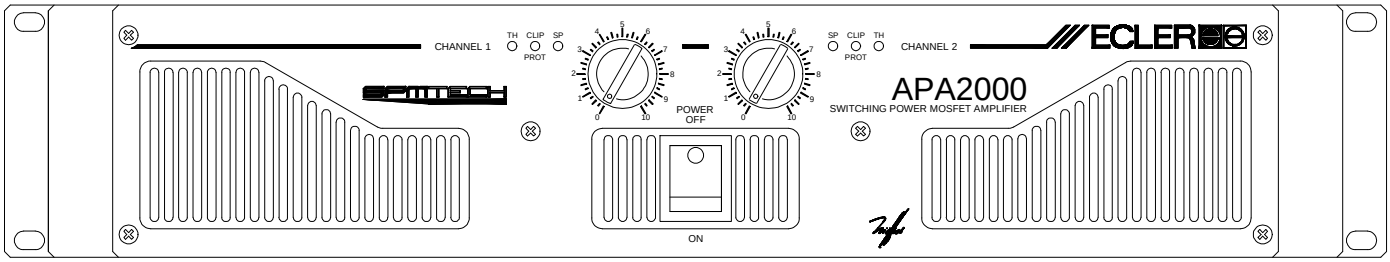
APA2000

SERVICE MANUAL



ECLER

AUDIO CREATIVE POWER

SERVICE MANUAL APA2000

INDEX

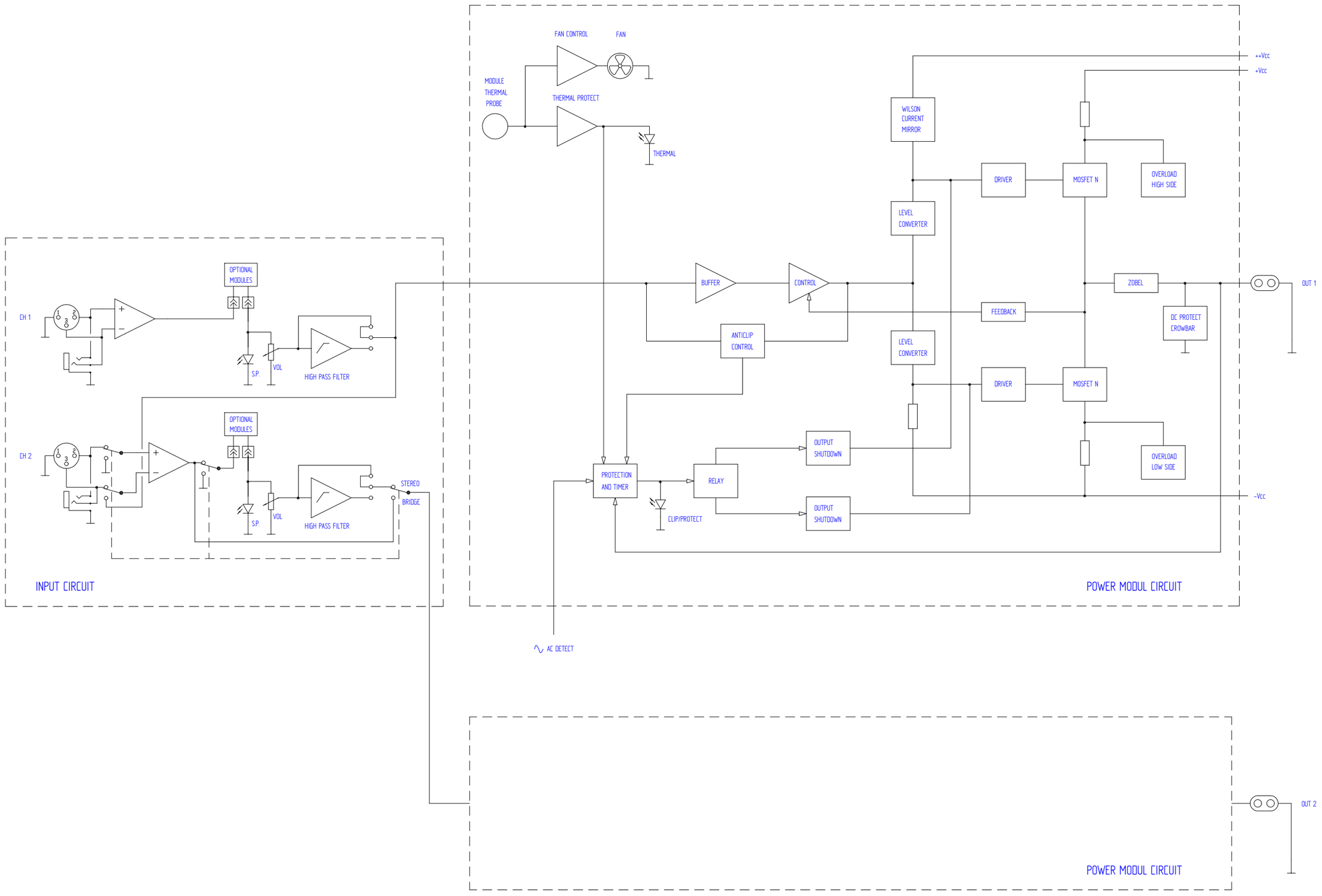
- BLOCK DIAGRAM
- FUNCTIONING DESCRIPTION
- SCHEMATICS

    Power Amplifier circuit
    Inputs circuit Soft-Start Power Supply circuit
    Potentiometers and leds circuit

- COMPONENTS LOCATION SCHEMA AND PARTS LIST

    Power Amplifier circuit
    Inputs circuit Soft-Start Power Supply circuit
    Potentiometers and leds circuit

- TESTING AND QUALITY CONTROL
- TECHNICAL CHARACTERISTICS
- WIRING DIAGRAM
- MECHANICAL DIAGRAM
- PACKING DIAGRAM



ECLEREE	drawn: Joan Queralt	date: 020423	project: EP08-00	product: APA2000
number: 100536 version 01.00	approved:	title: BLOCK DIAGRAM		

Due to the high power level required on the output load, the amplifier final stage's structure differs from the design used until now. This is due to the breakdown voltage limit on P-channel MosFET's, witch is 200V. This final stage is formed by several-shunted MosFET's, where those of the positive branch are common-drain configured, and the negative branch is mounted in common-source configuration.

The system's controlling device is a NE5534-type operational amplifier, witch is internally compensated in order to obtain gain levels equal or higher than three. The amplifier's feedback is given by a resistor and a capacitor associated to the operational amplifier's non-inverting input.

Transistors BF587 and BF588 are common-base configured, forming a current supply structure. This specific transistor type is used because of the higher Vce voltage level required by this design. They perform simultaneously two functions: they polarize the MosFET's gate-source junctions, keeping them on the conducting edge, and they transfer the OpAmp's output voltage variations referred to signal ground.

The signal variations normally reflected by Q103 and referred to the positive power supply, are now needed to be floating variations, and referred to the outputs. This function is done by Q105-106 (BF588), witch are mounted forming a Wilson-type mirror current supply. This mirror current supply transfers all of the current variations detected while descending through Q105's collector, to similar variations on Q106's collector also downward current. Resistors R124 and R132 are used to balance the current mirror, in order to avoid the use of transistors with forcibly the same beta value. C116 and C119 suppress their resistance when high frequency signal is processed. Diodes D107 and D108 avoid the transistors to get saturated, and R128 eliminates the loads on BF588's bases (Baker Circuit).

The system requires about 12Vdc additional voltage upon the usual Vcc level, this allows a correct saturation and a symmetric clipping at the higher MosFET's.

The correct polarization current value is adjusted by a 4K7 potentiometer connected to the BF transistor's emitter. This adds an additional current to the current source output on the BF transistor's loading resistors.

In order to maintain the appropriate stand-by current level against varying temperature conditions, BD437-type transistors are used. As they have a particular temperature-depending base-emitter voltage curve, this voltage is used to keep a correct voltage reference for the current supply. As the temperature rises, the reference voltage level decreases, the gate-source voltage also decreases and, finally, the bias current also decreases.

Transistors Q107 and Q108, and their corresponding twins at the lower branch, form a current-buffering circuit witch allows a fast charge and discharge of the power MosFET's gates.

The Zobel circuit, a resistance-capacitance-inductance formed network associated to the amplifier's output, tries to keep the amplifier's output load impedance constant no matter witch load value is connected to the output, or witch frequency is processed, in order to avoid phase shifts on the feedback signal.

To avoid the presence of DC voltage on the output, a diac-triac based system is used, witch shorts the output to signal ground in case the DC level reaches the diac's triggering value. To avoid this to happen when processing correct signal (sine waveform, music...), the diac obtains its reference level from a filtering network formed by a 100K resistor and a 1µF capacitor.

The protections circuitry overhauls the MosFET's power consumption. Basically, this circuitry consists of two important sections: MosFET's Id current monitoring, and MosFET's Vds value detection.

When the MosFET's Id level rises above a certain level, transistor Q115 (controlling transistor) conducts and decreases the BF transistor's loading resistance, thus reducing also their gate-source voltage and, finally, lowering the Id current value. This system is helped by a delayed performance, due to the associated circuitry to Q117 and C140. This capacitor starts to charge when a current level above the allowed value is detected, and the protection starts. The greater is the capacitor's charge level, the higher is also the voltage applied to Q115 controlling transistor's base, increasing its conduction and, consequently, reducing the gate-source voltage and thus the Id current value. This system uses a feedback network. The delay used is necessary to avoid clipping the processed signal's dynamic range, witch should result in the typical clipping noise. In the negative branch, the protection circuitry is associated to control transistor Q116.

STANDBY CIRCUITRY.

This circuit maintains the Output shutdown relay closed for about 10 seconds, and thus annulated any current through the MosFET's during this period, just until the whole system's power supply voltage reaches its stable level. By this system, we avoid to hear through the loudspeakers any possible annoying noise proceeding from the system's start-up. This delay time is achieved by using a RC cell, where R194 = 287K and C152 = 47µF/50V. As this cell charges, its voltage increases until reaching the 40106-type Schmidt trigger (IC107) switching value; at this point, the relay opens and the amplifier starts to function normally.

The discharge or reset of capacitor C152 = 47µF can be done by cutting off the power supply, or by triggering the Thermal or other protections. During a short period of time, BC817-type transistor Q122 acts like a switch, shunting two 750 ohm resistors to C152.

Moreover, the amplifier includes some other additional features, like:

- Volume control by a VCA system.
- An ANTICLIP system.
- A Temperature control system.

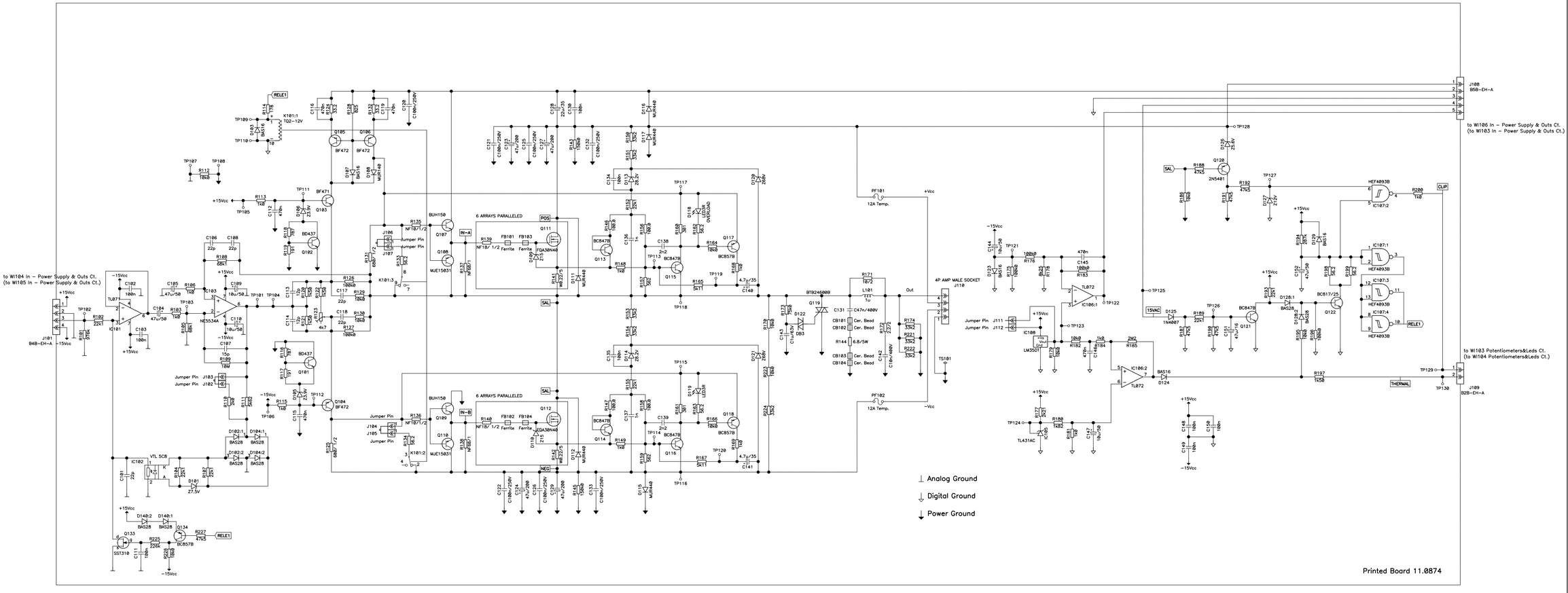
The ANTICLIP system. When the amplifier reaches clipping levels, the operational amplifier looses control on the system's performance and at its output some ±Vcc voltage peaking pulses may appear, proceeding from its power supply. This peaking pulses are used to be rectified and sent to an optocoupler (IC111), witch varies the system's VCA control voltage as a function of those pulse's amplitude, creating a negative feedback witch should pull back the system into stable functioning area.

The Temperature control system has three main functions:

- Controlling the cooling fan speed, as it is a function of the measured temperature. The fan's operation voltage range is ≈7 to 4 Volt.
- Suspending the amplifier's functioning when the temperature exceeds ≈90ºC

The temperature control system consists on a LM35D-type IC, an amplifier, a comparator for the thermal probe and a 7805-type IC to feed the cooling fan.

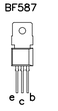
The amplifier acts on the cooling fan speed control. The comparator is responsible for the output shutdown relay performance, in order to close it as the temperature reaches 90ºC, and thus cutting of the amplifier's MosFETs bias current. As this happens, the signal output of the whole unit is cutted off.



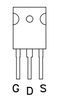
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R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W

Values between brockets belong to Power Amp Channel 2 Ct.

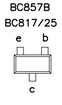
BF588 BF587



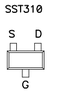
IRFP360



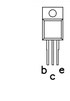
TOP VIEW
BC847B
BC857B
BC817/25



TOP VIEW
SST310



BD437

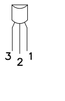


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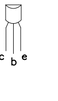
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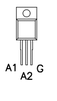
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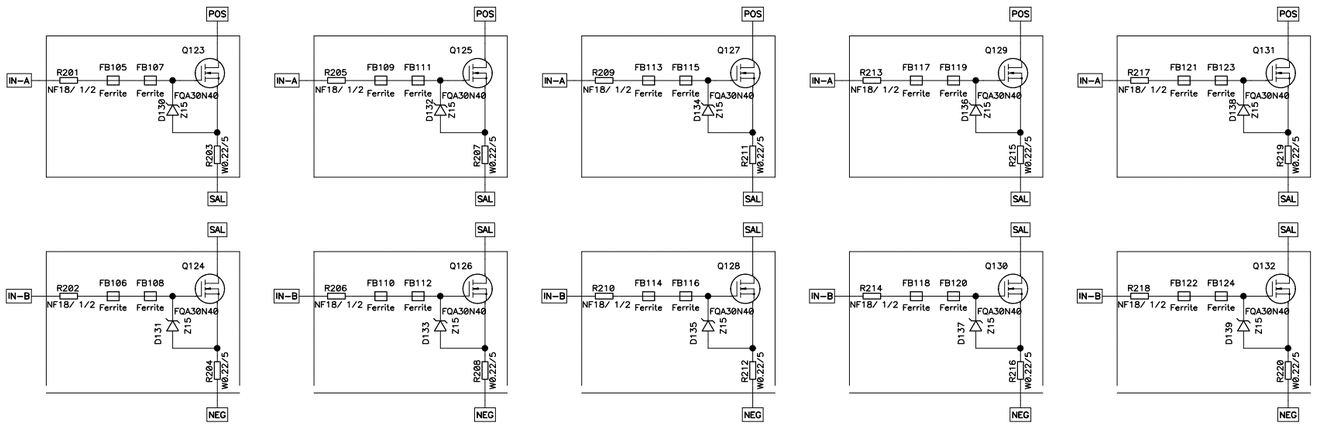
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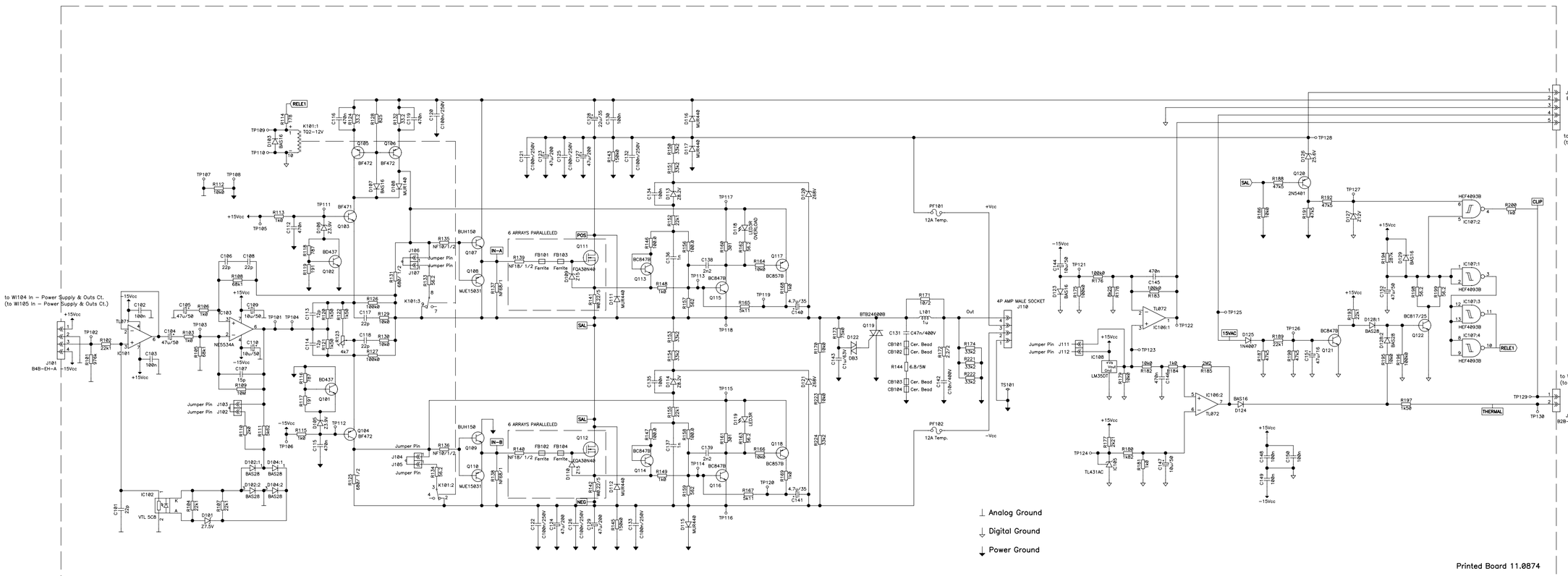


ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	drawn by: Jordi Folch	date: 011105	approved: Angel Sanuy
	project n: EP08-00	title: Power-Protect Module	
	product n: APA2000		
number: 10.0528	version: 02.05	page: 2 of 2	



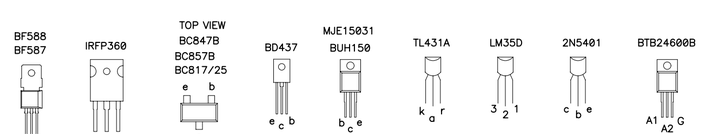
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R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W

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number: 10.0528	version: 02.05	page: 2 of 2		



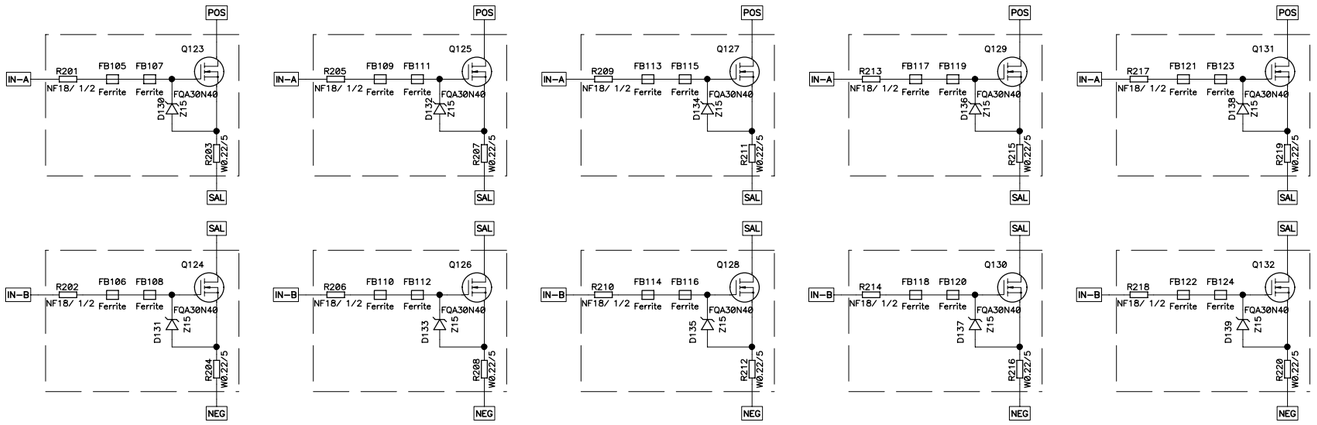
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Values between brackets belong to Power Amp Channel 2 Ct.



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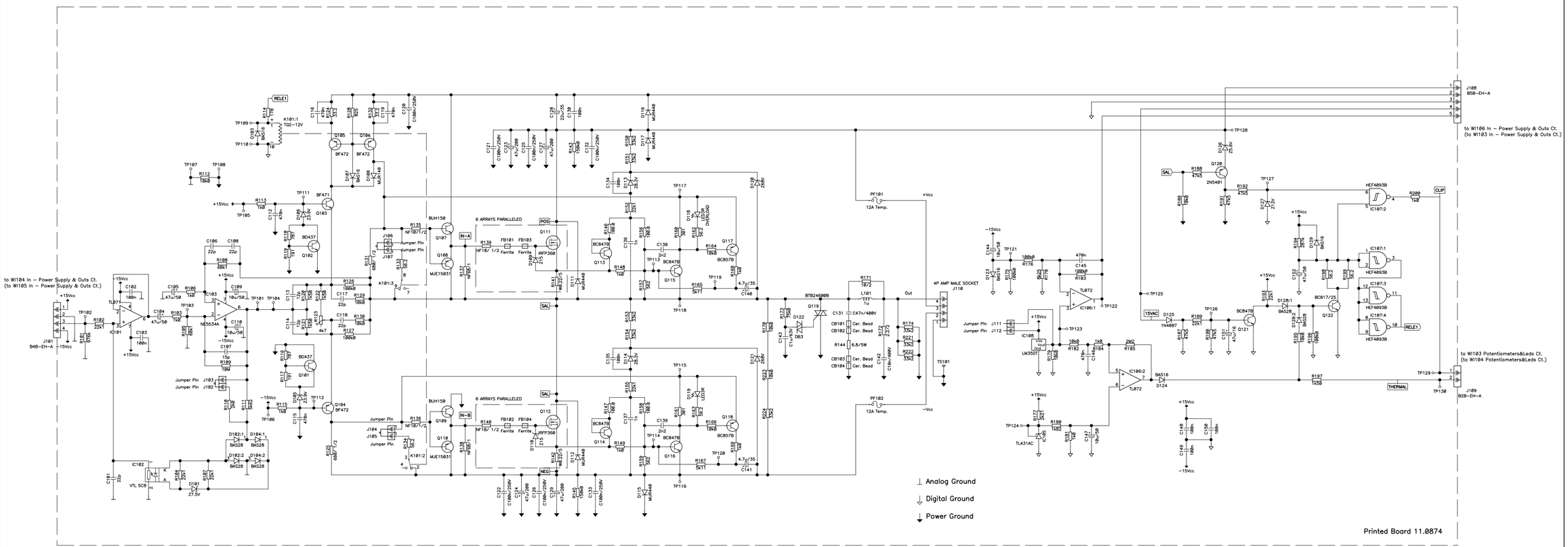
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	product n: APA2000		
number: 10.0528	version: 02.04	page: 1 of 2	



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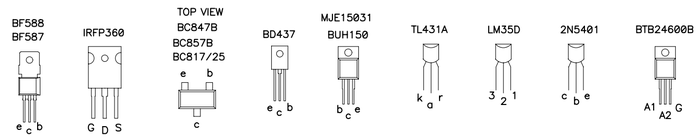
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number: 10.0528 version: 02.04	page: 2 of 2		

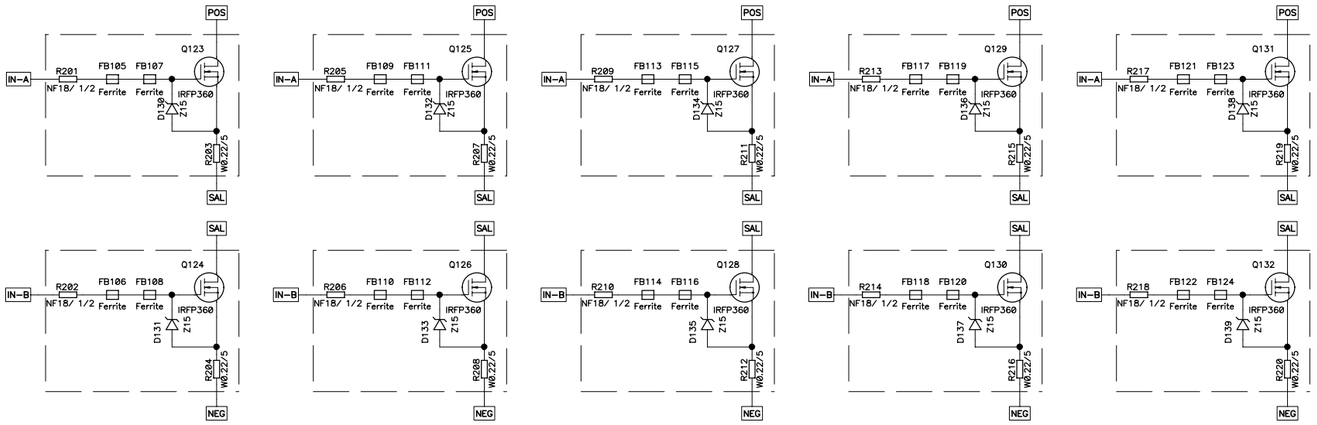


OLD VERSION

Values between brackets belong to Power Amp Channel 2 Ct.

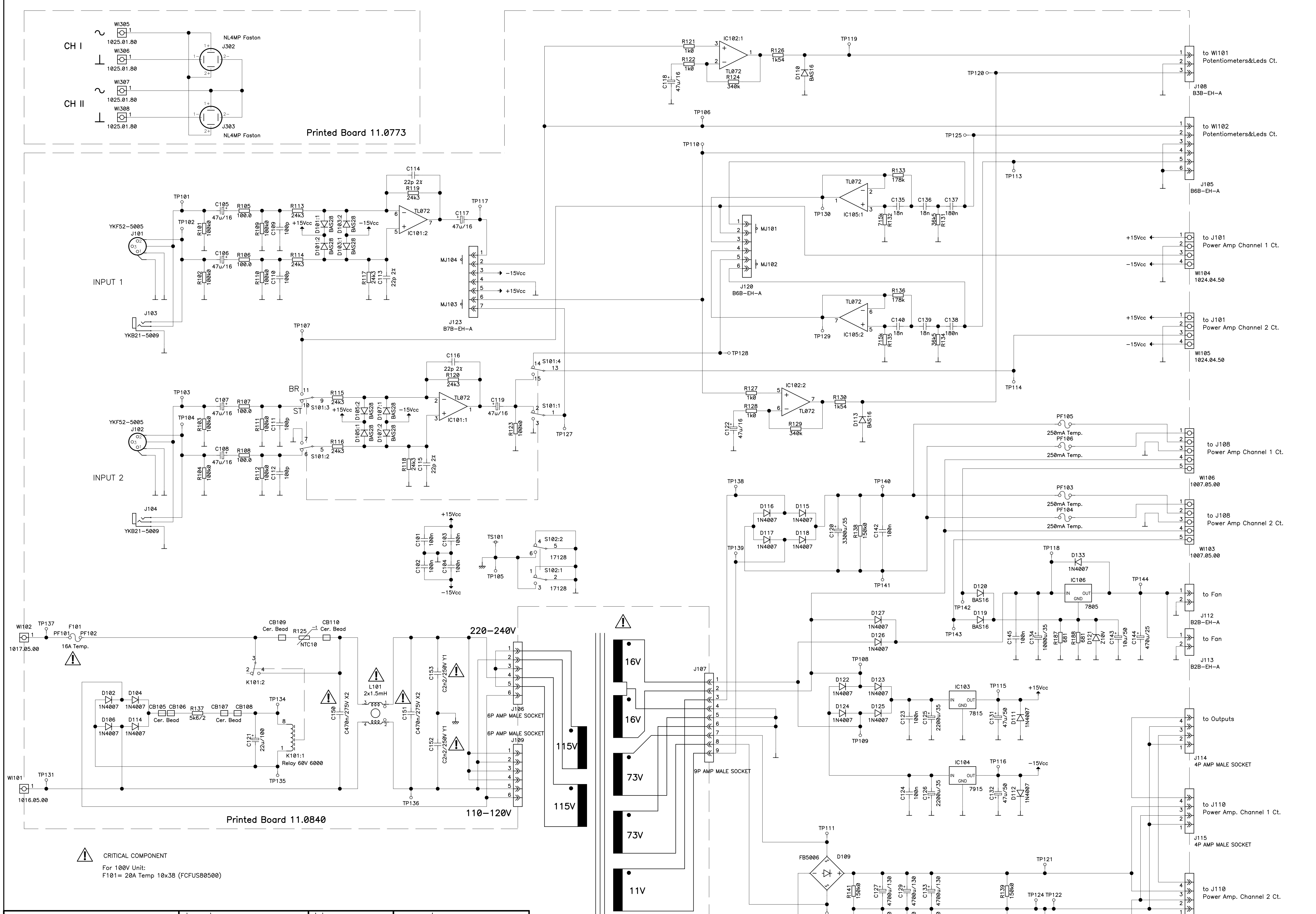


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number: 10.0528	version: 02.03	page: 1 of 2	



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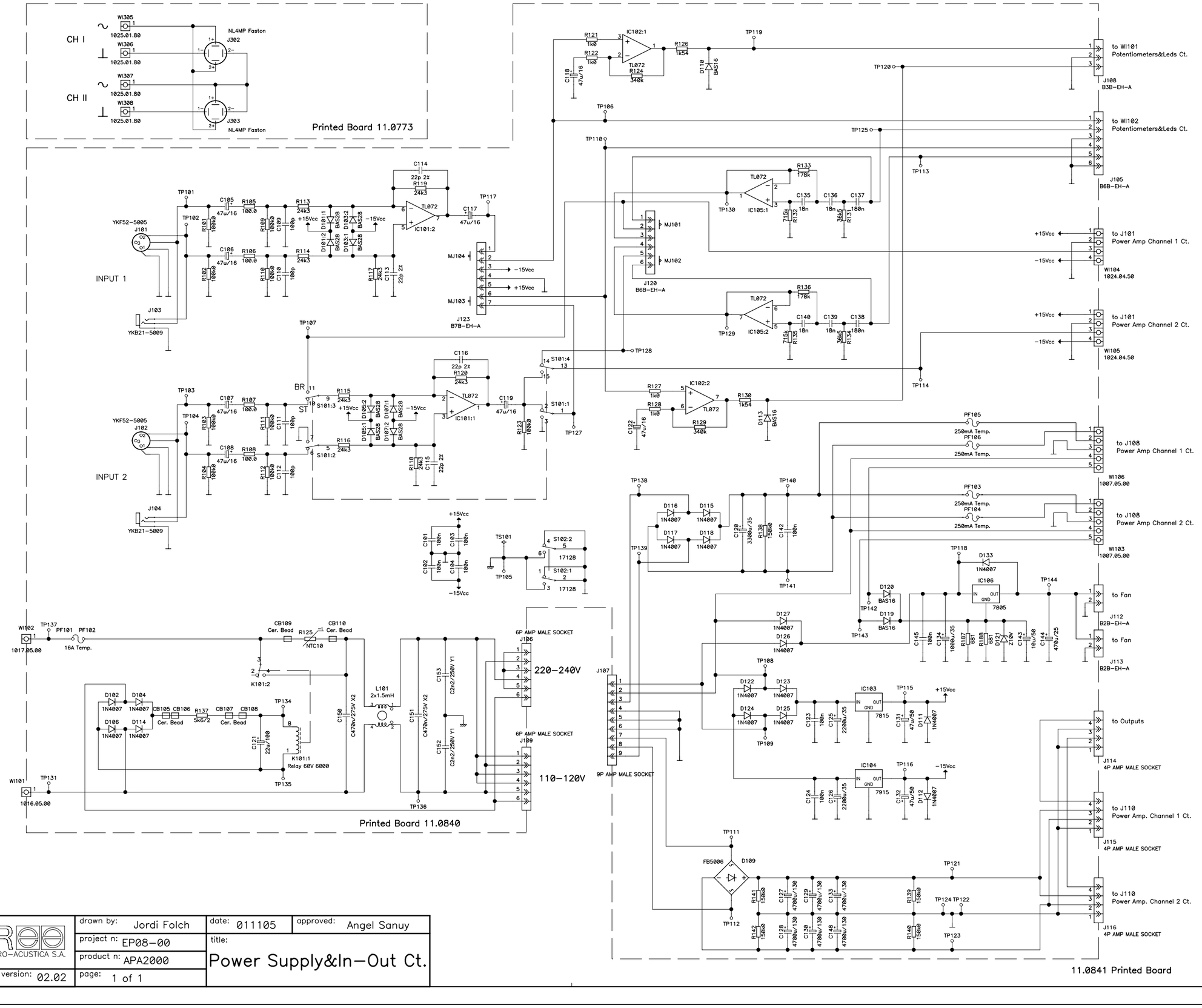


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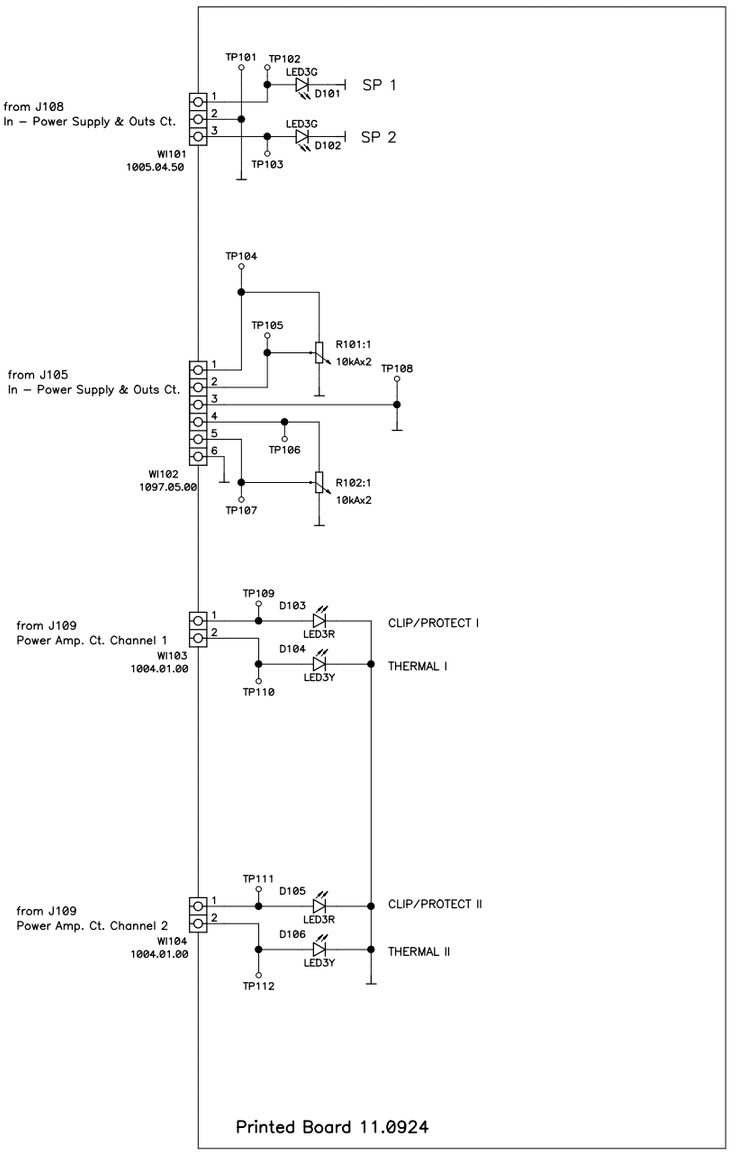
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product n: APA2000			
number: 10.0534	version: 02.04	page: 1 of 1	

CH I
CH II
WI305 1025.01.80
WI306 1025.01.80
WI307 1025.01.80
WI308 1025.01.80
NL4MP Faston
J302
J303
NL4MP Faston
Printed Board 11.0773
INPUT 1
INPUT 2
YKF52-5005
YKB21-5009
J101
J103
J102
J104
TP101 TP102 TP103 TP104 TP106 TP107 TP108 TP109 TP110 TP111 TP112 TP113 TP114 TP115 TP116 TP117 TP118 TP119 TP120 TP121 TP122 TP123 TP124 TP125 TP126 TP127 TP128 TP129 TP130 TP131 TP134 TP135 TP136 TP137 TP138 TP139 TP140 TP141 TP142 TP143 TP144
C105 C106 C107 C108 47u/16
R105 R106 R107 R108 100.0
R101 R102 R103 R104 100k0
R109 R110 R111 R112 100k0
C109 C110 C111 C112 100p
R113 R114 R115 R116 24k3
D101:1 D101:2 D102:1 D102:2 D103:1 D103:2 D104:1 D104:2 D105:1 D105:2 D106:1 D106:2 D107:1 D107:2 BAS28
+15Vcc −15Vcc
C114 C116 22p 2x
R119 R120 24k3
TL072
IC101:1 IC101:2
C117 C119 47u/16
R117 R118 24k3
C113 C115 22p 2x
S101:1 S101:2 S101:3 S101:4
ST BR
MJ101 MJ102 MJ103 MJ104
J123 B7B-EH-A
J120 B6B-EH-A
R121 R122 1k0
R124 340k
IC102:1
R126 1k54
D110 BAS16
C118 47u/16
R127 R128 1k0
R129 340k
IC102:2
R130 1k54
D113 BAS16
C122 47u/16
TL072
R133 R136 178k
C135 C136 C137 C140 C139 C138 18n
R132 R135 715k
R134 36k5
R131 180n
IC105:1 IC105:2
to WI101 Potentiometers&Leds Ct.
to WI102 Potentiometers&Leds Ct.
J108 B3B-EH-A
J105 B6B-EH-A
to J101 Power Amp Channel 1 Ct.
WI104 1024.04.50
to J101 Power Amp Channel 2 Ct.
WI105 1024.04.50
PF105 PF106 250mA Temp.
to J108 Power Amp Channel 1 Ct.
WI106 1007.05.00
PF103 PF104 250mA Temp.
to J108 Power Amp Channel 2 Ct.
WI103 1007.05.00
D116 D115 D117 D118 1N4007
C120 3300u/35
R138 150k0
C142 100n
D133 1N4007
IC106 7805
D120 D119 BAS16
to Fan
J112 B2B-EH-A
to Fan
J113 B2B-EH-A
D127 D126 1N4007
D122 D123 D124 D125 1N4007
IC103 7815
IC104 7915
C123 C124 100n
C125 C126 2200u/35
C131 C132 47u/50
D111 D112 1N4007
+15Vcc −15Vcc
to Outputs
J114 4P AMP MALE SOCKET
to J110 Power Amp. Channel 1 Ct.
J115 4P AMP MALE SOCKET
to J110 Power Amp. Channel 2 Ct.
J116 4P AMP MALE SOCKET
FB5006 D109
R141 R142 R139 R140 150k0
C127 C128 C129 C130 C133 C144 4700u/130
C145
J107 9P AMP MALE SOCKET
16V 16V 73V 73V 11V
T101 POWER TRANSFORMER
WI102 1017.05.00
WI101 1016.05.00
F101 PF101 PF102 16A Temp.
CB109 CB110 Cer. Bead
R125 NTC10
K101:2
D102 D104 D106 D114 1N4007
CB105 CB106 CB107 CB108 Cer. Bead
R137 5k67
C121 22u/100
K101:1 Relay 60V 600Ω
L101 2x1.5mH
C150 C151 C152 C153 C470n/275V X2
C2n2/250V Y1
220−240V
110−120V
J106 6P AMP MALE SOCKET
J109 6P AMP MALE SOCKET
115V 115V
C101 C102 C103 C104 100n 100n
TS101 TP105
S102:1 S102:2 17128
Printed Board 11.0840
CRITICAL COMPONENT
For 100V Unit:
F101= 20A Temp 10x38 (FCFUS80500)
OLD VERSION
11.0841 Printed Board

ECLER LABORATORIO DE ELECTRO−ACUSTICA S.A.	drawn by: Jordi Folch	date: 011105	approved: Angel Sanuy
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	product n: APA2000		
number: 10.0534	version: 02.03	page: 1 of 1	



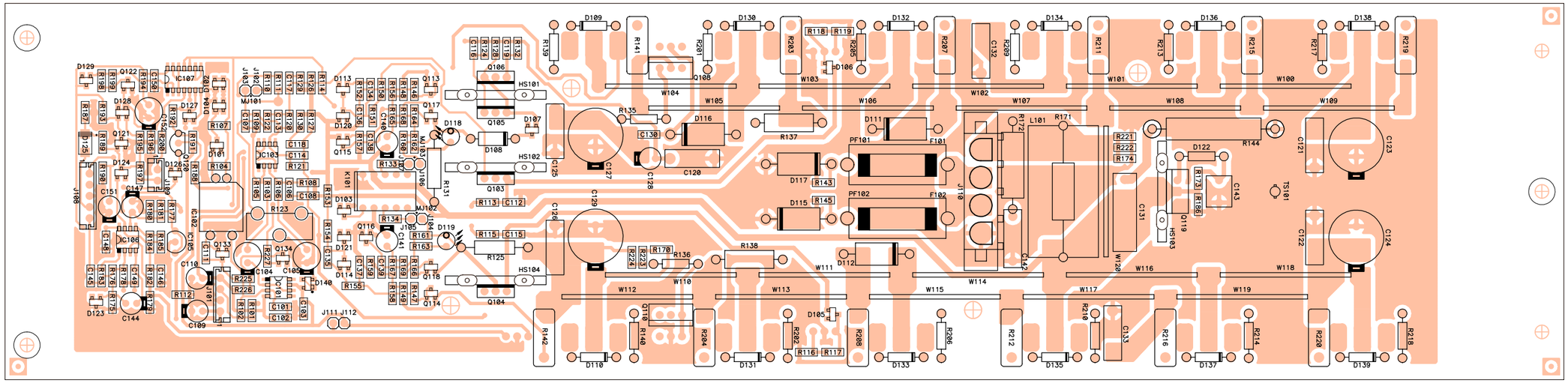
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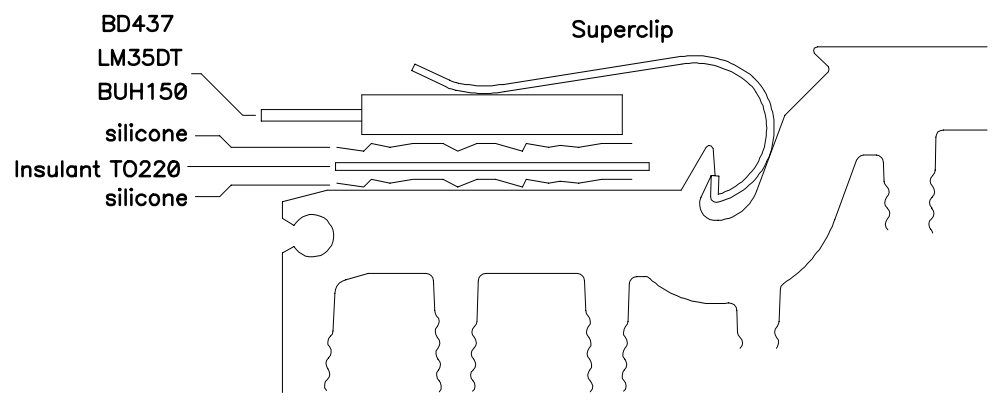
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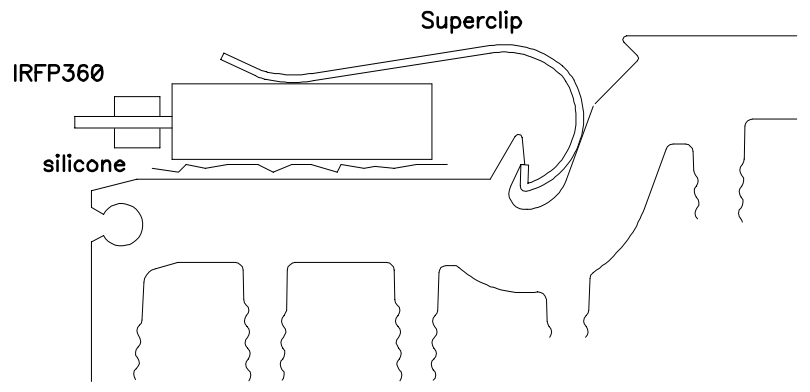
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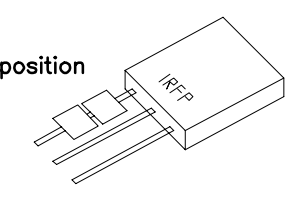


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drawn by: Jordi Folch	date: 011105	product n: APA2000	
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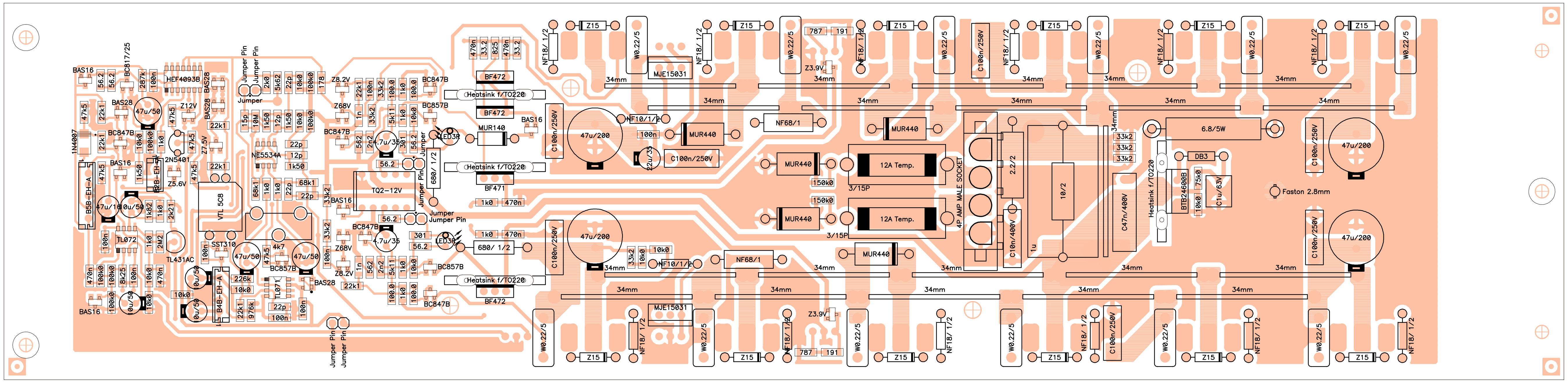


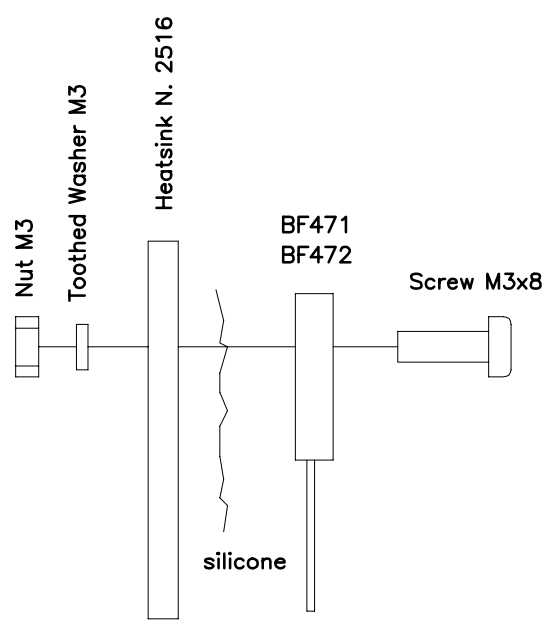
Detail of the ferrite position

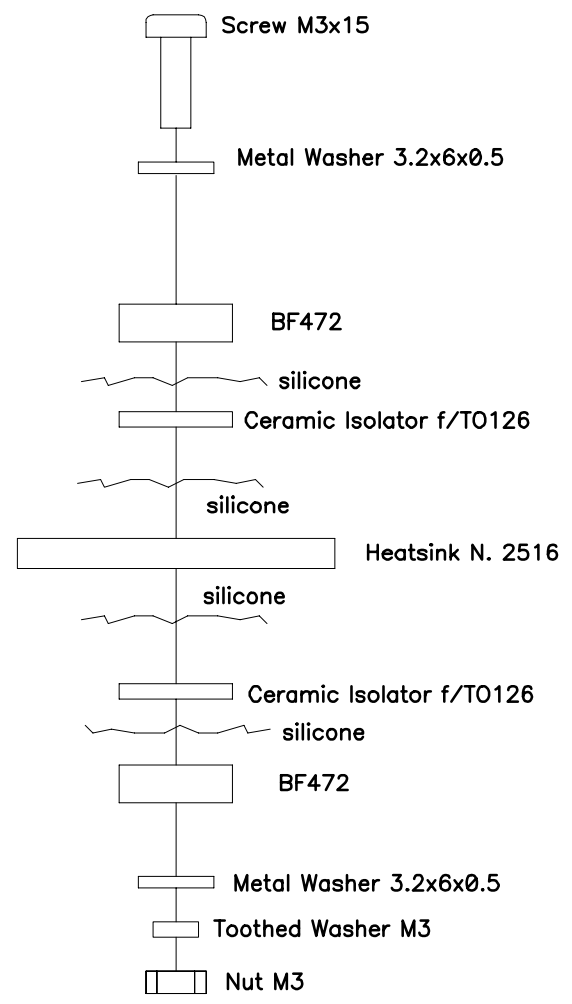


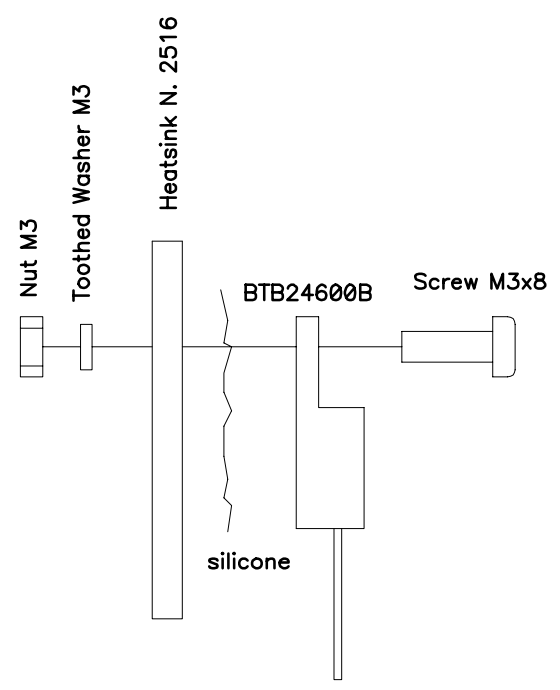
For Q111, Q112, Q123, Q124, Q125, Q126, Q127, Q128 Q129, Q130, Q131, Q132 = IRFP360

R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W

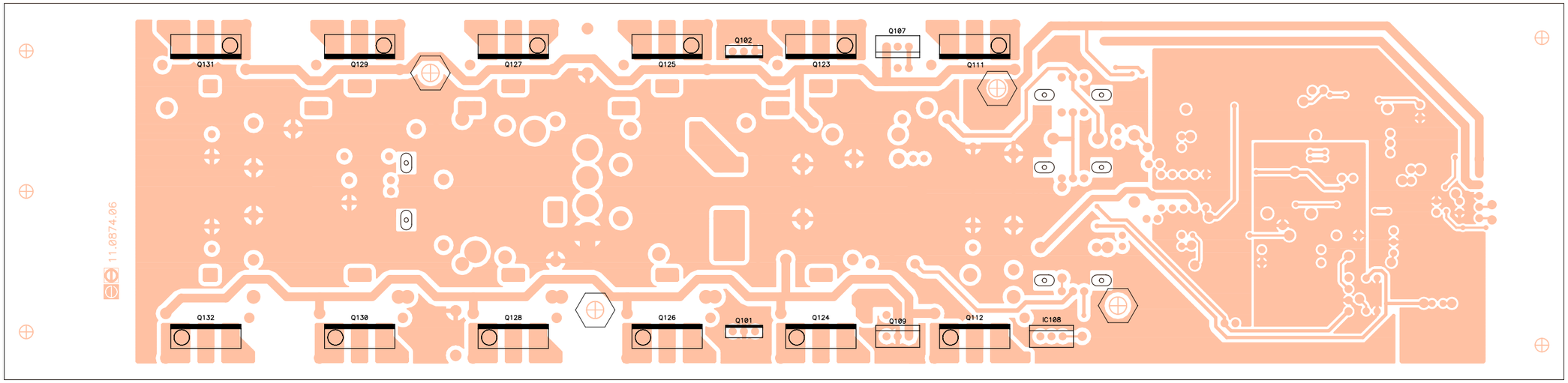








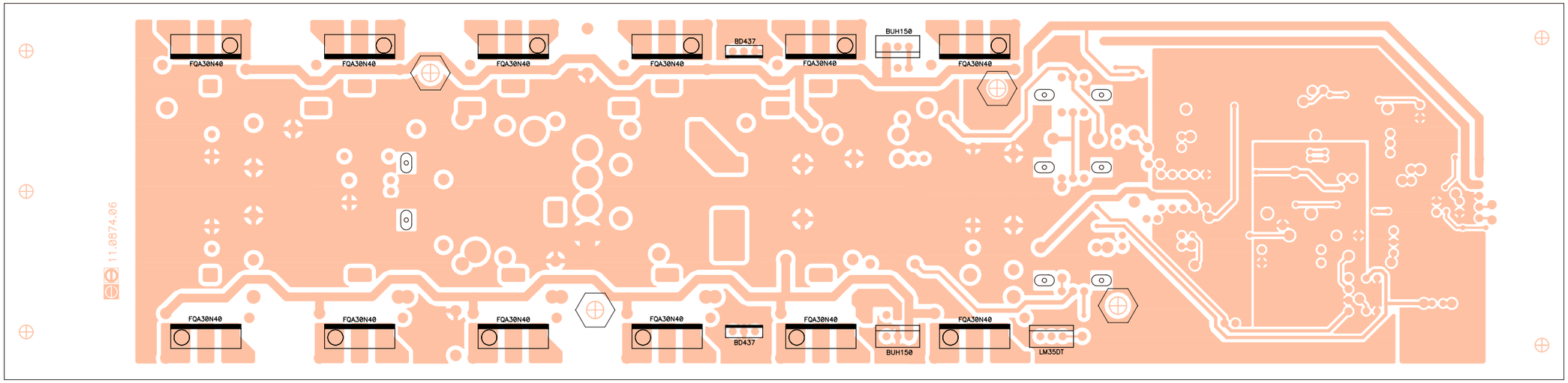
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	project n: EP08-00	title: Power-Protect Module	
number: 33.0643 / version: 02.04	product n: APA2000		
drawn by: Jordi Folch / date: 011105	approved: Angel Sanuy		



For Q111, Q112, Q123, Q124, Q125, Q126, Q127, Q128 Q129, Q130, Q131, Q132 = IRFP360

R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W

ECLEREE LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0874-06.00 schema no: 10.0528-02.05 insertion file no:	side: Solder view: Reference	
number: 33.0644	version: 02.02	project n: EP08-00	title: Power-Protect Module
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	



For Q111, Q112, Q123, Q124, Q125, Q126, Q127, Q128 Q129, Q130, Q131, Q132 = IRFP360

R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W

ECLEREE LABORATORIO DE ELECTRO–ACUSTICA S.A.	related to: circuit no: 11.0874–06.00 schema no: 10.0528–02.05 insertion file no:	side: Solder view: Value	
	project n: EP08–00	title: Power–Protect Module	
number: 33.0645	version: 02.02	product n: APA2000	
drawn by: Jordi Folch	date: 011105	approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

Code	Description	Reference
FCXCN12200	22p	C101
FCXCN41000	100n	C102
FCXCN41000	100n	C103
FCCE250470	47u/50	C104
FCCE250470	47u/50	C105
FCXCN12200	22p	C106
FCXCN11500	15p	C107
FCXCN12200	22p	C108
FCCE250100	10u/50	C109
FCCE250100	10u/50	C110
FCXCN41000	100n	C111
FCXCN44700	470n	C112
FCXCN11200	12p	C113
FCXCN11200	12p	C114
FCXCN44700	470n	C115
FCXCN44700	470n	C116
FCXCN12200	22p	C117
FCXCN12200	22p	C118
FCXCN44700	470n	C119
FCCDN11000	C100n/250V	C120
FCCDN11000	C100n/250V	C121
FCCDN11000	C100n/250V	C122
FCCE350220	47u/200	C123
FCCE350220	47u/200	C124
FCCDN11000	C100n/250V	C125
FCCDN11000	C100n/250V	C126
FCCE350220	47u/200	C127
FCCE200220	22u/35	C128
FCCE350220	47u/200	C129
FCXCN41000	100n	C130
FCCDH71047	C47n/400V	C131
FCCDN11000	C100n/250V	C132
FCCDN11000	C100n/250V	C133
FCXCN41000	100n	C134
FCXCN41000	100n	C135
FCXCN40010	1n	C136
FCXCN40010	1n	C137
FCXCN40022	2n2	C138
FCXCN40022	2n2	C139
FCCE200047	4.7u/35	C140
FCCE200047	4.7u/35	C141
FCCDH71011	C10n/400V	C142
FCCDK20010	C1u/63V	C143
FCCE250100	10u/50	C144
FCXCN44700	470n	C145
FCXCN44700	470n	C146
FCCE250100	10u/50	C147
FCXCN41000	100n	C148
FCXCN41000	100n	C149
FCXCN41000	100n	C150
FCCE100000	47u/16	C151
FCCE250470	47u/50	C152
FCPERL2550	Cer. Bead	CB101
FCPERL2550	Cer. Bead	CB102
FCPERL2550	Cer. Bead	CB103
FCPERL2550	Cer. Bead	CB104

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

Code	Description	Reference
FCCIPAM874	Printed Board 11.0874	CI101
FCXZ000075	Z7.5V	D101
FCXDDBAS28	BAS28	D102
FCXDDBAS16	BAS16	D103
FCXDDBAS28	BAS28	D104
FCXZ000039	Z3.9V	D105
FCXZ000039	Z3.9V	D106
FCXDDBAS16	BAS16	D107
FCDDMUR140	MUR140	D108
FCDD041500	Z15	D109
FCDD041500	Z15	D110
FCDDMUR440	MUR440	D111
FCDDMUR440	MUR440	D112
FCXZ000082	Z8.2V	D113
FCXZ000082	Z8.2V	D114
FCDDMUR440	MUR440	D115
FCDDMUR440	MUR440	D116
FCDDMUR440	MUR440	D117
FCLED300RO	LED3R	D118
FCLED300RO	LED3R	D119
FCXZ000680	Z68V	D120
FCXZ000680	Z68V	D121
FCDIDB3000	DB3	D122
FCXDDBAS16	BAS16	D123
FCXDDBAS16	BAS16	D124
FCXDD40070	1N4007	D125
FCXZ000056	Z5.6V	D126
FCXZ000120	Z12V	D127
FCXDDBAS28	BAS28	D128
FCXDDBAS16	BAS16	D129
FCDD041500	Z15	D130
FCDD041500	Z15	D131
FCDD041500	Z15	D132
FCDD041500	Z15	D133
FCDD041500	Z15	D134
FCDD041500	Z15	D135
FCDD041500	Z15	D136
FCDD041500	Z15	D137
FCDD041500	Z15	D138
FCDD041500	Z15	D139
FCXDDBAS28	BAS28	D140
FCFUS50400	12A Temp.	F101
FCFUS50400	12A Temp.	F102
FCFER43220	Ferrite	FB101
FCFER43220	Ferrite	FB102
FCFER43220	Ferrite	FB103
FCFER43220	Ferrite	FB104
FCFER43220	Ferrite	FB105
FCFER43220	Ferrite	FB106
FCFER43220	Ferrite	FB107
FCFER43220	Ferrite	FB108
FCFER43220	Ferrite	FB109
FCFER43220	Ferrite	FB110
FCFER43220	Ferrite	FB111
FCFER43220	Ferrite	FB112
FCFER43220	Ferrite	FB113

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

Code	Description	Reference
FCFER43220	Ferrite	FB114
FCFER43220	Ferrite	FB115
FCFER43220	Ferrite	FB116
FCFER43220	Ferrite	FB117
FCFER43220	Ferrite	FB118
FCFER43220	Ferrite	FB119
FCFER43220	Ferrite	FB120
FCFER43220	Ferrite	FB121
FCFER43220	Ferrite	FB122
FCFER43220	Ferrite	FB123
FCFER43220	Ferrite	FB124
FCMECT0220	Heatsink f/TO220	HS101
FCMECT0220	Heatsink f/TO220	HS102
FCMECT0220	Heatsink f/TO220	HS103
FCMECT0220	Heatsink f/TO220	HS104
FCIC071010	TL071	IC101
FCOPTVTL50	VTL 5C8	IC102
FCIC553410	NE5534A	IC103
FCIC431000	TL431AC	IC105
FCIC072010	TL072	IC106
FCIC409301	HEF4093B	IC107
FCIC35DT00	LM35DT	IC108
FCSEPCE126	Cer. Isol. TO126	IN100
FCMICTO220C0	Insulant TO220	IN101
FCMICTO220C0	Insulant TO220	IN102
FCMICTO220C0	Insulant TO220	IN103
FCMICTO220C0	Insulant TO220	IN104
FCMICTO220C0	Insulant TO220	IN105
FCSEPCE126	Cer. Isol. TO126	IN106
FCCTM00040	B4B-EH-A	J101
FCTERM0100	Jumper Pin	J102
FCTERM0100	Jumper Pin	J103
FCTERM0100	Jumper Pin	J104
FCTERM0100	Jumper Pin	J105
FCTERM0100	Jumper Pin	J106
FCTERM0100	Jumper Pin	J107
FCCTM00050	B5B-EH-A	J108
FCCTM00020	B2B-EH-A	J109
FCCTAMP040	4P AMP MALE SOCKET	J110
FCTERM0100	Jumper Pin	J111
FCTERM0100	Jumper Pin	J112
FCREL00300	TQ2-12V	K101
FCIND00100	1u	L101
FCMJ000100	Jumper	MJ101
FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCPINZAM10	Superclip 5k	MP100
FCPINZAM10	Superclip 5k	MP101
FCPINZAM10	Superclip 5k	MP102
FCPINZAM10	Superclip 5k	MP103
FCPINZAM10	Superclip 5k	MP104
FCPINZAM10	Superclip 5k	MP105
FCPINZAM10	Superclip 5k	MP106
FCPINZAM10	Superclip 5k	MP107
FCPINZAM10	Superclip 5k	MP108
FCPINZAM10	Superclip 5k	MP109

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

Code	Description	Reference
FCPINZAM10	Superclip 5k	MP110
FCPINZAM10	Superclip 5k	MP111
FCPINZAM10	Superclip 5k	MP112
FCPINZAM10	Superclip 5k	MP113
FCPINZAM10	Superclip 5k	MP114
FCPINZAM10	Superclip 5k	MP115
FCPINZAM10	Superclip 5k	MP116
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCTUE00300	Nut M3	NV104
FCPORF3150	3/15P	PF101
FCPORF3150	3/15P	PF102
FCTR437000	BD437	Q101
FCTR437000	BD437	Q102
FCTR471000	BF471	Q103
FCTR472000	BF472	Q104
FCTR472000	BF472	Q105
FCTR472000	BF472	Q106
FCTR150000	BUH150	Q107
FCTR150310	MJE15031	Q108
FCTR150000	BUH150	Q109
FCTR150310	MJE15031	Q110
FCTR360000	FQA30N40	Q111
FCTR360000	FQA30N40	Q112
FCXTT08470	BC847B	Q113
FCXTT08470	BC847B	Q114
FCXTT08470	BC847B	Q115
FCXTT08470	BC847B	Q116
FCXTT08570	BC857B	Q117
FCXTT08570	BC857B	Q118
FCTI246000	BTB24600B	Q119
FCTR254010	2N5401	Q120
FCXTT08470	BC847B	Q121
FCXTT08170	BC817/25	Q122
FCTR360000	FQA30N40	Q123
FCTR360000	FQA30N40	Q124
FCTR360000	FQA30N40	Q125
FCTR360000	FQA30N40	Q126
FCTR360000	FQA30N40	Q127
FCTR360000	FQA30N40	Q128
FCTR360000	FQA30N40	Q129
FCTR360000	FQA30N40	Q130
FCTR360000	FQA30N40	Q131
FCTR360000	FQA30N40	Q132
FCTRX03100	SST310	Q133
FCXTT08570	BC857B	Q134
FCXR159760	976k	R101
FCXR142210	22k1	R102
FCXR131000	1k0	R103
FCXR142210	22k1	R104
FCXR146810	68k1	R105
FCXR131000	1k0	R106
FCXR142210	22k1	R107
FCXR146810	68k1	R108
FCXR071000	10M	R109

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

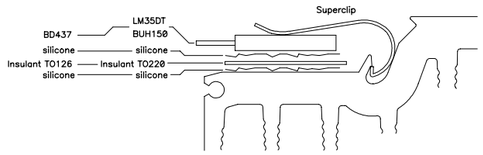
Code	Description	Reference
FCXR132000	2k0	R110
FCXR135620	5k62	R111
FCXR141000	10k0	R112
FCXR131000	1k0	R113
FCXR121780	178	R114
FCXR131000	1k0	R115
FCXR127870	787	R116
FCXR121910	191	R117
FCXR127870	787	R118
FCXR121910	191	R119
FCXR131500	1k50	R120
FCXR131500	1k50	R121
FCXR131500	1k50	R122
FCRJR44700	4k7	R123
FCXR113320	33.2	R124
FCRC236800	680/ 1/2	R125
FCXR151000	100k0	R126
FCXR151000	100k0	R127
FCXR128250	825	R128
FCXR141000	10k0	R129
FCXR141000	10k0	R130
FCRC236800	680/ 1/2	R131
FCXR113320	33.2	R132
FCXR115620	56.2	R133
FCXR115620	56.2	R134
FCRF221000	NF10/1/2	R135
FCRF221000	NF10/1/2	R136
FCRF426800	NF68/1	R137
FCRF426800	NF68/1	R138
FCRF221800	NF18/ 1/2	R139
FCRF221800	NF18/ 1/2	R140
FCRY000100	W0.22/5	R141
FCRY000100	W0.22/5	R142
FCXR151500	150k0	R143
FCRY000250	6.8/5W	R144
FCXR151500	150k0	R145
FCXR121000	100.0	R146
FCXR121000	100.0	R147
FCXR131000	1k0	R148
FCXR131000	1k0	R149
FCXR143320	33k2	R150
FCXR143320	33k2	R151
FCXR142210	22k1	R152
FCXR143320	33k2	R153
FCXR143320	33k2	R154
FCXR142210	22k1	R155
FCXR121000	100.0	R156
FCXR125620	562	R157
FCXR121000	100.0	R158
FCXR125620	562	R159
FCXR123010	301	R160
FCXR123010	301	R161
FCXR115620	56.2	R162
FCXR115620	56.2	R163
FCXR141000	10k0	R164
FCXR135110	5k11	R165

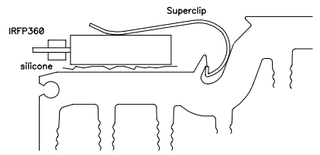
PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

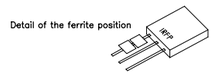
Code	Description	Reference
FCXR141000	10k0	R166
FCXR135110	5k11	R167
FCXR131000	1k0	R168
FCXR131000	1k0	R169
FCXR141000	10k0	R170
FCRC521000	10/2	R171
FCRC512200	2.2/2	R172
FCXR147500	75k0	R173
FCXR143320	33k2	R174
FCXR151000	100k0	R175
FCXR151000	100k0	R176
FCXR132210	2k21	R177
FCXR138250	8k25	R178
FCXR141000	10k0	R179
FCXR131820	1k82	R180
FCXR131000	1k0	R181
FCXR141000	10k0	R182
FCXR151000	100k0	R183
FCXR131000	1k0	R184
FCXR062200	2M2	R185
FCXR141000	10k0	R186
FCXR144750	47k5	R187
FCXR144750	47k5	R188
FCXR142210	22k1	R189
FCXR144750	47k5	R190
FCXR144750	47k5	R191
FCXR144750	47k5	R192
FCXR142210	22k1	R193
FCXR152870	287k	R194
FCXR141000	10k0	R195
FCXR151000	100k0	R196
FCXR131500	1k50	R197
FCXR115620	56.2	R198
FCXR115620	56.2	R199
FCXR131000	1k0	R200
FCRF221800	NF18/ 1/2	R201
FCRF221800	NF18/ 1/2	R202
FCRY000100	W0.22/5	R203
FCRY000100	W0.22/5	R204
FCRF221800	NF18/ 1/2	R205
FCRF221800	NF18/ 1/2	R206
FCRY000100	W0.22/5	R207
FCRY000100	W0.22/5	R208
FCRF221800	NF18/ 1/2	R209
FCRF221800	NF18/ 1/2	R210
FCRY000100	W0.22/5	R211
FCRY000100	W0.22/5	R212
FCRF221800	NF18/ 1/2	R213
FCRF221800	NF18/ 1/2	R214
FCRY000100	W0.22/5	R215
FCRY000100	W0.22/5	R216
FCRF221800	NF18/ 1/2	R217
FCRF221800	NF18/ 1/2	R218
FCRY000100	W0.22/5	R219
FCRY000100	W0.22/5	R220
FCXR143320	33k2	R221

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

Code	Description	Reference
FCXR143320	33k2	R222
FCXR141000	10k0	R223
FCXR143320	33k2	R224
FCXR152260	226k	R225
FCXR141000	10k0	R226
FCXR144750	47k5	R227
FCT7503008	Screw M3x8	SC100
FCT7503008	Screw M3x8	SC101
FCT7503008	Screw M3x8	SC102
FCT7003015	Screw M3x15	SC103
FCTERMF280	Faston 2.8mm	TS101
FCMECPON34	34mm	W100
FCMECPON34	34mm	W101
FCMECPON34	34mm	W102
FCMECPON34	34mm	W103
FCMECPON34	34mm	W104
FCMECPON34	34mm	W105
FCMECPON34	34mm	W106
FCMECPON34	34mm	W107
FCMECPON34	34mm	W108
FCMECPON34	34mm	W109
FCMECPON34	34mm	W110
FCMECPON34	34mm	W111
FCMECPON34	34mm	W112
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FCMECPON34	34mm	W114
FCMECPON34	34mm	W115
FCMECPON34	34mm	W116
FCMECPON34	34mm	W117
FCMECPON34	34mm	W118
FCMECPON34	34mm	W119
FCMECPON34	34mm	W120
FCARDE0300	Toothed Washer f/M3	WA101
FCARM32000	Metal Washer 3.2x6x0.5	WA102
FCARDE0300	Toothed Washer f/M3	WA103
FCARDE0300	Toothed Washer f/M3	WA104
FCARDE0300	Toothed Washer f/M3	WA105
FCARM32000	Metal Washer 3.2x6x0.5	WA106

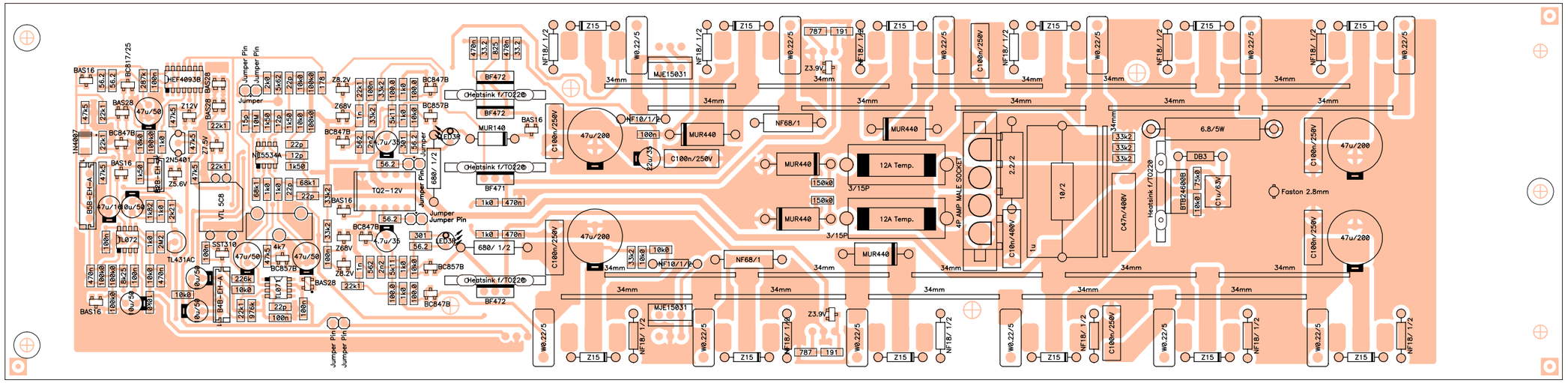


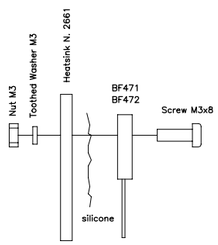


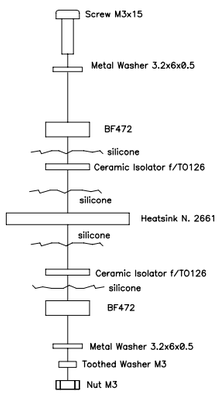


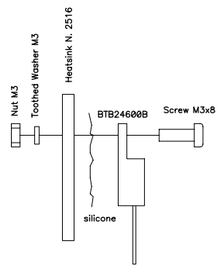
For Q111, Q112, Q123, Q124, Q125, Q126, Q127, Q128 Q129, Q130, Q131, Q132 = IRFP360

R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W









OLD VERSION

ECLEREE LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0874-06.00 schema no: 10.0528-02.05 insertion file no: 81.0056-02.03	side: Component view: Value	
number: 33.0643	version: 02.03	project n: EP08-00	title: Power-Protect Module
drawn by: Jordi Folch	date: 011105	product n: APA2000 approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

OLD VERSION

Code	Description	Reference
FCXCN12200	22p	C101
FCXCN41000	100n	C102
FCXCN41000	100n	C103
FCCE250470	47u/50	C104
FCCE250470	47u/50	C105
FCXCN12200	22p	C106
FCXCN11500	15p	C107
FCXCN12200	22p	C108
FCCE250100	10u/50	C109
FCCE250100	10u/50	C110
FCXCN41000	100n	C111
FCXCN44700	470n	C112
FCXCN11200	12p	C113
FCXCN11200	12p	C114
FCXCN44700	470n	C115
FCXCN44700	470n	C116
FCXCN12200	22p	C117
FCXCN12200	22p	C118
FCXCN44700	470n	C119
FCCDN11000	C100n/250V	C120
FCCDN11000	C100n/250V	C121
FCCDN11000	C100n/250V	C122
FCCE350220	47u/200	C123
FCCE350220	47u/200	C124
FCCDN11000	C100n/250V	C125
FCCDN11000	C100n/250V	C126
FCCE350220	47u/200	C127
FCCE200220	22u/35	C128
FCCE350220	47u/200	C129
FCXCN41000	100n	C130
FCCDH71047	C47n/400V	C131
FCCDN11000	C100n/250V	C132
FCCDN11000	C100n/250V	C133
FCXCN41000	100n	C134
FCXCN41000	100n	C135
FCXCN40010	1n	C136
FCXCN40010	1n	C137
FCXCN40022	2n2	C138
FCXCN40022	2n2	C139
FCCE200047	4.7u/35	C140
FCCE200047	4.7u/35	C141
FCCDH71011	C10n/400V	C142
FCCDK20010	C1u/63V	C143
FCCE250100	10u/50	C144
FCXCN44700	470n	C145
FCXCN44700	470n	C146
FCCE250100	10u/50	C147
FCXCN41000	100n	C148
FCXCN41000	100n	C149
FCXCN41000	100n	C150
FCCE100000	47u/16	C151
FCCE250470	47u/50	C152
FCPERL2550	Cer. Bead	CB101
FCPERL2550	Cer. Bead	CB102
FCPERL2550	Cer. Bead	CB103
FCPERL2550	Cer. Bead	CB104

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

OLD VERSION

Code	Description	Reference
FCCIPAM874	Printed Board 11.0874	CI101
FCXZ000075	Z7.5V	D101
FCXDDBAS28	BAS28	D102
FCXDDBAS16	BAS16	D103
FCXDDBAS28	BAS28	D104
FCXZ000039	Z3.9V	D105
FCXZ000039	Z3.9V	D106
FCXDDBAS16	BAS16	D107
FCDDMUR140	MUR140	D108
FCDD041500	Z15	D109
FCDD041500	Z15	D110
FCDDMUR440	MUR440	D111
FCDDMUR440	MUR440	D112
FCXZ000082	Z8.2V	D113
FCXZ000082	Z8.2V	D114
FCDDMUR440	MUR440	D115
FCDDMUR440	MUR440	D116
FCDDMUR440	MUR440	D117
FCLED300RO	LED3R	D118
FCLED300RO	LED3R	D119
FCXZ000680	Z68V	D120
FCXZ000680	Z68V	D121
FCDIDB3000	DB3	D122
FCXDDBAS16	BAS16	D123
FCXDDBAS16	BAS16	D124
FCXDD40070	1N4007	D125
FCXZ000056	Z5.6V	D126
FCXZ000120	Z12V	D127
FCXDDBAS28	BAS28	D128
FCXDDBAS16	BAS16	D129
FCDD041500	Z15	D130
FCDD041500	Z15	D131
FCDD041500	Z15	D132
FCDD041500	Z15	D133
FCDD041500	Z15	D134
FCDD041500	Z15	D135
FCDD041500	Z15	D136
FCDD041500	Z15	D137
FCDD041500	Z15	D138
FCDD041500	Z15	D139
FCXDDBAS28	BAS28	D140
FCFUS50400	12A Temp.	F101
FCFUS50400	12A Temp.	F102
FCFER43220	Ferrite	FB101
FCFER43220	Ferrite	FB102
FCFER43220	Ferrite	FB103
FCFER43220	Ferrite	FB104
FCFER43220	Ferrite	FB105
FCFER43220	Ferrite	FB106
FCFER43220	Ferrite	FB107
FCFER43220	Ferrite	FB108
FCFER43220	Ferrite	FB109
FCFER43220	Ferrite	FB110
FCFER43220	Ferrite	FB111
FCFER43220	Ferrite	FB112
FCFER43220	Ferrite	FB113

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

OLD VERSION

Code	Description	Reference
FCFER43220	Ferrite	FB114
FCFER43220	Ferrite	FB115
FCFER43220	Ferrite	FB116
FCFER43220	Ferrite	FB117
FCFER43220	Ferrite	FB118
FCFER43220	Ferrite	FB119
FCFER43220	Ferrite	FB120
FCFER43220	Ferrite	FB121
FCFER43220	Ferrite	FB122
FCFER43220	Ferrite	FB123
FCFER43220	Ferrite	FB124
FCMECT0220	Heatsink f/TO220	HS101
FCMECT0220	Heatsink f/TO220	HS102
FCMECT0220	Heatsink f/TO220	HS103
FCMECT0220	Heatsink f/TO220	HS104
FCIC071010	TL071	IC101
FCOPTVTL50	VTL 5C8	IC102
FCIC553410	NE5534A	IC103
FCIC431000	TL431AC	IC105
FCIC072010	TL072	IC106
FCIC409301	HEF4093B	IC107
FCIC35DT00	LM35DT	IC108
FCSEPCE126	Cer. Isol. TO126	IN100
FCMICTO126	Insulant TO126	IN101
FCMICTO126	Insulant TO126	IN102
FCMICTO220	Insulant TO220	IN103
FCMICTO220	Insulant TO220	IN104
FCMICTO220	Insulant TO220	IN105
FCSEPCE126	Cer. Isol. TO126	IN106
FCCTM00040	B4B-EH-A	J101
FCTERM0100	Jumper Pin	J102
FCTERM0100	Jumper Pin	J103
FCTERM0100	Jumper Pin	J104
FCTERM0100	Jumper Pin	J105
FCTERM0100	Jumper Pin	J106
FCTERM0100	Jumper Pin	J107
FCCTM00050	B5B-EH-A	J108
FCCTM00020	B2B-EH-A	J109
FCCTAMP040	4P AMP MALE SOCKET	J110
FCTERM0100	Jumper Pin	J111
FCTERM0100	Jumper Pin	J112
FCREL00300	TQ2-12V	K101
FCIND00100	1u	L101
FCMJ000100	Jumper	MJ101
FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCPINZAM10	Superclip 5k	MP100
FCPINZAM10	Superclip 5k	MP101
FCPINZAM10	Superclip 5k	MP102
FCPINZAM10	Superclip 5k	MP103
FCPINZAM10	Superclip 5k	MP104
FCPINZAM10	Superclip 5k	MP105
FCPINZAM10	Superclip 5k	MP106
FCPINZAM10	Superclip 5k	MP107
FCPINZAM10	Superclip 5k	MP108
FCPINZAM10	Superclip 5k	MP109

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

OLD VERSION

Code	Description	Reference
FCPINZAM10	Superclip 5k	MP110
FCPINZAM10	Superclip 5k	MP111
FCPINZAM10	Superclip 5k	MP112
FCPINZAM10	Superclip 5k	MP113
FCPINZAM10	Superclip 5k	MP114
FCPINZAM10	Superclip 5k	MP115
FCPINZAM10	Superclip 5k	MP116
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCTUE00300	Nut M3	NV104
FCPORF3150	3/15P	PF101
FCPORF3150	3/15P	PF102
FCTR437000	BD437	Q101
FCTR437000	BD437	Q102
FCTR471000	BF471	Q103
FCTR472000	BF472	Q104
FCTR472000	BF472	Q105
FCTR472000	BF472	Q106
FCTR150000	BUH150	Q107
FCTR150310	MJE15031	Q108
FCTR150000	BUH150	Q109
FCTR150310	MJE15031	Q110
FCTR360000	FQA30N40	Q111
FCTR360000	FQA30N40	Q112
FCXTT08470	BC847B	Q113
FCXTT08470	BC847B	Q114
FCXTT08470	BC847B	Q115
FCXTT08470	BC847B	Q116
FCXTT08570	BC857B	Q117
FCXTT08570	BC857B	Q118
FCTI246000	BTB24600B	Q119
FCTR254010	2N5401	Q120
FCXTT08470	BC847B	Q121
FCXTT08170	BC817/25	Q122
FCTR360000	FQA30N40	Q123
FCTR360000	FQA30N40	Q124
FCTR360000	FQA30N40	Q125
FCTR360000	FQA30N40	Q126
FCTR360000	FQA30N40	Q127
FCTR360000	FQA30N40	Q128
FCTR360000	FQA30N40	Q129
FCTR360000	FQA30N40	Q130
FCTR360000	FQA30N40	Q131
FCTR360000	FQA30N40	Q132
FCTRX03100	SST310	Q133
FCXTT08570	BC857B	Q134
FCXR159760	976k	R101
FCXR142210	22k1	R102
FCXR131000	1k0	R103
FCXR142210	22k1	R104
FCXR146810	68k1	R105
FCXR131000	1k0	R106
FCXR142210	22k1	R107
FCXR146810	68k1	R108
FCXR071000	10M	R109

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

Code	Description	Reference
FCXR132000	2k0	R110
FCXR135620	5k62	R111
FCXR141000	10k0	R112
FCXR131000	1k0	R113
FCXR121780	178	R114
FCXR131000	1k0	R115
FCXR127870	787	R116
FCXR121910	191	R117
FCXR127870	787	R118
FCXR121910	191	R119
FCXR131500	1k50	R120
FCXR131500	1k50	R121
FCXR131500	1k50	R122
FCRJR44700	4k7	R123
FCXR113320	33.2	R124
FCRC236800	680/ 1/2	R125
FCXR151000	100k0	R126
FCXR151000	100k0	R127
FCXR128250	825	R128
FCXR141000	10k0	R129
FCXR141000	10k0	R130
FCRC236800	680/ 1/2	R131
FCXR113320	33.2	R132
FCXR115620	56.2	R133
FCXR115620	56.2	R134
FCRF221000	NF10/1/2	R135
FCRF221000	NF10/1/2	R136
FCRF426800	NF68/1	R137
FCRF426800	NF68/1	R138
FCRF221800	NF18/ 1/2	R139
FCRF221800	NF18/ 1/2	R140
FCRY000100	W0.22/5	R141
FCRY000100	W0.22/5	R142
FCXR151500	150k0	R143
FCRY000250	6.8/5W	R144
FCXR151500	150k0	R145
FCXR121000	100.0	R146
FCXR121000	100.0	R147
FCXR131000	1k0	R148
FCXR131000	1k0	R149
FCXR143320	33k2	R150
FCXR143320	33k2	R151
FCXR142210	22k1	R152
FCXR143320	33k2	R153
FCXR143320	33k2	R154
FCXR142210	22k1	R155
FCXR121000	100.0	R156
FCXR125620	562	R157
FCXR121000	100.0	R158
FCXR125620	562	R159
FCXR123010	301	R160
FCXR123010	301	R161
FCXR115620	56.2	R162
FCXR115620	56.2	R163
FCXR141000	10k0	R164
FCXR135110	5k11	R165

OLD VERSION

PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

Code	Description	Reference
FCXR141000	10k0	R166
FCXR135110	5k11	R167
FCXR131000	1k0	R168
FCXR131000	1k0	R169
FCXR141000	10k0	R170
FCRC521000	10/2	R171
FCRC512200	2.2/2	R172
FCXR147500	75k0	R173
FCXR143320	33k2	R174
FCXR151000	100k0	R175
FCXR151000	100k0	R176
FCXR132210	2k21	R177
FCXR138250	8k25	R178
FCXR141000	10k0	R179
FCXR131820	1k82	R180
FCXR131000	1k0	R181
FCXR141000	10k0	R182
FCXR151000	100k0	R183
FCXR131000	1k0	R184
FCXR062200	2M2	R185
FCXR141000	10k0	R186
FCXR144750	47k5	R187
FCXR144750	47k5	R188
FCXR142210	22k1	R189
FCXR144750	47k5	R190
FCXR144750	47k5	R191
FCXR144750	47k5	R192
FCXR142210	22k1	R193
FCXR152870	287k	R194
FCXR141000	10k0	R195
FCXR151000	100k0	R196
FCXR131500	1k50	R197
FCXR115620	56.2	R198
FCXR115620	56.2	R199
FCXR131000	1k0	R200
FCRF221800	NF18/ 1/2	R201
FCRF221800	NF18/ 1/2	R202
FCRY000100	W0.22/5	R203
FCRY000100	W0.22/5	R204
FCRF221800	NF18/ 1/2	R205
FCRF221800	NF18/ 1/2	R206
FCRY000100	W0.22/5	R207
FCRY000100	W0.22/5	R208
FCRF221800	NF18/ 1/2	R209
FCRF221800	NF18/ 1/2	R210
FCRY000100	W0.22/5	R211
FCRY000100	W0.22/5	R212
FCRF221800	NF18/ 1/2	R213
FCRF221800	NF18/ 1/2	R214
FCRY000100	W0.22/5	R215
FCRY000100	W0.22/5	R216
FCRF221800	NF18/ 1/2	R217
FCRF221800	NF18/ 1/2	R218
FCRY000100	W0.22/5	R219
FCRY000100	W0.22/5	R220
FCXR143320	33k2	R221

OLD VERSION

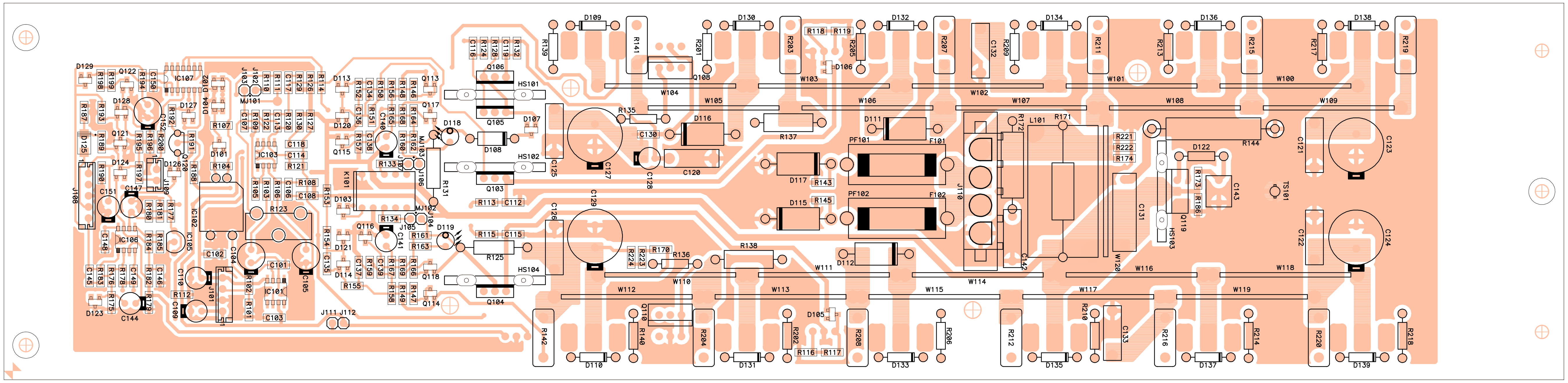
PARTS LIST: PRINTED CIRCUIT 11.0874.06.00

Code	Description	Reference
FCXR143320	33k2	R222
FCXR141000	10k0	R223
FCXR143320	33k2	R224
FCXR152260	226k	R225
FCXR141000	10k0	R226
FCXR144750	47k5	R227
FCT7503008	Screw M3x8	SC100
FCT7503008	Screw M3x8	SC101
FCT7503008	Screw M3x8	SC102
FCT7003015	Screw M3x15	SC103
FCTERMF280	Faston 2.8mm	TS101
FCMECPON34	34mm	W100
FCMECPON34	34mm	W101
FCMECPON34	34mm	W102
FCMECPON34	34mm	W103
FCMECPON34	34mm	W104
FCMECPON34	34mm	W105
FCMECPON34	34mm	W106
FCMECPON34	34mm	W107
FCMECPON34	34mm	W108
FCMECPON34	34mm	W109
FCMECPON34	34mm	W110
FCMECPON34	34mm	W111
FCMECPON34	34mm	W112
FCMECPON34	34mm	W113
FCMECPON34	34mm	W114
FCMECPON34	34mm	W115
FCMECPON34	34mm	W116
FCMECPON34	34mm	W117
FCMECPON34	34mm	W118
FCMECPON34	34mm	W119
FCMECPON34	34mm	W120
FCARDE0300	Toothed Washer f/M3	WA101
FCARM32000	Metal Washer 3.2x6x0.5	WA102
FCARDE0300	Toothed Washer f/M3	WA103
FCARDE0300	Toothed Washer f/M3	WA104
FCARDE0300	Toothed Washer f/M3	WA105
FCARM32000	Metal Washer 3.2x6x0.5	WA106

OLD VERSION

For Q111, Q112, Q123, Q124, Q125, Q126, Q127, Q128 Q129, Q130, Q131, Q132 = IRFP360

R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W



OLD VERSION

ECLER
LABORATORIO DE ELECTRO–ACUSTICA S.A.

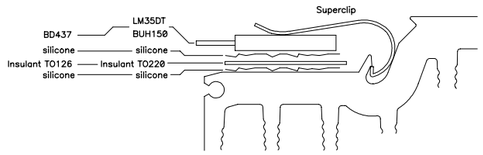
related to: circuit no: 11.0874–05.00
schema no: 10.0528–02.03
insertion file no: 81.0056–02.02

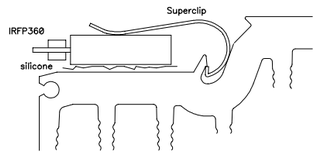
side: Component
view: Reference

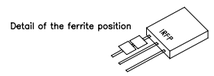
project n: EP08–00
product n: APA2000
approved: Angel Sanuy

title: Power–Protect Module

number: 33.0642
version: 02.02
drawn by: Jordi Folch
date: 011105

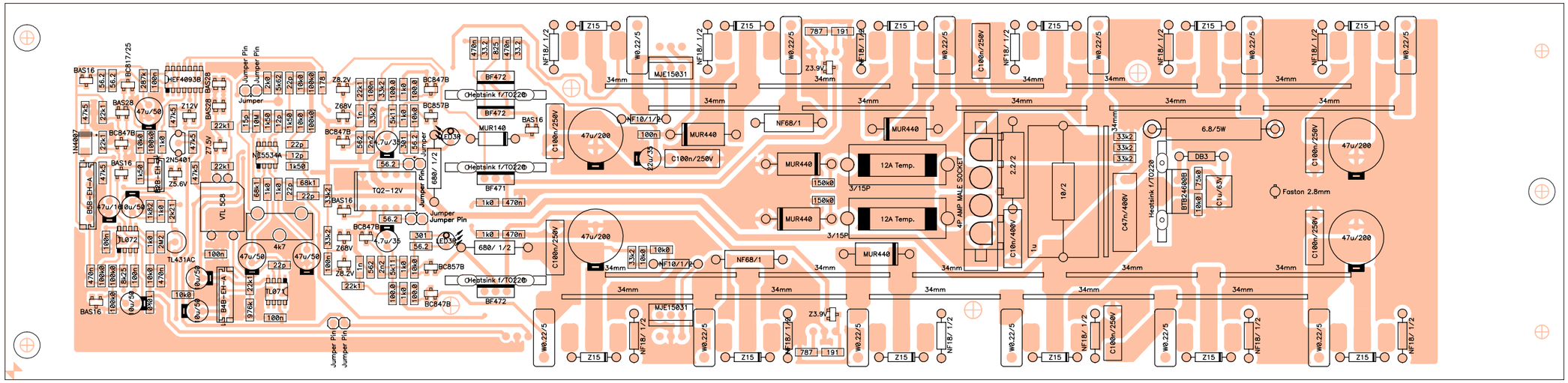


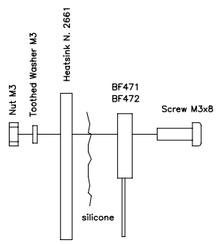


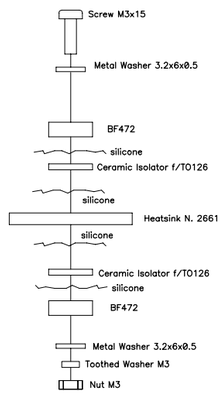


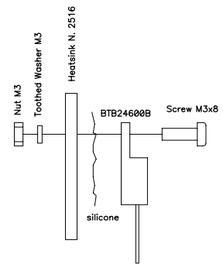
For Q111, Q112, Q123, Q124, Q125, Q126, Q127, Q128 Q129, Q130, Q131, Q132 = IRFP360

R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W



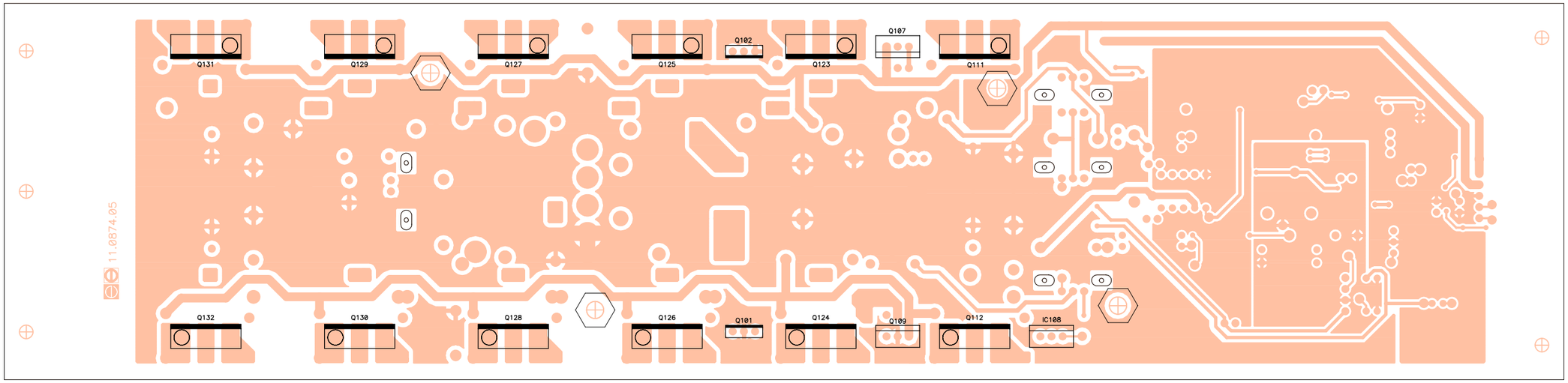






OLD VERSION

ECLEREE LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0874-05.00 schema no: 10.0528-02.03 insertion file no: 81.0056-02.02	side: Component view: Value	
number: 33.0643	version: 02.02	project n: EP08-00	title: Power-Protect Module
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	

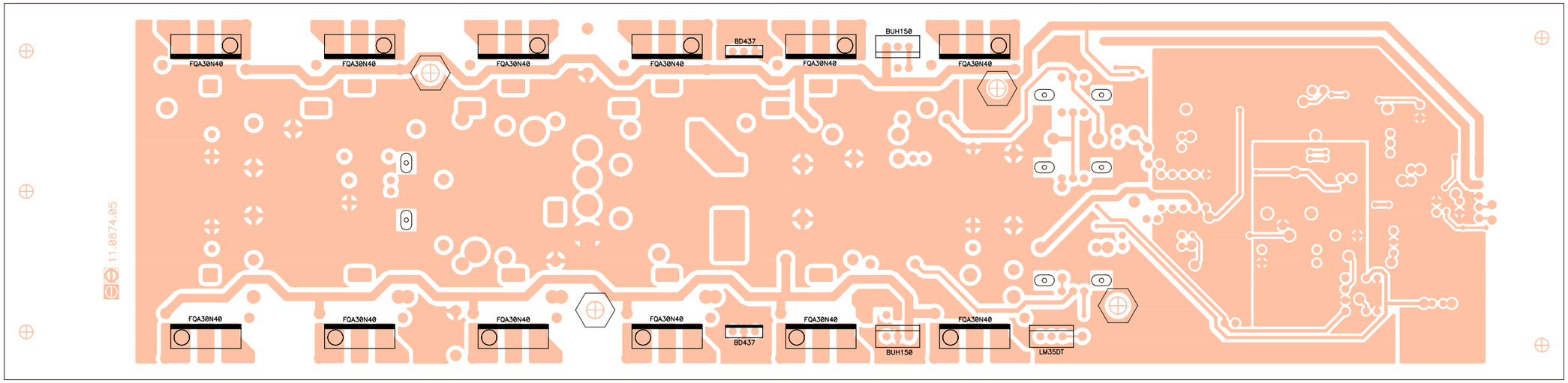


For Q111, Q112, Q123, Q124, Q125, Q126, Q127, Q128 Q129, Q130, Q131, Q132 = IRFP360

R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W

OLD VERSION

ECLEREE LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0874-05.00 schema no: 10.0528-02.03 insertion file no:		side: Solder view: Reference
	project n: EP08-00	title: Power-Protect Module	
number: 33.0644	version: 02.01	product n: APA2000	
drawn by: Jordi Folch	date: 011105	approved: Angel Sanuy	



For Q111, Q112, Q123, Q124, Q125, Q126, Q127, Q128 Q129, Q130, Q131, Q132 = IRFP360

R139, R140, R201, R202, R205, R206, R209, R210, R213, R214, R217, R218 = NF 10 ohms 1/2W

OLD VERSION

ECLEREE LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0874-05.00 schema no: 10.0528-02.03 insertion file no:	side: Solder view: Value	
number: 33.0645	version: 02.01	project n: EP08-00	title: Power-Protect Module
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0874.05.00

OLD VERSION

Code	Description	Reference
FCXCN12200	22p	C101
FCXCN41000	100n	C102
FCXCN41000	100n	C103
FCCE250470	47u/50	C104
FCCE250470	47u/50	C105
FCXCN12200	22p	C106
FCXCN11500	15p	C107
FCXCN12200	22p	C108
FCCE250100	10u/50	C109
FCCE250100	10u/50	C110
FCXCN44700	470n	C112
FCXCN11200	12p	C113
FCXCN11200	12p	C114
FCXCN44700	470n	C115
FCXCN44700	470n	C116
FCXCN12200	22p	C117
FCXCN12200	22p	C118
FCXCN44700	470n	C119
FCCDN11000	C100n/250V	C120
FCCDN11000	C100n/250V	C121
FCCDN11000	C100n/250V	C122
FCCE350220	47u/200	C123
FCCE350220	47u/200	C124
FCCDN11000	C100n/250V	C125
FCCDN11000	C100n/250V	C126
FCCE350220	47u/200	C127
FCCE200220	22u/35	C128
FCCE350220	47u/200	C129
FCXCN41000	100n	C130
FCCDH71047	C47n/400V	C131
FCCDN11000	C100n/250V	C132
FCCDN11000	C100n/250V	C133
FCXCN41000	100n	C134
FCXCN41000	100n	C135
FCXCN40010	1n	C136
FCXCN40010	1n	C137
FCXCN40022	2n2	C138
FCXCN40022	2n2	C139
FCCE200047	4.7u/35	C140
FCCE200047	4.7u/35	C141
FCCDH71011	C10n/400V	C142
FCCDK20010	C1u/63V	C143
FCCE250100	10u/50	C144
FCXCN44700	470n	C145
FCXCN44700	470n	C146
FCCE250100	10u/50	C147
FCXCN41000	100n	C148
FCXCN41000	100n	C149
FCXCN41000	100n	C150
FCCE100000	47u/16	C151
FCCE250470	47u/50	C152
FCPERL2550	Cer. Bead	CB101
FCPERL2550	Cer. Bead	CB102
FCPERL2550	Cer. Bead	CB103
FCPERL2550	Cer. Bead	CB104
FCCIPAM838	Printed Board 11.0874	CI101

PARTS LIST: PRINTED CIRCUIT 11.0874.05.00

OLD VERSION

Code	Description	Reference
FCXZ000075	Z7.5V	D101
FCXDDBAS28	BAS28	D102
FCXDDBAS16	BAS16	D103
FCXDDBAS28	BAS28	D104
FCXZ000039	Z3.9V	D105
FCXZ000039	Z3.9V	D106
FCXDDBAS16	BAS16	D107
FCDDMUR140	MUR140	D108
FCDD041500	Z15	D109
FCDD041500	Z15	D110
FCDDMUR440	MUR440	D111
FCDDMUR440	MUR440	D112
FCXZ000082	Z8.2V	D113
FCXZ000082	Z8.2V	D114
FCDDMUR440	MUR440	D115
FCDDMUR440	MUR440	D116
FCDDMUR440	MUR440	D117
FCLED300RO	LED3R	D118
FCLED300RO	LED3R	D119
FCXZ000680	Z68V	D120
FCXZ000680	Z68V	D121
FCDIDB3000	DB3	D122
FCXDDBAS16	BAS16	D123
FCXDDBAS16	BAS16	D124
FCXDD40070	1N4007	D125
FCXZ000056	Z5.6V	D126
FCXZ000120	Z12V	D127
FCXDDBAS28	BAS28	D128
FCXDDBAS16	BAS16	D129
FCDD041500	Z15	D130
FCDD041500	Z15	D131
FCDD041500	Z15	D132
FCDD041500	Z15	D133
FCDD041500	Z15	D134
FCDD041500	Z15	D135
FCDD041500	Z15	D136
FCDD041500	Z15	D137
FCDD041500	Z15	D138
FCDD041500	Z15	D139
FCFUS50400	12A Temp.	F101
FCFUS50400	12A Temp.	F102
FCFER43220	Ferrite	FB101
FCFER43220	Ferrite	FB102
FCFER43220	Ferrite	FB103
FCFER43220	Ferrite	FB104
FCFER43220	Ferrite	FB105
FCFER43220	Ferrite	FB106
FCFER43220	Ferrite	FB107
FCFER43220	Ferrite	FB108
FCFER43220	Ferrite	FB109
FCFER43220	Ferrite	FB110
FCFER43220	Ferrite	FB111
FCFER43220	Ferrite	FB112
FCFER43220	Ferrite	FB113
FCFER43220	Ferrite	FB114
FCFER43220	Ferrite	FB115

PARTS LIST: PRINTED CIRCUIT 11.0874.05.00

OLD VERSION

Code	Description	Reference
FCFER43220	Ferrite	FB116
FCFER43220	Ferrite	FB117
FCFER43220	Ferrite	FB118
FCFER43220	Ferrite	FB119
FCFER43220	Ferrite	FB120
FCFER43220	Ferrite	FB121
FCFER43220	Ferrite	FB122
FCFER43220	Ferrite	FB123
FCFER43220	Ferrite	FB124
FCMECT0220	Heatsink f/TO220	HS101
FCMECT0220	Heatsink f/TO220	HS102
FCMECT0220	Heatsink f/TO220	HS103
FCMECT0220	Heatsink f/TO220	HS104
FCIC071010	TL071	IC101
FCOPTVTL50	VTL 5C8	IC102
FCIC553410	NE5534A	IC103
FCIC431000	TL431AC	IC105
FCIC072010	TL072	IC106
FCIC409301	HEF4093B	IC107
FCIC35DT00	LM35DT	IC108
FCSEPCE126	Cer. Isol. TO126	IN100
FCMICTO126	Insulant TO126	IN101
FCMICTO126	Insulant TO126	IN102
FCMICTO220	Insulant TO220	IN103
FCMICTO220	Insulant TO220	IN104
FCMICTO220	Insulant TO220	IN105
FCSEPCE126	Cer. Isol. TO126	IN106
FCCTM00040	B4B-EH-A	J101
FCTERM0100	Jumper Pin	J102
FCTERM0100	Jumper Pin	J103
FCTERM0100	Jumper Pin	J104
FCTERM0100	Jumper Pin	J105
FCTERM0100	Jumper Pin	J106
FCTERM0100	Jumper Pin	J107
FCCTM00050	B5B-EH-A	J108
FCCTM00020	B2B-EH-A	J109
FCCTAMP040	4P AMP MALE SOCKET	J110
FCTERM0100	Jumper Pin	J111
FCTERM0100	Jumper Pin	J112
FCREL00300	TQ2-12V	K101
FCIND00100	1u	L101
FCMJ000100	Jumper	MJ101
FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCPINZAM10	Superclip 5k	MP100
FCPINZAM10	Superclip 5k	MP101
FCPINZAM10	Superclip 5k	MP102
FCPINZAM10	Superclip 5k	MP103
FCPINZAM10	Superclip 5k	MP104
FCPINZAM10	Superclip 5k	MP105
FCPINZAM10	Superclip 5k	MP106
FCPINZAM10	Superclip 5k	MP107
FCPINZAM10	Superclip 5k	MP108
FCPINZAM10	Superclip 5k	MP109
FCPINZAM10	Superclip 5k	MP110
FCPINZAM10	Superclip 5k	MP111

PARTS LIST: PRINTED CIRCUIT 11.0874.05.00

OLD VERSION

Code	Description	Reference
FCPINZAM10	Superclip 5k	MP112
FCPINZAM10	Superclip 5k	MP113
FCPINZAM10	Superclip 5k	MP114
FCPINZAM10	Superclip 5k	MP115
FCPINZAM10	Superclip 5k	MP116
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCTUE00300	Nut M3	NV104
FCPORF3150	3/15P	PF101
FCPORF3150	3/15P	PF102
FCTR437000	BD437	Q101
FCTR437000	BD437	Q102
FCTR471000	BF471	Q103
FCTR472000	BF472	Q104
FCTR472000	BF472	Q105
FCTR472000	BF472	Q106
FCTR150000	BUH150	Q107
FCTR150310	MJE15031	Q108
FCTR150000	BUH150	Q109
FCTR150310	MJE15031	Q110
FCTR360000	FQA30N40	Q111
FCTR360000	FQA30N40	Q112
FCXTT08470	BC847B	Q113
FCXTT08470	BC847B	Q114
FCXTT08470	BC847B	Q115
FCXTT08470	BC847B	Q116
FCXTT08570	BC857B	Q117
FCXTT08570	BC857B	Q118
FCTI246000	BTB24600B	Q119
FCTR254010	2N5401	Q120
FCXTT08470	BC847B	Q121
FCXTT08170	BC817/25	Q122
FCTR360000	FQA30N40	Q123
FCTR360000	FQA30N40	Q124
FCTR360000	FQA30N40	Q125
FCTR360000	FQA30N40	Q126
FCTR360000	FQA30N40	Q127
FCTR360000	FQA30N40	Q128
FCTR360000	FQA30N40	Q129
FCTR360000	FQA30N40	Q130
FCTR360000	FQA30N40	Q131
FCTR360000	FQA30N40	Q132
FCXR159760	976k	R101
FCXR142210	22k1	R102
FCXR131000	1k0	R103
FCXR142210	22k1	R104
FCXR146810	68k1	R105
FCXR131000	1k0	R106
FCXR142210	22k1	R107
FCXR146810	68k1	R108
FCXR071000	10M	R109
FCXR132000	2k0	R110
FCXR135620	5k62	R111
FCXR141000	10k0	R112
FCXR131000	1k0	R113

PARTS LIST: PRINTED CIRCUIT 11.0874.05.00

OLD VERSION

Code	Description	Reference
FCXR121780	178	R114
FCXR131000	1k0	R115
FCXR127870	787	R116
FCXR121910	191	R117
FCXR127870	787	R118
FCXR121910	191	R119
FCXR131500	1k50	R120
FCXR131500	1k50	R121
FCXR131500	1k50	R122
Consultar	4k7	R123
FCXR113320	33.2	R124
FCRC236800	680/ 1/2	R125
FCXR151000	100k0	R126
FCXR151000	100k0	R127
FCXR128250	825	R128
FCXR141000	10k0	R129
FCXR141000	10k0	R130
FCRC236800	680/ 1/2	R131
FCXR113320	33.2	R132
FCXR115620	56.2	R133
FCXR115620	56.2	R134
FCRF221000	NF10/1/2	R135
FCRF221000	NF10/1/2	R136
FCRF426800	NF68/1	R137
FCRF426800	NF68/1	R138
FCRF221800	NF18/ 1/2	R139
FCRF221800	NF18/ 1/2	R140
FCRY000100	W0.22/5	R141
FCRY000100	W0.22/5	R142
FCXR151500	150k0	R143
FCRY000250	6.8/5W	R144
FCXR151500	150k0	R145
FCXR121000	100.0	R146
FCXR121000	100.0	R147
FCXR131000	1k0	R148
FCXR131000	1k0	R149
FCXR143320	33k2	R150
FCXR143320	33k2	R151
FCXR142210	22k1	R152
FCXR143320	33k2	R153
FCXR143320	33k2	R154
FCXR142210	22k1	R155
FCXR121000	100.0	R156
FCXR125620	562	R157
FCXR121000	100.0	R158
FCXR125620	562	R159
FCXR123010	301	R160
FCXR123010	301	R161
FCXR115620	56.2	R162
FCXR115620	56.2	R163
FCXR141000	10k0	R164
FCXR135110	5k11	R165
FCXR141000	10k0	R166
FCXR135110	5k11	R167
FCXR131000	1k0	R168
FCXR131000	1k0	R169

PARTS LIST: PRINTED CIRCUIT 11.0874.05.00

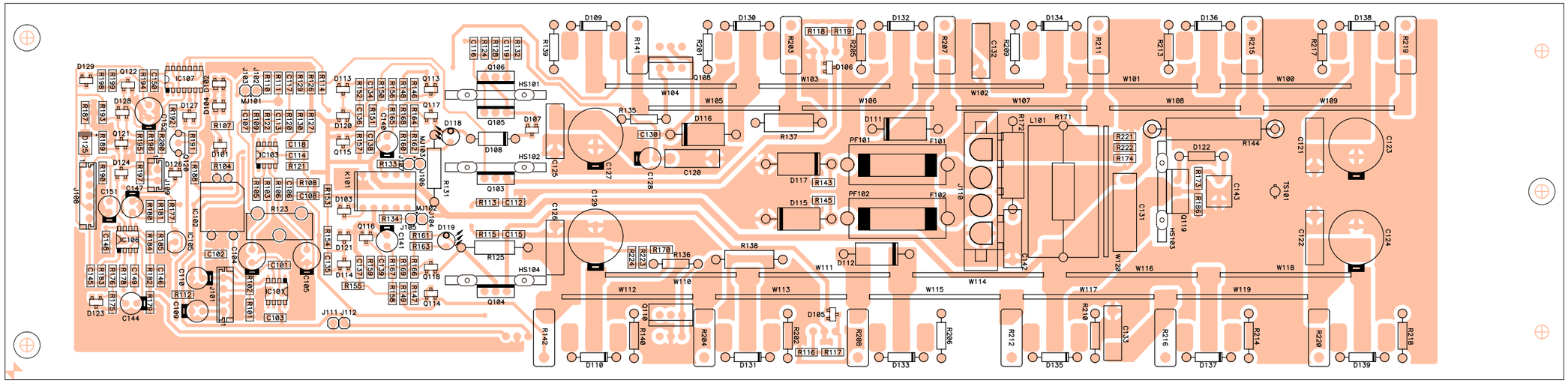
OLD VERSION

Code	Description	Reference
FCXR141000	10k0	R170
FCRC521000	10/2	R171
FCRC512200	2.2/2	R172
FCXR147500	75k0	R173
FCXR143320	33k2	R174
FCXR151000	100k0	R175
FCXR151000	100k0	R176
FCXR132210	2k21	R177
FCXR138250	8k25	R178
FCXR141000	10k0	R179
FCXR131820	1k82	R180
FCXR131000	1k0	R181
FCXR141000	10k0	R182
FCXR151000	100k0	R183
FCXR131000	1k0	R184
FCXR062200	2M2	R185
FCXR141000	10k0	R186
FCXR144750	47k5	R187
FCXR144750	47k5	R188
FCXR142210	22k1	R189
FCXR144750	47k5	R190
FCXR144750	47k5	R191
FCXR144750	47k5	R192
FCXR142210	22k1	R193
FCXR152870	287k	R194
FCXR141000	10k0	R195
FCXR151000	100k0	R196
FCXR131500	1k50	R197
FCXR115620	56.2	R198
FCXR115620	56.2	R199
FCXR131000	1k0	R200
FCRF221800	NF18/ 1/2	R201
FCRF221800	NF18/ 1/2	R202
FCRY000100	W0.22/5	R203
FCRY000100	W0.22/5	R204
FCRF221800	NF18/ 1/2	R205
FCRF221800	NF18/ 1/2	R206
FCRY000100	W0.22/5	R207
FCRY000100	W0.22/5	R208
FCRF221800	NF18/ 1/2	R209
FCRF221800	NF18/ 1/2	R210
FCRY000100	W0.22/5	R211
FCRY000100	W0.22/5	R212
FCRF221800	NF18/ 1/2	R213
FCRF221800	NF18/ 1/2	R214
FCRY000100	W0.22/5	R215
FCRY000100	W0.22/5	R216
FCRF221800	NF18/ 1/2	R217
FCRF221800	NF18/ 1/2	R218
FCRY000100	W0.22/5	R219
FCRY000100	W0.22/5	R220
FCXR143320	33k2	R221
FCXR143320	33k2	R222
FCXR141000	10k0	R223
FCXR143320	33k2	R224
FCT7503008	Screw M3x8	SC100

PARTS LIST: PRINTED CIRCUIT 11.0874.05.00

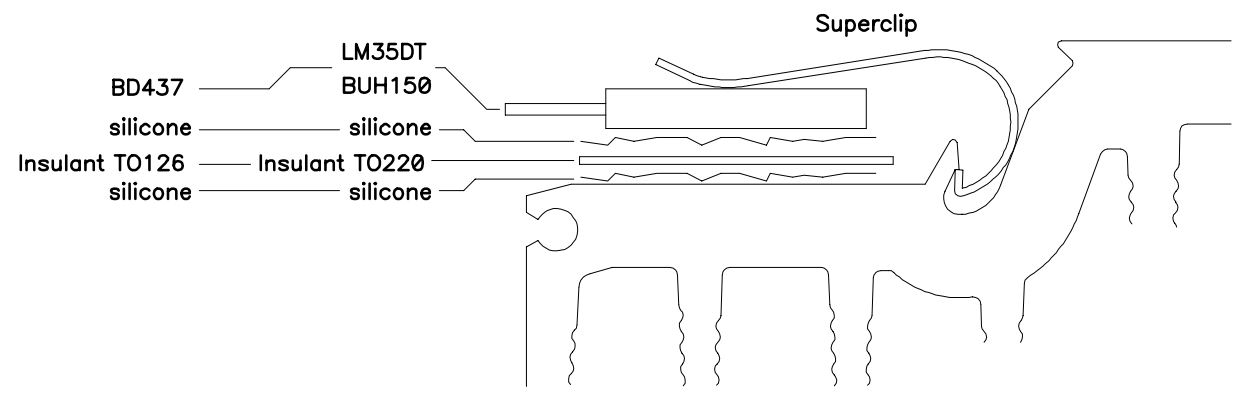
Code	Description	Reference
FCT7503008	Screw M3x8	SC101
FCT7503008	Screw M3x8	SC102
FCT7003015	Screw M3x15	SC103
FCTERMF280	Faston 2.8mm	TS101
FCMECPON34	34mm	W100
FCMECPON34	34mm	W101
FCMECPON34	34mm	W102
FCMECPON34	34mm	W103
FCMECPON34	34mm	W104
FCMECPON34	34mm	W105
FCMECPON34	34mm	W106
FCMECPON34	34mm	W107
FCMECPON34	34mm	W108
FCMECPON34	34mm	W109
FCMECPON34	34mm	W110
FCMECPON34	34mm	W111
FCMECPON34	34mm	W112
FCMECPON34	34mm	W113
FCMECPON34	34mm	W114
FCMECPON34	34mm	W115
FCMECPON34	34mm	W116
FCMECPON34	34mm	W117
FCMECPON34	34mm	W118
FCMECPON34	34mm	W119
FCMECPON34	34mm	W120
FCARDE0300	Toothed Washer f/M3	WA101
FCARM32000	Metal Washer 3.2x6x0.5	WA102
FCARDE0300	Toothed Washer f/M3	WA103
FCARDE0300	Toothed Washer f/M3	WA104
FCARDE0300	Toothed Washer f/M3	WA105
FCARM32000	Metal Washer 3.2x6x0.5	WA106

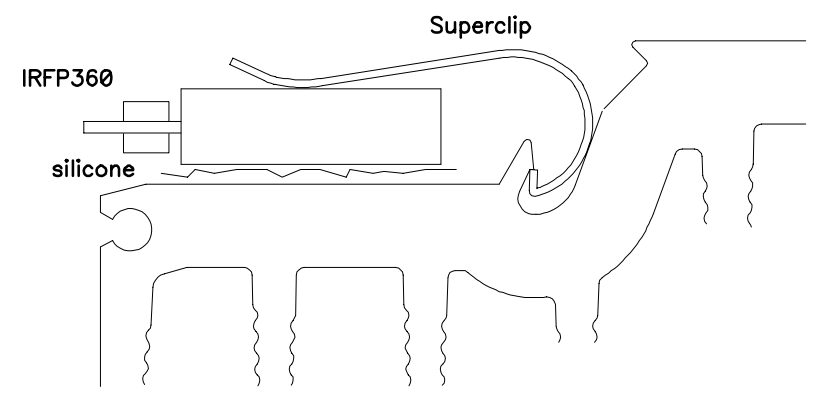
OLD VERSION

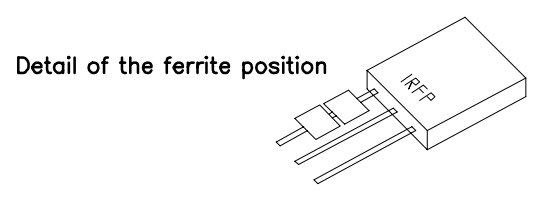


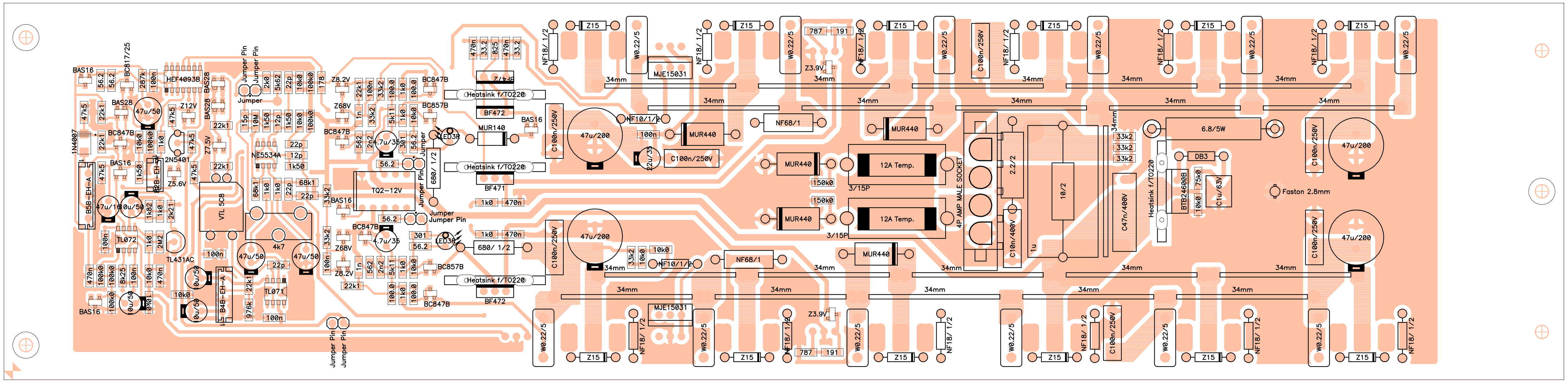
OLD VERSION

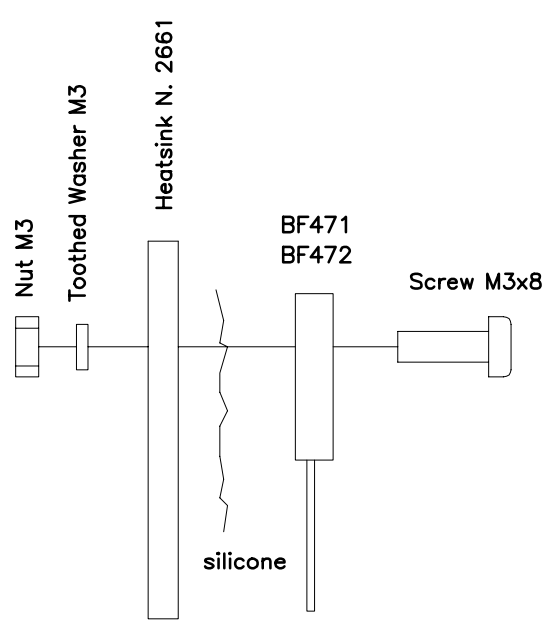
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number: 33.0642	version: 02.01	project n: EP08-00	title: Power-Protect Module
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	

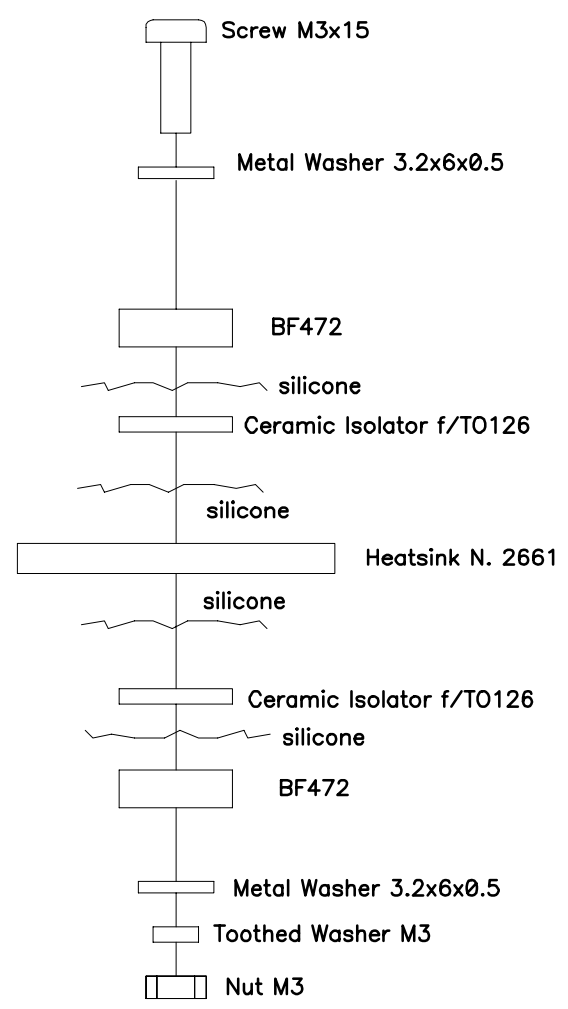


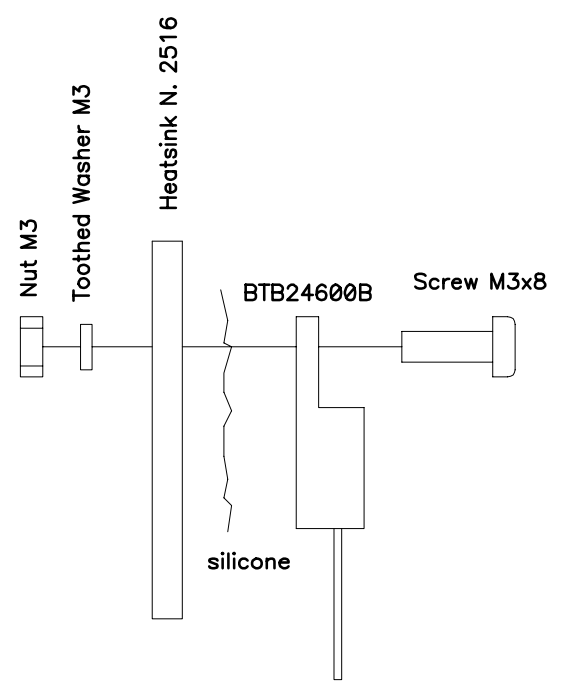






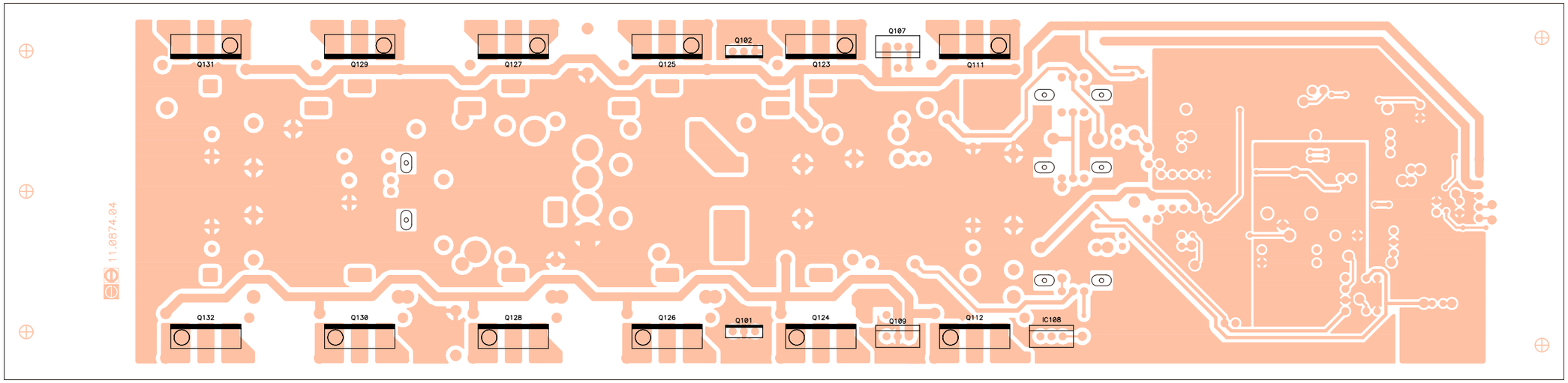






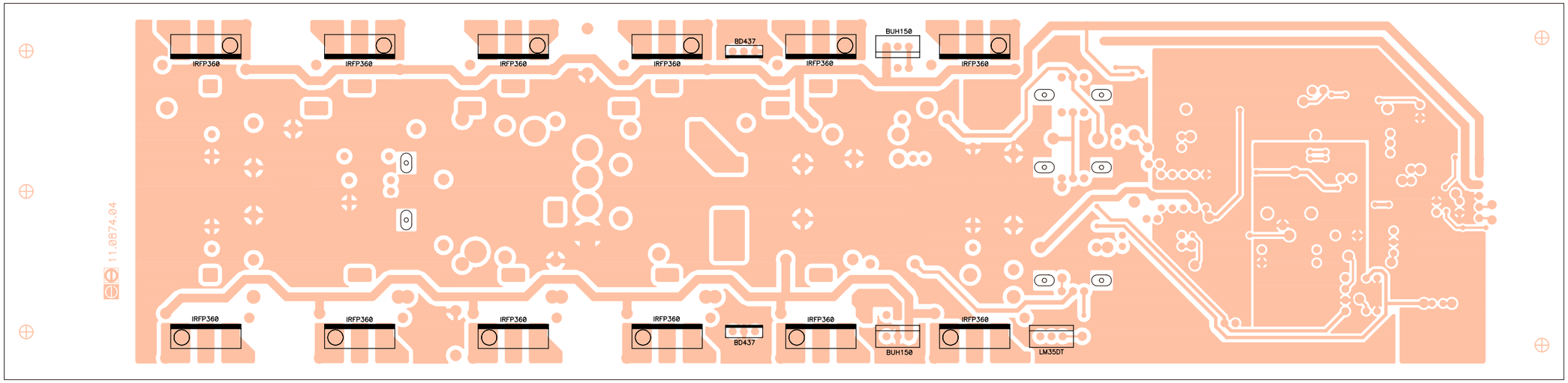
OLD VERSION

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		project n: EP08-00	title: Power-Protect Module
number: 33.0643	version: 02.01	product n: APA2000	
drawn by: Jordi Folch	date: 011105	approved: Angel Sanuy	



OLD VERSION

ECLEREE LABORATORIO DE ELECTRO–ACUSTICA S.A.	related to: circuit no: 11.0874–04.00 schema no: 10.0528–02.03 insertion file no:	side: Solder view: Reference	
number: 33.0644	version: 02.00	project n: EP08–00	title: Power–Protect Module
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	



OLD VERSION

ECLEREE LABORATORIO DE ELECTRO–ACUSTICA S.A.	related to: circuit no: 11.0874–04.00 schema no: 10.0528–02.03 insertion file no:	side: Solder view: Value	
number: 33.0645	version: 02.00	project n: EP08–00	title: Power–Protect Module
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0874.04.00

OLD VERSION

Code	Description	Reference
FCXCN12200	22p	C101
FCXCN41000	100n	C102
FCXCN41000	100n	C103
FCCE250470	47u/50	C104
FCCE250470	47u/50	C105
FCXCN12200	22p	C106
FCXCN11500	15p	C107
FCXCN12200	22p	C108
FCCE250100	10u/50	C109
FCCE250100	10u/50	C110
FCXCN44700	470n	C112
FCXCN11200	12p	C113
FCXCN11200	12p	C114
FCXCN44700	470n	C115
FCXCN44700	470n	C116
FCXCN12200	22p	C117
FCXCN12200	22p	C118
FCXCN44700	470n	C119
FCCDN11000	C100n/250V	C120
FCCDN11000	C100n/250V	C121
FCCDN11000	C100n/250V	C122
FCCE350220	47u/200	C123
FCCE350220	47u/200	C124
FCCDN11000	C100n/250V	C125
FCCDN11000	C100n/250V	C126
FCCE350220	47u/200	C127
FCCE200220	22u/35	C128
FCCE350220	47u/200	C129
FCXCN41000	100n	C130
FCCDH71047	C47n/400V	C131
FCCDN11000	C100n/250V	C132
FCCDN11000	C100n/250V	C133
FCXCN41000	100n	C134
FCXCN41000	100n	C135
FCXCN40010	1n	C136
FCXCN40010	1n	C137
FCXCN40022	2n2	C138
FCXCN40022	2n2	C139
FCCE200047	4.7u/35	C140
FCCE200047	4.7u/35	C141
FCCDH71011	C10n/400V	C142
FCCDK20010	C1u/63V	C143
FCCE250100	10u/50	C144
FCXCN44700	470n	C145
FCXCN44700	470n	C146
FCCE250100	10u/50	C147
FCXCN41000	100n	C148
FCXCN41000	100n	C149
FCXCN41000	100n	C150
FCCE100000	47u/16	C151
FCCE250470	47u/50	C152
FCPERL2550	Cer. Bead	CB101
FCPERL2550	Cer. Bead	CB102
FCPERL2550	Cer. Bead	CB103
FCPERL2550	Cer. Bead	CB104
FCCIPAM838	Printed Board 11.0874	CI101

PARTS LIST: PRINTED CIRCUIT 11.0874.04.00

OLD VERSION

Code	Description	Reference
FCXZ000075	Z7.5V	D101
FCXDDBAS28	BAS28	D102
FCXDDBAS16	BAS16	D103
FCXDDBAS28	BAS28	D104
FCXZ000039	Z3.9V	D105
FCXZ000039	Z3.9V	D106
FCXDDBAS16	BAS16	D107
FCDDMUR140	MUR140	D108
FCDD041500	Z15	D109
FCDD041500	Z15	D110
FCDDMUR440	MUR440	D111
FCDDMUR440	MUR440	D112
FCXZ000082	Z8.2V	D113
FCXZ000082	Z8.2V	D114
FCDDMUR440	MUR440	D115
FCDDMUR440	MUR440	D116
FCDDMUR440	MUR440	D117
FCLED300RO	LED3R	D118
FCLED300RO	LED3R	D119
FCXZ000680	Z68V	D120
FCXZ000680	Z68V	D121
FCDIDB3000	DB3	D122
FCXDDBAS16	BAS16	D123
FCXDDBAS16	BAS16	D124
FCXDD40070	1N4007	D125
FCXZ000056	Z5.6V	D126
FCXZ000120	Z12V	D127
FCXDDBAS28	BAS28	D128
FCXDDBAS16	BAS16	D129
FCDD041500	Z15	D130
FCDD041500	Z15	D131
FCDD041500	Z15	D132
FCDD041500	Z15	D133
FCDD041500	Z15	D134
FCDD041500	Z15	D135
FCDD041500	Z15	D136
FCDD041500	Z15	D137
FCDD041500	Z15	D138
FCDD041500	Z15	D139
FCFUS50400	12A Temp.	F101
FCFUS50400	12A Temp.	F102
FCFER43220	Ferrite	FB101
FCFER43220	Ferrite	FB102
FCFER43220	Ferrite	FB103
FCFER43220	Ferrite	FB104
FCFER43220	Ferrite	FB105
FCFER43220	Ferrite	FB106
FCFER43220	Ferrite	FB107
FCFER43220	Ferrite	FB108
FCFER43220	Ferrite	FB109
FCFER43220	Ferrite	FB110
FCFER43220	Ferrite	FB111
FCFER43220	Ferrite	FB112
FCFER43220	Ferrite	FB113
FCFER43220	Ferrite	FB114
FCFER43220	Ferrite	FB115

PARTS LIST: PRINTED CIRCUIT 11.0874.04.00

OLD VERSION

Code	Description	Reference
FCFER43220	Ferrite	FB116
FCFER43220	Ferrite	FB117
FCFER43220	Ferrite	FB118
FCFER43220	Ferrite	FB119
FCFER43220	Ferrite	FB120
FCFER43220	Ferrite	FB121
FCFER43220	Ferrite	FB122
FCFER43220	Ferrite	FB123
FCFER43220	Ferrite	FB124
FCMECT0220	Heatsink f/TO220	HS101
FCMECT0220	Heatsink f/TO220	HS102
FCMECT0220	Heatsink f/TO220	HS103
FCMECT0220	Heatsink f/TO220	HS104
FCIC071010	TL071	IC101
FCOPTVTL50	VTL 5C8	IC102
FCIC553410	NE5534A	IC103
FCIC431000	TL431AC	IC105
FCIC072010	TL072	IC106
FCIC409301	HEF4093B	IC107
FCIC35DT00	LM35DT	IC108
FCSEPCE126	Cer. Isol. TO126	IN100
FCMICTO126	Insulant TO126	IN101
FCMICTO126	Insulant TO126	IN102
FCMICTO220	Insulant TO220	IN103
FCMICTO220	Insulant TO220	IN104
FCMICTO220	Insulant TO220	IN105
FCSEPCE126	Cer. Isol. TO126	IN106
FCCTM00040	B4B-EH-A	J101
FCTERM0100	Jumper Pin	J102
FCTERM0100	Jumper Pin	J103
FCTERM0100	Jumper Pin	J104
FCTERM0100	Jumper Pin	J105
FCTERM0100	Jumper Pin	J106
FCTERM0100	Jumper Pin	J107
FCCTM00050	B5B-EH-A	J108
FCCTM00020	B2B-EH-A	J109
FCCTAMP040	4P AMP MALE SOCKET	J110
FCTERM0100	Jumper Pin	J111
FCTERM0100	Jumper Pin	J112
FCREL00300	TQ2-12V	K101
FCIND00100	1u	L101
FCMJ000100	Jumper	MJ101
FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCPINZAM10	Superclip 5k	MP100
FCPINZAM10	Superclip 5k	MP101
FCPINZAM10	Superclip 5k	MP102
FCPINZAM10	Superclip 5k	MP103
FCPINZAM10	Superclip 5k	MP104
FCPINZAM10	Superclip 5k	MP105
FCPINZAM10	Superclip 5k	MP106
FCPINZAM10	Superclip 5k	MP107
FCPINZAM10	Superclip 5k	MP108
FCPINZAM10	Superclip 5k	MP109
FCPINZAM10	Superclip 5k	MP110
FCPINZAM10	Superclip 5k	MP111

PARTS LIST: PRINTED CIRCUIT 11.0874.04.00

OLD VERSION

Code	Description	Reference
FCPINZAM10	Superclip 5k	MP112
FCPINZAM10	Superclip 5k	MP113
FCPINZAM10	Superclip 5k	MP114
FCPINZAM10	Superclip 5k	MP115
FCPINZAM10	Superclip 5k	MP116
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCTUE00300	Nut M3	NV104
FCPORF3150	3/15P	PF101
FCPORF3150	3/15P	PF102
FCTR437000	BD437	Q101
FCTR437000	BD437	Q102
FCTR471000	BF471	Q103
FCTR472000	BF472	Q104
FCTR472000	BF472	Q105
FCTR472000	BF472	Q106
FCTR150000	BUH150	Q107
FCTR150310	MJE15031	Q108
FCTR150000	BUH150	Q109
FCTR150310	MJE15031	Q110
FCTR360000	IRFP360	Q111
FCTR360000	IRFP360	Q112
FCXTT08470	BC847B	Q113
FCXTT08470	BC847B	Q114
FCXTT08470	BC847B	Q115
FCXTT08470	BC847B	Q116
FCXTT08570	BC857B	Q117
FCXTT08570	BC857B	Q118
FCTI246000	BTB24600B	Q119
FCTR254010	2N5401	Q120
FCXTT08470	BC847B	Q121
FCXTT08170	BC817/25	Q122
FCTR360000	IRFP360	Q123
FCTR360000	IRFP360	Q124
FCTR360000	IRFP360	Q125
FCTR360000	IRFP360	Q126
FCTR360000	IRFP360	Q127
FCTR360000	IRFP360	Q128
FCTR360000	IRFP360	Q129
FCTR360000	IRFP360	Q130
FCTR360000	IRFP360	Q131
FCTR360000	IRFP360	Q132
FCXR159760	976k	R101
FCXR142210	22k1	R102
FCXR131000	1k0	R103
FCXR142210	22k1	R104
FCXR146810	68k1	R105
FCXR131000	1k0	R106
FCXR142210	22k1	R107
FCXR146810	68k1	R108
FCXR071000	10M	R109
FCXR132000	2k0	R110
FCXR135620	5k62	R111
FCXR141000	10k0	R112
FCXR131000	1k0	R113

PARTS LIST: PRINTED CIRCUIT 11.0874.04.00

OLD VERSION

Code	Description	Reference
FCXR121780	178	R114
FCXR131000	1k0	R115
FCXR127870	787	R116
FCXR121910	191	R117
FCXR127870	787	R118
FCXR121910	191	R119
FCXR131500	1k50	R120
FCXR131500	1k50	R121
FCXR131500	1k50	R122
Consultar	4k7	R123
FCXR113320	33.2	R124
FCRC236800	680/ 1/2	R125
FCXR151000	100k0	R126
FCXR151000	100k0	R127
FCXR128250	825	R128
FCXR141000	10k0	R129
FCXR141000	10k0	R130
FCRC236800	680/ 1/2	R131
FCXR113320	33.2	R132
FCXR115620	56.2	R133
FCXR115620	56.2	R134
FCRF221000	NF10/1/2	R135
FCRF221000	NF10/1/2	R136
FCRF426800	NF68/1	R137
FCRF426800	NF68/1	R138
FCRF221800	NF18/ 1/2	R139
FCRF221800	NF18/ 1/2	R140
FCRY000100	W0.22/5	R141
FCRY000100	W0.22/5	R142
FCXR151500	150k0	R143
FCRY000250	6.8/5W	R144
FCXR151500	150k0	R145
FCXR121000	100.0	R146
FCXR121000	100.0	R147
FCXR131000	1k0	R148
FCXR131000	1k0	R149
FCXR143320	33k2	R150
FCXR143320	33k2	R151
FCXR142210	22k1	R152
FCXR143320	33k2	R153
FCXR143320	33k2	R154
FCXR142210	22k1	R155
FCXR121000	100.0	R156
FCXR125620	562	R157
FCXR121000	100.0	R158
FCXR125620	562	R159
FCXR123010	301	R160
FCXR123010	301	R161
FCXR115620	56.2	R162
FCXR115620	56.2	R163
FCXR141000	10k0	R164
FCXR135110	5k11	R165
FCXR141000	10k0	R166
FCXR135110	5k11	R167
FCXR131000	1k0	R168
FCXR131000	1k0	R169

PARTS LIST: PRINTED CIRCUIT 11.0874.04.00

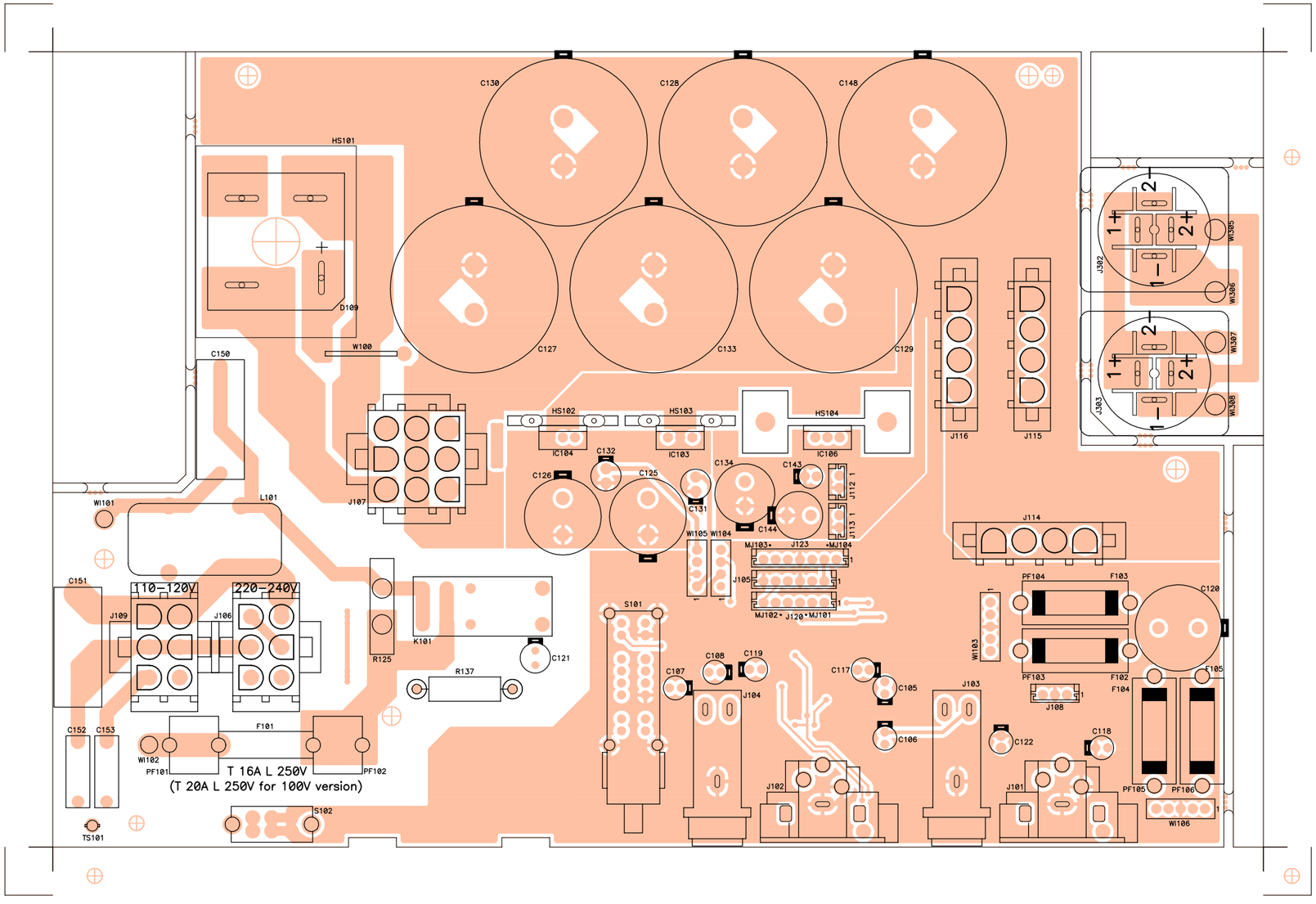
OLD VERSION

Code	Description	Reference
FCXR141000	10k0	R170
FCRC521000	10/2	R171
FCRC512200	2.2/2	R172
FCXR147500	75k0	R173
FCXR143320	33k2	R174
FCXR151000	100k0	R175
FCXR151000	100k0	R176
FCXR132210	2k21	R177
FCXR138250	8k25	R178
FCXR141000	10k0	R179
FCXR131820	1k82	R180
FCXR131000	1k0	R181
FCXR141000	10k0	R182
FCXR151000	100k0	R183
FCXR131000	1k0	R184
FCXR062200	2M2	R185
FCXR141000	10k0	R186
FCXR144750	47k5	R187
FCXR144750	47k5	R188
FCXR142210	22k1	R189
FCXR144750	47k5	R190
FCXR144750	47k5	R191
FCXR144750	47k5	R192
FCXR142210	22k1	R193
FCXR152870	287k	R194
FCXR141000	10k0	R195
FCXR151000	100k0	R196
FCXR131500	1k50	R197
FCXR115620	56.2	R198
FCXR115620	56.2	R199
FCXR131000	1k0	R200
FCRF221800	NF18/ 1/2	R201
FCRF221800	NF18/ 1/2	R202
FCRY000100	W0.22/5	R203
FCRY000100	W0.22/5	R204
FCRF221800	NF18/ 1/2	R205
FCRF221800	NF18/ 1/2	R206
FCRY000100	W0.22/5	R207
FCRY000100	W0.22/5	R208
FCRF221800	NF18/ 1/2	R209
FCRF221800	NF18/ 1/2	R210
FCRY000100	W0.22/5	R211
FCRY000100	W0.22/5	R212
FCRF221800	NF18/ 1/2	R213
FCRF221800	NF18/ 1/2	R214
FCRY000100	W0.22/5	R215
FCRY000100	W0.22/5	R216
FCRF221800	NF18/ 1/2	R217
FCRF221800	NF18/ 1/2	R218
FCRY000100	W0.22/5	R219
FCRY000100	W0.22/5	R220
FCXR143320	33k2	R221
FCXR143320	33k2	R222
FCXR141000	10k0	R223
FCXR143320	33k2	R224
FCT7503008	Screw M3x8	SC100

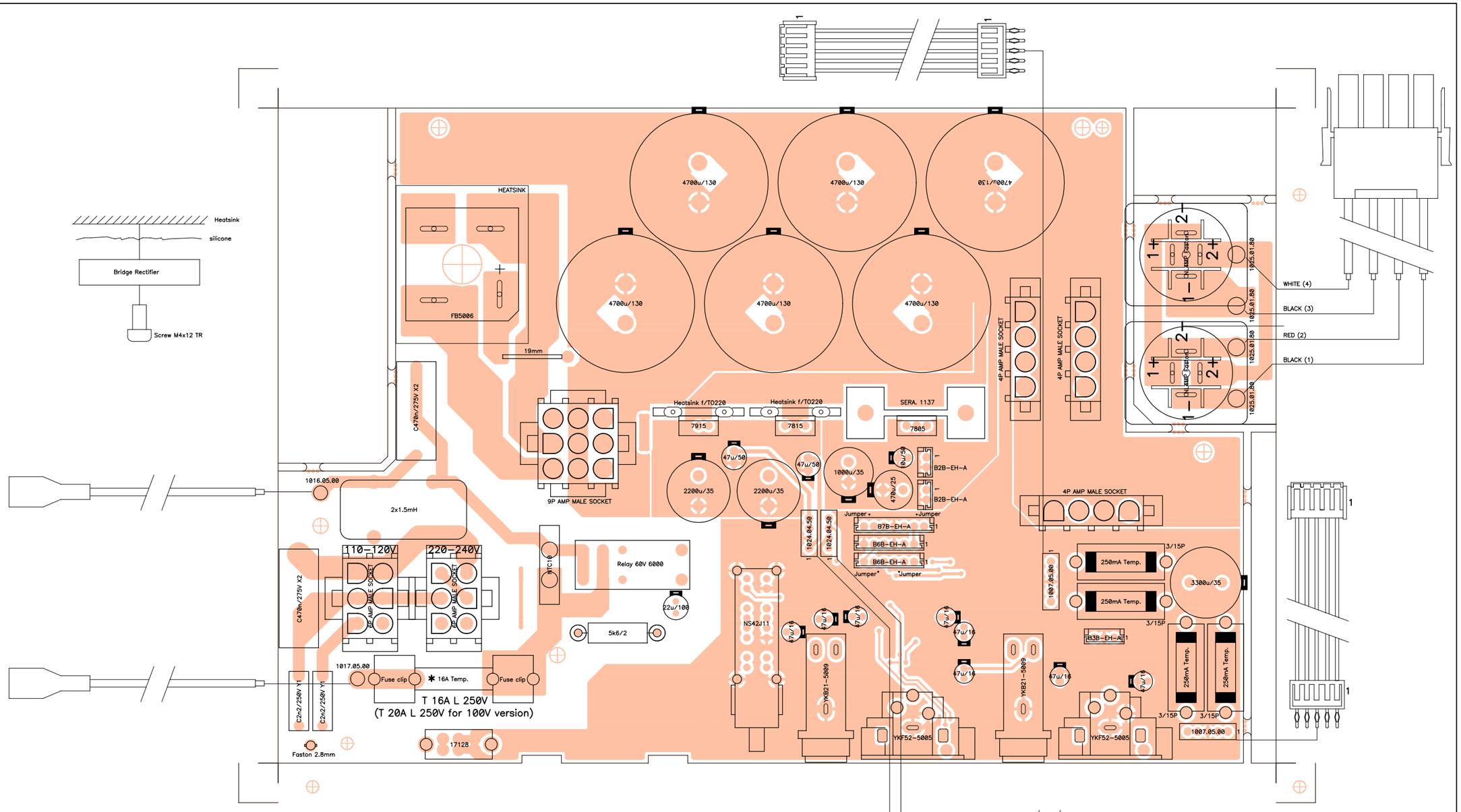
PARTS LIST: PRINTED CIRCUIT 11.0874.04.00

OLD VERSION

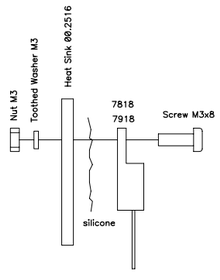
Code	Description	Reference
FCT7503008	Screw M3x8	SC101
FCT7503008	Screw M3x8	SC102
FCT8030150	Screw M3x15	SC103
FCTERMF280	Faston 2.8mm	TS101
FCMECPON34	34mm	W100
FCMECPON34	34mm	W101
FCMECPON34	34mm	W102
FCMECPON34	34mm	W103
FCMECPON34	34mm	W104
FCMECPON34	34mm	W105
FCMECPON34	34mm	W106
FCMECPON34	34mm	W107
FCMECPON34	34mm	W108
FCMECPON34	34mm	W109
FCMECPON34	34mm	W110
FCMECPON34	34mm	W111
FCMECPON34	34mm	W112
FCMECPON34	34mm	W113
FCMECPON34	34mm	W114
FCMECPON34	34mm	W115
FCMECPON34	34mm	W116
FCMECPON34	34mm	W117
FCMECPON34	34mm	W118
FCMECPON34	34mm	W119
FCMECPON34	34mm	W120
FCARDE0300	Toothed Washer f/M3	WA101
FCARM32000	Metal Washer 3.2x6x0.5	WA102
FCARDE0300	Toothed Washer f/M3	WA103
FCARDE0300	Toothed Washer f/M3	WA104
FCARDE0300	Toothed Washer f/M3	WA105
FCARM32000	Metal Washer 3.2x6x0.5	WA106

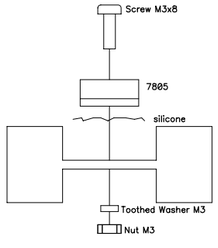


ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-05.00 schema no: 10.0534-02.04 insertion file no:		side: Component view: Reference
number: 33.0557	version: 03.04	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000 approved: Angel Sanuy	



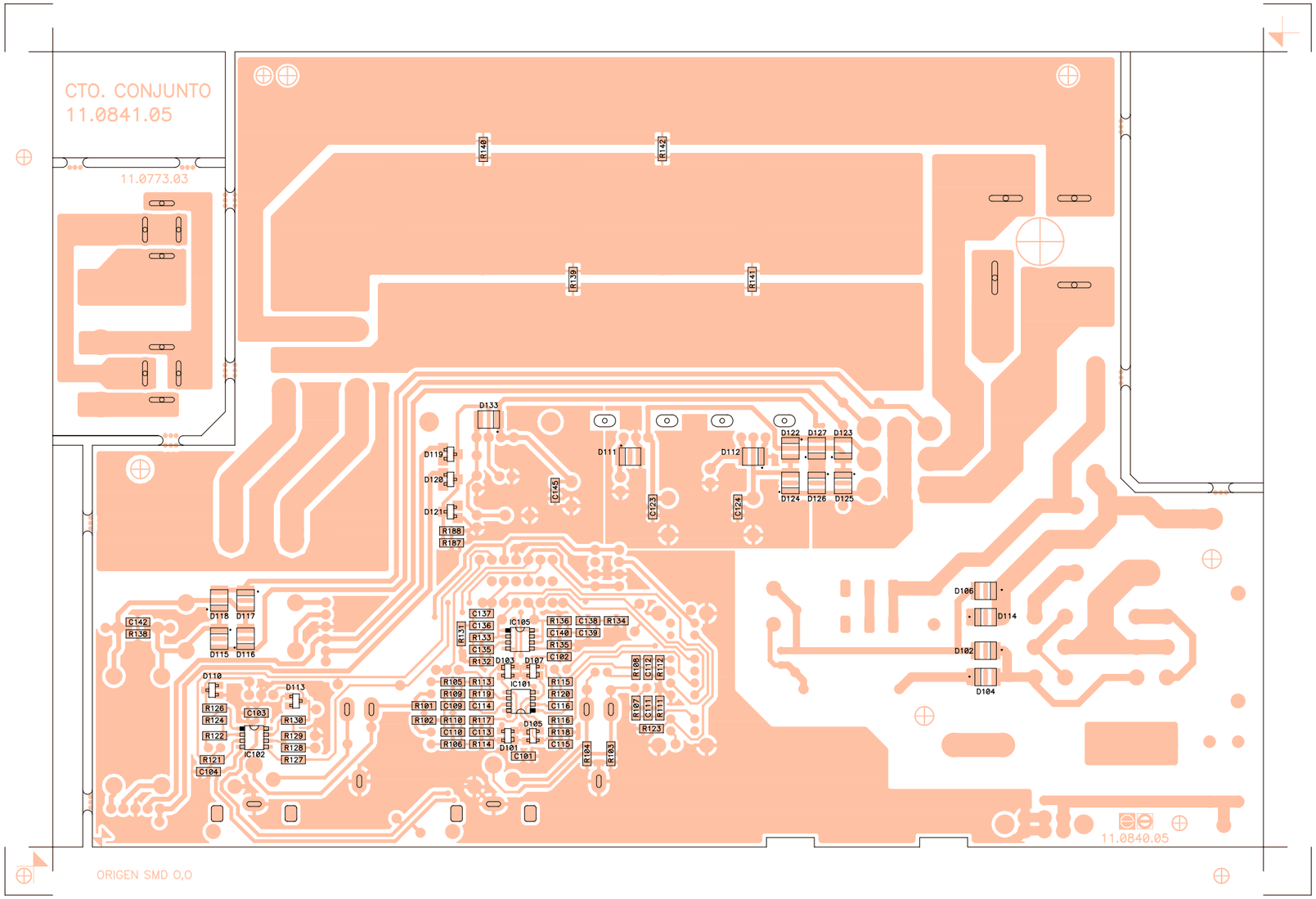
*
For 100V Unit:
F101= 20A Temp 10x38 (FCFUS80500)



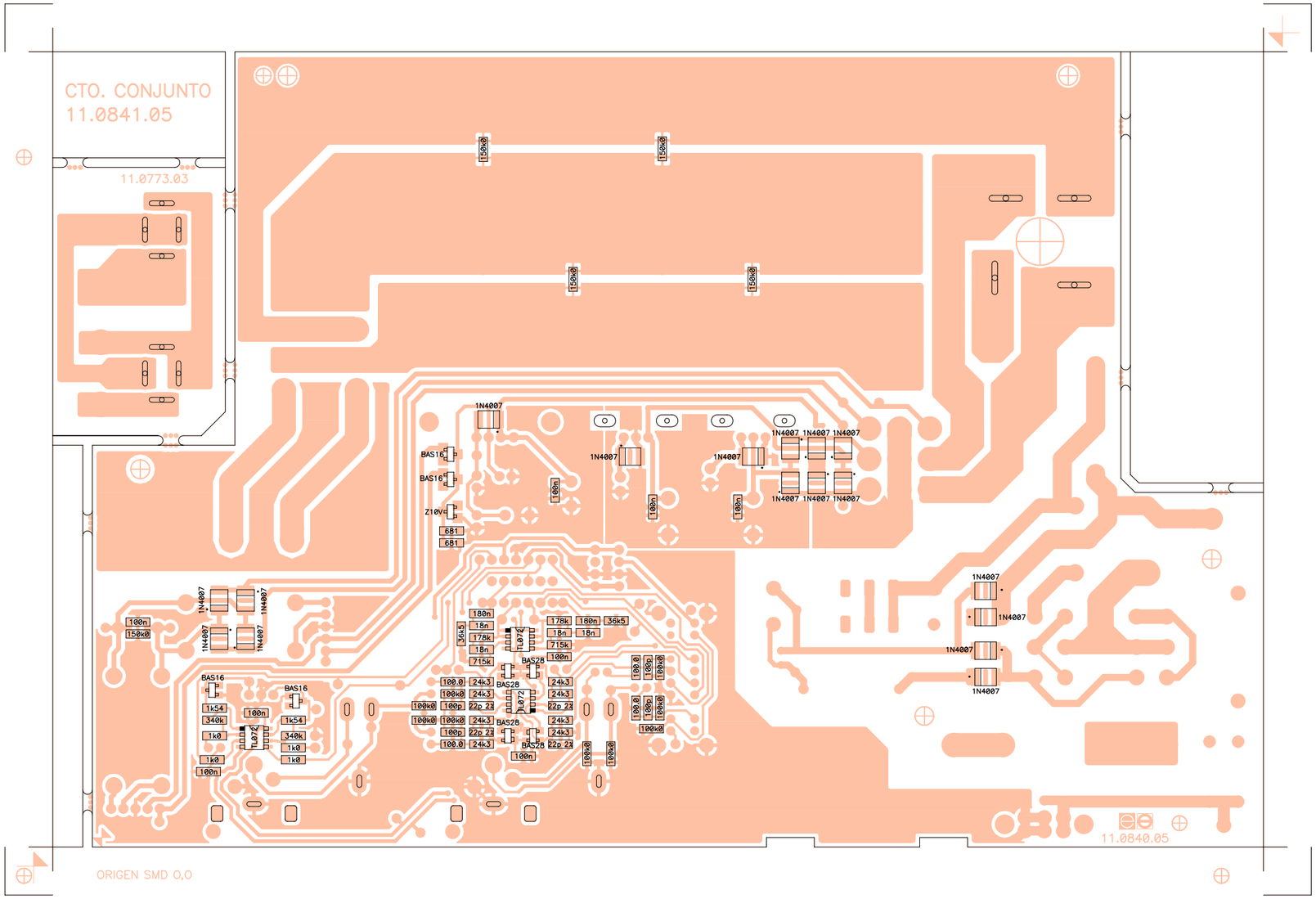


IMPORTANT NOTE: Apply Clear Silicone Sealant among the 4700u/130V electrolitic capacitors

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-05.00 schema no: 10.0534-02.04 insertion file no:	side: Component view: Value	
number: 33.0558	version: 03.04	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	



ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-05.00 schema no: 10.0534-02.04 insertion file no: 81.0042-02.02	side: Solder view: Reference	
number: 33.0559	version: 03.04	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	



ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-05.00 schema no: 10.0534-02.04 insertion file no: 81.0042-02.02	side: Solder view: Value	
number: 33.0560	version: 03.04	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0841.05.00

Code	Description	Reference
FCXCN41000	100n	C101
FCXCN41000	100n	C102
FCXCN41000	100n	C103
FCXCN41000	100n	C104
FCCE100000	47u/16	C105
FCCE100000	47u/16	C106
FCCE100000	47u/16	C107
FCCE100000	47u/16	C108
FCXCN21000	100p	C109
FCXCN21000	100p	C110
FCXCN21000	100p	C111
FCXCN21000	100p	C112
FCXCN12201	22p 2%	C113
FCXCN12201	22p 2%	C114
FCXCN12201	22p 2%	C115
FCXCN12201	22p 2%	C116
FCCE100000	47u/16	C117
FCCE100000	47u/16	C118
FCCE100000	47u/16	C119
FCCE213300	3300u/35	C120
FCCE350220	22u/100	C121
FCCE100000	47u/16	C122
FCXCN41000	100n	C123
FCXCN41000	100n	C124
FCCE212200	2200u/35	C125
FCCE212200	2200u/35	C126
FCCE371525	4700u/130	C127
FCCE371525	4700u/130	C128
FCCE371525	4700u/130	C129
FCCE371525	4700u/130	C130
FCCE250470	47u/50	C131
FCCE250470	47u/50	C132
FCCE371525	4700u/130	C133
FCCE211000	1000u/35	C134
FCXCN40180	18n	C135
FCXCN40180	18n	C136
FCXCN41800	180n	C137
FCXCN41800	180n	C138
FCXCN40180	18n	C139
FCXCN40180	18n	C140
FCXCN41000	100n	C142
FCCE250100	10u/50	C143
FCCE154700	470u/25	C144
FCXCN41000	100n	C145
FCCE371525	4700u/130	C148
FCCDH71470	C470n/275V X2	C150
FCCDH71470	C470n/275V X2	C151
FCCCD22250	C2n2/250V Y1	C152
FCCCD22250	C2n2/250V Y1	C153
FCPERL2550	Cer. Bead	CB105
FCPERL2550	Cer. Bead	CB106
FCPERL2550	Cer. Bead	CB107
FCPERL2550	Cer. Bead	CB108
FCPERL2550	Cer. Bead	CB109
FCPERL2550	Cer. Bead	CB110
FCCIPAM841	11.0841 Printed Board	CI101

PARTS LIST: PRINTED CIRCUIT 11.0841.05.00

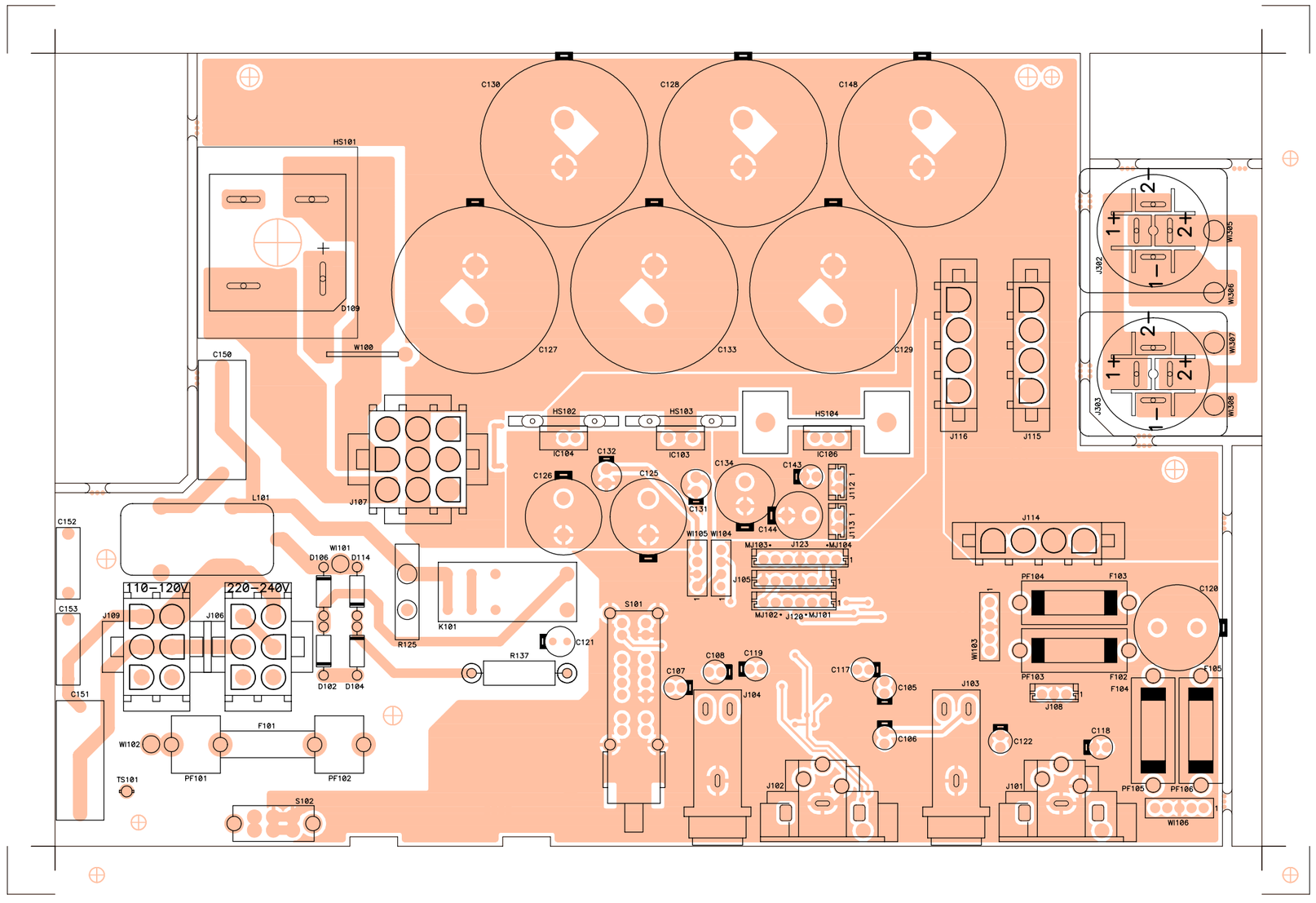
Code	Description	Reference
FCXDDBAS28	BAS28	D101
FCXDD40070	1N4007	D102
FCXDDBAS28	BAS28	D103
FCXDD40070	1N4007	D104
FCXDDBAS28	BAS28	D105
FCXDD40070	1N4007	D106
FCXDDBAS28	BAS28	D107
FCREC50060	FB5006	D109
FCXDDBAS16	BAS16	D110
FCXDD40070	1N4007	D111
FCXDD40070	1N4007	D112
FCXDDBAS16	BAS16	D113
FCXDD40070	1N4007	D114
FCXDD40070	1N4007	D115
FCXDD40070	1N4007	D116
FCXDD40070	1N4007	D117
FCXDD40070	1N4007	D118
FCXDDBAS16	BAS16	D119
FCXDDBAS16	BAS16	D120
FCXZ000100	Z10V	D121
FCXDD40070	1N4007	D122
FCXDD40070	1N4007	D123
FCXDD40070	1N4007	D124
FCXDD40070	1N4007	D125
FCXDD40070	1N4007	D126
FCXDD40070	1N4007	D127
FCXDD40070	1N4007	D133
FCFUS80400	16A Temp.	F101
FCFUS50080	250mA Temp.	F102
FCFUS50080	250mA Temp.	F103
FCFUS50080	250mA Temp.	F104
FCFUS50080	250mA Temp.	F105
FCRAD11515	HEATSINK	HS101
FCMECT0220	Heatsink f/TO220	HS102
FCMECT0220	Heatsink f/TO220	HS103
FCRAD12636	SERA. 1137	HS104
FCIC072010	TL072	IC101
FCIC072010	TL072	IC102
FCREG78150	7815	IC103
FCREG79150	7915	IC104
FCIC072010	TL072	IC105
FCREG78050	7805	IC106
FCBASX0900	YKF52-5005	J101
FCBASX0900	YKF52-5005	J102
FCBASJ0200	YKB21-5009	J103
FCBASJ0200	YKB21-5009	J104
FCCTM00060	B6B-EH-A	J105
FCCTAMP060	6P AMP MALE SOCKET	J106
FCCTAMP090	9P AMP MALE SOCKET	J107
FCCTM00030	B3B-EH-A	J108
FCCTAMP060	6P AMP MALE SOCKET	J109
FCCTM00020	B2B-EH-A	J112
FCCTM00020	B2B-EH-A	J113
FCCTAMP040	4P AMP MALE SOCKET	J114
FCCTAMP040	4P AMP MALE SOCKET	J115
FCCTAMP040	4P AMP MALE SOCKET	J116

PARTS LIST: PRINTED CIRCUIT 11.0841.05.00

Code	Description	Reference
FCCTM00060	B6B-EH-A	J120
FCCTM00070	B7B-EH-A	J123
FCBASS0100	NL4MP Faston	J302
FCBASS0100	NL4MP Faston	J303
FCREL10600	Relay 60V 6000	K101
FCBB2X3500	2x1.5mH	L101
FCMJ000100	Jumper	MJ101
FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCMJ000100	Jumper	MJ104
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCPORF0100	Fuse clip	PF101
FCPORF0100	Fuse clip	PF102
FCPORF3150	3/15P	PF103
FCPORF3150	3/15P	PF104
FCPORF3150	3/15P	PF105
FCPORF3150	3/15P	PF106
FCXR151000	100k0	R101
FCXR151000	100k0	R102
FCXR151000	100k0	R103
FCXR151000	100k0	R104
FCXR121000	100.0	R105
FCXR121000	100.0	R106
FCXR121000	100.0	R107
FCXR121000	100.0	R108
FCXR151000	100k0	R109
FCXR151000	100k0	R110
FCXR151000	100k0	R111
FCXR151000	100k0	R112
FCXR242430	24k3	R113
FCXR242430	24k3	R114
FCXR242430	24k3	R115
FCXR242430	24k3	R116
FCXR242430	24k3	R117
FCXR242430	24k3	R118
FCXR242430	24k3	R119
FCXR242430	24k3	R120
FCXR131000	1k0	R121
FCXR131000	1k0	R122
FCXR151000	100k0	R123
FCXR153400	340k	R124
FCNTC00300	NTC10	R125
FCXR131540	1k54	R126
FCXR131000	1k0	R127
FCXR131000	1k0	R128
FCXR153400	340k	R129
FCXR131540	1k54	R130
FCXR143650	36k5	R131
FCXR157150	715k	R132
FCXR151780	178k	R133
FCXR143650	36k5	R134
FCXR157150	715k	R135
FCXR151780	178k	R136
FCRC545600	5k6/2	R137

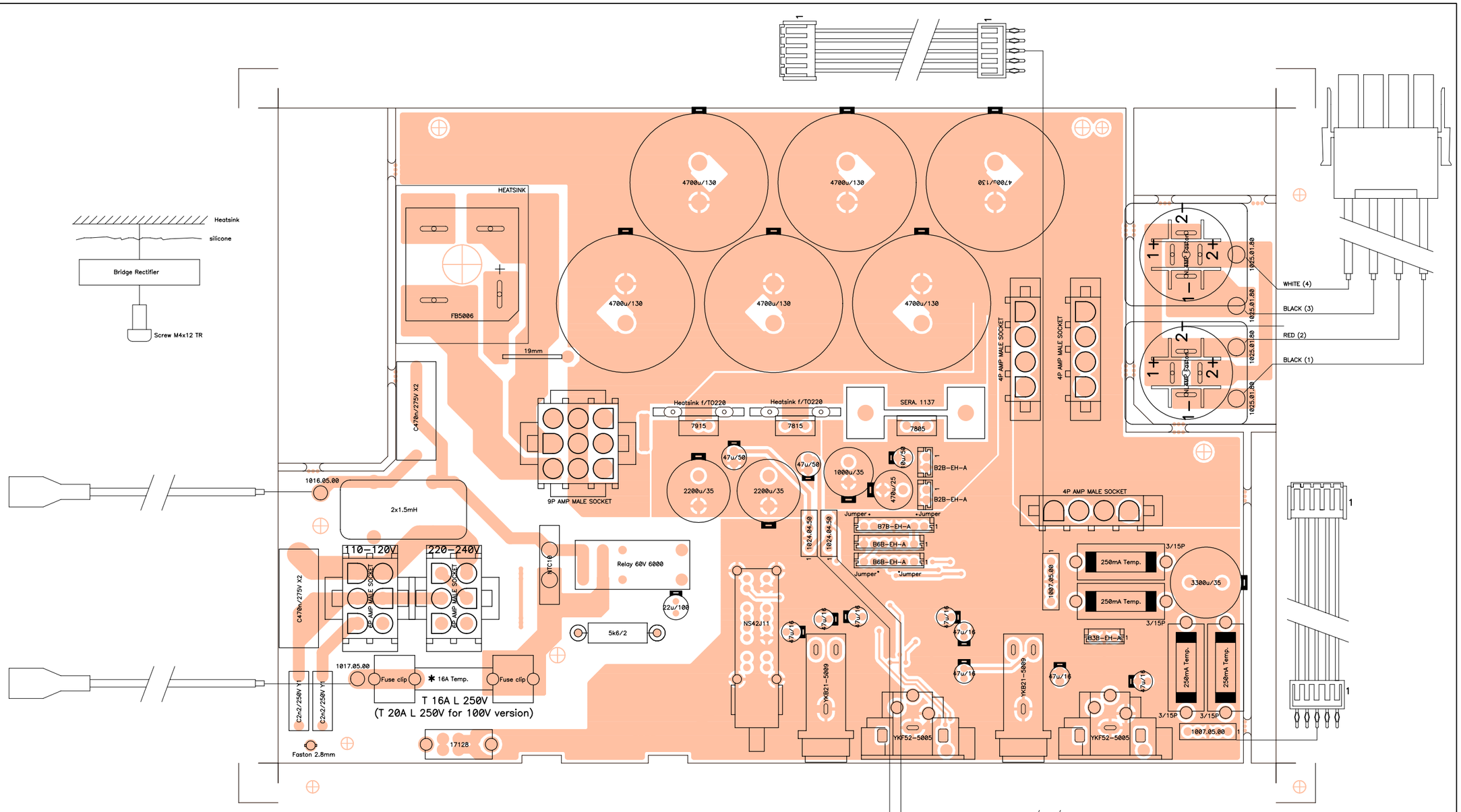
PARTS LIST: PRINTED CIRCUIT 11.0841.05.00

Code	Description	Reference
FCXR151500	150k0	R138
FCXR151500	150k0	R139
FCXR151500	150k0	R140
FCXR151500	150k0	R141
FCXR151500	150k0	R142
FCXR126810	681	R187
FCXR126810	681	R188
FCINTAP080	NS42J11	S101
FCINTD4000	17128	S102
FCT7503008	Screw M3x8	SC101
FCT7503008	Screw M3x8	SC102
FCT7503008	Screw M3x8	SC103
FCT3804012	M4x12 TR	SC104
FCTERMF280	Faston 2.8mm	TS101
FCMECPON19	19mm	W100
FCARDE0300	Toothed Washer f/M3	WA101
FCARDE0300	Toothed Washer f/M3	WA102
FCARDE0300	Toothed Washer f/M3	WA103
FC2F016500	1016.05.00	WI101
FC2F017500	1017.05.00	WI102
FC4K007500	1007.05.00	WI103
FC6J024450	1024.04.50	WI104
FC6J024450	1024.04.50	WI105
FC4K007500	1007.05.00	WI106
FC0H025180	1025.01.80	WI306

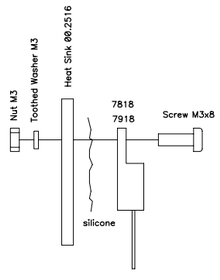


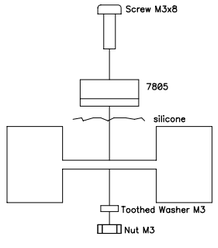
OLD VERSION

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-04.01 schema no: 10.0534-02.03 insertion file no:		side: Component view: Reference
number: 33.0557	version: 03.03	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000 approved: Angel Sanuy	



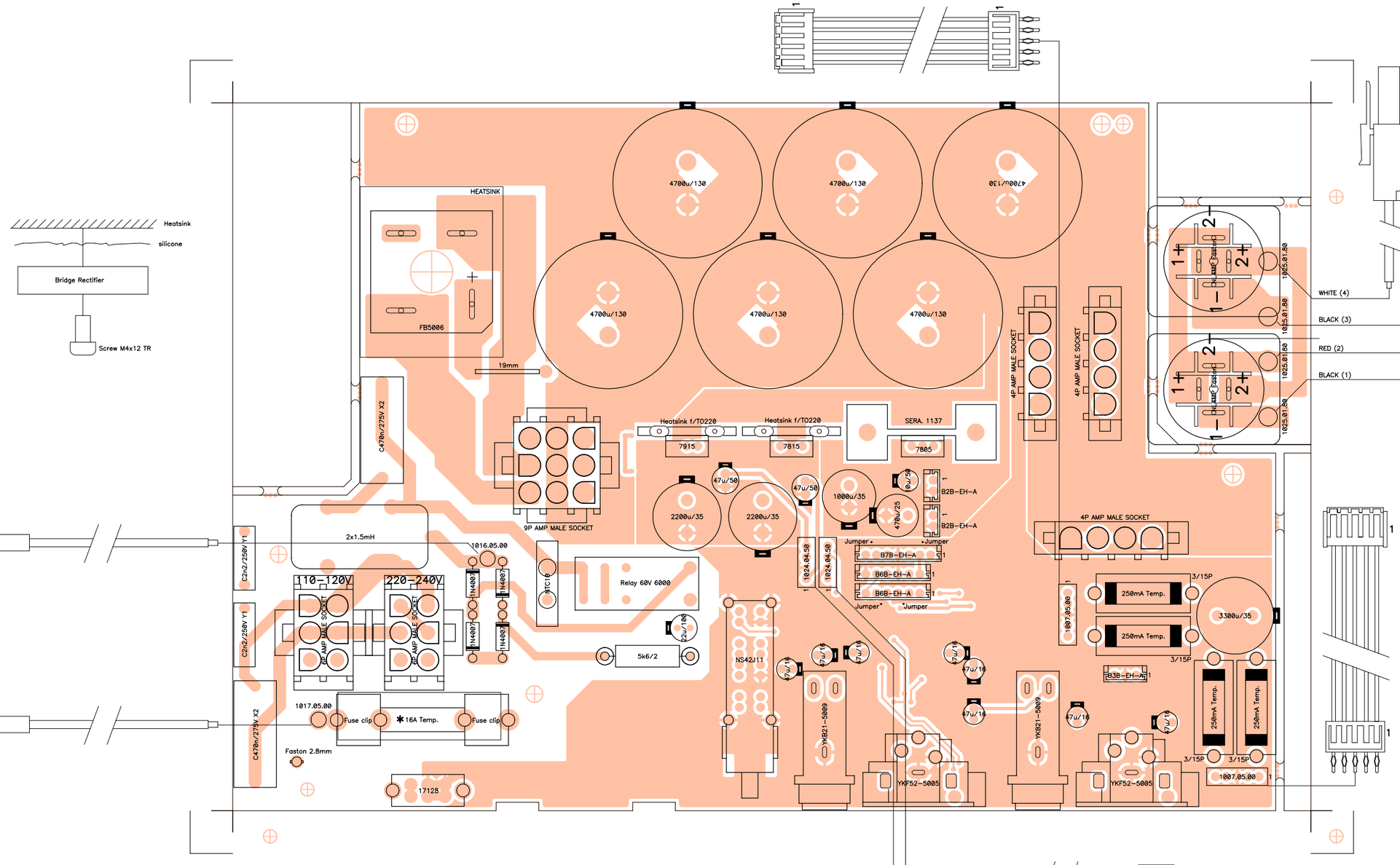
*
For 100V Unit:
F101= 20A Temp 10x38 (FCFUS80500)





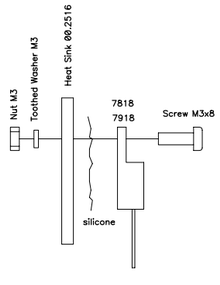
IMPORTANT NOTE: Apply Clear Silicone Sealant among the 4700u/130V electrolitic capacitors

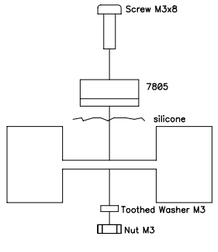
ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-05.00 schema no: 10.0534-02.04 insertion file no:	side: Component view: Value	
number: 33.0558	version: 03.04	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	

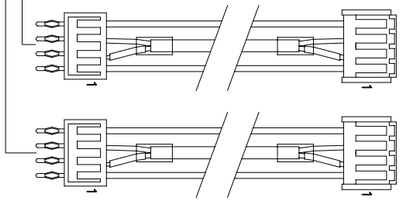


*
For 100V Unit:
F101= 20A Temp 10x38 (FCFUS80500)

OLD VERSION

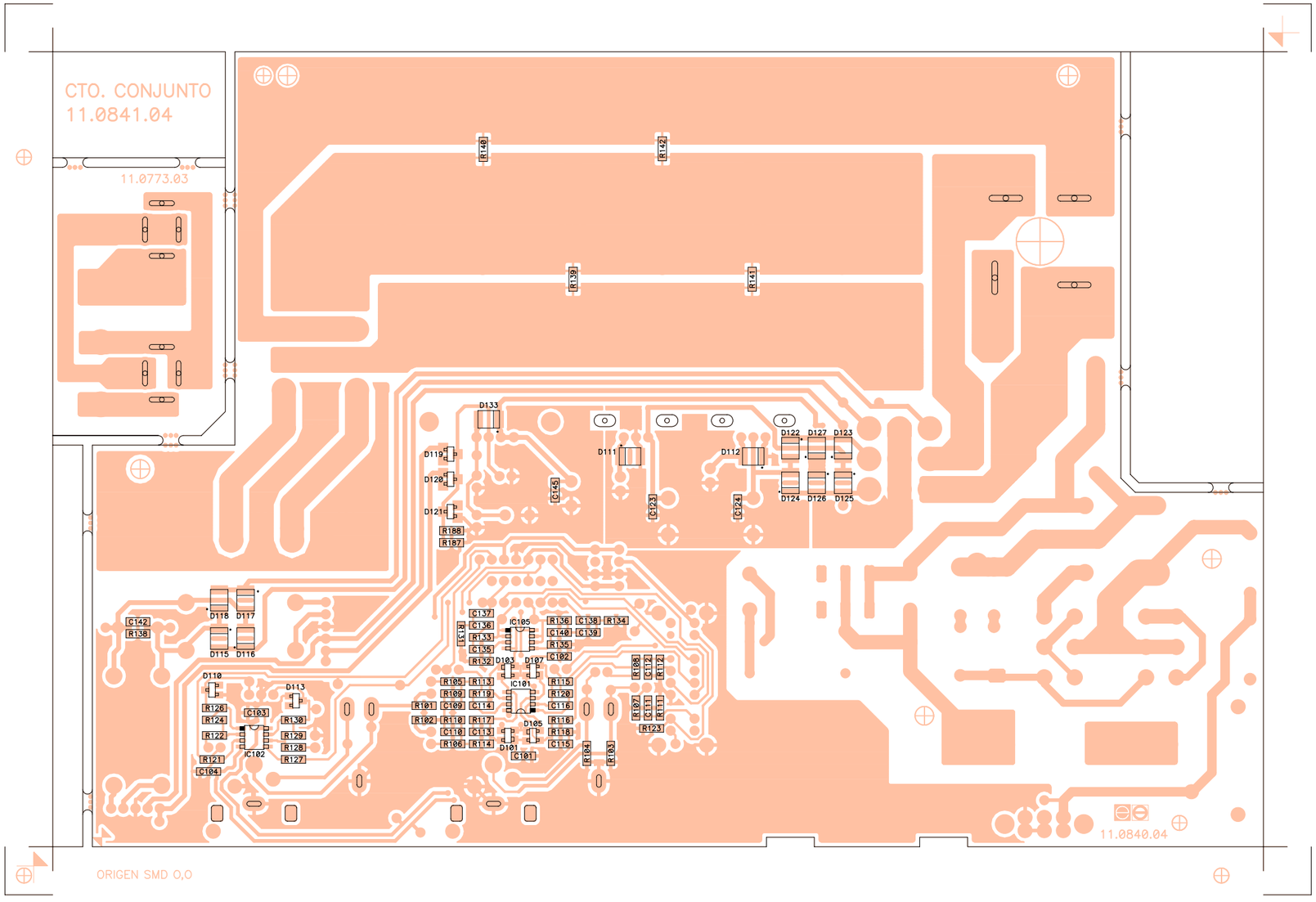






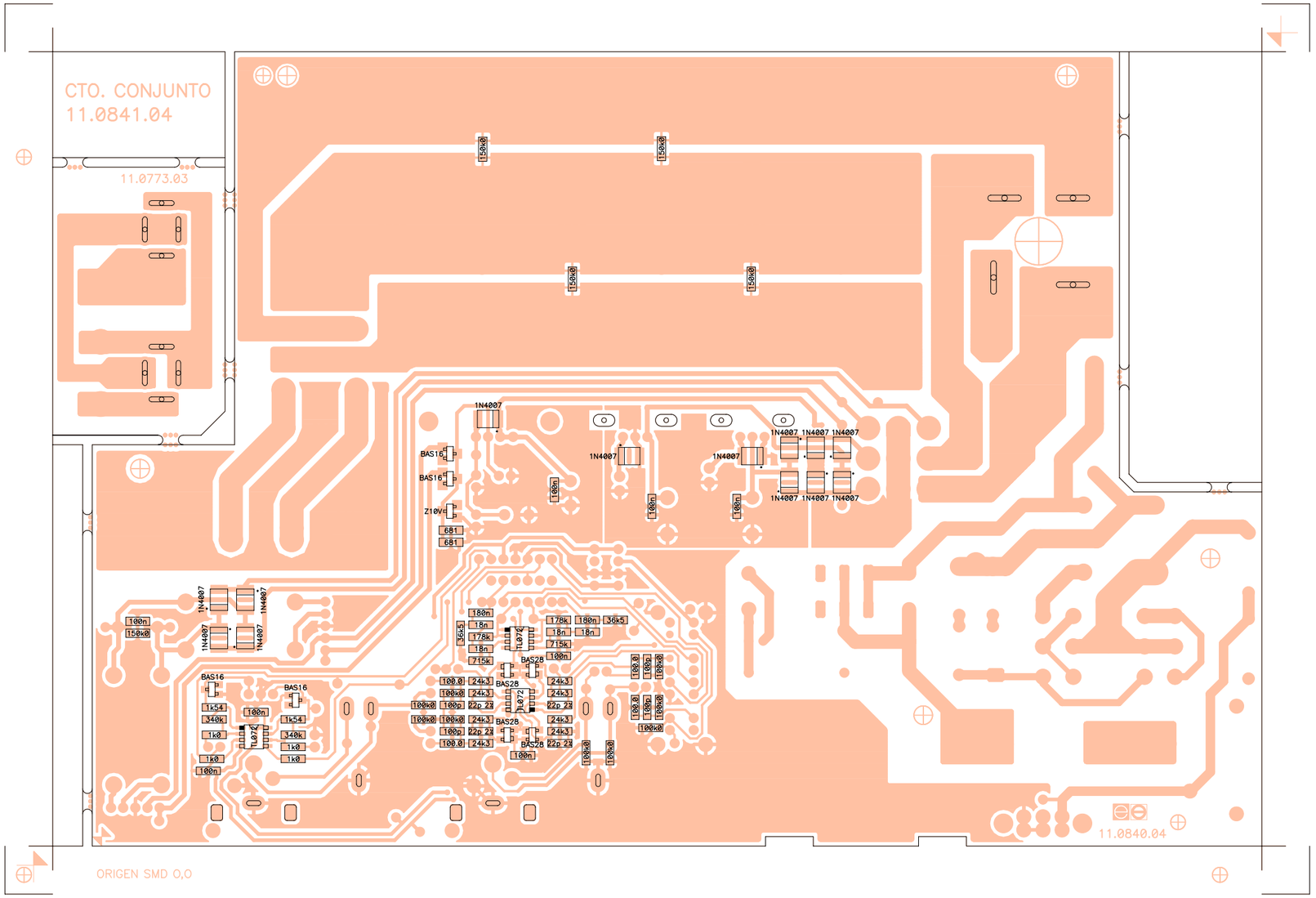
IMPORTANT NOTE: Apply Clear Silicone Sealant among the 4700u/130V electrolitic capacitors

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-04.01 schema no: 10.0534-02.03 insertion file no:	side: Component view: Value	
number: 33.0558	version: 03.03	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000 approved: Angel Sanuy	



OLD VERSION

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-04.01 schema no: 10.0534-02.03 insertion file no: 81.0042-02.01	side: Solder view: Reference	
number: 33.0559 / version: 03.03	project n: EP08-00	title: Power S.&Ins+Outs Ct.	
drawn by: Jordi Folch / date: 011105	product n: APA2000		
	approved: Angel Sanuy		



OLD VERSION

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-04.01 schema no: 10.0534-02.03 insertion file no: 81.0042-02.01	side: Solder view: Value	
number: 33.0560 / version: 03.03	project n: EP08-00	title: Power S.&Ins+Outs Ct.	
drawn by: Jordi Folch / date: 011105	product n: APA2000		
	approved: Angel Sanuy		

PARTS LIST: PRINTED CIRCUIT 11.0841.04.01

Code	Description	Reference
FCXCN41000	100n	C101
FCXCN41000	100n	C102
FCXCN41000	100n	C103
FCXCN41000	100n	C104
FCCE100000	47u/16	C105
FCCE100000	47u/16	C106
FCCE100000	47u/16	C107
FCCE100000	47u/16	C108
FCXCN21000	100p	C109
FCXCN21000	100p	C110
FCXCN21000	100p	C111
FCXCN21000	100p	C112
FCXCN12201	22p 2%	C113
FCXCN12201	22p 2%	C114
FCXCN12201	22p 2%	C115
FCXCN12201	22p 2%	C116
FCCE100000	47u/16	C117
FCCE100000	47u/16	C118
FCCE100000	47u/16	C119
FCCE213300	3300u/35	C120
FCCE350220	22u/100	C121
FCCE100000	47u/16	C122
FCXCN41000	100n	C123
FCXCN41000	100n	C124
FCCE212200	2200u/35	C125
FCCE212200	2200u/35	C126
FCCE371525	4700u/130	C127
FCCE371525	4700u/130	C128
FCCE371525	4700u/130	C129
FCCE371525	4700u/130	C130
FCCE250470	47u/50	C131
FCCE250470	47u/50	C132
FCCE371525	4700u/130	C133
FCCE211000	1000u/35	C134
FCXCN40180	18n	C135
FCXCN40180	18n	C136
FCXCN41800	180n	C137
FCXCN41800	180n	C138
FCXCN40180	18n	C139
FCXCN40180	18n	C140
FCXCN41000	100n	C142
FCCE250100	10u/50	C143
FCCE154700	470u/25	C144
FCXCN41000	100n	C145
FCCE371525	4700u/130	C148
FCCDH71470	C470n/275V X2	C150
FCCDH71470	C470n/275V X2	C151
FCCCD22250	C2n2/250V Y1	C152
FCCCD22250	C2n2/250V Y1	C153
FCPERL2550	Cer. Bead	CB105
FCPERL2550	Cer. Bead	CB106
FCPERL2550	Cer. Bead	CB107
FCPERL2550	Cer. Bead	CB108
FCPERL2550	Cer. Bead	CB109
FCPERL2550	Cer. Bead	CB110
FCCIPAM841	11.0841 Printed Board	CI101

OLD VERSION

PARTS LIST: PRINTED CIRCUIT 11.0841.04.01

Code	Description	Reference
FCXDDBAS28	BAS28	D101
FCDD140070	1N4007	D102
FCXDDBAS28	BAS28	D103
FCDD140070	1N4007	D104
FCXDDBAS28	BAS28	D105
FCDD140070	1N4007	D106
FCXDDBAS28	BAS28	D107
FCREC50060	FB5006	D109
FCXDDBAS16	BAS16	D110
FCXDD40070	1N4007	D111
FCXDD40070	1N4007	D112
FCXDDBAS16	BAS16	D113
FCDD140070	1N4007	D114
FCXDD40070	1N4007	D115
FCXDD40070	1N4007	D116
FCXDD40070	1N4007	D117
FCXDD40070	1N4007	D118
FCXDDBAS16	BAS16	D119
FCXDDBAS16	BAS16	D120
FCXZ000100	Z10V	D121
FCXDD40070	1N4007	D122
FCXDD40070	1N4007	D123
FCXDD40070	1N4007	D124
FCXDD40070	1N4007	D125
FCXDD40070	1N4007	D126
FCXDD40070	1N4007	D127
FCXDD40070	1N4007	D133
FCFUS80400	16A Temp.	F101
FCFUS50080	250mA Temp.	F102
FCFUS50080	250mA Temp.	F103
FCFUS50080	250mA Temp.	F104
FCFUS50080	250mA Temp.	F105
FCRAD11515	HEATSINK	HS101
FCMECT0220	Heatsink f/TO220	HS102
FCMECT0220	Heatsink f/TO220	HS103
FCRAD12636	SERA. 1137	HS104
FCIC072010	TL072	IC101
FCIC072010	TL072	IC102
FCREG78150	7815	IC103
FCREG79150	7915	IC104
FCIC072010	TL072	IC105
FCREG78050	7805	IC106
FCBASX0900	YKF52-5005	J101
FCBASX0900	YKF52-5005	J102
FCBASJ0200	YKB21-5009	J103
FCBASJ0200	YKB21-5009	J104
FCCTM00060	B6B-EH-A	J105
FCCTAMP060	6P AMP MALE SOCKET	J106
FCCTAMP090	9P AMP MALE SOCKET	J107
FCCTM00030	B3B-EH-A	J108
FCCTAMP060	6P AMP MALE SOCKET	J109
FCCTM00020	B2B-EH-A	J112
FCCTM00020	B2B-EH-A	J113
FCCTAMP040	4P AMP MALE SOCKET	J114
FCCTAMP040	4P AMP MALE SOCKET	J115
FCCTAMP040	4P AMP MALE SOCKET	J116

OLD VERSION

PARTS LIST: PRINTED CIRCUIT 11.0841.04.01

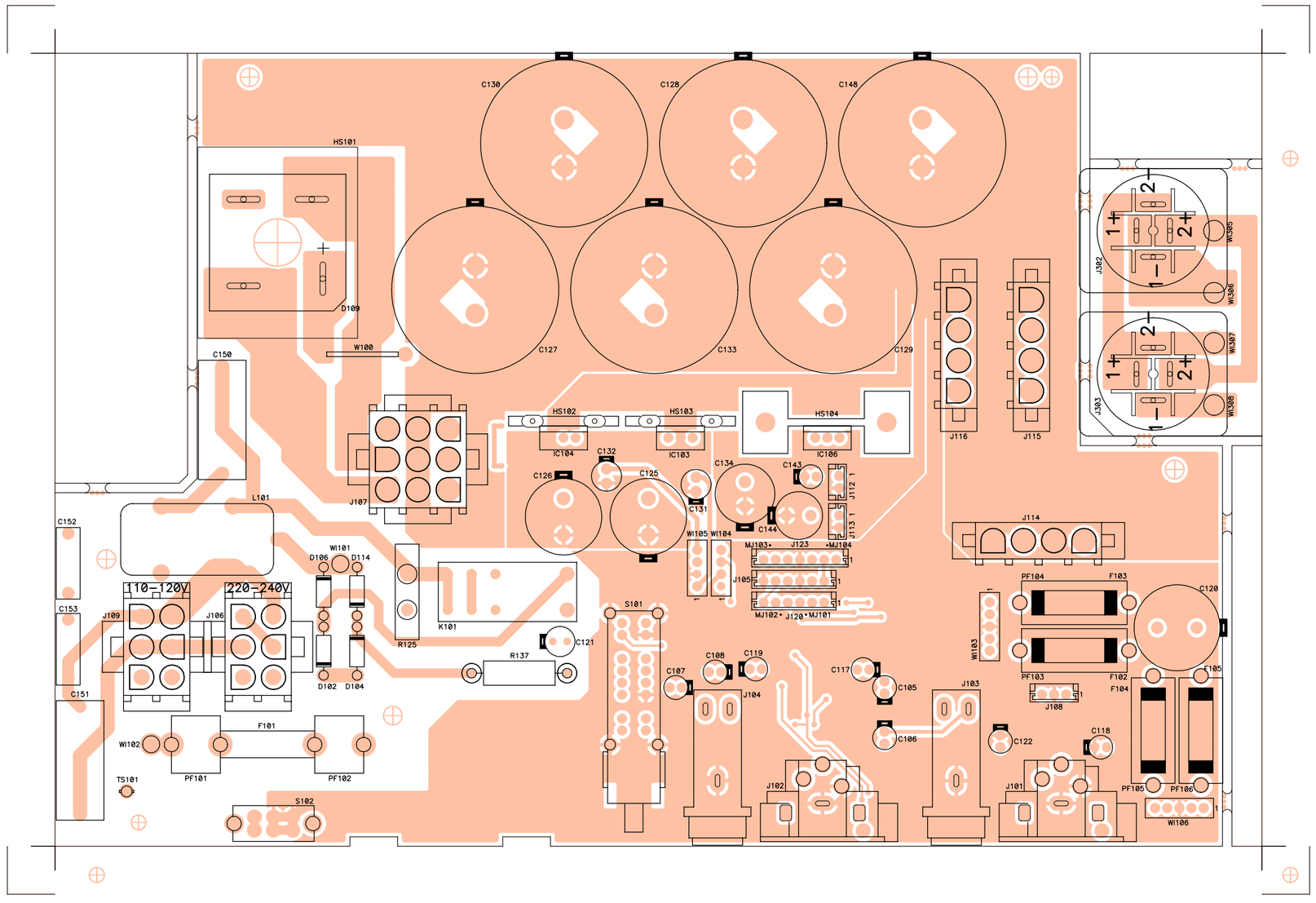
Code	Description	Reference
FCCTM00060	B6B-EH-A	J120
FCCTM00070	B7B-EH-A	J123
FCBASS0100	NL4MP Faston	J302
FCBASS0100	NL4MP Faston	J303
FCREL10600	Relay 60V 6000	K101
FCBB2X3500	2x1.5mH	L101
FCMJ000100	Jumper	MJ101
FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCMJ000100	Jumper	MJ104
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCPORF0100	Fuse clip	PF101
FCPORF0100	Fuse clip	PF102
FCPORF3150	3/15P	PF103
FCPORF3150	3/15P	PF104
FCPORF3150	3/15P	PF105
FCPORF3150	3/15P	PF106
FCXR151000	100k0	R101
FCXR151000	100k0	R102
FCXR151000	100k0	R103
FCXR151000	100k0	R104
FCXR121000	100.0	R105
FCXR121000	100.0	R106
FCXR121000	100.0	R107
FCXR121000	100.0	R108
FCXR151000	100k0	R109
FCXR151000	100k0	R110
FCXR151000	100k0	R111
FCXR151000	100k0	R112
FCXR242430	24k3	R113
FCXR242430	24k3	R114
FCXR242430	24k3	R115
FCXR242430	24k3	R116
FCXR242430	24k3	R117
FCXR242430	24k3	R118
FCXR242430	24k3	R119
FCXR242430	24k3	R120
FCXR131000	1k0	R121
FCXR131000	1k0	R122
FCXR151000	100k0	R123
FCXR153400	340k	R124
FCNTC00300	NTC10	R125
FCXR131540	1k54	R126
FCXR131000	1k0	R127
FCXR131000	1k0	R128
FCXR153400	340k	R129
FCXR131540	1k54	R130
FCXR143650	36k5	R131
FCXR157150	715k	R132
FCXR151780	178k	R133
FCXR143650	36k5	R134
FCXR157150	715k	R135
FCXR151780	178k	R136
FCRC545600	5k6/2	R137

OLD VERSION

PARTS LIST: PRINTED CIRCUIT 11.0841.04.01

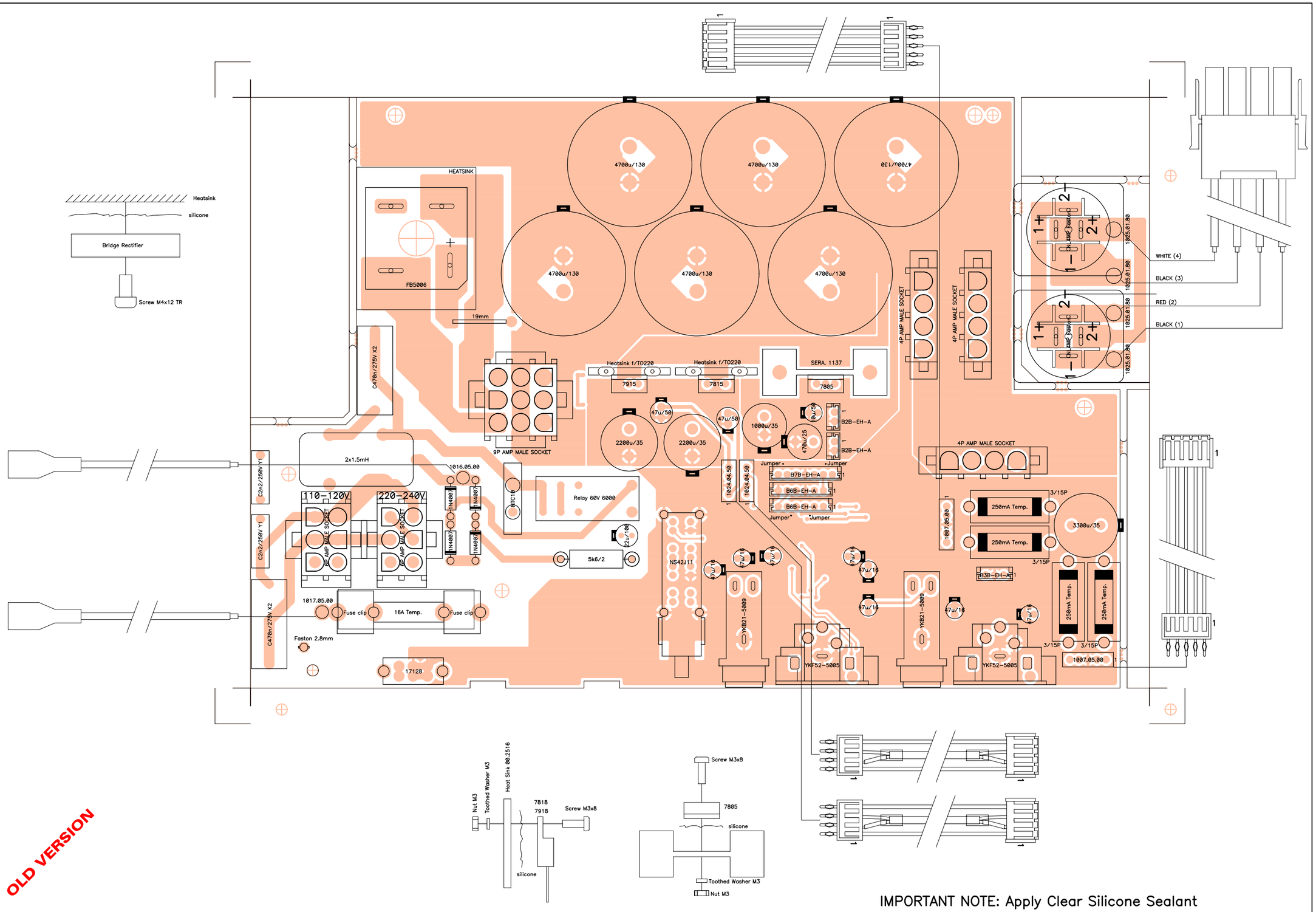
Code	Description	Reference
FCXR151500	150k0	R138
FCXR151500	150k0	R139
FCXR151500	150k0	R140
FCXR151500	150k0	R141
FCXR151500	150k0	R142
FCXR126810	681	R187
FCXR126810	681	R188
FCINTAP080	NS42J11	S101
FCINTD4000	17128	S102
FCT7503008	Screw M3x8	SC101
FCT7503008	Screw M3x8	SC102
FCT7503008	Screw M3x8	SC103
FCT3804012	M4x12 TR	SC104
FCTERMF280	Faston 2.8mm	TS101
FCMECPON19	19mm	W100
FCARDE0300	Toothed Washer f/M3	WA101
FCARDE0300	Toothed Washer f/M3	WA102
FCARDE0300	Toothed Washer f/M3	WA103
FC2F016500	1016.05.00	WI101
FC2F017500	1017.05.00	WI102
FC4K007500	1007.05.00	WI103
FC6J024450	1024.04.50	WI104
FC6J024450	1024.04.50	WI105
FC4K007500	1007.05.00	WI106
FC0H025180	1025.01.80	WI306

OLD VERSION

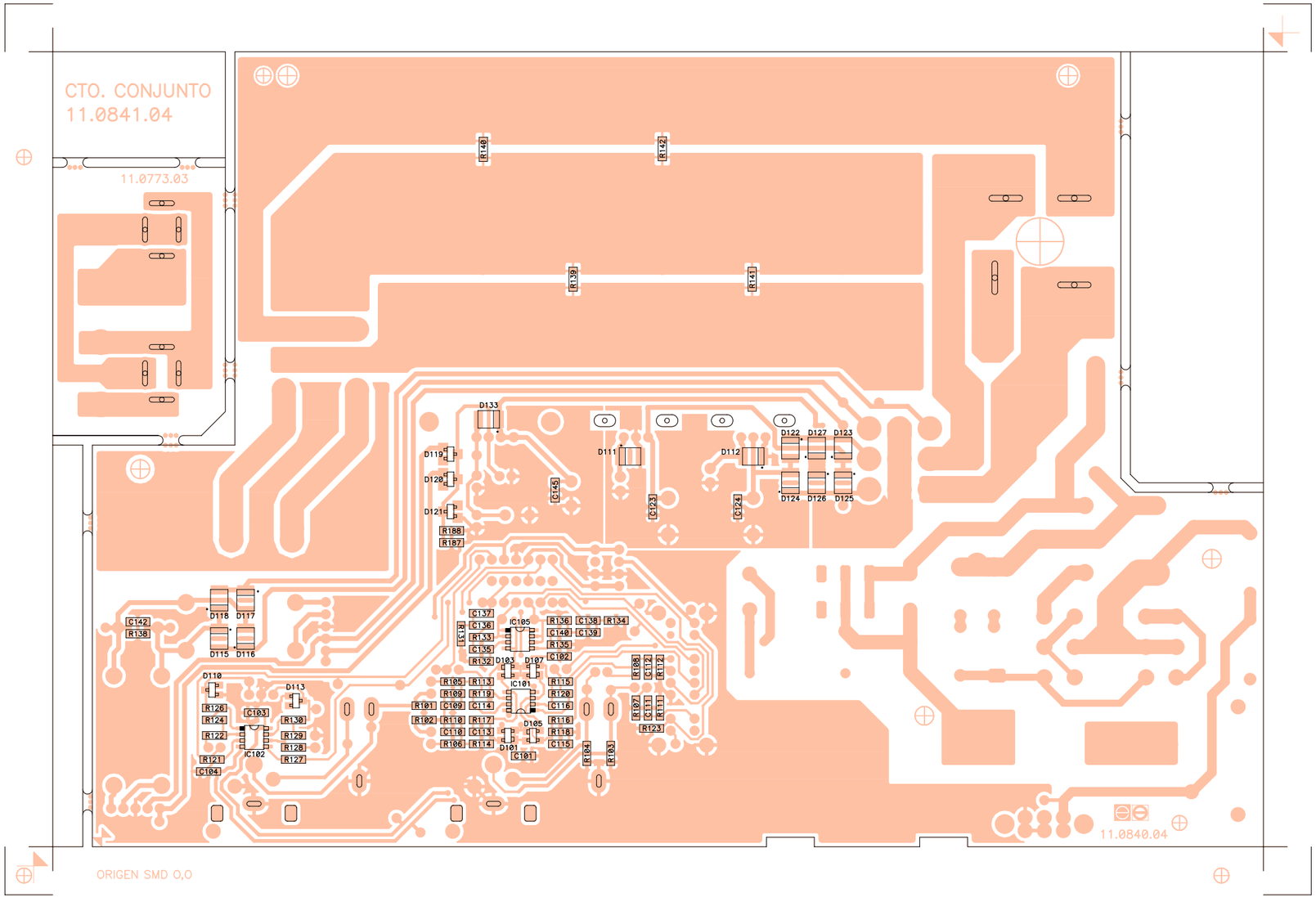


OLD VERSION

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-04.00 schema no: 10.0534-02.02 insertion file no:		side: Component view: Reference
number: 33.0557	version: 03.02	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	

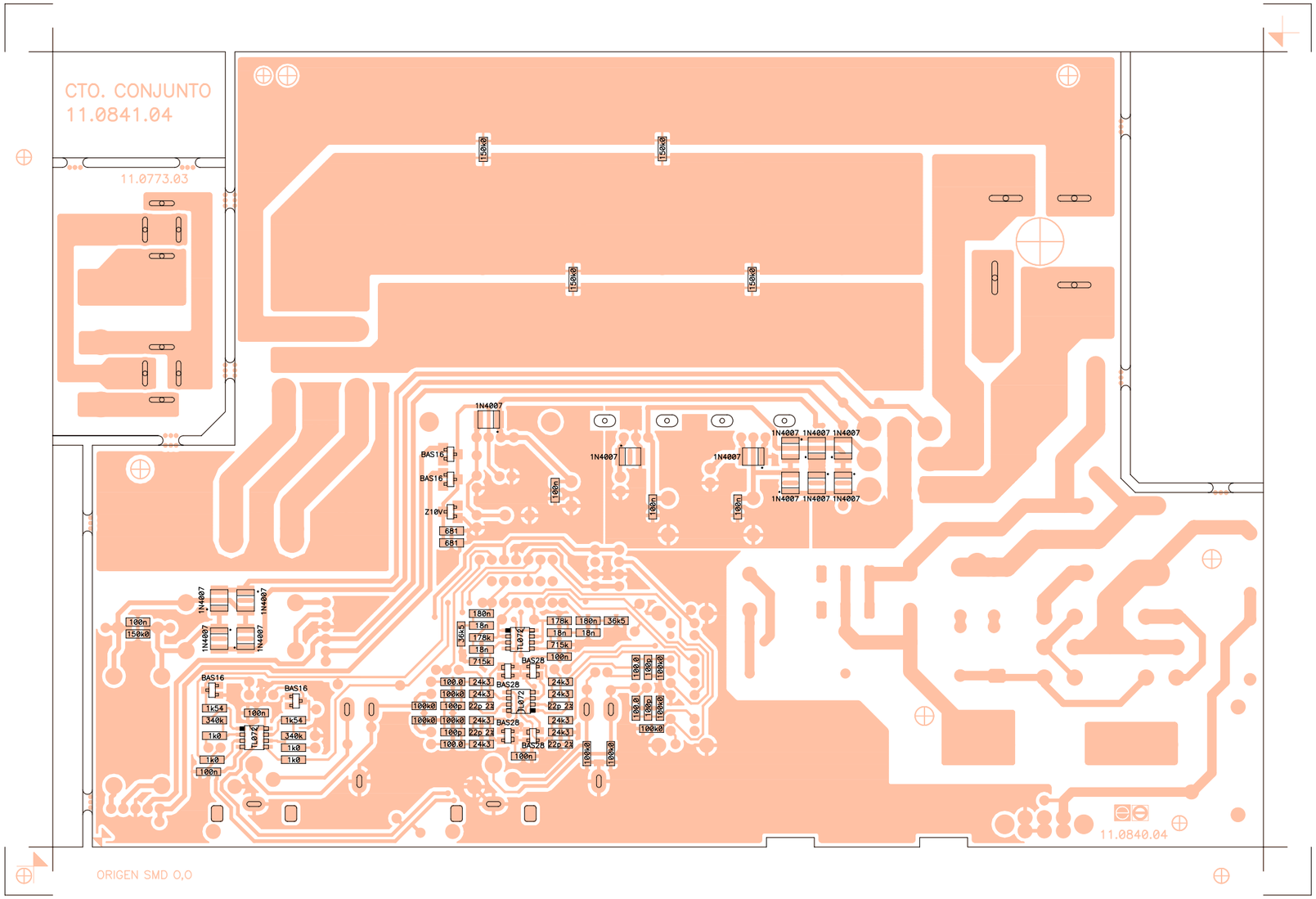


ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-04.00 schema no: 10.0534-02.02 insertion file no:	side: Component view: Value	
number: 33.0558	version: 03.02	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	



OLD VERSION

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-04.00 schema no: 10.0534-02.02 insertion file no: 81.0042-02.01	side: Solder view: Reference	
number: 33.0559	version: 03.02	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	



OLD VERSION

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0841-04.00 schema no: 10.0534-02.02 insertion file no: 81.0042-02.01	side: Solder view: Value	
number: 33.0560	version: 03.02	project n: EP08-00	title: Power S.&Ins+Outs Ct.
drawn by: Jordi Folch	date: 011105	product n: APA2000	
		approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0841.04.00

OLD VERSION

Code	Description	Reference
FCXCN41000	100n	C101
FCXCN41000	100n	C102
FCXCN41000	100n	C103
FCXCN41000	100n	C104
FCCE100000	47u/16	C105
FCCE100000	47u/16	C106
FCCE100000	47u/16	C107
FCCE100000	47u/16	C108
FCXCN21000	100p	C109
FCXCN21000	100p	C110
FCXCN21000	100p	C111
FCXCN21000	100p	C112
FCXCN12201	22p 2%	C113
FCXCN12201	22p 2%	C114
FCXCN12201	22p 2%	C115
FCXCN12201	22p 2%	C116
FCCE100000	47u/16	C117
FCCE100000	47u/16	C118
FCCE100000	47u/16	C119
FCCE213300	3300u/35	C120
FCCE350220	22u/100	C121
FCCE100000	47u/16	C122
FCXCN41000	100n	C123
FCXCN41000	100n	C124
FCCE212200	2200u/35	C125
FCCE212200	2200u/35	C126
FCCE371525	4700u/130	C127
FCCE371525	4700u/130	C128
FCCE371525	4700u/130	C129
FCCE371525	4700u/130	C130
FCCE250470	47u/50	C131
FCCE250470	47u/50	C132
FCCE371525	4700u/130	C133
FCCE211000	1000u/35	C134
FCXCN40180	18n	C135
FCXCN40180	18n	C136
FCXCN41800	180n	C137
FCXCN41800	180n	C138
FCXCN40180	18n	C139
FCXCN40180	18n	C140
FCXCN41000	100n	C142
FCCE250100	10u/50	C143
FCCE154700	470u/25	C144
FCXCN41000	100n	C145
FCCE371525	4700u/130	C148
FCCDH71470	C470n/275V X2	C150
FCCDH71470	C470n/275V X2	C151
FCCCD22250	C2n2/250V Y1	C152
FCCCD22250	C2n2/250V Y1	C153
FCPERL2550	Cer. Bead	CB105
FCPERL2550	Cer. Bead	CB106
FCPERL2550	Cer. Bead	CB107
FCPERL2550	Cer. Bead	CB108
FCPERL2550	Cer. Bead	CB109
FCPERL2550	Cer. Bead	CB110
FCCIPAM841	11.0841 Printed Board	CI101

PARTS LIST: PRINTED CIRCUIT 11.0841.04.00

OLD VERSION

Code	Description	Reference
FCXDDBAS28	BAS28	D101
FCDD140070	1N4007	D102
FCXDDBAS28	BAS28	D103
FCDD140070	1N4007	D104
FCXDDBAS28	BAS28	D105
FCDD140070	1N4007	D106
FCXDDBAS28	BAS28	D107
FCREC50060	FB5006	D109
FCXDDBAS16	BAS16	D110
FCXDD40070	1N4007	D111
FCXDD40070	1N4007	D112
FCXDDBAS16	BAS16	D113
FCDD140070	1N4007	D114
FCXDD40070	1N4007	D115
FCXDD40070	1N4007	D116
FCXDD40070	1N4007	D117
FCXDD40070	1N4007	D118
FCXDDBAS16	BAS16	D119
FCXDDBAS16	BAS16	D120
FCXZ000100	Z10V	D121
FCXDD40070	1N4007	D122
FCXDD40070	1N4007	D123
FCXDD40070	1N4007	D124
FCXDD40070	1N4007	D125
FCXDD40070	1N4007	D126
FCXDD40070	1N4007	D127
FCXDD40070	1N4007	D133
FCFUS80400	16A Temp.	F101
FCFUS50080	250mA Temp.	F102
FCFUS50080	250mA Temp.	F103
FCFUS50080	250mA Temp.	F104
FCFUS50080	250mA Temp.	F105
FCRAD11515	HEATSINK	HS101
FCMECT0220	Heatsink f/TO220	HS102
FCMECT0220	Heatsink f/TO220	HS103
FCRAD12636	SERA. 1137	HS104
FCIC072010	TL072	IC101
FCIC072010	TL072	IC102
FCREG78150	7815	IC103
FCREG79150	7915	IC104
FCIC072010	TL072	IC105
FCREG78050	7805	IC106
FCBASX0900	YKF52-5005	J101
FCBASX0900	YKF52-5005	J102
FCBASJ0200	YKB21-5009	J103
FCBASJ0200	YKB21-5009	J104
FCCTM00060	B6B-EH-A	J105
FCCTAMP060	6P AMP MALE SOCKET	J106
FCCTAMP090	9P AMP MALE SOCKET	J107
FCCTM00030	B3B-EH-A	J108
FCCTAMP060	6P AMP MALE SOCKET	J109
FCCTM00020	B2B-EH-A	J112
FCCTM00020	B2B-EH-A	J113
FCCTAMP040	4P AMP MALE SOCKET	J114
FCCTAMP040	4P AMP MALE SOCKET	J115
FCCTAMP040	4P AMP MALE SOCKET	J116

PARTS LIST: PRINTED CIRCUIT 11.0841.04.00

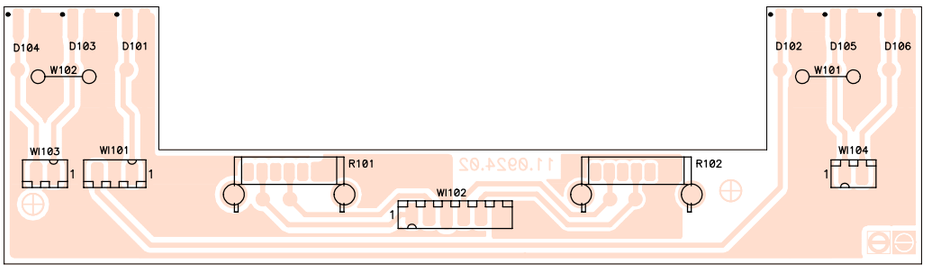
OLD VERSION

Code	Description	Reference
FCCTM00060	B6B-EH-A	J120
FCCTM00070	B7B-EH-A	J123
FCBASS0100	NL4MP Faston	J302
FCBASS0100	NL4MP Faston	J303
FCREL10600	Relay 60V 6000	K101
FCBB2X3500	2x1.5mH	L101
FCMJ000100	Jumper	MJ101
FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCMJ000100	Jumper	MJ104
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCPORF0100	Fuse clip	PF101
FCPORF0100	Fuse clip	PF102
FCPORF3150	3/15P	PF103
FCPORF3150	3/15P	PF104
FCPORF3150	3/15P	PF105
FCPORF3150	3/15P	PF106
FCXR151000	100k0	R101
FCXR151000	100k0	R102
FCXR151000	100k0	R103
FCXR151000	100k0	R104
FCXR121000	100.0	R105
FCXR121000	100.0	R106
FCXR121000	100.0	R107
FCXR121000	100.0	R108
FCXR151000	100k0	R109
FCXR151000	100k0	R110
FCXR151000	100k0	R111
FCXR151000	100k0	R112
FCXR242430	24k3	R113
FCXR242430	24k3	R114
FCXR242430	24k3	R115
FCXR242430	24k3	R116
FCXR242430	24k3	R117
FCXR242430	24k3	R118
FCXR242430	24k3	R119
FCXR242430	24k3	R120
FCXR131000	1k0	R121
FCXR131000	1k0	R122
FCXR151000	100k0	R123
FCXR153400	340k	R124
FCNTC00300	NTC10	R125
FCXR131540	1k54	R126
FCXR131000	1k0	R127
FCXR131000	1k0	R128
FCXR153400	340k	R129
FCXR131540	1k54	R130
FCXR143650	36k5	R131
FCXR157150	715k	R132
FCXR151780	178k	R133
FCXR143650	36k5	R134
FCXR157150	715k	R135
FCXR151780	178k	R136
FCRC545600	5k6/2	R137

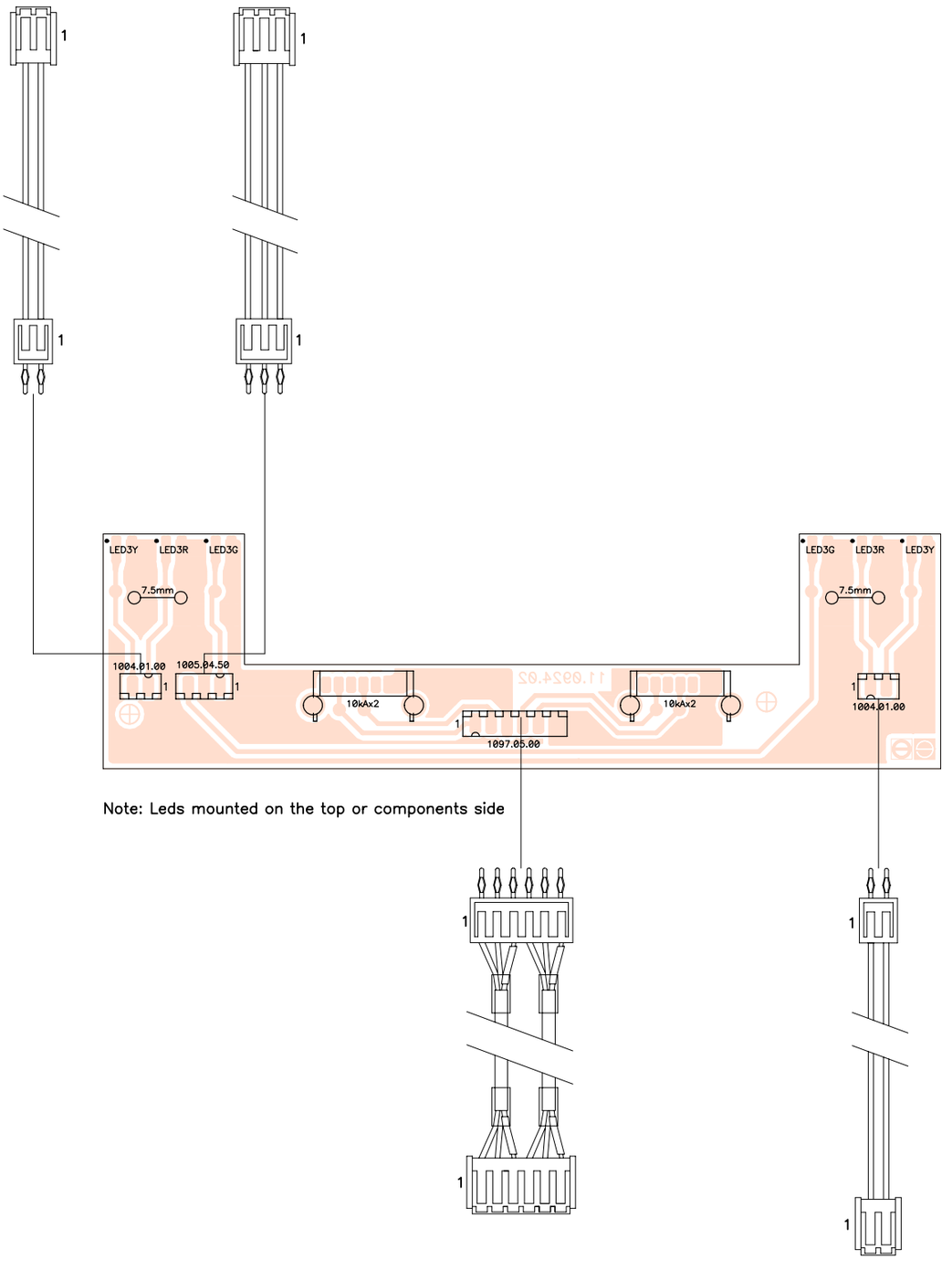
PARTS LIST: PRINTED CIRCUIT 11.0841.04.00

OLD VERSION

Code	Description	Reference
FCXR151500	150k0	R138
FCXR151500	150k0	R139
FCXR151500	150k0	R140
FCXR151500	150k0	R141
FCXR151500	150k0	R142
FCXR126810	681	R187
FCXR126810	681	R188
FCINTAP080	NS42J11	S101
FCINTD4000	17128	S102
FCT7503008	Screw M3x8	SC101
FCT7503008	Screw M3x8	SC102
FCT7503008	Screw M3x8	SC103
FCT3804012	M4x12 TR	SC104
FCTERMF280	Faston 2.8mm	TS101
FCMECPON19	19mm	W100
FCARDE0300	Toothed Washer f/M3	WA101
FCARDE0300	Toothed Washer f/M3	WA102
FCARDE0300	Toothed Washer f/M3	WA103
FC2F016500	1016.05.00	WI101
FC2F017500	1017.05.00	WI102
FC4K007500	1007.05.00	WI103
FC6J024450	1024.04.50	WI104
FC6J024450	1024.04.50	WI105
FC4K007500	1007.05.00	WI106
FC0H025180	1025.01.80	WI306



ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0924-02.00 schema no: 10.0602-01.00 insertion file no:		side: Component view: Reference
	drawn by: M. Amoros	date: 020117	approved by: Angel Sanuy
number: 33.0724 / version: 01.01	title: EP08-00 Potentiometers&Leds Ct.		



Note: Leds mounted on the top or components side

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0924-02.00 schema no: 10.0602-01.00 insertion file no:		side: Component view: Value
	drawn by: M. Amoros	date: 020117	approved by: Angel Sanuy
number: 33.0725 / version: 01.01	title: EP08-00 Potentiometers&Leds Ct.		

PARTS LIST: PRINTED CIRCUIT 11.0924.02.00

Code	Description	Reference
FCCI009240	Printed Board 11.0924	CI101
FCLED300VE	LED3G	D101
FCLED300VE	LED3G	D102
FCLED300RO	LED3R	D103
FCLED300AM	LED3Y	D104
FCLED300RO	LED3R	D105
FCLED300AM	LED3Y	D106
FCPR210040	10kAx2	R101
FCPR210040	10kAx2	R102
FCPONT0075	7.5mm	W101
FCPONT0075	7.5mm	W102
FC4I005450	1005.04.50	WI101
FC1L097500	1097.05.00	WI102
FC4G004100	1004.01.00	WI103
FC4G004100	1004.01.00	WI104

PRELIMINARY:

- Set the MONO-STEREO selection switch to STEREO.
- Check the Ground Link switch.
- Place a mini-jumper between the external leads of connectors J123 and J120 (input circuit).
- Be sure that the correct cable types are used.
- Connect the power amplifier's mains plug to a 230Vac variac output, and leave it on its 0V position.
- Keep an ammeter nearby, in order to verify the current consumption adjustments.

VERIFICATION:

- Switch the tested unit's Power main switch to ON, without applying any input signal. Insert the ammeter into the channel to be tested.
- Slowly increase the variac's output until it reaches the unit's nominal mains voltage, and verify that the current consumption adjustments remain correct: **150mA**. If this value has changed, rectify it. Once adjusted, seal the potentiometer with fixing lacquer. Caution! The unit's power supply will be charged! Before removing the ammeter and replacing the fuse, it is strongly recommended to completely discharge the unit's power supply by applying a 2KHz 0dB input signal and connecting load impedances to the amplifier's output, and reduce the unit's mains voltage to 0V by turning down the variac's output.
- Repeat this procedure on the other channel.
- Once the adjustments are done, turn off and on again the unit by switching over its main power switch, and verify the STANDBY period lasting approximately 10 seconds, and also the cooling fans run up to their maximum running speed.
- Verify both XLR-type inputs, and their correspondent *signal present* indicator LED's and also check the correct functioning of the input signal attenuators, as their actuation range should be from -∞dB to 0dB.
- Verify the unit's output power when working at nominal mains voltage (230Vac):

APA 2000 940W 61V on 4Ω

- To verify the ANTICLIP function, increase the input signal level above 0dB and check that the clipping output signal is smoothened. Place a mini-jumper into the test point terminal near the VTL5C8 device, verify that the anticlip function now is triggered earlier and rounds the clipping signal even more. Check the CLIP indicator LED's are lit, and, when reducing the output signal level in 0'5 or 1dB, the CLIP Leds turn off. Verify that each indicator LED is paired with its own channel.
- Verify the unit's bandwidth curve, which, with a 2KHz 0'5V input signal, should be linear between 20Hz and 20KHz without inducing any distortion to the output signal. Also check that when applying an input signal up to 50KHz, the unit's output level only decreases in 1 or 2 dB, and no visible distortion is observed.
- Verify the MONO operating mode. Switch over the MONO-STEREO selector to MONO, check that both channels are sending outputs in phase opposition. Only the channel I potentiometer should be active by now. Apply an 8Ω load impedance between the active output terminals and verify that the unit reaches to clip without troubles. Return the unit to its STEREO mode.
- Connect a load impedance formed by a 4Ω resistor shunted to a 2μ2F capacitor, and apply a 1KHz square waveform input signal. Using an oscilloscope, observe the output signal, and increase the input signal level until the displayed signal starts clipping. At the flat level areas of the squared waveform, only two or three ringing should be detected.
- Verify the SUBSONIC FILTER performance. Place connector J120's mini-jumper into its central position. Verify that when the unit's output is not loaded and a 0dB input level is applied, the

amplifier's output level at 25Hz is reduced in 3 dB when comparing with the measured level without subsonic filtering. Leave the subsonic filter ON.

- Verify the THERMAL protection circuitry. Short the unit's thermal probe pins 1 and 3, and verify that the relay releases, while the THERMAL indicator light up, as the output signal is cutted off and the cooling fan increases its speed until it reaches maximum airflow.
- Repeat this procedure on the other module.

PROTECTIONS

- Signal generator OFF, -10dB scale, and level potentiometer down to its minimum.
- Oscilloscope adjusted to 5v/div, 0.2ms/div time base, test probe not attenuated.
- Connect a 0'5Ω load impedance, the verifier's load can be used.
- Turn up quickly the level potentiometer. Both positive and negative half of the signal cycle is clipped. Occasionally, only one of both signal cycles may be clipped. If this happens increase the generator's output level in 5dB. Verify that no ringing appear when the protection is triggered.

BURNING TEST

To submit the unit to a burning test, leave it connected to the mains supply and turned on for 24 hours.

SAFETY VERIFICATION TESTS.

Preliminary:

- Unplug the unit to be tested from the mains outlet.
- Short all ground terminals from signal inputs, outputs and other external connectors, except the mains plug's ground.
- Turn on the unit's main power switch.

Ground continuity test: Connect the tester's probes between the mains ground contact and the unit's backside main ground test point. When applying a 10A current, verify that the ground impedance is lower than 0'1Ω.

Electrical insulation test: Connect the electrical insulation tester's probes between the mains outlet ground contact and both shorted mains input poles. Adjust the tester's current limit down to 10mA. Apply 1500Vac during 5 seconds.
The unit's insulation should be able to resist this voltage, without generating spurious sparks or a spark over effect, and the tester may not detect any dysfunction.

CAUTION: Do not disconnect nor touch the test probes until the test has finished completely!

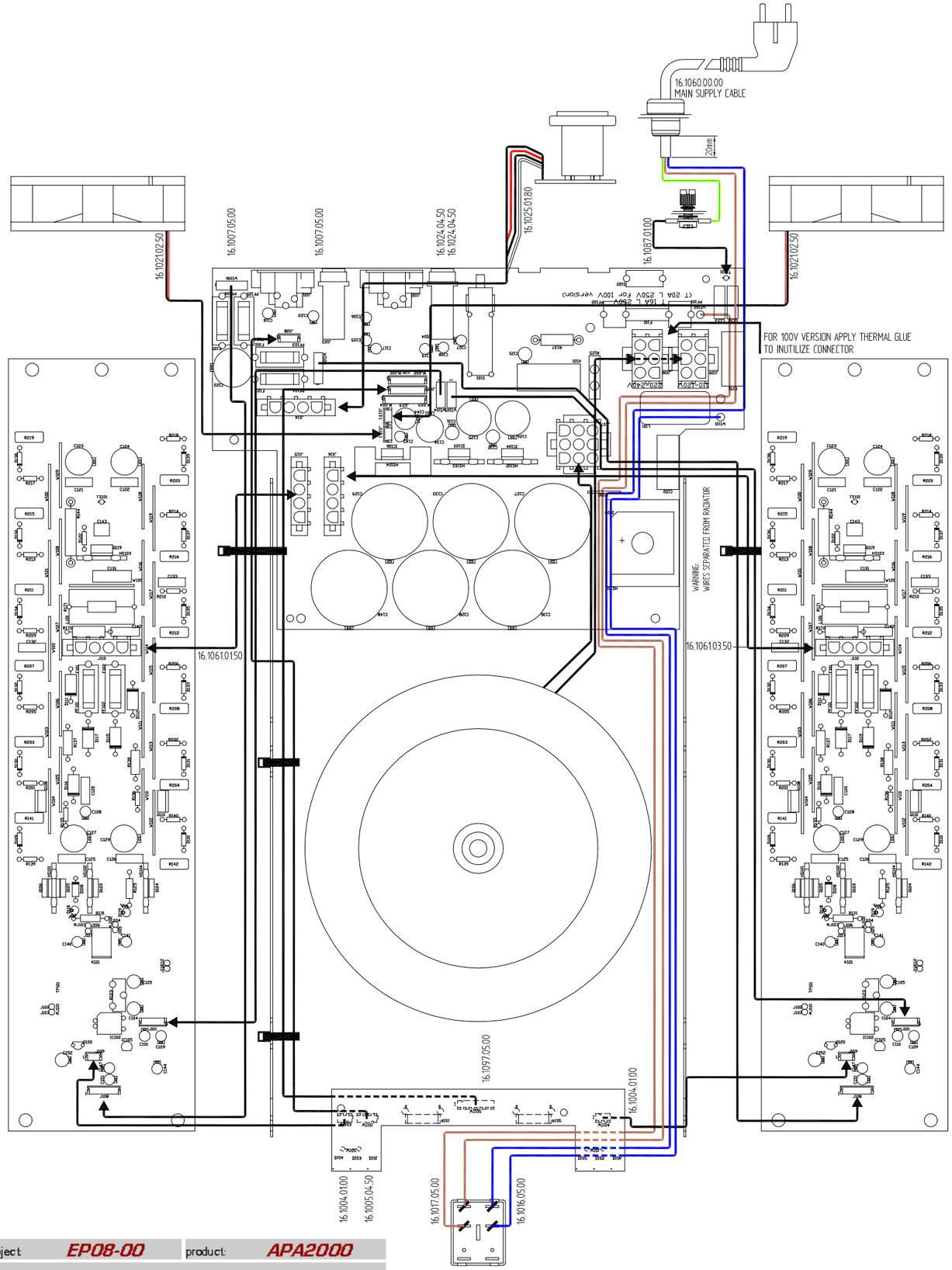
VERIFICATION USING MUSIC

Verify the unit's sound quality, which should be distortion- and noise-free. Once the unit is turned in and its STANDBY cycle time has elapsed, the output relays release, but no annoying noise is heard through the loudspeakers. Also check that all potentiometers can run smoothly their whole sweep, without noise and crisperings. At their minimum position, check that output signal is completely cutted off. To ensure that all electrical junctions are well-fixed, hit the tested unit against your working table, obviously without damaging its outer presentation. Verify all in- and outputs. Short the output terminals while carrying amplified signal. Once the short-circuit is removed, the unit recovers normal functioning.

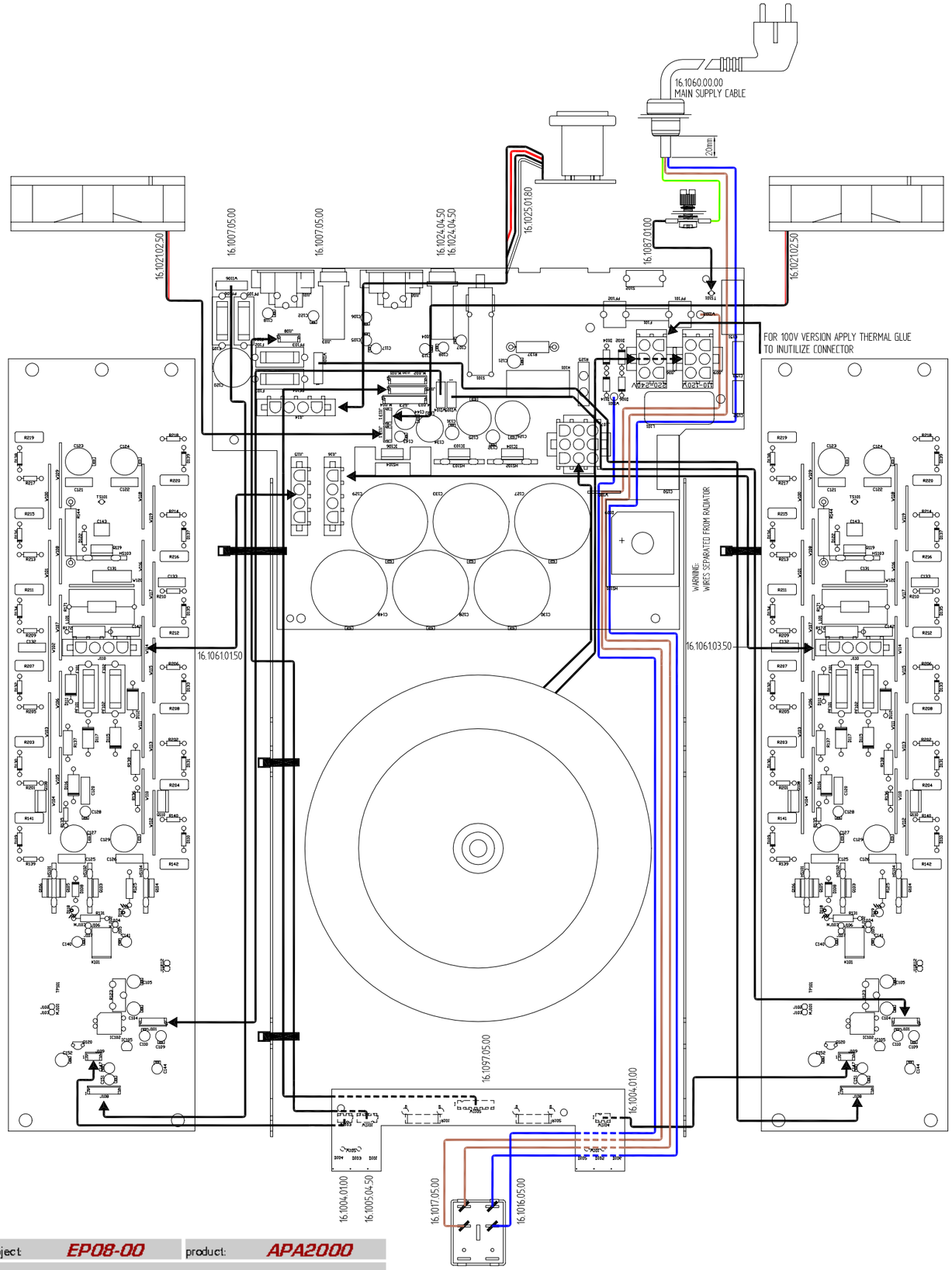
QUALITY CONTROL

All mechanical parts should be visually revised, in order to detect scratches on the unit's painting; all screws should be on their place, correctly tight and unmarked. Check out the unit's general presentation.

POWER 20-20kHz 1% THD		
4Ω Stereo		940 WRMS
8Ω Stereo		550 WRMS
8Ω Bridged		1880 WRMS
POWER 1kHz 0.1% THD		
4Ω Stereo		880 WRMS
8Ω Stereo		518 WRMS
8Ω Bridged		1750 WRMS
Peak Power 2Ω/1kHz		2.95 Kw
Frequency response (-1dB)		6Hz-90kHz
High pass filter (-3dB)		25Hz/Butt./18dB/oct.
THD+Noise @ 1kHz Full Pwr.		<0.07%
Imd. Dist. 50Hz & 7kHz, 4:1		<0.08%
TIM 100		<0.01%
S+N/N 20Hz-20kHz @ 1W/4Ω		>85dB
Damping factor 1kHz @ 8Ω		>300
Slew Rate		±80V/μs
Channel crosstalk @ 1kHz		>70dB
Input connector		XLR3 balanced
Input CMRR/ref. Max. PWR		>60dB @ 1kHz
Input Sensitivity / Impedance		0dBV / >22kΩ
Signal present indicator		-40dB
Output connectors		Speak-on
Clip indicators		-1.5dB real clip
Anticlip limiter		1% & 5% aprox.
Mains Depending on your country	See characteristics in the back of the unit.	
Power consumption (max.Out)		3.115 VA
Dimensions	Panel	482.6x88mm
	Depth	480mm
Weight		22 Kg

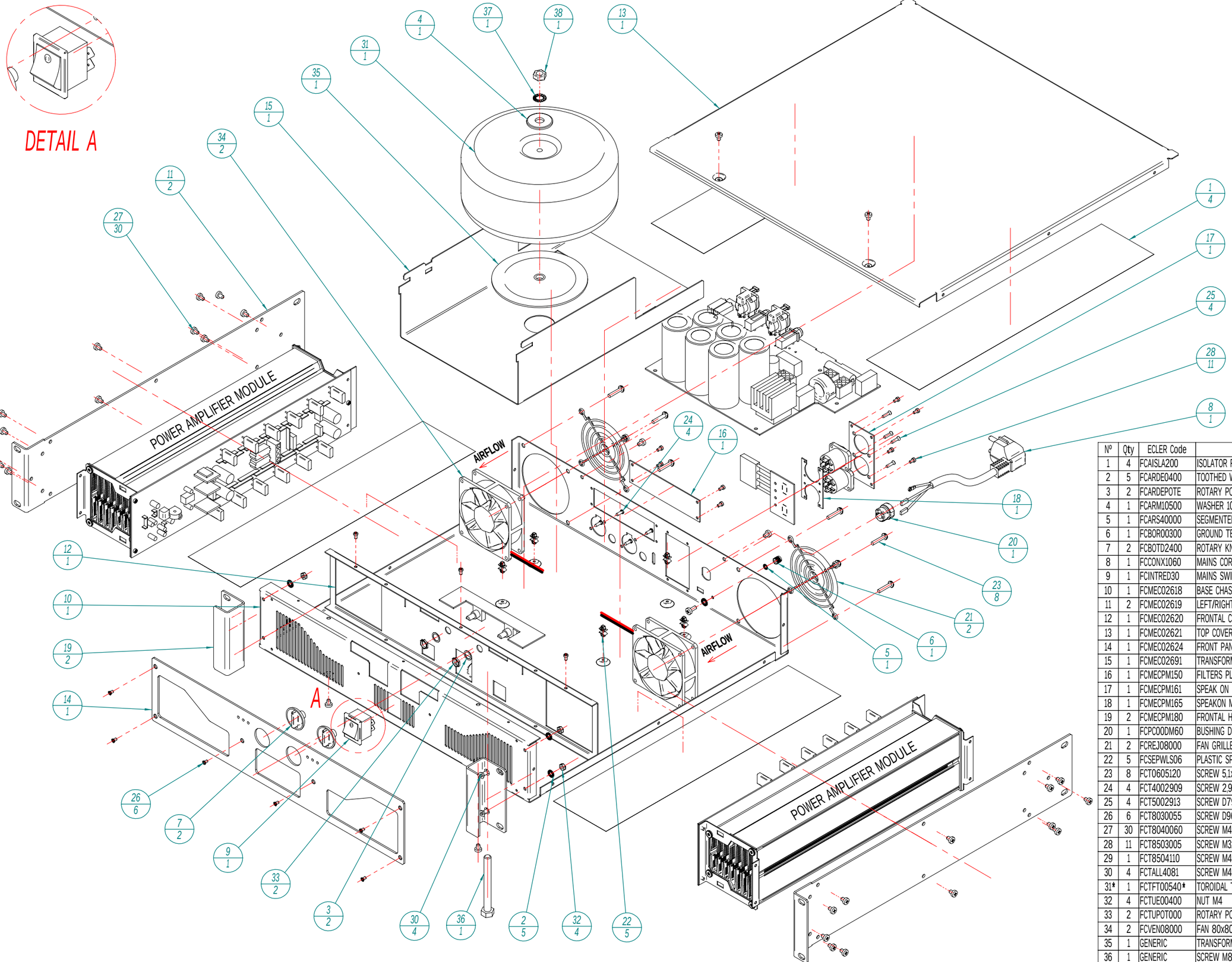


ECLER	drawn: J. Colomines	date: 021018	project: EP08-00	product: APA2000
	approved:	title: WIRING DIAGRAM		
number: 31.0132	version 01.02			



OLD VERSION

ECLER	drawn: J. Colomines	date: 020509	project: EP08-00	product: APA2000
number: 31.0132 version 01.01	approved:	title: WIRING DIAGRAM		



Nº	Qty	ECLER Code	Description
1	4	FCAISLA200	ISOLATOR FOR MODULE
2	5	FCARDE0400	TOOTHED WASHER M4
3	2	FCARDEPOTE	ROTARY POT. WASHER M9
4	1	FCARM10500	WASHER 10,5X30X2,5M
5	1	FCARS40000	SEGMENTED WASHER M4
6	1	FCBOR00300	GROUND TERMINAL
7	2	FCBOTD2400	ROTARY KNOB D24
8	1	FCCONX1060	MAINS CORD 3 x 1.5 APA2000
9	1	FCINTRED30	MAINS SWITCH W/LIGHT
10	1	FCMEC02618	BASE CHASSIS
11	2	FCMEC02619	LEFT/RIGHT SIDE
12	1	FCMEC02620	FRONTAL CIRCUIT MEC. SUPORT
13	1	FCMEC02621	TOP COVER
14	1	FCMEC02624	FRONT PANEL
15	1	FCMEC02691	TRANSFORMER MECHANICAL SUPPORT
16	1	FCMECPM150	FILTERS PLATE
17	1	FCMECPM161	SPEAK ON PLATE
18	1	FCMECPM165	SPEAKON MECHANICAL SUPPORT
19	2	FCMECPM180	FRONTAL HANDLE
20	1	FCPC00DM60	BUSHING DM6
21	2	FCREJ08000	FAN GRILLE 80x80
22	5	FCSEPWLS06	PLASTIC SPACER 6MM
23	8	FCT0605120	SCREW 5,1x20
24	4	FCT4002909	SCREW 2,9x9,5 D7981F BLACK
25	4	FCT5002913	SCREW D7982 2,9x13
26	6	FCT8030055	SCREW D965 M3x5 BLACK
27	30	FCT8040060	SCREW M4x6 SPANLO BLACK
28	11	FCT8503005	SCREW M3x5 REDUCED HEAD
29	1	FCT8504110	SCREW M4x10 TRILOB. W
30	4	FCTALL4081	SCREW M4x8 ALLEN B
31*	1	FCTFT00540*	TOROIDAL TRANSFORMER EP08-00*
32	4	FCTUE00400	NUT M4
33	2	FCTUPOT000	ROTARY POT. NUT M9
34	2	FCVEN08000	FAN 80x80 12VDC
35	1	GENERIC	TRANSFORMER RUBBER DISC
36	1	GENERIC	SCREW M8 TRANSFORMER
37	1	GENERIC	TRANSFORMER TOOTHED WASHER M8
38	1	GENERIC	TRANSFORMER NUT M8

* FOR 100V UNIT TRANSFORMER CODE FCTFT02750

NOTE:
1.-TO VIEW GROUND CABLES POSITION AND MAIN CORD CHARACTERISTICS, SEE WIRING DIAGRAM NUMBER 31.0132

ECLER

drawn: Jordi Folch | date: 020507 | project: EP08-00 | product: APA2000

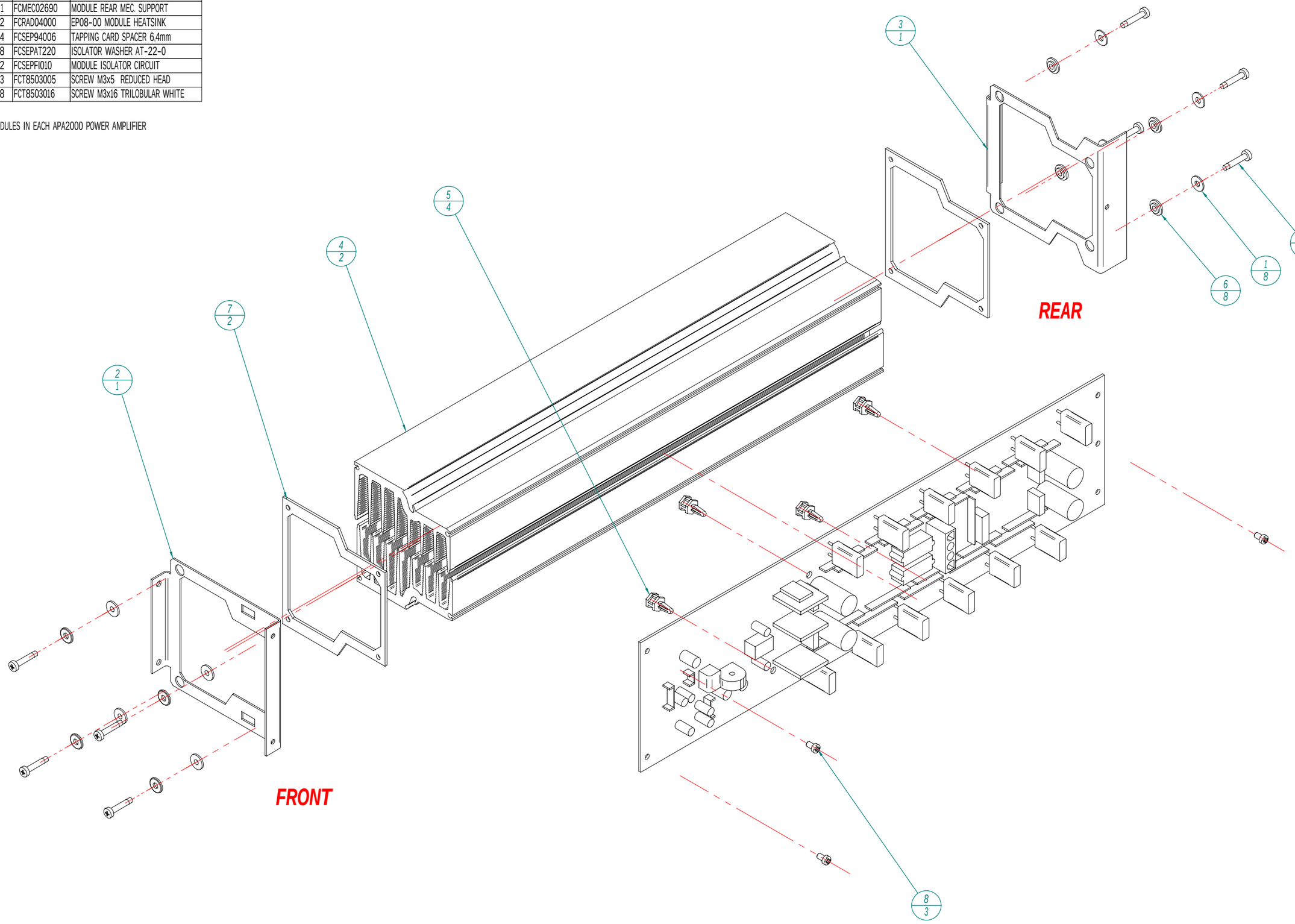
approved:

number: 30.0165 | version 01.01

title: **MECHANICAL DIAGRAM**

Nº	Qty	ECLER Code	Description
1	8	FCARM35000	WASHER 3,5X9X1M
2	1	FCMEC02689	MODULE FRONTAL MEC. SUPPORT
3	1	FCMEC02690	MODULE REAR MEC. SUPPORT
4	2	FCRAD04000	EP08-00 MODULE HEATSINK
5	4	FCSEP94006	TAPPING CARD SPACER 6,4mm
6	8	FCSEPAT220	ISOLATOR WASHER AT-22-0
7	2	FCSEPFI010	MODULE ISOLATOR CIRCUIT
8	3	FCT8503005	SCREW M3x5 REDUCED HEAD
9	8	FCT8503016	SCREW M3x16 TRILOBULAR WHITE

NOTE:
TWO MODULES IN EACH APA2000 POWER AMPLIFIER



ECLER

drawn: Jordi Folch | date: 020827 | project: EP08-00 | product: APA2000

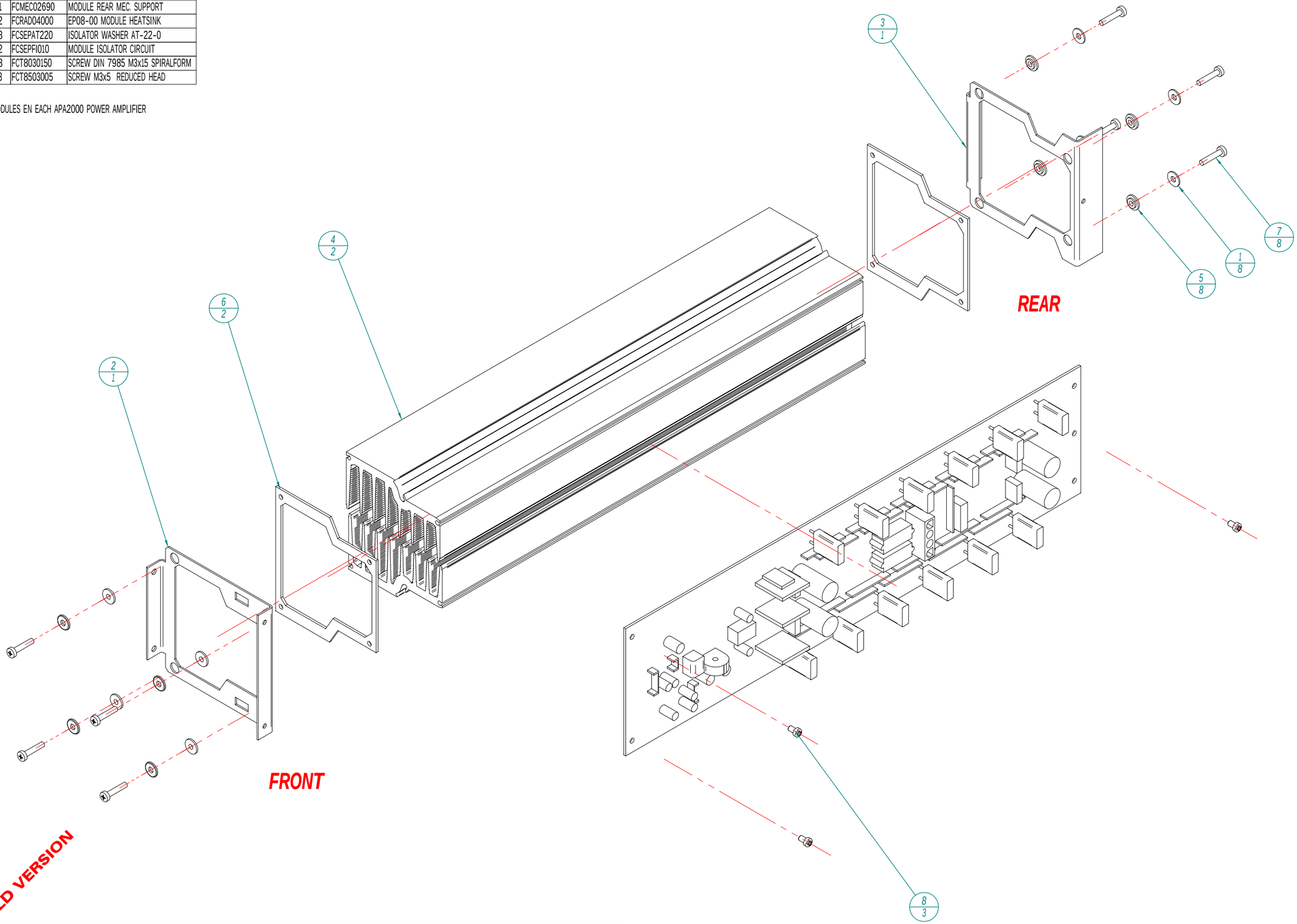
approved:

title: POWER MODULE MECHANICAL DIAGRAM

number: 30.0166 | version 01.02

Nº	Qty	ECLER Code	Description
1	8	FCARM35000	WASHER 3,5X9X1M
2	1	FCMEC02689	MODULE FRONTAL MEC. SUPPORT
3	1	FCMEC02690	MODULE REAR MEC. SUPPORT
4	2	FCRAD04000	EP08-00 MODULE HEATSINK
5	8	FCSEPAT220	ISOLATOR WASHER AT-22-0
6	2	FCSEPFI010	MODULE ISOLATOR CIRCUIT
7	8	FCT8030150	SCREW DIN 7985 M3x15 SPIRALFORM
8	3	FCT8503005	SCREW M3x5 REDUCED HEAD

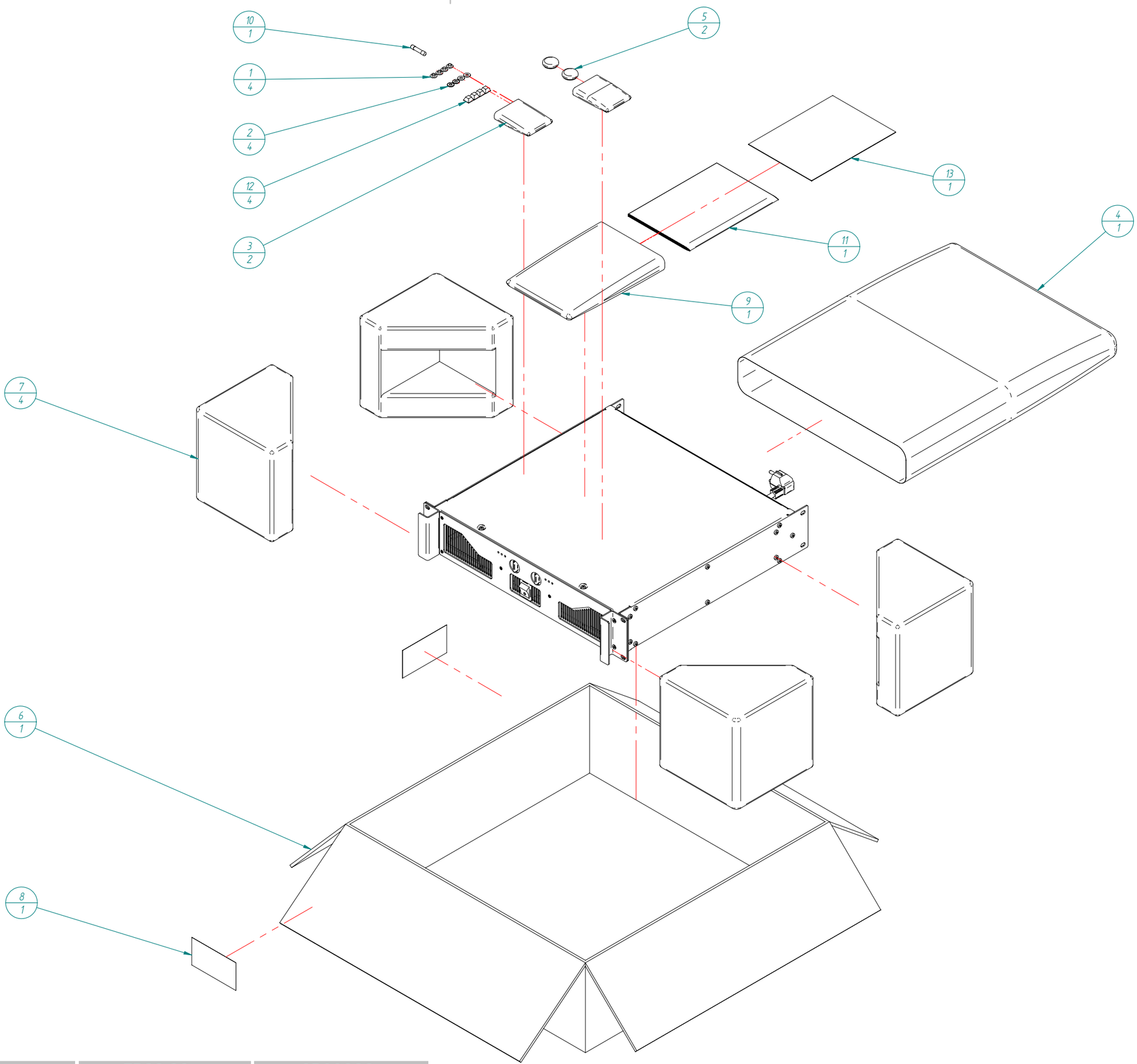
NOTE:
TWO MODULES EN EACH APA2000 POWER AMPLIFIER



ECLER	drawn: Jordi Folch	date: 020509	project: EP08-00	product: APA2000
number: 30.0166 version 01.01	approved:	title: POWER MODULE MECHANICAL DIAGRAM		

Nº	Qty	ECLER Code	Description
1	4	FCARAT300000	SCREW INSULATOR
2	4	FCARN5000000	WASHER 5X11,5X0,8
3	2	FCBOL0010000	BAG 60x80
4	1	FCBOLS020000	STANDARD BAG 75x65
5	2	FCBOTD240100	ROT. KNOB PROTECTION COVER
6	1	FCCAJSTA2100	PACKING CARDBOARD BOX
7	4	FCCANT116000	INTERIOR REINFORCEMENT
8	1	FCETI0951140	PRODUCT LABEL PACK (ONE FOR EACH UNIT)
9	1	FCFUNMAN0000	USER MANUAL BAG
10 *	1	FCFUS8040000 *	FUSE 16A 10x38 *
11	1	FCMANPAML000	USER MANUAL APA
12	4	FCPIE1125500	RUBBER FOOT
13	1	FCTARJG00000	WARRANTY CARD

* FOR 100V UNIT FUSE CODE FCFUS80500 : FUSE 20A 10x38



ECLER

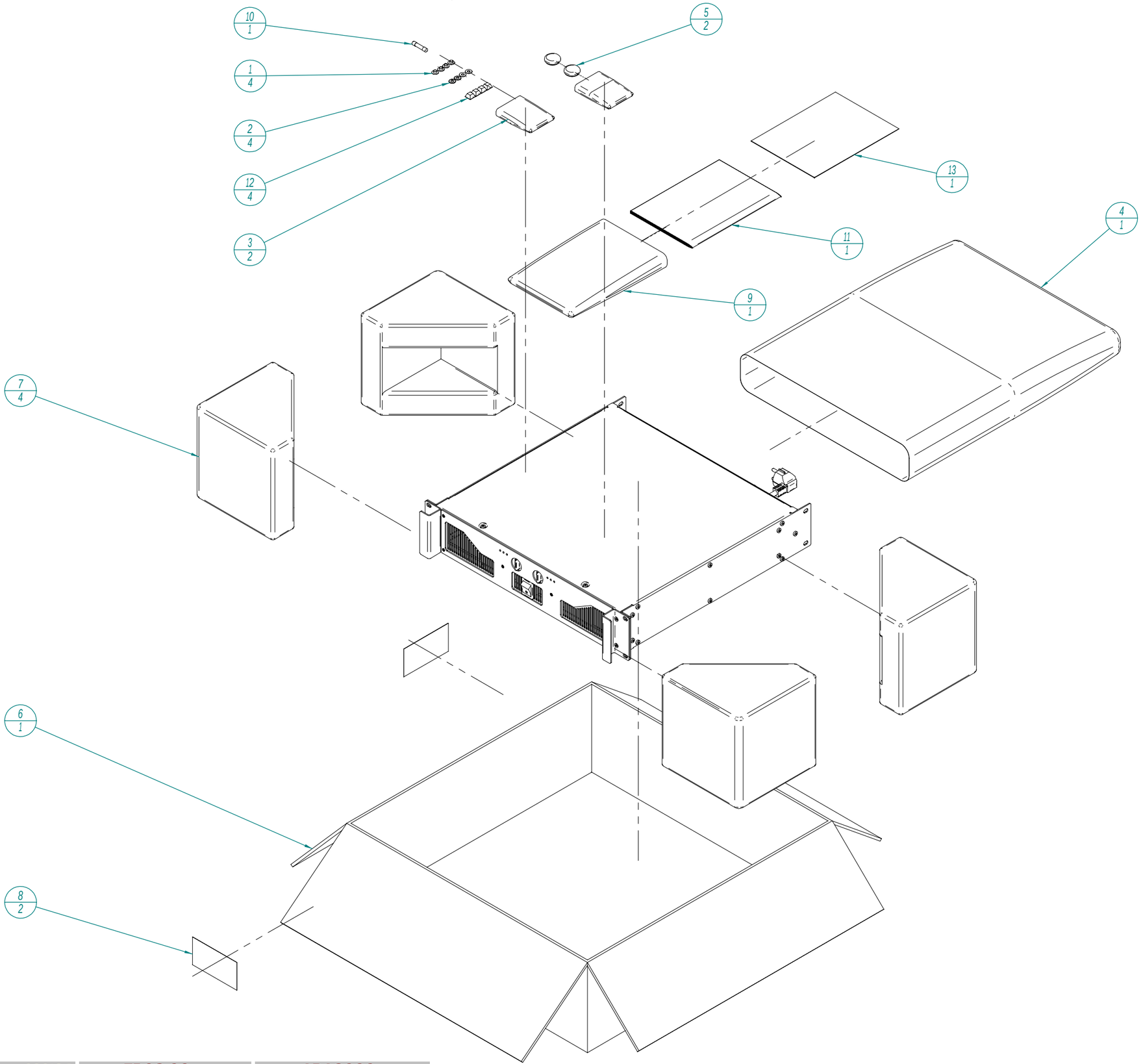
drawn: Jordi Folch | date: 040211 | project: EP08-00 | product: APA2000

approved: | title: PACKING DIAGRAM

number: 32.0081 | version 01.01

Nº	Qty	ECLER Code	Description
1	4	FCARAT3000	SCREW INSULATOR
2	4	FCARN50000	WASHER 5X11,5X0,8
3	2	FCBOL00100	BAG 60x80
4	1	FCBOLS0200	STANDARD BAG 75x65
5	2	FCBOTD2401	ROT. KNOB PROTECTION COVER
6	1	FCCAJSTA21	PACKING CARDBOARD BOX
7	4	FCCANT1160	INTERIOR REINFORCEMENT
8	2	FCETICAJA0	UNIT INFORMATION LABEL
9	1	FCFUNMAN00	USER MANUAL BAG
10*	1	FCFUS80400*	FUSE 16A 10x38*
11	1	FCMANPAML0	USER MANUAL APA
12	4	FCPIE11255	RUBBER FOOT
13	1	FCTARJG000	WARRANTY CARD

** FOR 100V UNIT FUSE CODE FCFUS80500 : FUSE 20A 10x38*



OLD VERSION

ECLER	drawn: Jordi Folch	date: 020124	project: EP08-00	product: APA2000
number: 32.0081 version 01.00	approved:	title: PACKING DIAGRAM		