

ALESIS DM5 (D5) Service Manual

P/N: 8-31-0016-B

ATTENTION!

THIS DOCUMENT CONTAINS SENSITIVE
PROPRIETARY INFORMATION.
ALL RECIPIENTS MUST HAVE A CURRENT
NON-DISCLOSURE AGREEMENT ON FILE
WITH ALESIS, LLC.

**DO NOT MAKE ILLEGAL
COPIES OF THIS DOCUMENT**

The information in this document contains privileged and confidential information. It is intended only for the use of those authorized by Alesis. If you are not the authorized, intended recipient, you are hereby notified that any review, dissemination, distribution or duplication of this document is strictly prohibited. If you are not authorized, please contact Alesis and destroy all copies of this document. You may contact Alesis at servicemanuals@alesis.com or at support@alesis.com.

Copyright © 2004 Alesis, LLC

Preface

This document is intended to assist the service technician in the operation, maintenance and repair of the Alesis device. Together with the User Reference Manual, this document provides a complete description of the functionality and serviceability of the Device. Any comments or suggestions you may have pertaining to the document are welcome and encouraged.

READ THIS!

In addition to any purchase price that Alesis may charge as consideration for Alesis selling or otherwise transferring this service manual ("Manual") to you, if you are not a service and repair facility ("Service Center") authorized by Alesis in writing to be an authorized Service Center, Alesis sells or transfers the Manual to you on the following terms and conditions:

Only Service Centers authorized by Alesis in writing are authorized to perform service and repairs covered by an Alesis warranty (if any), and transfer of the Manual to you does not authorize you to be an authorized Service Center. **Therefore, if you perform, or if the Manual is used to perform, any service or repairs on any Alesis product or part thereof, any and all warranties of Alesis as to that product and any service contract with Alesis for that product shall be voided and shall no longer apply for such product, even if your services or repairs were done in accordance with the Manual.**

All service or repairs done by you or with reference to the Manual shall be solely your responsibility, and Alesis shall have no liability for any such repairs or service work. **All such service or repairs are performed at the sole risk of the person performing the service or repairs.** You agree that all such work will be performed in a competent, professional and safe manner at all times and to indemnify and fully hold Alesis and its successors and assigns harmless in the event of any failure to so perform.

Your purchase of the Manual shall be for your own ultimate use and shall not be for purposes of resale or other transfer.

As the owner of the copyright to the Manual, Alesis does not give you the right to copy the Manual, and you agree not to copy the Manual without the written authorization of Alesis. Alesis has no obligation to provide to you any correction of, or supplement to, the Manual, or any new or superseding version thereof.

Alesis shall have the right to refuse to sell or otherwise transfer repair parts or materials to you in its sole discretion. You shall not use, sell or otherwise transfer spare or replacement parts supplied by Alesis to you (i) to repair or be used in products manufactured for or by third parties or (ii) to any third parties for any purpose.

You shall not make any warranties or guarantees with respect to the products of Alesis or the use thereof on behalf of Alesis or in your own name.

The foregoing describes the entire understanding related to sale or transfer of the Manual to you, and no other terms shall apply unless in a writing signed by an authorized representative of Alesis.

All Trademarks are property of their respective companies.

Warnings

TO REDUCE THE RISK OF ELECTRIC SHOCK OR FIRE, DO NOT EXPOSE THIS PRODUCT TO WATER OR MOISTURE.



The arrowhead symbol on a lightning flash inside a triangle is intended to alert the user to the presence of un-insulated "dangerous voltage" within the enclosed product which may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point inside a triangle is intended to alert the user to the presence of important operating, maintenance and servicing instructions in the literature which accompanies the product.

REPAIR BY ANY PERSON OR ENTITY OTHER THAN AN AUTHORIZED ALESIS SERVICE CENTER WILL VOID THE ALESIS WARRANTY.

PROVISION OF THIS MANUAL DOES NOT AUTHORIZE THE RECIPIENT TO COMPETE WITH ANY ALESIS DISTRIBUTOR OR AUTHORIZED REPAIR SERVICE CENTER IN THE PROVISION OF REPAIR SERVICES OR TO BE OR MAKE REPAIRS AS AN AUTHORIZED SERVICE CENTER.

ALL REPAIRS DONE BY ANY ENTITY OTHER THAN AN AUTHORIZED ALESIS SERVICE CENTER SHALL BE SOLELY THE RESPONSIBILITY OF THAT ENTITY, AND ALESIS SHALL HAVE NO LIABILITY TO THAT ENTITY OR TO ANY OTHER PARTY FOR ANY REPAIRS BY THAT ENTITY.

Regarding the Power Supply Fuse



CAUTION: The product under service may employ the use of a replaceable fuse. Danger of fire or electrocution if fuse is incorrectly replaced. Replace with only the same type or equivalent type recommended by the equipment manufacturer.

Regarding the Internal Battery



CAUTION: The product under service may employ the use of a internal battery. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instruction.

Safety Instructions

Carefully read the applicable items of the operating instructions and these safety suggestions before using this product. Use extra care to follow the warnings written on the product itself and in the operating instructions. Keep the operating instructions and safety suggestions for reference in the future.

1. Power Source. The product should only be connected to a power supply which is described either in the operating instructions or in markings on the product.
2. Power Cord Protection. AC power supply cords should be placed such that no one is likely to step on the cords and such that nothing will be placed on or against them.
3. Periods of Non-use. If the product is not used for any significant period of time, the product's AC power supply cord should be unplugged from the AC outlet.
4. Foreign Objects and Liquids. Take care not to allow liquids to spill or objects to fall into any openings of the product.
5. Water or Moisture. The product should not be used near any water or in moisture.
6. Heat. Do not place the product near heat sources such as stoves, heat registers, radiators or other heat producing equipment.
7. Ventilation. When installing the product, make sure that the product has adequate ventilation. Improperly ventilating the product may cause overheating, which may damage the product.
8. Mounting. The product should only be used with a rack which the manufacturer recommends. The combination of the product and rack should be moved carefully. Quick movements, excessive force or uneven surfaces may overturn the combination which may damage the product and rack combination.
9. Cleaning. The product should only be cleaned as the manufacturer recommends.
10. Service. The user should only attempt the limited service or upkeep specifically described in the operating instructions for the user. For any other service required, the product should be taken to an authorized service center as described in the operating instructions.
11. Damage to the Product. Qualified service personnel should service the unit in certain situations including without limitation when:
 - a. Liquid has spilled or objects have fallen into the product,
 - b. The product is exposed to water or excessive moisture,
 - c. The AC power supply plug or cord is damaged,
 - d. The product shows an inappropriate change in performance or does not operate normally, or
 - e. The enclosure of the product has been damaged.

ALESIS DM5 (D5)

SCHEMATIC AND PCB FILES

6

5

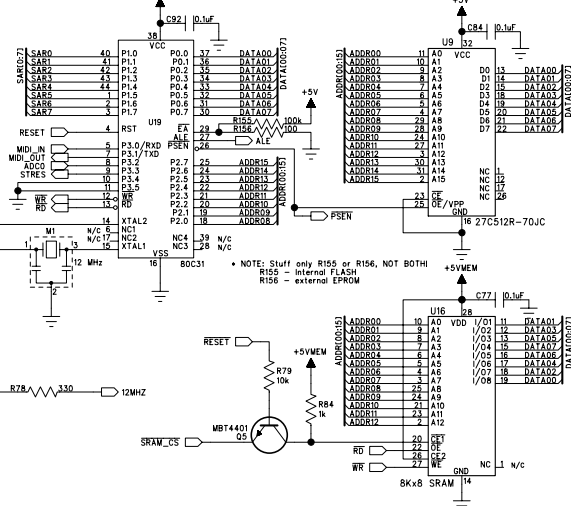
4

3

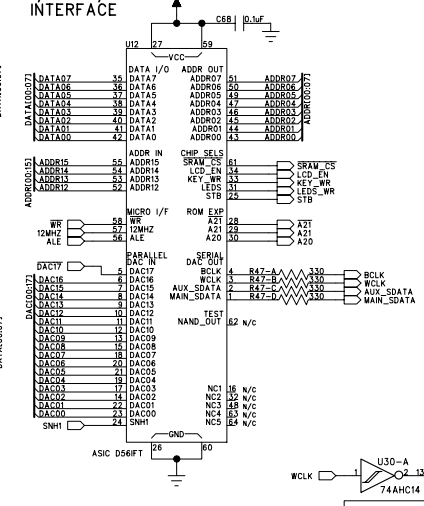
2

1

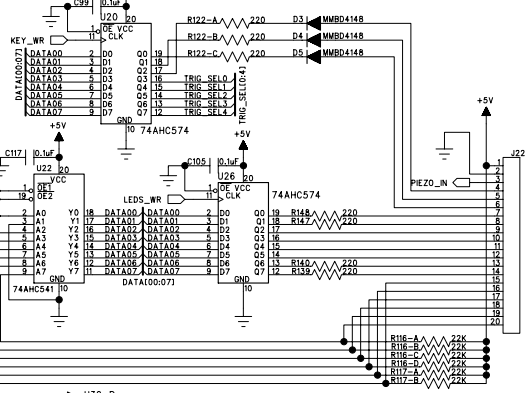
MICRO



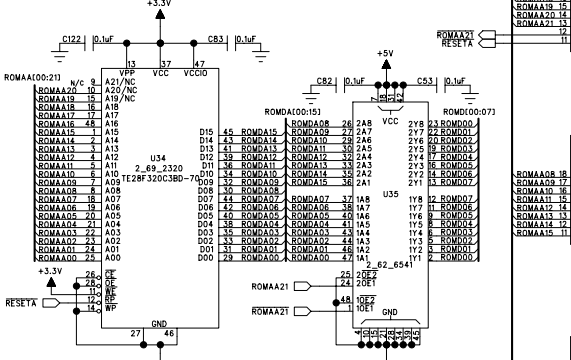
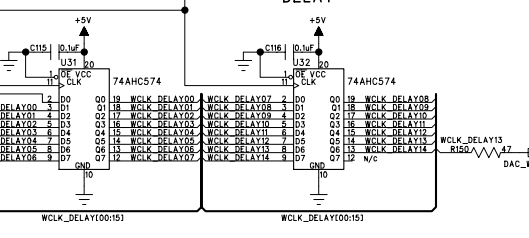
DSP/MICRO/DAC INTERFACE



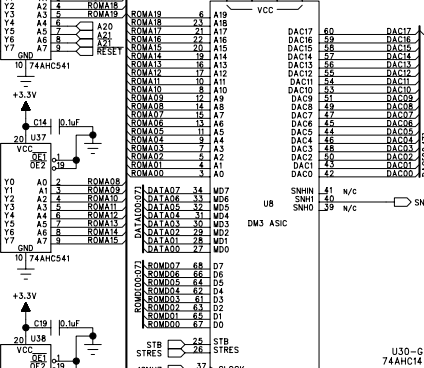
KEY WR



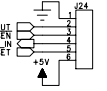
WORD CLOCK DELAY



DSP



FLASH PROGRAM



COMPANY: **ALESIS**

TITLE: **D5 MAIN PCB
MICRO / DSP**

PART NUMBER: 9-40-1174-H

ASSY NUMBER: 9-79-1174

FILENAME: D5MNH01A.SCH

SCALE: _____

SHEET: 1 OF 3

DRAWN: A. MEYER/J.KHO

DATED: 04/30/04

RELEASED: _____

DATED: _____

TO KEYPAD PCB

TO LCD PCB

D

C

B

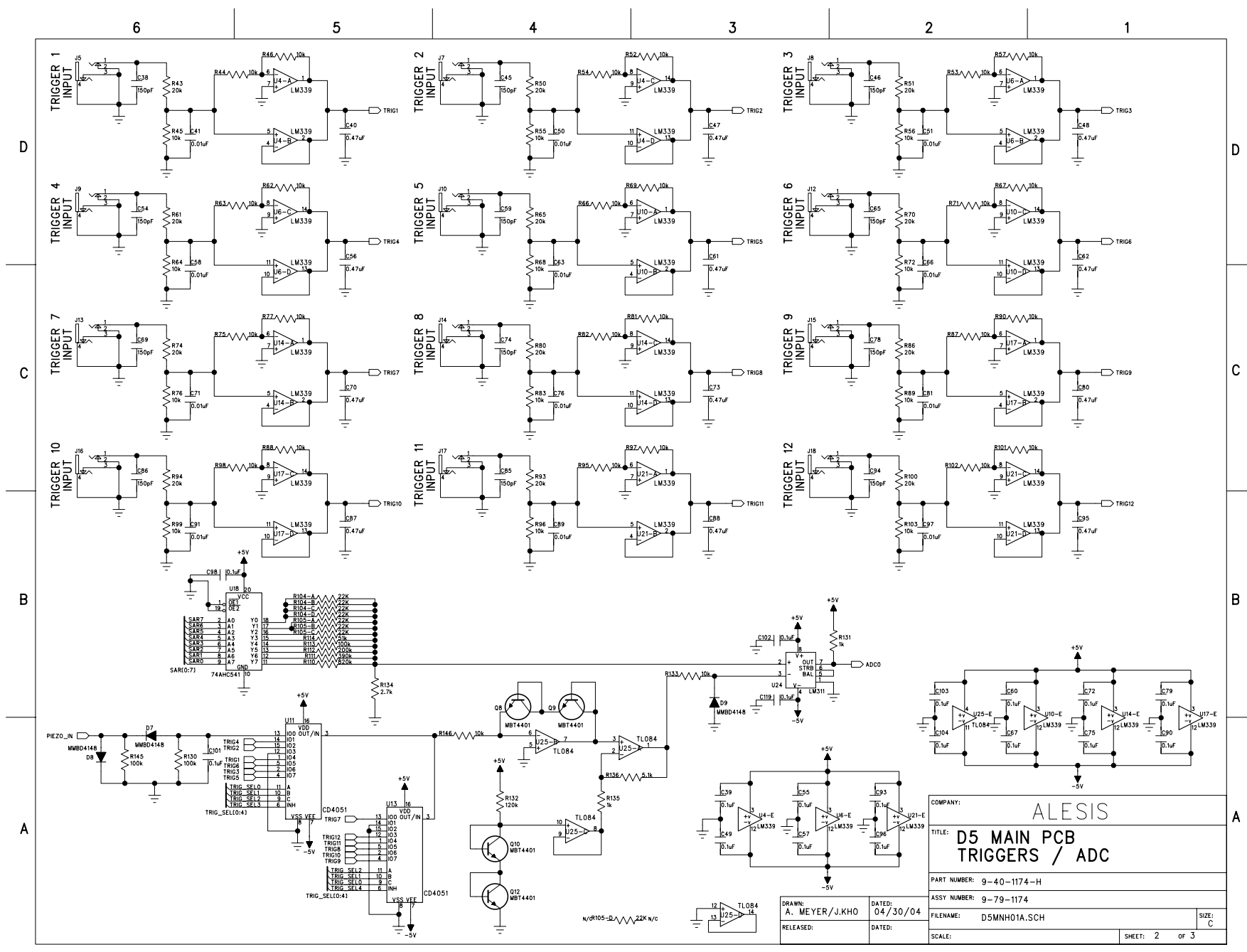
A

D

C

B

A



COMPANY:		ALESIS	
TITLE:		D5 MAIN PCB TRIGGERS / ADC	
PART NUMBER:		9-40-1174-H	
ASSY NUMBER:		9-79-1174	
FILENAME:		D5MNH01A.SCH	
SCALE:		SHEET: 2 OF 3	

DRAWN: A. MEYER/J.KHO
 RELEASED:
 DATED: 04/30/04
 DATED:

N/R105-D, 22K n/c

6

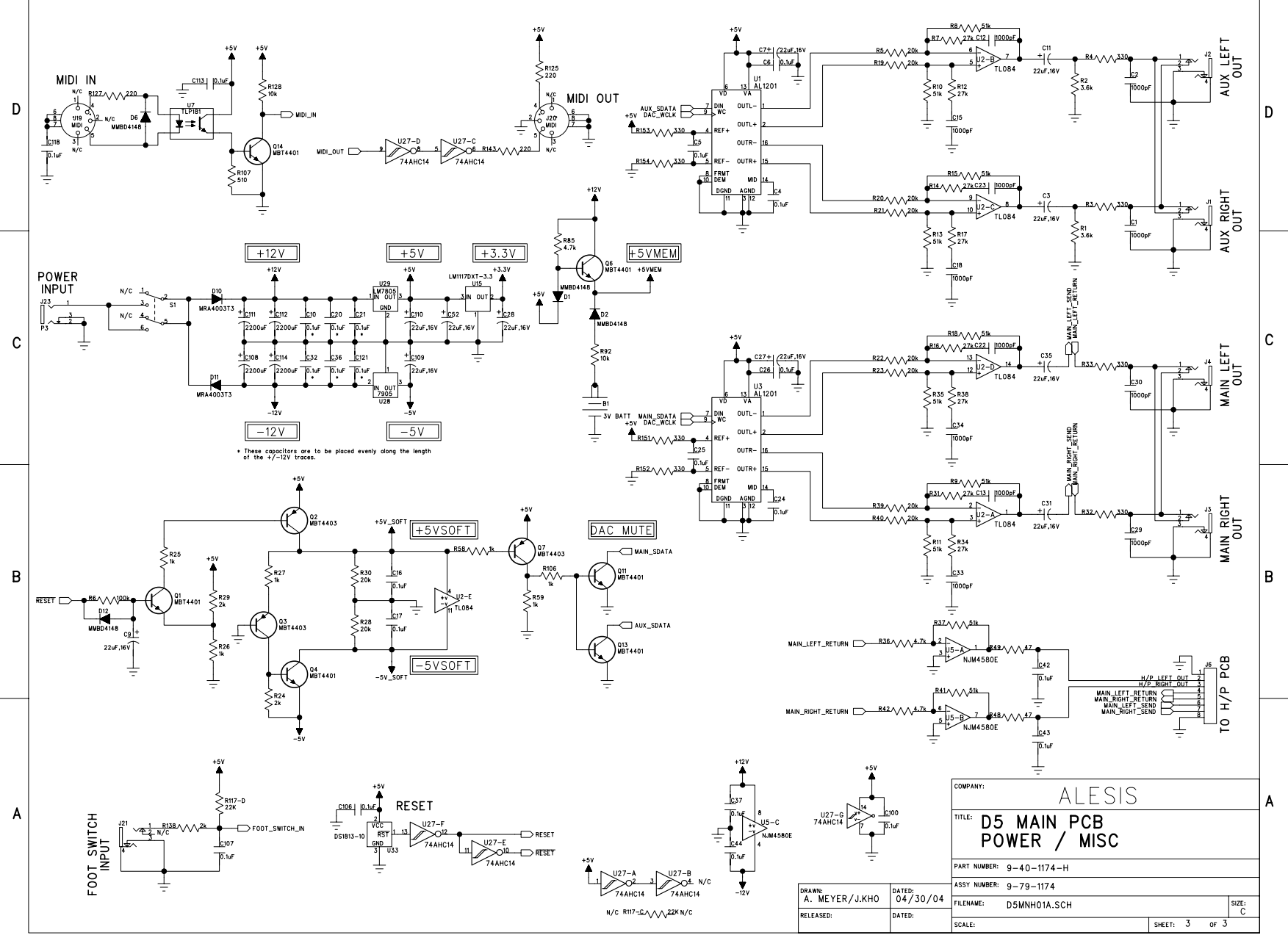
5

4

3

2

1



* These capacitors are to be placed evenly along the length of the 1/7, 1/10V traces.

COMPANY:		ALESIS	
TITLE:		D5 MAIN PCB POWER / MISC	
PART NUMBER:		9-40-1174-H	
ASSY NUMBER:		9-79-1174	
DRAWN:	A. MEYER/J.KHO	DATED:	04/30/04
RELEASED:		DATE:	
FILENAME:		D5MNH01A.SCH	
SCALE:		SHEET:	3 OF 3

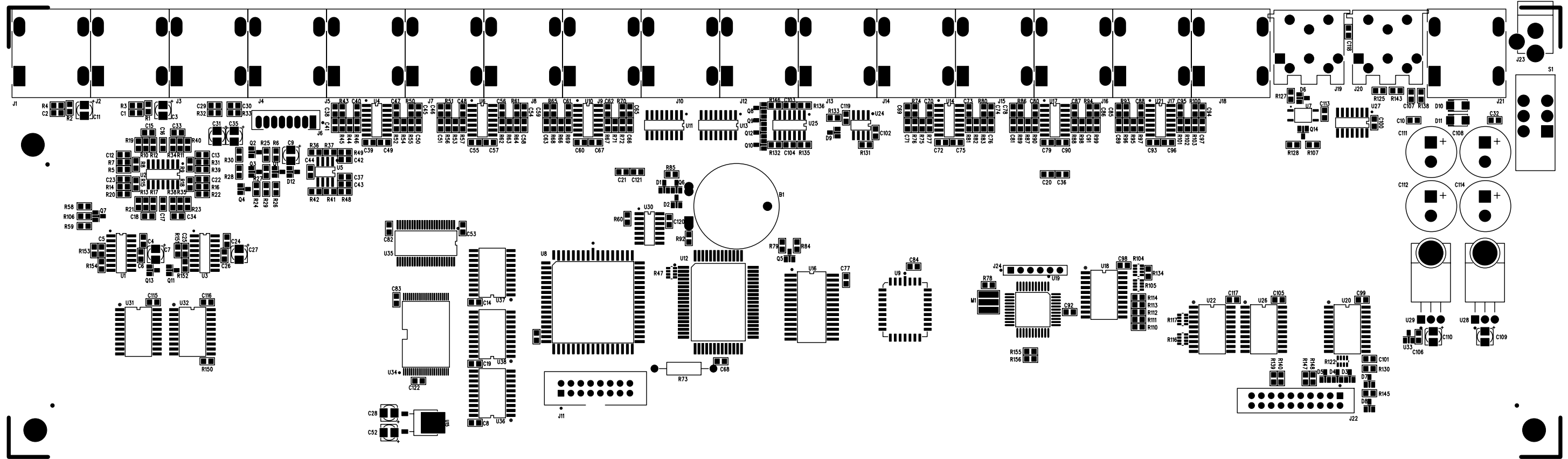
D

C

B

A

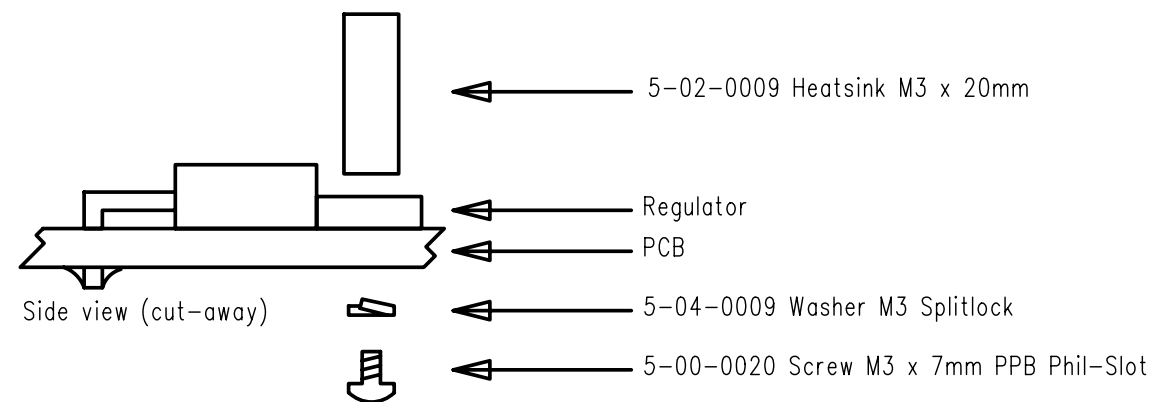
ALESIS 9-79-1174-H "TOP ASSEMBLY DRAWING"

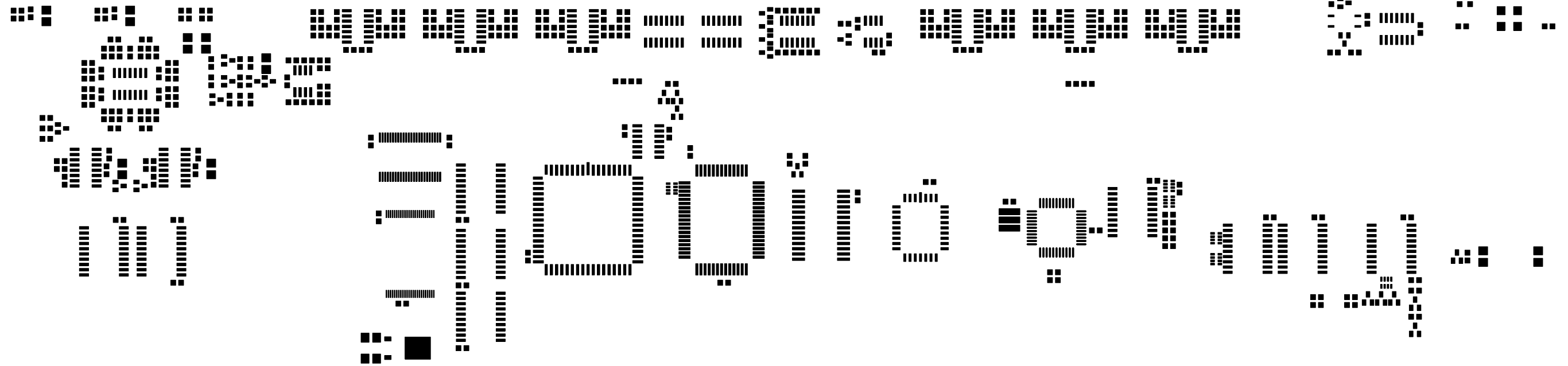


ASSEMBLY NOTES:

1. Install solder lugs (9-03-1036) on 1/4" jacks (4-02-0001) before soldering jacks onto PCB.
2. Install crystal spacer (5-04-0045) between crystal M1 (7-01-0009) and PCB.
3. Install IC socket (4-06-0028) for U15 before installing EPROM. DO NOT INSTALL EPROM DIRECTLY ON PCB!
4. Install U28 and U29 as shown in drawing to the right.
5. Stuff only R155 or R156, NOT BOTH.
R155 = Run code from internal FLASH.
R156 = Run code from external EPROM.
6. Do NOT stuff J24 (for development only).

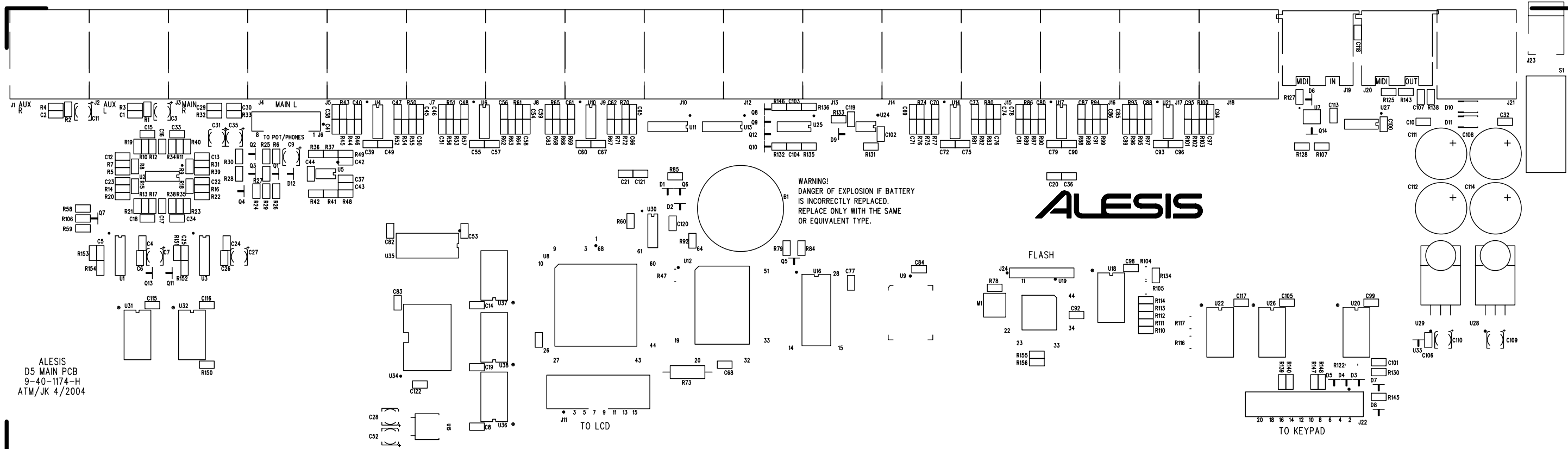
Mounting Instructions for U28 and U29 (to be assembled before soldering).





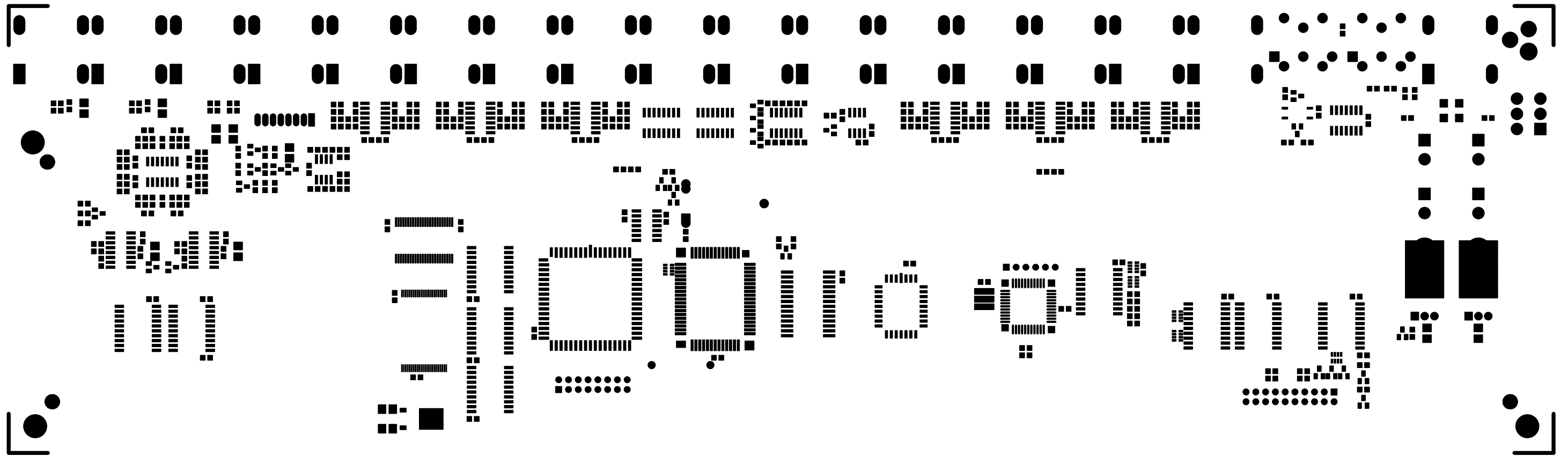
ALESIS 9-40-1174-H "TOPPASTE"





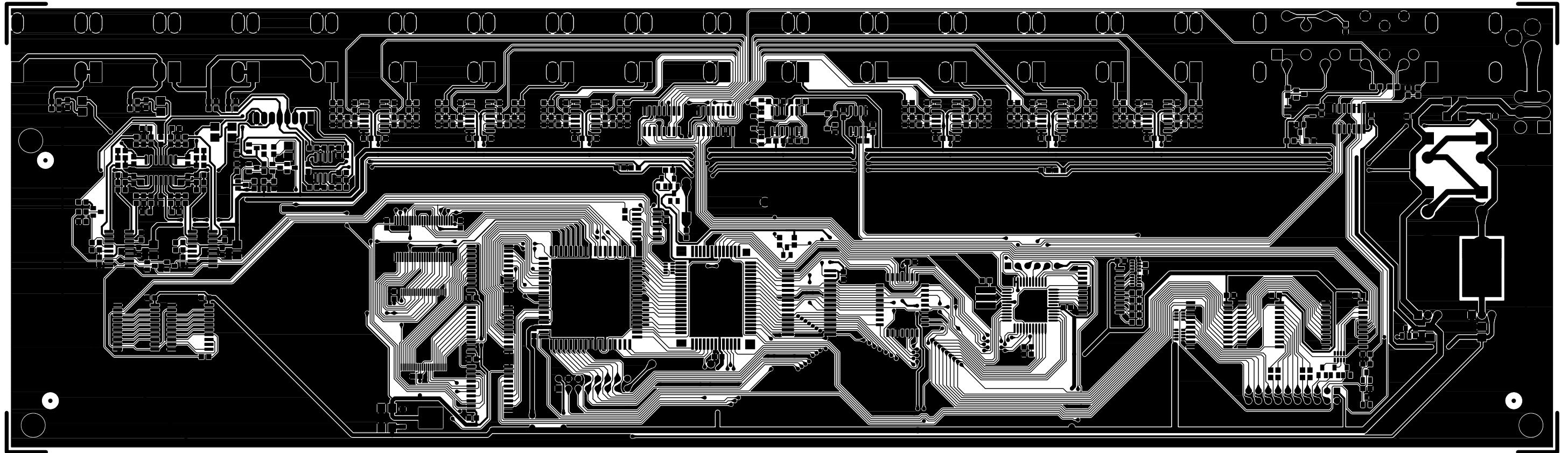
ALESIS
D5 MAIN PCB
9-40-1174-H
ATM/JK 4/2004

ALESIS 9-40-1174-H "TOPSILK"



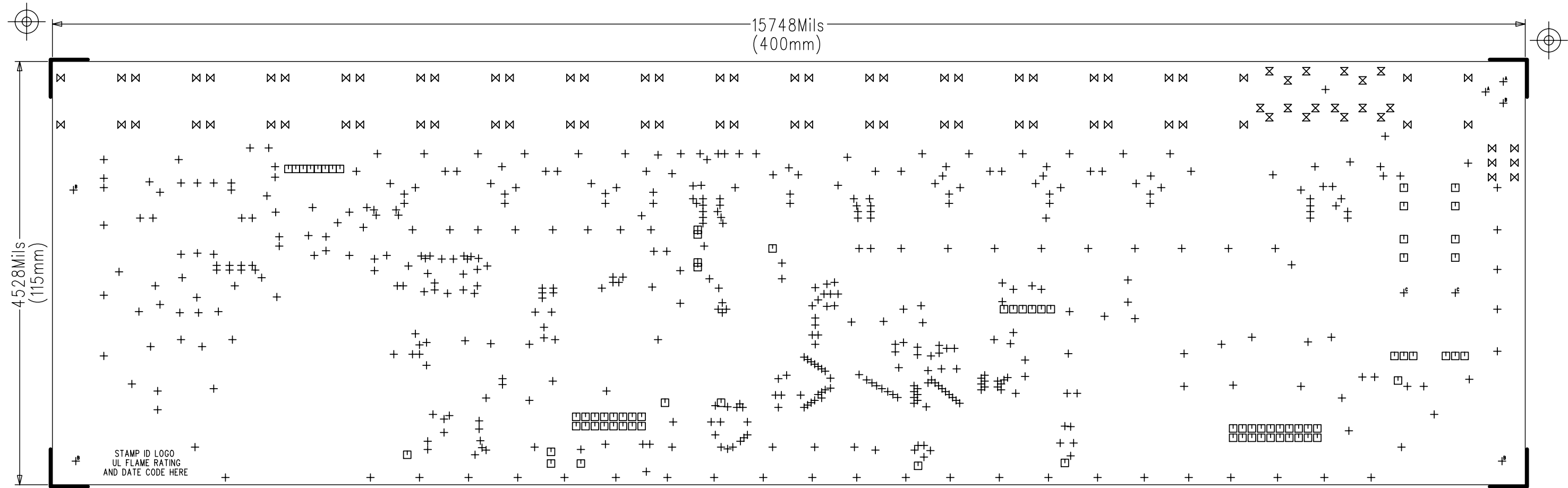
ALESIS 9-40-1174-H "TOPSMK"





ALESIS 9-40-1174-H "TOPTRACE"

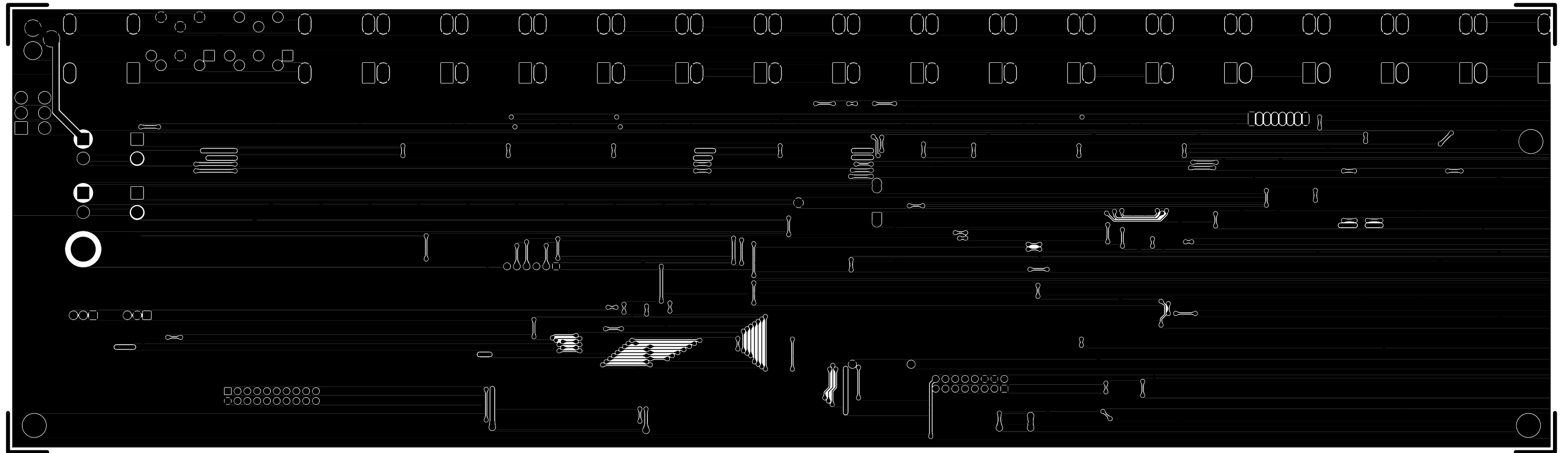
ALESIS 9-40-1174-H "DRILLDWG"



STAMP ID LOGO
UL FLAME RATING
AND DATE CODE HERE

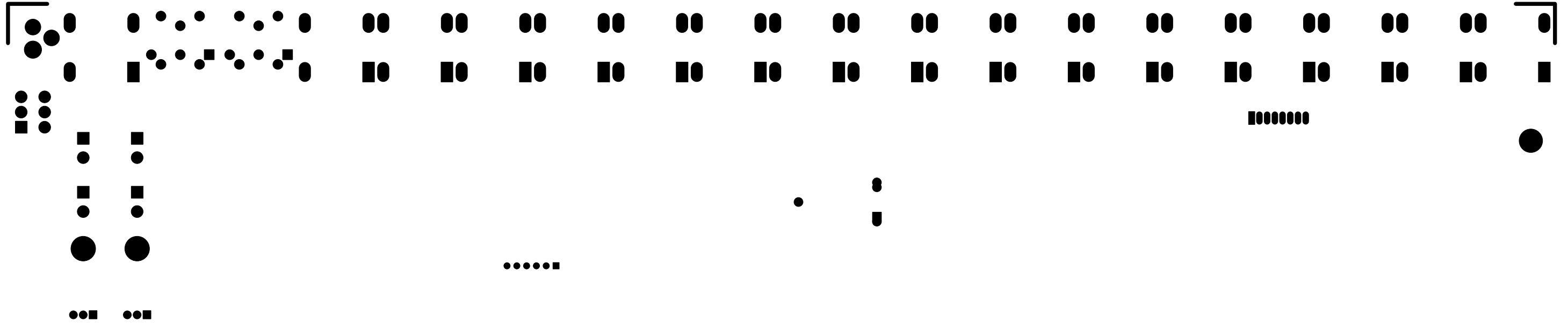
SIZE	QTY	SYM	PLTD
20	490	+	PLTD
37	78	□	PLTD
51.2	16	⊗	PLTD
59.1	74	⊗	PLTD
100.4	2	A	PLTD
125	4	B	PLTD
156.2	2	C	PLTD

- Design rules used: 0.008" lines. 0.008" space
- Double layer design.
- Surface-mount parts on top side only.
- Material: 0.062" (+/- 0.007") thick glass epoxy FR-4 (green)
1 oz. copper all layers, finished.
- Finish: SMOBC, Hot Air Level
- Hole sizes are finished diameter after plating with 0.0010" minimum plating all surfaces.
Drilled holes are +/- 0.003" tolerance.
(Except 20 mil via whose finished size is unimportant.)
- Layer-to-layer registration to be +/- 0.005"
- Soldermask all exposed copper, LPI, green.
- Silkscreen using epoxy-based ink (white).
- Surface to be flat within 0.010" in/in of diagonal measurement.
- Vendor shall etch or stamp I.D. logo and date code, type designation and UL flame rating on component side of PCB.
NO COPPER MAY BE DELETED
- Soldercoat both sides to standard J-STD-003.
- Finished pcb shall have 0.0035" min dielectric material between consecutive conductor layers when cured.
- Mechanical dims are +/- 0.005" tolerance.
- Workmanship and acceptance criteria shall be in accordance with IPC-A-600, Class 1.



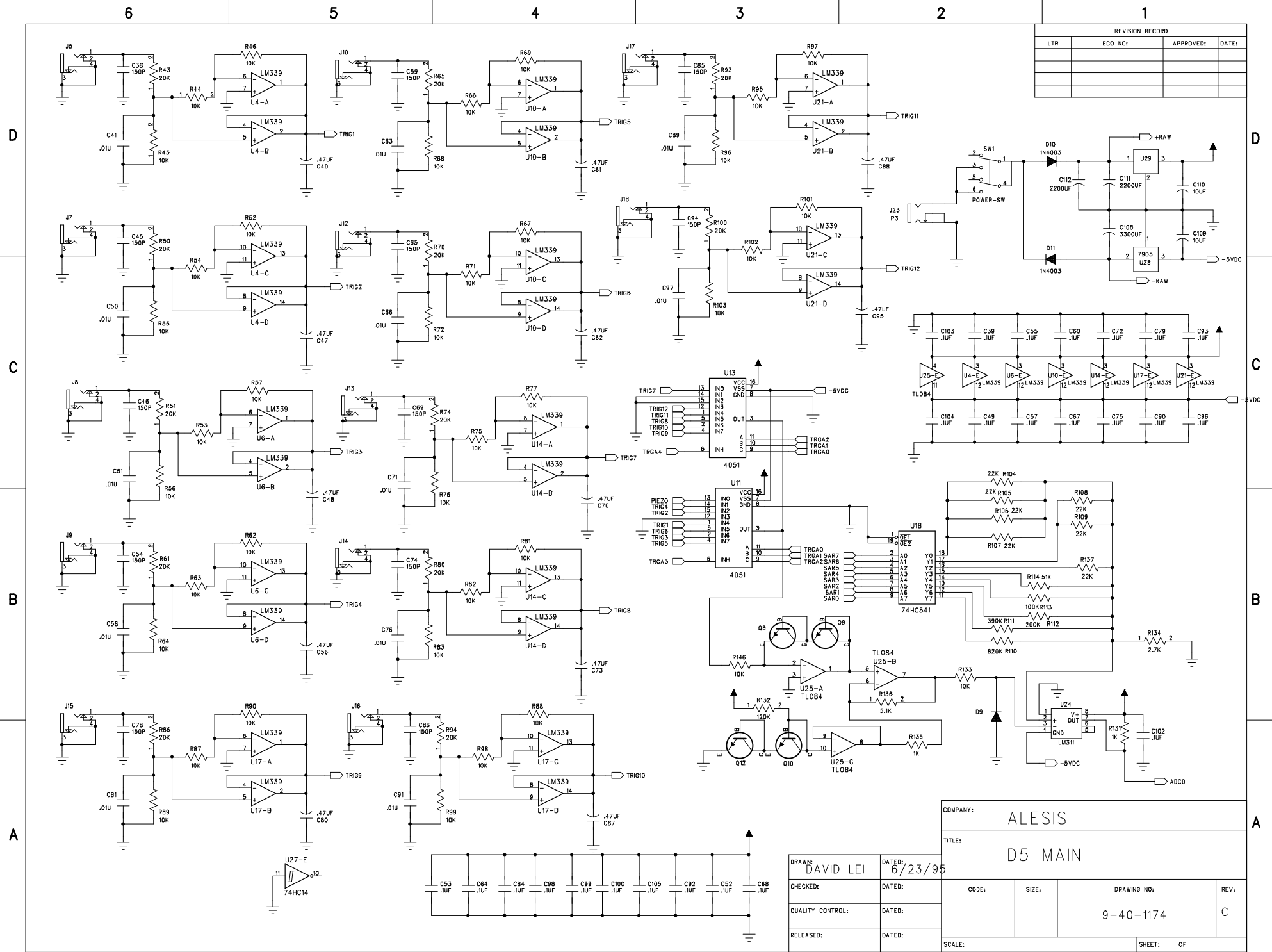
ALESIS 9-40-1174-H "BOTTRACE"





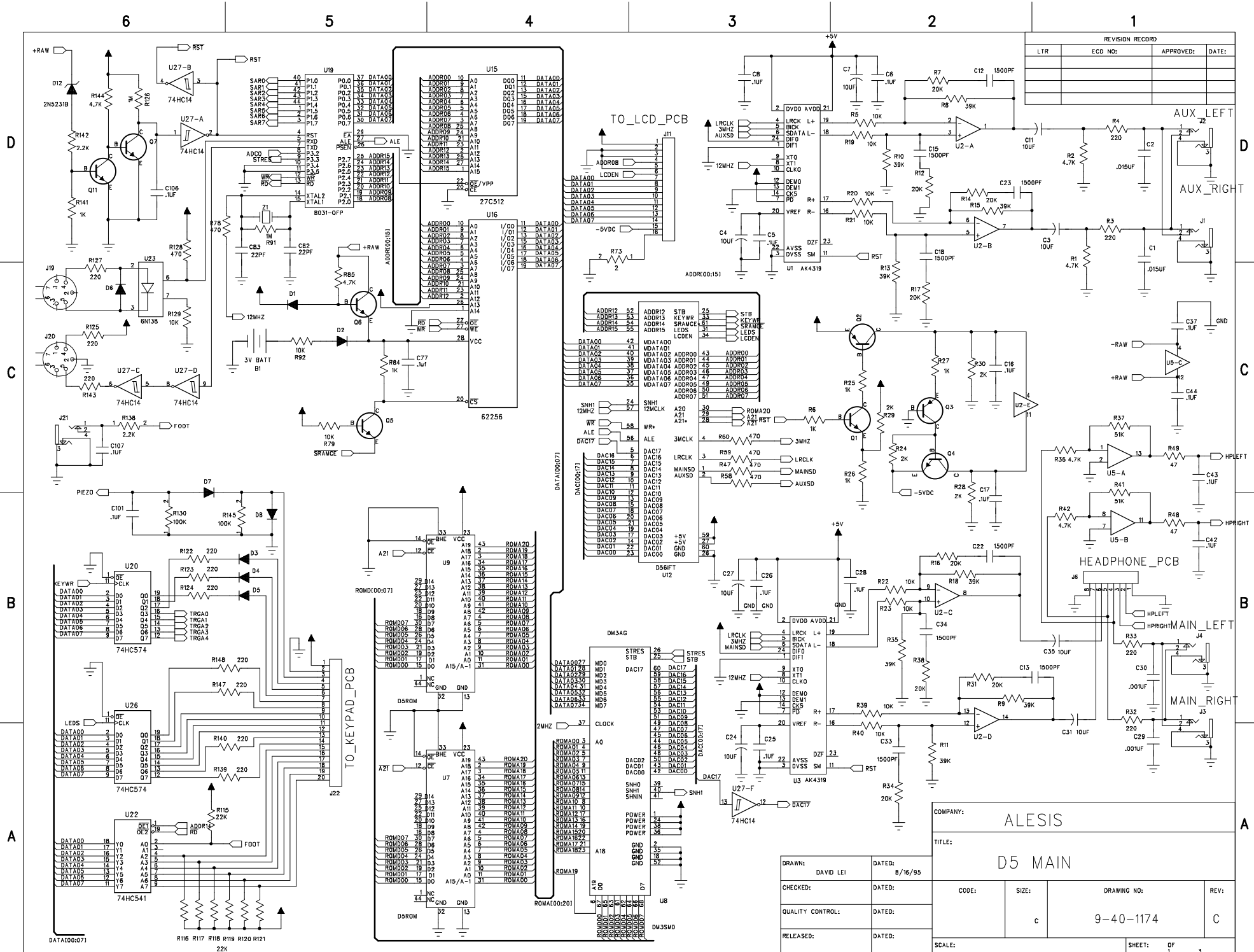
ALESIS 9-40-1174-H "BOTSMK"

D5 MAIN PCB Rev H RevChange Document				Last Revised: 4/30/2004					
SCH	PCB	CAM	Suggested by:	DATE	Performed by:	DATE	Description of change:	Reason for change:	Comments
							TOP LEVEL CHANGES		
							Change all text from Rev G to H		
							Update all Part Types		
							Review/Integrate all outstanding ECNs		
							Note: ***A new solderpaste stencil IS required***	Parts were added/removed.	
							SCHEMATIC CHANGES		
			JK	2/20/2004				As it stands, the audio outputs are out of phase with respect to the audio outputs of the old Rev.C pcb.	Phase reversal was a mistake. Leave with the unit in phase
			JK	2/20/2004				These bits have nothing to do with the audio and may actually be causing audible digital artifacts.	No sign of artifacts during testing. Additional circuit adds costs and risk.
			ATM	3/11/2004			Consider disconnecting the Left and Right Main outputs from their normalling connection	The current output circuit will normal the left to the right or the right to the left. However, you need to consider the case where the headphone is only connected. In this case, the left and right are mixed, and being sent to the headphone. The condition gets worse when the pot level is lower.	
x	x		ATM	4/30/2004	ATM	4/30/2004	Change 1-08-0222 to 1-60-2222	The factory doesn't like the pitch of the pins for our thru-hole caps. Switch to a similar sized SMD part in order to maintain the same layout and to ease manufacturing	
x	x		ATM	4/30/2004	ATM	4/30/2004	For the \RESET signal, buffer the signal thru U36 before sending it to the Flash, U34.	The flash cannot tolerate a 5V input. Convert to 3.3V first.	
							PCB CHANGES		



REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

COMPANY: ALESIS			
TITLE: D5 MAIN			
DRAWN: DAVID LEI	DATE: 6/23/95	CODE:	SIZE:
CHECKED:	DATE:	DRAWING NO: 9-40-1174	
QUALITY CONTROL:	DATE:	REV: C	SHEET: OF
RELEASED:	DATE:	SCALE:	



COMPANY:		ALESIS	
TITLE:		D5 MAIN	
DRAWN: DAVID LEI	DATED: 8/16/95	CODE:	SIZE:
CHECKED:	DATED:	DRAWING NO:	REV:
QUALITY CONTROL:	DATED:	9-40-1174	C
RELEASED:	DATED:	SCALE:	SHEET: OF 1

6

5

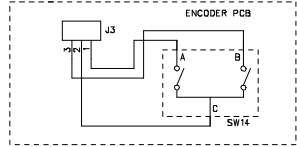
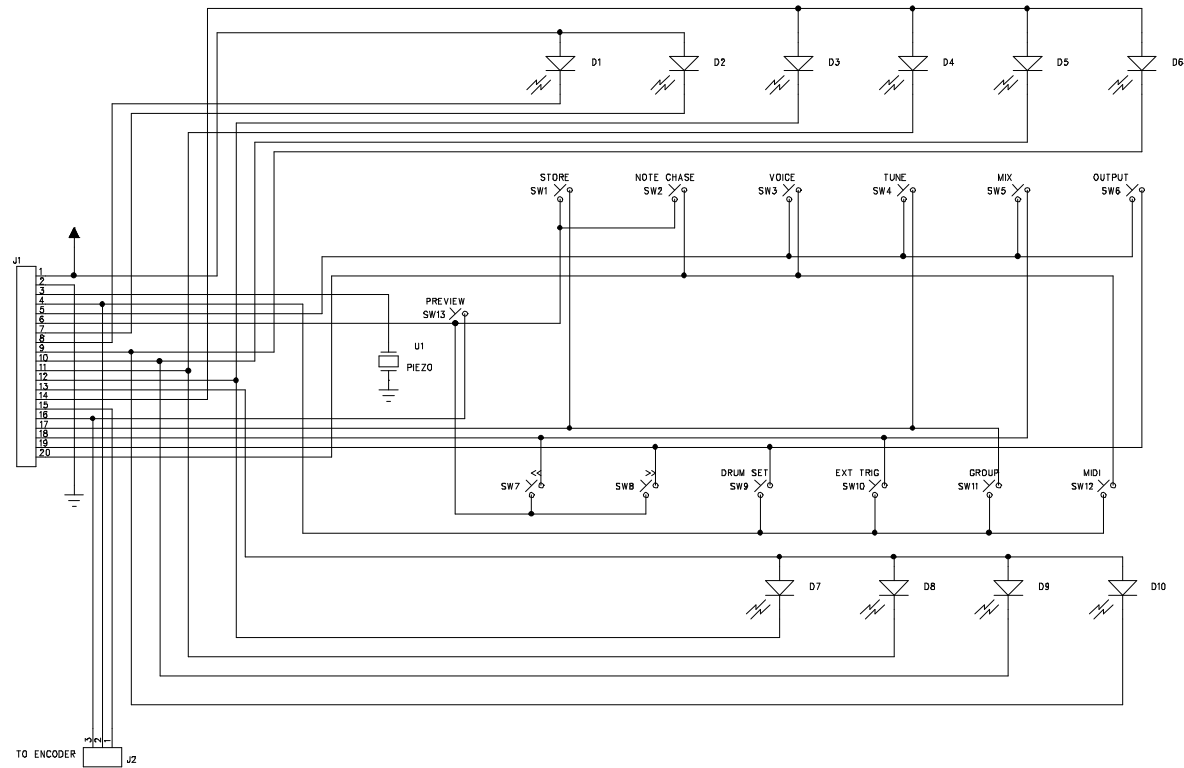
4

3

2

1

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:



COMPANY: ALESIS

TITLE: D5 FRONT PANEL PCB
P/N 9-40-1215

DRAWN: C. HERN	DATED: 11-9-94
CHECKED:	DATED:
QUALITY CONTROL:	DATED:
RELEASED:	DATED:

CODE:	SIZE: C	DRAWING NO: 9-40-1215-1	REV: X1
SCALE: n/a			SHEET: 1 of 1

6

5

4

3

2

1

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

D

D

C

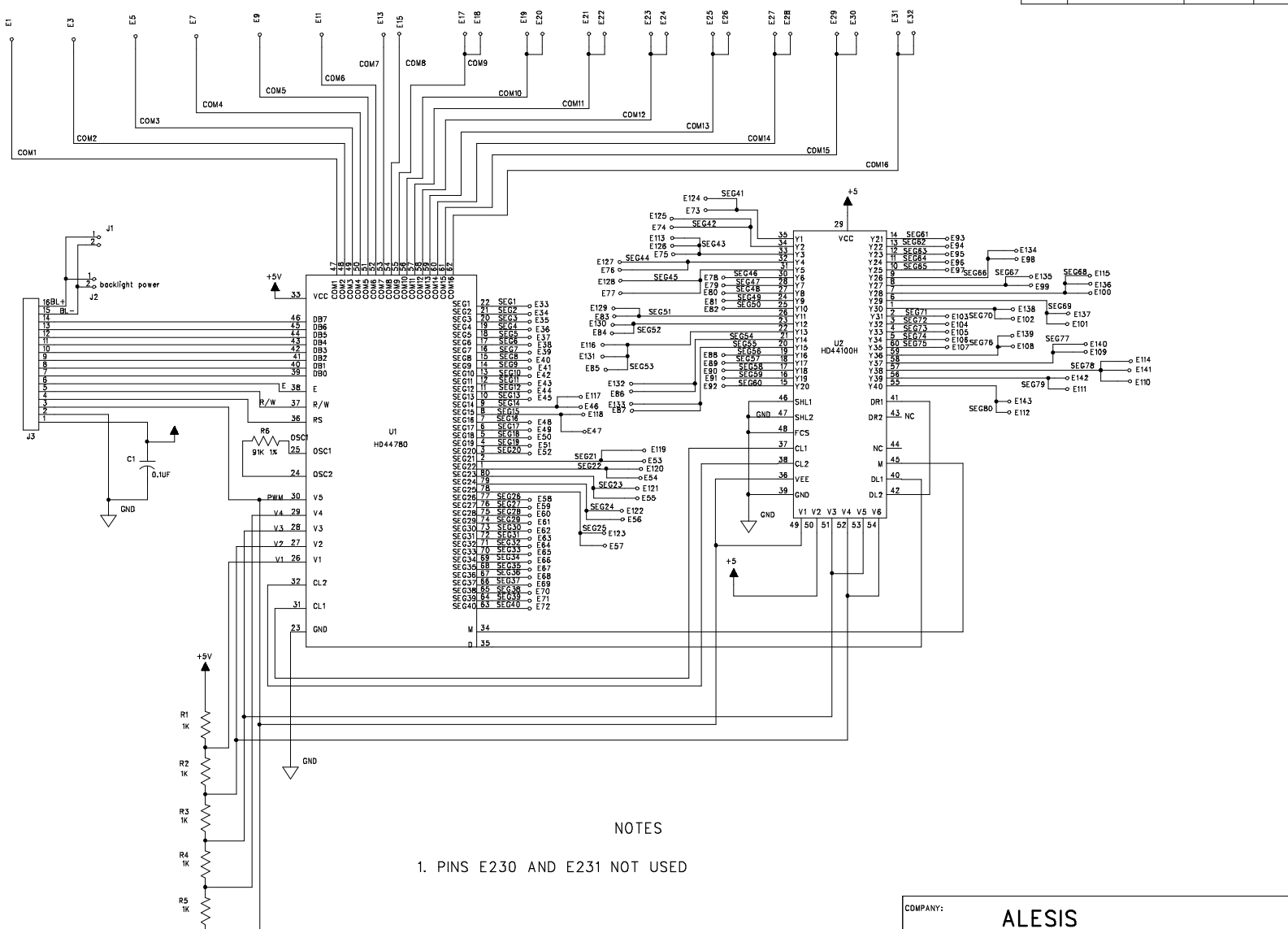
C

B

B

A

A



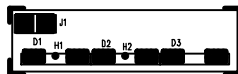
NOTES
1. PINS E230 AND E231 NOT USED

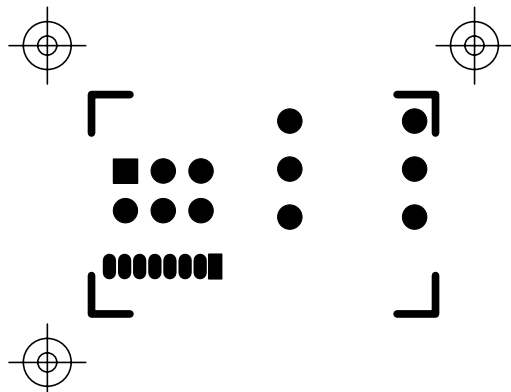
DRAWN: NATE LEE		DATED: 2-28-95		COMPANY: ALESIS			
CHECKED:		DATED:		TITLE: D5 LCD DRIVER			
QUALITY CONTROL:		DATED:		CODE:	SIZE: C	DRAWING NO: 9-40-1214	REV: X2
RELEASED:		DATED:		SCALE:		SHEET: 1 OF 1	

A/W 9-40-1216 "TOP ASSEMBLY" REV.A

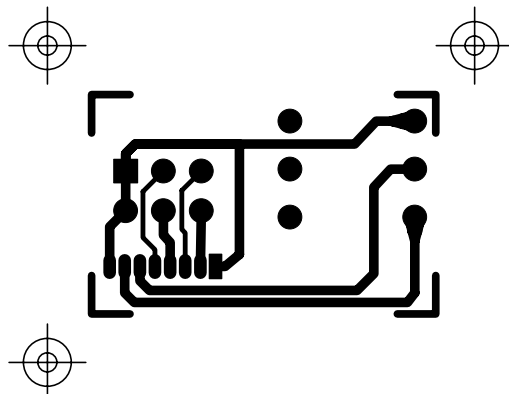


6-29-95



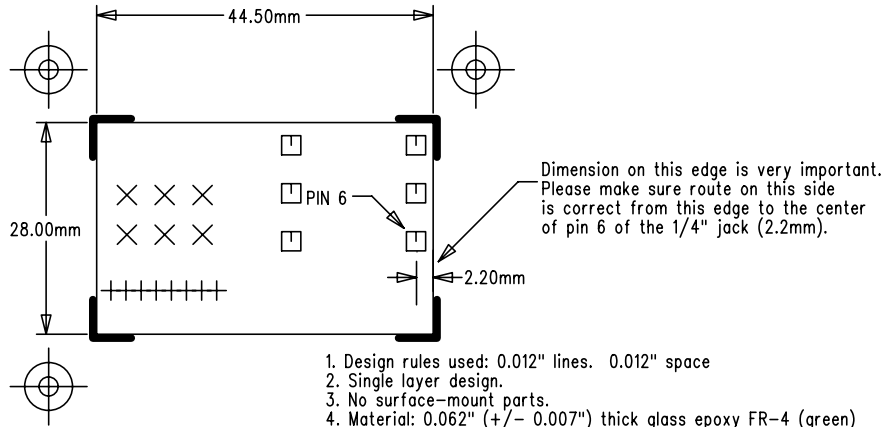


ALESIS 9-40-1219-A "TOPSMK"



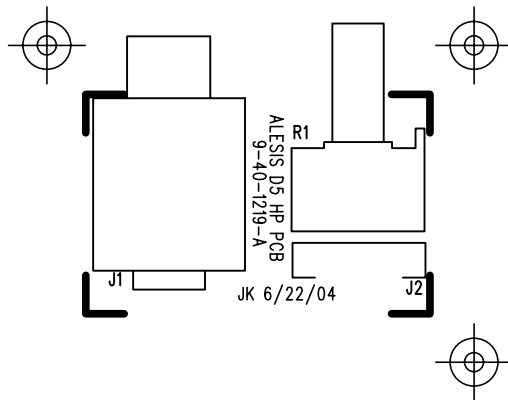
ALESIS 9-40-1219-A "TOPTRACE"

ALESIS 9-40-1219-A "DRILLDWG"



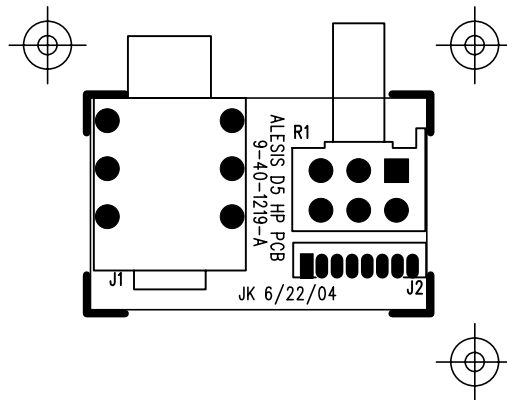
SIZE	QTY	SYM	PLTD
31	8	+	NPLTD
46.5	6	×	NPLTD
52	6	□	NPLTD

- Design rules used: 0.012" lines. 0.012" space
 - Single layer design.
 - No surface-mount parts.
 - Material: 0.062" (+/- 0.007") thick glass epoxy FR-4 (green)
1 oz. copper all layers, finished.
 - Finish: SMOBC, Hot Air Level
 - Drilled holes are +/- 0.003" tolerance.
 - Layer-to-layer registration to be +/- 0.005"
 - Soldermask all exposed copper, LPI, green.
 - Silkscreen using epoxy-based ink (white).
 - Surface to be flat within 0.010" in/in of diagonal measurement.
 - Vendor shall etch or stamp I.D. logo and date code, type designation and UL flame rating on solder side of PCB.
- NO COPPER MAY BE DELETED**
- Soldercoat top side to standard J-STD-003.
 - Mechanical dims are +/- 0.005" tolerance.
 - Workmanship and acceptance criteria shall be in accordance with IPC-A-600, Class 1.



ALESIS 9-40-1219-A "BOTSILK"

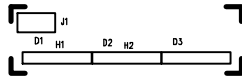
ALESIS 9-40-1219-A "BOTTOM ASSEMBLY DRAWING"

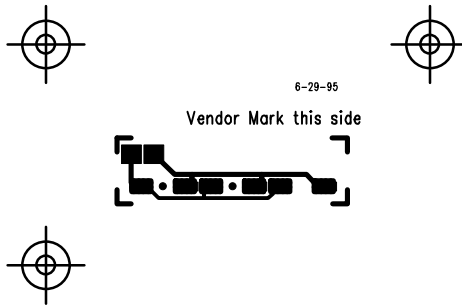




6-29-95

A/W 9-40-1216 "TOP SILK" REV.A





A/W 9-40-1216 "TOPTRACE" REV.A

A/W 9-40-1216 "TOP ASSEMBLY" REV.A



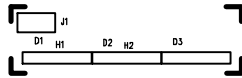
6-29-95





6-29-95

A/W 9-40-1216 "TOP SILK" REV.A





6-29-95

A.V.ER 01-0-0 "BOT2LK" REV.A



A\W 0-4-0-1210 "BOT2LK" REV.A

ALESIS DM5 (D5)

BOM

D5 Main PCB BOM - Rev H						
P/N	Description	Qty	Ref. Des.	Approved Mfr.	Mfr's P/N	PADsMfr.
0-05-0209	RES 2 OHM 1/2W 5%	1	R73			
0-15-0101	RES 100 OHM 1/10W 5% 0805	1	R156			
0-15-0102	RES 1K OHM 1/10W 5% 0805	9	R25-27 R58-59 R84 R106 R131 R135			
0-15-0103	RES 10K OHM 1/10W 5% 0805	41	R44-46 R52-57 R62-64 R66-69 R71-72 R75-77 R79 R81-83 R87-90 R92 R95-99 R101-103 R128 R133 R146			
0-15-0104	RES 100K OHM 1/10W 5% 0805	5	R6 R113 R130 R145 R155			
0-15-0124	RES 120K OHM 1/10W 5% 0805	1	R132			
0-15-0202	RES 2K OHM 1/10W 5% 0805	3	R24 R29 R138			
0-15-0203	RES 20K OHM 1/10W 5% 0805	22	R5 R19-23 R28 R30 R39-40 R43 R50-51 R61 R65 R70 R74 R80 R86 R93-94 R100			
0-15-0204	RES 200K OHM 1/10W 5% 0805	1	R112			
0-15-0221	RES 220 OHM 1/10W 5% 0805	7	R125 R127 R139-140 R143 R147-148			
0-15-0272	RES 2.7K OHM 1/10W 5% 0805	1	R134			
0-15-0273	RES 27K OHM 1/10W 5% 0805	8	R7 R12 R14 R16-17 R31 R34 R38			
0-15-0331	RES 330 OHM 1/10W 5% 0805	10	R3-4 R32-33 R60 R78 R151-154			
0-15-0362	RES 3.6K OHM 1/10W 5% 0805	2	R1-2			
0-15-0394	RES 390K OHM 1/10W 5% 0805	1	R111			
0-15-0470	RES 47 OHM 1/10W 5% 0805	3	R48-49 R150			
0-15-0472	RES 4.7K OHM 1/10W 5% 0805	3	R36 R42 R85			
0-15-0511	RES 510 OHM 1/10W 5% 0805	1	R107			
0-15-0512	RES 5.1K OHM 1/10W 5% 0805	1	R136			
0-15-0513	RES 51K OHM 1/10W 5% 0805	11	R8-11 R13 R15 R18 R35 R37 R41 R114			
0-15-0824	RES 820K OHM 1/10W 5% 0805	1	R110			
0-17-0221	RES CHIP ARRAY 4 X 220 OHM 1/16W 5% ISOLATED c-c=0.8mm	1	R122	PANASONIC INDUSTRIAL CO VENKEL CTS SEI ELECTRONICS SKYWELL TECHNOLOGY	EXBV8V221J CRN16-4-221JCT 742C083221J RAC16-4D 220 5% RA03J221-4	TAD COMPONENTS, INC.
0-17-0223	RES CHIP ARRAY 4x22K OHM 1/16W 5% ISOLATED c-c=0.8mm	4	R104-105 R116-117	PANASONIC INDUSTRIAL CO VENKEL SKYWELL TECHNOLOGY SEI ELECTRONICS CTS	EXBV8V223JV CRN16-4-223JCT RA03J223-4 RAC16-4D-22K 5% 742C083223JCT-ND	TAD COMPONENTS, INC.
0-17-0331	RES CHIP ARRAY 4 x 330 OHM 1/16W 5% ISOLATED c-c=0.8mm	1	R47	CTS PANASONIC INDUSTRIAL CO SEI ELECTRONICS	742C083331J EXBV8V331JV RAC16-4D331J	TAD COMPONENTS, INC.
1-08-0228	CAP 2200uF ELEC 16V 5x13.2x24mm	4	C108 C111-112 C114	XICON	XRL-16V-2200	
1-56-0102	CAP 1000pF NPO 0805 5% 100V	12	C1-2 C12-13 C15 C18 C22-23 C29-30 C33-34			
1-56-0103	CAP 0.01uF X7R 0805	12	C41 C50-51 C58 C63 C66 C71 C76 C81 C89 C91 C97			
1-56-0104	CAP 0.1uF X7R 0805 10% 50V	59	C4-6 C8 C10 C14 C16-17 C19-21 C24-26 C32 C36-37 C39 C42-44 C49 C53 C55 C57 C60 C64 C67-68 C72 C75 C77 C79 C82-84 C90 C92-93 C96 C98-107 C113 C115-122	SIEMENS-MATSUSHITA (EPCOS)	B37941K5104K62	
1-56-0151	CAP 150pF NPO 0805	12	C38 C45-46 C54 C59 C65 C69 C74 C78 C85-86 C94			
1-56-0474	CAP 0.47uF X7R 0805 16V	12	C40 C47-48 C56 C61-62 C70 C73 C80 C87-88 C95			
1-60-3222	CAP 22uF ELEC 16V SMD-C	11	C3 C7 C9 C11 C27-28 C31 C35 C52 C109-110	ELNA	RV2-16V220M-R	PANASONIC INDUSTRIAL CORP.

D5 Main PCB BOM - Rev H						
P/N	Description	Qty	Ref. Des.	Approved Mfr.	Mfr's P/N	PADsMfr.
2-11-7805	REG VOLTAGE LM7805C +5V TO-220	1	U29	NATIONAL SEMICONDUCTOR NATIONAL SEMICONDUCTOR MOTOROLA	LM340T5 LM7805CT-5.0 340T-5.0	NATIONAL
2-11-7905	REG VOLTAGE LM7905 -5V TO-220	1	U28	MOTOROLA MOTOROLA FAIRCHILD SEMI NATIONAL SEMICONDUCTOR	MC7905CT MC7905ACT LM7905 7905	NATIONAL
2-27-0015	ASIC DM3 ETO	1	U8	AMI		ALESIS
2-27-0039	ASIC D56IFT D5/D6 (64PQFPRECT)	1	U12	AMI		ALESIS
2-50-4149	DIODE SIGNAL 1N4148 100V 200mA SOT-23	10	D1-9 D12	TAITRON COMPONENTS INCORPOR	MMBD4148	TAITRON
2-51-4003	DIODE POWER 300V 1A SMA	2	D10-11	ON SEMICONDUCTOR	MRA4003T3	ON SEMI
2-51-4401	TRANS NPN 2N4401 40V 1A SOT-23	11	Q1 Q4-6 Q8-14	FAIRCHILD SEMI	MMBT4401	
2-51-4403	TRANS PNP 2N4403 40V 800mA SOT-23	3	Q2-3 Q7	FAIRCHILD SEMI	MMBT4403	
2-61-2117	REG VOLTAGE LM1117DTX-3.3 3.3V TO-252	1	U15	NATIONAL SEMICONDUCTOR	LM1117DTX-3.3	NATIONAL SEMICONDUCTOR
2-62-0014	IC 74AHC14 HEX SCHMITT-TRIGGER INVERTERS SOP-14	2	U27 U30	TEXAS INSTRUMENTS INC.	74AHC14	
2-62-0541	IC 74AHC541 OCTAL BUFFERS/DRIVERS W/TRI-STATE OUTS SOP-20	5	U18 U22 U36-38	TEXAS INSTRUMENTS INC.	74AHC541	
2-62-0574	IC 74AHC574 OCTAL D FF W/TRI-STATE OUTS SOP-20	4	U20 U26 U31-32	TEXAS INSTRUMENTS INC.	SN74AHC574DW SN74AHC574DWR	
2-62-6541	IC 74AHCT16541 16-BIT BUFFER/DRIVER W/TRI OUTS SOP-48	1	U35	TEXAS INSTRUMENTS INC.	SN74AHCT16541DLR	TEXAS INSTRUMENTS
2-67-5169	IC SRAM 8Kx8 70NS SOP-28	1	U16	HUNDAI TM TECH	HY6264ALJ-70 T15M64A-70D	
2-69-2320	IC FLASH-ROM 2Mx16 70nS TSOP-48	1	U34	INTEL	TE28F320C3BD70	INTEL
2-69-2512	IC EPROM 512K 64Kx8 PLCC-32 OTP 5.0V 70ns	1	U9	HOLTEK ATMEL	HT27C512-70JC AT27C512R-70JC	ATMEL
2-70-8033	IC MPU 80C31 PQFP-44	1	U19	INTEL TEMIC	S80C31BH TSC80C31-12CC	
2-71-0084	IC TL084 QUAD OPAMP SOP-14	2	U2 U25	TEXAS INSTRUMENTS INC.	TL084CD	TEXAS INST
2-71-4580	IC NJM4580E DUAL AUDIO OP-AMP SOP-8	1	U5	JRC (NEW JAPAN RADIO COMPANY)	NJM4580E	JRC
2-72-0311	IC LM311 ANALOG COMP SOP-8	1	U24	FAIRCHILD SEMI NATIONAL SEMICONDUCTOR TEXAS INSTRUMENTS INC.	LM311M LM311M LM311 (SO-8)	NATIONAL
2-72-0339	IC LM339 ANALOG COMP SOP-14	6	U4 U6 U10 U14 U17 U21	TEXAS INSTRUMENTS INC. NATIONAL SEMICONDUCTOR	LM339 LM339	
2-72-4051	IC CD4051 SINGLE 8-CHAN MUX SOIC-16	2	U11 U13	FAIRCHILD SEMI	CD4051BCM	
2-74-0181	IC OPTO-ISOLATOR TLP181 TRANS-OUT SMD	1	U7	TOSHIBA AMERICA INC.	TLP181	Toshiba
2-75-1201	IC CONVERTER D/A 24-BIT AL1201 SOP-16	2	U1 U3			ALESIS
2-79-1814	IC CONTROLLER RESET W/OVERRIDE DS1813-10 +5V SOT-23	1	U33			DALLAS
4-00-0002	JACK DIN 5-PIN MIDI PCB MOUNT 180° W/SHIELD	2	J19-20	SINGATRON ENTERPRISE CO. LTD SINGATRON ENT.CO. LTD.	2DJ-0065PSA2	SINGATRON
4-02-0001	JACK 1/4 MONO	17	J1-5 J7-10 J12-18 J21	LIH SHENG PRECISION IND. CO., LTD. CLIFF ELECTRONIC COMPONENTS	LJB0661-4SS S2 BNB BLK PC-C	CLIFF
4-14-0020	HEADER DIL 20-PIN 0.1	1	J22	AMP INC. WIESON ELECTRONICS CO	1-103186-0 2100-2*10SF1	
4-15-0006	HEADER SIL 6-PIN 0.1	1	J24	SAMTEC JAWS ELECTRONIC LTD. AMP INC.	TSW-106-07-T-S	
4-15-1008	HEADER SIL 8-PIN 2mm SHRD	1	J6	JAE ELECTRONICS	IL-S-8P-S2T2-EF	
4-16-0002	JACK 6.3mm BARREL (P3) 2.5mm CENTER PIN	1	J23			
4-18-1627	CABLE DIL 16-PIN 0.1 210mm M-F	1	J11	JYE TAI PRECISION IND.CO. LTD.	DJ-0702B-025	
6-02-0003	SWITCH PUSH DPDT	1	S1	ITT SHADOW HWA SHENG CHANG CO. LTD. TAIWAN ALPHA ELECTRONICS CO. LTD	6PLB PS-9AN-022-18	SHADOW ITT
7-01-0038	RESONATOR 12 MHz CERAMIC W/CAPACITORS SMD	1	M1			YOKETANT CORP.
7-05-0003	BATTERY 3V LITHIUM COIN-TYPE PCB-MNT 23mmOD 2.5mmTHK	1	B1	PANASONIC INDUSTRIAL CO	BR2325/1HG	PANASONIC, alt:RAYOVAC

ALESIS D5 BOM

4-22-02

Parent	Part.Number	Description	Quantity	Ref.Designator
	D5-UL	DRUM MODULE D5 - UL	1	
D5-UL	7-40-0903	TRANSFORMER P3-UL	1	
D5-UL	7-51-1219-B	SHEET "WELCOME TO ALESIS FAMILY" 5 x 8"	1	
	D5	DRUM MODULE D5	1	
D5	4-18-1627	CABLE DIL 16-PIN 0.1" 210mm M-F	1	
D5	4-18-2020	CABLE DIL RIBBON 20-PIN 200mm	1	
D5	4-19-1331	CABLE SIL 8-PIN 2mm 150mm F-F - REV B	1	
D5	4-19-1403	CABLE 3-LEAD 40mm STRIPPED & TINNED	1	
D5	5-00-0020	SCREW M3 x 7mm PPB PHIL-SLOT	11	
D5	7-50-0068	STICKER BARCODE S/N D5	1	
D5	7-51-1169	CHART SOUND D5	1	
D5	7-51-1170	CHART QUICK SET-UP D5	1	
D5	7-51-1175	MANUAL REFERENCE D5	1	
D5	7-53-0018	STICKER QC W/ MFR DATE (UL APPROVED)	1	
D5	7-80-0005	BOX CARDHOLDER P/S	1	
D5	7-80-0153	BOX GIFT STANDARDIZED D5	1	
D5	7-81-0104	FOAM ENDCAP RIGHT SINGLE-RACK STD	1	
D5	7-81-0105	FOAM ENDCAP LEFT SINGLE-RACK STD	1	
D5	7-91-1002	GEL SILICA 5G PACKET	2	
D5	7-94-0709	POLYBAG 7 x 9 - 4 MIL	1	
D5	7-94-0924	POLYBAG 9 x 24 - 4 MIL	1	
D5	9-03-0003	PANEL REAR D5	1	
D5	9-03-1060	CASE TOP 150mm D4/D5/M4/7R	1	
D5	9-10-0005	BEZEL BACKLIGHT D5/D6	1	
D5	9-13-1040	STRIP ZEBRA 99L x 8.2H x 2.5W D5/D6	2	
D5	9-15-1078	BUTTON POWER D5/D6/M4/Q2/S4/S8/7R	1	
D5	9-15-1117	EXTENDER SWITCH D5/D6/M4/Q2/S4/S8/7R	1	
D5	9-23-1017	STRIP FOAM SIDE 7 x 95mm	4	
D5	9-58-1007	PANEL SIDE/RACK EAR 150mm D5/D6/M4/D4/7R	2	
D5	9-79-0159	ASSY LCD D5	1	
D5	9-79-0158	ASSY PCB FRONT-PANEL D5	1	
9-79-0158	0-09-1022	POT 10KA DUAL CONTROL	1	
9-79-0158	3-02-0021	LED GREEN HLMP-1540 T1	10	
9-79-0158	4-02-0005	JACK 1/4" STEREO 6-PIN FEMALE RAISED	1	
9-79-0158	4-14-0020	HEADER DIL 20-PIN 0.1"	1	
9-79-0158	4-15-1008	HEADER SIL 8-PIN 2mm SHRD	1	
9-79-0158	7-00-0001	PIEZO 4.6kHz 27mmOD BRASS	1	
9-79-0158	9-00-1011	ENCODER ROTARY 11mm-SHAFT HORIZONTAL	1	
9-79-0158	9-03-0005	EXTRUSION FRONT-PANEL D5	1	

ALESIS D5 BOM

4-22-02

9-79-0158	9-03-1165	CLIP STRIP RETAINER	8	
9-79-0158	9-10-0003	BEZEL FRONT-PANEL A D5/D6/7R	1	
9-79-0158	9-10-0004	BEZEL FRONT-PANEL B D5/7R	1	
9-79-0158	9-10-0006	BEZEL FRONT LCD D5	1	
9-79-0158	9-13-0020	STRIP RETAINER 6.35x20mm D5	4	
9-79-0158	9-13-0130	STRIP RETAINER 130mm D5/7R	2	
9-79-0158	9-15-0087	KNOB DATA D5/D6/C4/M4/7R	1	
9-79-0158	9-15-1112	KNOB STANDARD	1	
9-79-0158	9-23-1014	STRIP FOAM FRONT-PANEL 7 x 180mm	4	
9-79-0158	9-23-1061	KEYPAD RUBBER D5	1	
9-79-0158	9-40-1215	PCB FRONT-PANEL D5	1	
9-79-0158	9-40-1219-A	PCB HEADPHONE D5/7R - REV A	1	PCB
D5	9-79-1174	ASSY PCB MAIN D5	1	
9-79-1174	0-05-0209	RES 2 OHM 1/2W 5%	1	R73
9-79-1174	0-15-0102	RES 1K OHM 1/10W 5% 0805	9	R6 R25-27 R84 R131 R135 R155-156
				R7-18 R31 R34-35 R38 R44-46 R52-57 R62-64 R66-69 R71-72 R75-77 R79 R81-83 R87-90 R92 R95-99 R101-103 R129 R133
9-79-1174	0-15-0103	RES 10K OHM 1/10W 5% 0805	57	R146
9-79-1174	0-15-0104	RES 100K OHM 1/10W 5% 0805	3	R113 R130 R145
9-79-1174	0-15-0105	RES 1M OHM 1/10W 5% 0805	1	R91
9-79-1174	0-15-0124	RES 120K OHM 1/10W 5% 0805	1	R132
9-79-1174	0-15-0202	RES 2K OHM 1/10W 5% 0805	3	R24 R29 R138
				R28 R30 R43 R50-51 R61 R65 R70 R74 R80 R86 R93-94
9-79-1174	0-15-0203	RES 20K OHM 1/10W 5% 0805	14	R100
9-79-1174	0-15-0204	RES 200K OHM 1/10W 5% 0805	1	R112
9-79-1174	0-15-0221	RES 220 OHM 1/10W 5% 0805	7	R125 R127 R139-140 R143 R147-148
9-79-1174	0-15-0272	RES 2.7K OHM 1/10W 5% 0805	1	R134
9-79-1174	0-15-0331	RES 330 OHM 1/10W 5% 0805	11	R3-4 R32-33 R60 R78 R128 R151-154
9-79-1174	0-15-0362	RES 3.6K OHM 1/10W 5% 0805	10	R1-2 R5 R19-23 R39-40
9-79-1174	0-15-0394	RES 390K OHM 1/10W 5% 0805	1	R111
9-79-1174	0-15-0470	RES 47 OHM 1/10W 5% 0805	3	R48-49 R150
9-79-1174	0-15-0472	RES 4.7K OHM 1/10W 5% 0805	3	R36 R42 R85
9-79-1174	0-15-0512	RES 5.1K OHM 1/10W 5% 0805	1	R136
9-79-1174	0-15-0513	RES 51K OHM 1/10W 5% 0805	3	R37 R41 R114
9-79-1174	0-15-0824	RES 820K OHM 1/10W 5% 0805	1	R110
9-79-1174	0-17-0221	RES CHIP ARRAY 4 X 220 OHM 1/16W 5% ISOLATED c-c=0.8mm	1	R122
9-79-1174	0-17-0223	RES CHIP ARRAY 4x22K OHM 1/16W 5% ISOLATED c-c=0.8mm	4	R104-105 R116-117
9-79-1174	0-17-0331	RES CHIP ARRAY 4 x 330 OHM 1/16W 5% ISOLATED c-c=0.8mm	1	R47

ALESIS D5 BOM

4-22-02

9-79-1174	1-08-0222	CAP 22uF ELEC 16V 20% 1.5x4x7mm	8	C3 C7 C11 C27 C31 C35 C109-110
9-79-1174	1-08-0228	CAP 2200uF ELEC 16V 5x13.2x24mm	4	C108 C111-112 C114
9-79-1174	1-55-0561	CAP 560pF NPO 0805	8	C1-2 C8 C14 C19 C28-30
9-79-1174	1-56-0101	CAP 100pF NPO 0805 5% 50V	8	C12-13 C15 C18 C22-23 C33-34
9-79-1174	1-56-0103	CAP 0.01uF X7R 0805	12	C41 C50-51 C58 C63 C66 C71 C76 C81 C89 C91 C97
9-79-1174	1-56-0104	CAP 0.1uF X7R 0805 10% 50V	48	C4-6 C16-17 C24-26 C37 C39 C42-44 C49 C52-53 C55 C57 C60 C64 C67-68 C72 C75 C77 C79 C84 C90 C92-93 C96 C98-107 C113 C115-120
9-79-1174	1-56-0151	CAP 150pF NPO 0805	12	C38 C45-46 C54 C59 C65 C69 C74 C78 C85-86 C94
9-79-1174	1-56-0220	CAP 22pF NPO 0805 5% 50V	2	C82-83
9-79-1174	1-56-0474	CAP 0.47uF X7R 0805 16V	12	C40 C47-48 C56 C61-62 C70 C73 C80 C87-88 C95
9-79-1174	2-01-4003	DIODE POWER 1N4003 200V 1A	2	D10-11
9-79-1174	2-11-7805	REG VOLTAGE LM7805C +5V TO-220	1	U29
9-79-1174	2-11-7905	REG VOLTAGE LM7905 -5V TO-220	1	U28
9-79-1174	2-24-0138	IC OPTO-ISOLATOR 6N138	1	U23
9-79-1174	2-27-0015	ASIC DM3 ETO	1	U8
9-79-1174	2-27-0039	ASIC D56IFT D5/D6 (64PQFPRECT)	1	U12
9-79-1174	2-31-0064	IC SOFTWARE EPROM D5 (V1.02)	1	U15
9-79-1174	2-50-4149	DIODE SIGNAL 1N4148 100V 200mA SOT-23	9	D1-9
9-79-1174	2-51-4401	TRANS NPN 2N4401 40V 1A SOT-23	8	Q1 Q4-6 Q8-10 Q12
9-79-1174	2-51-4403	TRANS PNP 2N4403 40V 800mA SOT-23	2	Q2-3
9-79-1174	2-62-0014	IC 74AHC14 HEX SCHMITT-TRIGGER INVERTERS SOP-14	2	U27 U30
9-79-1174	2-62-0541	IC 74AHC541 OCTAL BUFFERS/DRIVERS W/TRI-STATE OUTS SOP-20	2	U18 U22
9-79-1174	2-62-0574	IC 74AHC574 OCTAL D FF W/TRI-STATE OUTS SOP-20	4	U20 U26 U31-32
9-79-1174	2-67-5168	IC SRAM 8Kx8 CL62C064F-10 SOP-28	1	U16
9-79-1174	2-70-8033	IC MPU 80C31 PQFP-44	1	U19
9-79-1174	2-71-0084	IC TL084 QUAD OPAMP SOP-14	2	U2 U25
9-79-1174	2-71-4580	IC NJM4580E DUAL AUDIO OP-AMP SOP-8	1	U5
9-79-1174	2-72-0311	IC LM311 ANALOG COMP SOP-8	1	U24
9-79-1174	2-72-0339	IC LM339 ANALOG COMP SOP-14	6	U4 U6 U10 U14 U17 U21
9-79-1174	2-72-4051	IC CD4051 SINGLE 8-CHAN MUX SOIC-16	2	U11 U13
9-79-1174	2-75-1201	IC CONVERTER D/A 24-BIT AL1201 SOP-16	2	U1 U3
9-79-1174	2-77-0030	IC MASK ROM D5-1	1	U7
9-79-1174	2-77-0043	IC MASK ROM D5-2	1	U9
9-79-1174	2-79-1814	IC CONTROLLER RESET W/OVERRIDE DS1813-10 +5V SOT-23	1	U33
9-79-1174	4-00-0002	JACK DIN 5-PIN MIDI PCB MOUNT 180ø W/SHIELD	2	J19-20
9-79-1174	4-02-0001	JACK 1/4" MONO	17	J1-5 J7-10 J12-18 J21
9-79-1174	4-06-0028	SOCKET 28-PIN DIP 0.6"	1	U15
9-79-1174	4-14-0020	HEADER DIL 20-PIN 0.1"	1	J22
9-79-1174	4-15-0006	HEADER SIL 6-PIN 0.1"	1	J24

ALESIS D5 BOM

4-22-02

9-79-1174	4-15-1008	HEADER SIL 8-PIN 2mm SHRD	1	J6
9-79-1174	4-16-0002	JACK 3.5mm BARREL (P3)	1	J23
9-79-1174	5-02-0009	HEATSINK M3 x 20	2	
9-79-1174	5-04-0009	WASHER M3 SPLITLOCK	2	
9-79-1174	5-04-0045	SPACER CRYSTAL 5x11.25x1mm (TQ-06 PIN-GOOD)	1	
9-79-1174	6-02-0003	SWITCH PUSH DPDT	1	S1
9-79-1174	7-01-0009	CRYSTAL 12 MHz 13mm	1	M1
9-79-1174	7-05-0003	BATTERY 3V LITHIUM COIN-TYPE PCB-MNT 23mmOD 2.5mmTHK	1	B1
9-79-1174	9-03-1036	LUG SOLDER PCB MNT	17	
9-79-1174	9-23-1059	SPACER PCB S4	1	
9-79-1174	9-40-1174-D	PCB MAIN D5 - REV D	1	

D5 Main PCB ASSY Rev C
9-79-0157

4-19-02

Parent	Part.Number	Description	Quantity	Ref.Designator
D5	9-79-0157	ASSY PCB MAIN D5 - Rev C	1	
9-79-0157	0-05-0020	RES 2 OHM 1/2W 5%	1	JUMP FROM PIN-2 TO PIN-16 OF J4
9-79-0157	0-10-0102	RES 1K OHM 1/8W 5% 1206	8	R6, 25-27, 84, 131, 135, 141
9-79-0157	0-10-0103	RES 10K OHM 1/8W 5% 1206	49	R5,19-23,39,40,44-46,52-57,62-64,66-69,71,72,75-77,79,81-83,87-90,92,95-99,101-103,129,133, R146
9-79-0157	0-10-0104	RES 100K OHM 1/8W 5% 1206	3	R113, 130, 145
9-79-0157	0-10-0105	RES 1M OHM 1/8W 5% 1206	2	R91, 126
9-79-0157	0-10-0124	RES 120K OHM 1/8W 5% 1206	1	R132
9-79-0157	0-10-0202	RES 2K OHM 1/8W 5% 1206	4	R24, 28-30
9-79-0157	0-10-0203	RES 20K OHM 1/8W 5% 1206	20	R7,12,14,16,17,31,34,38,43,50,51,61,65,70,74,80,86,93,94,100
9-79-0157	0-10-0204	RES 200K OHM 1/8W 5% 1206	1	R112
9-79-0157	0-10-0221	RES 220 OHM 1/8W 5% 1206	14	R3,4,32,33,122-125,127,139,140,143,147,148
9-79-0157	0-10-0222	RES 2.2K OHM 1/8W 5% 1206	2	R138, 142
9-79-0157	0-10-0223	RES 22K OHM 1/8W 5% 1206	14	R104-109, 115-121, 137
9-79-0157	0-10-0272	RES 2.7K OHM 1/8W 5% 1206	1	R134
9-79-0157	0-10-0393	RES 39K OHM 1/8W 5% 1206	8	R8-11, 13, 15, 18, 35
9-79-0157	0-10-0394	RES 390K OHM 1/8W 5% 1206	1	R111
9-79-0157	0-10-0470	RES 47 OHM 1/8W 5% 1206	2	R48, 49
9-79-0157	0-10-0471	RES 470 OHM 1/8W 5% 1206	6	R47, 58-60, 78, 128
9-79-0157	0-10-0472	RES 4.7K OHM 1/8W 5% 1206	6	R1, 2, 36, 42, 85, 144
9-79-0157	0-10-0512	RES 5.1K OHM 1/8W 5% 1206	1	R136
9-79-0157	0-10-0513	RES 51K OHM 1/8W 5% 1206	3	R37, 41, 114
9-79-0157	0-10-0824	RES 820K OHM 1/8W 1206	1	R110
9-79-0157	1-07-1474	CAP 0.47uF ELEC 50V 2x5x11mm	12	C40,47,48,56,61,62,70,73,80,87,88,95
9-79-0157	1-08-0101	CAP 10uF ELEC 16V 2x5x11mm	10	C3,4,7,11,24,27,31,35,109,110
9-79-0157	1-08-0228	CAP 2200uF ELEC 16V 5x13.2x24mm	2	C111, 112
9-79-0157	1-08-0334	CAP 3300uF ELEC 16V	1	C108
9-79-0157	1-50-0103	CAP 0.01uF NPO 1206	12	C41,50,51,58,63,66,71,76,81,89,91,97
9-79-0157	1-50-0104	CAP 0.1uF NPO 1206	41	C5,6,8,16,17,25,26,28,37,39,42-44,49,52,53,55,57,60,64,67,68,72,75,77,79,84,90,92,93,96,98-107
9-79-0157	1-50-0152	CAP 1500pF NPO 1206 50V	8	C12, 13, 15, 18, 22, 23, 33, 34
9-79-0157	1-50-0220	CAP 22pF NPO 1206	2	C82, 83
9-79-0157	1-50-1500	CAP 150pF NPO 1206	12	C38, 45, 46, 54, 59, 65, 69, 74, 78, 85, 86, 94
9-79-0157	1-51-0015	CAP 0.001uF NPO 1206	2	C29, 30
9-79-0157	1-51-0156	CAP 0.015uF X7R 1206	2	C1, 2
9-79-0157	2-01-4003	DIODE POWER 1N4003 200V 1A	2	D10, 11
9-79-0157	2-02-5231	DIODE ZENER 1N5231B 5.1V 1/2W DO-35	1	D12
9-79-0157	2-11-7805	REG VOLTAGE LM7805C +5V TO-220	1	U29
9-79-0157	2-11-7905	REG VOLTAGE LM7905 -5V TO-220	1	U28
9-79-0157	2-24-0138	IC OPTO-ISOLATOR 6N138	1	U23

D5 Main PCB ASSY Rev C
9-79-0157

4-19-02

9-79-0157	2-27-0015	ASIC DM3 ETO	1	U8
9-79-0157	2-27-0039	ASIC D56IFT D5/D6 (64PQFPRECT)	1	U12
9-79-0157	2-31-0064	IC SOFTWARE EPROM D5 (V1.02)	1	U15
9-79-0157	2-50-4148	DIODE SIGNAL LS4148 MELF	9	D1-9
9-79-0157	2-51-4401	TRANS NPN 2N4401 40V 1A SOT-23	10	Q1, 4-12
9-79-0157	2-51-4403	TRANS PNP 2N4403 40V 800mA SOT-23	2	Q2, 3
9-79-0157	2-64-0541	IC 74HC541 OCTAL BUFFER SOP-20	2	U18, 22
9-79-0157	2-64-0574	IC 74HC574 OCTAL D-FF W/ TRI-STATE OUTS SOP-20	2	U20, 26
9-79-0157	2-64-7414	IC 74HC14 HEX INVERTER SOP-14	1	U27
9-79-0157	2-67-5168	IC SRAM 8Kx8 CL62C064F-10 SOP-28	1	U16
9-79-0157	2-70-8033	IC MPU 80C31 PQFP-44	1	U19
9-79-0157	2-71-0084	IC TL084 QUAD OPAMP SOP-14	2	U2, 25
9-79-0157	2-71-5532	IC NE5532 DUAL OP-AMP SOP-16	1	U5
9-79-0157	2-72-0311	IC LM311 ANALOG COMP SOP-8	1	U24
9-79-0157	2-72-0339	IC LM339 ANALOG COMP SOP-14	6	U4,6,10,14,17,21
9-79-0157	2-72-4051	IC CD4051 SINGLE 8-CHAN MUX SOIC-16	2	U11, 13
9-79-0157	2-76-4319	IC CONVERTER D/A AKM4319 18-BIT SCF SSOP-24	2	U1, 3
9-79-0157	2-77-0030	IC MASK ROM D5-1	1	U9
9-79-0157	2-77-0043	IC MASK ROM D5-2	1	U7
9-79-0157	4-00-0001	JACK DIN 5-PIN MIDI	2	J19, 20
9-79-0157	4-02-0001	JACK 1/4" MONO	17	J1-5, 7-10, 12-18, 21
9-79-0157	4-06-0028	SOCKET 28-PIN DIP 0.6"	1	
9-79-0157	4-14-0116	HEADER DIL 16-PIN 0.1" SHRD	1	J11
9-79-0157	4-15-1008	HEADER SIL 8-PIN 2mm SHRD	1	
9-79-0157	4-16-0002	JACK 3.5mm BARREL (P3)	1	J23
9-79-0157	5-02-0009	HEATSINK M3 x 20	2	ATTACH TO U28, 29
9-79-0157	5-04-0009	WASHER M3 SPLITLOCK	2	
9-79-0157	5-04-0045	SPACER CRYSTAL 5x11.25x1mm (TQ-06 PIN-GOOD)	1	
9-79-0157	6-02-0003	SWITCH PUSH DPDT	1	SW1
9-79-0157	7-01-0009	CRYSTAL 12 MHz 13mm	1	Z1
9-79-0157	7-05-0003	BATTERY 3V LITHIUM COIN-TYPE PCB-MNT 23mmOD 2.5mmTHK	1	B1
9-79-0157	9-03-1036	LUG SOLDER PCB MNT	17	
9-79-0157	9-23-1059	SPACER PCB S4	1	
9-79-0157	9-40-1174	PCB MAIN D5 - Rev C	1	