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SECTION 1. GENERAL PART

ESD PRECAUTIONS

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

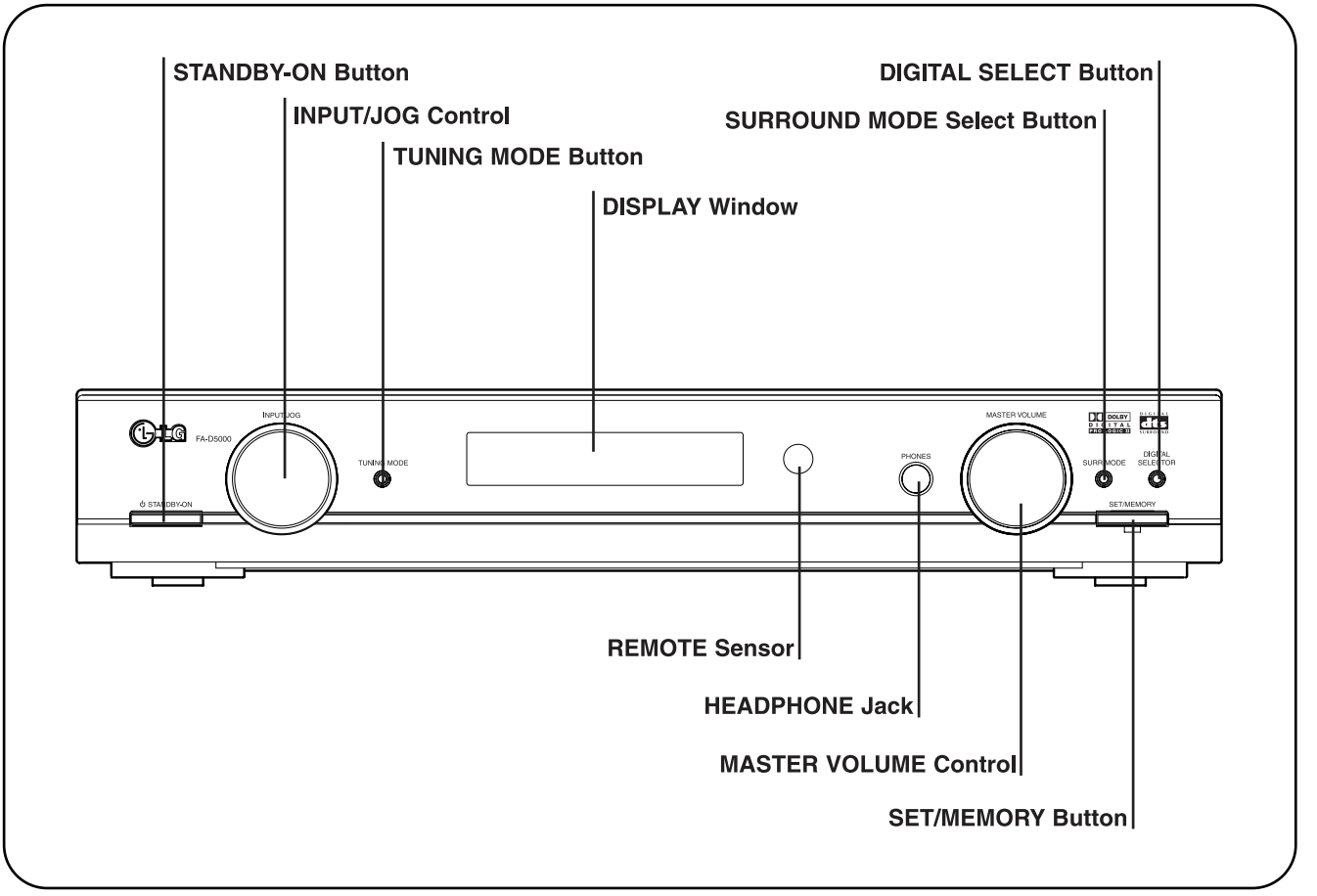
1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ESD devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
6. Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
7. Immediately before removing the protective material from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will by installed.

CAUTION : BE SURE NO POWER IS APPLIED TO THE CHASSIS OR CIRCUIT, AND OBSERVE ALL OTHER SAFETY PRECAUTIONS.

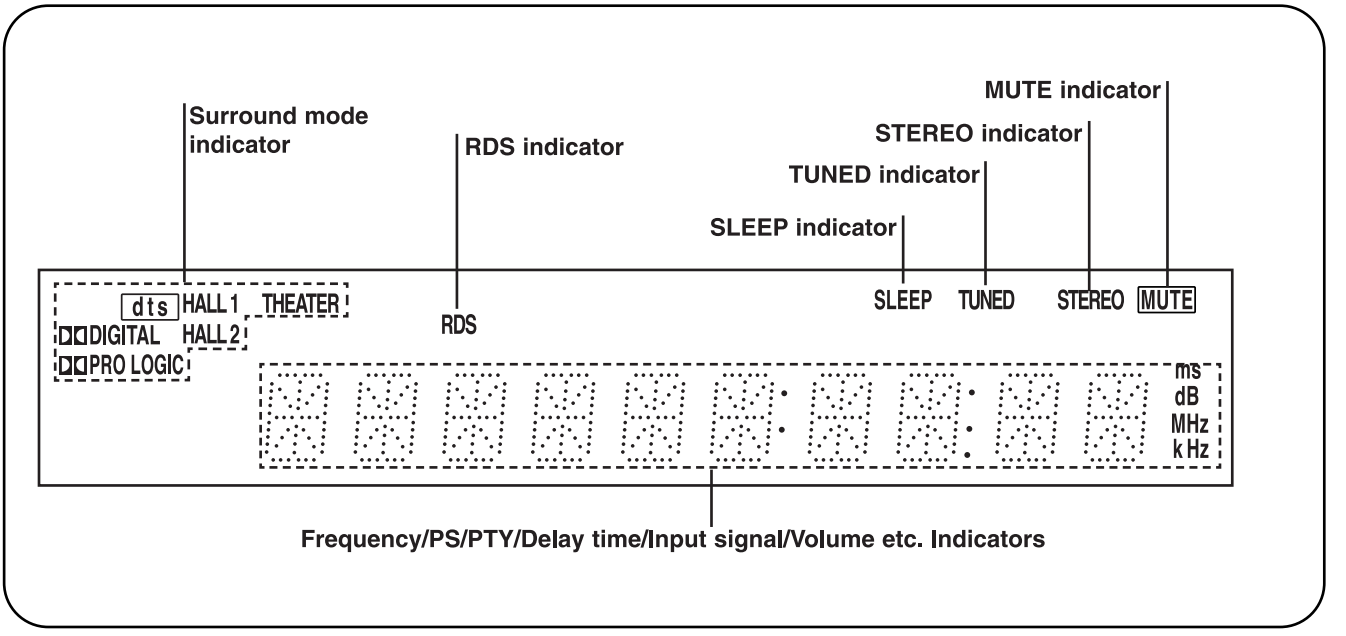
8. Minimize bodily motions when handing unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

LOCATION OF CUSTOMER CONTROLS

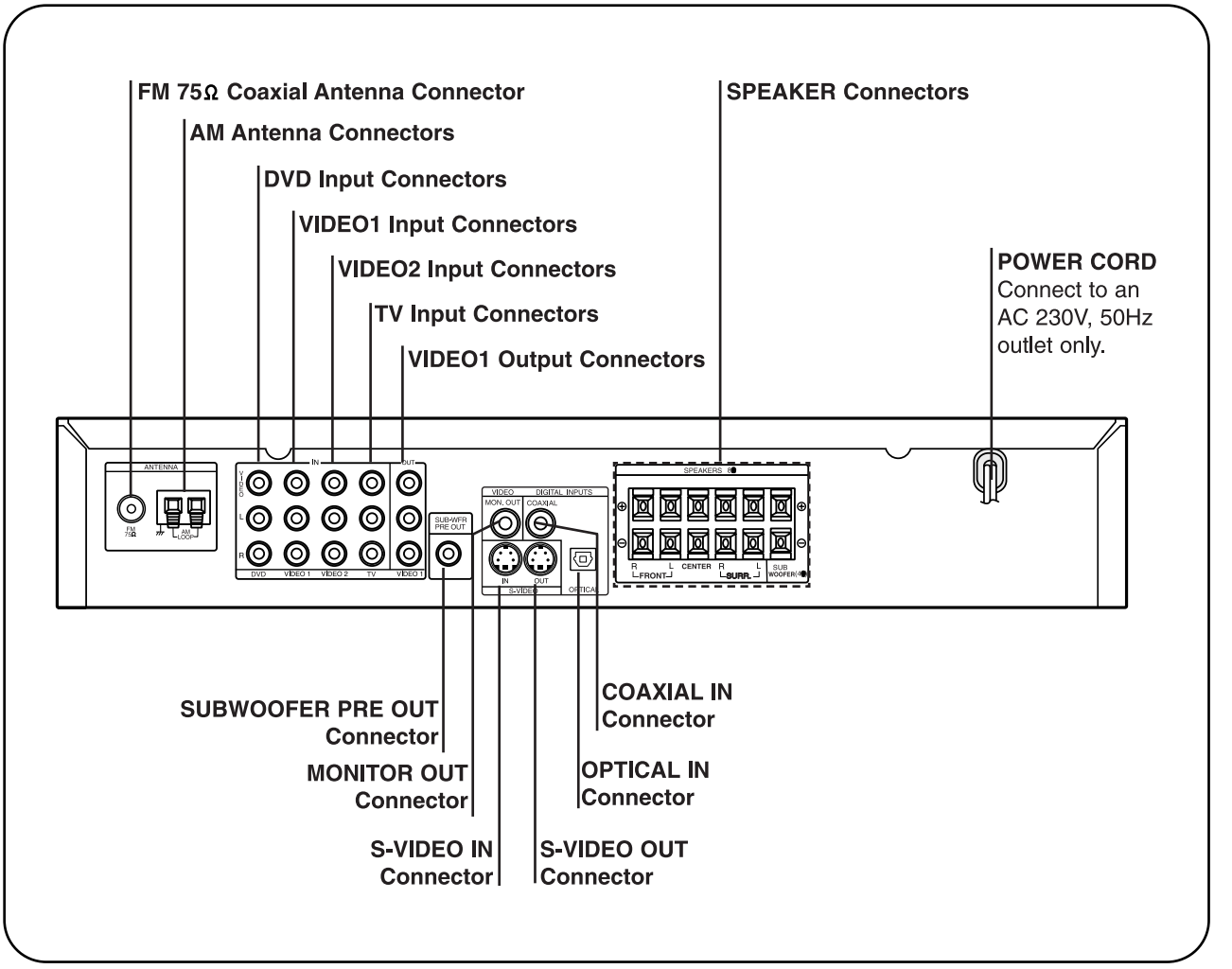
Front Panel



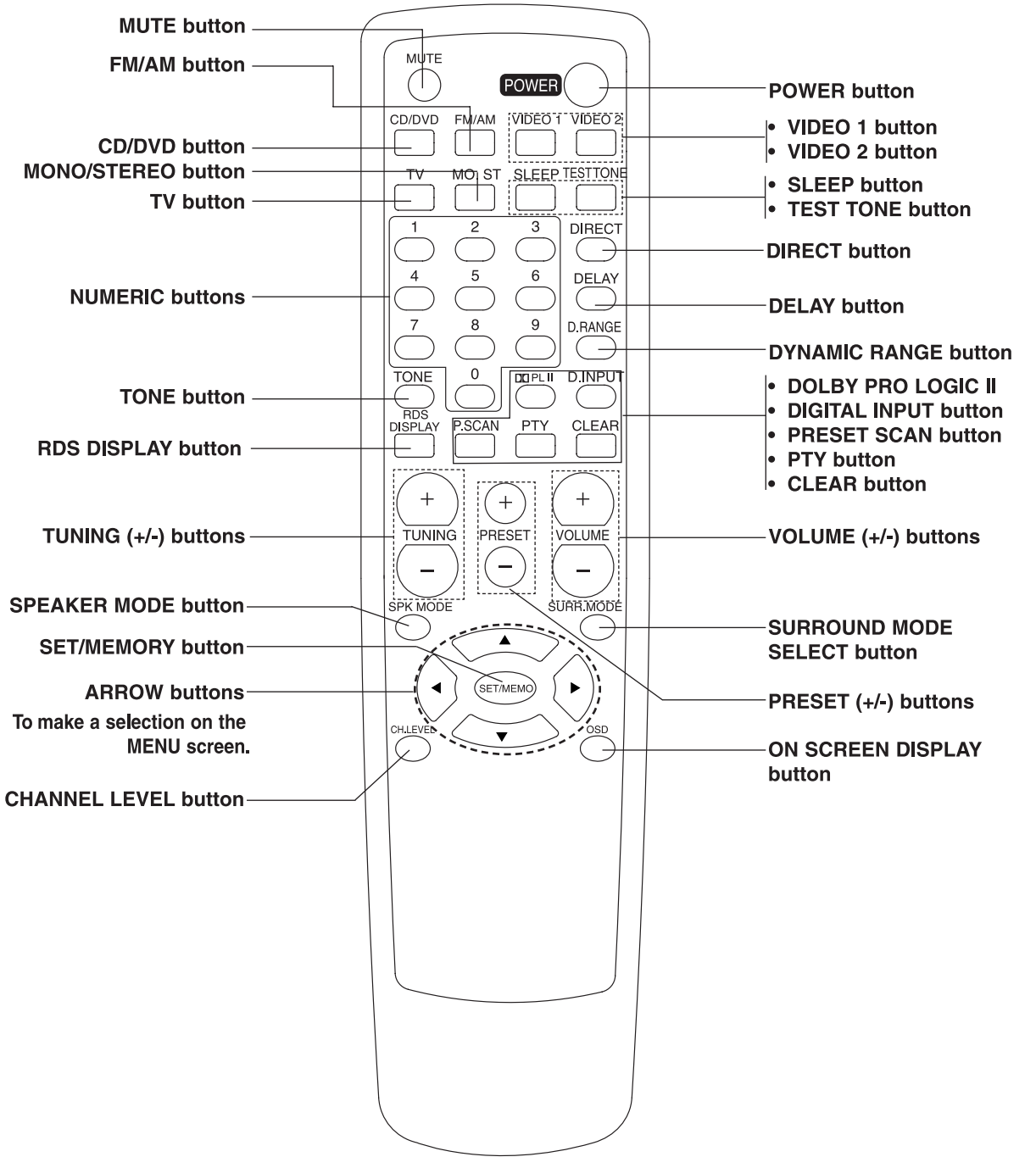
Display Window



Rear Panel


FM 75Ω Coaxial Antenna Connector
AM Antenna Connectors
DVD Input Connectors
VIDEO1 Input Connectors
VIDEO2 Input Connectors
TV Input Connectors
VIDEO1 Output Connectors
SPEAKER Connectors
POWER CORD
Connect to an AC 230V, 50Hz outlet only.
SUBWOOFER PRE OUT Connector
MONITOR OUT Connector
S-VIDEO IN Connector
S-VIDEO OUT Connector
COAXIAL IN Connector
OPTICAL IN Connector

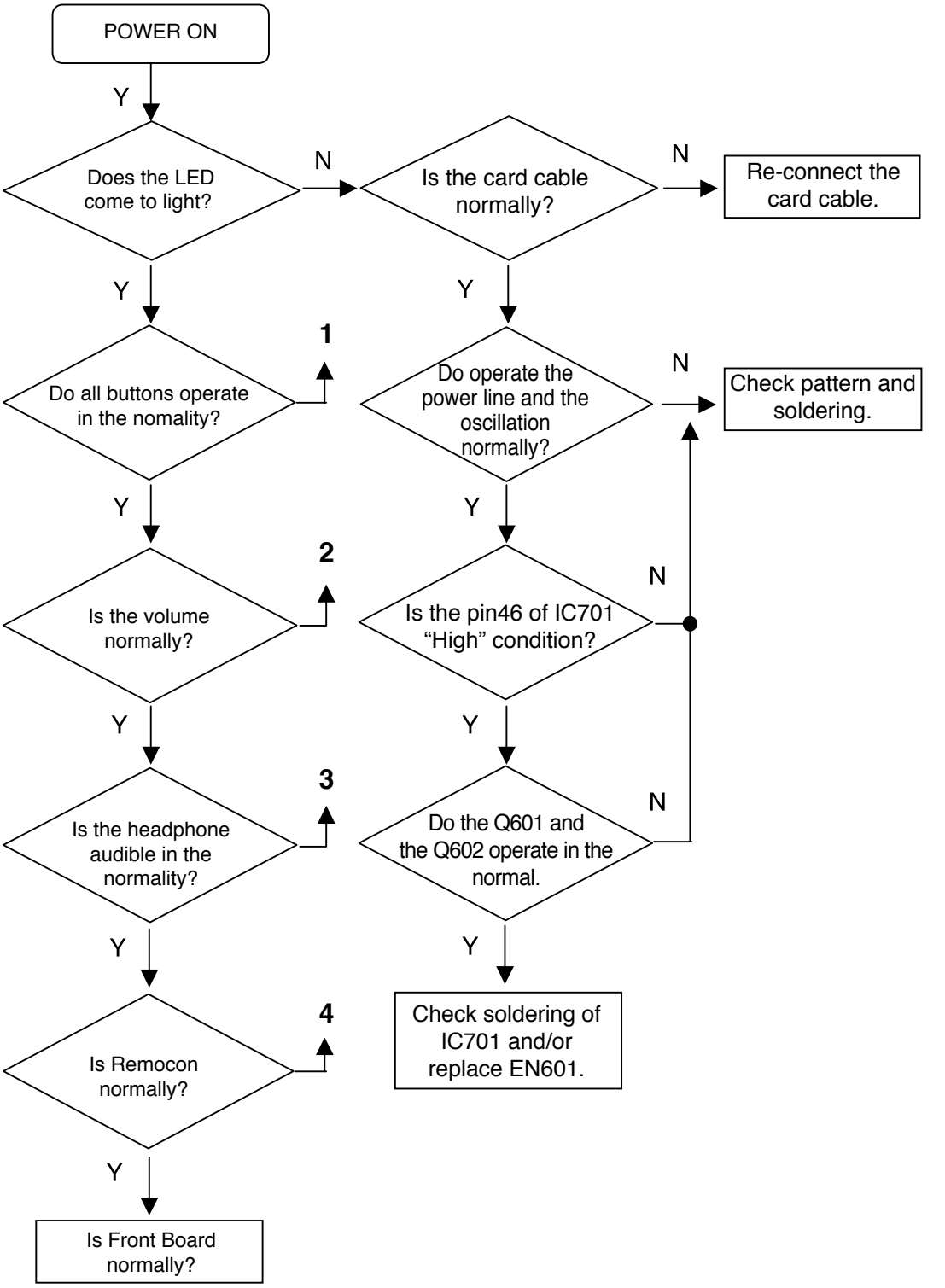
Remote Control



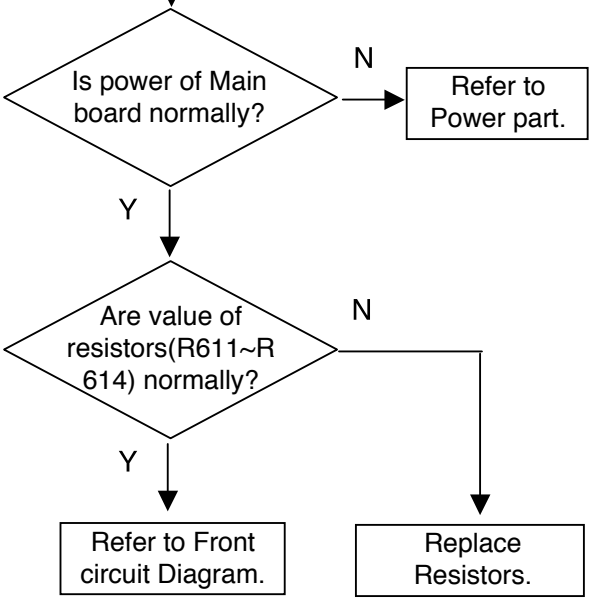
SECTION 2. AUDIO PART

ELECTRICAL TROUBLESHOOTING GUIDE

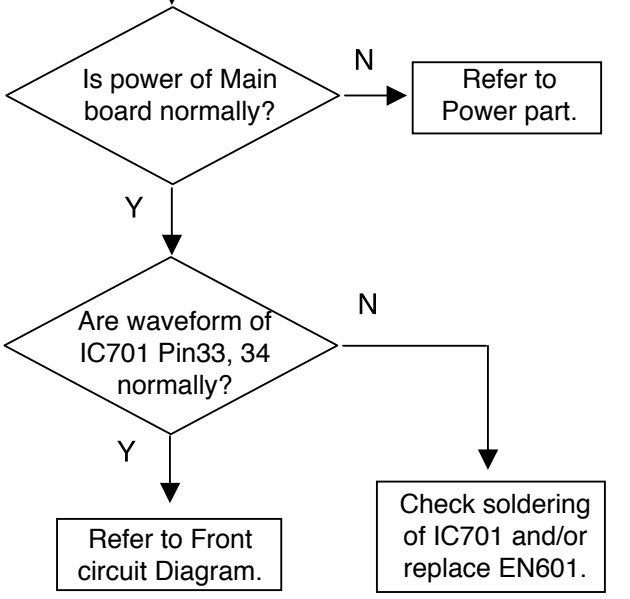
1. FRONT Circuit



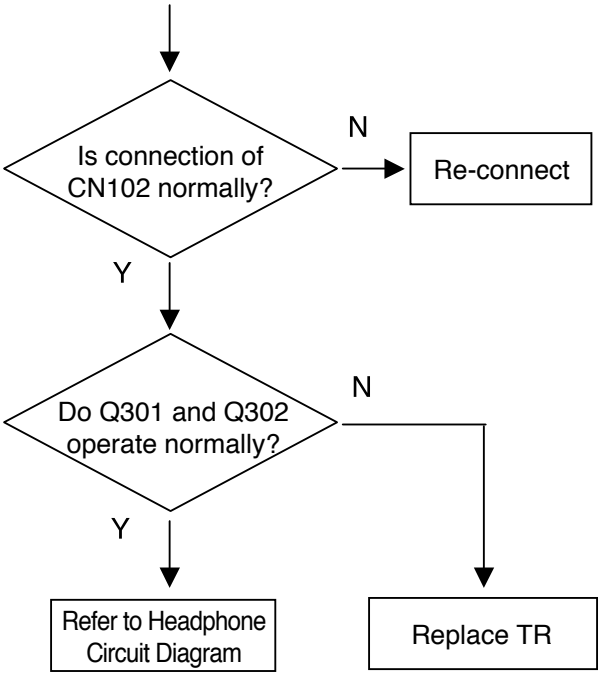
1


Is power of Main board normally?
N
Refer to Power part.
Y
Are value of resistors(R611~R 614) normally?
N
Y
Refer to Front circuit Diagram.
Replace Resistors.

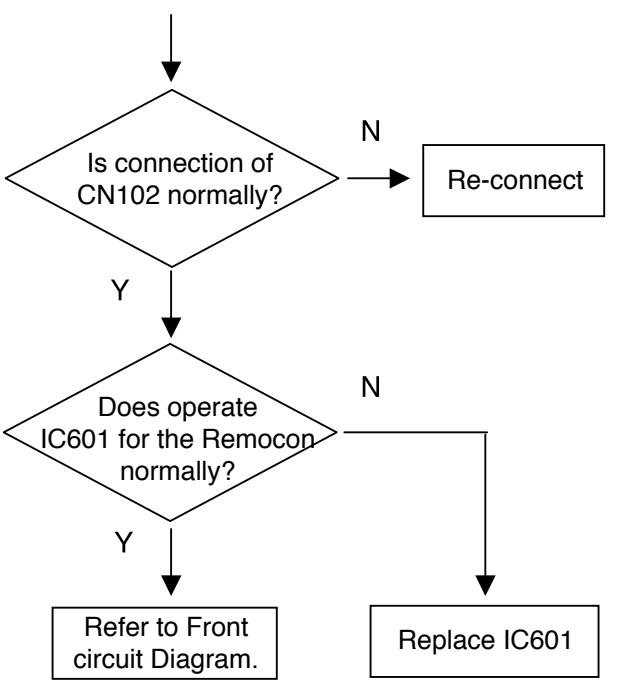
2


Is power of Main board normally?
N
Refer to Power part.
Y
Are waveform of IC701 Pin33, 34 normally?
N
Y
Refer to Front circuit Diagram.
Check soldering of IC701 and/or replace EN601.

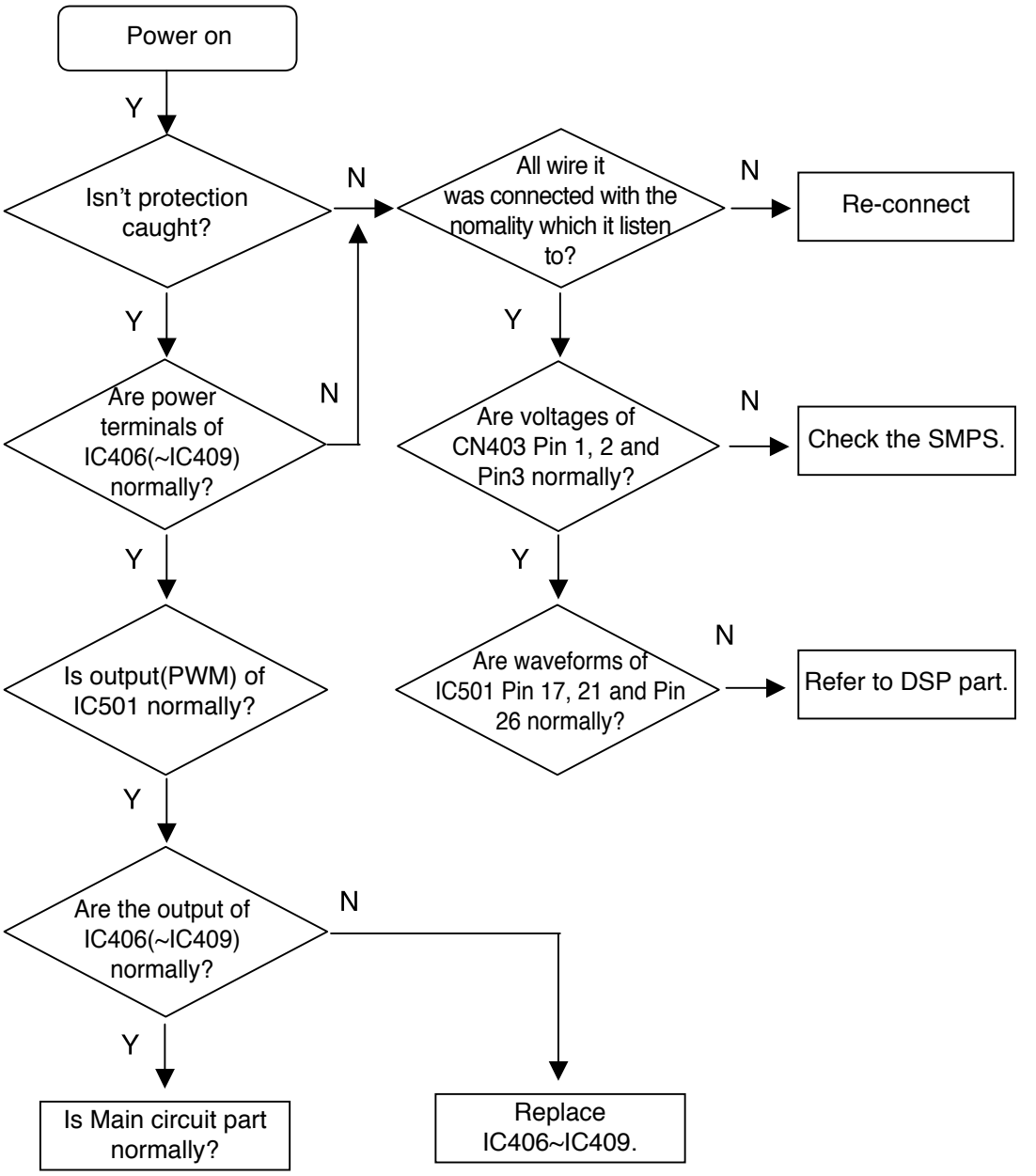
3


Is connection of CN102 normally?
N
Re-connect
Y
Do Q301 and Q302 operate normally?
N
Y
Refer to Headphone Circuit Diagram
Replace TR

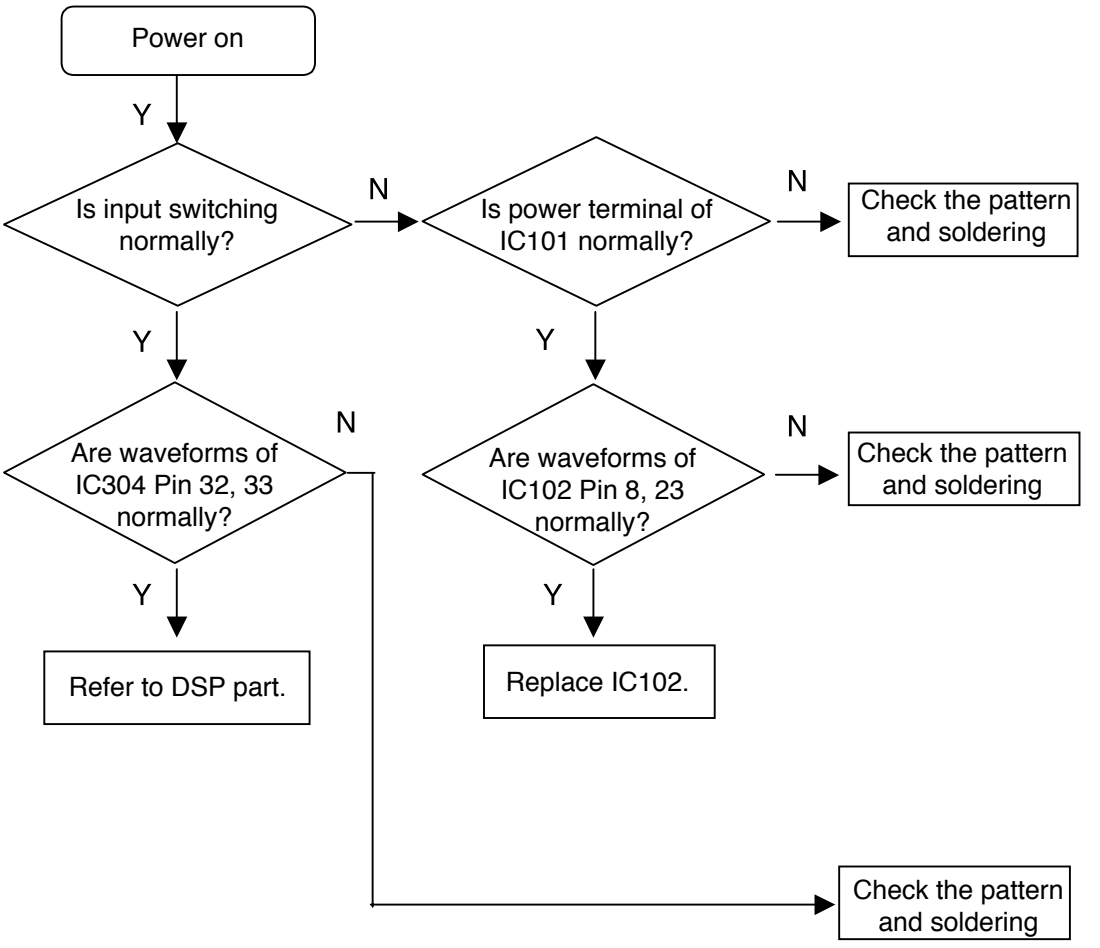
4


Is connection of CN102 normally?
N
Re-connect
Y
Does operate IC601 for the Remocon normally?
N
Y
Refer to Front circuit Diagram.
Replace IC601

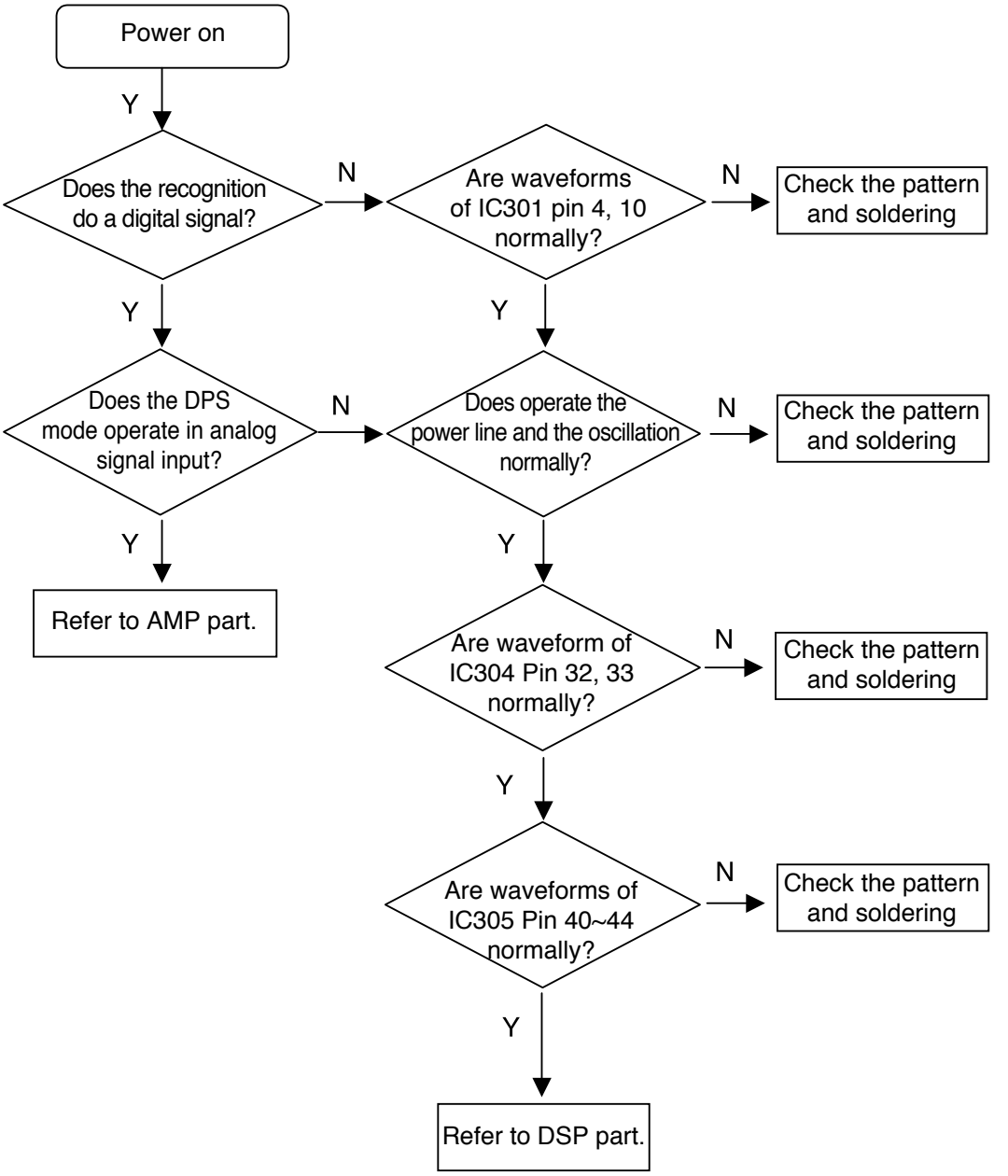
2. MAIN AMP Circuit



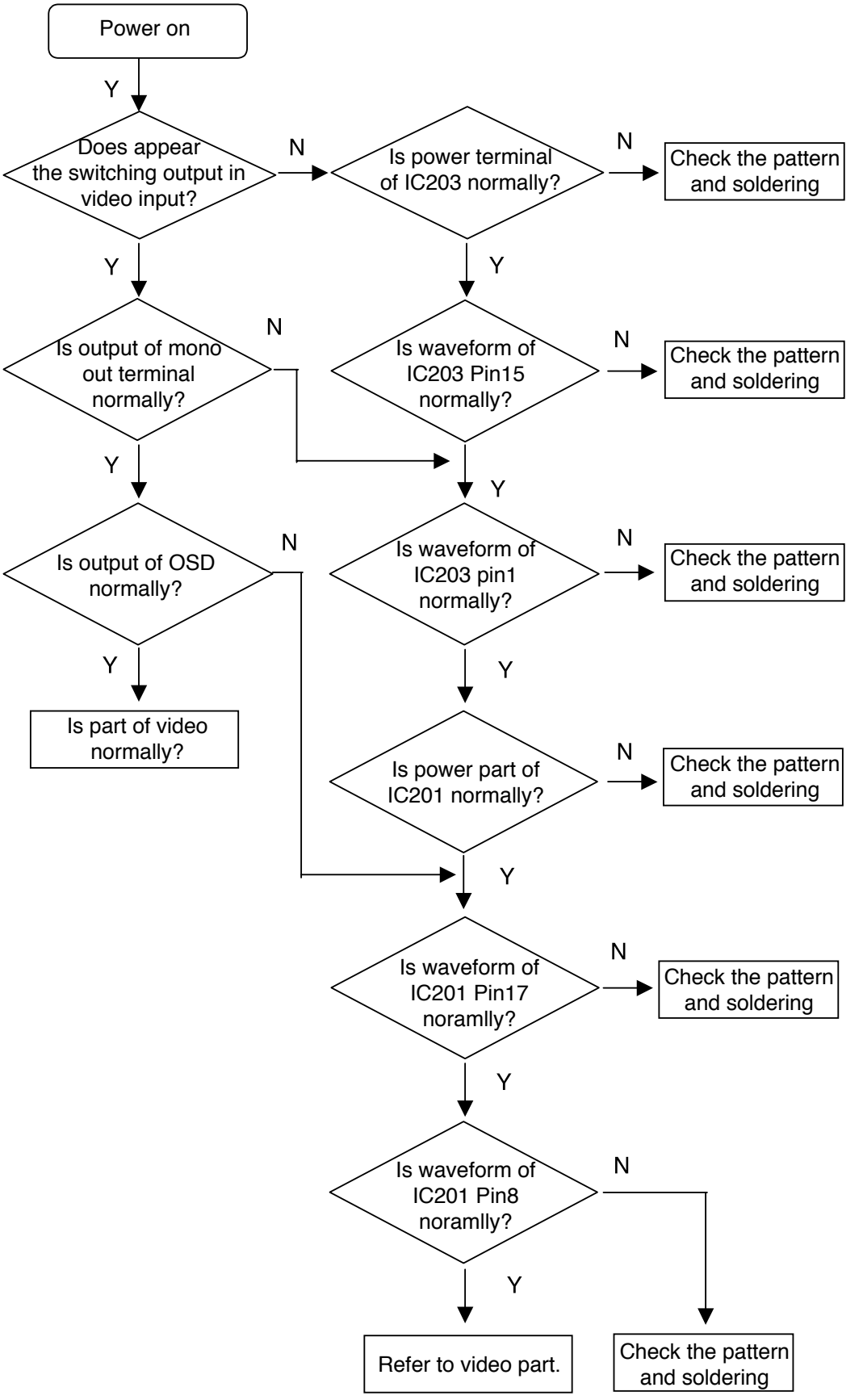
3. MAIN INPUT Circuit



4. MAIN DSP Circuit



5. MAIN VIDEO Circuit

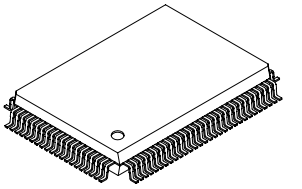


INTERNAL BLOCK DIAGRAM OF ICs

■ CXP 82860
(CMOS 8 bit Single Chip Microcomputer)

• Description

The CXP82832/82840/82852/82860 is a CMOS 8-bit single chip microcomputer integrating on a single chip an A/D converter, serial interface, timer/counter, time base timer, capture timer/counter, fluorescent display panel controller/driver, remote control reception circuit, and PWM output besides the basic configurations of 8-bit CPU, ROM, RAM, and I/O port. The CXP82832/82840/82852/82860 also provides sleep/stop function that enables lower power consumption.



100 pin QFP(Plastic)

• Structure

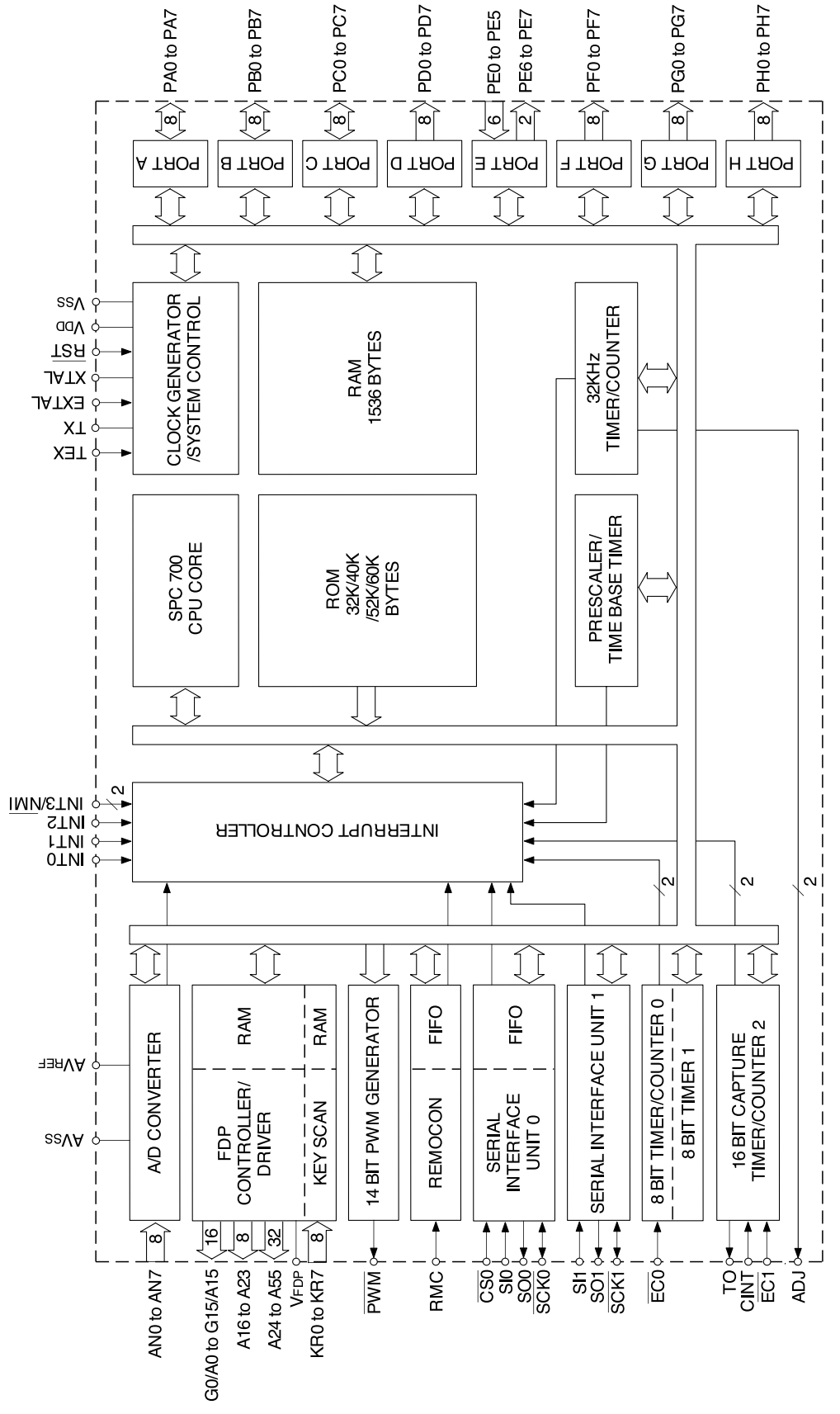
Silicon gate CMOS IC

• Features

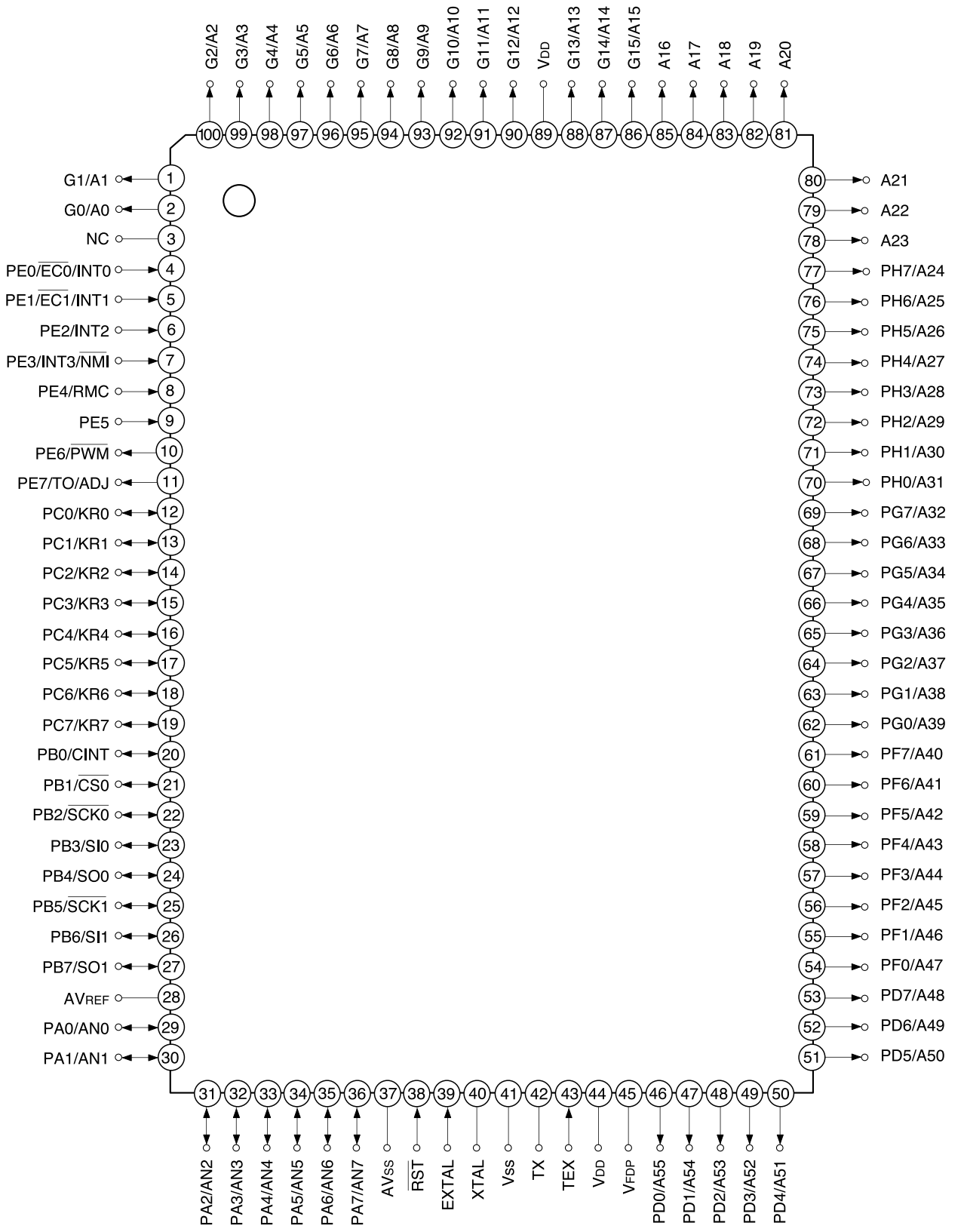
- Wide-range instruction system (213 instructions) to cover various types of data
  — 16-bit arithmetic/multiplication and division/boolean bit operation instructions

- Minimum instruction cycle	400ns at 10MHz operation (122μs at 32kHz operation)
- Incorporated ROM capacity	32K bytes(CXP82832) 40K bytes (CXP82840) 52K bytes (CXP82852) 60K bytes (CXP82860)
- Incorporated RAM capacity	1536 bytes (including fluorescent display area)
- Peripheral functions	
— A/D converter	8 bits, 8 channels, successive approximation method (Conversion time of 32μs/10MHz)
— Serial interface	8-bit, 8-stage FIFO incorporated (Auto transfer for 1 to 8 bytes), 1 channel 8-bit clock synchronized type, 1 channel
— Timers	8-bit timer, 8-bit timer/counter, 19-bit time base timer 16-bit capture timer/counter, 32kHz timer/counter
— Fluorescent display panel controller/driver	Supports the universal grid fluorescent display panel. High voltage drive output port of 56 pins (40V) Maximum of 640 segments display possible Display timing number of 1 to 20 Dimmer function Incorporated pull-down resistor (Mask option) Hardware key scan function (Maximum of 16 x 8 key matrix supportable)
— Remote control reception circuit	8-bit pulse measurement counter, 6-stage FIFO
— PWM output	14 bits, 1 channel
- Interruption	16 factors, 15 vectors, multi-interruption possible
- Standby mode	SLEEP/STOP
- Package	100-pin plastic QFP
- Piggyback/evaluation chip	CXP82800 100-pin ceramic QFP

• BLOCK DIAGRAM



• Pin Assignment(Top View)



Note) 1. NC (Pin 3) must be connected to V_{DD}.

2. V_{DD} (Pins 44 and 89) must be connected to V_{DD}.

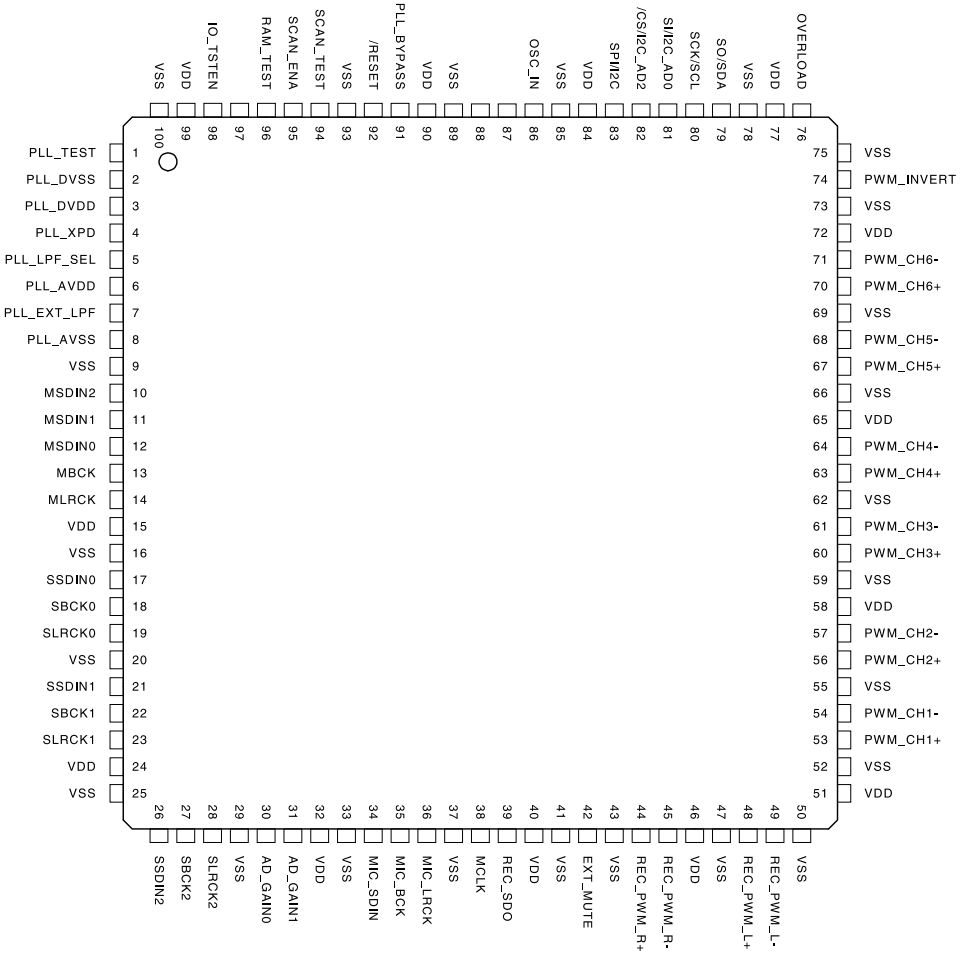
• PIN DESCRIPTION

Pin No	I/O	Function	
PA0/AN0 to PA7/AN7	I/O/ Analog input	(Port A) 8-bit I/O port. I/O can be set in a unit of single bits. Incorporation of the pull-up resistor can be set through the software in a unit of 4 bits. (8pins)	Analog inputs to A/D converter. (8 pins)
PB0/CINT	I/O/Input	(Port B) 8-bit I/O port. I/O can be set in a unit of single bits. Incorporation of the pull-up resistor can be set through the software in a unit of 4 bits. (8 pins)	Capture input to 16-bit timer/counter.
PB1/$\overline{CS0}$	I/O/Input		Chip select input for serial interface (CH0).
PB2/$\overline{SCK0}$	I/O/I/O		Serial clock I/O (CH0).
PB3/SI0	I/O/Input		Serial data input (CH0).
PB4/SO0	I/O/Output		Serial data output (CH0).
PB5/$\overline{SCK1}$	I/O/I/O		Serial clock I/O (CH1).
PB6/SI1	I/O/Input		Serial data input (CH1).
PB7/SO1	I/O/Output		Serial data output (CH1).
PC0/KR0 to PC7/KR7	I/O/Input	(Port C) 8-bit I/O port. I/O can be set in a unit of single bits. Can drive 12mA sync current. Incorporation of the pull-up resistor can be set through the software in a unit of 4 bits.(8 pins)	Serves as key return inputs when operating key scan with fluorescent display panel (FDP) segment signal. (8 pins)
PD0/A55 to PD7/A48	Output/Output	(Port D) 8-bit output port. (8 pins)	FDP segment signal (anode connection) outputs.
PE0/INT0/ $\overline{EC0}$	Input/Input/Input	(Port E) 8-bit port. Lower 6 bits are for inputs; upper 2 bits are for outputs. (8 pins)	Inputs for external interruptio n request. (4 pins) — External event inputs for timer/counter. (2 pins)
PE1/INT1/ $\overline{EC1}$	Input/Input/Input		
PE2/INT2	Input/Input		
PE3/INT3/$\overline{NMI}$	Input/Input/Input		Non-maskable interruption request input.
PE4/RMC	Input/Input		Remote control reception circuit input.
PE5	Input		
PE6/$\overline{PWM}$	Output/Output		14-bit PWM output.
PE7/TO/ADJ	Output/Output/ Output		Output for the 16-bit timer/counter rectangular waves, and 32kHz oscillation frequency division.
PF0/A47 to PF7/A40	Output/Output	(Port F) 8-bit output port. (8pins)	FDP segment signal (anode connection) outputs.

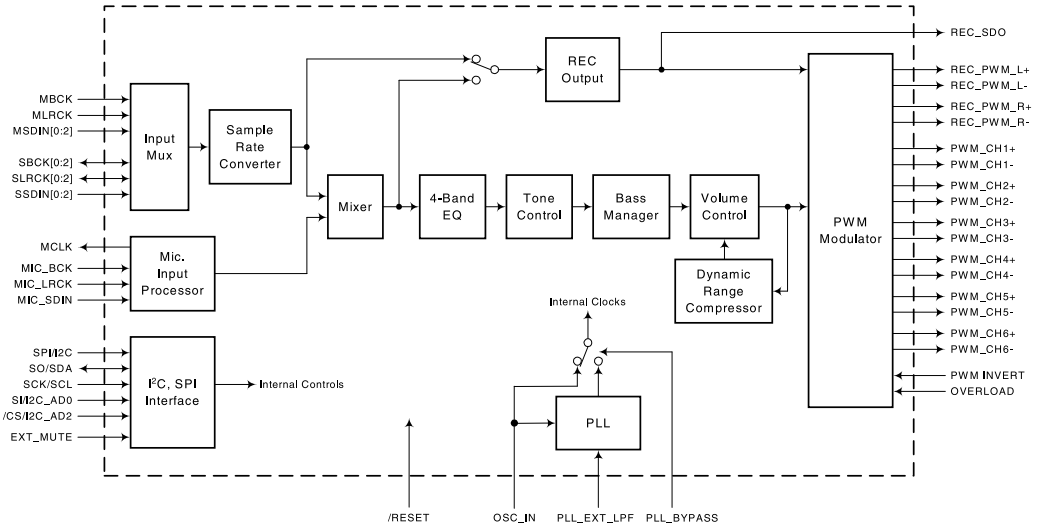
Pin No	I/O	Function	
PG0/A39 to PG7/A32	Output/Output	(Port G) 8-bit output port. (8 pins)	FDP segment signal (anode connection) outputs. (8 pins)
PH0/A31 to PH7/A24	Output/Output	(Port H) 8-bit output port. (8 pins)	FDP segment signal (anode connection) outputs. (8 pins)
A16 to A23	Output	FDP segment signal (anode connection) outputs. (8 pins)	
G0/A0 to G15/A15	Output/Output	Outputs for FDP timing signals (grid connection)/segment signals (anodeconnection). (16 pins)	
V_{FDP}		FDP voltage supply when incorporated pull-down (PD) resistor is set by mask option.	
EXTAL	Input	Crystal connectors for system clock oscillation. When the clock is supplied externally, input to EXTAL; opposite phase clock should be input to XTAL.	
XTAL	Output		
TEX	Input	Crystal connectors for 32kHz timer/counter clock oscillation. For usage as event input, input to TEX, and open TX.	
TX	Output		
$\overline{RST}$	Input	Low-level active, system reset	
NC		NC. Under normal operation, connect to V_{DD}.	
AV_{REF}	Input	Reference voltage input for A/D converter.	
AV_{SS}		A/D converter GND.	
V_{DD}		V_{CC} supply.	
V_{SS}		GND.	

■ PS9702B (6ch, 24bit, 192kHz Digital Audio Processor for Full Digital Amplifier)

• PIN CONFIGURATION

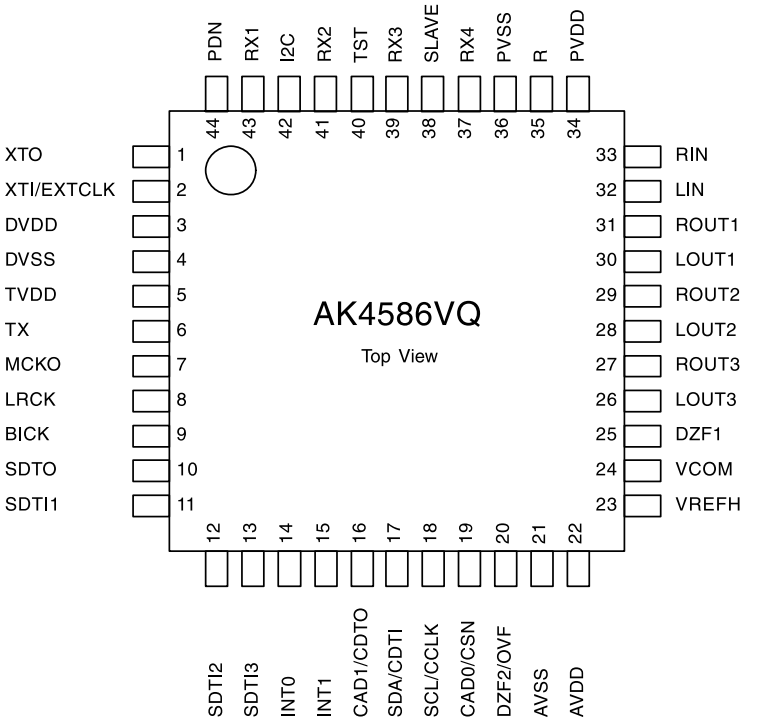


• BLOCK DIAGRAM

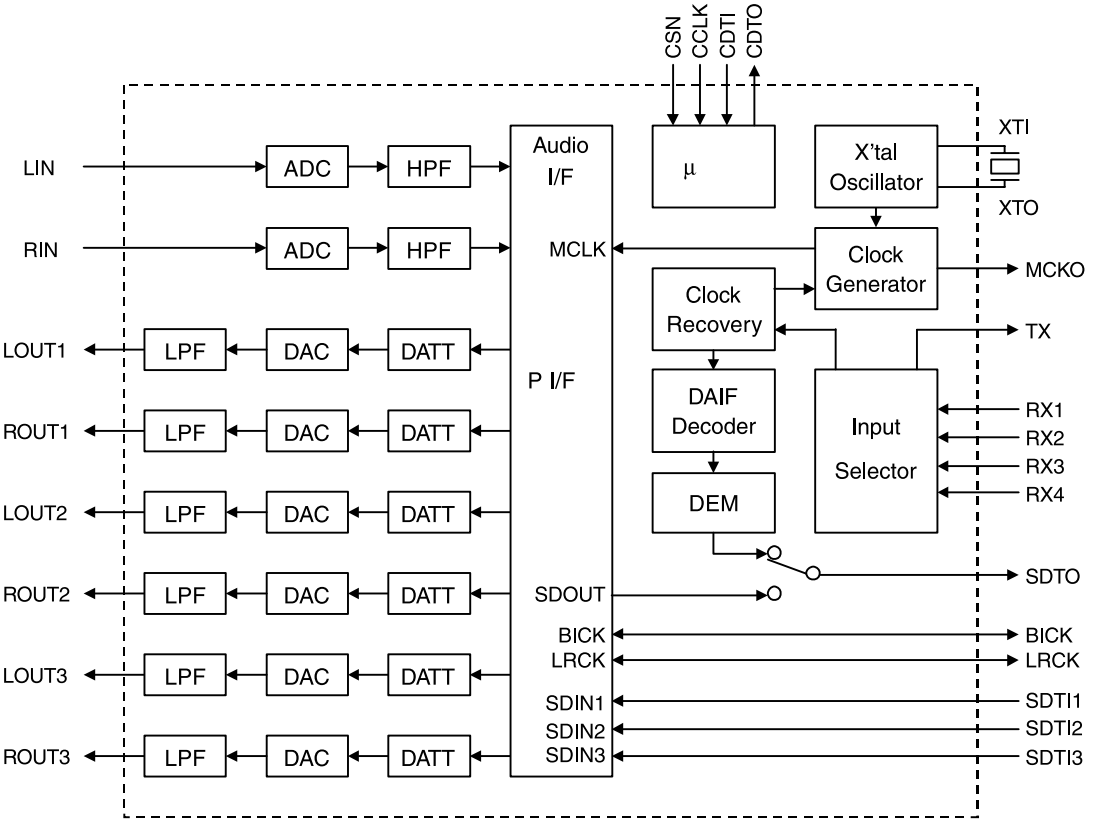


■ Ak4586 (Multi-channel Audio CODEC with DIR)

• PIN CONFIGURATION

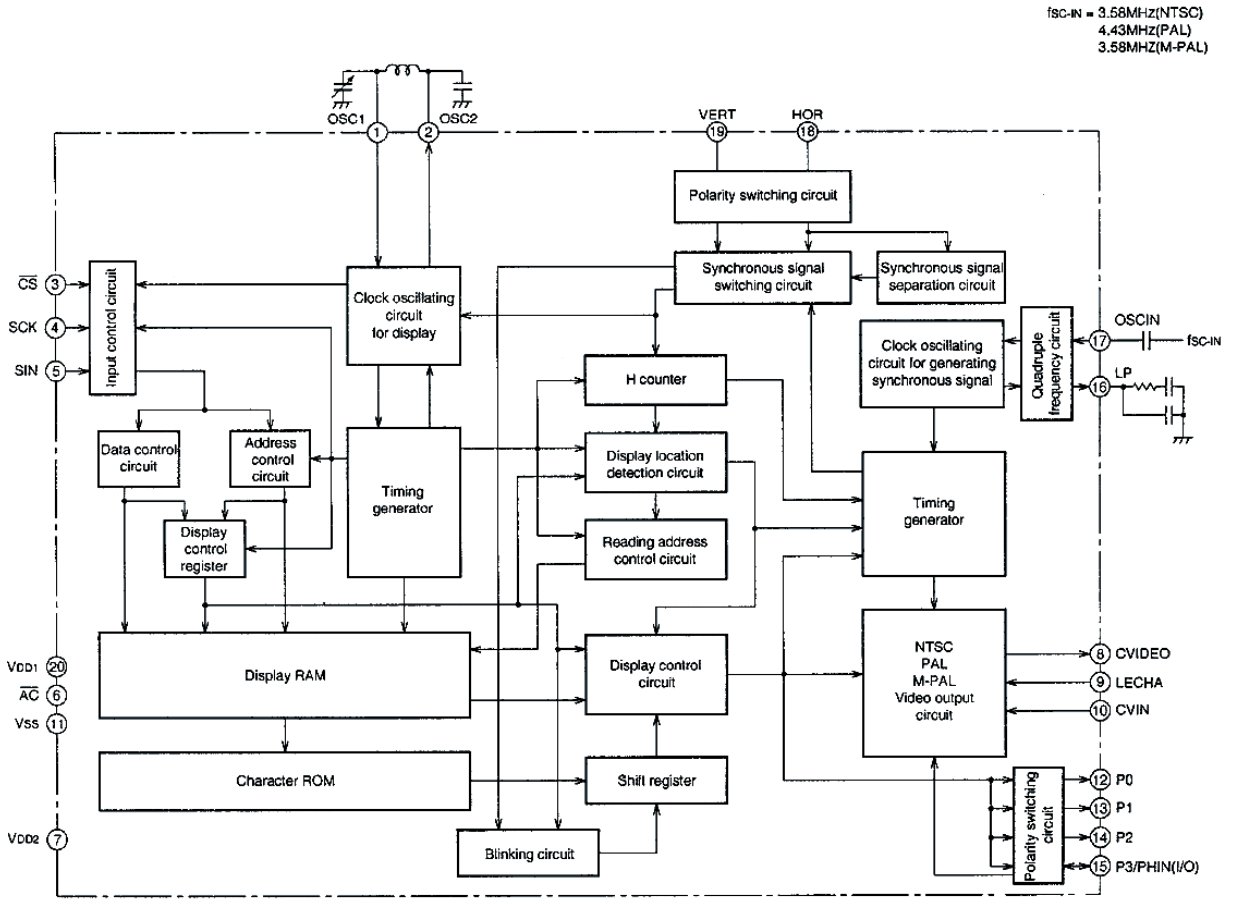


• BLOCK DIAGRAM

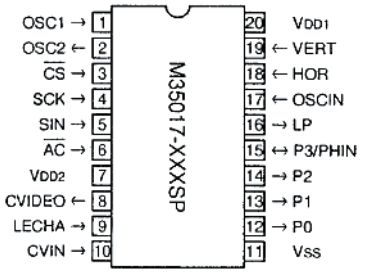


■ M35017 (Screen Character and Pattern Display Controllers)

• BLOCK DIAGRAM



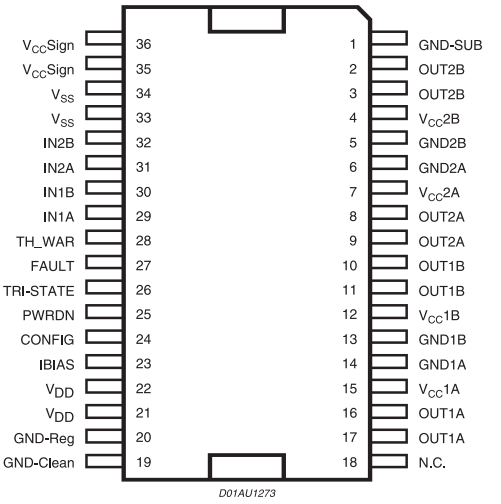
• PIN CONFIGURATION



Outline 20P4B

■ STA505 (40V 3.5A QUAD Power Half Bridge)

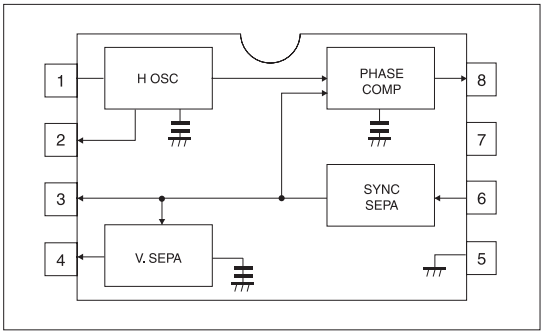
• PIN CONFIGURATION



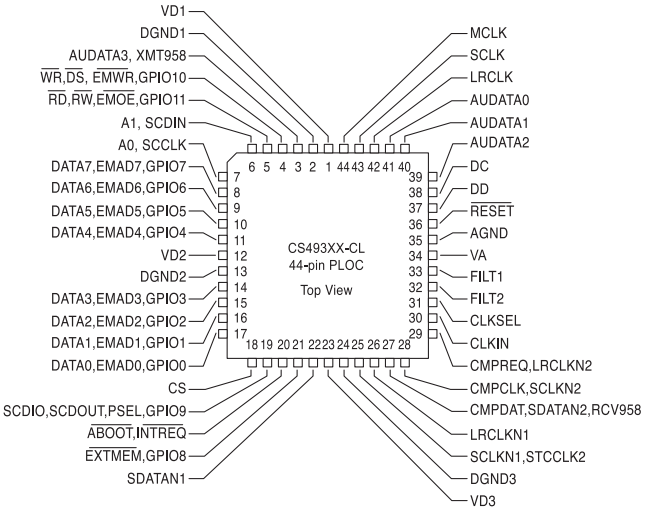
• PIN DESCRIPTION

N5	Pin	Description
1	GND-SUB	Substrate ground
35 ; 36	Vcc Sign	Signal Positive supply
15	Vcc1A	Positive supply
12	Vcc1B	Positive supply
7	Vcc2A	Positive supply
4	Vcc2B	Positive supply
14	GND1A	Negative Supply
13	GND1B	Negative Supply
6	GND2A	Negative Supply
5	GND2B	Negative Supply
16 ; 17	OUT1A	Output half bridge 1A
10 ; 11	OUT1B	Output half bridge 1B
8 ; 9	OUT2A	Output half bridge 2A
2 ; 3	OUT2B	Output half bridge 2B
29	IN1A	Input of half bridge 1A
30	IN1B	Input of half bridge 1B
31	IN2A	Input of half bridge 2A
32	IN2B	Input of half bridge 2B
21 ; 22	Vdd	5V Regulator referred to ground
33 ; 34	Vss	5V Regulator referred to +Vcc
25	PWRDN	Stand-by pin
26	TRI-STATE	Hi-Z pin
27	FAULT	Fault pin advisor
24	CONFIG	Configuration pin
28	TH-WAR	Thermal warning advisor
19	GND-clean	Logical ground
23	IBIAS	High logical state setting voltage
18	NC	Not connected
20	GND-Reg	Ground for regulator Vdd

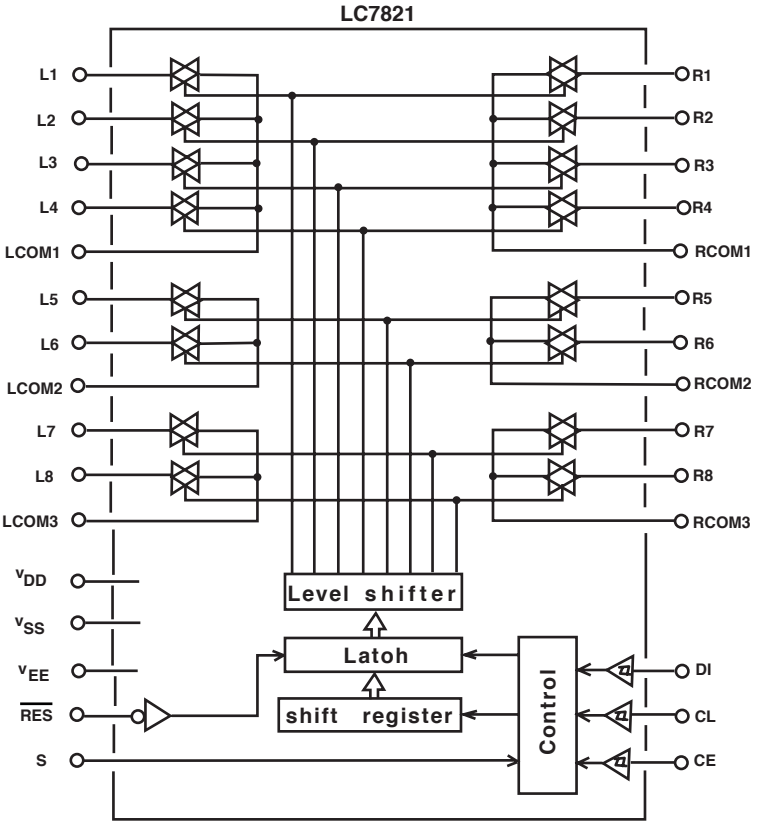
■ BA7046



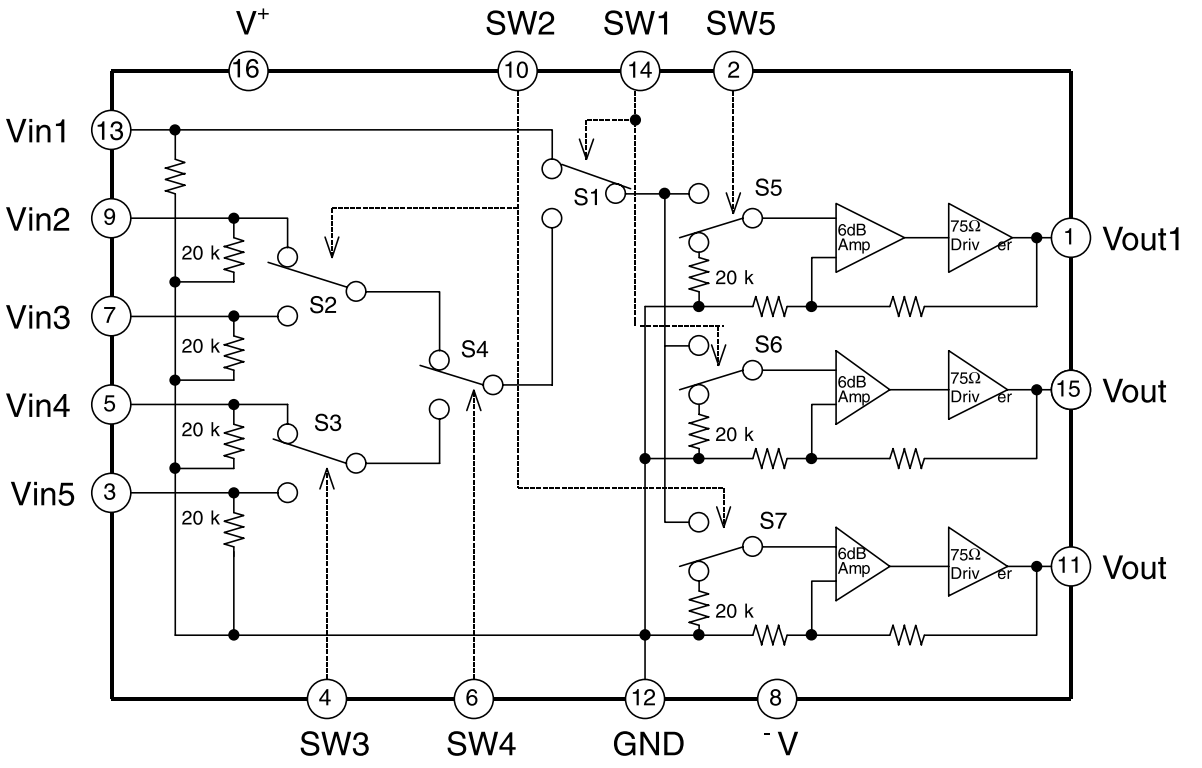
■ CS49326



■ LC7821



■ NJM2296


V+
SW2
SW1
SW5
16
10
14
2
Vin1
13
Vin2
9
Vin3
7
Vin4
5
Vin5
3
20 k
S1
S2
S3
S4
S5
S6
S7
6dB Amp
75Ω Driver
1
Vout1
15
Vout
11
Vout
4
6
12
8
SW3
SW4
GND
-V

IC, TR VOLTAGE SHEET

• **IC 101**

PIN NO.	VEE(12)	DI(14)	VDD(19)
VOLT	-12V	4.5V	12.6V

• **IC 102**

PIN NO.	VEE(4)	VDD(7)
VOLT	-11.3V	11.8V

• **IC 103**

PIN NO.	VEE(4)	VDD(7)
VOLT	-12V	12.5V

• **IC 102**

PIN NO.	VDD2(7)	VDD1(20)
VOLT	4.6V	4.6V

• **IC 202**

PIN NO.	VDD(7)	GND(5)
VOLT	4.5V	0

• **IC 203**

PIN NO.	VEE(8)	VDD(16)	GND(12)
VOLT	-5V	4.7V	0

• **IC 701**

PIN NO.	VDD(44)	VDD(89)
VOLT	4.75V	4.75V

• **IC 303**

PIN NO.	GND(10)	VDD(20)
VOLT	0	3.3V

• **IC 301**

PIN NO.	VDD(14)	GND(7)
VOLT	3.3V	0

• **IC 304**

PIN NO.	DVDD(3)	AVDD(22)	PVDD(34)
VOLT	4.66V	4.66V	4.66V

• **IC 305**

PIN NO.	VD1(1)	DGND1(2)	VD2(12)	DGND(13)	VD3(23)	DGND3(24)
VOLT	2.5 V	0	2.54V	0	2.54V	0

• **IC 306**

PIN NO.	GND(10)	VDD(20)
VOLT	0	3.3V

• **IC 307**

PIN NO.	VEE(4)	VDD(7)
VOLT	-12V	12.5V

• **IC 308**

PIN NO.	VEE(4)	VDD(7)
VOLT	-11.3V	11.8V

• **IC 309**

PIN NO.	VEE(4)	VDD(7)
VOLT	-11.3V	11.8V

• **IC 301**

PIN NO.	VEE(4)	VDD(7)
VOLT	-11.3V	11.8V

• **IC 501**

PIN NO.	VDD(15)	VDD(32)	VDD(40)	VDD(46)	VDD(58)
VOLT	3.3V	3.3V	3.3V	3.3V	3.3V
PIN NO.	**VDD(65)**	**VDD(72)**	**VDD(77)**	**VDD(84)**	**VDD(90)**
VOLT	3.3V	3.3V	3.3V	3.3V	3.3V

• **IC 406**

PIN NO.	GND(19)	VDD(21,22)
VOLT	0	4.8V

• **IC 407**

PIN NO.	GND	VDD(21,22)
VOLT	0	4.9V

• **IC 408**

PIN NO.	GND	VDD(21,22)
VOLT	0	4.9V

• **IC 409**

PIN NO.	GND	VDD(21,22)
VOLT	0	4.9V

• **Q 201**

PIN NO.	E	C	B
VOLT	2.2V	4.6V	2.1V

• **Q 202**

PIN NO.	E	C	B
VOLT	1.4V	4.5V	2.2V

• **Q 203**

PIN NO.	E	C	B
VOLT	2V	0V	1.2V

• **Q 710**

PIN NO.	E	C	B
VOLT	4.6V	4.0V	5.4V

• **Q 711**

PIN NO.	E	C	B
VOLT	4.6V	4.5V	4.0V

• **Q 301**

PIN NO.	E	C	B
VOLT	0	0	4.4V

• **Q 301**

PIN NO.	E	C	B
VOLT	1.3V	1.2V	0

• **Q 303**

PIN NO.	E	C	B
VOLT	0	0	0.7V

• **Q 304**

PIN NO.	E	C	B
VOLT	0	0	0.7V

• **Q 501**

PIN NO.	E	C	B
VOLT	0	4.6V	3.3V

• **Q 425**

PIN NO.	E	C	B
VOLT	0	0	4.4V

• **Q 454**

PIN NO.	E	C	B
VOLT	3.3V	3.3V	2.6V

• **Q 401**

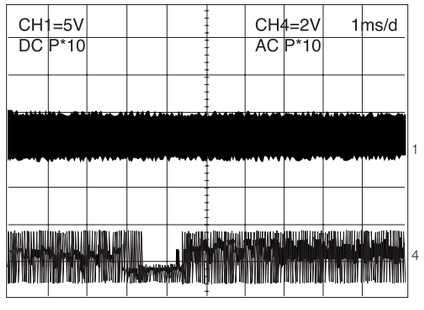
PIN NO.	E	C	B
VOLT	0	0	2.9V

• **Q 201**

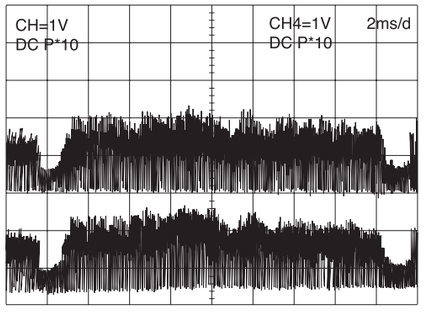
PIN NO.	E	C	B
VOLT	0	0	3.3V

WAVEFORMS OF MAJOR CHECK POINT

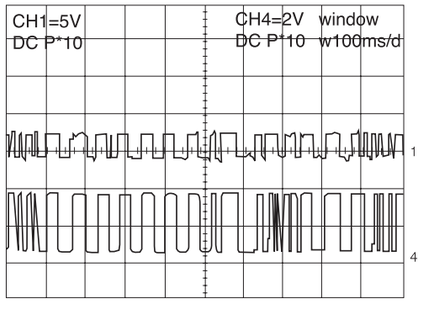
IC201 PIN 1, 8



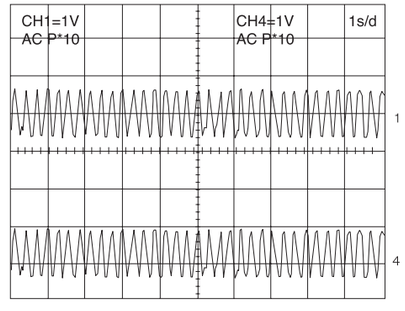
IC203 PIN 1, 15



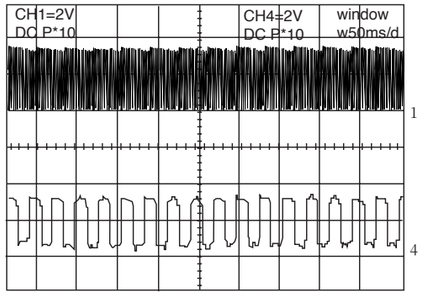
IC301 PIN 4, 10



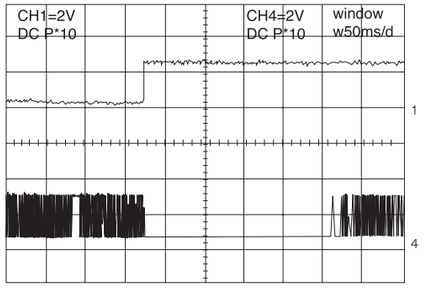
IC304 PIN 32, 33



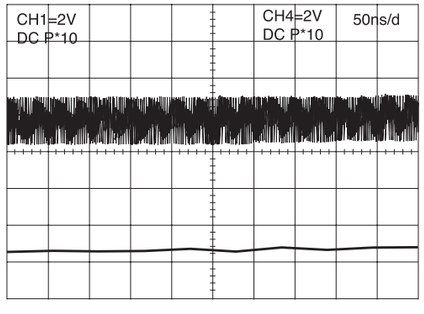
IC304 PIN 44, 43



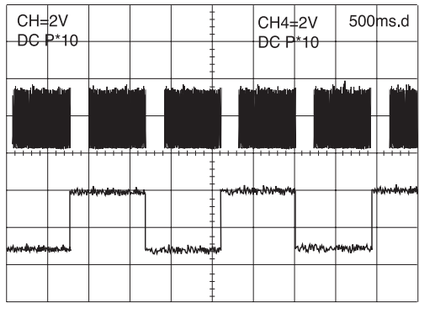
IC305 PIN 42, 41



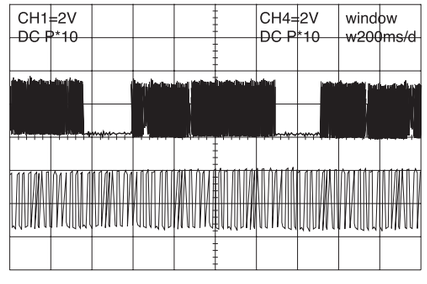
IC501 PIN 8



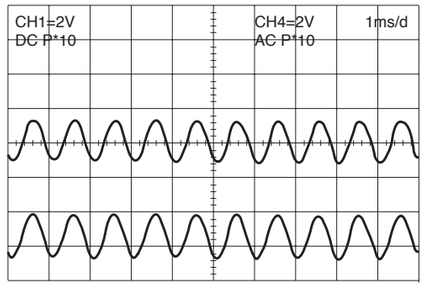
IC501 PIN 17, 23



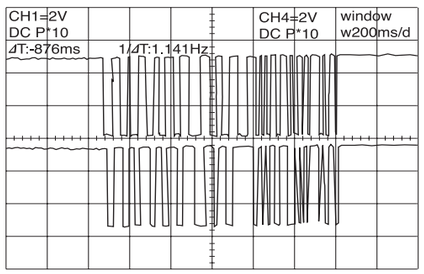
IC501 PIN 21, 22



IC701 PIN8, 23



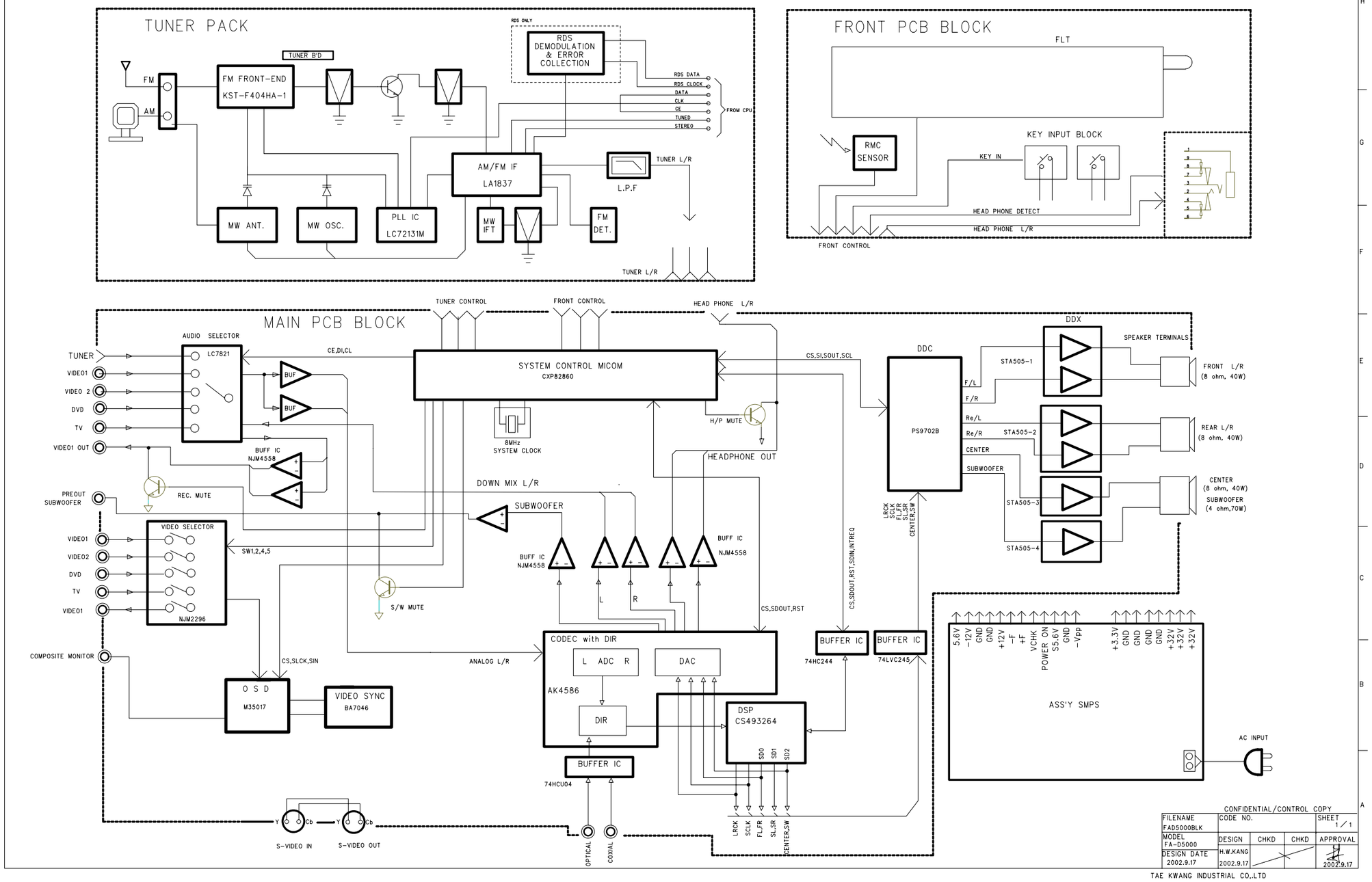
IC707 PIN33, 34



BLOCK DIAGRAM

NO	DATE	POS.	CONTENTS	NO	DATE	POS.	CONTENTS

FA-D5000 BLOCK DIAGRAM



CONFIDENTIAL/CONTROL COPY

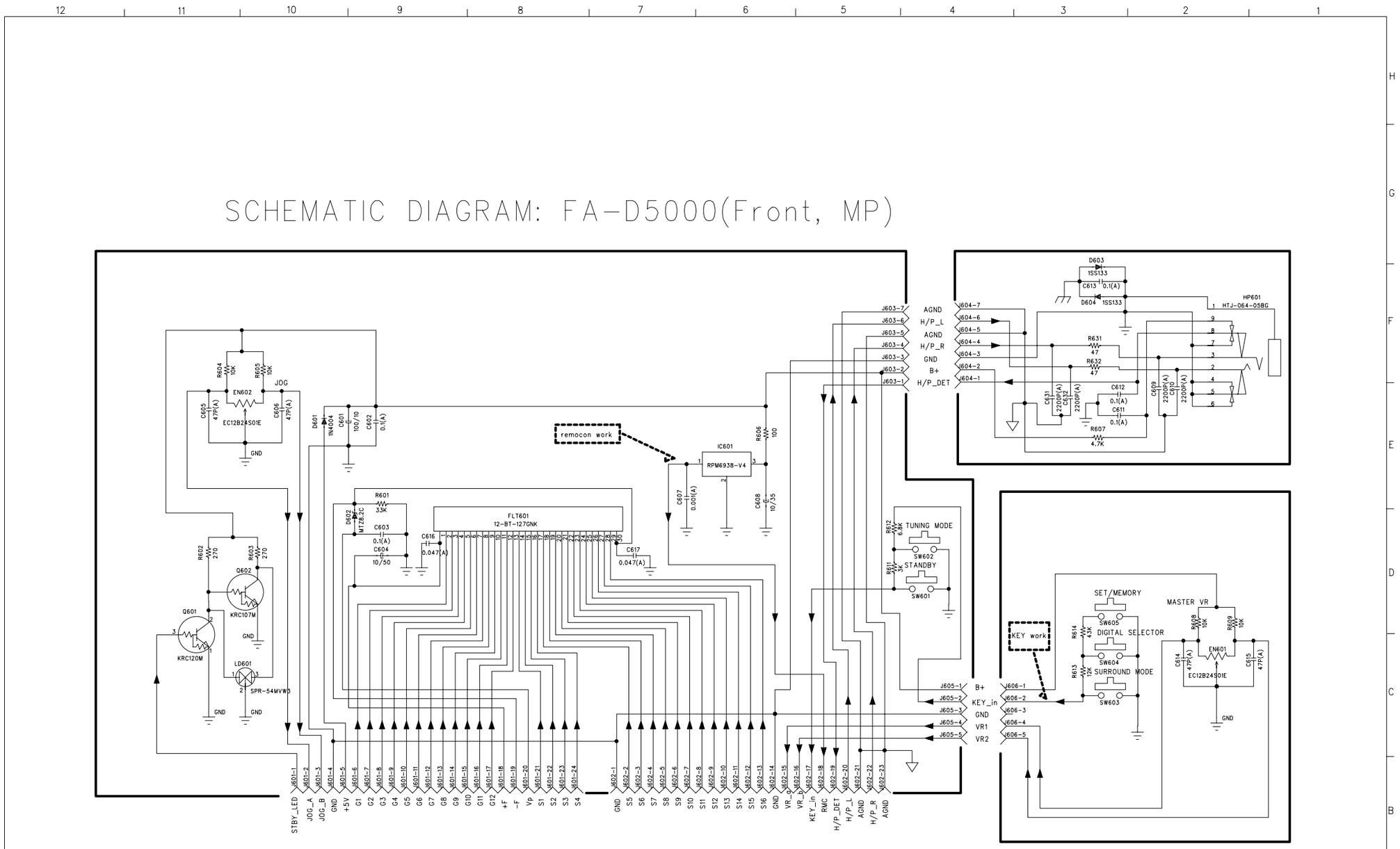
FILENAME	CODE NO.			SHEET
FAD5000BLK				1 / 1
MODEL FA-D5000	DESIGN	CHKD	CHKD	APPROVAL
DESIGN DATE 2002.9.17	H.W.KANG 2002.9.17			2002.9.17

TAE KWANG INDUSTRIAL CO,.LTD

SHEMATIC DIAGRAMS

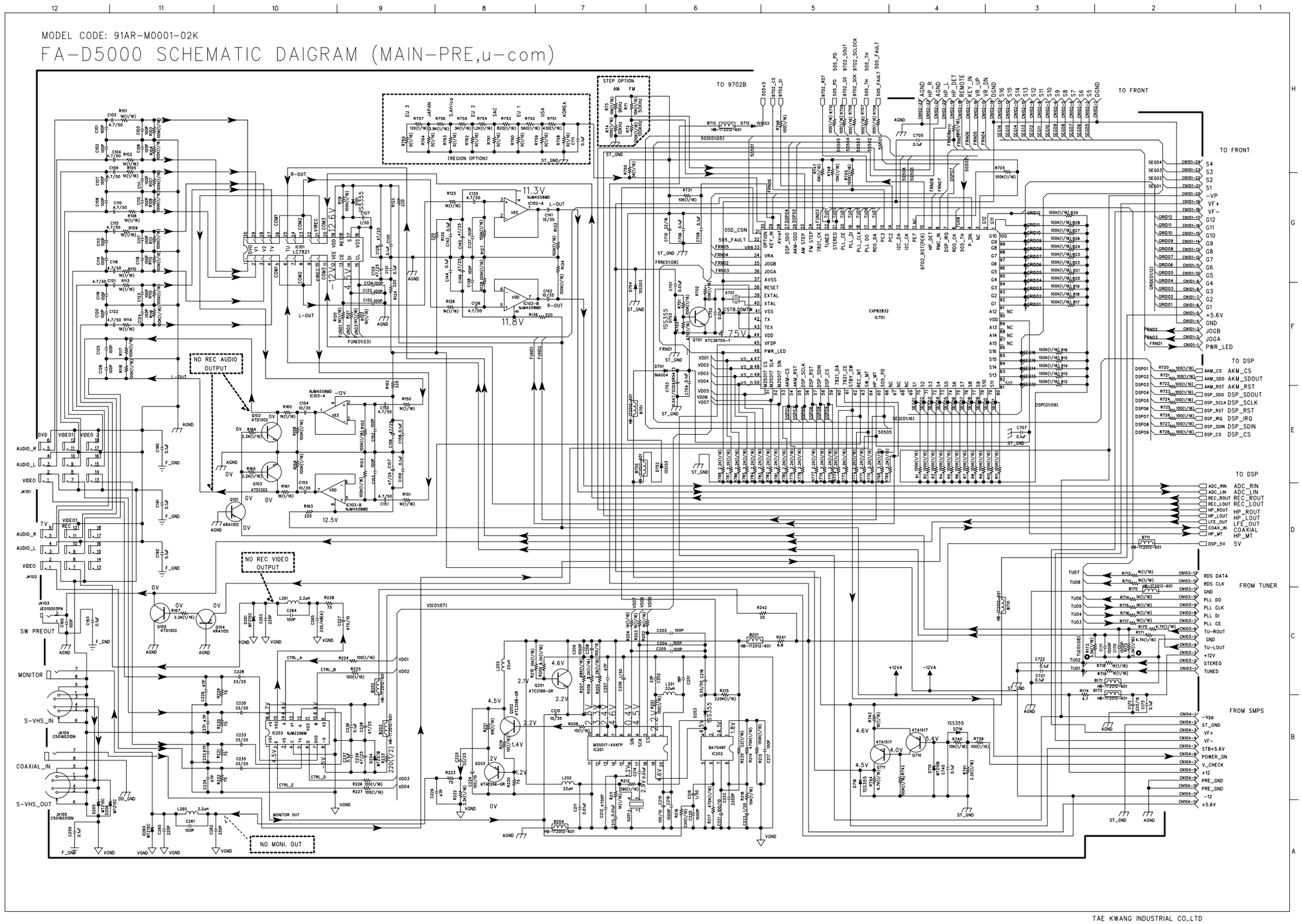
• FRONT SCHEMETIC DIAGRAM

SCHEMATIC DIAGRAM: FA-D5000(Front, MP)

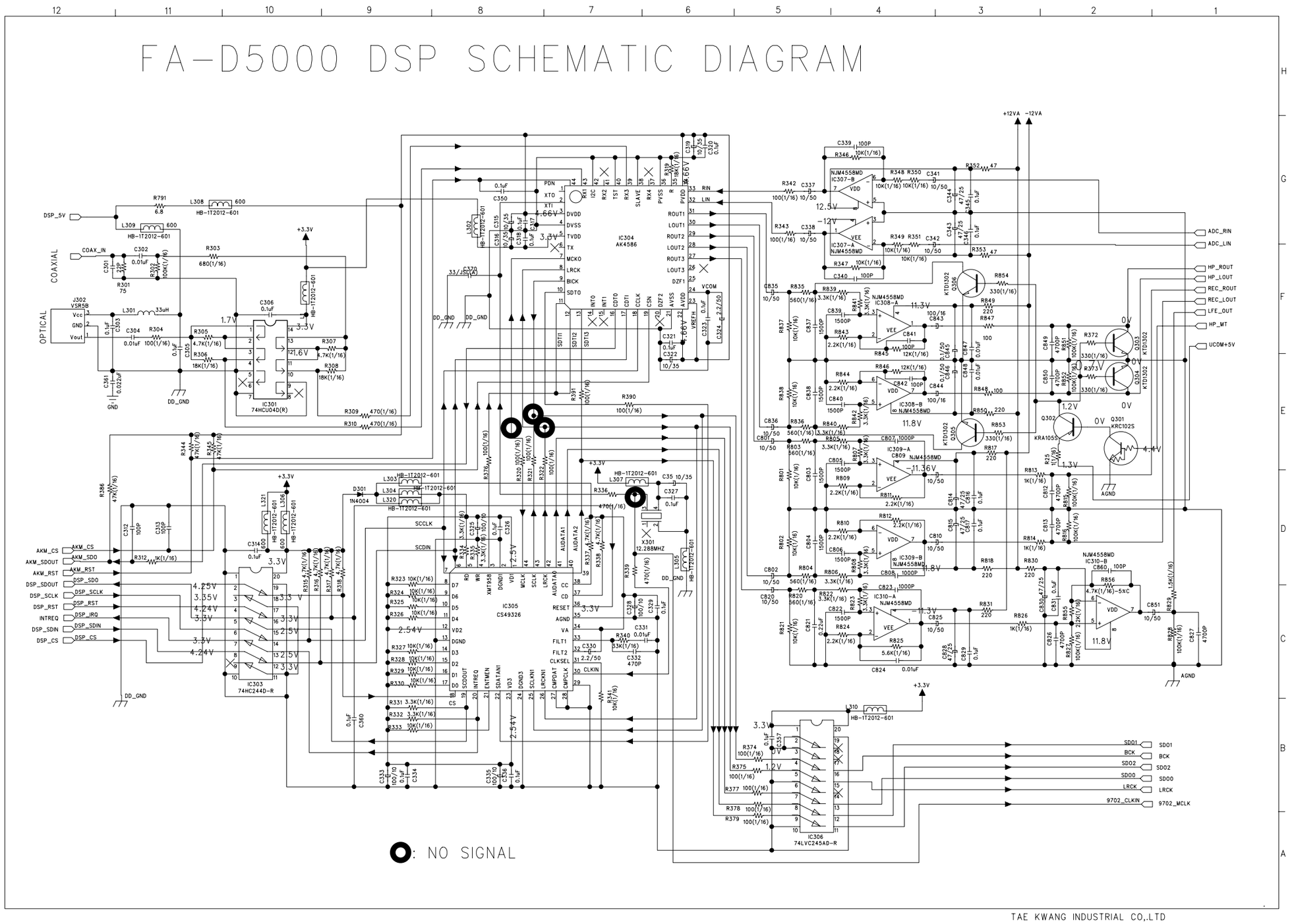


TAE KWANG INDUSTRIAL CO,.LTD

• MAIN (PRE, *μ*-COM) SCHEMETIC DIAGRAM


MODEL CODE: 91AR-M0001-02K
FA-D5000 SCHEMATIC DAIGRAM (MAIN-PRE,u-com)
TO 9702B
TO FRONT
TO DSP
FROM TUNER
FROM SMPS
NO REC AUDIO OUTPUT
NO REC VIDEO OUTPUT
NO MONI OUT
SW PREOUT
MONITOR
S-VHS_IN
COAXIAL_IN
S-VHS_OUT
STEP OPTION
(REGION OPTION)
IC701 CXP82832
IC201 M35017-XXXFP
IC202 BA7046F
IC101 LC7821
IC203 NJM2296M
IC102-A NJM4558MD
IC102-B NJM4558MD
IC103-A NJM4558MD
IC103-B NJM4558MD
Q701 KTC3875S-Y
Q710 KTA1517
Q711 KTA1517
Q201 KTC3198-GR
Q202 KTC3198-GR
Q203 KTA1266-GR
Q101 KRA110S
Q102 KTD1302
Q103 KTD1302
Q104 KRA110S
Q105 KTD1302
D701 1N4004
D710 MTZ5.6C
D711 MTZ5.6C
D712 HB-TT2012-601
D713 MTZ5.6C
D714 1SS355
D715 MTZ5.6C
D716 1SS355
D717 MTZ5.6C
D718 MTZ5.6C
D719 MTZ5.6C
D720 MTZ5.6C
D721 MTZ5.6C
D722 MTZ5.6C
D723 MTZ5.6C
D724 1SS355
D725 MTZ5.6C
D726 MTZ5.6C
D727 MTZ5.6C
D728 MTZ5.6C
D729 MTZ5.6C
D730 MTZ5.6C
D731 MTZ5.6C
D732 MTZ5.6C
D733 MTZ5.6C
D734 MTZ5.6C
D735 MTZ5.6C
D736 MTZ5.6C
D737 MTZ5.6C
D738 MTZ5.6C
D739 MTZ5.6C
D740 MTZ5.6C
D741 MTZ5.6C
D742 MTZ5.6C
D743 MTZ5.6C
D744 MTZ5.6C

• DSP SCHEMETIC DIAGRAM

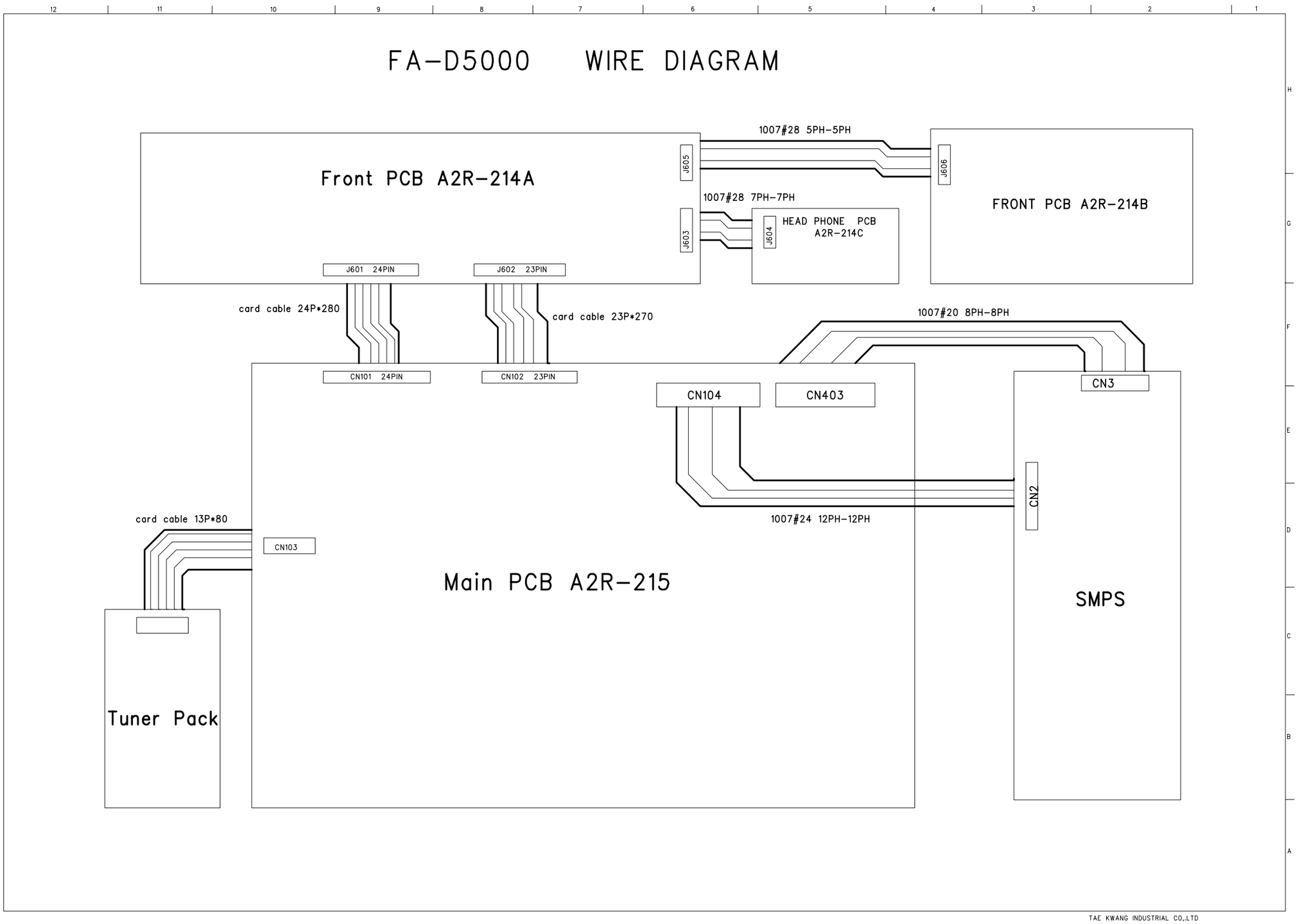


• AMP SCHEMETIC DIAGRAM

SCHEMATIC DIAGRAM: FA-D5000 D-AMP PCB

TAE KWANG INDUSTRIAL CO,.LTD

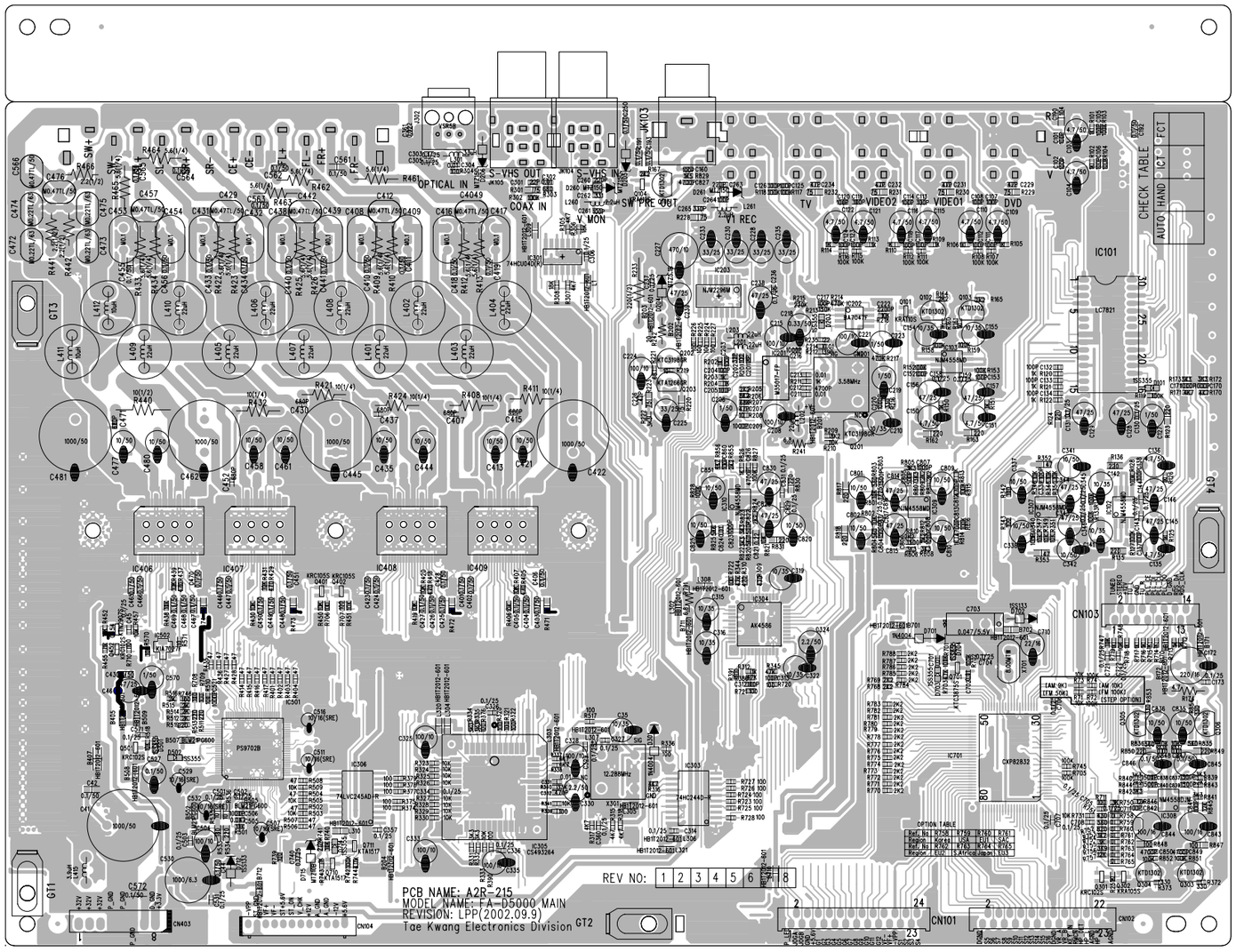
WIRING DIAGRAM



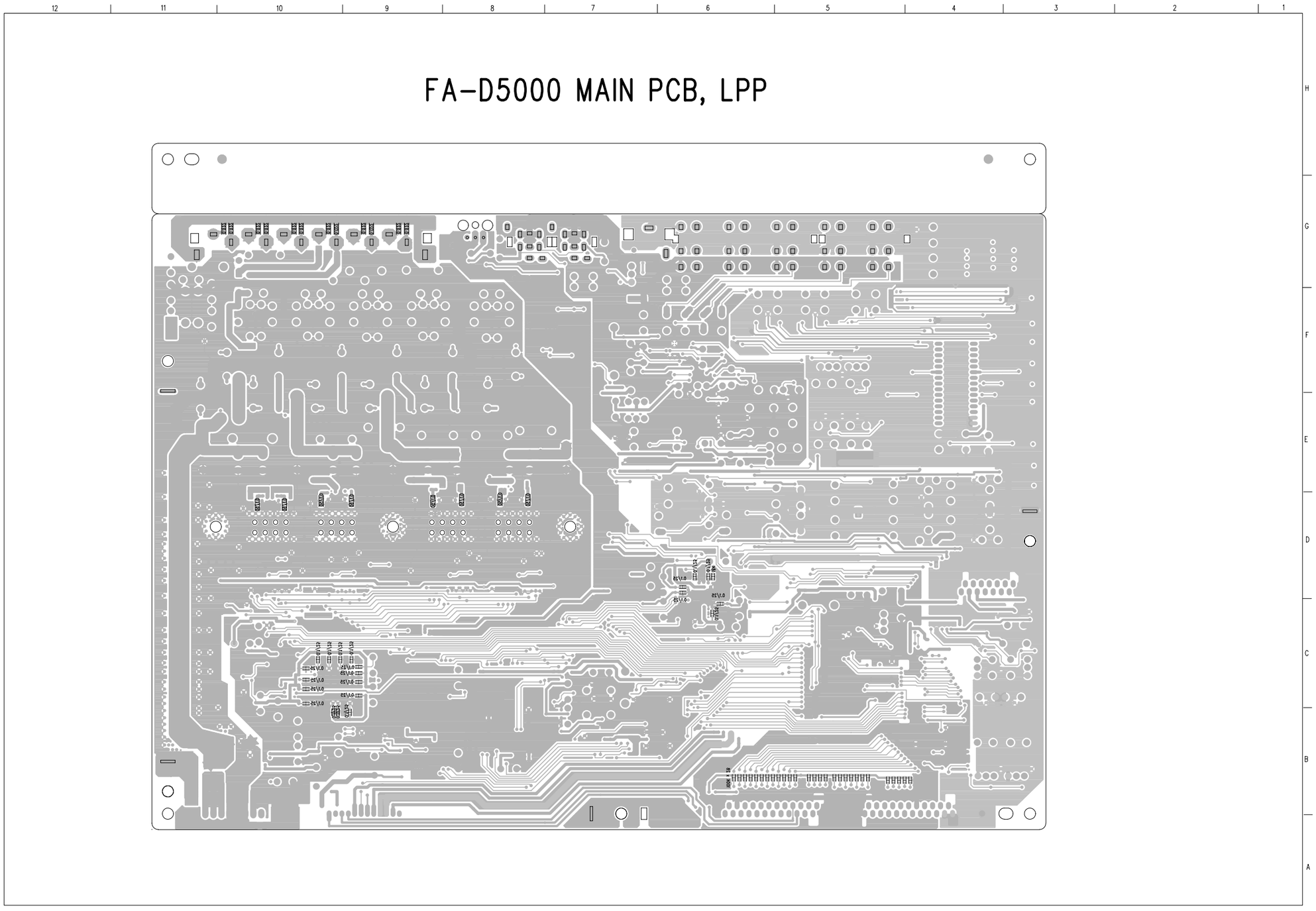
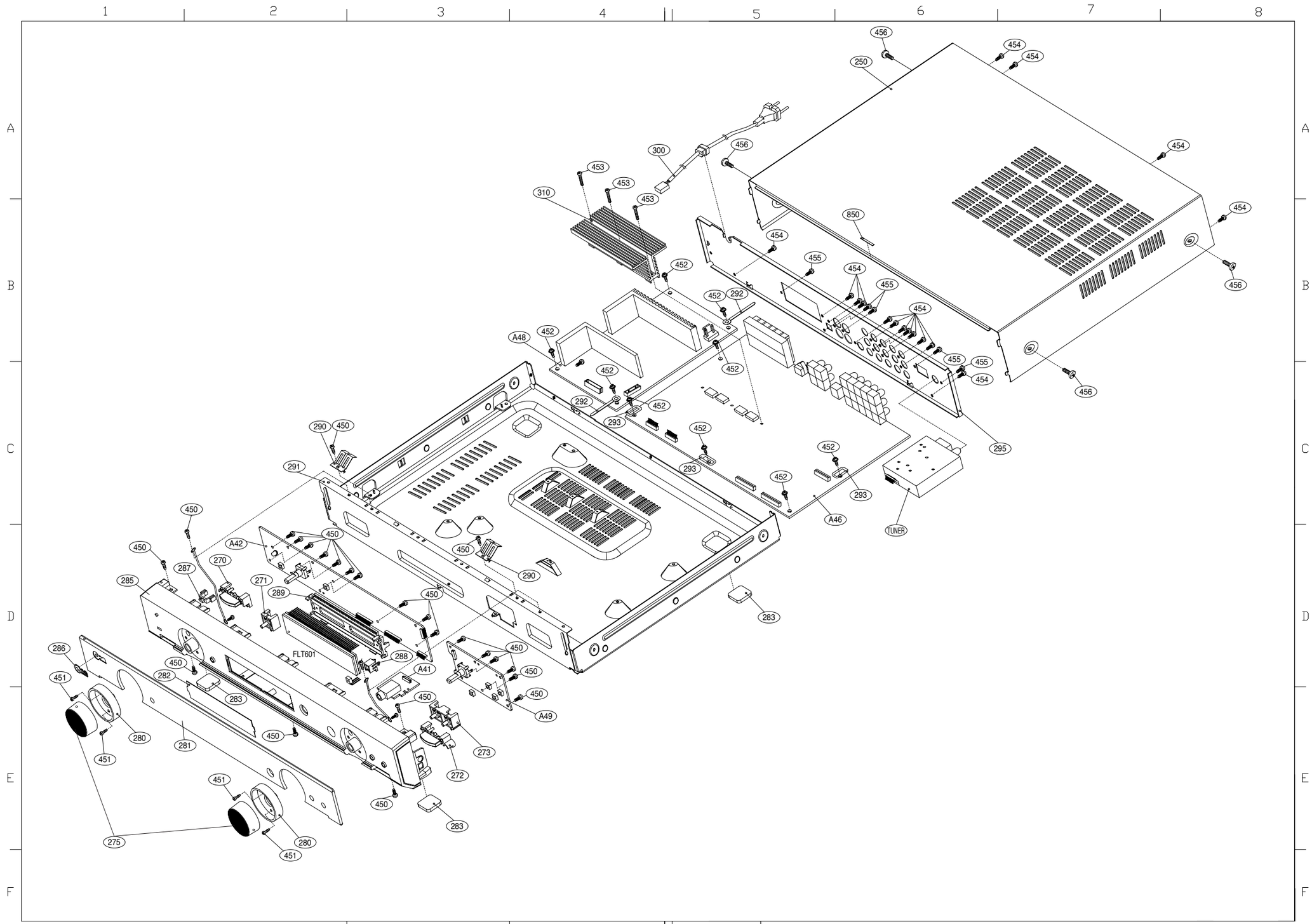
PRINTED CIRCUIT DIAGRAMS

1. MAIN P.C.BOARD (COMPONENT SIDE)

FA-D5000 MAIN PCB, LPP



1. MAIN P.C.BOARD (BOTTOM SIDE)



SECTION 3. EXPLODED VIEWS