KX 15

SERVICE MANUAL



KV2 audio™

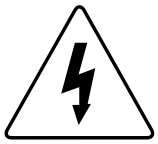
IMPORTANT SAFETY INSTRUCTIONS

DESCRIPTION

Observe all instructions and follow warnings marked on the equipment and in the user's manual.
Connect the instrument only to a source of proper mains voltage.
Do not try switch on the equipment that has fallen down, that is damaged, in case that a liquid penetrated inside it or if some malfunctions have occurred and their nature requires a repair action.
The supply cable shall be made by a person having proper qualification.

WARNING: The equipment is designed in Class I and shall be connected to a wall socket having protective earthing.
The mains plug and supply cable shall remain easy accessible as this is used for disconnection of the equipment from the supply source.
Never interrupt earthing due to safety reasons.
Do not place the equipment close to heating bodies or other sources of heat and protect it against direct sunlight.
The equipment shall not come into contact with open flame.
Ventilation of the equipment shall not be obstructed by covering of ventilation openings.
The equipment shall not be exposed to dripping or splashing water and excessive humidity.
Any object filled with any liquid shall not be placed on the equipment.

EXPLANATION OF THE SYMBOLS OCCURRING ON THE PRODUCT AND IN THE USER'S MANUAL



The triangle with a symbol of a lightning marks parts of the equipment under life jeopardizing voltage, whose values may cause an injury from electric shock.

CE

The symbol indicating that the equipment is manufactured in compliance with EU standards.



The triangle with a symbol of an exclamation mark in the text marks important instructions for operation, setting and maintenance.

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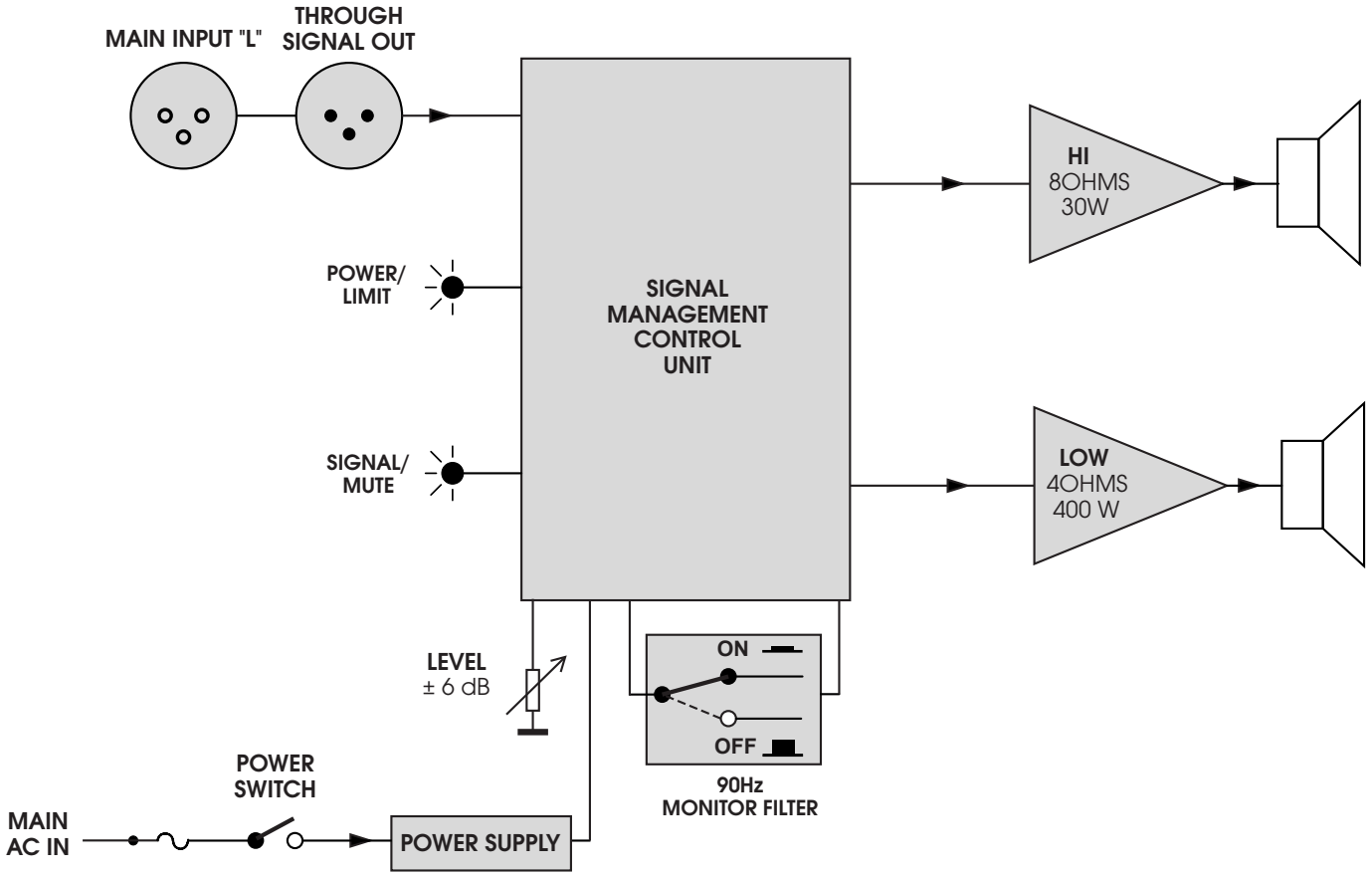
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BOARD PASSIVE EQ KX12_KX15 12

Specification

System Acoustic Perfomance	
-3dB Response	*58Hz - 18kHz*
-10dB Response	*50Hz - 24kHz*
Max SPL	*129dB*
Crossover Point	*1.0kHz*
High Frequency Section	
Throat Exit Diameter	*1.4" (35.56mm)*
Diaphragm Size	*2.5" (63.50mm)*
Diaphragm Material	*Titanium*
Magnet Type	*Neodymium*
Horn with constant Directivity	
Coverage Horizontal/Vertical	*80°x40° Rotatable*
Low Frequency Section	
Acoustic Design	*Front Loaded, Bass Reflex*
Woofer Size/ Voice Coil Diameter/ Design	*15" / 2.5"(63.50mm)/Inside-outside*
Diaphragm Material	*Epoxy Reinforced Cellulose*
Magnet Type	*Ferrite*
Signal Input	
Input Impedance	*20 kΩ*
Input Sensitivity	*0.75V rms*
Power Connector	
Power Connector	*IEC 320*
High Frequency Amplifier	
Type	*High Power Bandwidth*
Rated Continuous Power	*50W*
Distortion	*<0.05%*
Operating Bandwidth	*1.0kHz - 24kHz*
Physical Dimensions	
Height	*770mm (30.31")*
Width	*480mm (18.90")*
Depth	*380mm (14.96")*
Weight	*32kg (70.4lbs)*
Bass Amplifier Specification	
Type	*High Efficiency Switching*
Rated Continuous Power	*450W*
Distortion	*<0.05%*
Operating Bandwidth	*50Hz - 1.0kHz*
Recommended Amperage	
Recommended Amperage	*6.3A 115V 3.15 230V*
Operating Voltage	*100 - 120V @ 60Hz*
Operating Voltage	*230 - 250V @ 50Hz*

Block diagram



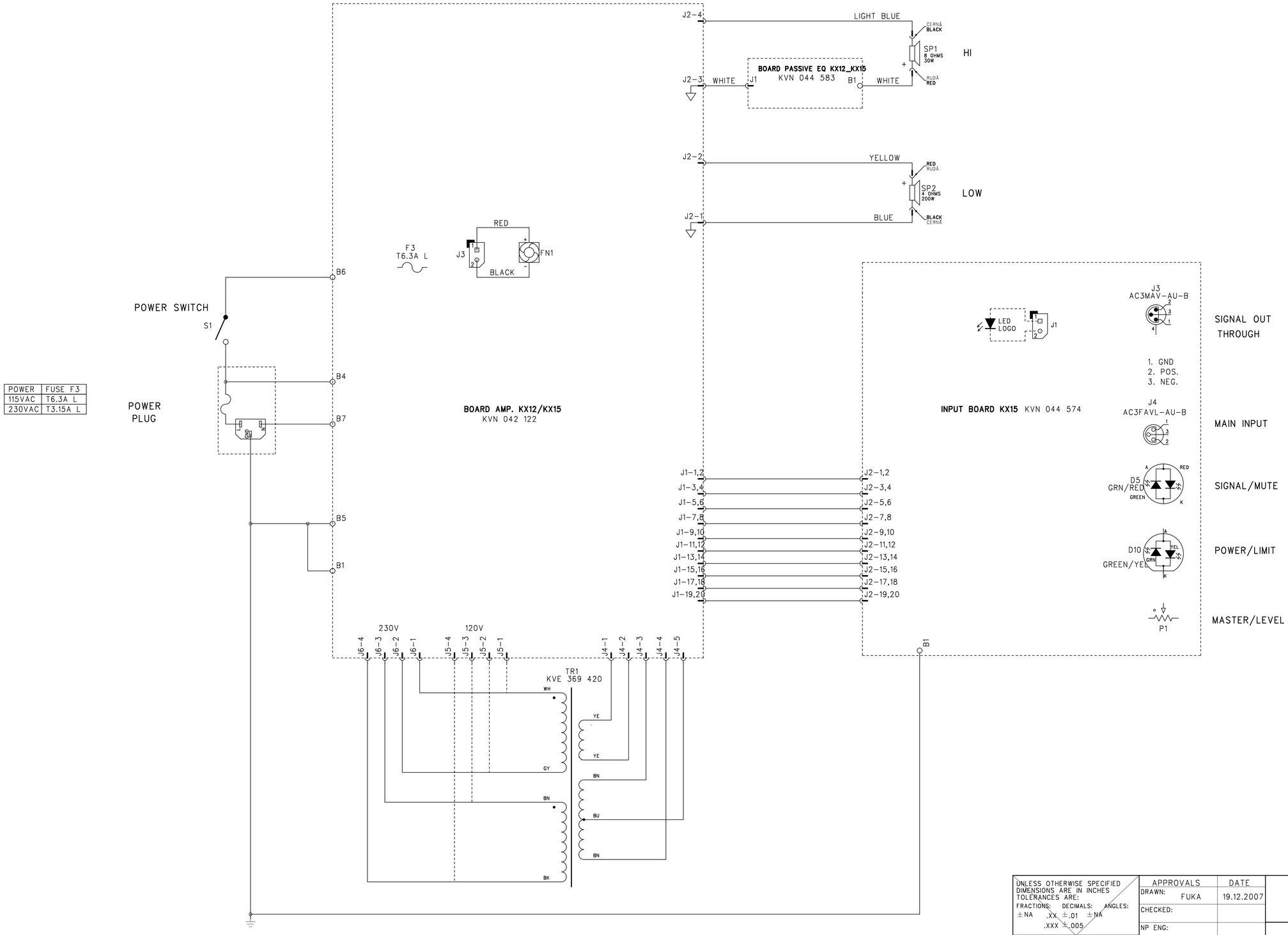
Spare parts

PART No	PART NAME	QTY
DRIVERS		
S-DRIVER G2.5T8		1
S-RECONE KIT G2.5T8		1
S-WOOFER GN15 - 64MB4		1
S-RECONE KIT GN15 - 64MB4		1
BOARDS		
S-KVN 042 122	BOARD AMP. 2C	1
S-KVN 044 574	INPUT&CONTROL BOARD KX 15	1
S-KVN 044 583	BOARD PASSIVE EQ KX15	1
OTHER		
S-KVP 042 030	COMPLETE AMP.KX15	1
S-KVN 130 042	CABINET KX15	1
S-KVF 701 022	GRILL KX15	1
S-KVE 369 420	POWER TRANSFORMER	1
S-KVA 138 003	LOGO KX	1
S-KDE1205PHV2-SUNON	FAN 50X50X15mm 12V	1

DWG. NO.	SHT	REV:
KVZ 042 053 KVZ 042 054	1	03

CONTENTS

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
–	01	**PRODUCTION RELEASE** UVOLNENO PRO VÝROBU	FUKA	–	19.12.2007
A355	02	**ADD BOARD PASSIVE EQ KX12_KX15**	SOBEK	–	14.7.2008
A376	03	**CHANGED POWER CONNECTOR**	FUKA	–	3.12.2008



POWER	FUSE F3
115VAC	T6.3A L
230VAC	T3.15A L

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:	APPROVALS	DATE
FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA	DRAWN: FUKA	19.12.2007
	CHECKED:	
	NP ENG:	
MATERIAL: SEE NOTES	MATERIAL:	
FINISH: SEE NOTES	MFG:	
DO NOT SCALE DRAWING	MFG ENG:	
	ISSUED:	

KV2 AUDIO s.r.o.
Sokolovská 93
399 01 Milevsko
Czech Republic
kv2@kv2.cz

KX15 – 230V (KVZ042053)
KX15 – 115V (KVZ042054)

SIZE	SCALE:	DWG. NO.	REV.
A3	NONE	KVZ 042 053 KVZ 042 054	03

DWG FILE: KVZ042053-03-03-0*.sch | LABEL 03 | SHEET 1 OF 1

	C45	C46	MANUFACTURER
VARIANT A	–	10G/80V	only NIPPON CHEMI-CON
VARIANT B	6.8G/100V	6.8G/100V	ANY MANUFACTURER

POWER	FUSE
115VAC	T6.3A L
230VAC	T3.15A L

ECO#	REV:	DESCRIPTION POPIS	REV. BY: UPRAVIL	APP. BY: KONTROLA	DATE DATUM
–	01	PRODUCTION RELEASE UVOLNENO PRO VÝROBU	SOBEK	–	22.2.2007
A323	02	ADD R46,R75,R95,C8,C17 PRIDANY R46,R75,R95,C8,C17 CHANGED R1,R9,R31,R34,R42,R44,C5 ZMENENY HODNOTY R1,R9,R31,R34,R42,R44,C5	FUKA	–	20.12.2007
–	03	CHANGED CAPACITORS C23 C25 C30 C31 C36 C37 ADD NOTE ABOUT C45 AND C46	SOBEK	–	5.5.2008
A341	04	CHANGED RESISTORS R11–R13, R15–R19, R30	SOBEK	–	19.5.2008

NOTES:
NOTSPECIFIED RESITORS:
WATTAGE = 0.6 W
TOLERANCE = 1 %
NOTSPECIFIED CAPACITORS:
TOLERANCE = 5 %

APPROVALS		DATE
DRAWN:	SOBEK	9.10.2006
CHECKED:		
NP ENG:		
MATERIAL:		
MFG:		
MFG ENG:		
ISSUED:		

KV2 AUDIO s.r.o.
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DWG. NAME
BOARD AMP 2C

SIZE	SCALE:	DWG. NO.	REV.
A3	NONE	KVN 042 122	04

DWG FILE: KVN042122-03-04-0 *.sch | LABEL 03 | SHEET 1 / 1

DWG. NO, VÝKRE. ČÍSLO	KVN 042 122	SHEET: STRANA 2	REV: ZMĚNA 02

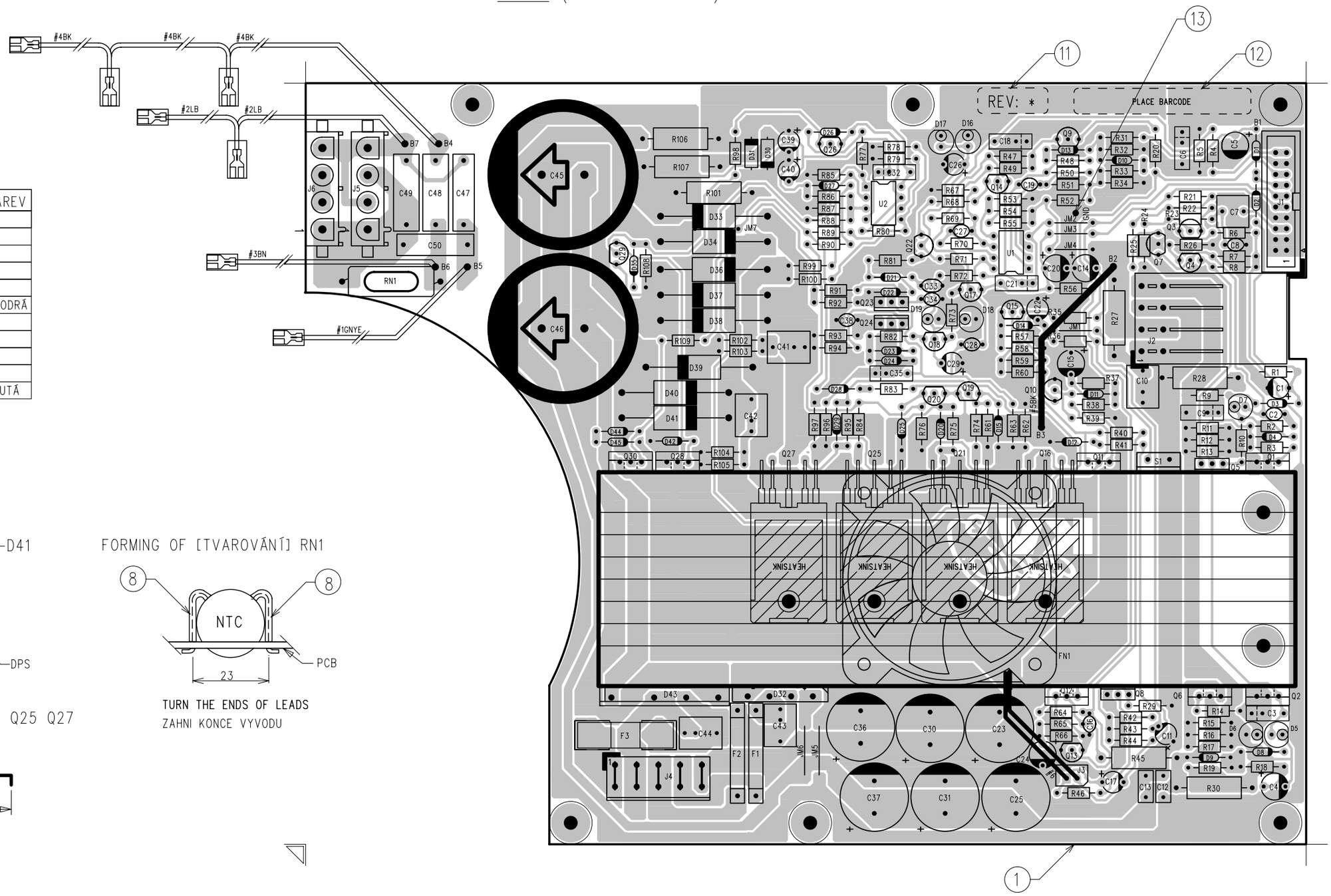
ASSEMBLY

REVISIONS ZMĚNY

ECO# INDEX	REV: ZMĚNA	DESCRIPTION POPIS	REV. BY: ZMĚNIL	APP. BY: SCHVÁLIL	DATE DATUM
–	01	PRODUCTION RELEASE	ŠOBEK	–	22.2.2007
A323	02	ADD R46,R75,R95,C8,C17	FUKA	–	20.12.2007

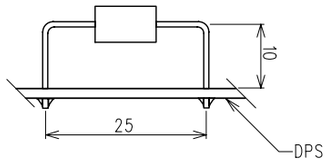
TOP VIEW (COMPONENT SIDE)

POHLED VRCHNÍ (STRANA SOUČÁSTEK)



COLOURS TABLE TABULKA BAREV		
abbr.	COLOUR	BARVA
WH	WHITE	BÍLÁ
YE	YELLOW	ŽLUTÁ
RD	RED	RUDÁ
GN	GREEN	ZELENÁ
LB	LIGHT BLUE	SVĚTLE MODRÁ
BU	BLUE	MODRÁ
GY	GREY	ŠEDÁ
BN	BROWN	HNĚDÁ
BK	BLACK	ČERNÁ
GNYE	GREENYELLOW	ZELENOŽLUTÁ

FORMING OF D33–D34, D36–D41

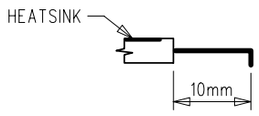


FORMING OF [TVAROVÁNÍ] RN1

TURN THE ENDS OF LEADS

ZAHNI KONCE VYVODU

FORMING OF Q16 Q21 Q25 Q27



NOTES:

Capacitors C23,C25,C30,C31,C36,C37,C45,C46 before placing on PCB spred by item 9.

After soldering paste together parts C23, C25, C30, C31, C36, C37 and C45, C46 by item 9.

POZNAMKY:

Pred pajenim prilepte kondenzatory C23,C25,C30,C31,C36,C37,C45,C46 k DPS lepidlem pol. 9.

Po pajeni slepte dohromady kondenzatory C23 s C25 s C30 s C31 s C36 s C37 and C45 s C46 lepidlem pol. 9.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS POKUD NENÍ UVEDENO JINAK ROZMĚRY JSOU V MILIMETRECH	APPROVALS SCHVÁLIL	DATE DATUM	KV2 AUDIO s.r.o. SOKOLOVSKÁ 93 399 01 MILEVSKO CZECH REPUBLIC
MATERIAL: MATERIÁL	DRAWN: KRESLIL ŠOBEK	31.10.2006	DWG. NAME: NÁZEV BOARD AMP. 2C
FINISH: POVRCHOVÁ ÚPRAVA	CHECKED: KONTROLOVAL		SIZE: ROZMĚR A3 · SCALE: MĚŘÍTKO 1 : 1 · DWG. NO, VÝKRE. ČÍSLO KVN 042 122 · REV. ZMĚNA 02
	NP ENGINEERING:		FILE: SOUBOR KVN042122-00-02-0 *.pcb · LABEL: LIST 0 · SHEET: STRANA 2/2
	MATERIAL:		
	MANUFACTURING:		
	MFG ENGINEERING:		
	ISSUED: UVOLNIL		

DWG. NO.	SHT	REV:
KVN044574	1	03

ASSEMBLY

ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
–	01	PRODUCTION RELEASE UVOLNENO PRO VÝROBU	–	–	–
A355	02	Changed C10 C11 C14 R4 R27 R28 R30 R31 R47	Sobek	–	11.7.2008
A357	03	Changed C14 R27	Fuka	–	18.7.2008

SIGNAL OUT THROUGH

J3 AC3MAV-AU-B

C43 100V 10nF

C58 2.2uF 20%

D11 ERZC14DK220

C57 100nF 63V

R106 1K 1%

R85 10K 1%

R108 1K

R109 100K 1%

B1

AC3FAVL-AU-B J4

C56 100nF 63V

C55 2.2uF 50V

R93 100K 1%

MAIN INPUT

1. GND
2. POS.
3. NEG.

R98 1K 1%

R97 10K 1%

C49 680pF 500V

C48 680pF 500V

C41 33pF 500V

R86 10K 1%

U10-A NE5532AP

R89 10K 1%

C42 10pF 500V

R88 10K 1%

D7 1N4148

D6 1N4148

D8 1N4148

D9 1N4148

U10-B NE5532AP

OP2 3WK 163 41

C45 33pF 500V

10k/B P1

R99 10K 1%

R91 15K 1%

C32 22UF 50V

R77 2K7 1%

MASTER LEVEL

+16V

R115 10K

Q5 R82 BC557C

Q6 BC557C

R78 10K 1%

C62 10uF 63V

C50 2.2nF 100V

C61 10uF 63V

D13 1N4148

D15 1N4148

D14 1N4148

R114 6K8

R113 6K8

D12 1N4148

C47 1uF 63V 5%

R104 220K

−16V

SIGNAL/MUTE

D5 GRN/RED GREEN

R90 3K3 1%

+16V

R110 10K

R111 10K

Q9 J112

Q8 BC557C

R103 3K3

−16V

R107 47K 1%

R112 2K2

Q7 BC547C

R61 22K

C34 1.5nF 100V

R62 2K2

U6-A NE5532AP

C35 470pF 500V

S1-A

S1-B

R101 10M

R100 10M

C37 150nF 63V

C36 33nF 100V

C31 33nF 100V

C28 150nF 63V

R69 270K 1%

R70 4K7 1%

R71 100K 1%

C40 1uF/63V 5%

R68 6K8 1%

R66 6K8 1%

R60 560R 1%

C21 10nF 100V

C22 10nF 100V

U6-B NE5532AP

R28 6K8 1%

R25 1K8 1%

R29 10K 1%

R12 560R 1%

C14 3.3nF 100V

R26 8K2 1%

R27 15K 1%

C15 4.7nF 100V

R36 560R 1%

C24 3.3nF 100V

U7-A NE5532AP

R47 330K 1%

C9 330pF 500V

U5-B NE5532AP

R19 10K 1%

R4 1K2

R5 820R 1%

C11 1nF 100V

C10 1nF 100V

R31 470R 1%

U7-B NE5532AP

R30 270K 1%

GND

R58 1K1 1%

C44 10uF 63V

R84 100K 1%

Q4 J107

R92 47K 1%

J2 ZL8.4-2X10SG1

GND
HI IN −
GND
+16V
−16V
RMS
MUTE
GND
LOW IN

+16V

C59 100uF 25V

C51 100uF 25V

−16V

R96 2R2 1%

C60 100nF 63V

C54 100nF 63V

R105 2R2 1%

+16V

R8 1M 1%

Q2 BC557C

R11 1K 1%

Q1 BC547C

R38 100R 1%

R52 3K3 1%

R102 3K3 1%

D10 GRN YEL GREEN/YEL

−16V

POWER/LIMIT

R48 2K2 1%

U1-A NE5532AP

R67 1K8

R37 0R

R13 82K 1%

R32 0R

C25 1uF 63V 5%

C2 47nF 100V

C1 47nF 100V

R10 33K 1%

R39 22K 1%

C29 47pF 500V

D4 GRN

D3 GRN

R51 22K 1%

U2-A NE5532AP

R53 4K7 1%

C39 47nF 100V

R59 1K

C38 22nF 100V

U5-A NE5532AP

R76 300K

C8 220nF 63V

C7 220nF 63V

R20 680R 1%

U1-B NE5532AP

R21 1M 1%

C17 47nF 100V

R22 2K2 1%

R40 4K7 1%

U2-B NE5532AP

C12 22nF 100V

R33 2K2 1%

R35 3K3 1%

U3-B NE5532AP

C3 3.3nF 100V

R34 2K2 1%

R41 3K3 1%

U3-A NE5532AP

C6 3.3nF 100V

R42 2K2 1%

R46 3K3 1%

U4-B NE5532AP

C5 3.3nF 100V

R54 2K2 1%

R43 2K2 1%

R45 3K3 1%

U4-A NE5532AP

C27 3.3nF 100V

R23 2K2 1%

R44 2K2 1%

R81 5K6 1%

U11-B NE5532AP

C53 10nF 100V

R57 2K2 1%

R80 2K2 1%

R56 5K6 1%

R87 5K6 1%

U11-A NE5532AP

C52 10nF 100V

R79 2K2 1%

R94 2K2 1%

R95 2K2 1%

R65 3K3 1%

R55 0R

NE5532AP

U9-B

R50 10K

C26 100uF 25V

R74 330R 1%

NE5532AP

U9-A R75 10K

U5-C NE5532AP

U7-C NE5532AP

U6-C NE5532AP

C18 100nF 63V

U2-C NE5532AP

U10-C NE5532AP

C16 100nF 63V

U3-C NE5532AP

C46 100nF 63V

U11-C NE5532AP

U9-C NE5532AP

C23 100nF 63V

U4-C NE5532AP

U1-C NE5532AP

C19 100nF 63V

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±NA DECIMALS: .XX ±.01 .XXX ±.005 ANGLES: ±NA

MATERIAL: SEE NOTES

FINISH: SEE NOTES

DO NOT SCALE DRAWING

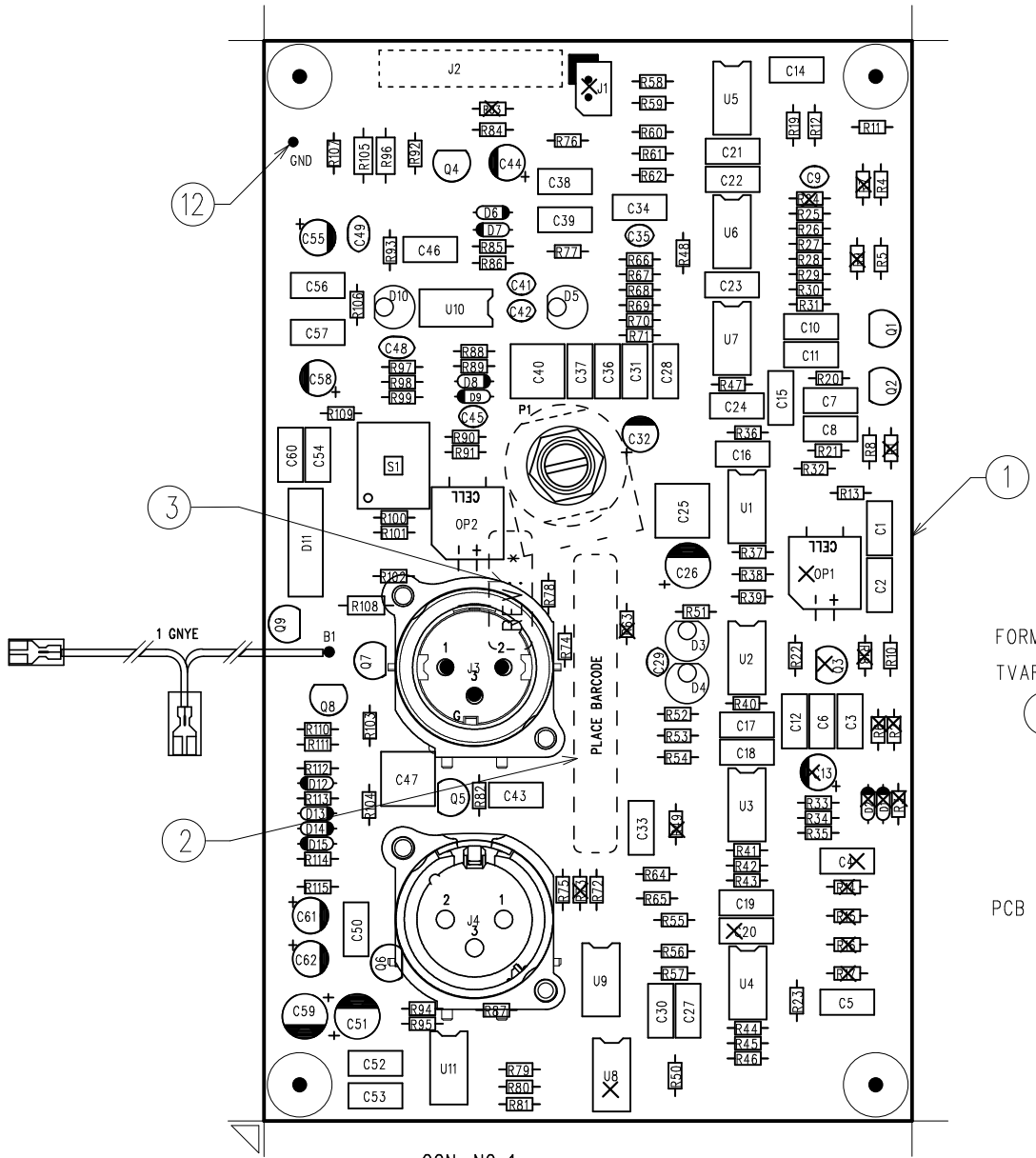
APPROVALS	DATE
DRAWN: FUKA	13.2.2008
CHECKED:	
NP ENG:	
MATERIAL:	
MFG:	
MFG ENG:	
ISSUED:	

KV2 AUDIO s.r.o.
Sokolovská 93
399 01 Milevsko
Czech Republic
kv2@kv2.cz

INPUT & CONTROL BOARD KX15

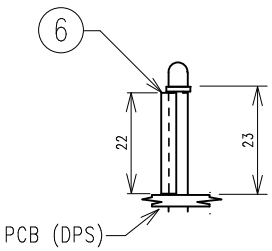
SIZE	SCALE:	DWG. NO.	REV.
A3	NONE	KVN044574	03

DWG FILE: KVN044574-03-03-0*.sch | LABEL 03 | SHEET 1 OF 1



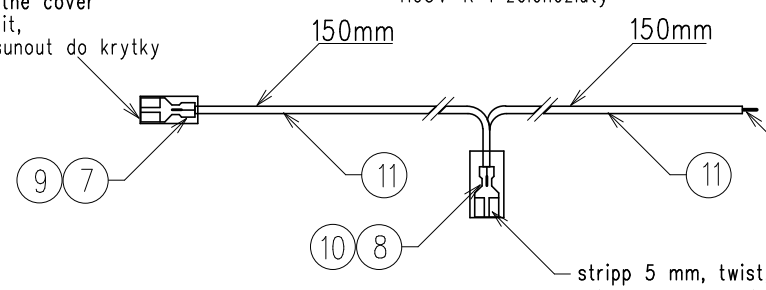
FORMING OF LEDS D5 D10

TVAROVÁNÍ LEDEK D5 D10



stripp 5 mm, twist,
crimp, solder,put into the cover
odizolovat 5 mm, stocit,
krimplovat, cínovat,nasunout do krytky

CON. NO 1 H05V-K 1 greenyellow
SPOJ C. 1 H05V-K 1 zelenozlutý



stripp 5 mm,
twist, solder
odizolovat 5 mm,
stocit, cínovat

stripp 5 mm, twist,
crimp, solder,put into the cover
odizolovat 5 mm, stocit,
krimplovat, cínovat,nasunout do krytky

NOTES:
COMPONENTS WITH ATTRIBUTE (X) DO NOT INSTALL !

POZNAMKY:
SOUCASTKY SE SYMBOLEM (X) SE NEOSAZUJÍ !

ECO# INDEX	REV: ZMĚNA	DESCRIPTION POPIS	REV. BY: ZMĚNIL	APP. BY: SCHVÁLIL	DATE DATUM
–	01	PRODUCTION RELEASE 01		–	13.2.2008

APPROVALS SCHVÁLIL		DATE DATUM
DRAWN: KRESLIL	FUKA	16.10.2007
CHECKED: KONTROLOVAL		
NP ENG:		
MATERIAL:		
MFG:		
MFG ENG:		
ISSUED: UVOLNIL		

KV2 AUDIO s.r.o.
SOKOLOVSKÁ 93
399 01 MILEVSKO
CZECH REPUBLIC
kv2@kv2.cz

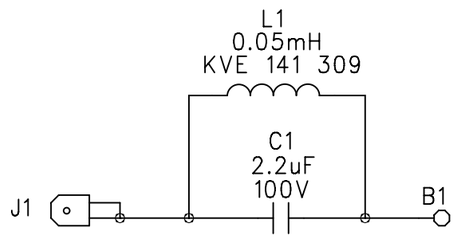
DWG. NAME: NÁZEV

INPUT & CONTROL BOARD KX15

SIZE: ROZMĚR	SCALE: MĚŘÍTKO	DWG. NO. VÝKRE. ČÍSLO	REV. ZMĚNA
A4	1:1	KVN044574	01

DWG FILE: SOUBOR KVN044574-00-01-0.sch | LABEL LIST 0 | SHEET STRANA 1/1

ASSEMBLY



ECO#	REV:	DESCRIPTION	REV. BY:	APP. BY:	DATE
–	01	PRODUCTION RELEASE	FUKA	–	14.7.2008

APPROVALS	DATE
DRAWN: FUKA	11.7.2008
CHECKED:	
NP ENG:	
MATERIAL:	
MFG:	
MFG ENG:	
ISSUED:	

KV2 AUDIO s.r.o.
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BOARD PASSIVE EQ for KX12_KX15

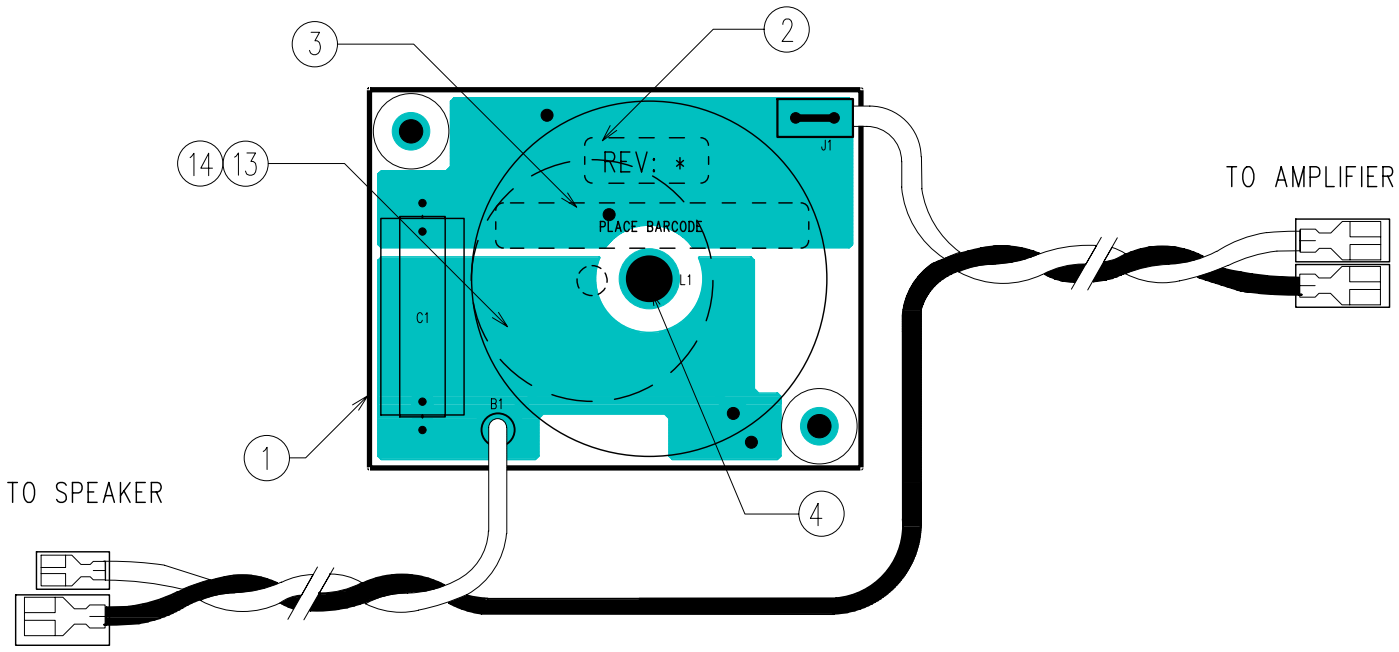
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A4	NONE	KVN 044 583	01

DWG FILE: KVN044583-01-03-0*.sch | LABEL 03 | SHEET 1 OF 1

ASSEMBLY

TOP VIEW (COMPONENT SIDE)

POHLED VRCHNÍ (STRANA SOUČÁSTEK)

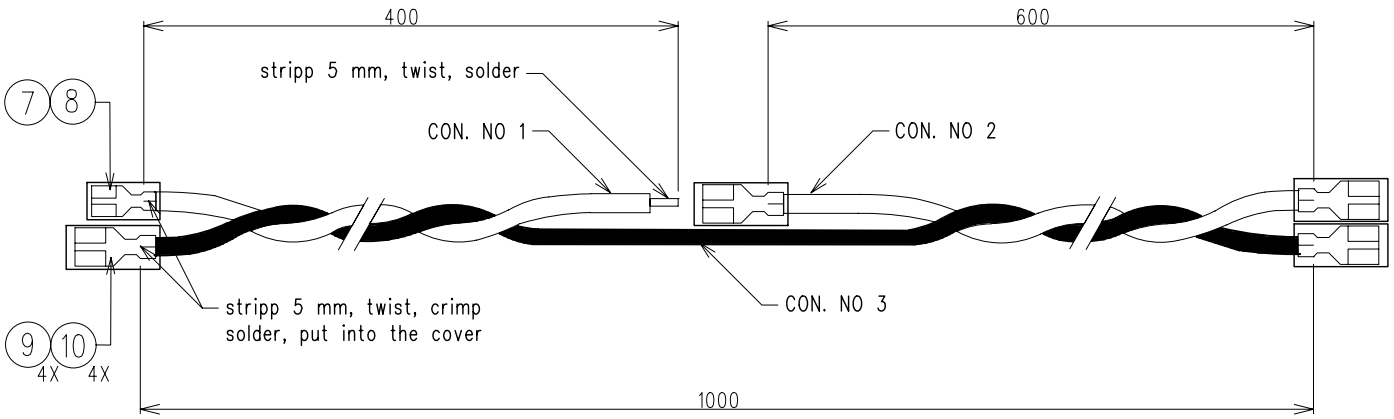


NOTES:
Paste the inductor L1 to the PCB by the item 5.
Rivet the inductor L1 to the PCB by the item 4.
Fix C1 by item 6.

POZNAMKY:
Prilepte cívku L1 k DPS pol. 5.
Prinýtujte cívku L1 k DPS pol. 4.
Fixujte kondenzátor C1 pol. 6.

CON. NO 1 – H05V-K 1.0 WHITE
CON. NO 2 – H05V-K 1.0 WHITE
CON. NO 3 – H05V-K 1.0 LIGHT BLUE

TO SPEAKER TO PASSIVE EQ TO AMPLIFIER



ECO# INDEX	REV: ZMĚNA	DESCRIPTION POPIS	REV. BY: ZMĚNIL	APP. BY: SCHVÁLIL	DATE DATUM
–	01	PRODUCTION RELEASE UVOLNENO PRO VÝROBU	FUKA	–	14.7.2008
				–	
				–	

APPROVALS SCHVÁLIL		DATE DATUM
DRAWN: KRESLIL	FUKA	11.7.2008
CHECKED: KONTROLOVAL		
NP ENG:		
MATERIAL:		
MFG:		
MFG ENG:		
ISSUED: UVOLNIL		

KV2 AUDIO s.r.o.
SOKOLOVSKÁ 93
399 01 MILEVSKO
CZECH REPUBLIC
kv2@kv2.cz

DWG. NAME: NÁZEV
BOARD PASSIVE EQ for KX12_KX15

SIZE: ROZMĚR	SCALE: MĚŘÍTKO	DWG. NO. VÝKRE. ČÍSLO	REV. ZMĚNA
A4	1:1	KVN 044 583	01

DWG FILE: SOUBOR	LABEL LIST	SHEET STRANA
KVN044583-00-01-0*.sch	0	1/1