

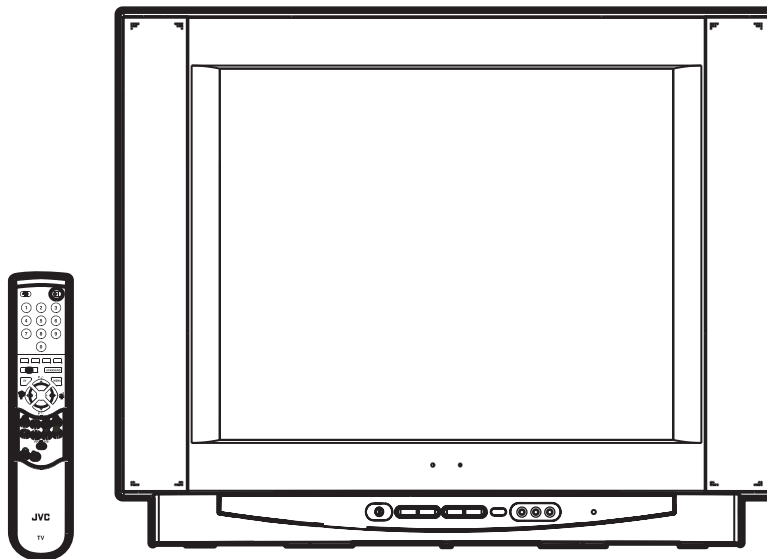
# JVC

## SCHEMATIC DIAGRAMS

### COLOUR TELEVISION

**AV21BT7ENS / AV21BT7ENB**  
**AV21BT7EPS / AV21BT7EPB**  
**AV21BT7EES / AV21BT7EEB**

CD-ROM No.SML200201

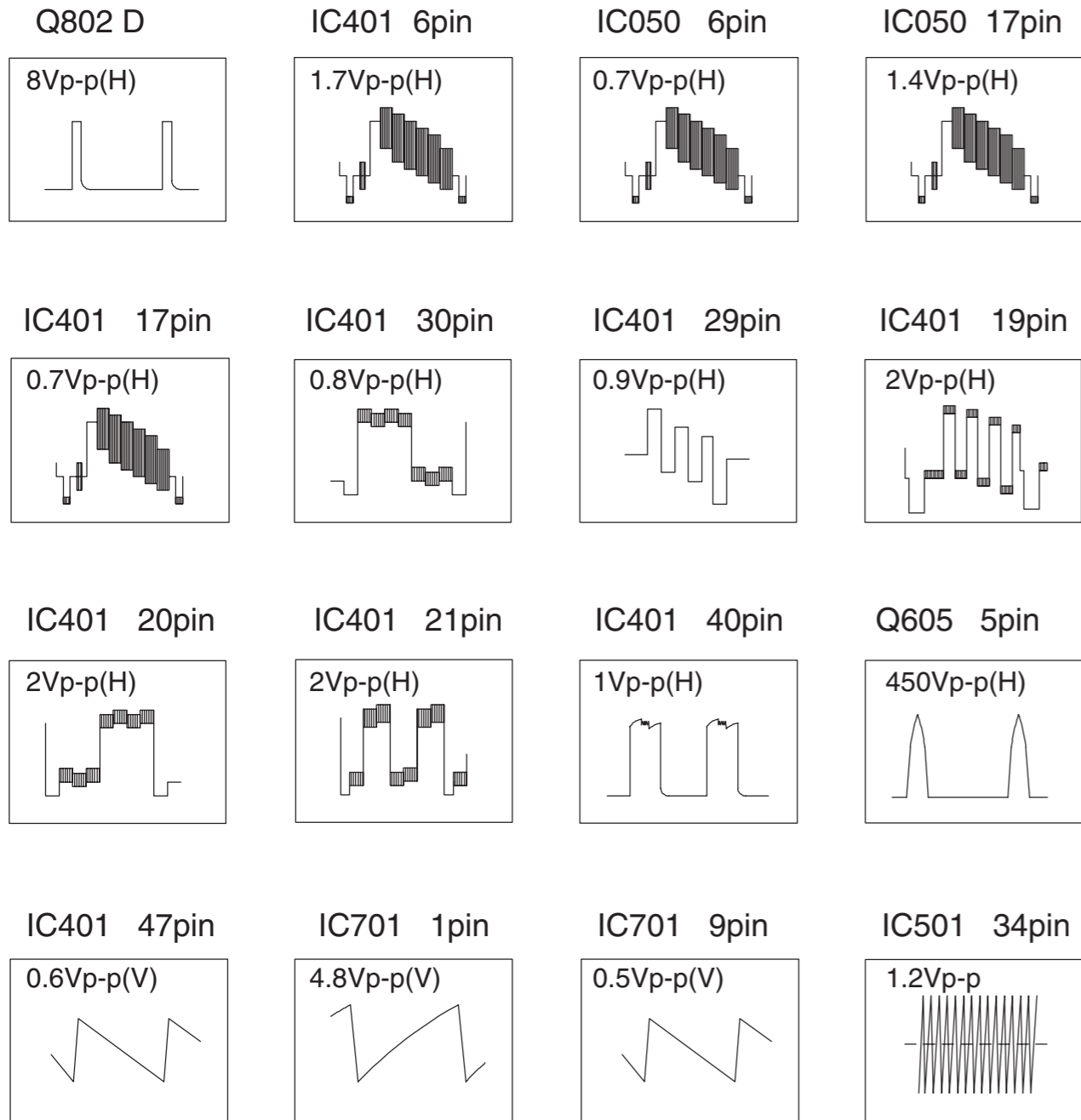


## CONTENTS

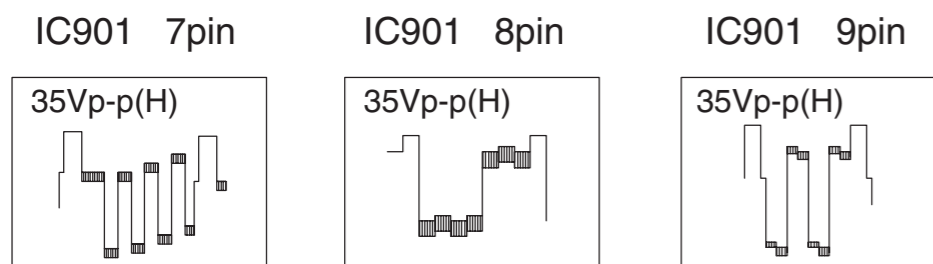
■ NOTE ON USING CIRCUIT DIAGRAMS .....	2-1
■ SEMICONDUCTOR SHAPES .....	2-2
■ BLOCK DIAGRAM .....	2-3
■ WAVEFORM DIAGRAM .....	2-4
■ CIRCUIT DIAGRAMS .....	2-5
■ PATTERN DIAGRAMS .....	2-11
■ VOLTAGE TABLE .....	2-15

## WAVEFORM DIAGRAM

### MAIN PWB



### CRT SOCKET PWB



## STANDARD CIRCUIT DIAGRAM

### NOTE ON USING CIRCUIT DIAGRAMS

#### 1.SAFETY

The components identified by the  $\Delta$  symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

#### 2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

- |  |   |
|--|---|
| (1)Input signal  | : Colour bar signal   |
| (2)Setting positions of each knob/button and variable resistor | : Original setting position when shipped  |
| (3)Internal resistance of tester                               | :DC 20k $\Omega$ /V   |
| (4)Oscilloscope sweeping time                                  | :H $\Rightarrow$ 20 $\mu$ S/div<br>:V $\Rightarrow$ 5mS/div<br>:Others $\Rightarrow$ Sweeping time is specified |
| (5)Voltage values  | :All DC voltage values  |

\* Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

#### 3.INDICATION OF PARTS SYMBOL [EXAMPLE]

- In the PW board :R1209  $\rightarrow$  R209

#### 4.INDICATIONS ON THE CIRCUIT DIAGRAM

##### (1)Resistors

- Resistance value

No unit	: [ $\Omega$ ]
K	: [K $\Omega$ ]
M	: [M $\Omega$ ]

- Rated allowable power

No indication	:1/ 16 [W]
Others	:As specified

- Type

No indication	:Carbon resistor
OMR	:Oxide metal film resistor
MFR	:Metal film resistor
MPR	:Metal plate resistor
UNFR	:Uninflammable resistor
FR	:Fusible resistor

\* Composition resistor 1/2 [W] is specified as 1/2S or Comp.

##### (2)Capacitors

- Capacitance value

1 or higher	: [pF]
less than 1	: [ $\mu$ F ]

- Withstand voltage

No indication	:DC50[V]
Others	:DC withstand voltage [V]
AC indicated	:AC withstand voltage [V]

\* Electrolytic Capacitors

47/50[Example]:Capacitance value [ $\mu$ F]/withstand voltage[V]

- Type

No indication	:Ceramic capacitor
MM	:Metalized mylar capacitor
PP	:Polypropylene capacitor
MPP	:Metalized polypropylene capacitor
MF	:Metalized film capacitor
TF	:Thin film capacitor
BP	:Bipolar electrolytic capacitor
TAN	:Tantalum capacitor

#### (3)Coils

No unit	: [ $\mu$ H ]
Others	:As specified

#### (4)Power Supply

	:B1		:B2 (12V)
	:9V		:5V

\* Respective voltage values are indicated

#### (5)Test point

	:Test point		:Only test point display
--	-------------	--	--------------------------

#### (6)Connecting method

	:Connector		:Wrapping or soldering
	:Receptacle		

#### (7)Ground symbol

	:LIVE side ground
	:ISOLATED(NEUTRAL) side ground
	:EARTH ground
	:DIGITAL ground

### 5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (  $\perp$  ) side GND and the ISOLATED(NEUTRAL) : (  $\perp$  ) side GND. Therefore, care must be taken for the following points.

(1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.

(2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus measure with a measuring apparatus ( oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

$\diamond$  Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

#### NOTE

$\diamond$  Due improvement in performance, some part numbers show in the circuit diagram may not agree with those indicated in the part list.

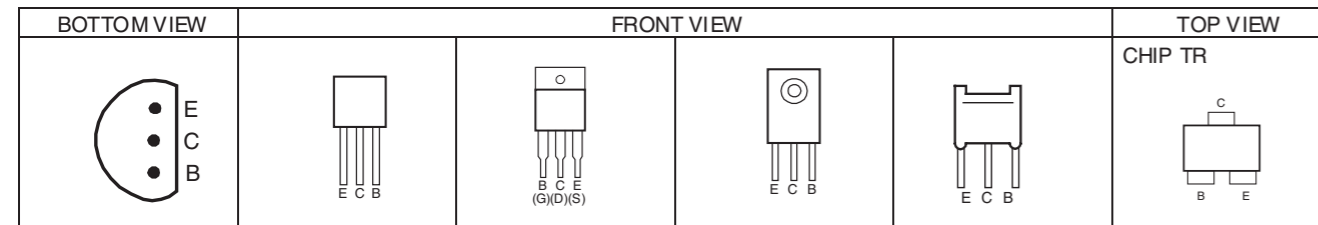
When ordering parts, please use the numbers that appear in the Parts List.

# CONTENTS

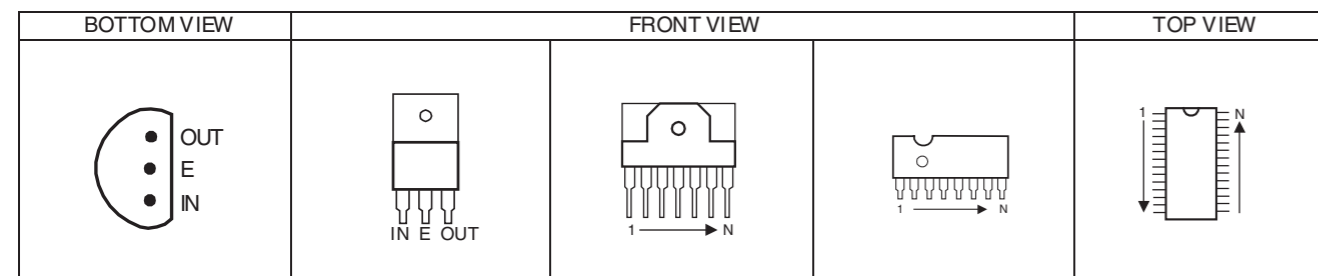
<b>SEMICONDUCTOR SHAPES</b> .....	<b>2-2</b>
<b>BLOCK DIAGRAM</b> .....	<b>2-3</b>
<b>WAVEFORM DIAGRAM</b> .....	<b>2-4</b>
<b>CIRCUIT DIAGRAMS</b>	
MAIN PWB CIRCUIT DIAGRAM .....	<b>2-5</b>
MULTISOUND PWB CIRCUIT DIAGRAM .....	<b>2-7</b>
CRT SOCKET PWB CIRCUIT DIAGRAM .....	<b>2-9</b>
HEADPHONE JACK PWB CIRCUIT DIAGRAM .....	<b>2-9</b>
FRONT AV PWB CIRCUIT DIAGRAM .....	<b>2-10</b>
<b>PATTERN DIAGRAMS</b>	
MAIN, FRONT AV & HEAD PHONE JACK PWB PATTERN .....	<b>2-11</b>
MULTISOUND & CRT SOCKET PWB PATTERN .....	<b>2-13</b>
<b>VOLTAGE TABLE</b> .....	<b>2-15</b>

## SEMICONDUCTOR SHAPES

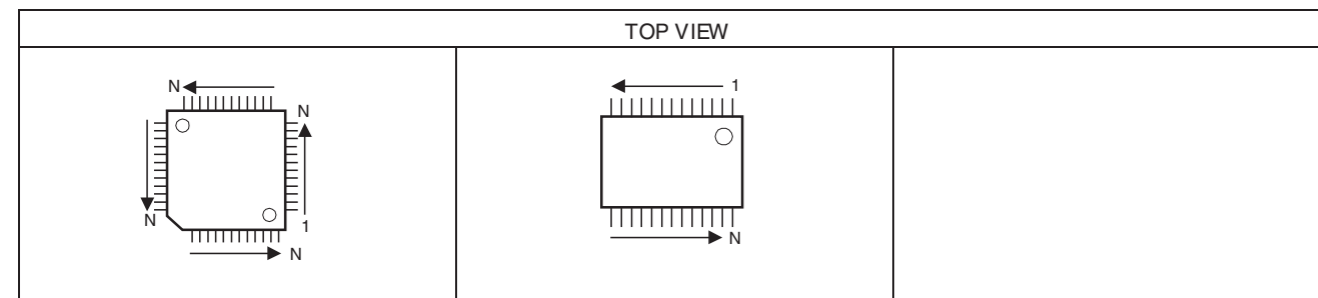
### TRANSISTOR



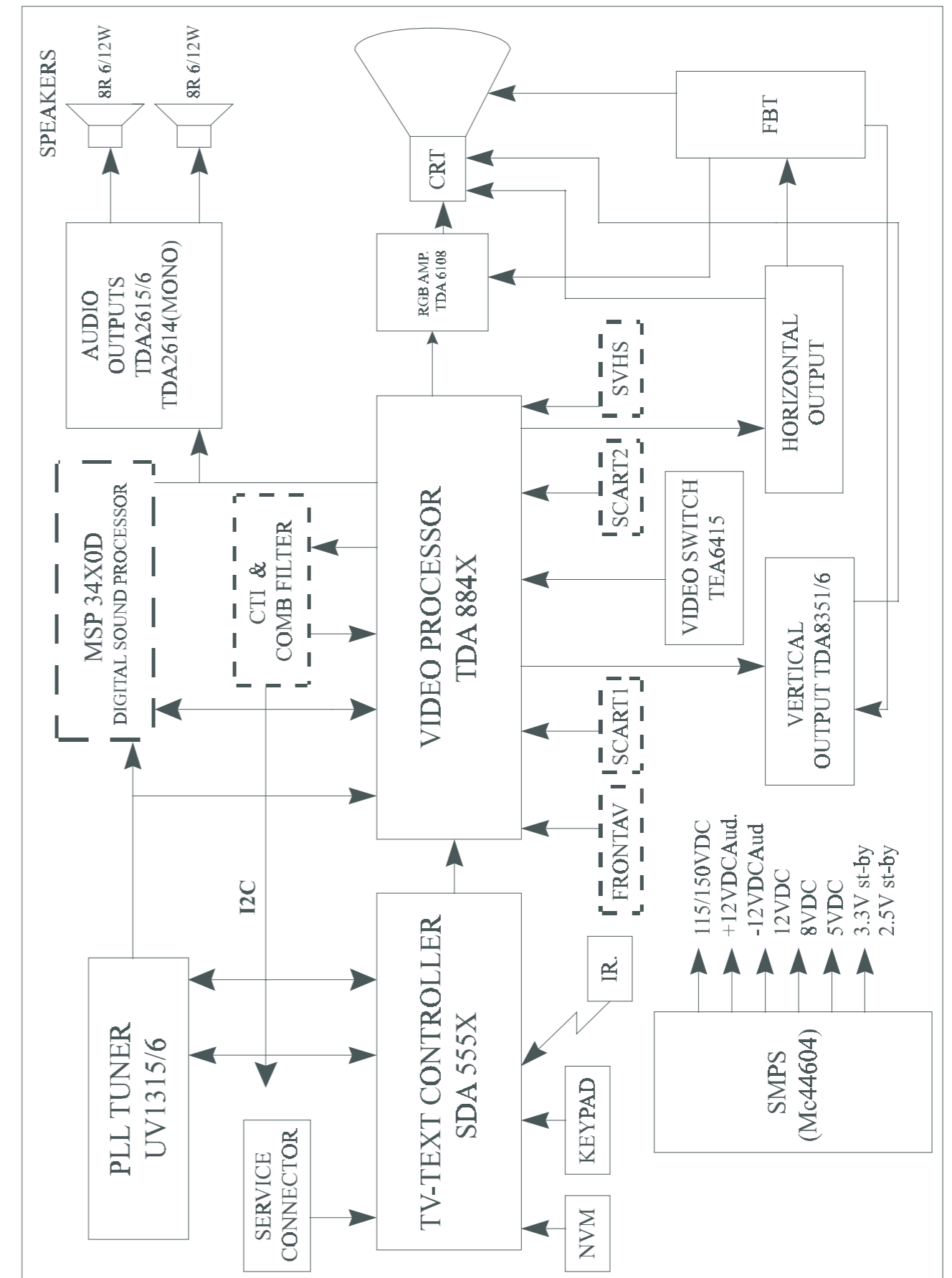
### IC



### CHIP IC



## BLOCK DIAGRAM

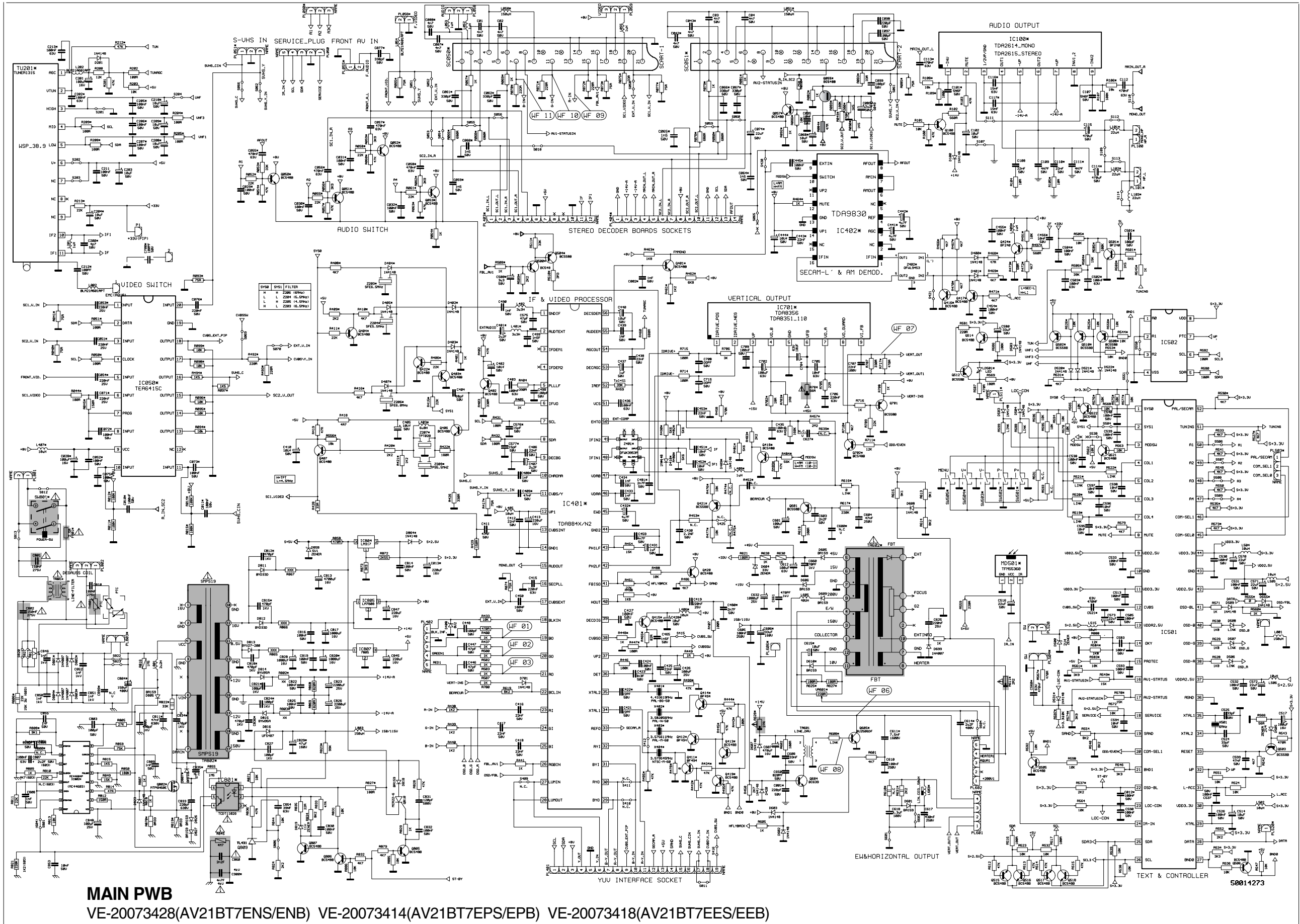


# CIRCUIT DIAGRAMS

## MAIN PWB CIRCUIT DIAGRAM

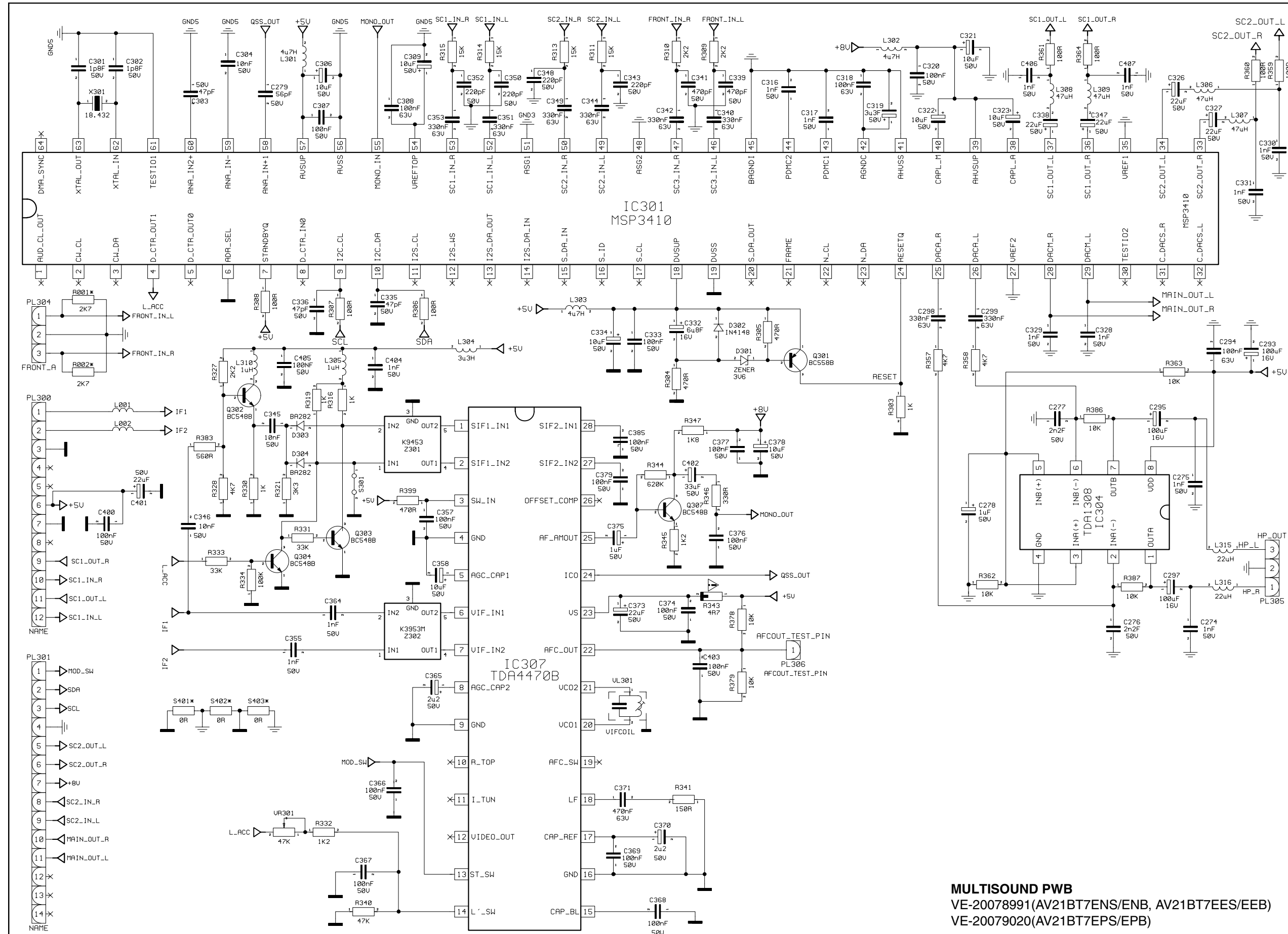
AV21BT7ENS / AV21BT7ENB  
 AV21BT7EPS / AV21BT7EPB  
 AV21BT7EES / AV21BT7EEB

AV21BT7ENS / AV21BT7ENB  
 AV21BT7EPS / AV21BT7EPB  
 AV21BT7EES / AV21BT7EEB



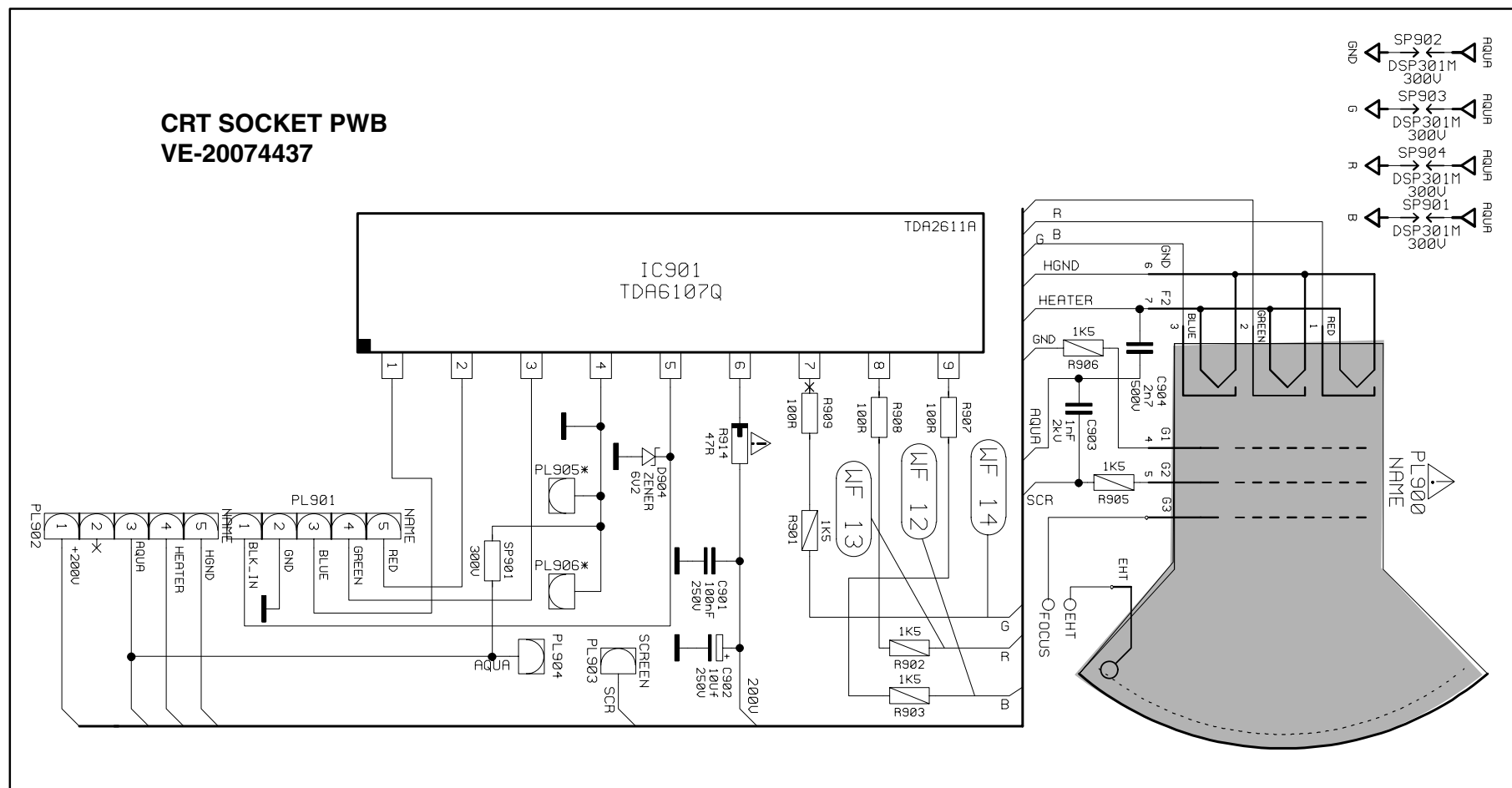
**MAIN PWB**  
 VE-20073428(AV21BT7ENS/ENB) VE-20073414(AV21BT7EPS/EPB) VE-20073418(AV21BT7EES/EEB)

MULTISOUND PWB CIRCUIT DIAGRAM

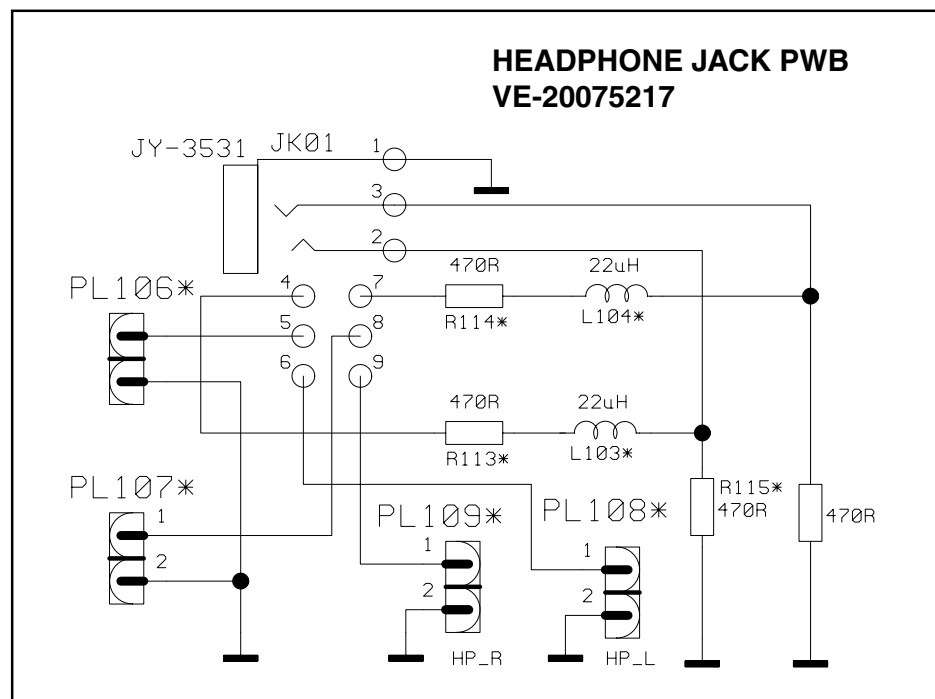


MULTISOUND PWB  
VE-20078991(AV21BT7ENS/ENB, AV21BT7EES/EEB)  
VE-20079020(AV21BT7EPS/EPB)

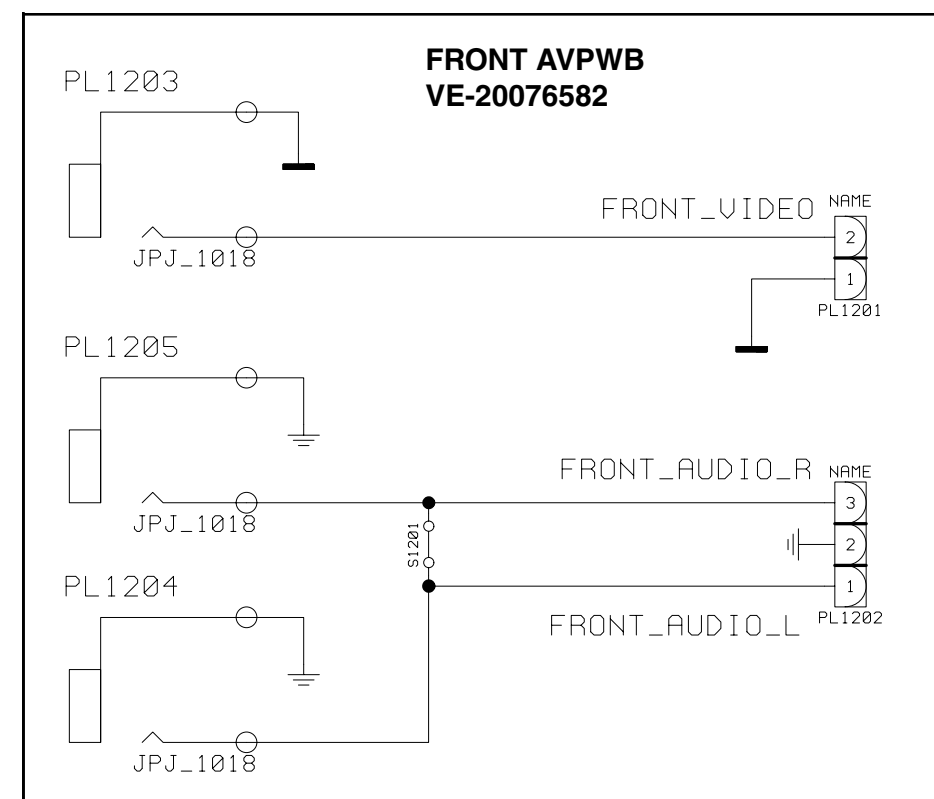
**CRT SOCKET PWB CIRCUIT DIAGRAM**



**HEADPHONE JACK PWB CIRCUIT DIAGRAM**



**FRONT AV PWB CIRCUIT DIAGRAM**

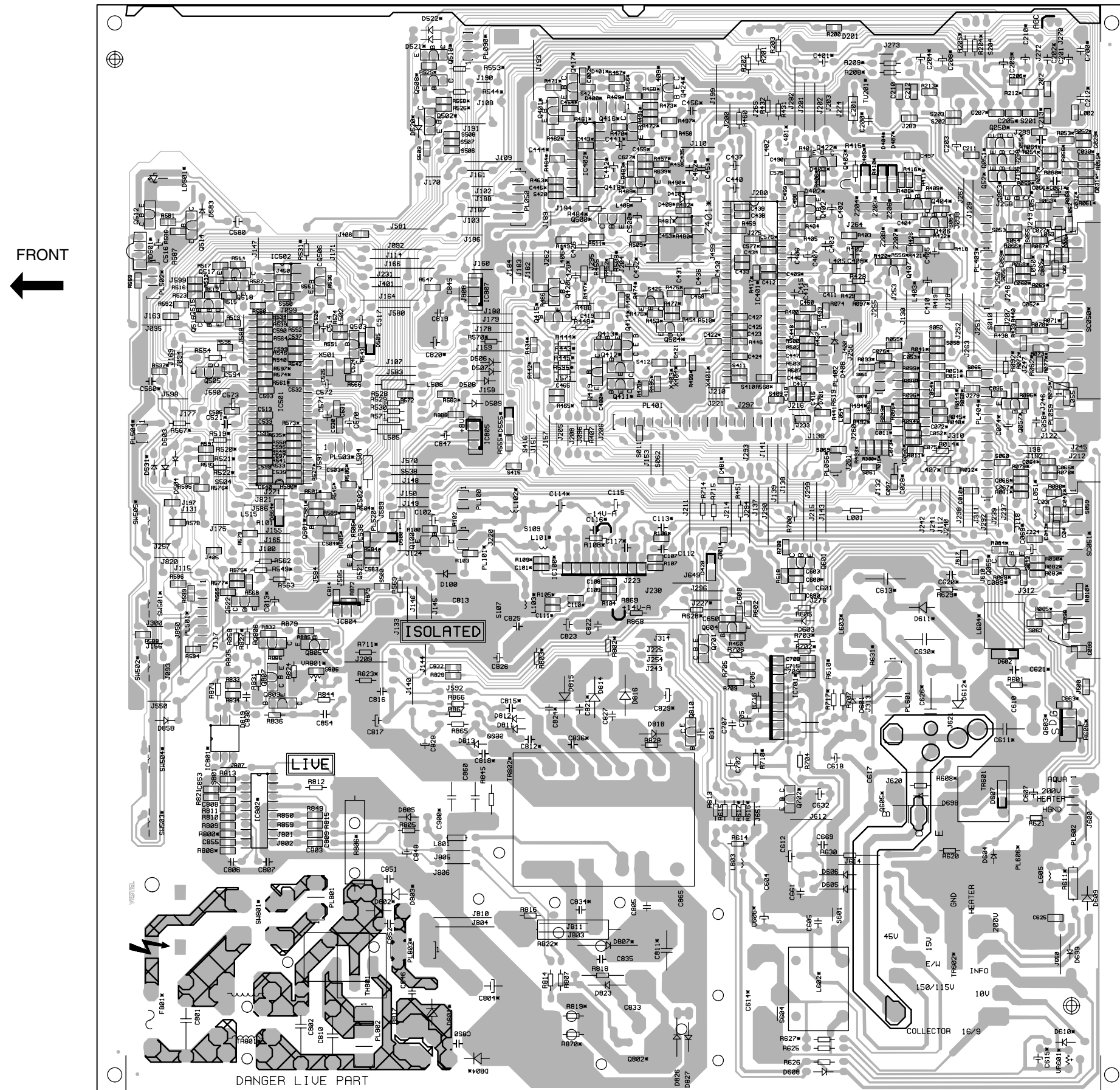


AV21BT7ENS / AV21BT7ENB  
 AV21BT7EPS / AV21BT7EPB  
 AV21BT7EES / AV21BT7EEB

AV21BT7ENS / AV21BT7ENB  
 AV21BT7EPS / AV21BT7EPB  
 AV21BT7EES / AV21BT7EEB

**PATTERN DIAGRAMS**

**MAIN PWB PATTERN**

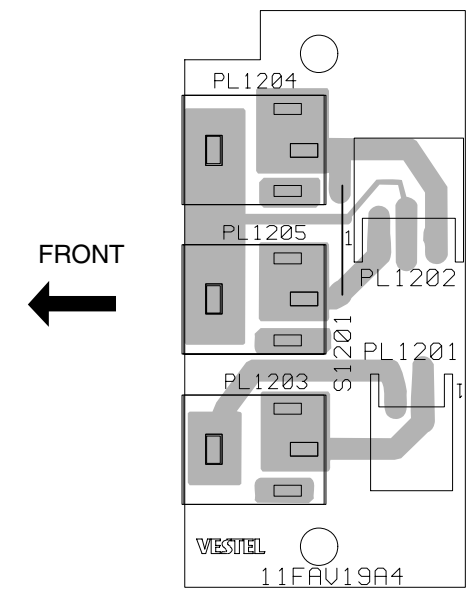


No.51878

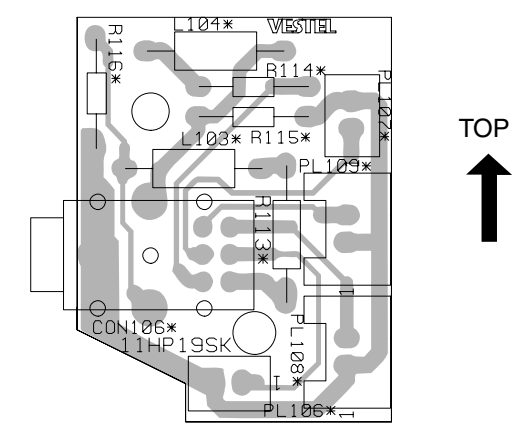
2-11

2-12

**FRONT AV PWB PATTERN**



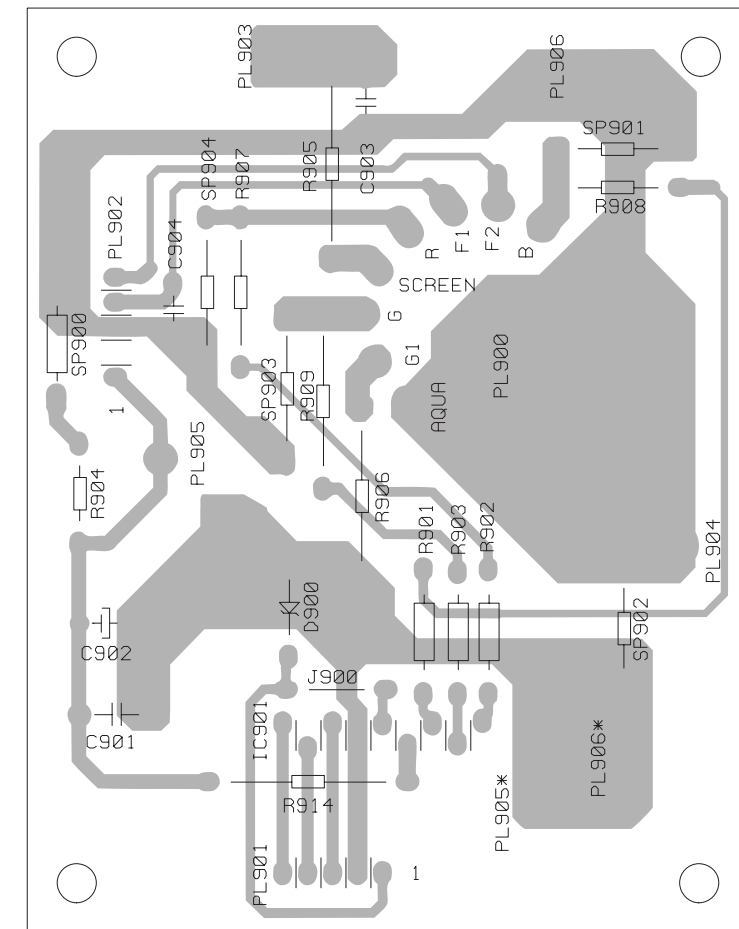
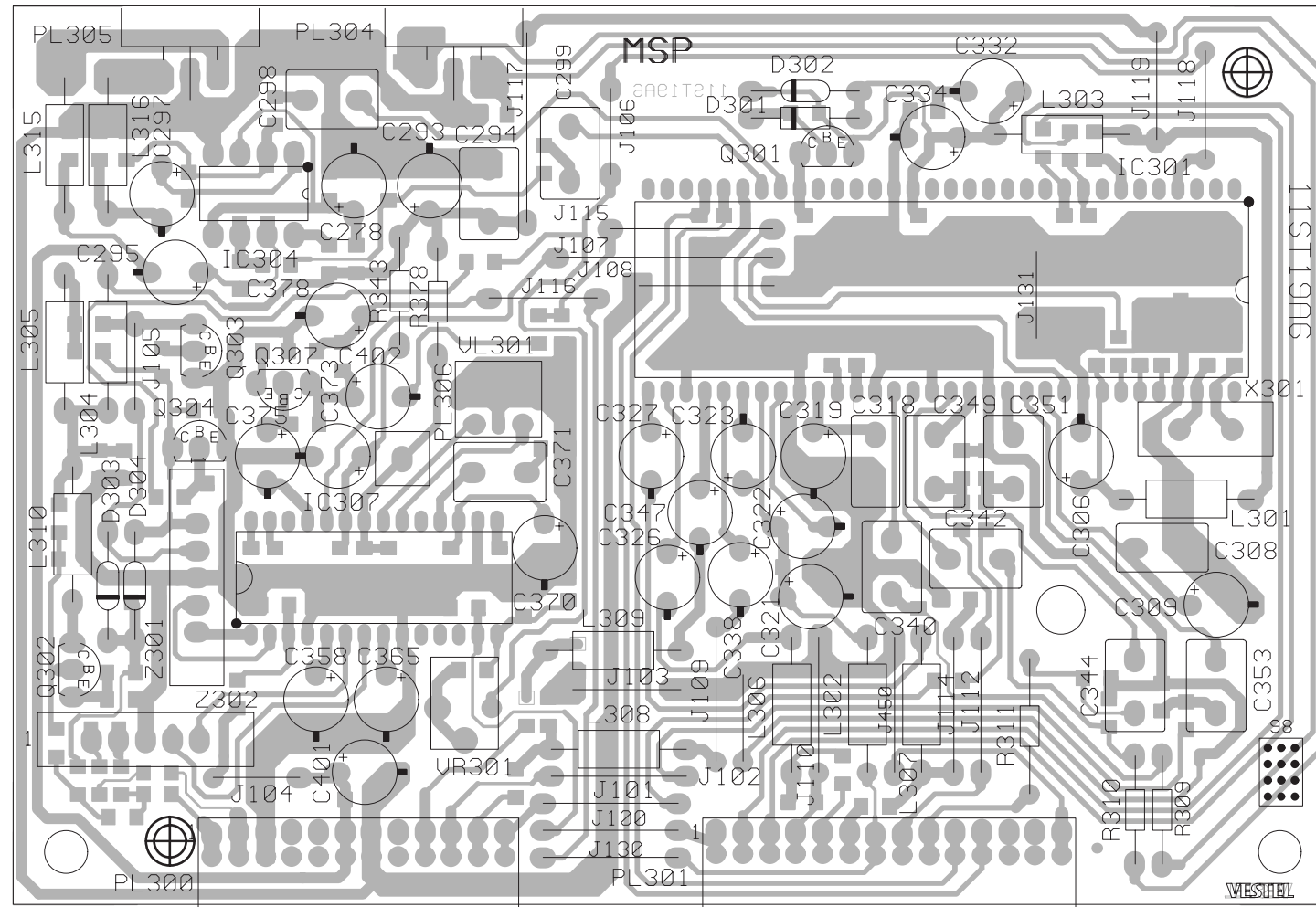
**HEADPHONE JACK PWB PATTERN**



No.51878

**MUTTISOUND PWB PATTERN**

**CRT SOCKET PATTERN**





## VOLTAGE TABLE

### ■ MAIN PWB

#### IC050

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.8	11	3.7
2	4.5	12	0
3	2.8	13	4.0
4	4.5	14	4.0
5	2.9	15	2.1
6	3.1	16	4.0
7	0	17	2.7
8	2.9	18	4.0
9	7.8	19	0
10	3.9	20	2.8

#### IC401

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0.1	29	2.4
2	3.6	30	2.3
3	0	31	0
4	0	32	0
5	2.4	33	0
6	2.8	34	2.5
7	4.5	35	2.5
8	4.5	36	4.7
9	6.6	37	7.8
10	0.1	38	2.9
11	3.6	39	4.9
12	7.8	40	0.1
13	3.8	41	0.1
14	0	42	3.4
15	3	43	3.9
16	0.1	44	0
17	3.6	45	3.4
18	3.6	46	2.4
19	3	47	2.4
20	3	48	4.5
21	3	49	4.5
22	3	50	2.0
23	3.6	51	3.7
24	3.6	52	3.8
25	3.6	53	4.2
26	0.1	54	2.6
27	0.1	55	3.0
28	2.7	56	3.3

#### IC801

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	12.4	4	2.6
2	11.3	5	11.9
3	0	6	0.1

#### IC802

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	11.9	9	0.9
2	11.6	10	2.6
3	0.1	11	2.4
4	0	12	0.1
5	0.9	13	3.1
6	0.1	14	2.5
7	0.2	15	2.5
8	0.2	16	2.5

#### IC804

PIN NO.	VOLTAGE
1	3.4
2	2.1
3	12.4

#### IC805

PIN NO.	VOLTAGE
1	12.3
2	0
3	7.9

#### IC807

PIN NO.	VOLTAGE
1	9.9
2	0
3	5

#### IC701

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.3	6	44.5
2	2.3	7	7.5
3	15	8	0.3
4	7.1	9	7.1
5	0		

#### IC100

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0	6	0
2	12.7	7	12.8
3	0	8	0
4	0	9	0
5	-12.8		

#### IC501

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0.7	27	0
2	0	28	0
3	0	29	0
4	3.3	30	3.3
5	3.3	31	3.3
6	3.3	32	3.3
7	3.3	33	3.3
8	0	34	0.5
9	2.4	35	0.5
10	0	36	0
11	3.4	37	2.4
12	0.8	38	0.2
13	2.4	39	0.2
14	0	40	0.2
15	0.1	41	0
16	0	42	2.4
17	0	43	0
18	2.4	44	3.3
19	0.3	45	0
20	0.2	46	3.4
21	0	47	3.4
22	2.1	48	3.4
23	3.3	49	3.4
24	3.8	50	3.4
25	3.1	51	3.4
26	3.0	52	3.4

#### IC502

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0	5	3
2	0	6	3
3	0	7	3.4
4	0	8	3

#### Note)

Although the symbol numbers of the level drive transistor and level output transistor are indicated as Q604 and Q606 on the wiring diagram, the numbers are indicated as Q601 and Q605 on the substrate, respectively. The following table shows the silk-printed symbol numbers on the substrate.

	E(D)	C(S)	B(G)
Q055	0.1	7.8	0.1
Q100	0	12.7	0
Q501	2.5	0	2.5
Q512	5.4	3.4	4.8
Q514	0	4.8	0
Q515	4.5	3.2	2.3
Q516	3.2	4.5	2.4
Q517	4.5	3.2	2.4
Q518	3.2	4.5	2.4
Q601	0	0	0.1
Q605	0	---	0.1
Q701	0	0	0
Q702	0	0	0.6
Q802	167	0	0.1
Q805	0	0	0.6
Q806	0	0	0.6
Q807	0	11.3	0

#### Q809

Cathode:11.3V

Anode:0V

Control terminal:2.4V

### ■ MULTI SOUND PWB

#### IC301

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.5	33	3.7
2	0	34	3.7
3	0	35	0
4	4.9	36	3.7
5	0	37	3.7
6	0	38	6.8
7	4.9	39	7.8
8	0	40	6.5
9	4.5	41	0
10	4.5	42	3.6
11	2.4	43	3.7
12	2.4	44	3.7
13	2.4	45	0
14	0.1	46	3.7
15	0.1	47	3.7
16	0.1	48	0
17	0	49	3.7
18	4.8	50	3.7
19	0	51	0
20	0	52	3.7
21	0	53	3.7
22	0	54	2.6
23	0	55	3.7
24	4.9	56	0
25	0.1	57	4.9
26	0.1	58	0.1
27	0	59	0.1
28	0	60	0.1
29	0	61	0
30	0	62	2.3
31	0	63	2.3
32	0	64	0

#### IC304

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.4	5	2.4
2	2.4	6	2.4
3	2.4	7	2.4
4	0	8	4.9

#### IC307

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	3.2	15	0.1
2	3.2	16	0
3	4.9	17	4.3
4	0	18	3.0
5	0.1	19	3.5
6	2.4	20	3.3
7	2.4	21	3.3
8	2.2	22	3.3
9	0	23	3.5
10	2.7	24	4.5
11	0	25	0
12	2.1	26	3.4
13	5.0	27	0.1
14	0	28	0.1

	E(D)	C(S)	B(G)
Q301	4.8	4.8	4.1

### ■ CRT SOCKET PWB

#### IC901

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	3.2	6	0.1
2	2.9	7	0.1
3	3.2	8	0.1
4	0	9	0.1
5	6.0		

AV21BT7ENS / AV21BT7ENB  
AV21BT7EPS / AV21BT7EPB  
AV21BT7EES / AV21BT7EEB



VICTOR COMPANY OF JAPAN, LIMITED

HOME AV NETWORK BUSINESS UNIT. 12, 3-chome, Moriya-cho, Kanagawa-ku, Yokohama, Kanagawa-prefecture, 221-8528, Japan