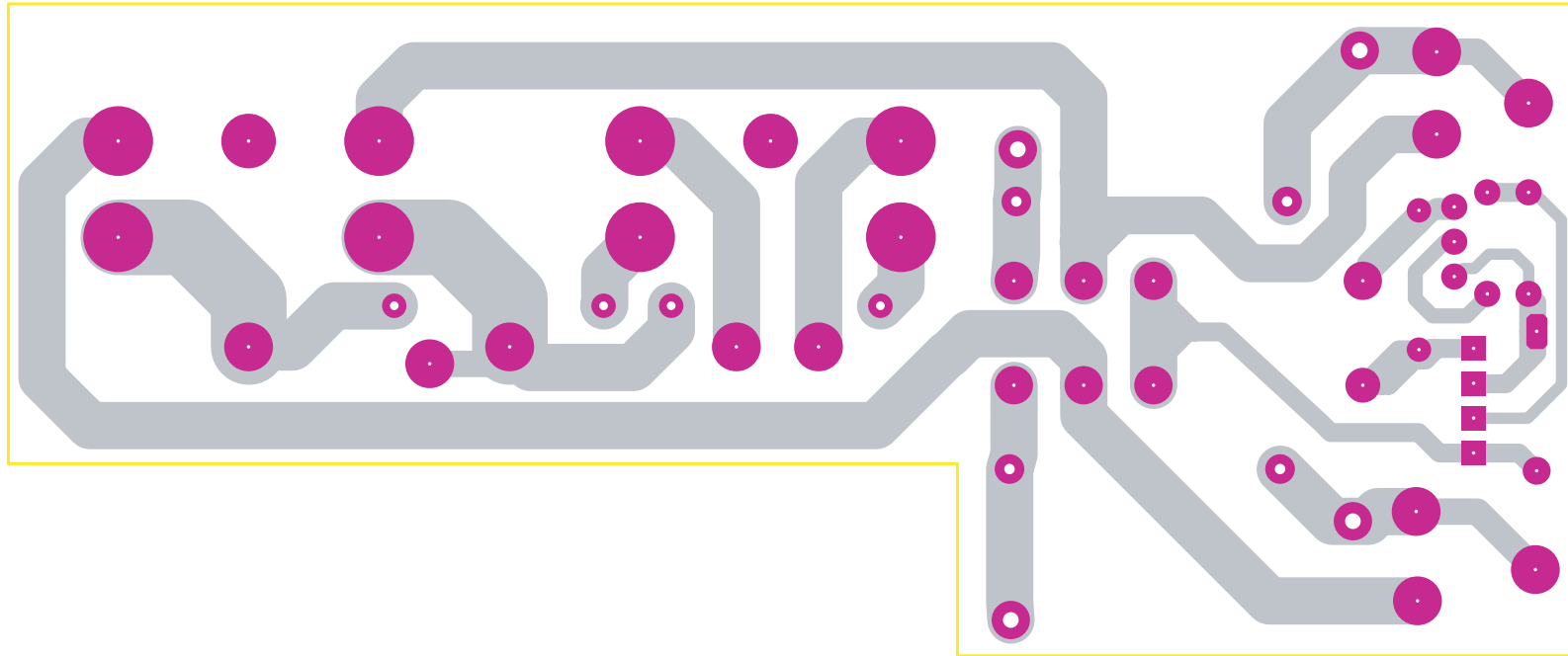
# Cambridge Azur 640A Integrated Amplifier



# Cambridge Azur 640A Integrated Amplifier



# Cambridge Azur 640A Integrated Amplifier



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## API 2707/6 Speaker Output PCB Layout (Bottom Side)

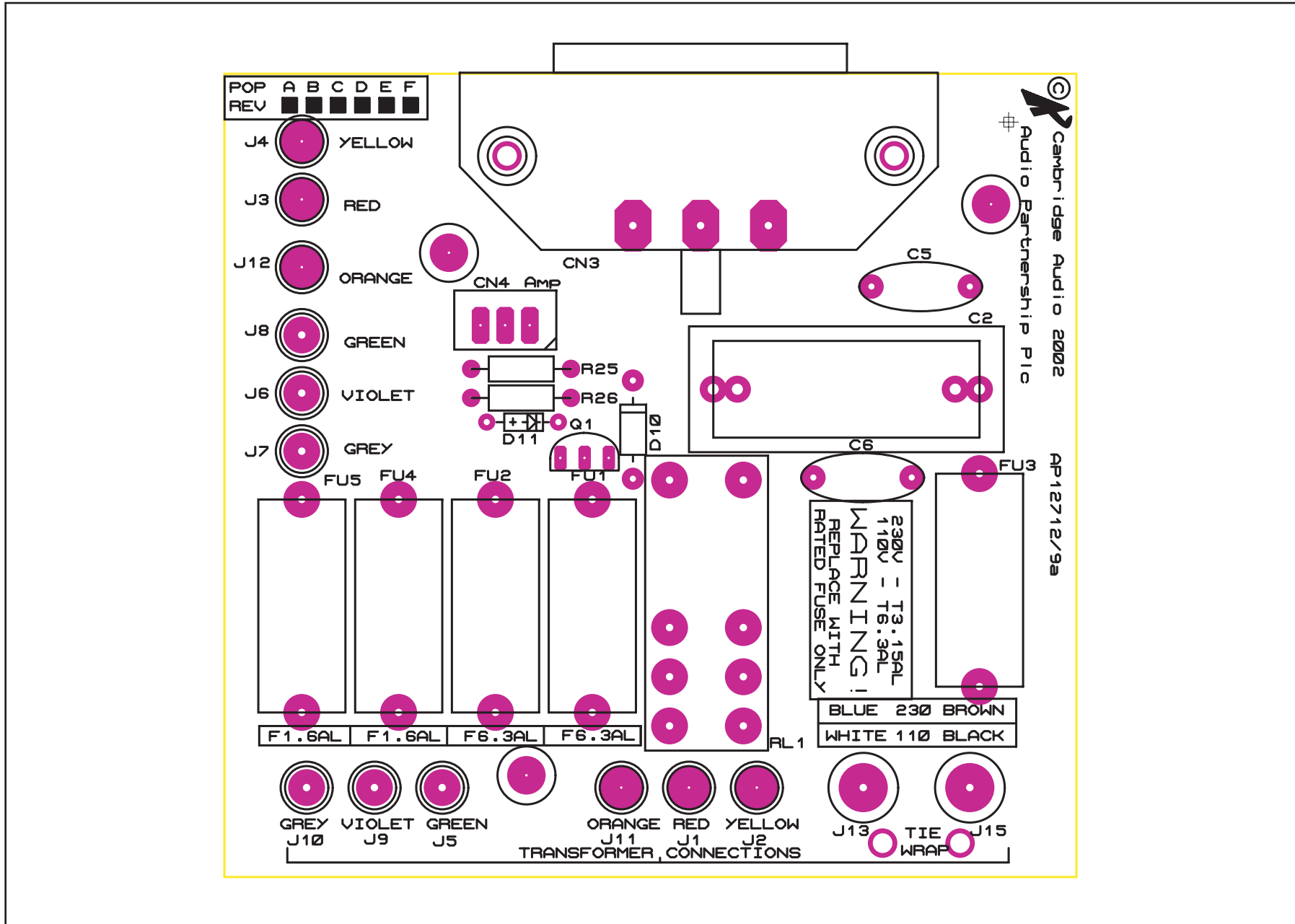
## Cambridge Azur Speaker Output PCB BOM

API31336

AP PART No.	DRAWING NO	DESCRIPTION	QTY	DESIGNATOR	COMMENTS
		SPEAKER TERMINAL OUTPUT PCB ASSEMBLY	1		POSITION ON REAR PANEL
	API2708/6b	BARE SPEAKER TERMINAL PCB			
		2R2 3W WIREWOUND RESISTOR	2	R224, R264	
		1k 0.125W 1% METAL FILM RESISTOR	1	R33	
		10k 0.125W 1% METAL FILM RESISTOR	1	R32	
PY536		MPSA13 DARLINGTON NPN TRANSISTOR	1	Q17	
		1N4004 RECTIFIER DIODE	1	D5	
		4 WAY JST CONNECTOR 2.54mm PITCH	1	CN3	
		LINK WIRE 24SWG 20mm LONG	2	LK24, LK25	
PY594		12V 8A CONTACTS RELAY	1	RL1	FORWARD FRM10N 2C2S 12V 8A USD0.61/10K --OR-- TYH HG4509 12V 8A USD0.66/5K
		25TURN 19AWG OUTPUT INDUCTOR	2	W201, W202	AS PER DRAWING: API3772/1
		ZUANBAO WP8-21A 8 WAY SPEAKER SOCKET	1	CN202	FITS UPSIDE DOWN SO BLACK AND RED PEG COLOURS SHOULD BE INVERTED



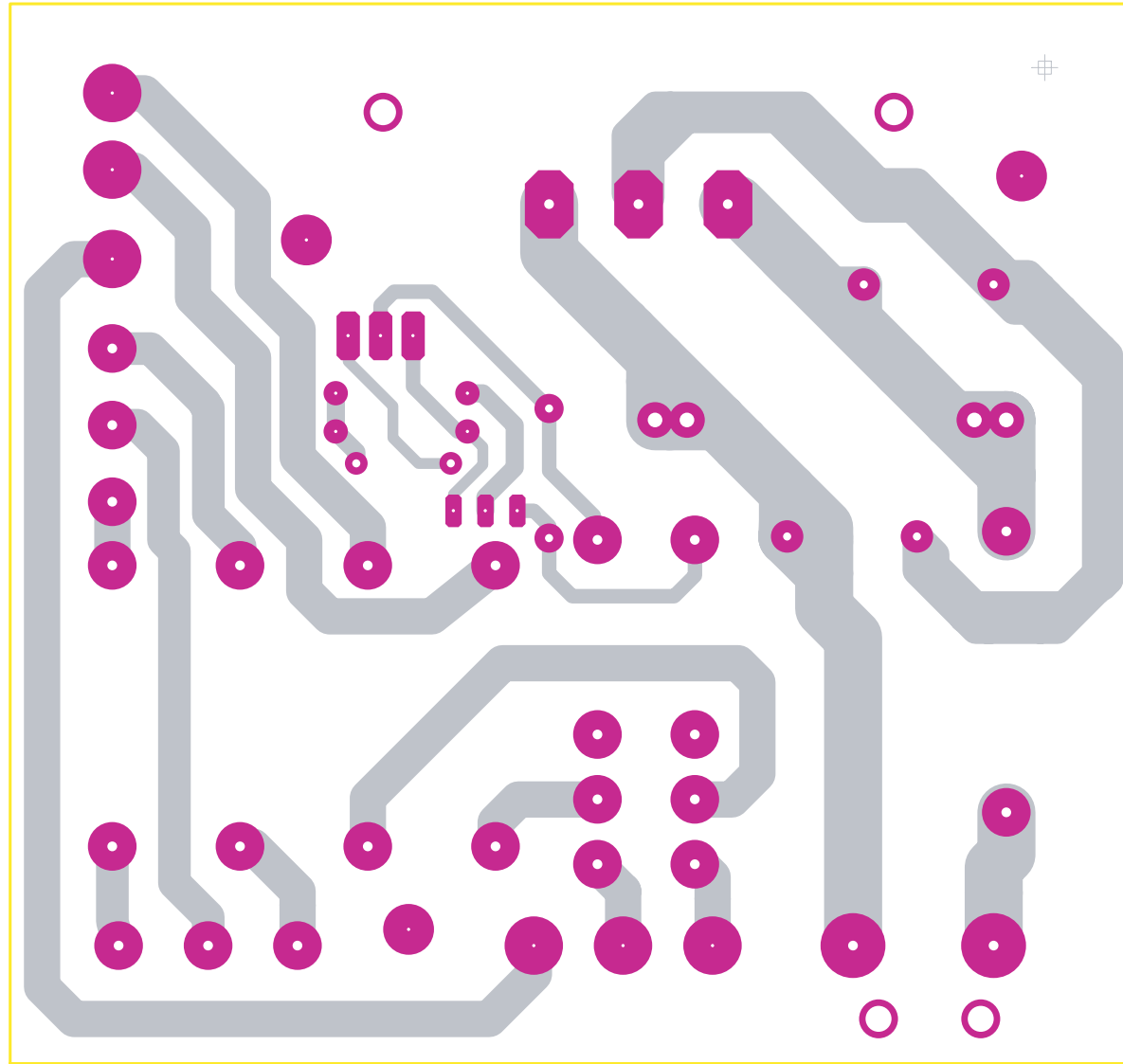
# Cambridge Azur 640A Integrated Amplifier



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**AP12711/9 Mains Input PCB Layout (Top Side)**

# Cambridge Azur 640A Integrated Amplifier



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**API2711/9 Mains Input PCB Layout (Bottom Side)**



**Cambridge Azur Mains Input PCB BOM**
**API31336**

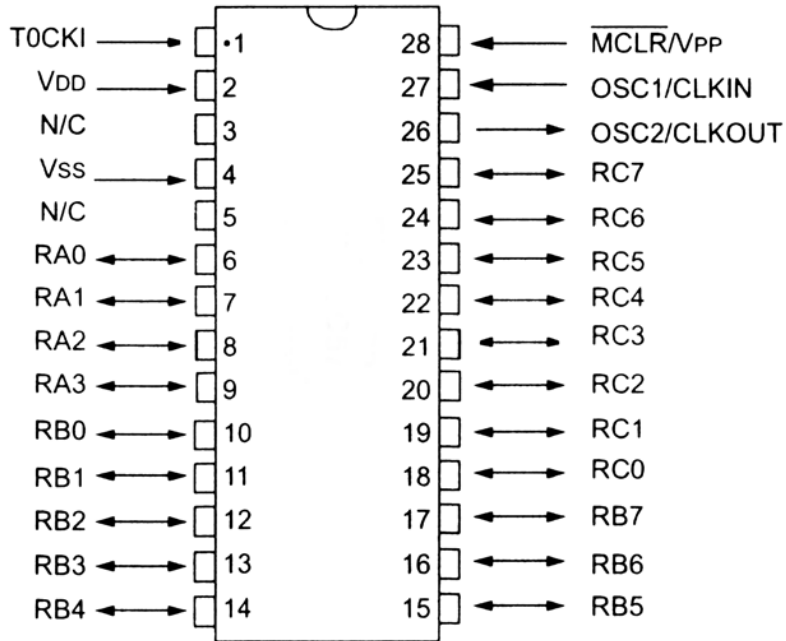
AP PART No.	DRAWING NO	DESCRIPTION	QTY	DESIGNATOR	COMMENTS
		MAINS INPUT PCB ASSEMBLY	1		FIXES IN THE CORRECT POSITION ONTO THE PLASTIC PCB STANDOFFS
	API2712/8a	BARE MAINS INPUT PCB	1		
		X2 680N SUPPRESSION	1	C2	
		1k 0.25W 1% METAL FILM RESISTOR	1	R25	
		10k 0.25W 1% METAL FILM RESISTOR	1	R26	
		10n CERAMIC X1 Y2 MAINS RATED CAPACITOR	2	C5, C6	
PY536		MPSA13 NPN DARLINGTON TRANSISTOR	1	Q1	
		3V9 400mW ZENER DIODE	1	D11	
		1N4004 RECTIFIER DIODE	1	D10	
		METAL MAINS TERMINAL EYELETS	2	J13, J15	AS PER PCB API1012/3
		3 WAY JST CONNECTOR 2.54mm PITCH	1	CN4	
		IEC MAINS SOCKET PCI287	1	CN3	FIRST TECH AS PER D500 SE CD PLAYER
		FUSE HOLDERS WITH SAFETY COVERS	5	FU1, FU2, FU3, FU4, FU5	
PY596		FUSE F1.6AL	2	FU4, FU5	
PY361		FUSE F6.3AL	2	FU1, FU2	
PY595		FUSE T3.15AL	1	FU3	
PY594		12V 8A CONTACTS RELAY	1	RL1	FORWARD FRM10N 2C2S 12V 8A USD0.61/10K --OR-- TYH HG4509 12V 8A USD0.66/5K
		M3 X 8 POZI PAN MACHINE SCREW	2		TO FIX IEC SOCKET TO MAINS PCB
		M3 LOCKWASHERS	2		TO FIX IEC SOCKET TO MAINS PCB
		M3 NUT	2		TO FIX IEC SOCKET TO MAINS PCB
	API3895/1	INSULATING SHEET	1		TO FIT UNDER PCB

# Cambridge Audio Azur 640A/540A Amplifier IC

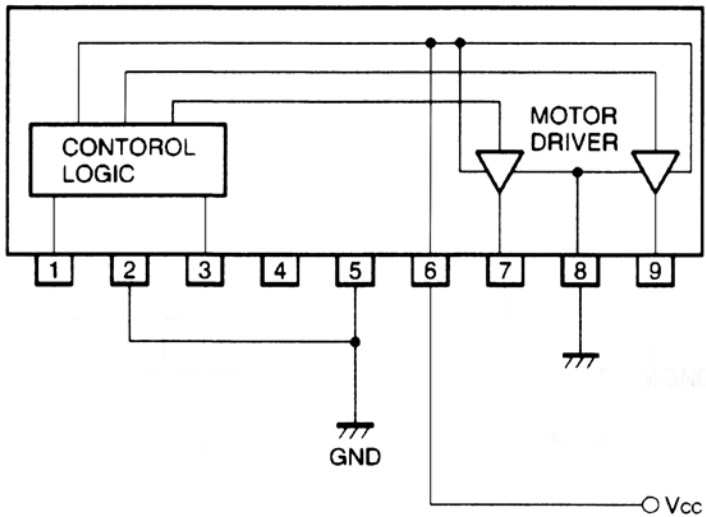
## Pin Layouts

### Control PCB

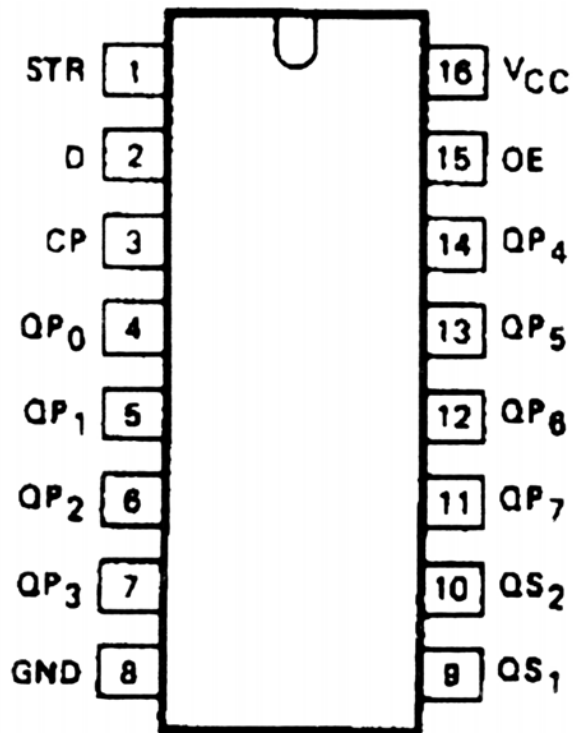
#### PIC16C57C (U5)



#### BA6218 (U6)

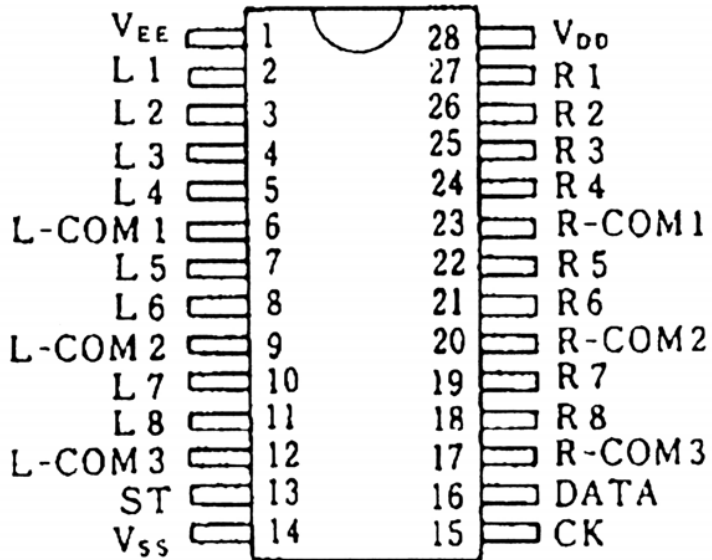


74HC4094 (U7)

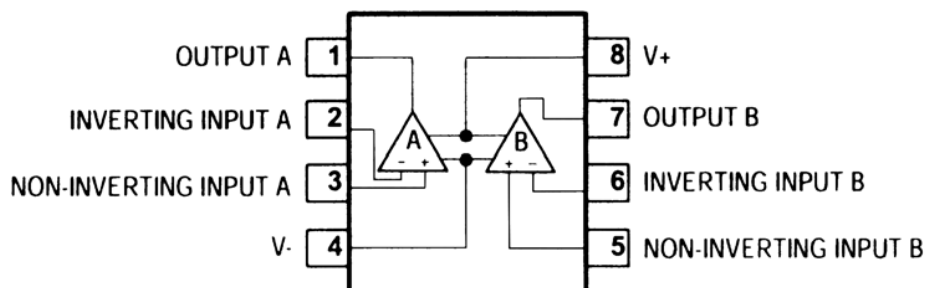


## Input PCB

### NJU7313 (U1)

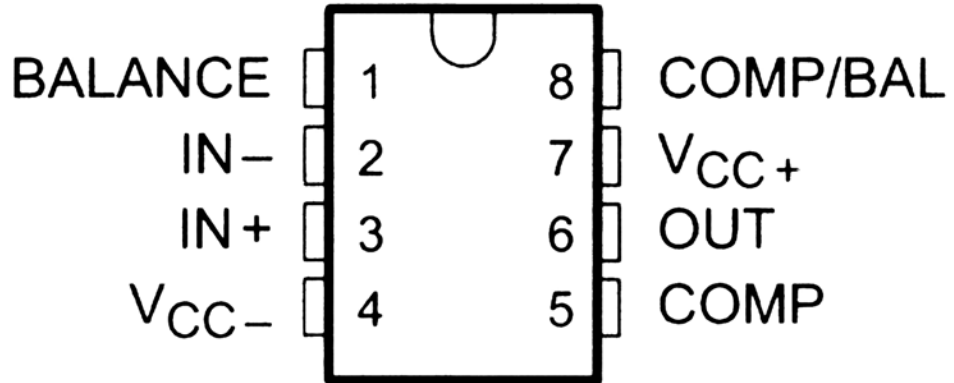


### NE5532 (U2,U3,U4,U5 & U6)

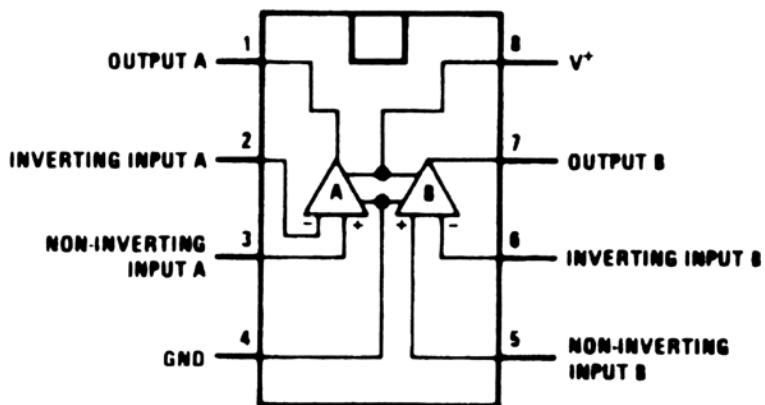


## Power PCB

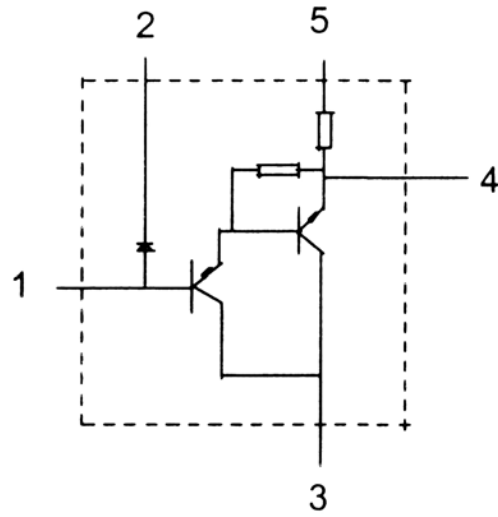
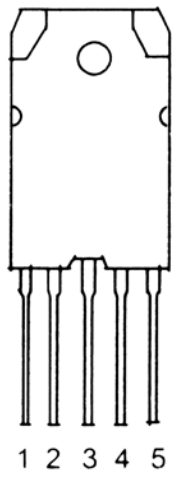
NE5534 (U1 & U6)



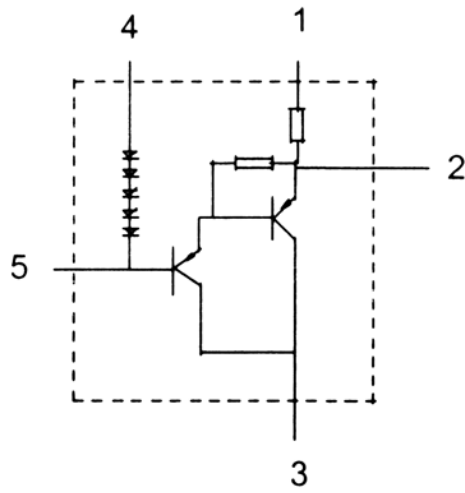
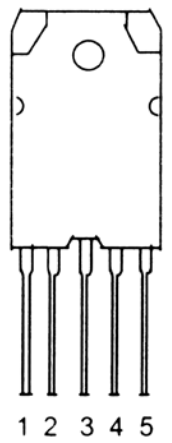
LM393 (U7)



**SAP15NO (U3 & U5)**



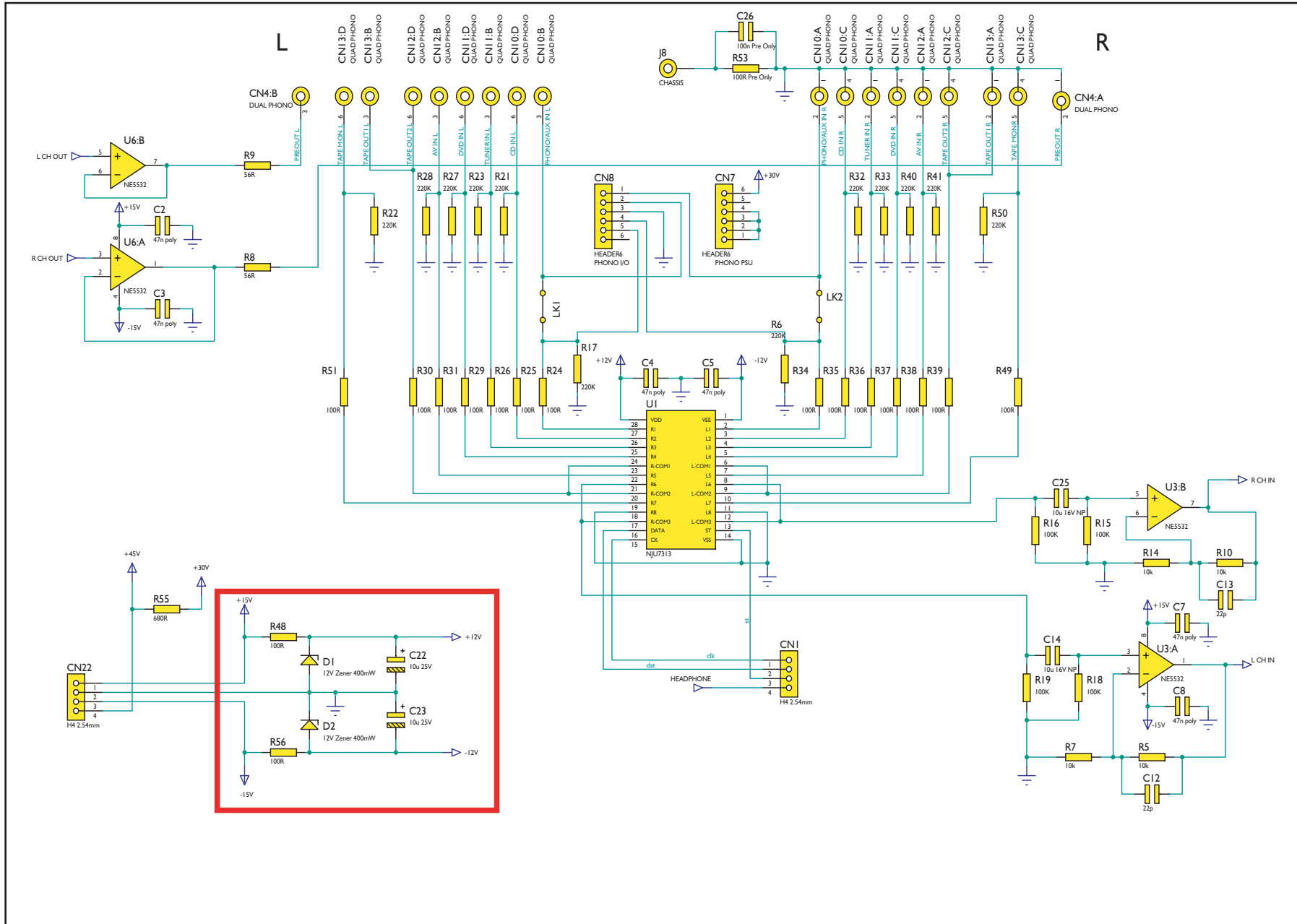
**SAP15PO (U2 & U4)**



**Cambridge Azur 640A Amplifier (Silver-Black Difference BOM)****API3133/6**

<b>AP PART No.</b>	<b>DRAWING NO</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>COMMENTS</b>
		CARTON LABEL (MODEL NO.) UK BLACK	1	FOR BOX
PY593		CAMBRIDGE SELECTOR KNOB MK3	3	
PY591		CAMBRIDGE NEW RANGE AMP VOLUME KNOB	1	
PY575		CAMBRIDGE NEW RANGE AMP FRONT PANEL (PUNCHED AND PRINTED)	1	SCREENED WITH ARTWORK API 3679/2
		OPUS CONTROL BOX BUTTON	1	POSITION IN PLACE ON THE FRONT PANEL
		CAMBRIDGE NEW RANGE AMP 7mm TAC SWITCH BUTTON	6	POSITION IN PLACE ON THE FRONT PANEL
		CAMBRIDGE NEW RANGE AMP 7mm PUSH SWITCH BUTTON	2	POSITION IN PLACE ON THE FRONT PANEL
PY531		CAMBRIDGE NEW RANGE FOOT MOULDING	4	POSITION IN PLACE ON BOTTOM PANEL
PY532		CAMBRIDGE AUDIO NEW RANGE TOP PANEL WITH VENTS	1	POSITION ON TOP OF THE PRODUCT
PY515		M2.6 x 8 MC Torx Recessed Black	8	TOP PANEL SCREWS

# Cambridge Azur 640A Amplifier

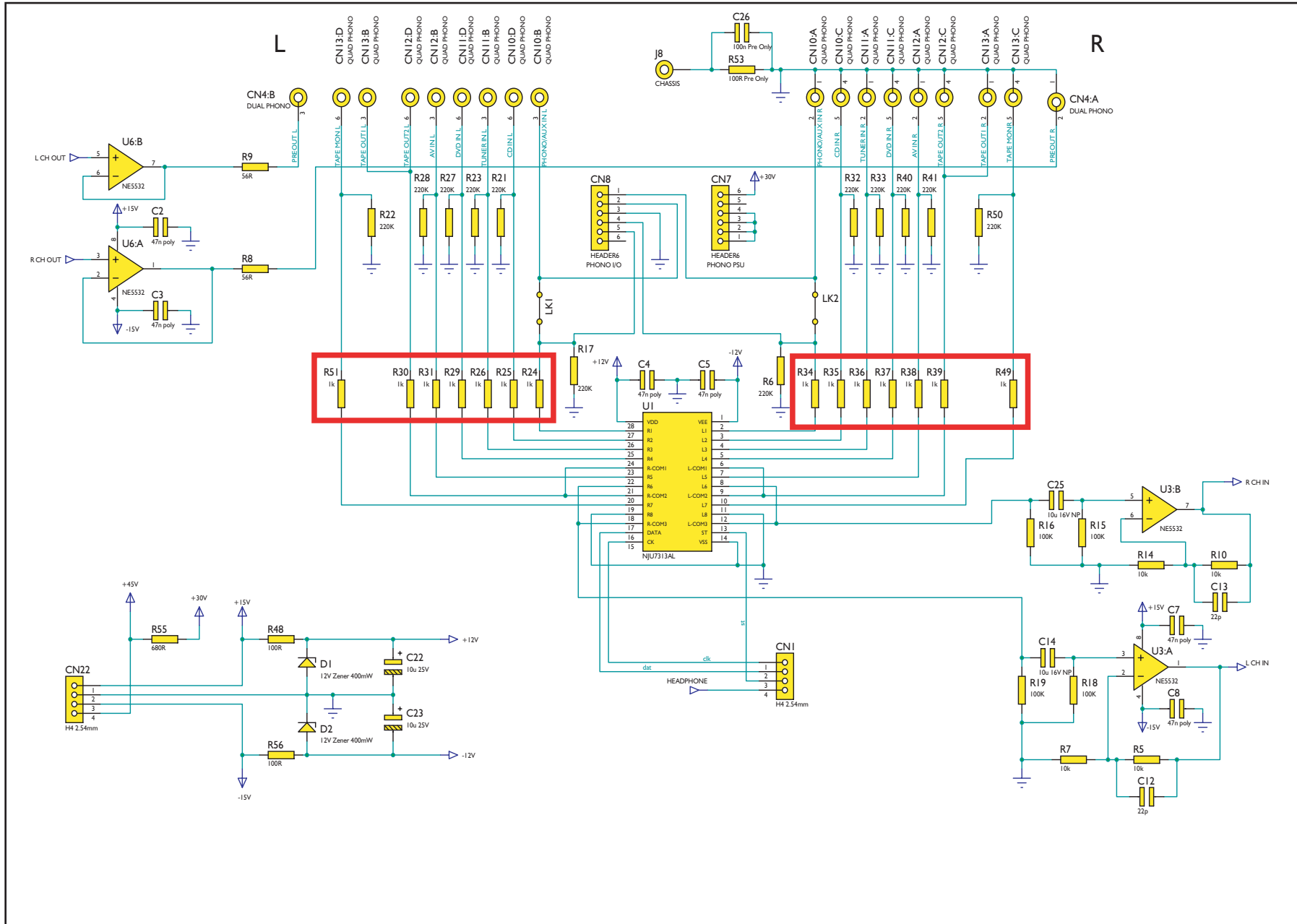


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## API2714/6 Input Select PCB Schematic



# Cambridge Azur 640A Amplifier



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## API2714/7 Input Select PCB Schematic