| REVISIONS | | | |
|---|---|---|---|
| REV | DESCRIPTION | DATE | APPROVED |
| 1 | PROTOTYPE RELEASE | | |
| 2 | PROTOTYPE RELEASE | | |
| 3 | PROTOTYPE RELEASE | | |
| 4 | PROTOTYPE RELEASE | | |
| A | PROTOTYPE RELEASE | | |
| B | PROTOTYPE RELEASE | | |
| C | RELEASE FOR PRODUCTION PER ER#42-541 | 01-25-95 | T.M. |
| D | REVISED PER ECO# 3065 | 3/21/95 | TM |



NOTES - UNLESS SPECIFIED OTHERWISE:

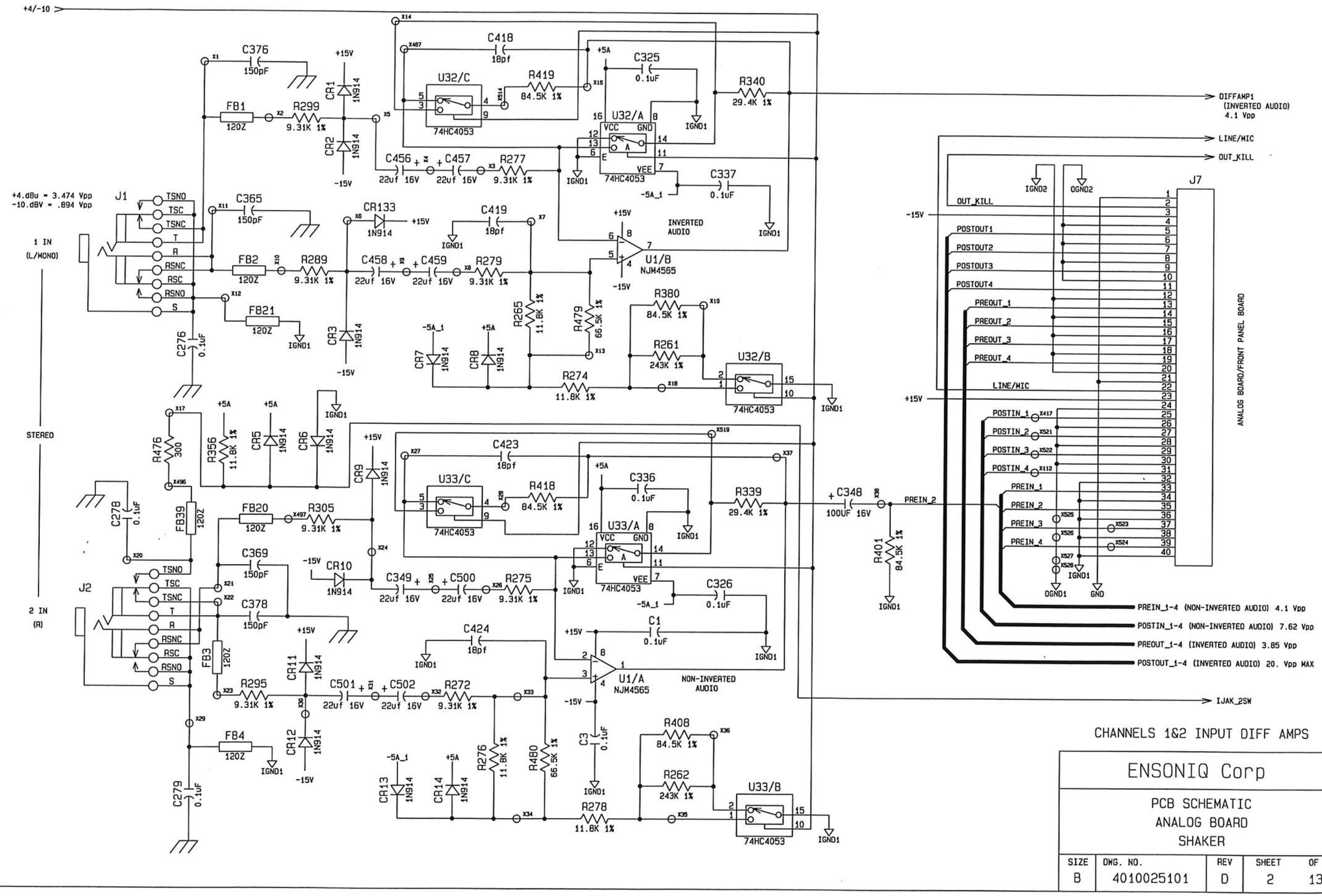
1. ALL RESISTOR VALUES ARE IN OHMS, 1/8W 5%.
2. ALL CAPACITOR VALUES ARE IN MICROFARADS, 16V MINIMUM.
3. ALL 0.1UF BYPASS CAPACITORS ARE 50V +80/-20% Z5U.

COVER SHEET


ENSONIQ Corp

155 GREAT VALLEY PKWY, MALVERN PA 19355

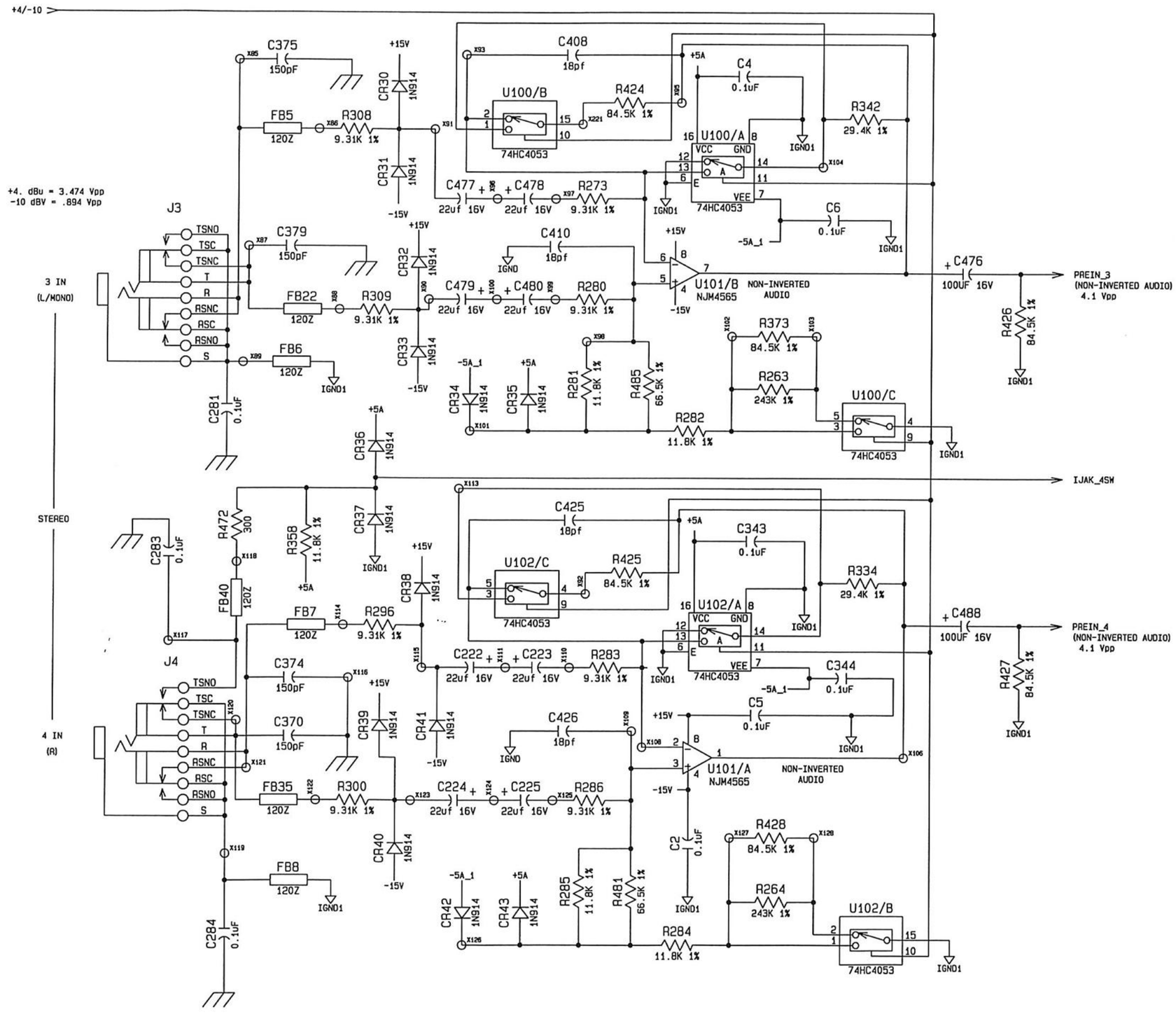

| APPROVALS | DATE | PCB SCHEMATIC ANALOG BOARD SHAKER | | |
|---|---|---|---|---|
| DWN BY: BAVL | 8-4-94 | | | |
| CHKD BY: | | | | |
| APPD BY: | | SIZE B | DWG. NO. 4010025101 | REV D |
| USED ON: | | SCALE — | SHEET 1 OF 13 | |




ENSONIQ Corp

PCB SCHEMATIC
ANALOG BOARD
SHAKER

| SIZE | DWG. NO. | REV | SHEET | OF |
|---|---|---|---|---|
| B | 4010025101 | D | 2 | 13 |

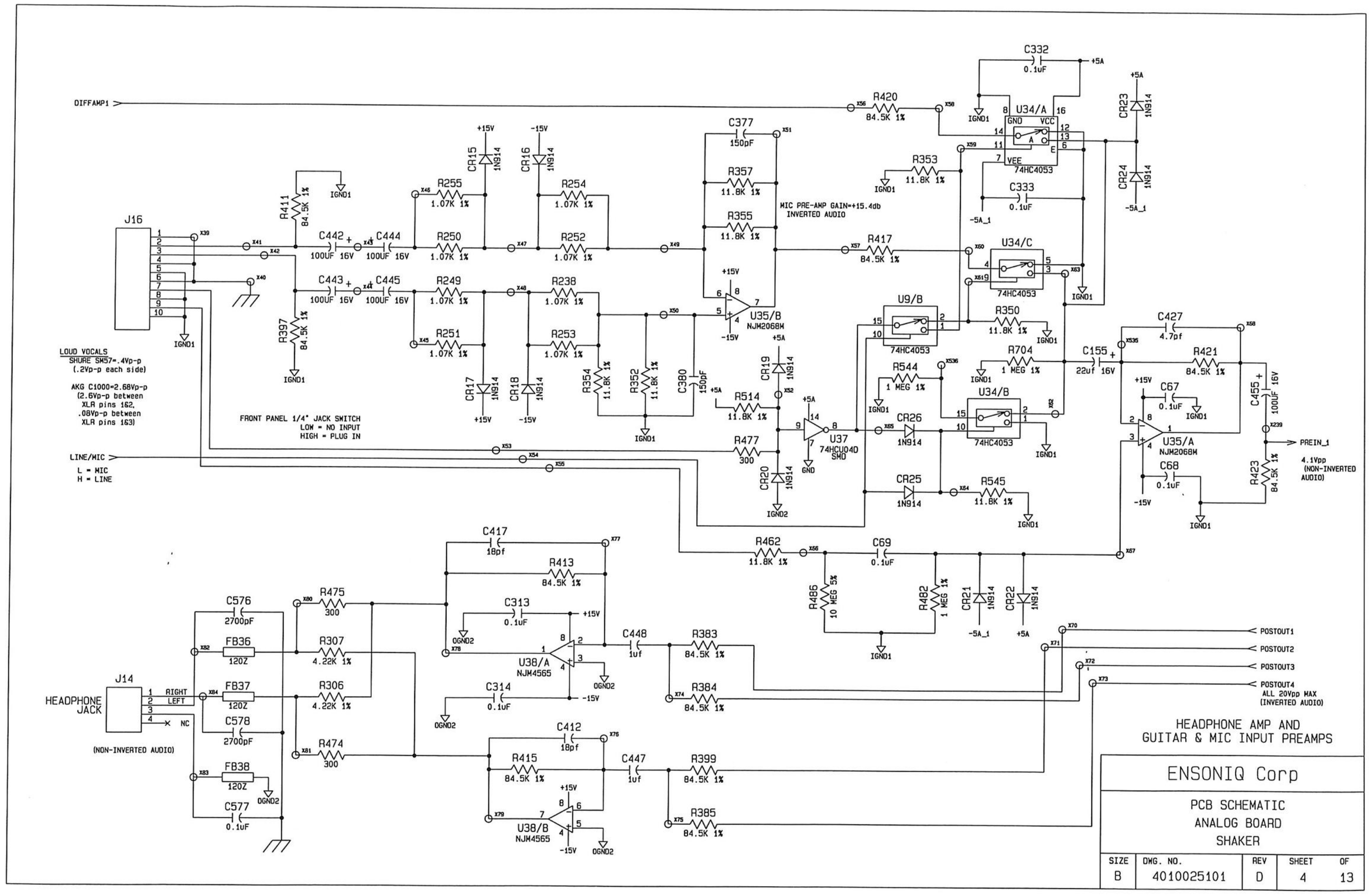


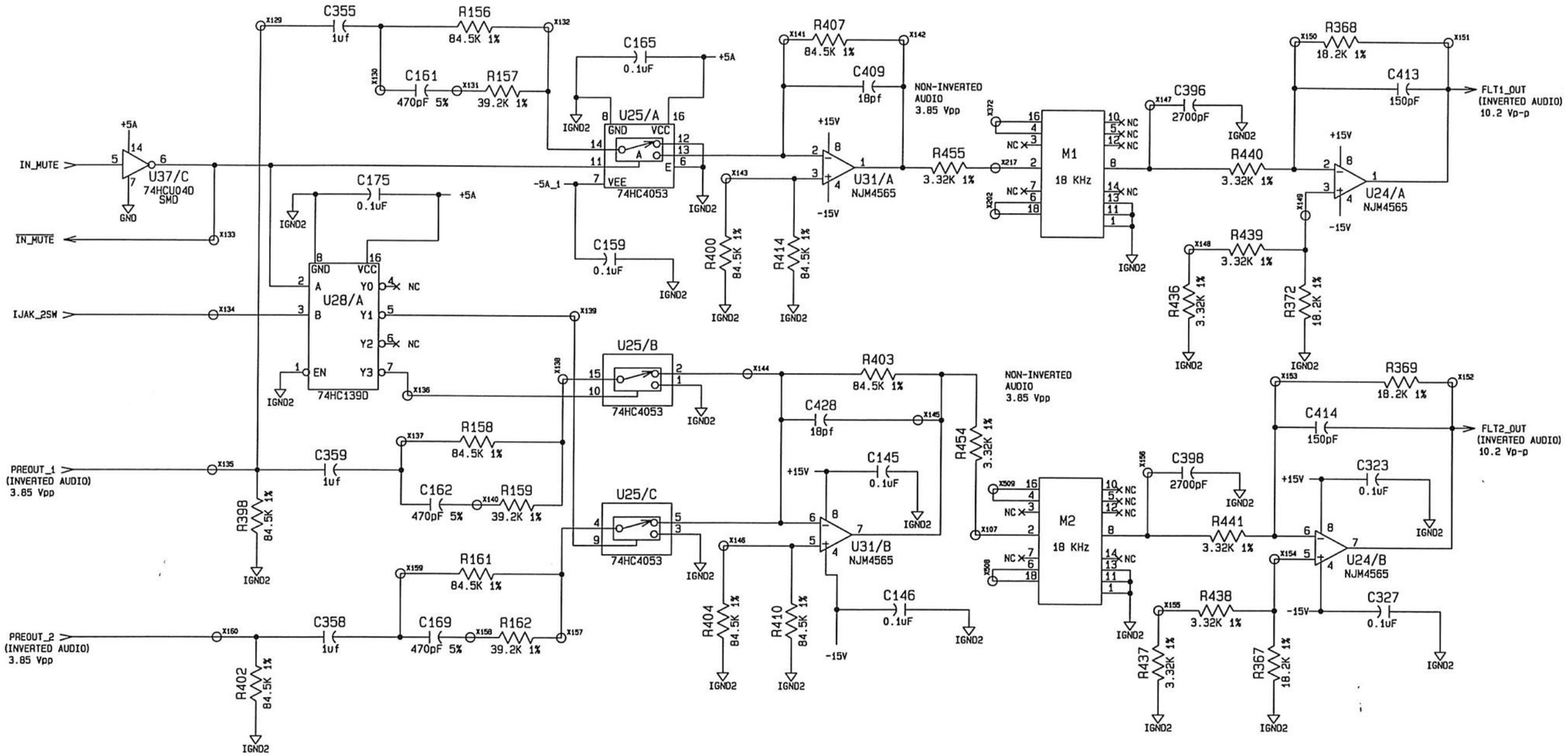

CHANNELS 1&2 INPUT DIFF AMPS

ENSONIQ Corp

PCB SCHEMATIC
ANALOG BOARD
SHAKER

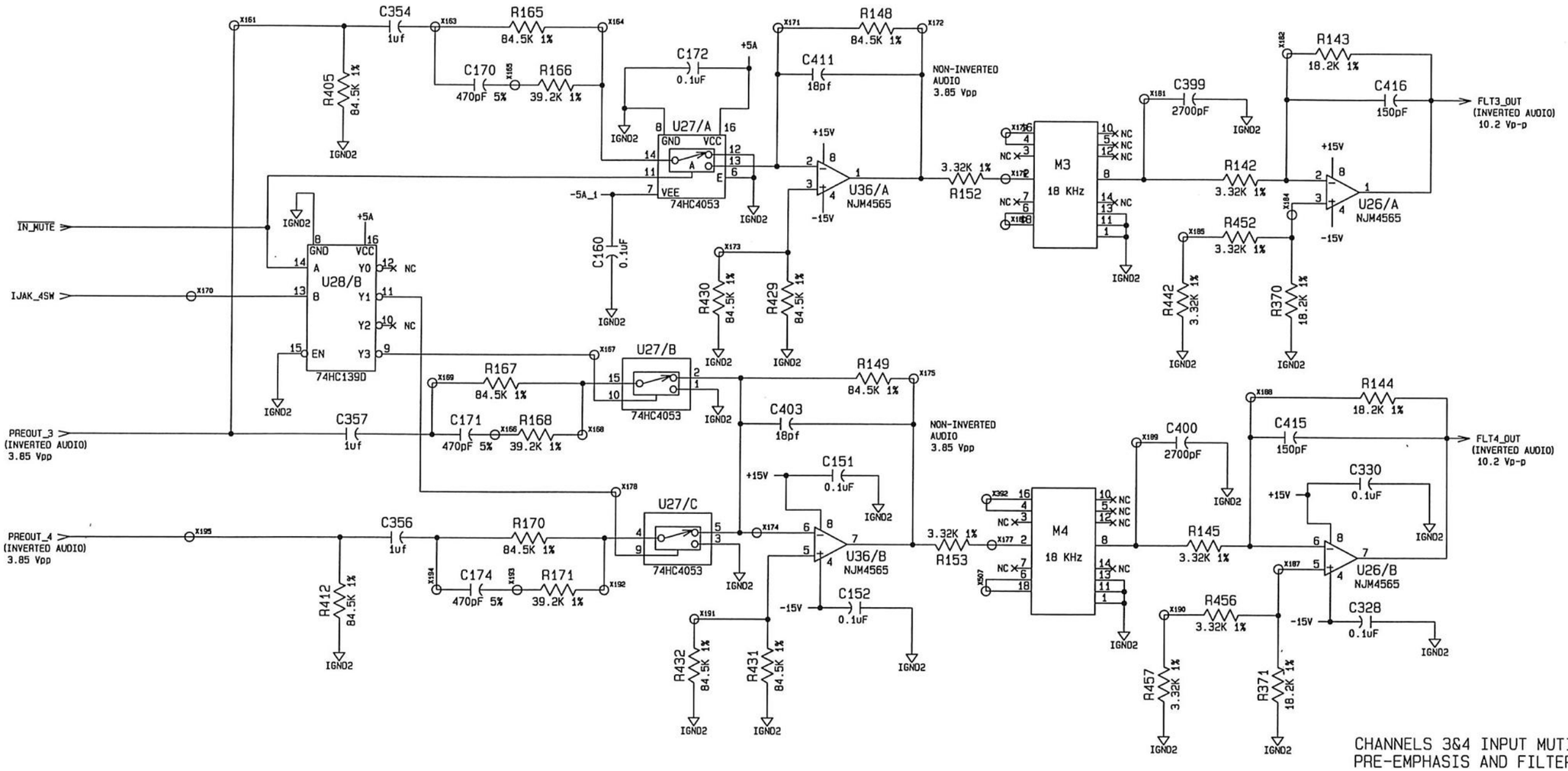
| SIZE | DWG. NO. | REV | SHEET | OF |
|---|---|---|---|---|
| B | 4010025101 | D | 3 | 13 |


DIFFAMP1
LINE/MIC
L = MIC
H = LINE
LOUD VOCALS
SHURE SM57=.4Vp-p
(.2Vp-p each side)
AKG C1000=2.68Vp-p
(2.6Vp-p between
XLR pins 1&2,
.08Vp-p between
XLR pins 1&3)
FRONT PANEL 1/4" JACK SWITCH
LOW = NO INPUT
HIGH = PLUG IN
J16
J14
HEADPHONE JACK
RIGHT
LEFT
NC
(NON-INVERTED AUDIO)
MIC PRE-AMP GAIN=+15.4db
INVERTED AUDIO
U35/B NJM2068M
U9/B
U34/A
U34/B
U34/C
U37 74HCU04D SMD
U35/A NJM2068M
U38/A NJM4565
U38/B NJM4565
74HC4053
PREIN_1
4.1Vpp
(NON-INVERTED AUDIO)
POSTOUT1
POSTOUT2
POSTOUT3
POSTOUT4
ALL 20Vpp MAX
(INVERTED AUDIO)
HEADPHONE AMP AND
GUITAR & MIC INPUT PREAMPS
ENSONIQ Corp
PCB SCHEMATIC
ANALOG BOARD
SHAKER
SIZE B
DWG. NO. 4010025101
REV D
SHEET 4
OF 13

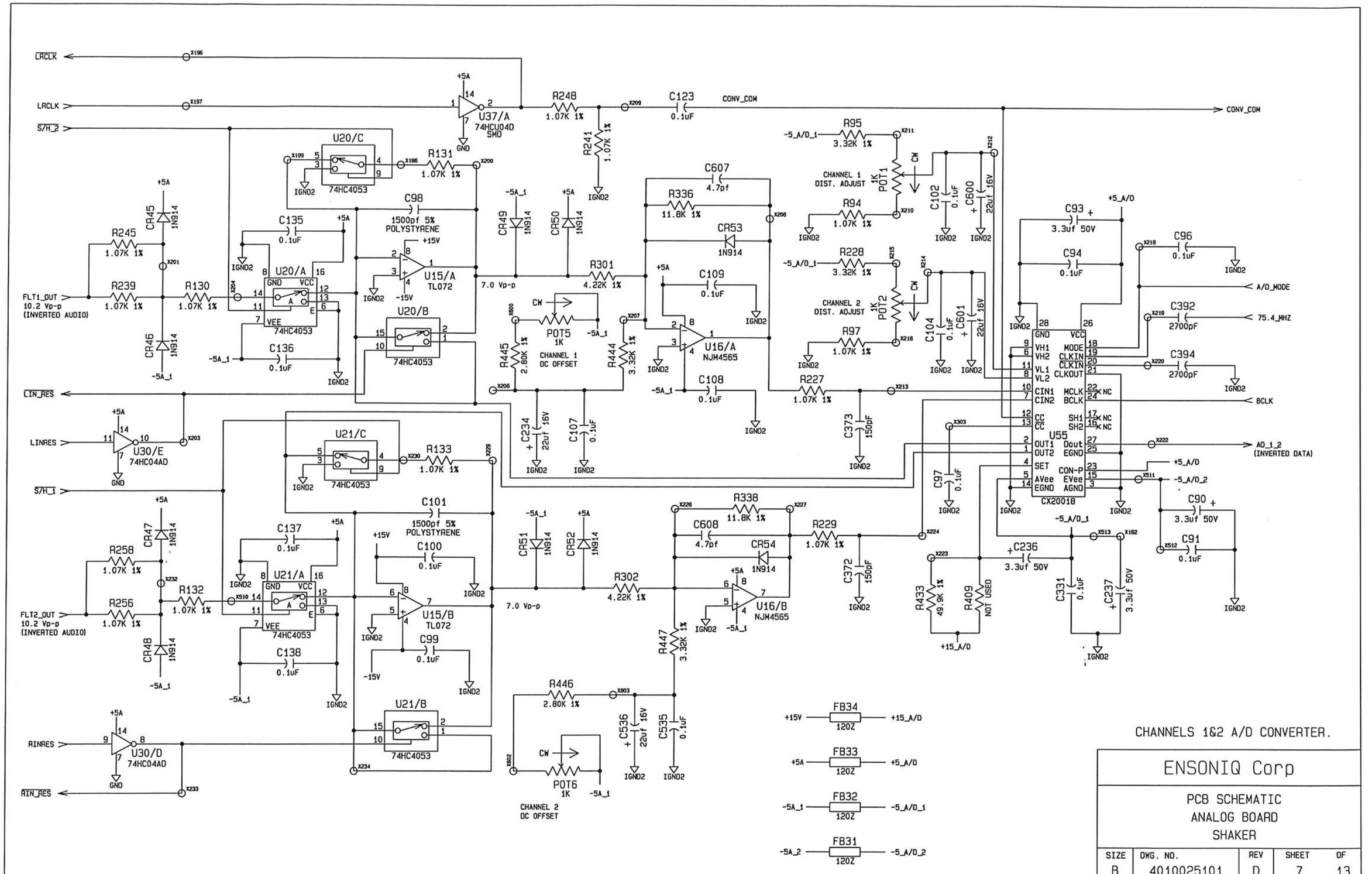



CHANNELS 1&2 INPUT MUTING,
PRE-EMPHASIS AND FILTER.

| ENSONIQ Corp | | | | |
|---|---|---|---|---|
| PCB SCHEMATIC<br>ANALOG BOARD<br>SHAKER | | | | |
| SIZE | DWG. NO. | REV | SHEET | OF |
| B | 4010025101 | D | 5 | 13 |




| | | | | |
|---|---|---|---|---|
| ENSONIQ Corp | | | | |
| PCB SCHEMATIC<br>ANALOG BOARD<br>SHAKER | | | | |
| SIZE | DWG. NO. | REV | SHEET | OF |
| B | 4010025101 | D | 6 | 13 |


LRCLK
LRCLK
S/H_2
U37/A
74HCU04D
SMD
R248
1.07K 1%
C123
0.1uF
CONV_COM
CONV_COM
R241
1.07K 1%
U20/C
74HC4053
R131
1.07K 1%
C98
1500pf 5%
POLYSTYRENE
C607
4.7pf
R336
11.8K 1%
CR53
1N914
R95
3.32K 1%
CHANNEL 1
DIST. ADJUST
POT1
1K
R94
1.07K 1%
C102
0.1uF
C600
22uF 16V
C135
0.1uF
U15/A
TL072
R301
4.22K 1%
7.0 Vp-p
CR49
CR50
1N914
C109
0.1uF
U16/A
NJM4565
R228
3.32K 1%
CHANNEL 2
DIST. ADJUST
POT2
1K
R97
1.07K 1%
C104
0.1uF
C601
22uF 16V
C93
3.3uF 50V
C94
0.1uF
C96
0.1uF
A/D_MODE
C392
2700pF
75.4_MHZ
C394
2700pF
BCLK
R245
1.07K 1%
CR45
1N914
R239
1.07K 1%
R130
1.07K 1%
FLT1_OUT
10.2 Vp-p
(INVERTED AUDIO)
U20/A
74HC4053
C136
0.1uF
U20/B
74HC4053
R46
1N914
POT5
1K
CHANNEL 1
DC OFFSET
R445
2.80K 1%
R444
3.32K 1%
C108
0.1uF
R227
1.07K 1%
CIN_RES
C234
22uF 16V
C107
0.1uF
C373
150pF
U55
CX20018
AD_1_2
(INVERTED DATA)
C97
0.1uF
C90
3.3uF 50V
C91
0.1uF
C236
3.3uF 50V
C331
0.1uF
C237
3.3uF 50V
R433
49.9K 1%
R409
NOT USED
LINRES
U30/E
74HC04AD
S/H_1
U21/C
74HC4053
R133
1.07K 1%
C101
1500pf 5%
POLYSTYRENE
R338
11.8K 1%
C608
4.7pf
CR54
1N914
R229
1.07K 1%
C372
150pF
C137
0.1uF
C100
0.1uF
U21/A
74HC4053
R258
1.07K 1%
CR47
1N914
R132
1.07K 1%
R256
1.07K 1%
FLT2_OUT
10.2 Vp-p
(INVERTED AUDIO)
CR48
1N914
C138
0.1uF
C99
0.1uF
U15/B
TL072
R302
4.22K 1%
7.0 Vp-p
CR51
CR52
1N914
U16/B
NJM4565
R447
3.32K 1%
U21/B
74HC4053
R446
2.80K 1%
POT6
1K
CHANNEL 2
DC OFFSET
C536
22uF 16V
C535
0.1uF
RINRES
U30/D
74HC04AD
RIN_RES
FB34
120Z
FB33
120Z
FB32
120Z
FB31
120Z
+15V
+5A
-5A_1
-5A_2
+15_A/D
+5_A/D
-5_A/D_1
-5_A/D_2
IGND2
GND
CW
CHANNEL 1 1&2 A/D CONVERTER.
ENSONIQ Corp
PCB SCHEMATIC
ANALOG BOARD
SHAKER
SIZE B
DWG. NO. 4010025101
REV D
SHEET 7
OF 13

S/H_2
S/H_1
LIN_RES
RIN_RES
FLT3_OUT
10.2 Vp-p
(INVERTED AUDIO)
FLT4_OUT
10.2 Vp-p
(INVERTED AUDIO)
7.0 Vp-p
CONV_COM
A/D_MODE
75.4_MHZ
18MHZ
BCLK
AD_3_4
(INVERTED DATA)
CHANNEL 3 DIST. ADJUST
CHANNEL 4 DIST. ADJUST
CHANNEL 3 DC OFFSET
CHANNEL 4 DC OFFSET
CHANNELS 3&4 A/D CONVERTER AND MASTER CLOCK GENERATOR.
ENSONIQ Corp
PCB SCHEMATIC
ANALOG BOARD
SHAKER
SIZE B
DWG. NO. 4010025101
REV D
SHEET 8 OF 13

SH_2
S/H_2
SH_1
S/H_1
DACLK
DA_3_4 (INVERTED DATA)
DA_1_2 (INVERTED DATA)
EXOR
BCLK
LE
NON-INVERTED DATA
U30/A 74HC04AD
U30/B 74HC04AD
U29/C 74HC86D
U29/D 74HC86D
U30/F 74HC04AD
U30/C 74HC04AD
GND
+5A
-15V
OGND1
R435 3.32K 1%
R257 1.07K 1%
R234 1.07K 1%
CR66 MMSZ5234B
C363 150pF
C9 0.1uF
C10 0.1uF
C19 0.1uF
C17 0.1uF
C16 0.1uF
C15 0.1uF
C14 0.1uF
C13 0.1uF
C12 0.1uF
C11 0.1uF
U2
VDD
OSC1
OSC2
C1
C2
C3
C4
C5
C6
C7
DATAR/SCK
DATAL/DATA
BCLK
LE/WS
DGND
AOL
AOR
C8
C9
C10
C11
C12
C13
C14
AGND
OB/TWC
VDD1
VDD2
TDA1541A
C18 0.1uF
C429 22uF 20V TANT
C8 0.1uF
C294 0.1uF
C295 0.1uF
C296 0.1uF
C297 0.1uF
C298 0.1uF
C299 0.1uF
C300 0.1uF
CR70 1N914
CR71 1N914
R458 3.32K 1%
R290 4.22K 1%
C367 150pF
U3 NJM4565
R489 1.07K 1%
R488 1.07K 1%
R490 1.07K 1%
R487 1.07K 1%
C555 22uF 16V
C446 0.1uF
CR72 1N914
CR73 1N914
R459 3.32K 1%
R291 4.22K 1%
C381 150pF
U3/A NJM4565
C30 0.1uF
C29 0.1uF
C177 0.1uF
C36 0.1uF
U4/A
GND
VCC
A
E
VEE
74HC4053
C33 0.1uF
C39 5600pf
U4/C
NON-INVERTED AUDIO
U5/B
U5/A
C34 0.1uF
U5/C
C35 0.1uF
U6/B TL072
U6/A TL072
U7/B TL072
U7/A TL072
C40 0.1uF
C37 0.1uF
C41 5600pf
C43 0.1uF
C38 0.1uF
C42 5600pf
C44 5600pf
CHAN_1SH (NON-INVERTED AUDIO) 7.43 Vp-p
CHAN_2SH (NON-INVERTED AUDIO) 7.43 Vp-p
CHAN_3SH (NON-INVERTED AUDIO) 7.43 Vp-p
CHAN_4SH (NON-INVERTED AUDIO) 7.43 Vp-p

D/A CONVERTER & SAMPLE AND HOLDS

ENSONIQ Corp

PCB SCHEMATIC
ANALOG BOARD
SHAKER

| SIZE | DWG. NO. | REV | SHEET | OF |
|---|---|---|---|---|
| B | 4010025101 | D | 9 | 13 |

CHAN_1SH (NON-INVERTED AUDIO) 7.43 Vp-p
C45 22uf 16V
R362 4.64K 1%
R361 4.64K 1%
R294 4.64K 1%
R270 9.31K 1%
C368 150pF
C397 2200pF 5%
C384 0.01uF
R494 9.31K 1%
R495 9.31K 1%
U103/B NJM4565
INVERTED AUDIO
R40 84.5K 1%
C421 18pf
R515 39.2K 1%
C514 470pF 5%
R42 84.5K 1%
R507 84.5K 1%
R508 84.5K 1%
U10/B NJM4565
POSTIN_1 (NON-INVERTED AUDIO) 7.45 Vp-p

CHAN_2SH (NON-INVERTED AUDIO) 7.43 Vp-p
C46 22uf 16V
R365 4.64K 1%
R346 4.64K 1%
R313 4.64K 1%
R269 9.31K 1%
C364 150pF
C386 2200pF 5%
C382 0.01uF
R493 9.31K 1%
R492 9.31K 1%
C316 0.1uF
C317 0.1uF
U103/A NJM4565
INVERTED AUDIO
R39 84.5K 1%
C420 18pf
R516 39.2K 1%
C516 470pF 5%
R41 84.5K 1%
R505 84.5K 1%
R506 84.5K 1%
C307 0.1uF
C301 0.1uF
U10/A NJM4565
POSTIN_2 (NON-INVERTED AUDIO) 7.45 Vp-p

CHAN_3SH (NON-INVERTED AUDIO) 7.43 Vp-p
C49 22uf 16V
R347 4.64K 1%
R349 4.64K 1%
R311 4.64K 1%
R266 9.31K 1%
C371 150pF
C395 2200pF 5%
C385 0.01uF
R491 9.31K 1%
R496 9.31K 1%
U104/B NJM4565
INVERTED AUDIO
C64 0.1uF
U9/A GND VCC A E VEE 74HC4053
R37 84.5K 1%
C303 0.1uF
R517 39.2K 1%
C517 470pF 5%
R406 84.5K 1%
R501 84.5K 1%
R503 84.5K 1%
U105/B NJM4565
POSTIN_3 (NON-INVERTED AUDIO) 7.45 Vp-p

CHAN_4SH (NON-INVERTED AUDIO) 7.43 Vp-p
C50 22uf 16V
R359 4.64K 1%
R360 4.64K 1%
R298 4.64K 1%
R287 9.31K 1%
C366 150pF
C387 2200pF 5%
C383 0.01uF
R497 9.31K 1%
R498 9.31K 1%
C58 0.1uF
C55 0.1uF
U104/A NJM4565
INVERTED AUDIO
R38 84.5K 1%
U9/C 74HC4053
C405 18pf
R518 39.2K 1%
C518 470pF 5%
R416 84.5K 1%
R502 84.5K 1%
R504 84.5K 1%
C335 0.1uF
C334 0.1uF
U105/A NJM4565
POSTIN_4 (NON-INVERTED AUDIO) 7.45 Vp-p

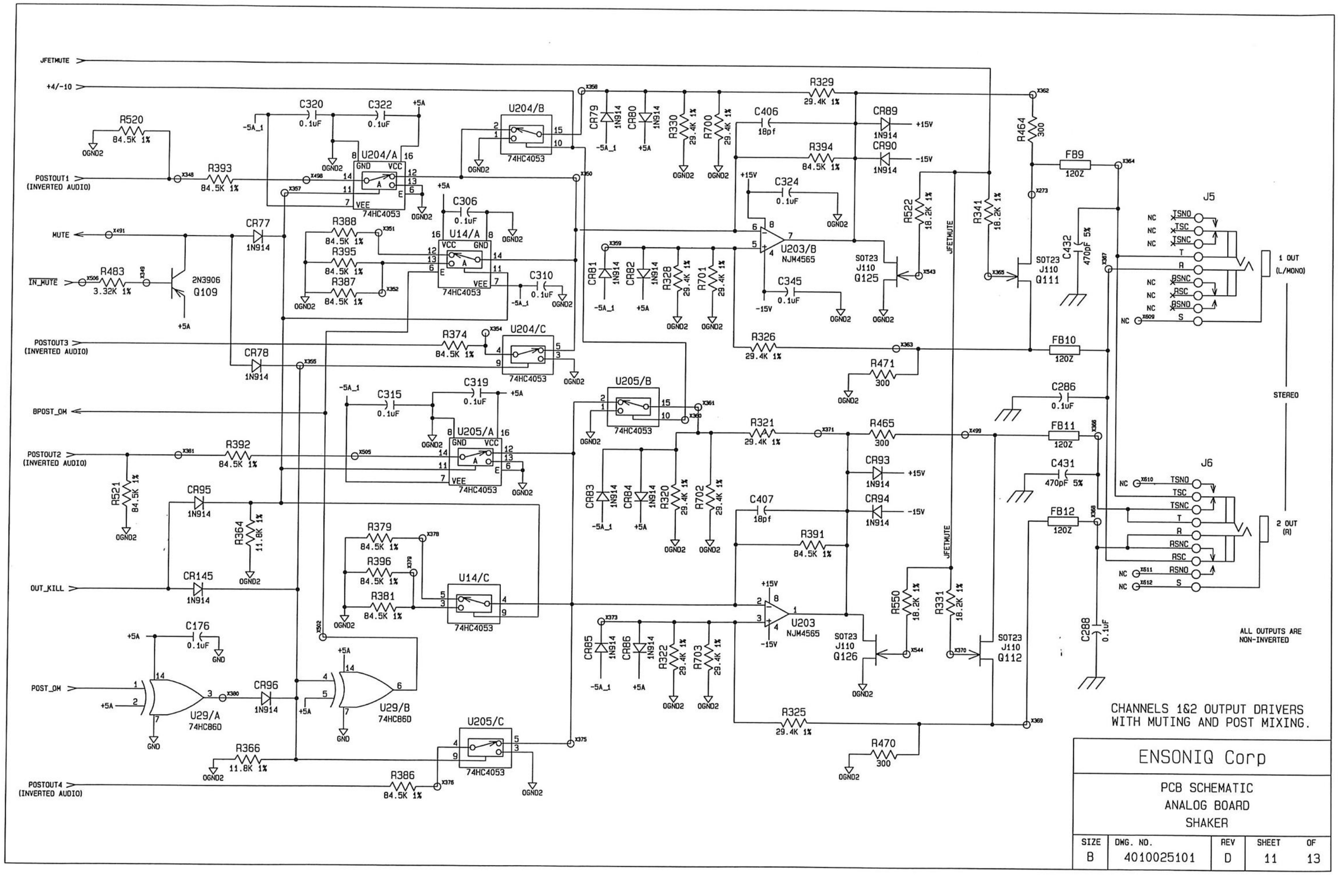
PRE_DM
C302 0.1uF
U37/B 74HCU04D SMD

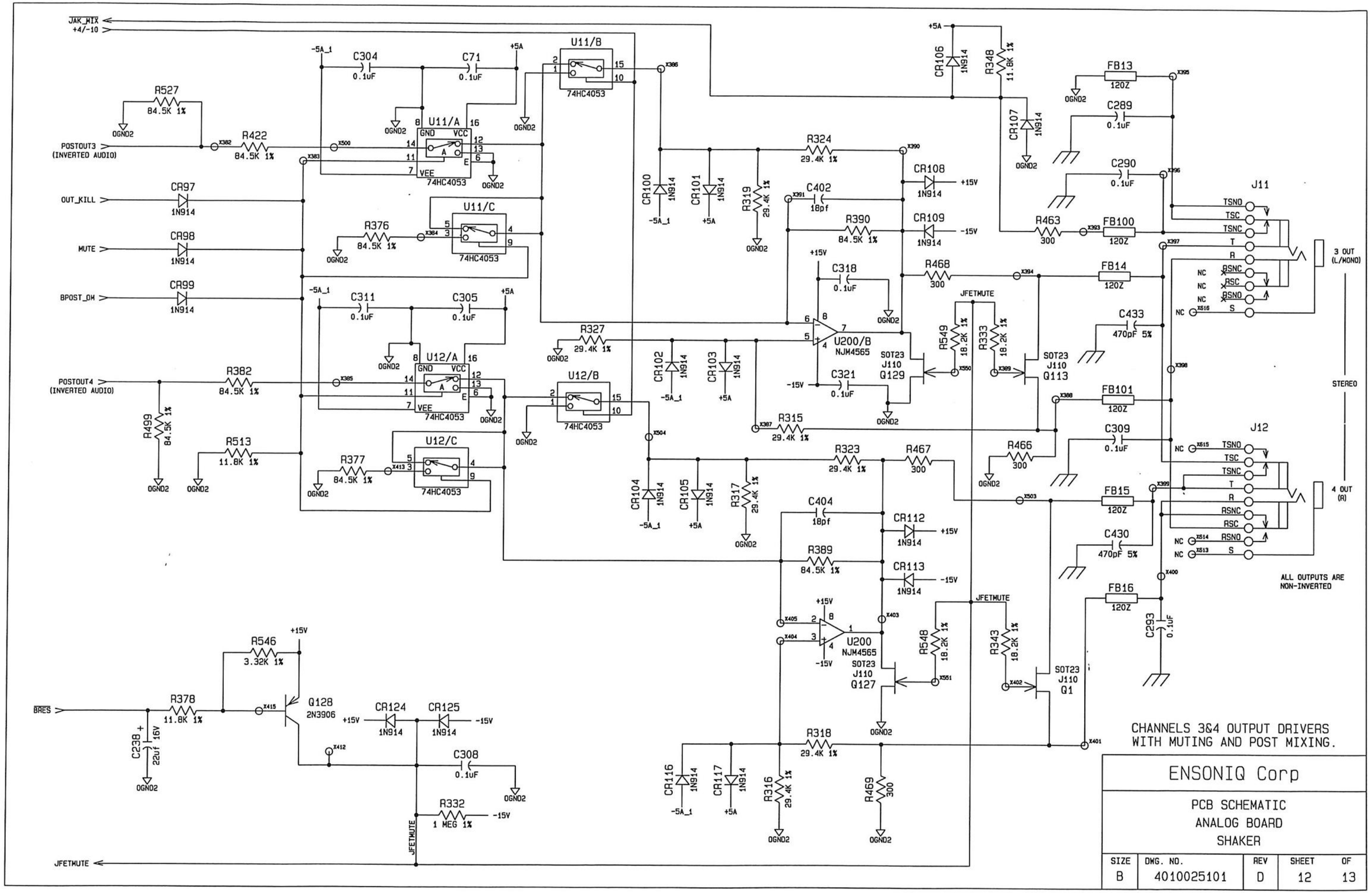
OUTPUT FILTERS, DE-EMPHASIS AND PRE MIXING.

ENSONIQ Corp

PCB SCHEMATIC
ANALOG BOARD
SHAKER

| SIZE | DWG. NO. | REV | SHEET | OF |
|---|---|---|---|---|
| B | 4010025101 | D | 10 | 13 |


JFETMUTE
+4/-10
POSTOUT1 (INVERTED AUDIO)
MUTE
IN_MUTE
POSTOUT3 (INVERTED AUDIO)
BPOST_OM
POSTOUT2 (INVERTED AUDIO)
OUT_KILL
POST_OM
POSTOUT4 (INVERTED AUDIO)
R520 84.5K 1%
R393 84.5K 1%
R483 3.32K 1%
2N3906 Q109
R388 84.5K 1%
R395 84.5K 1%
R387 84.5K 1%
R374 84.5K 1%
R392 84.5K 1%
R521 84.5K 1%
R364 11.8K 1%
R379 84.5K 1%
R396 84.5K 1%
R381 84.5K 1%
R366 11.8K 1%
R386 84.5K 1%
C320 0.1uF
C322 0.1uF
C306 0.1uF
C310 0.1uF
C315 0.1uF
C319 0.1uF
C176 0.1uF
CR77 1N914
CR78 1N914
CR95 1N914
CR145 1N914
CR96 1N914
U204/A
U204/B
U204/C
U205/A
U205/B
U205/C
U14/A
U14/C
74HC4053
U29/A 74HC86D
U29/B 74HC86D
CR79 1N914
CR80 1N914
CR81 1N914
CR82 1N914
CR83 1N914
CR84 1N914
CR85 1N914
CR86 1N914
R330 29.4K 1%
R700 29.4K 1%
R328 29.4K 1%
R701 29.4K 1%
R320 29.4K 1%
R702 29.4K 1%
R322 29.4K 1%
R703 29.4K 1%
R329 29.4K 1%
R326 29.4K 1%
R321 29.4K 1%
R325 29.4K 1%
C406 18pf
C324 0.1uF
C345 0.1uF
C407 18pf
R394 84.5K 1%
R391 84.5K 1%
CR89 1N914
CR90 1N914
CR93 1N914
CR94 1N914
+15V
-15V
U203/B NJM4565
U203 NJM4565
R522 18.2K 1%
R341 18.2K 1%
R550 18.2K 1%
R331 18.2K 1%
SOT23 J110 Q125
SOT23 J110 Q126
SOT23 J110 Q111
SOT23 J110 Q112
R464 300
R471 300
R465 300
R470 300
FB9 120Z
FB10 120Z
FB11 120Z
FB12 120Z
C432 470pF 5%
C431 470pF 5%
C286 0.1uF
C288 0.1uF
J5
J6
NC TSNO TSC TSNC T R RSNC RSC RSNO S
1 OUT (L/MONO)
STEREO
2 OUT (A)
ALL OUTPUTS ARE NON-INVERTED
CHANNELS 1&2 OUTPUT DRIVERS WITH MUTING AND POST MIXING.
ENSONIQ Corp
PCB SCHEMATIC
ANALOG BOARD
SHAKER
SIZE B
DWG. NO. 4010025101
REV D
SHEET 11 OF 13


JAK_MIX
+4/-10
POSTOUT3
(INVERTED AUDIO)
POSTOUT4
(INVERTED AUDIO)
OUT_KILL
MUTE
BPOST_DH
BRES
JFETMUTE
R527
84.5K 1%
R422
84.5K 1%
R382
84.5K 1%
R499
84.5K 1%
R513
11.8K 1%
R376
84.5K 1%
R377
84.5K 1%
R378
11.8K 1%
R546
3.32K 1%
R332
1 MEG 1%
C238
22uf 16V
C304
0.1uF
C71
0.1uF
C311
0.1uF
C305
0.1uF
C308
0.1uF
C318
0.1uF
C321
0.1uF
C402
18pf
C404
18pf
C433
470pF 5%
C430
470pF 5%
C289
0.1uF
C290
0.1uF
C309
0.1uF
C293
0.1uF
CR97
1N914
CR98
1N914
CR99
1N914
CR100
1N914
CR101
1N914
CR102
1N914
CR103
1N914
CR104
1N914
CR105
1N914
CR106
1N914
CR107
1N914
CR108
1N914
CR109
1N914
CR112
1N914
CR113
1N914
CR116
1N914
CR117
1N914
CR124
1N914
CR125
1N914
Q128
2N3906
U11/A
U11/B
U11/C
U12/A
U12/B
U12/C
74HC4053
U200/B
NJM4565
U200
NJM4565
SOT23
J110
Q129
SOT23
J110
Q113
SOT23
J110
Q127
SOT23
J110
Q1
R324
29.4K 1%
R315
29.4K 1%
R323
29.4K 1%
R318
29.4K 1%
R319
29.4K 1%
R317
29.4K 1%
R316
29.4K 1%
R390
84.5K 1%
R389
84.5K 1%
R468
300
R467
300
R466
300
R469
300
R463
300
R549
18.2K 1%
R333
18.2K 1%
R548
18.2K 1%
R343
18.2K 1%
FB13
120Z
FB100
120Z
FB14
120Z
FB101
120Z
FB15
120Z
FB16
120Z
J11
J12
TSNO
TSC
TSNC
T
R
RSNC
RSC
RSNO
S
NC
3 OUT
(L/MONO)
4 OUT
(R)
STEREO
ALL OUTPUTS ARE
NON-INVERTED
+5A
-5A_1
+15V
-15V
OGND2
JFETMUTE
CHANNELS 3&4 OUTPUT DRIVERS
WITH MUTING AND POST MIXING.
ENSONIQ Corp
PCB SCHEMATIC
ANALOG BOARD
SHAKER
SIZE
B
DWG. NO.
4010025101
REV
D
SHEET
12
OF
13

POWER

J10

1 +VA
2 -VA
3 -VD

LUG1

0.187

CASE_GND IGND2 OGND1 GND

ANALOG MAIN/DIGITAL MAIN

J9

BRES
JAK_MIX
POST_OM
PRE_OM
OUT_KILL
LRCLK
18WHZ
LINRES
RINRES
AD_1_2
AD_3_4
BCLK
IJAK_MUX
IN_MUTE
SH_1
SH_2
DACLK
CE
EXOR
DA_1_2
DA_3_4

NC

GND

U4/B

IJAK_2SW
IJAK_4SW
LRCLK

74HC4053

C801 0.1uF
C800 0.1uF

OGND1

VR1 7805

C439 0.22uF
C111+ 3.3uf 50V
C341 0.1uF
C435 0.22uF

VR7 7815

C167+ 3.3uf 50V
C338 0.1uF

+15V
+5A

VR2 LOW NOISE 7905

C437 0.22uF
+C168 3.3uf 50V
C340 0.1uF
C438 0.22uF

VR8 7915

+C543 3.3uf 50V
C339 0.1uF

-15V
-5A_1

VR6 LOW NOISE 7905

C440 0.22uF
+C231 3.3uf 50V
C342 0.1uF

-5A_2

IGND1 OGND2

CR126 1N914
CR127 1N914
CR128 1N914
CR129 1N914

+5A

R351 11.8K 1%
CR134 1N914
CR135 1N914
R473 300
FB111 120Z
SW1
C346 0.1uF

+4/-10

+4/-10
UP = +4 (OPEN) HIGH
DOWN = -10 (CLOSED) LOW

CASE_GND

UNUSED GATES

U14/B

74HC4053

OGND2 OGND2

NOTE: THE ENABLE PIN ON THIS PART IS CONTROLLED BY THE BPOST_OM SIGNAL.

VOLAGE REGULATORS, +4/-10 SWITCH AND OFF BOARD CONNECTORS.

ENSONIQ Corp

PCB SCHEMATIC
ANALOG BOARD
SHAKER

| SIZE | DWG. NO. | REV | SHEET | OF |
|---|---|---|---|---|
| B | 4010025101 | D | 13 | 13 |