



SERVICE MANUAL

MODEL: OM5541

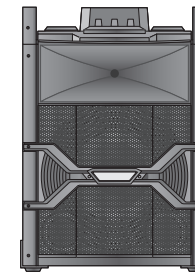
Mini Hi-Fi System

SERVICE MANUAL

MODEL: OM5541

CAUTION

BEFORE SERVICING THE UNIT, READ THE "SAFETY PRECAUTIONS" IN THIS MANUAL.



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SECTION 1

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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 be installed.

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

8. Minimize bodily motions when handling 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).

CAUTION. GRAPHIC SYMBOLS

	THE LIGHTNING FLASH WITH APROWHEAD SYMBOL. WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.
	THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

HIDDEN KEY MODE

Push both Front key and RCU key to activate it for 5 seconds.

1. Disc Lock On/Off (CD Function Only Active)

- Front Key : STOP
- RCU Key : STOP

2. Check Version and Option code

- Front Key : STOP
- RCU Key : PLAY/PAUSE
- You can change [Audio MCU Version <-> CD Controller Version <-> EEPROM Option] by SKIP+/-.

3. Clear EEPROM

- Front Key : STOP
- RCU Key : SKIP-

4. Edit EEPROM

- Front Key : STOP
- RCU Key : SKIP+
- You can change the digit of option by SKIP+/-.
- You can edit 0~f by REPEAT or PLAY/PAUSE key.

5. Bluetooth DUT

- Front Key : STOP
- RCU Key : PROGRAM
- Bluetooth model only

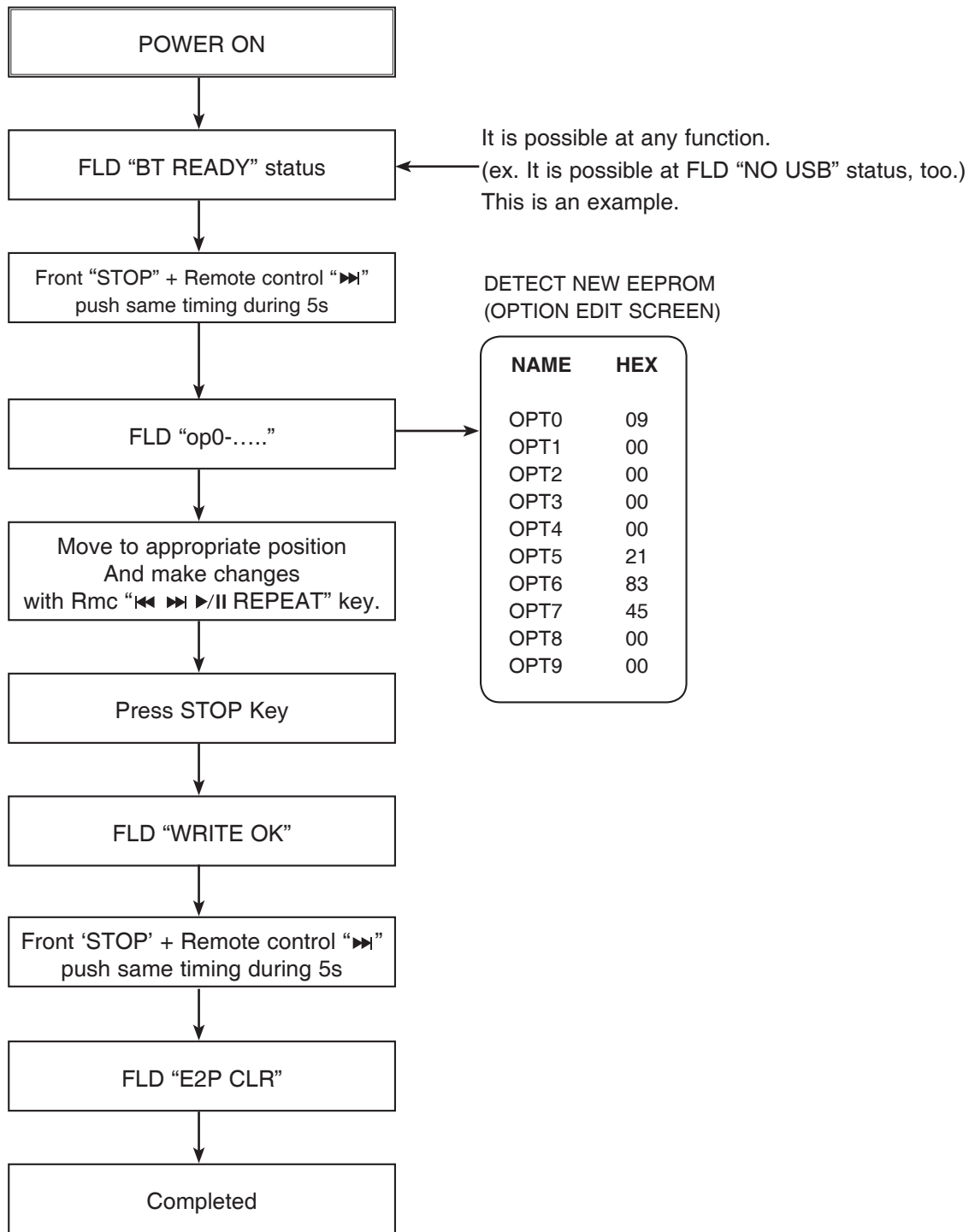
6. Power Disc Lock On/Off (CD Function Only Active)

- Front Key : STOP
- RCU Key : EQ

7. Amp Clip On/Off

- Front Key : STOP
 - RCU Key : Mute
- Amp Clip Mode Change (Amp Clip On --> Amp Clip Off --> Level Down display).

SERVICE INFORMATION FOR EEPROM



PROGRAM DOWNLOAD & UPDATE GUIDE

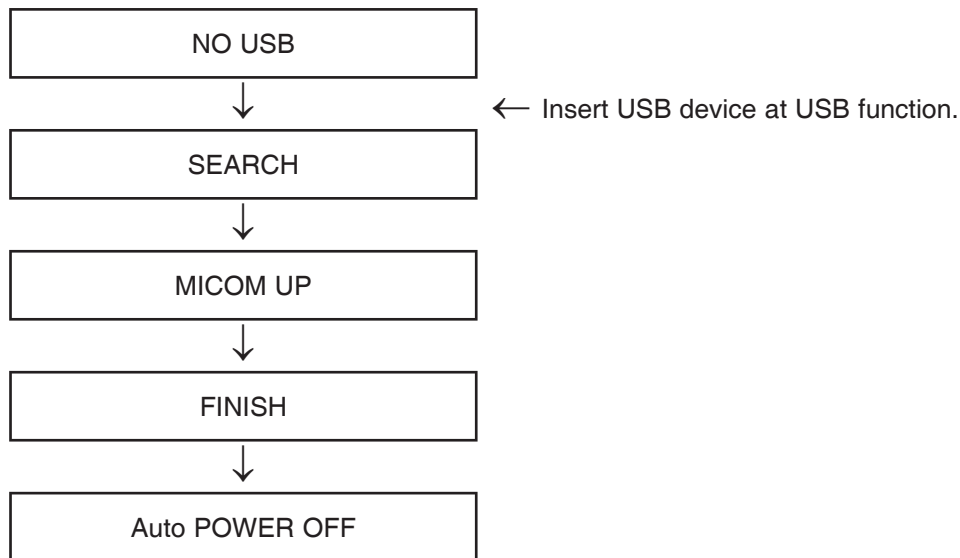
1. MICOM PROGRAM

Download program file name must be MICOM_OM5541_YYMMDDX.HEX

If security program (Water Wall) is activated on your PC, you must save the file to the USB storage device and disable the security software, then download the file to your set. Downloading file proceeds in the same way at USB1 function and USB2 function.

Caution: When downloading the file, you should neither unplug the USB device, change to the other function, nor power off the device. USB device must be unplugged when the downloading process is completed.

ON VFD DISPLAY SCREEN



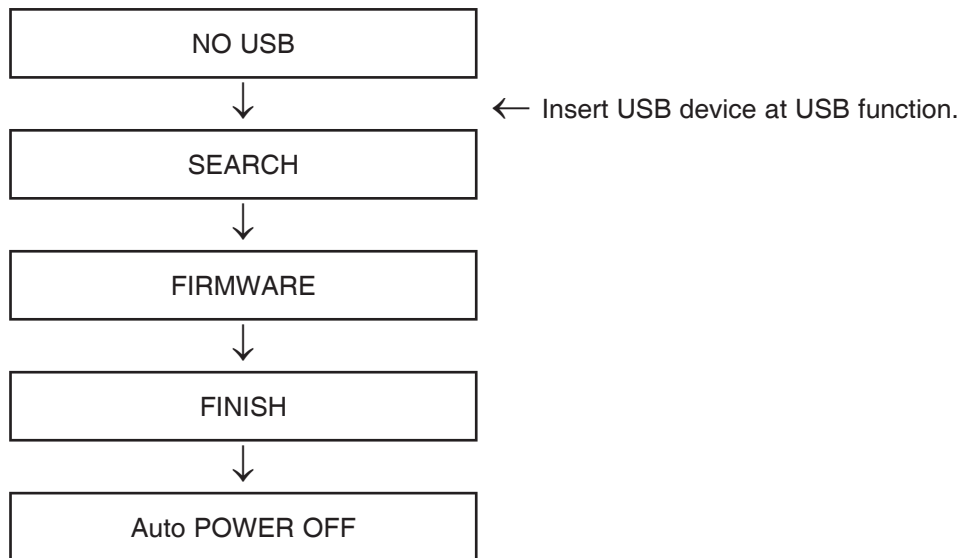
2. MCS PROGRAM

Download program file name must be HG440_OM5541_YMMMDDX.bin

If security program (Water Wall) is activated on your PC, you must save the file to the USB storage device and disable the security software, then download the file to your set. Downloading file proceeds in the same way at USB1 function and USB2 function.

Caution: When downloading the file, you should neither unplug the USB device, change to the other function, nor power off the device. USB device must be unplugged when the downloading process is completed.

ON VFD DISPLAY SCREEN



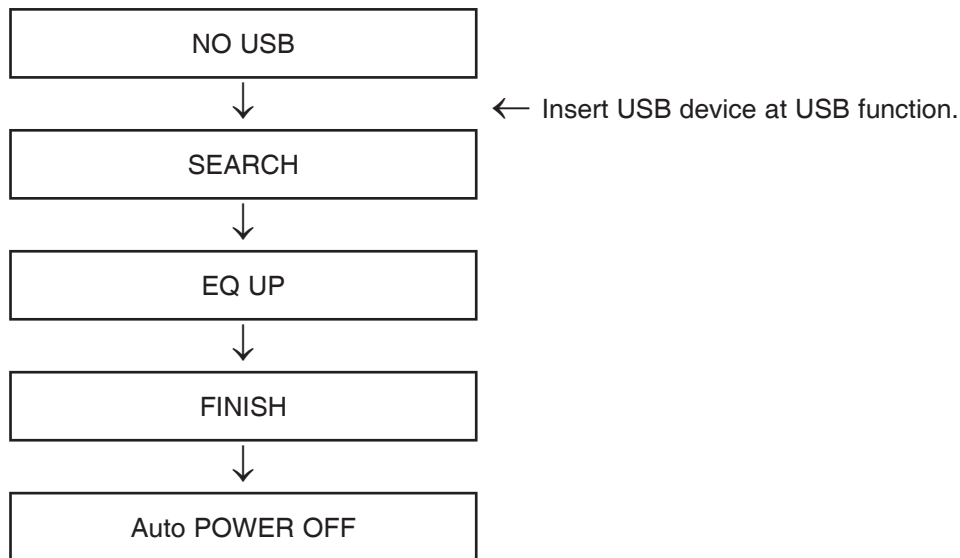
3. EQ PROGRAM

Download program file name must be EQ_PRG.BIN

If security program (Water Wall) is activated on your PC, you must save the file to the USB storage device and disable the security software, then download the file to your set. Downloading file proceeds in the same way at USB1 function and USB2 function.

Caution: When downloading the file, you should neither unplug the USB device, change to the other function, nor power off the device. USB device must be unplugged when the downloading process is completed.

ON VFD DISPLAY SCREEN



SPECIFICATIONS

• GENERAL

Power requirements	Refer to the main label.
Power consumption	Refer to the main label.
Dimensions (W x H x D)	395.5 mm x 548 mm x 446 mm
Net Weight (Approx.)	16.5 kg
Operating temperature	5 °C to 35 °C (41 °F to 95 °F)
Operating humidity	5 % to 90 %
Bus Power Supply (USB)	5 V \Rightarrow 500 mA

• INPUTS

AUX IN	1.2 Vrms (1 kHz, 0 dB, 600 Ω , RCA jack, L/R)
PORT. IN	0.8 Vrms (3.5 \varnothing jack, L/R)
MIC. IN	25 mV

• TUNER

FM Tuning Range	87.5 to 108.0 MHz or 87.50 to 108.00 MHz
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• AMPLIFIER

Total	400 W
Front	Mono 400 W (at 1 kHz, 4 Ω)
THD	20 %

♦ Design and specifications are subject to change without notice.

SECTION 2

CABINET & MAIN CHASSIS

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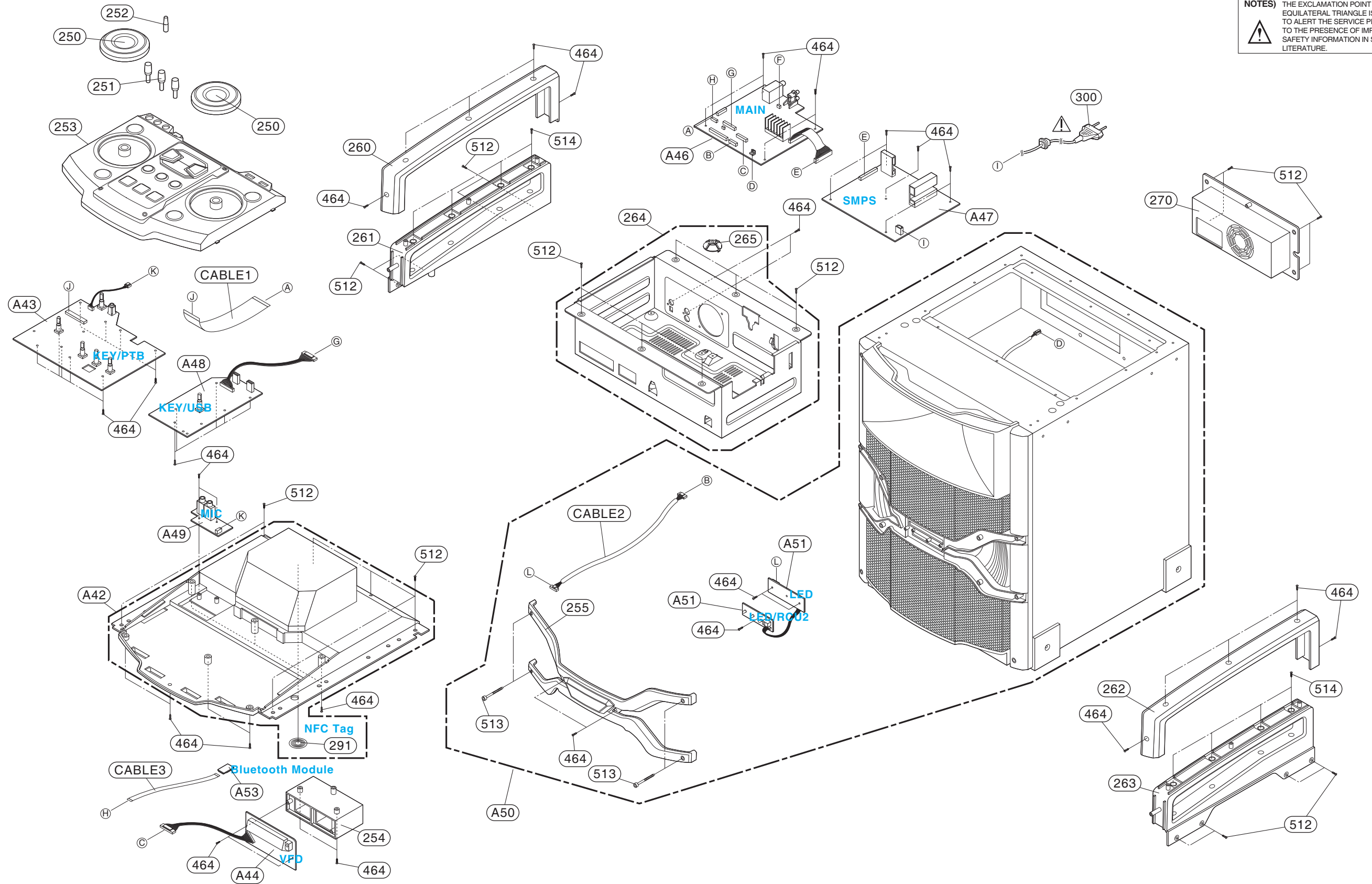
MEMO

A series of horizontal dotted lines spanning the width of the page, intended for handwritten notes or a memo body.

EXPLODED VIEWS

1. CABINET AND MAIN FRAME SECTION (OM5541)

NOTES) THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.



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ONE POINT REPAIR GUIDE

1. NO POWER

If the unit doesn't work by no power problem, repair the set according to the following guide.

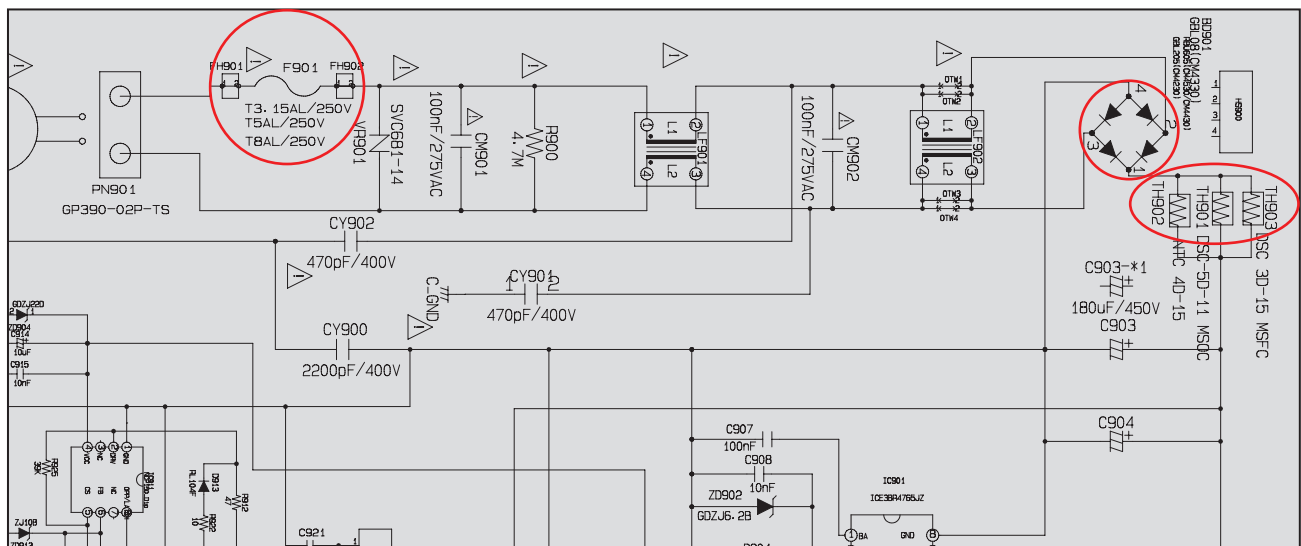
(1) FUSE & BRIDGE DIODE

[Solution]

Please check and replace F901, BD901, TH901 or TH903 on SMPS board.

[How to troubleshoot (Countermeasure)]

- 1) Check if the fuse F901 is open or short-circuit.
- 2) Check if the bridge diode BD901 is short-circuit by over current with a digital multi meter.
- 3) Check if the NTC thermistor TH901 or TH903 is normal or open.



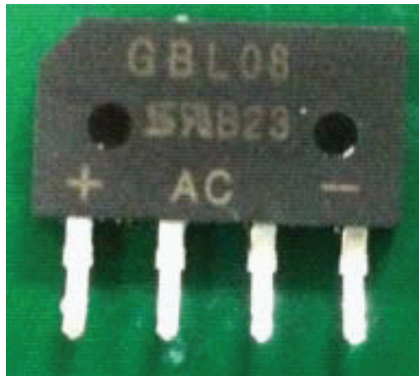
< SMPS circuit diagram >

[Service hint (Any picture / Remark)]



< F901 >

If F901 is not short-circuit, replace it with a same specifications one.



< BD901 >

If BD901 is short-circuit, replace it with a new one.



< TH901 >

If TH901 is open, replace it with a new one.

ONE POINT REPAIR GUIDE

(2) D951

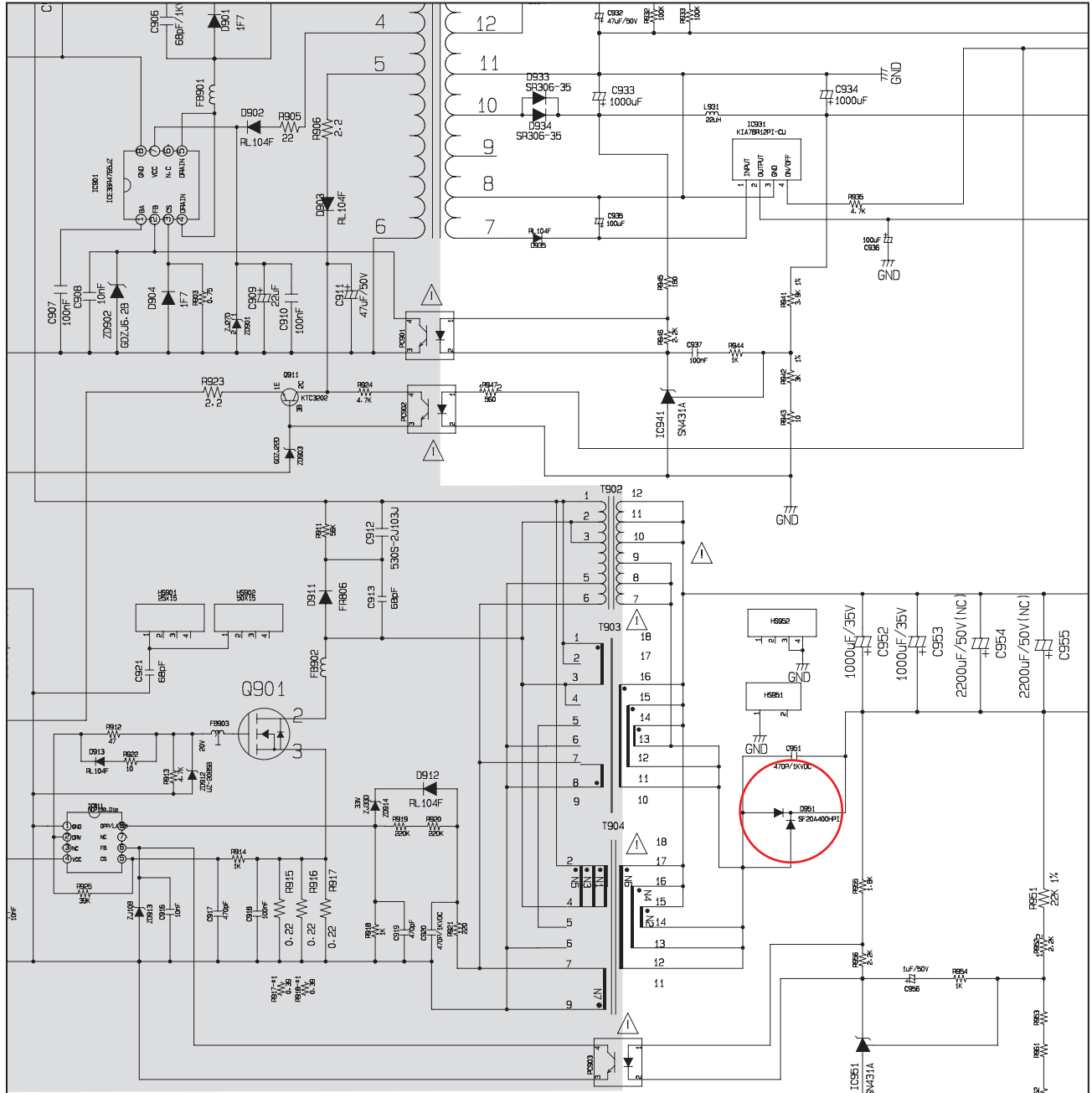
[Solution]

Please check and replace D951 on SMPS board.

[How to troubleshoot (Countermeasure)]

- 1) Check the anode-cathod voltage of D951 with a digital multi-meter, it is normally 0.2 ~ 0.3 V.
⇒ If it doesn't have any voltage, it's destroyed. Replace it with a new one.

[Service hint (Any picture / Remark)]



< SMPS circuit diagram >

ONE POINT REPAIR GUIDE

2. NO BOOTING WHEN POWER ON THE SET

The set doesn't work when press the power button on the front board or the remote control.

(1) FLASH MEMORY

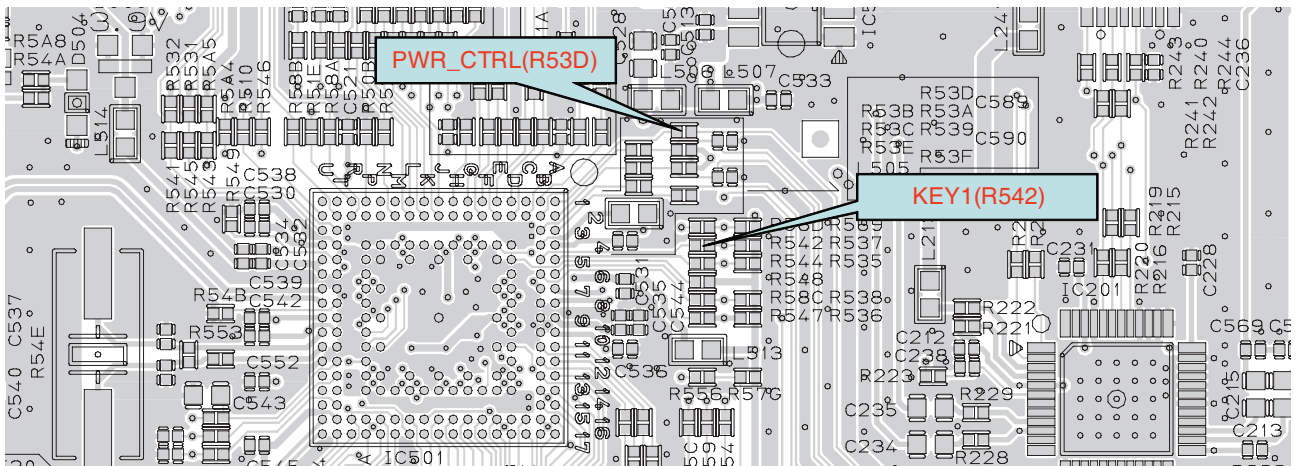
[Solution]

Please check and replace IC503 on MAIN board.

[How to troubleshoot (Countermeasure)]

- 1) Check 5.6 V to CN501 in standby mode.
⇒ If there is no 5.6 V, check the SMPS.
- 2) Check 12 V, F+, F- and PVDD when power on the set.
- If the set doesn't work regardless of what the KEY1 changes high to low while pressing the power button. X500 and X501 work normally but, if you can not power on the set, replace IC501 with a new one on the MAIN board.

[Service hint (Any picture / Remark)]



< Main Board Top view >

ONE POINT REPAIR GUIDE

3. VFD IS NOT DISPLAYED WHEN POWER ON THE SET

When power on the set, any icons or characters on VFD are not displayed.

(1) VFD

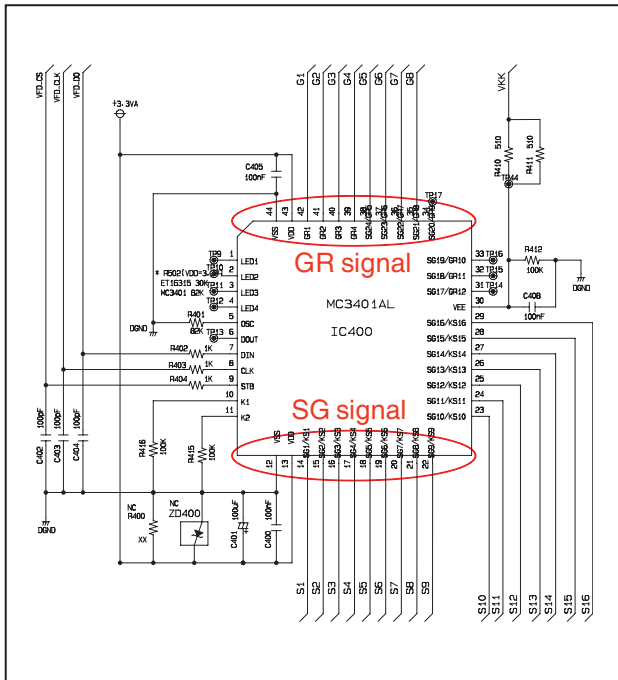
[Solution]

Please check and replace DIG400 on FRONT board.

[How to troubleshoot (Countermeasure)]

- 1) Check if VKK, FL+ and FL- are output from SMPS to VFD via the MAIN board.
- 2) Check if IC501 outputs VFD_D0, VFD_CLK and VFD_STB to the FRONT board.
- 3) Check the GR signal(pulse signal) of IC301 on the FRONT board.
Check the SG signal(pulse signal) of IC301 on the FRONT board.
 - ⇒ If the GR and SG signal isn't output, replace IC301 with a new one.
 - ⇒ If the GR and SG signal is output, replace DIG302 with a new one.

[Service hint (Any picture / Remark)]



Click the picture, and then drag to enlarge it. Check the waveform on details.

< Waveform of GR and SG signal >

ONE POINT REPAIR GUIDE

4. NO SOUND

There is no sound output by DIGITAL AUDIO AMP DAMAGE, repair the set according to the following guide.

(1) BY DIGITAL AUDIO AMP DAMAGE (IN ALL FUNCTIONS)

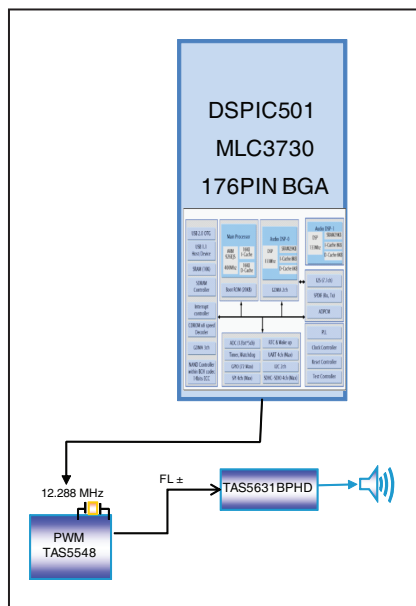
[Solution]

Please check and replace IC700 on MAIN board.

[How to troubleshoot (Countermeasure)]

- 1) Check PWM_FL± signals from IC601 to IC700 each input function.
 - ⇒ If no signal, check if I2S audio signals are entered to IC601.
- 2) Check the following I2S signal flow. < I2S audio signal Interface >
 - MCS_BCK: IC501_Pin E1 --> IC601_Pin23
 - MCS_LRCK : IC501_Pin D1 --> IC601_Pin22 (44.1 kHz)
 - MCS_DATA_OUT : IC501_Pin E2 --> IC601_Pin24
 - MCS_MCLK : IC501_Pin D2 --> IC201_Pin44
 - ⇒ If there is any trouble, check the power for each IC. The power is normal but, if the signal waveform to the IC is distorted or no signal, replace it with a new one.
- 3) Check PVDD.
 - ⇒ If PVDD is abnormal, check the SMPS.
- 4) Check +12 V for driving the gate of AMP IC.
 - a. All the powers are normal, but if +12 V is low, there is possible for AMP IC to be damaged.
 - b. Remove L702, L706 one by one.
 - When removed a inductance, if +12 V is recovered, the IC connected to it was damaged.
 - c. Replace the IC with a new one.
- 5) Check the impedance between IC700_OUT_A/OUT_D & GND.
 - a. If the impedance is 0 Ω, the IC must be damaged.
 - b. After removing the heat sink, replace it with a new one.

[Service hint (Any picture / Remark)]

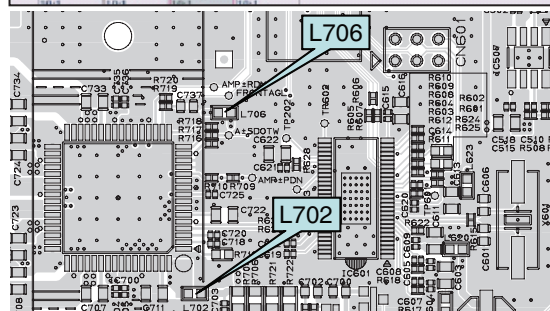


< I2S signal flow >

< Waveform of I2S audio interface signals >



< Main Board Top view >



ONE POINT REPAIR GUIDE

There is no sound output in the USB FUNCTION, repair the set according to the following guide.

(2) IN THE USB FUNCTION

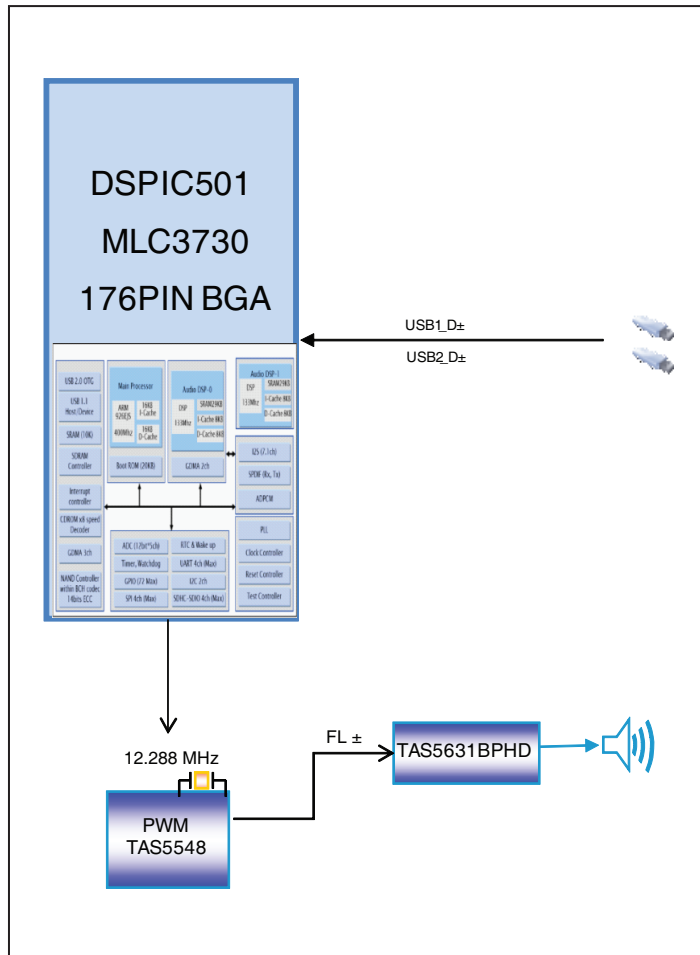
[Solution]

Please check and replace IC501 on MAIN board & IC460 on USB board.

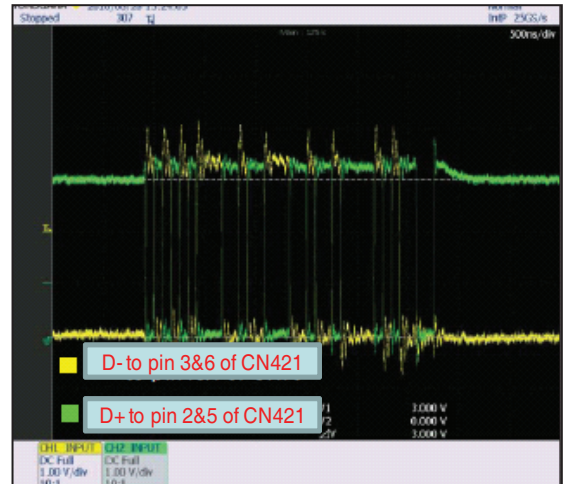
[How to troubleshoot (Countermeasure)]

- 1) Check +5 V_USB to USB board.
 - ⇒ If the USB LED are turned on, the voltage is okay, if so not, check +5.6 V to pin3 of CN460.
- 2) Check USB D1± or USB D2± from MAIN board to USB board.
 - a. Check 2.0_D1± signals(pin U7, U8) or 1.1_D1± signals(pin A7, A8) to IC501 on MAIN board.
 - b. Check USB± signals to CN421 (pin 2, 3, 5, 6).
 - ⇒ If there is any trouble, check the power for each IC. The power is normal but , if the signal waveform to the IC is distorted or no signal, replace it with a new one.
- 3) Check if “Digital audio AMP block” on item 4-(1) is normal.

[Service hint (Any picture / Remark)]



< USB function signal flow >



< Waveform of USB D± signal >

ONE POINT REPAIR GUIDE

There is no sound output in the AUX FUNCTION, repair the set according to the following guide.

(3) IN THE AUX FUNCTION

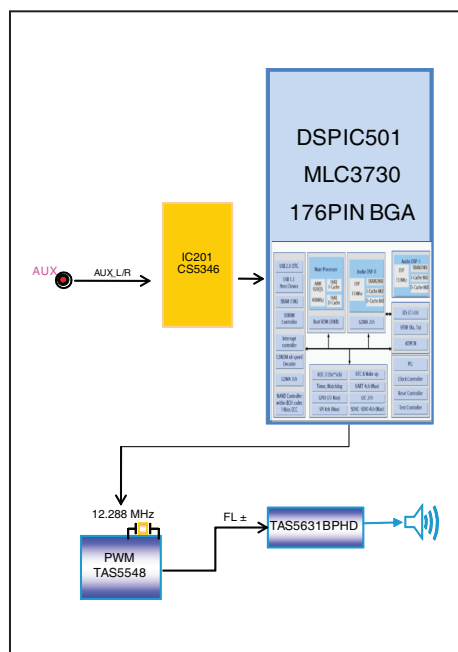
[Solution]

Please check and replace IC201 on MAIN board.

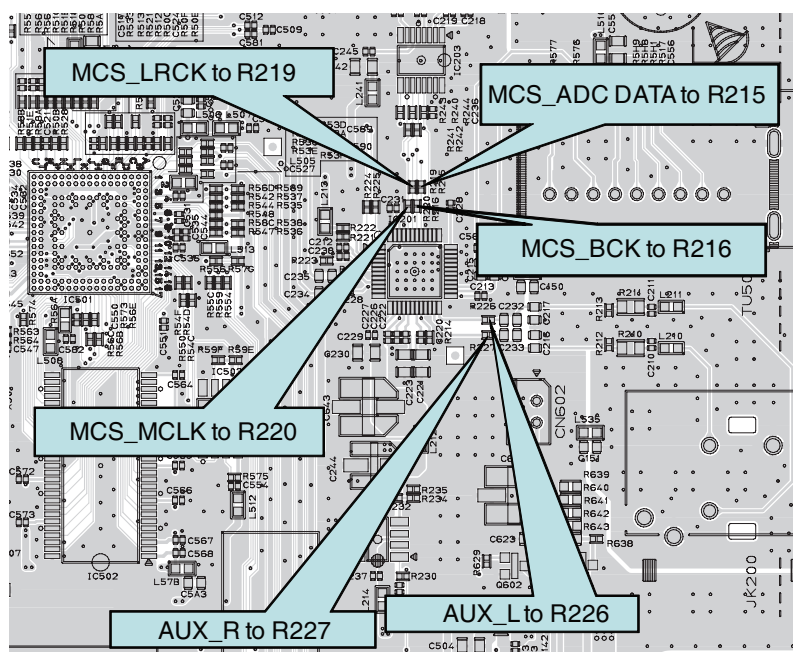
[How to troubleshoot (Countermeasure)]

- 1) Check AUX_L/R signals to IC201 (Pin23, 24).
- 2) Check if MCS_BCK, MCS_LRCK & MCS_MCLK are entered from IC501 to IC201.
- 3) Check if ADC_DATA is entered from IC201 to IC501.
 - ⇒ If no signal, check +5 V & +3.3 V(ADC) for IC201. If is NG, replace it a new one.
- 4) Check the following I2S signal flow from IC501 to IC601. (Refer to item 4-(1)).
 - ⇒ If there is any trouble, check the power for each IC. The power is normal but, if the signal waveform to the IC is distorted or no signal, replace it with a new one.
- 5) Check if the digital audio AMP block is okay. Refer to "Digital Audio AMP" guide on Item 4-(1).
 - ⇒ If AMP is damaged, replace it with a new one.

[Service hint (Any picture / Remark)]



< AUX function signal flow >



< Main Board Top view >

ONE POINT REPAIR GUIDE

There is no sound output in the TUNER FUNCTION, repair the set according to the following guide.

(4) IN THE TUNER FUNCTION

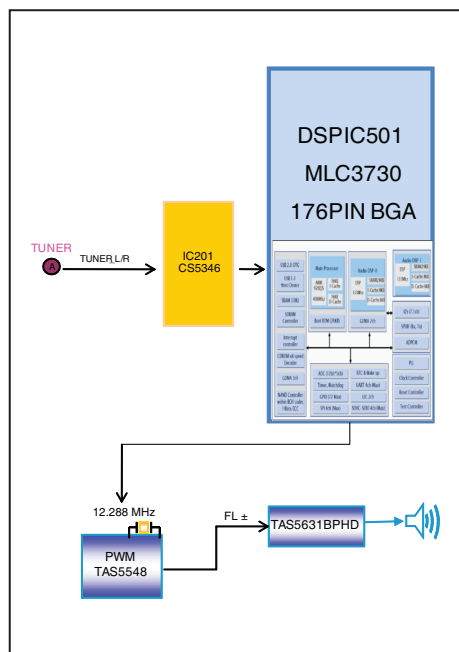
[Solution]

Please check and replace IC201, TU500 on MAIN board.

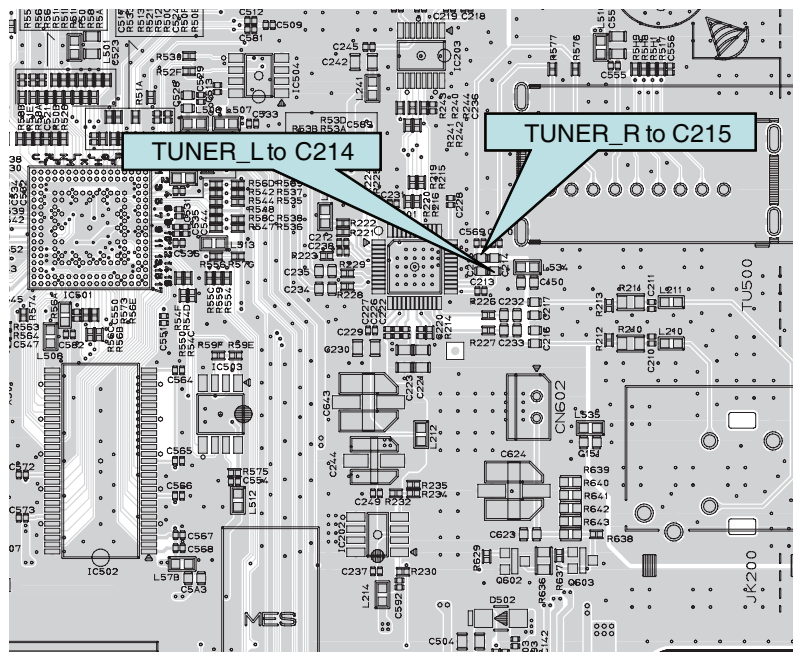
[How to troubleshoot (Countermeasure)]

- 1) Check if TUNER_LR is entered from Pin1, 3 of TU500 to IC201(Pin26, 27).
 - ⇒ If no signals, check +3.3 V for tuner power.
 - ⇒ Check if the tuner control signals (CLK, DAT, CE, RST, SLT) are entered from IC501 to TU500.
 If it doesn't work, replace TUNER with a new one.
- 2) Check if MCS_BCK, MCS_LRCK, & MCS_MCLK are entered from IC501 to IC201.
- 3) Check if ADC_DATA is entered from IC201 to IC501.
 - ⇒ If no signal, check +5 V & +3.3 V(ADC) for IC201. If is NG, replace it with a new one.
- 4) Check the following I2S audio signal flow from IC501 to IC601. (Refer to item 4-(1).)
 - ⇒ If there is any trouble, check the power for each IC. The power is normal but, if the signal waveform to the IC is distorted or no signal, replace it with a new one.
- 5) Check if the digital audio AMP block is okay. Refer to "Digital Audio AMP" guide on item 4-(1).
 - ⇒ If AMP is damaged, replace it with a new one.

[Service hint (Any picture / Remark)]



< AUX function signal flow >



< Main Board Top view >

ONE POINT REPAIR GUIDE

There is no sound output in the PORTABLE FUNCTION, repair the set according to the following guide.

(5) IN THE PORTABLE FUNCTION

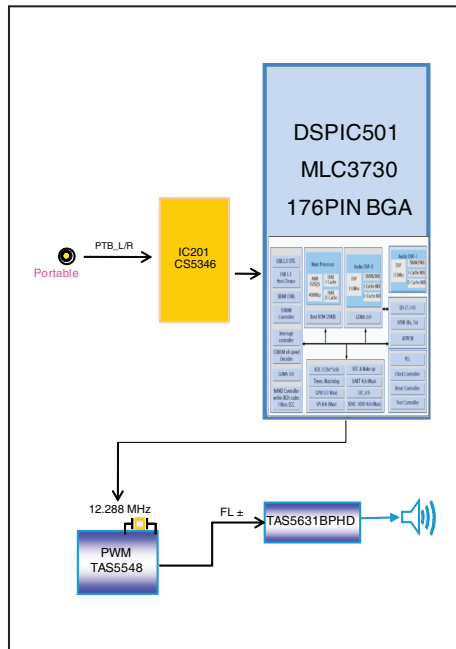
[Solution]

Please check and replace IC201 on MAIN board.

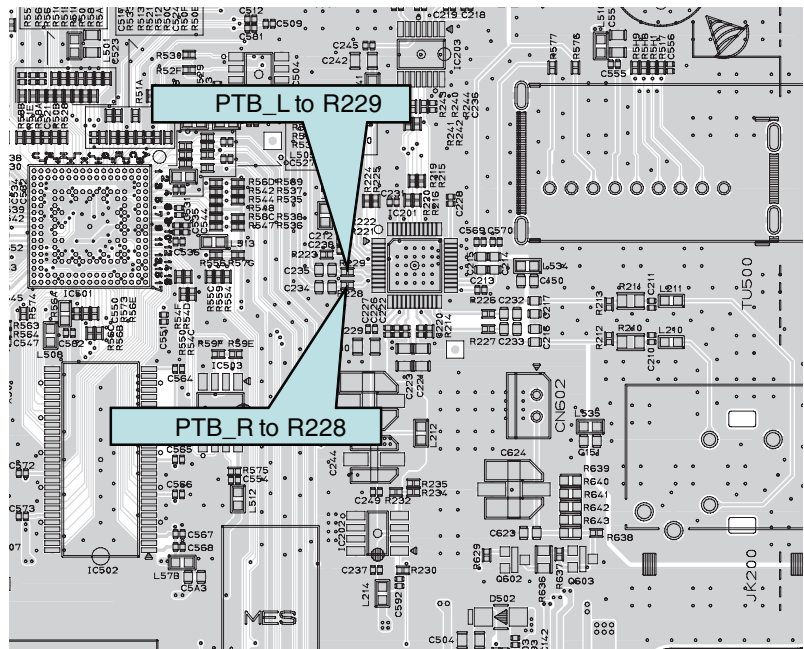
[How to troubleshoot (Countermeasure)]

- 1) Check PT_L/R signals to IC201 (Pin9, 10).
- 2) Check if MCS_BCK, MCS_LRCK, & MCS_MCLK are entered from IC501 to IC201.
- 3) Check if ADC_DATA is entered from IC201 to IC501.
 - ⇒ If no signal, check +5 V & +3.3 V(ADC) for IC201. If NG, replace it a new one.
- 4) Check the following I2S signal flow from IC501 to IC601. (Refer to item 4-(1)).
 - ⇒ If there is any trouble, check the power for each IC. The power is normal but, if the signal waveform to the IC is distorted or no signal, replace it with a new one.
- 5) Check if the digital audio AMP block is okay. Refer to “Digital Audio AMP” guide on Item 4-(1).
 - ⇒ If AMP is damaged, replace it with a new one.

[Service hint (Any picture / Remark)]



< PORTABLE function signal flow >



< Main Board Top view >

ONE POINT REPAIR GUIDE

There is no sound output in the MIC FUNCTION, repair the set according to the following guide.

(6) IN THE MIC FUNCTION

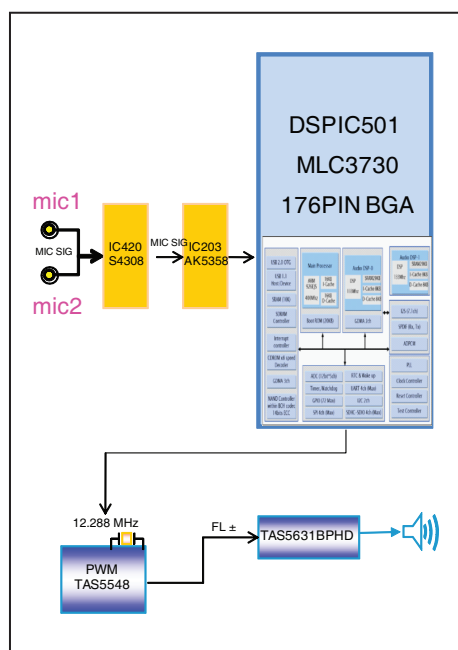
[Solution]

Please check and replace IC203 on MAIN board and IC420 on front MIC board.

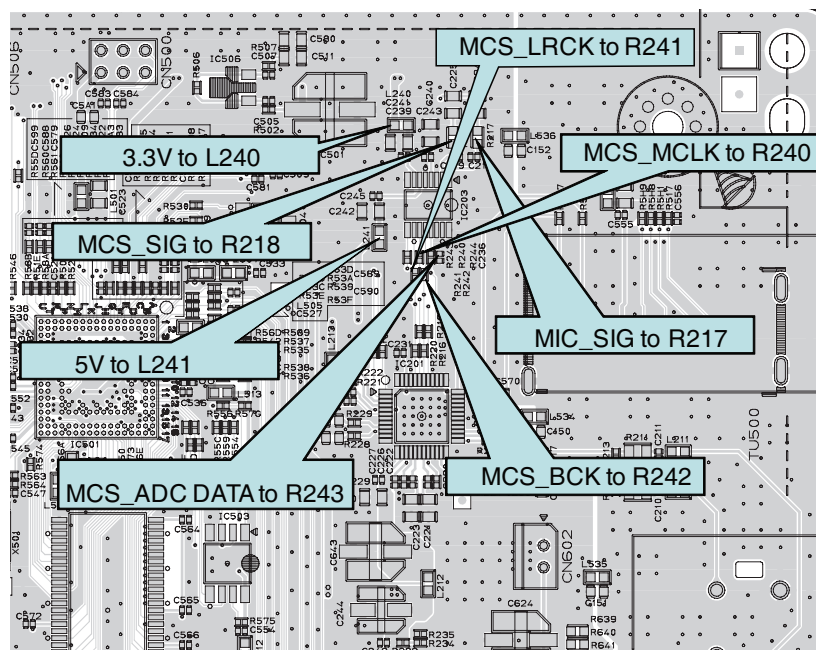
[How to troubleshoot (Countermeasure)]

- 1) Check MIC_SIG signal, from JACK421, JACK422 to IC420 (Pin3) on front MIC board.
- 2) Check MIC_SIG signal from IC420 (Pin4) to CN423.
 - ⇒ If no signal, check +5 V for IC420. If NG, replace it a new one.
- 3) Check MIC_SIG signal from CN423 (Pin4) to CN420.
- 4) Check if MCS_BCK, MCS_LRCK, & MCS_MCLK are entered from IC501 to IC203.
- 5) Check if ADC_DATA is entered from IC203 to IC501.
 - ⇒ If no signal, check +5 V & +3.3 V(ADC) for IC203. If NG, replace it a new one.
- 6) Check the following I2S signal flow from IC501 to IC601.(Refer to item 4-(1).)
 - ⇒ If there is any trouble, check the power for each IC. The power is normal but, if the signal waveform to the IC is distorted or no signal, replace it with a new one.
- 7) Check if the digital audio AMP block is okay. Refer to "Digital Audio AMP" guide on item 4-(1).
 - ⇒ If AMP is damaged, replace it with a new one.

[Service hint (Any picture / Remark)]



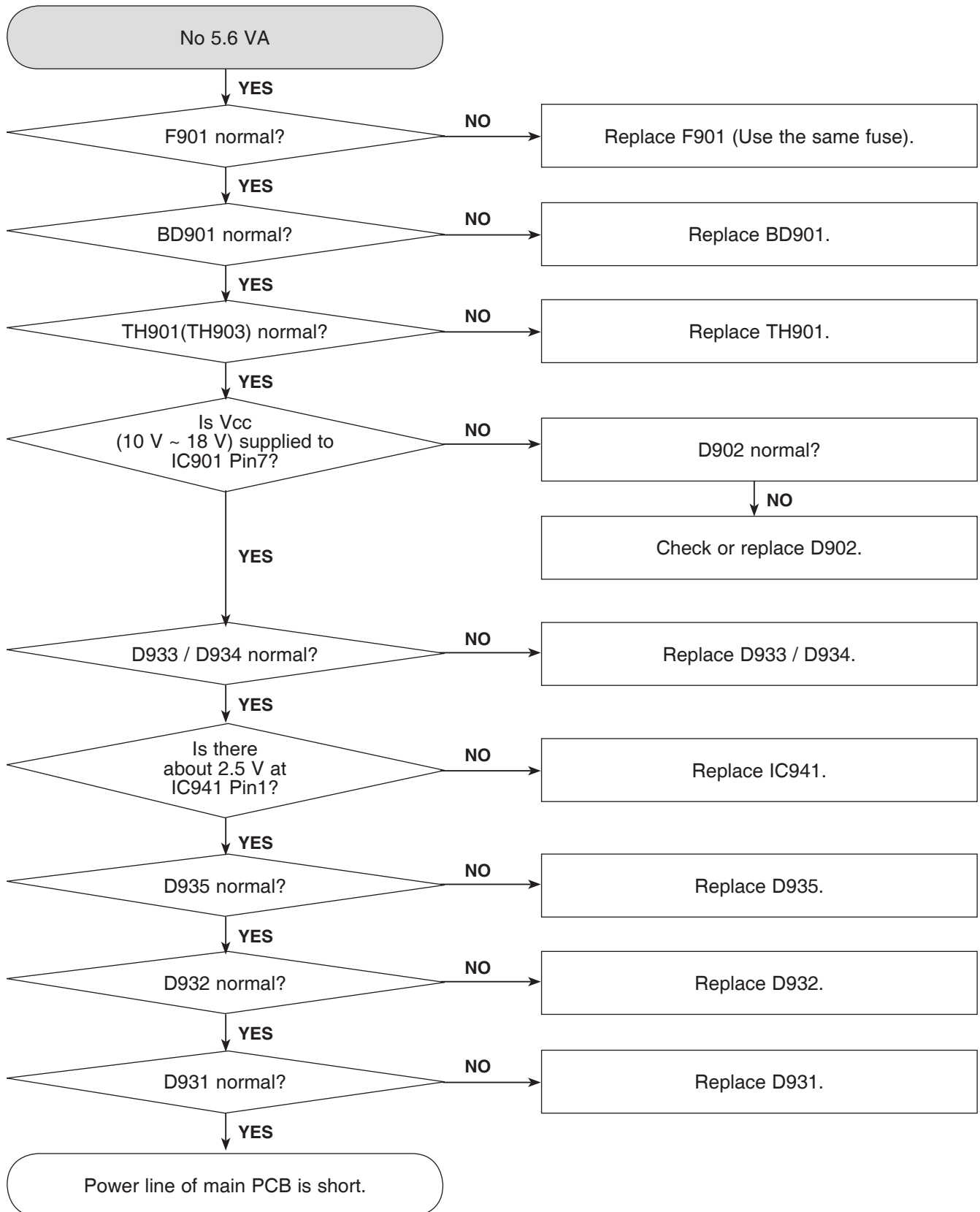
< MIC function signal flow >



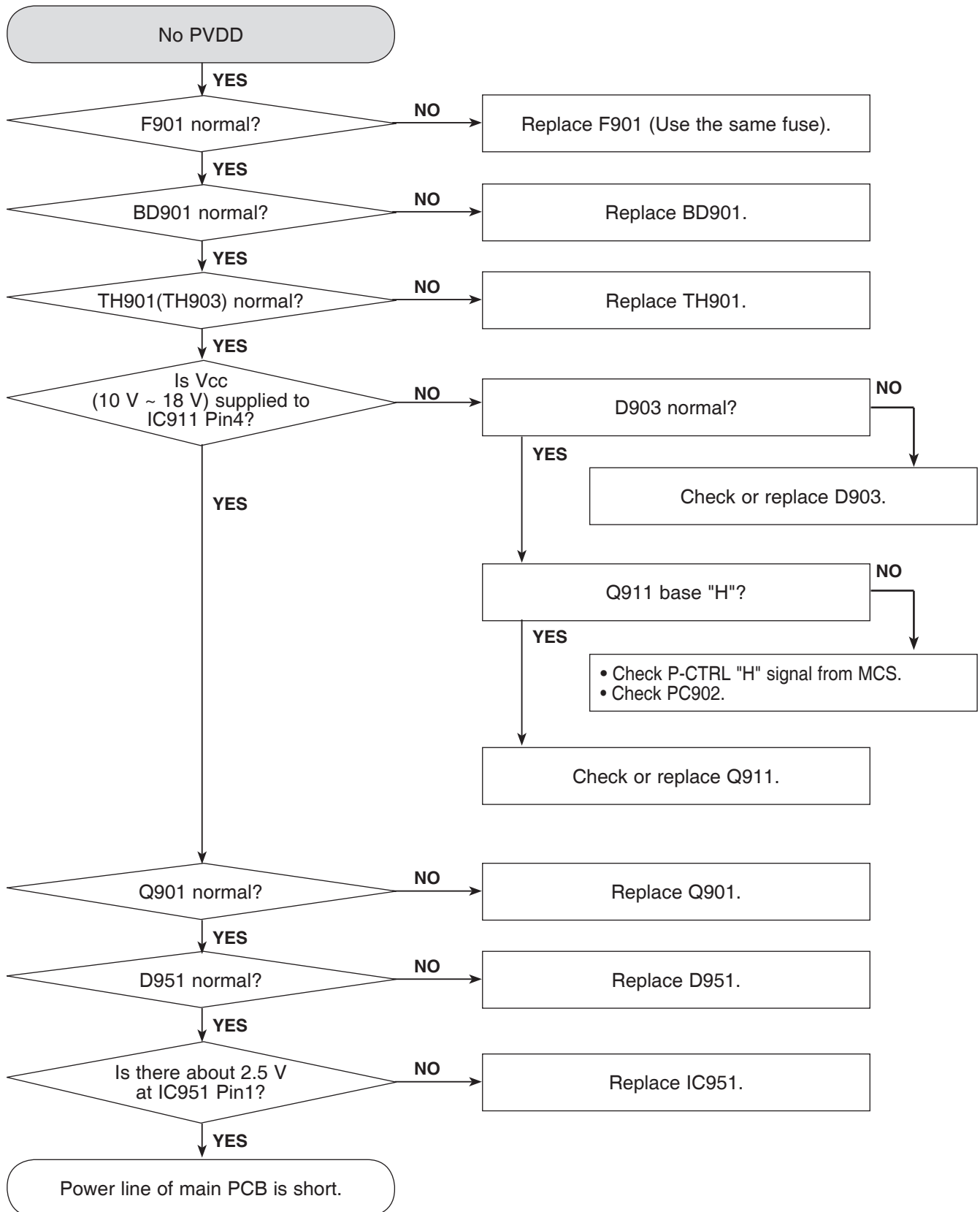
< Main Board Top view >

ELECTRICAL TROUBLESHOOTING GUIDE

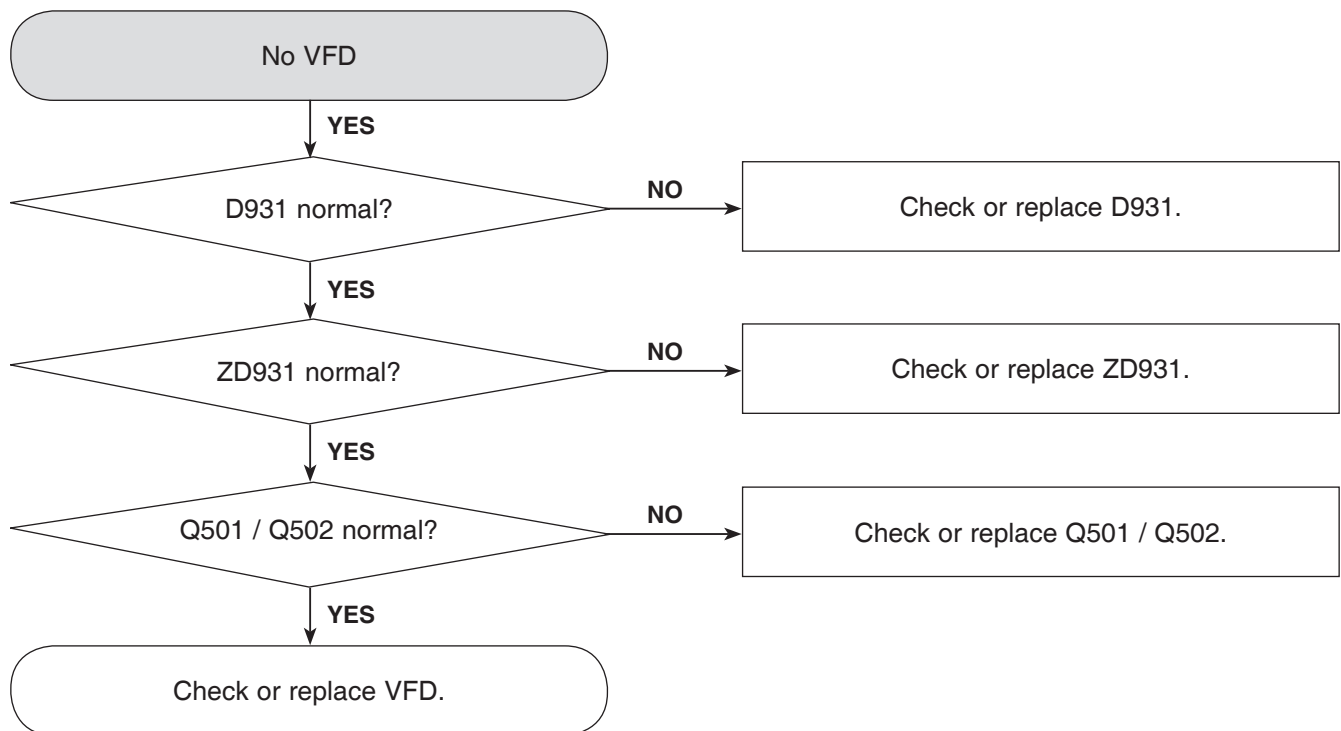
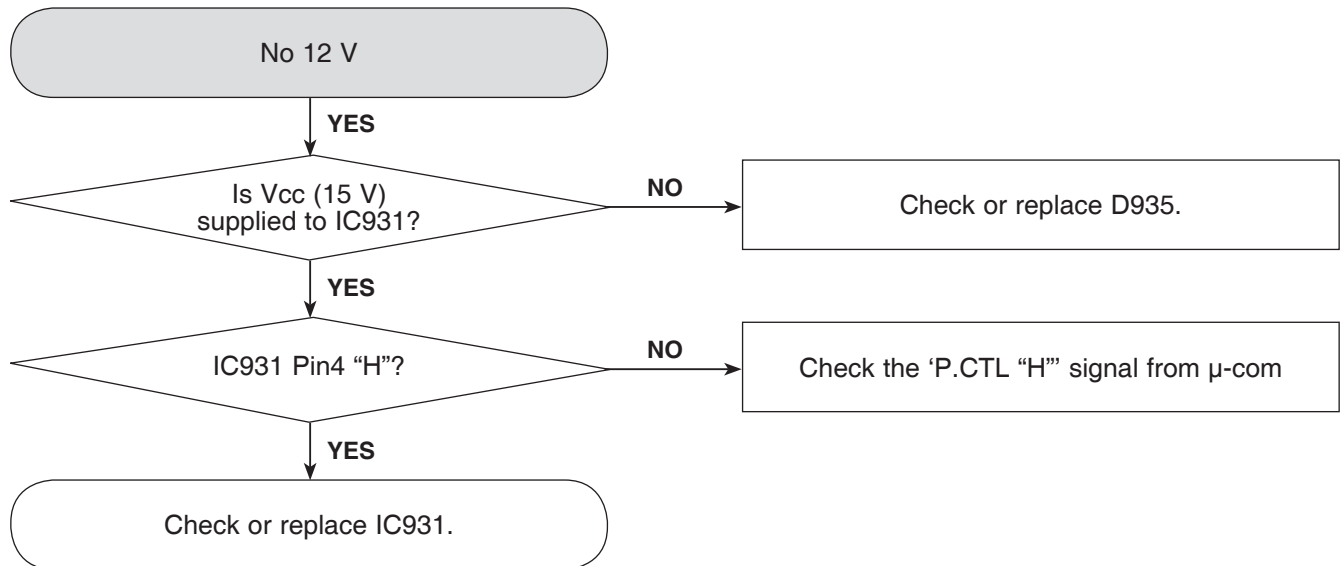
1. POWER (SMPS)



ELECTRICAL TROUBLESHOOTING GUIDE

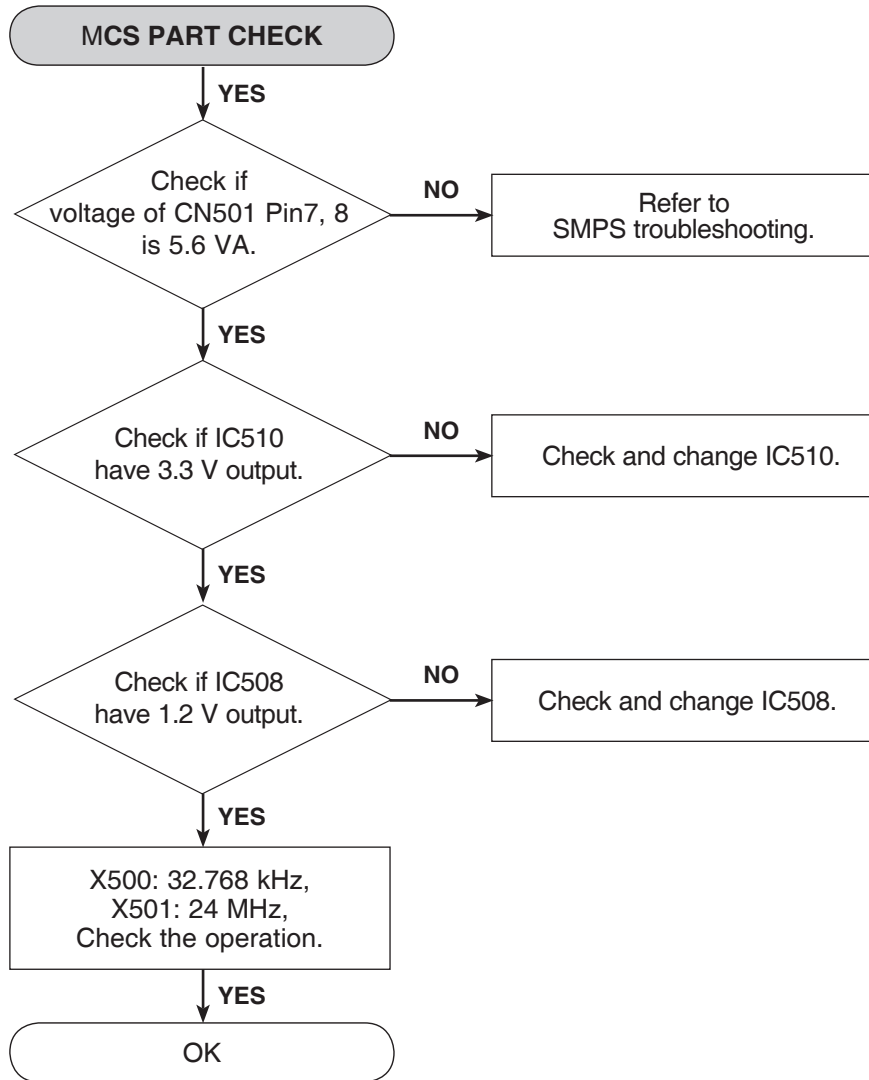


ELECTRICAL TROUBLESHOOTING GUIDE

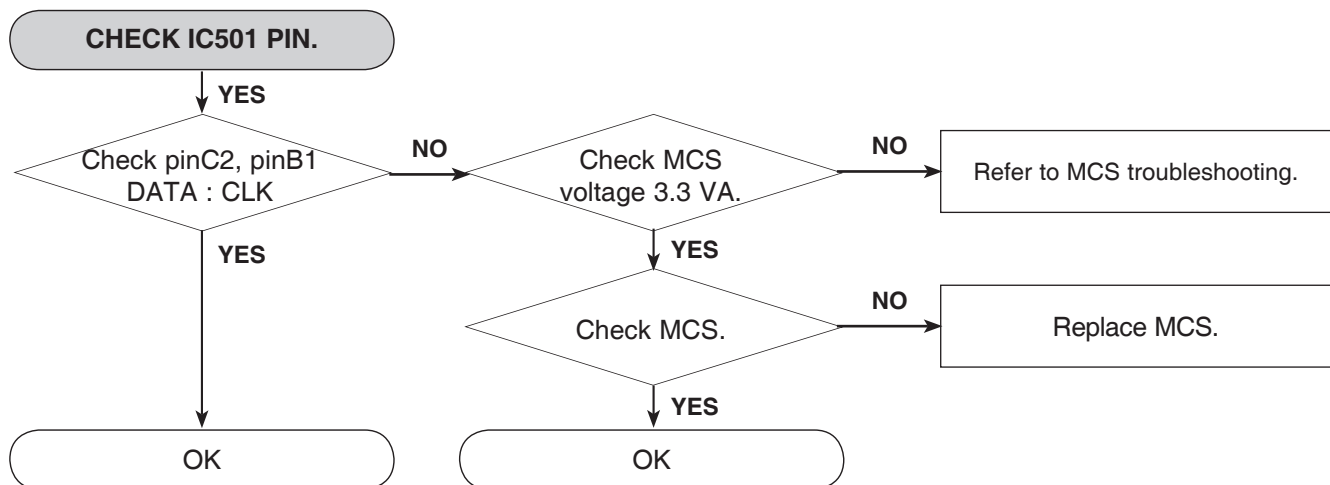


ELECTRICAL TROUBLESHOOTING GUIDE

2. MCS PART CHECK

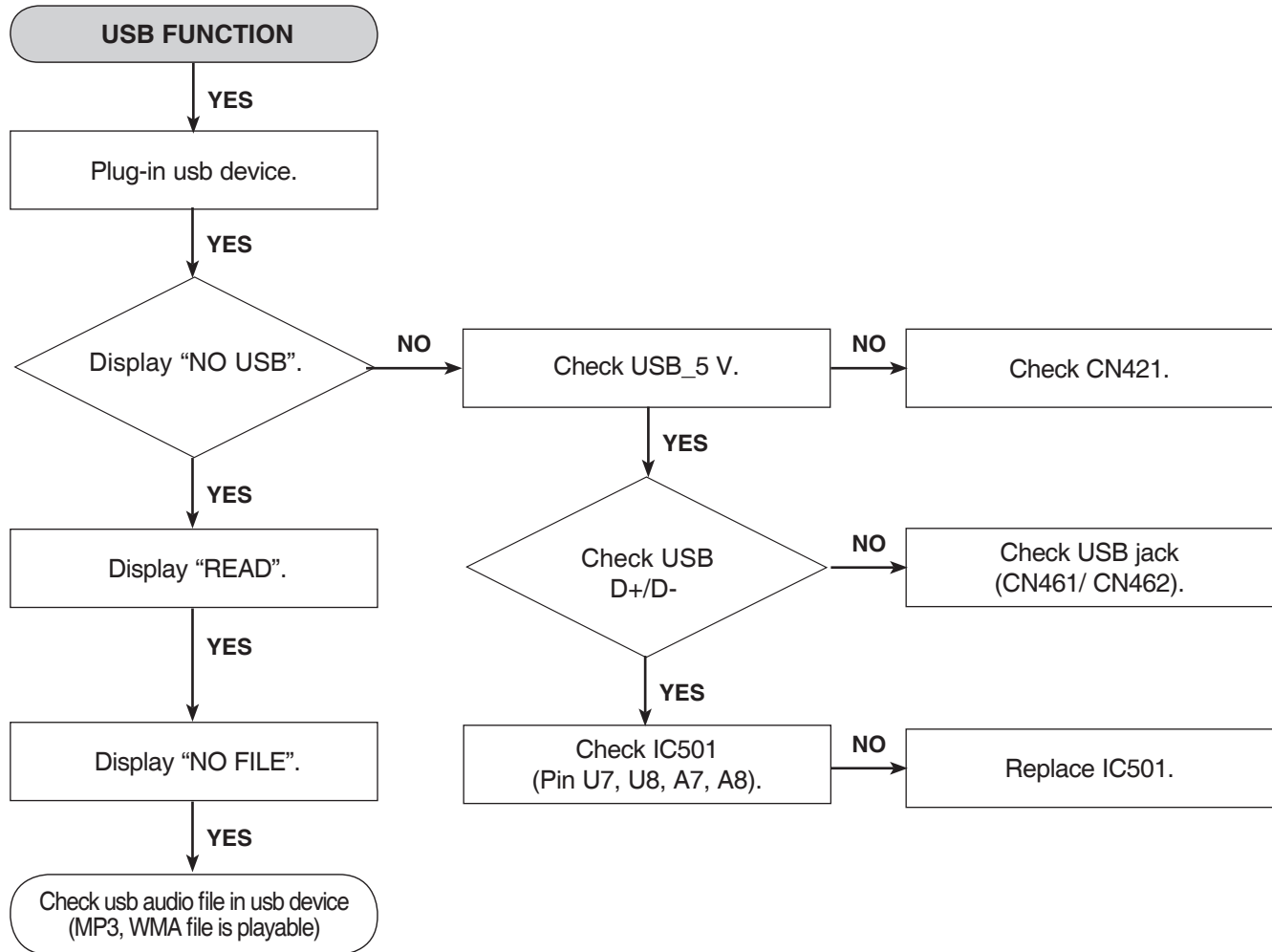


3. IC504(M24C16) CHECK



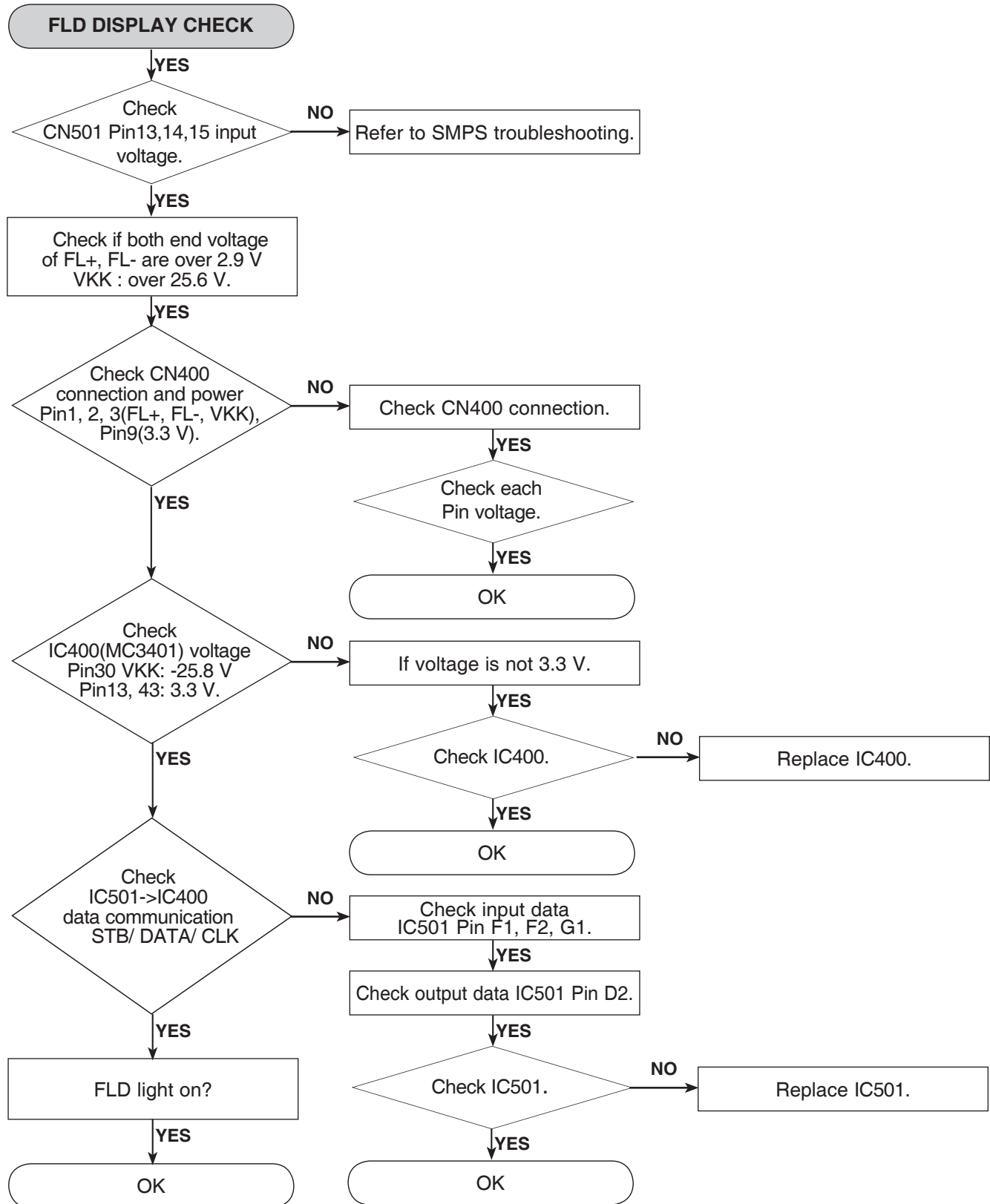
ELECTRICAL TROUBLESHOOTING GUIDE

4. DOUBLE USB FUNCTION



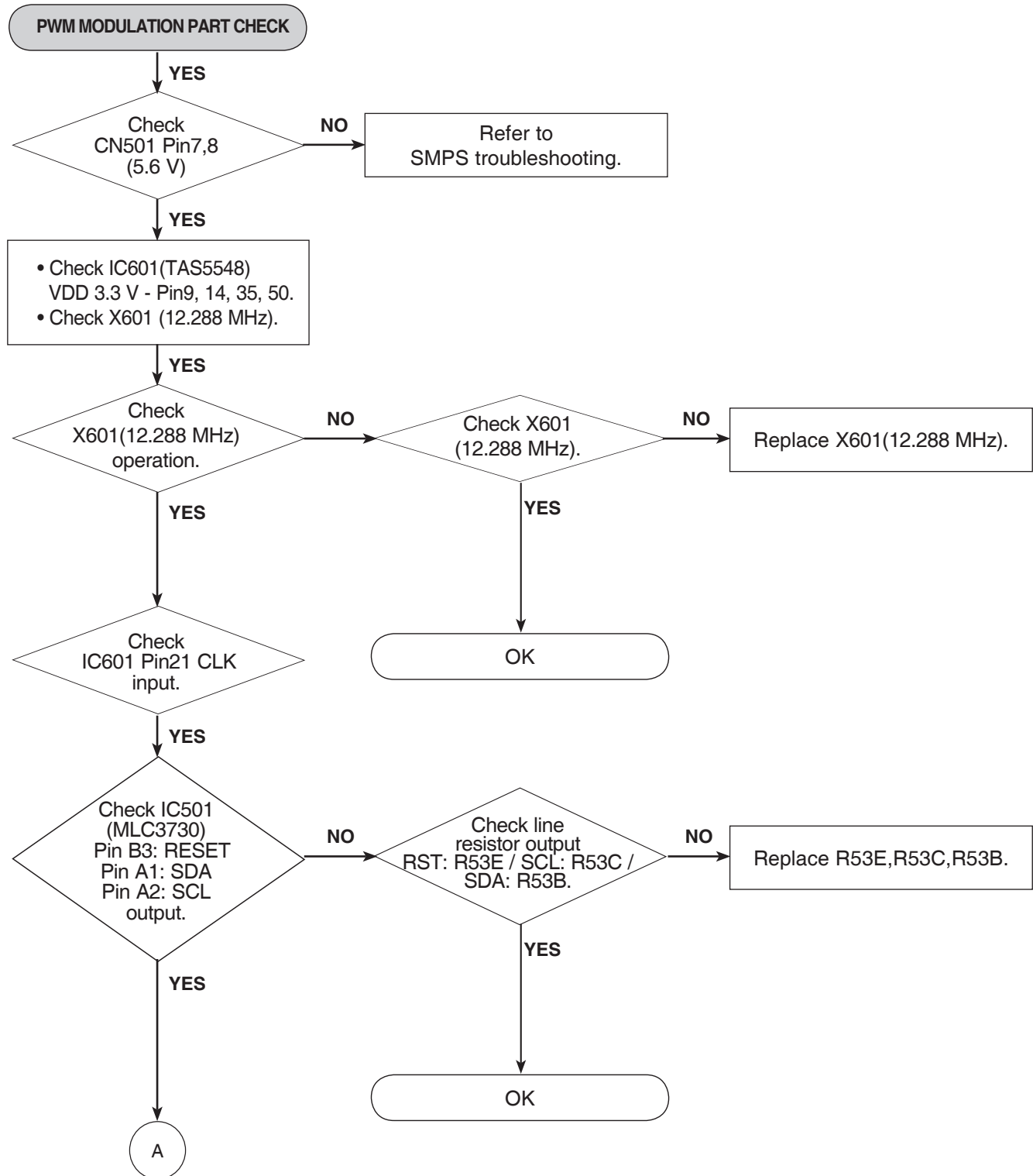
ELECTRICAL TROUBLESHOOTING GUIDE

5. FLD DISPLAY CHECK

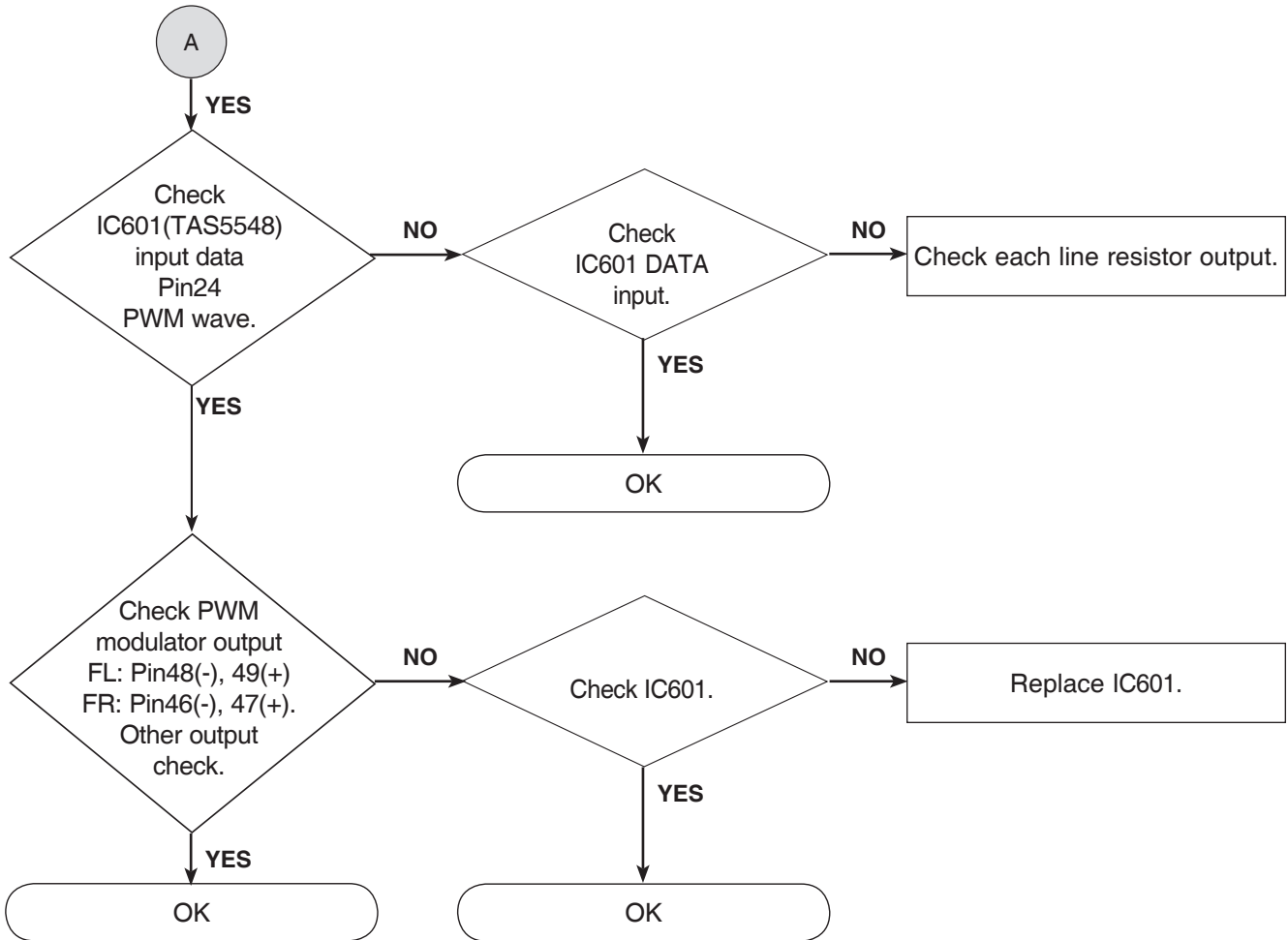


ELECTRICAL TROUBLESHOOTING GUIDE

6. PWM MODULATION CHECK

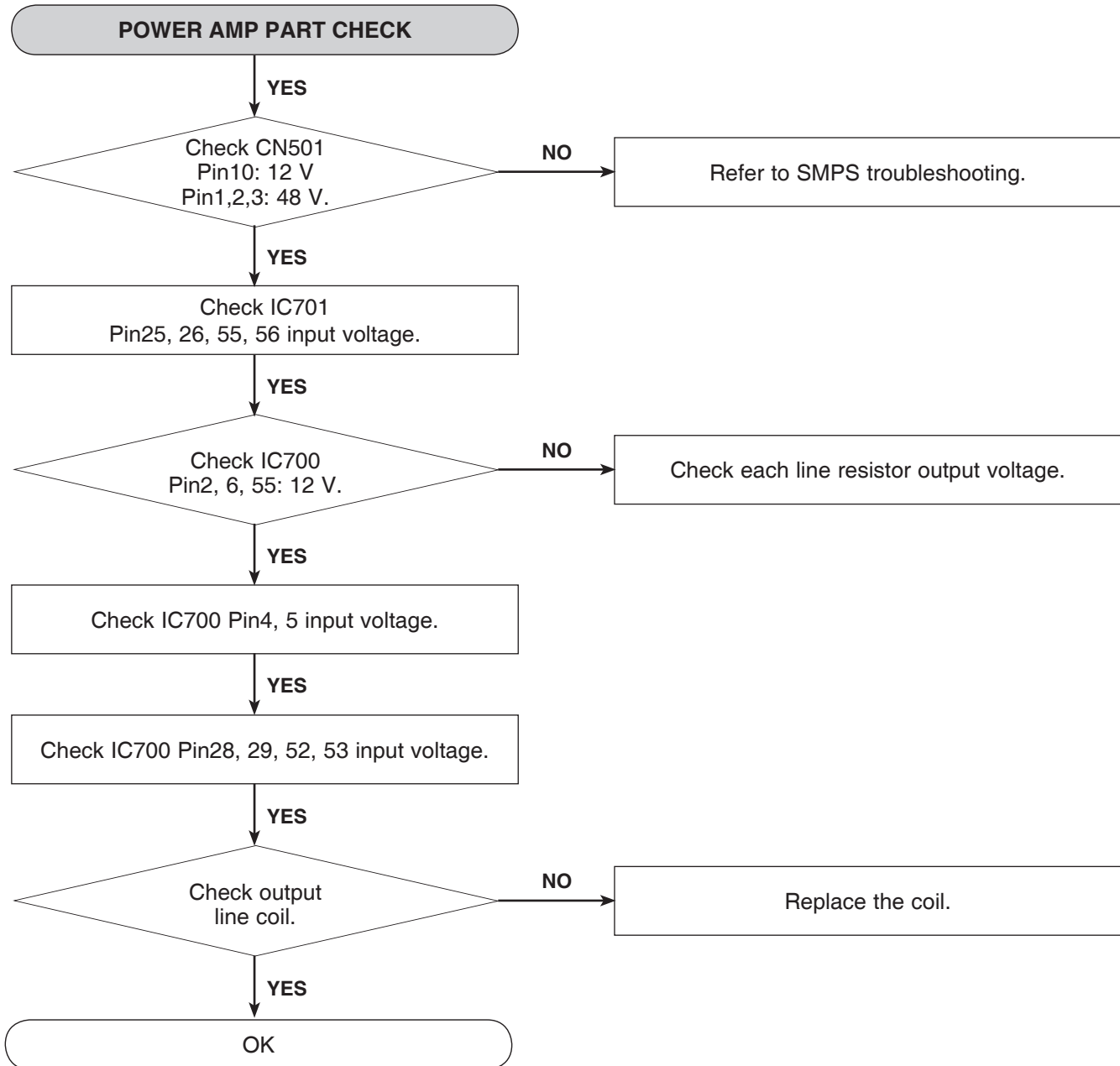


ELECTRICAL TROUBLESHOOTING GUIDE



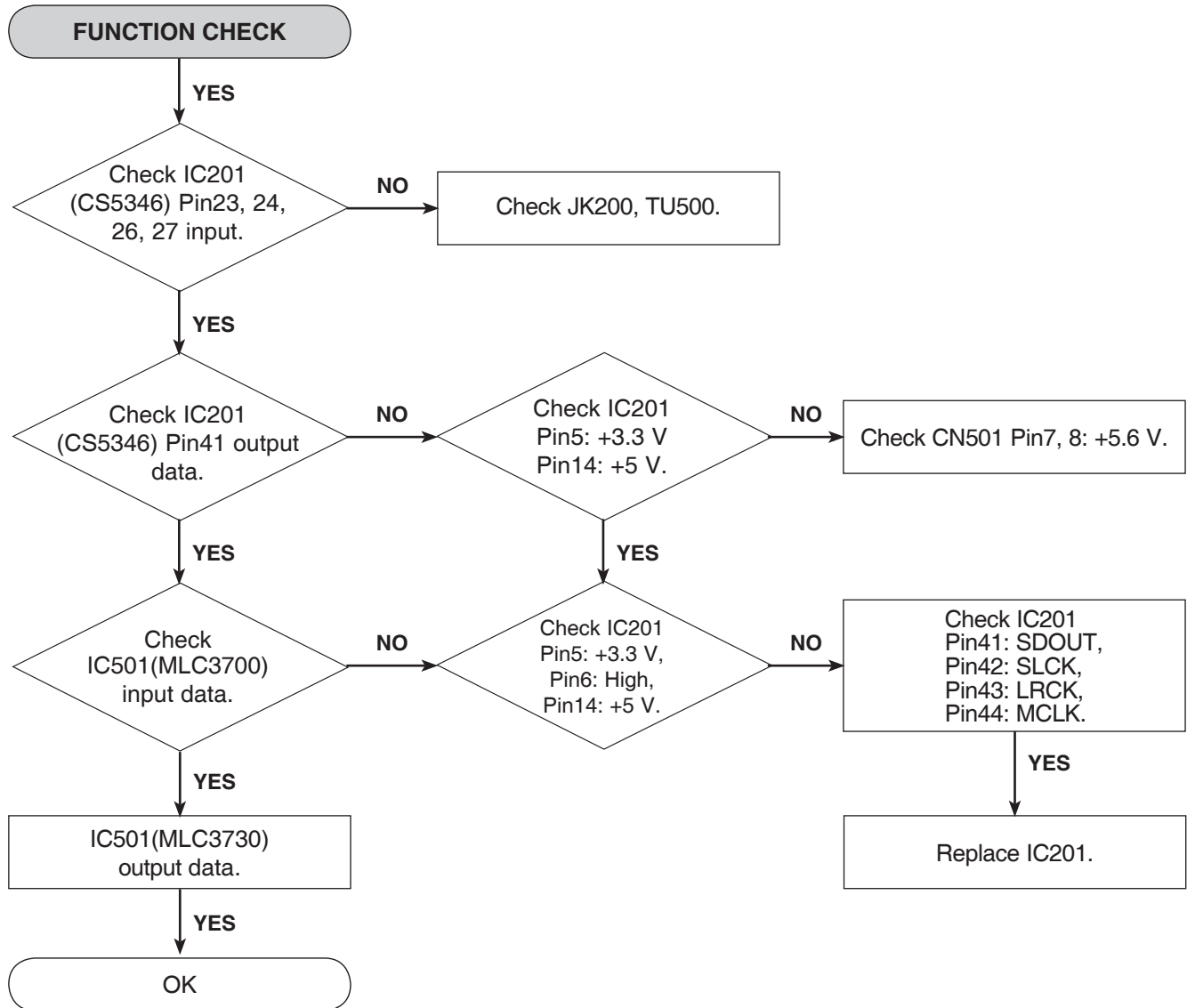
ELECTRICAL TROUBLESHOOTING GUIDE

7. POWER AMP PART CHECK



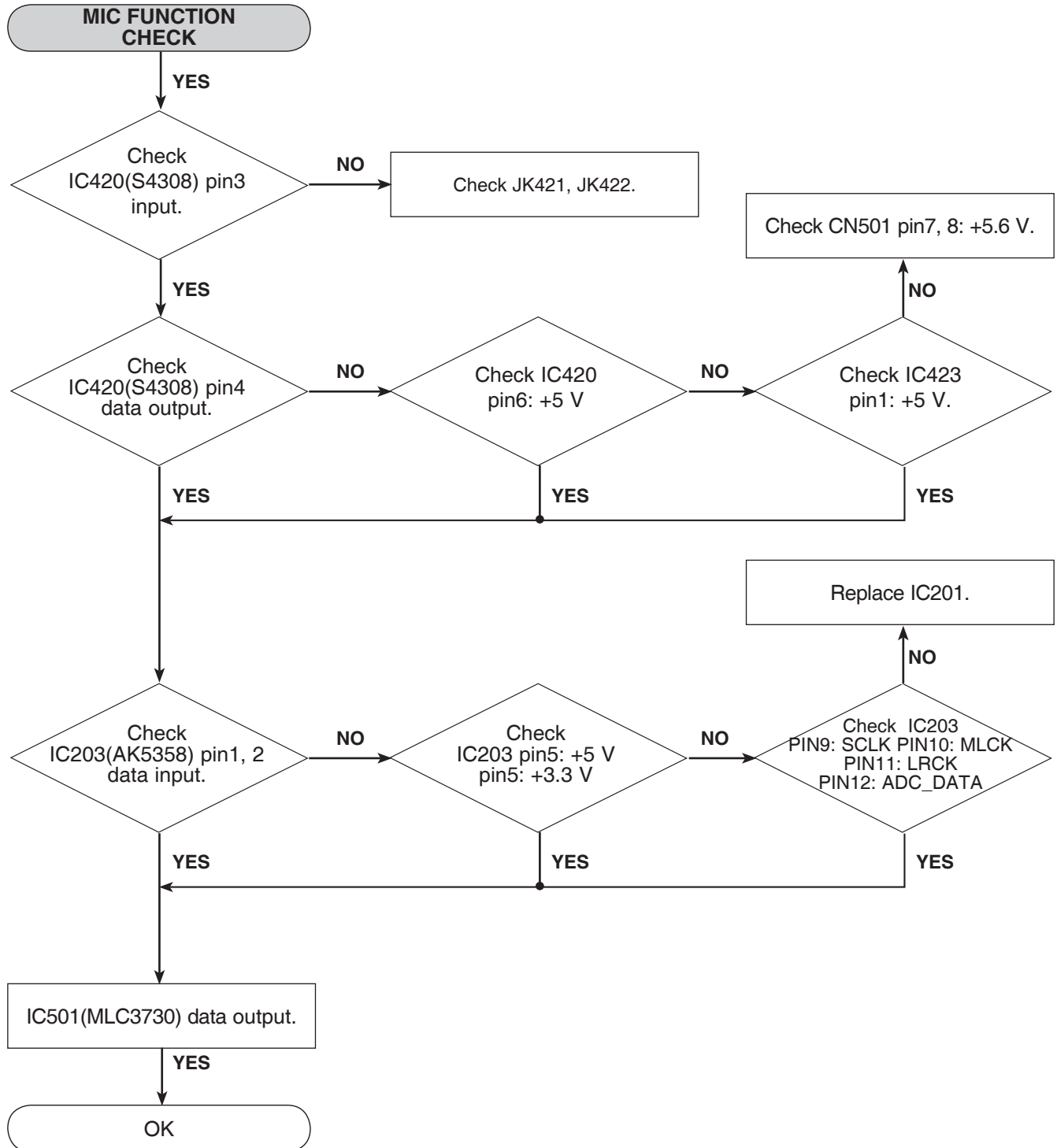
ELECTRICAL TROUBLESHOOTING GUIDE

8. TUNER / AUX FUNCTION CHECK



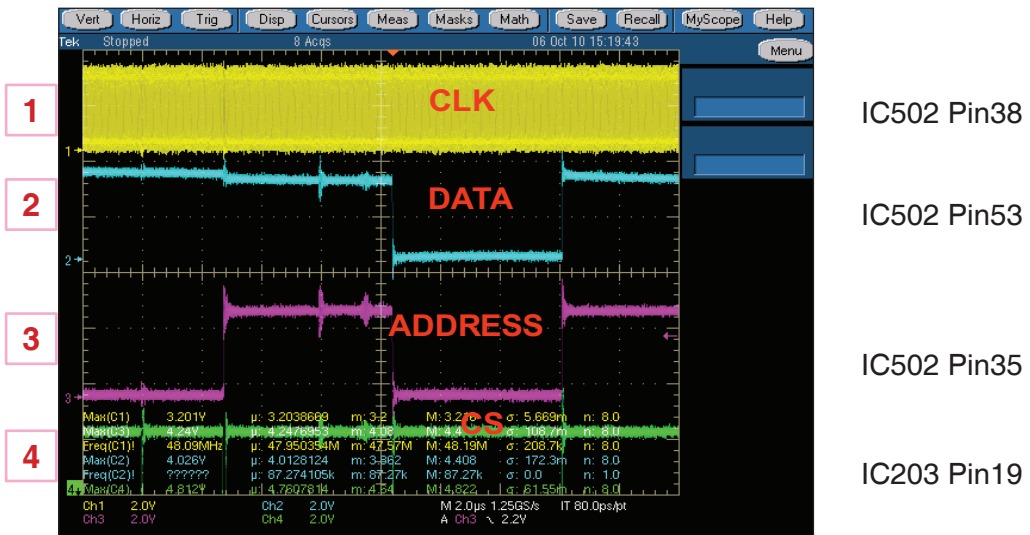
ELECTRICAL TROUBLESHOOTING GUIDE

9. MIC FUNCTION CHECK

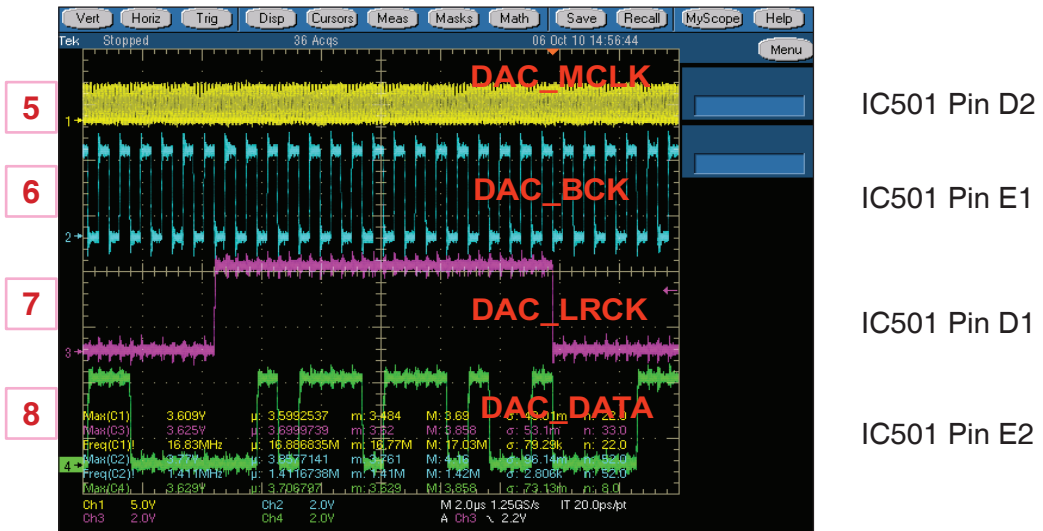


WAVEFORMS OF MAJOR CHECK POINT

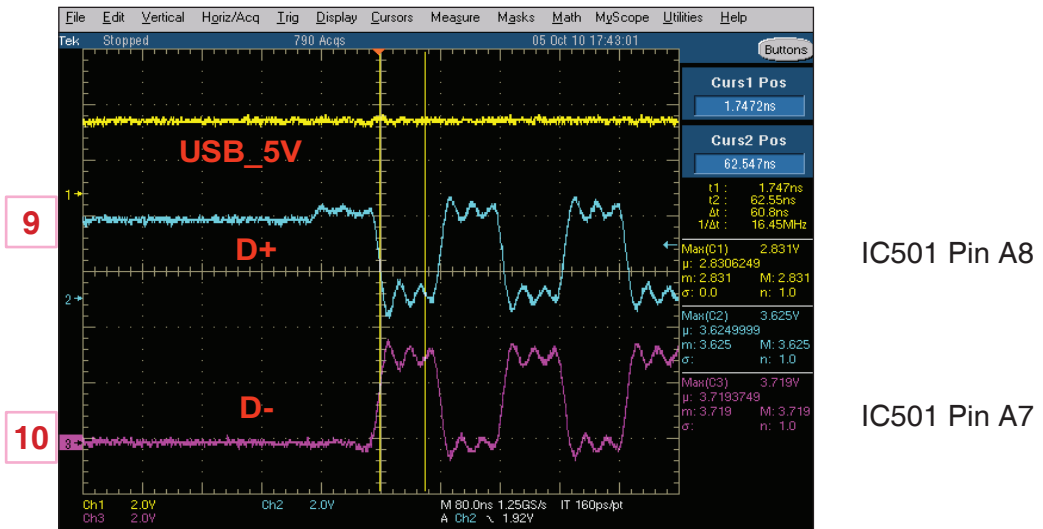
1. SDRAM



2. AUDIO PATH



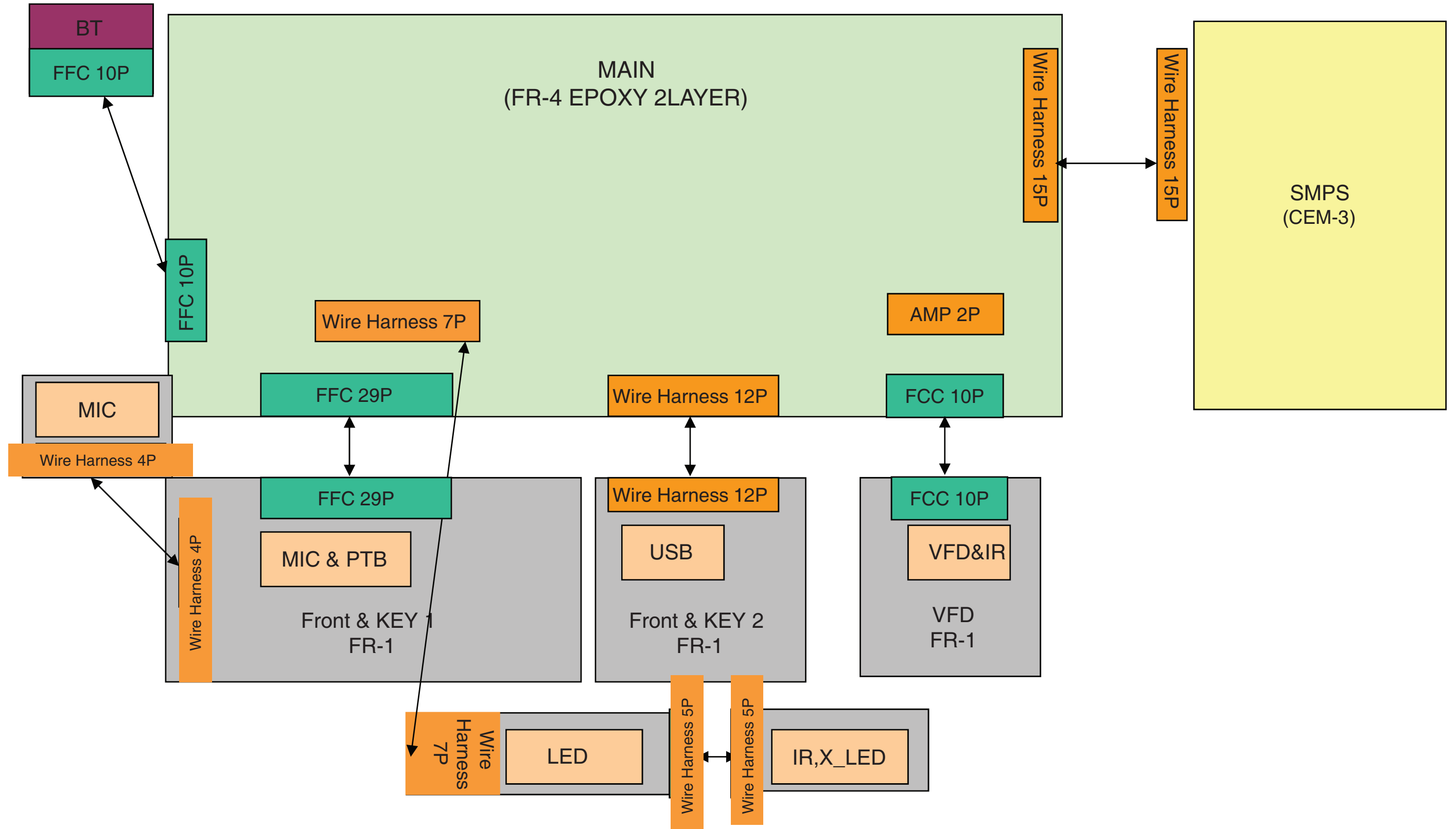
3. USB



MEMO

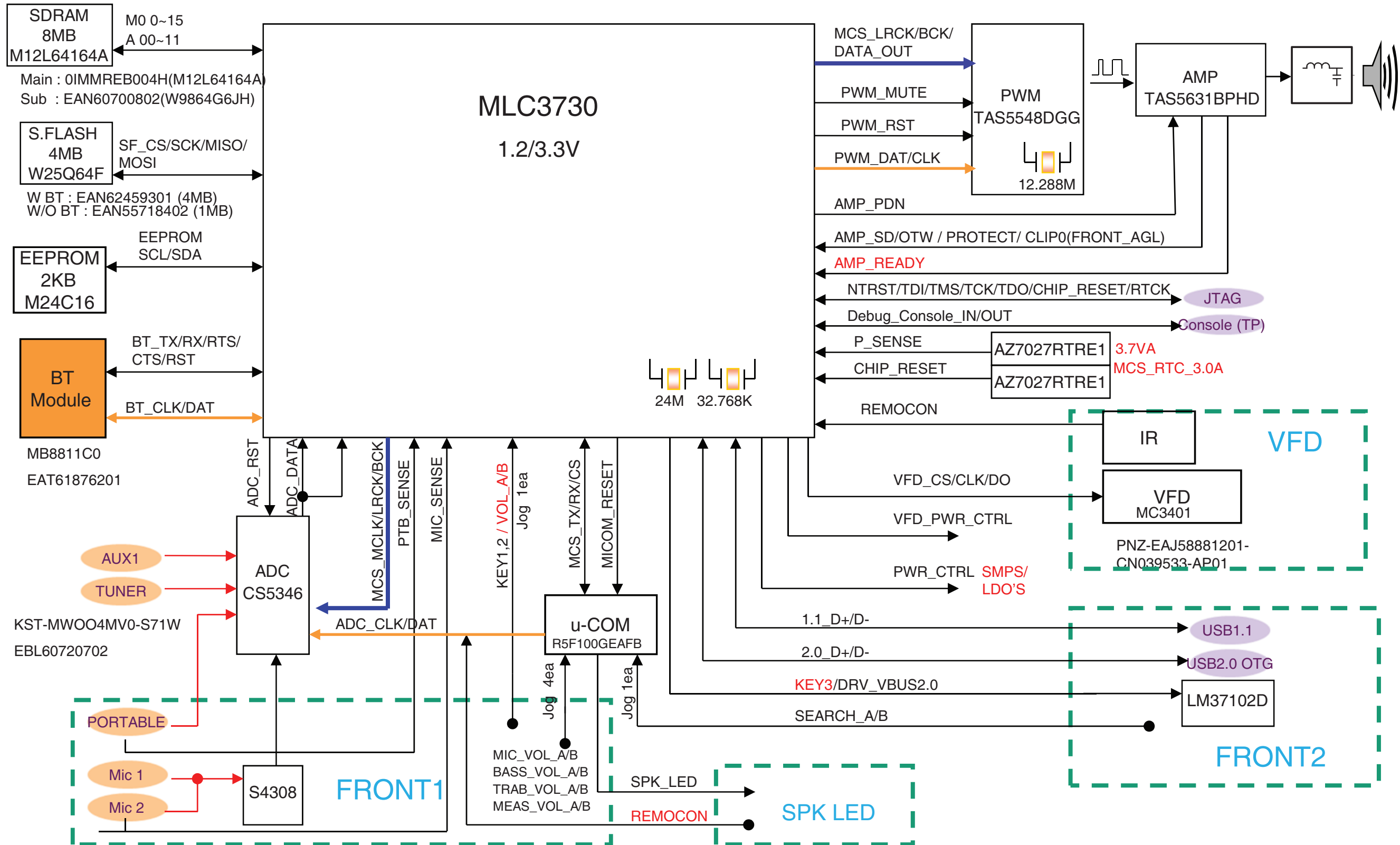
A series of horizontal dotted lines for writing.

WIRING DIAGRAM

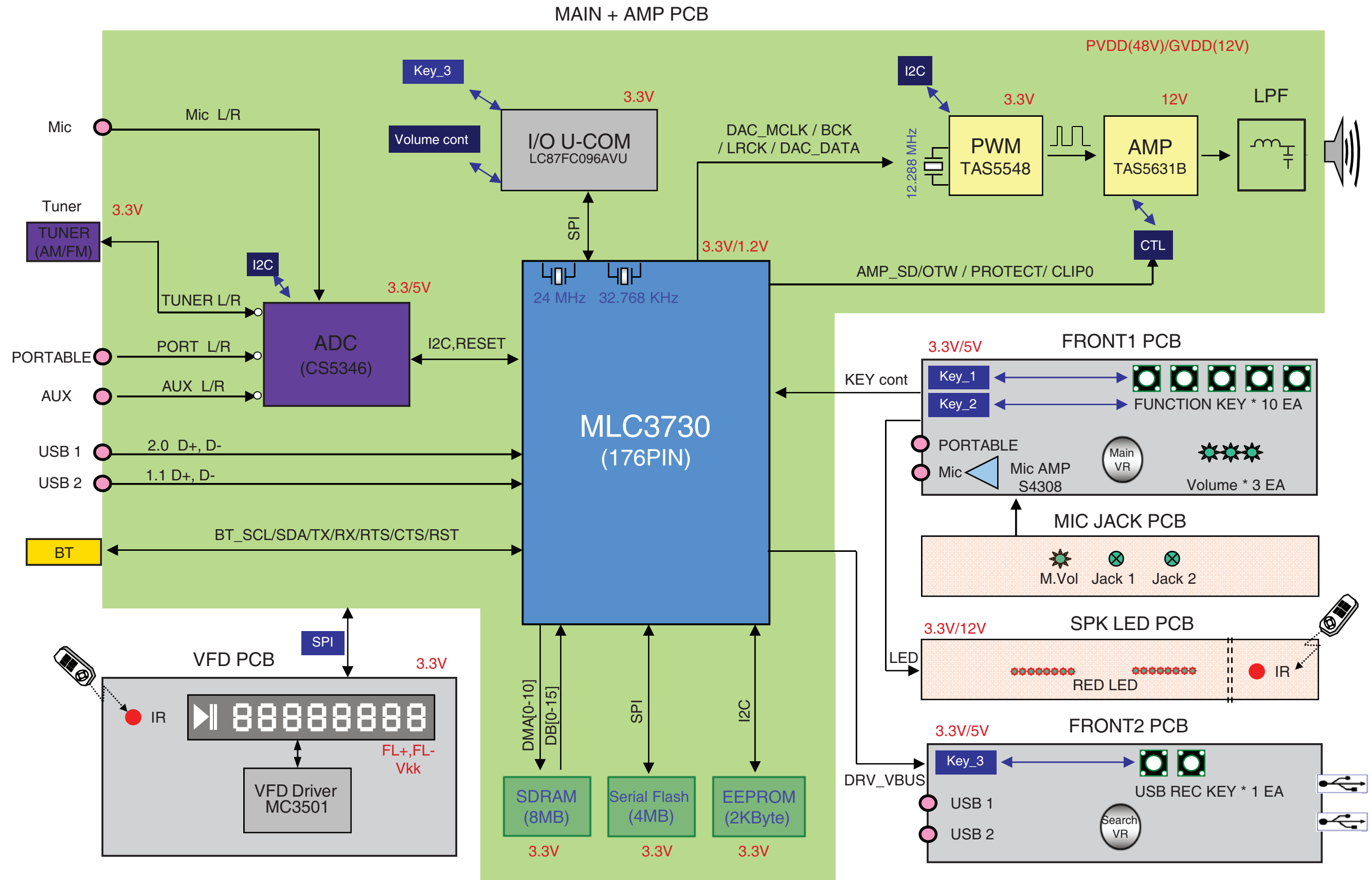


BLOCK DIAGRAMS

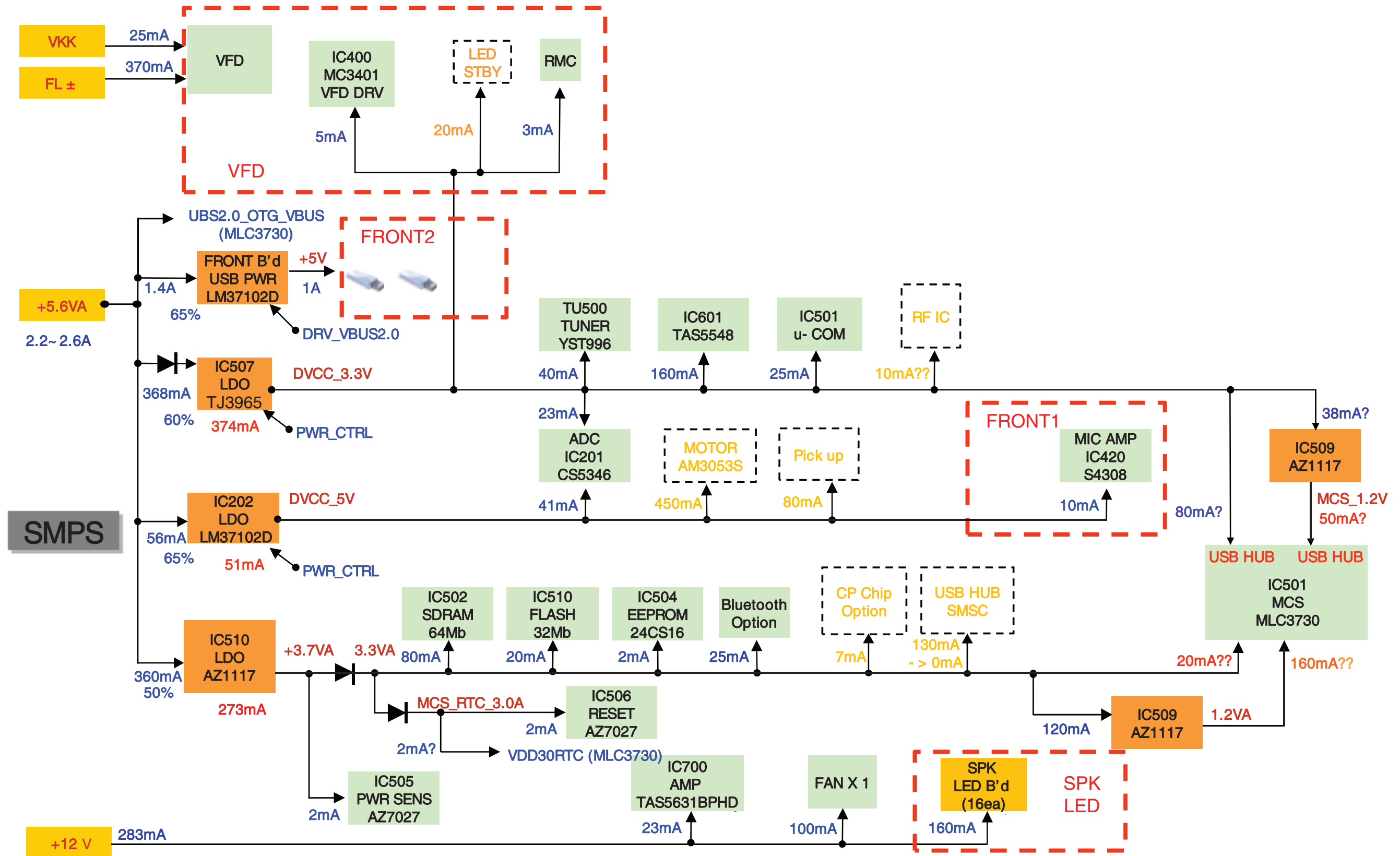
1. SYSTEM BLOCK DIAGRAM_1



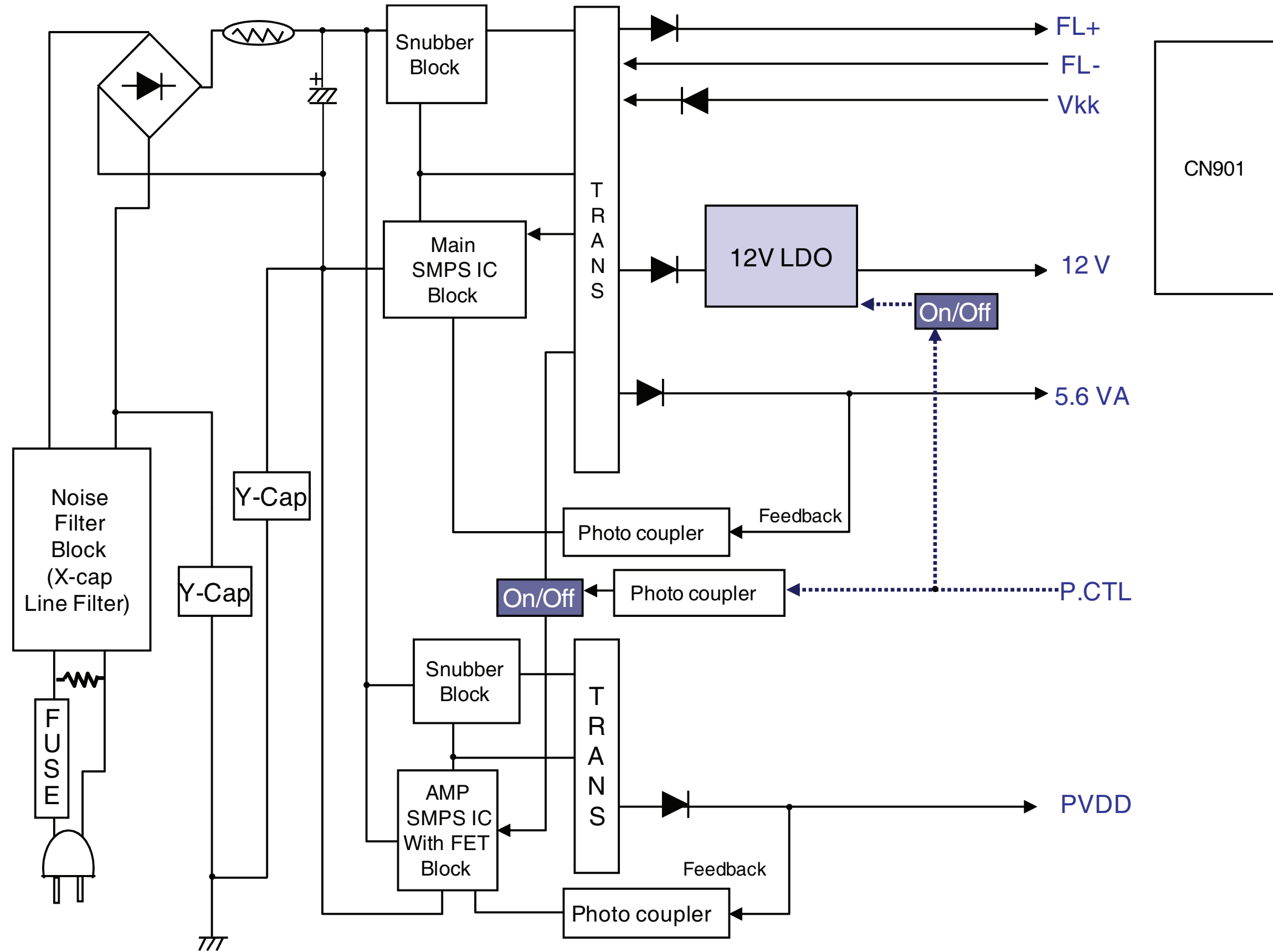
2. SYSTEM BLOCK DIAGRAM_2



3. SMPS BLOCK DIAGRAM_1

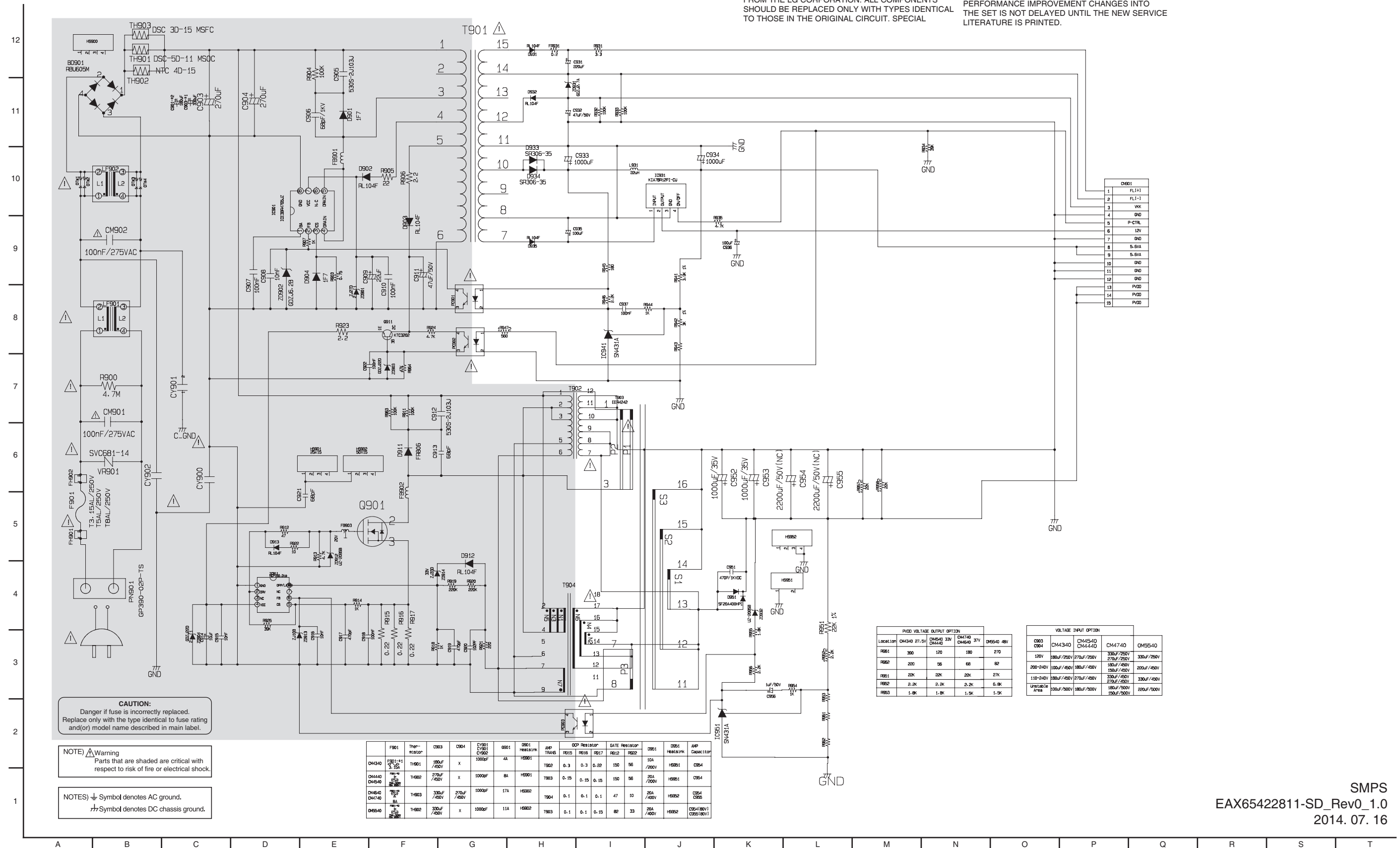


4. SMPS BLOCK DIAGRAM_2



CIRCUIT DIAGRAMS

1. SMPS CIRCUIT DIAGRAM



IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE LG CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL

COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION.

THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY, IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SET IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

NOTE :

1. Shaded(■) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.

CAUTION:
Danger if fuse is incorrectly replaced.
Replace only with the type identical to fuse rating and(or) model name described in main label.

NOTE) ⚠ Warning
Parts that are shaded are critical with respect to risk of fire or electrical shock.

NOTES) ⚡ Symbol denotes AC ground.
⏏ Symbol denotes DC chassis ground.

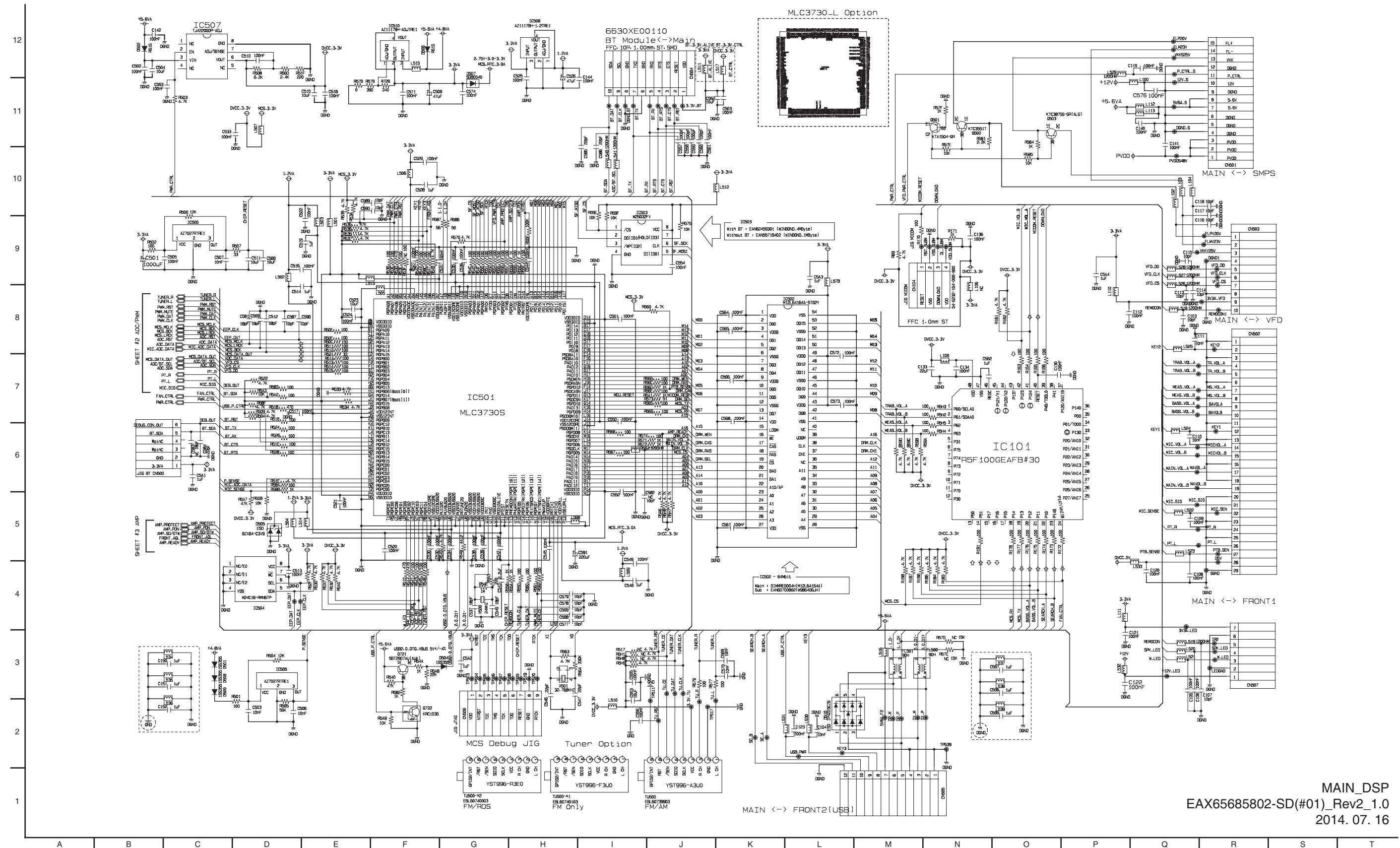
Model	F901	TH901	C903	C904	C905	D901	AMP TRANS	OPP Resistor	GATE Resistor	D901	D901	AMP Capacitor			
DM4340	F901-11	TH901	180uF/450V	X	1000uF	4A	F9001	1000	0.3	0.3	150	56	10A/200V	H9001	C904
DM4440	F901	TH901	270uF/450V	X	1000uF	8A	H9001	1000	0.15	0.15	150	56	20A/200V	H9001	C904
DM4540	F901	TH901	330uF/450V	X	1000uF	17A	H9002	1000	0.1	0.1	47	10	20A/200V	H9002	C904
DM4740	F901	TH901	330uF/450V	X	1000uF	11A	H9002	1000	0.1	0.1	0.15	82	33	20A/200V	C904

Local IOP	PICO VOLTAGE OUTPUT OPTION			
	DM4340 27.5V	DM4540 33V	DM4740 37V	DM5540 48V
R901	300	120	180	270
R902	200	55	68	82
R903	20K	20K	20K	27K
R904	2.2K	2.2K	2.2K	6.8K
R905	1.8K	1.8K	1.8K	1.5K

C903	VOLTAGE INPUT OPTION			
	DM4340	DM4540	DM4740	DM5540
120V	180uF/250V	270uF/250V	330uF/250V	330uF/250V
200-240V	100uF/450V	180uF/450V	180uF/450V	220uF/450V
110-240V	180uF/450V	270uF/450V	330uF/450V	330uF/450V
Unstable Area	100uF/500V	180uF/500V	180uF/500V	220uF/500V

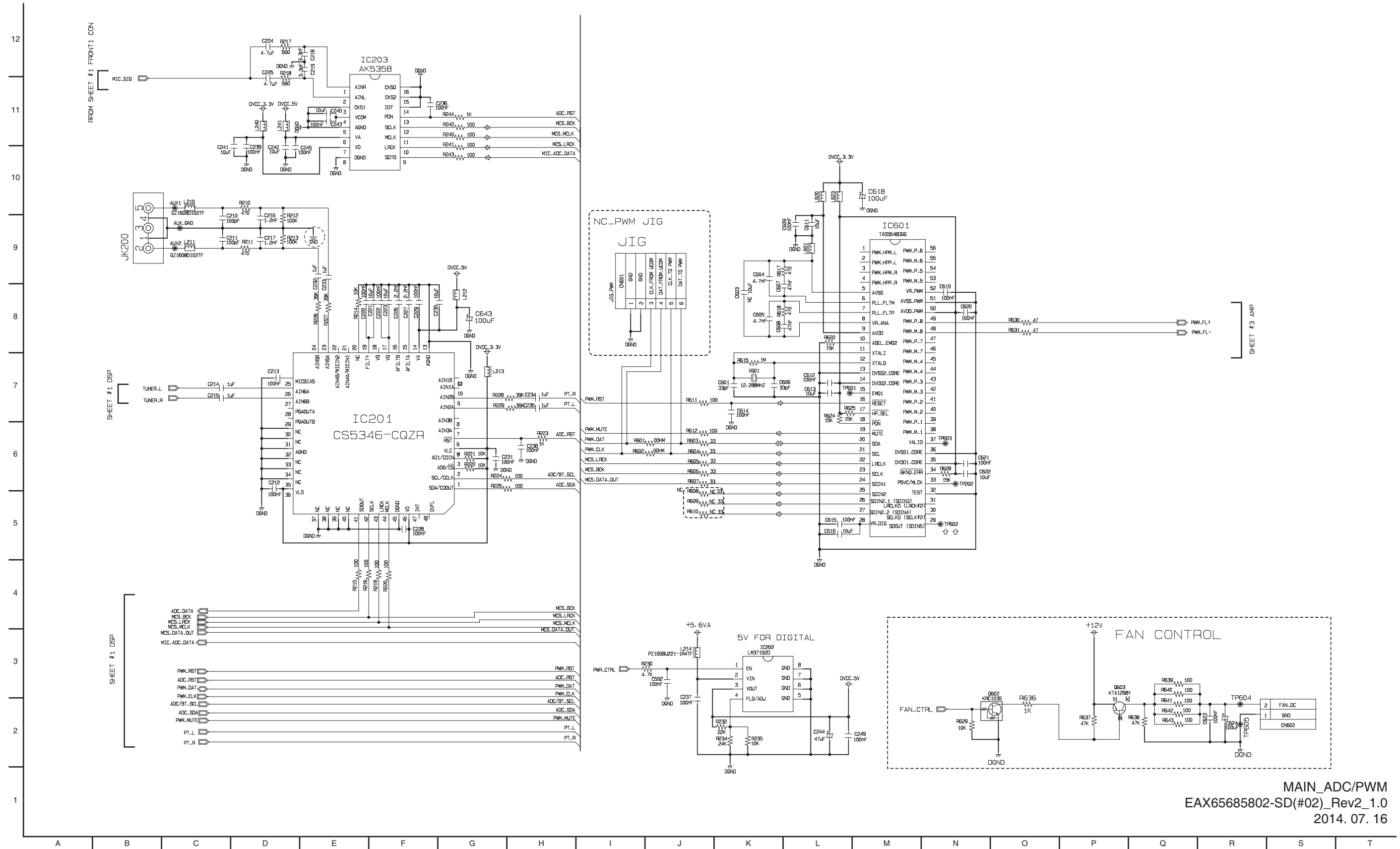
SMPS
EAX65422811-SD_Rev0_1.0
2014. 07. 16

2. MAIN_DSP CIRCUIT DIAGRAM



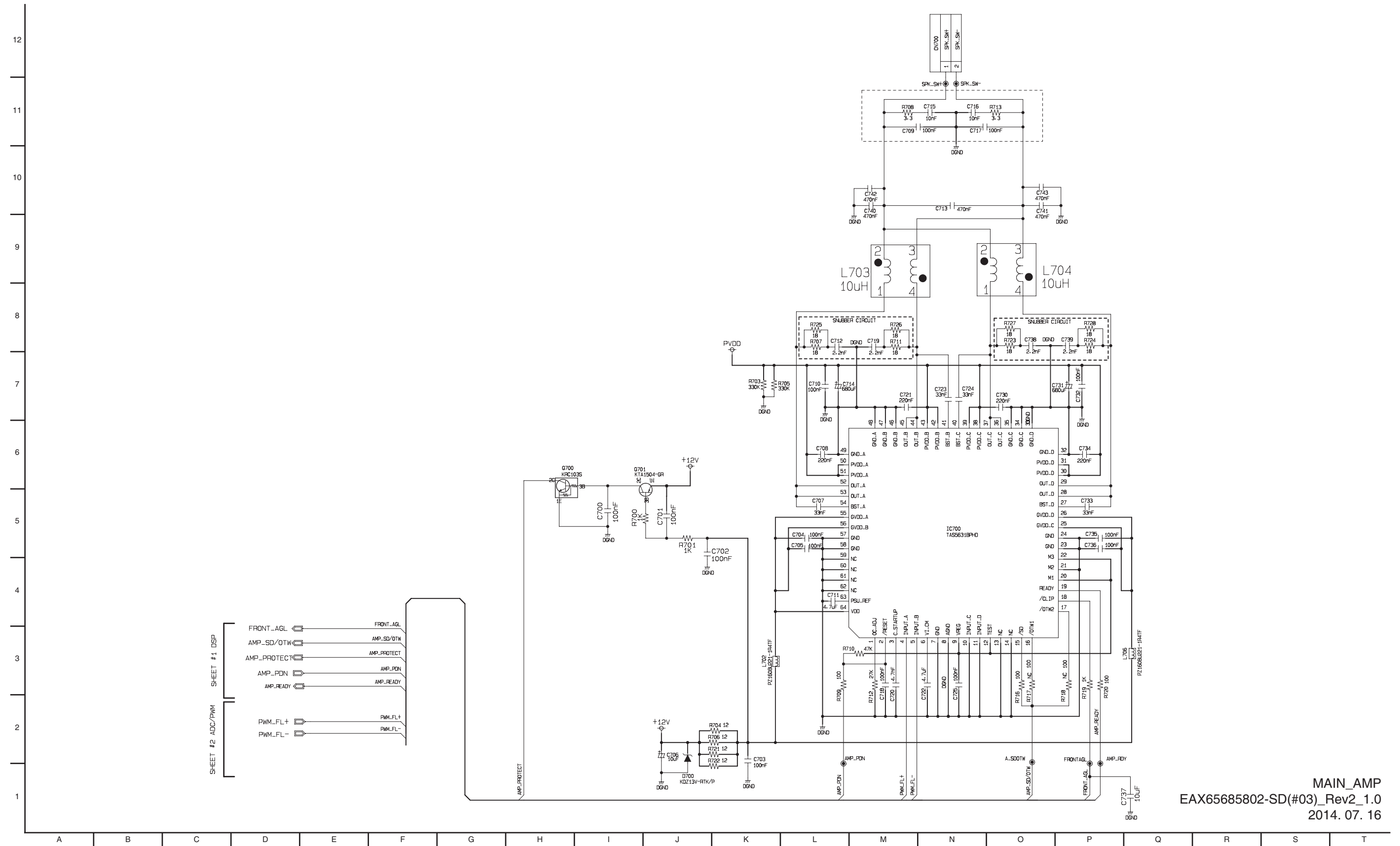
MAIN_DSP
EAX65685802-SD(#01)_Rev2_1.0
2014. 07. 16

3. MAIN_ADC/PWM CIRCUIT DIAGRAM



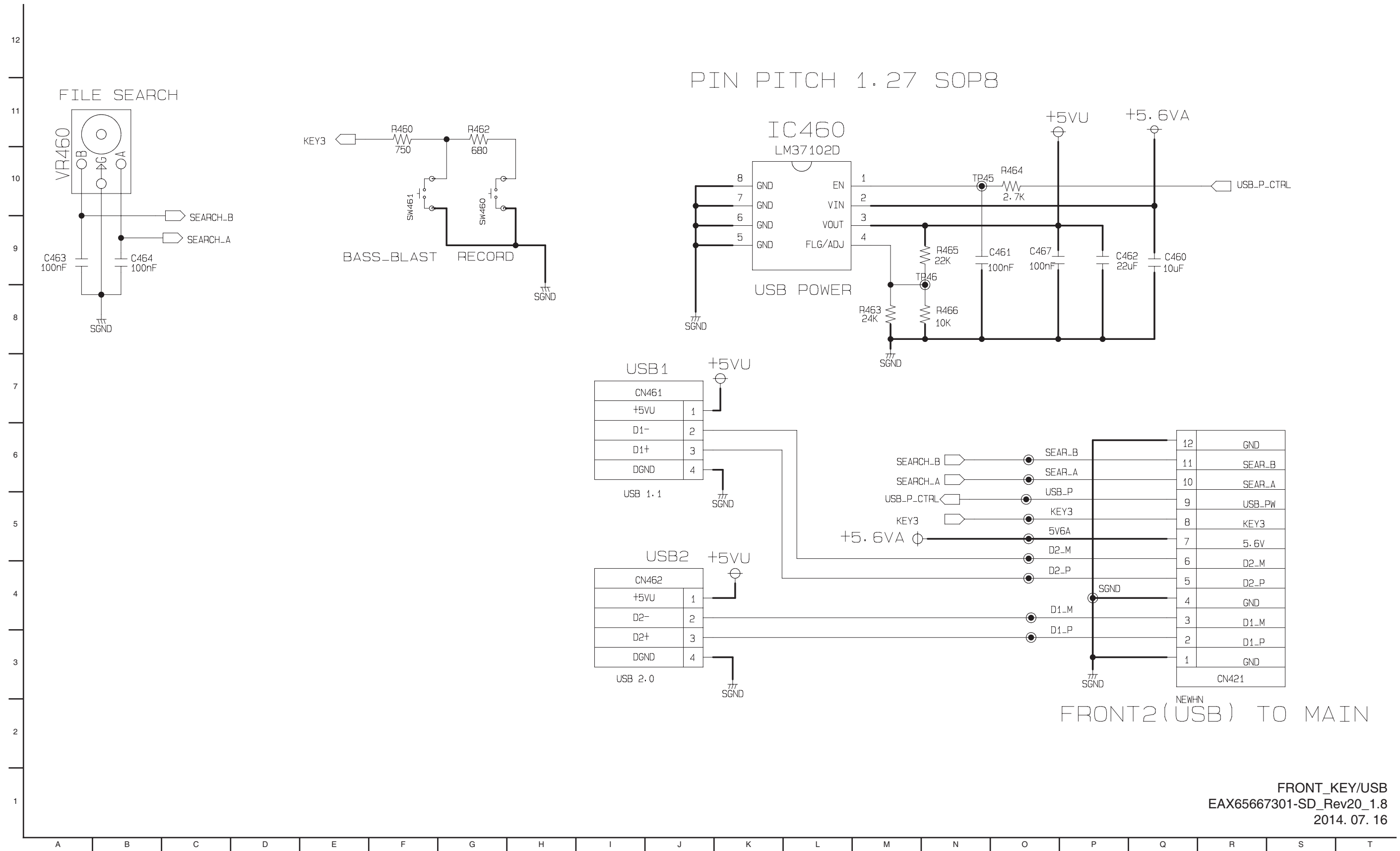
MAIN_ADC/PWM
EAX65685802-SD(#02)_Rev2_1.0
2014. 07. 16

4. MAIN_AMP CIRCUIT DIAGRAM



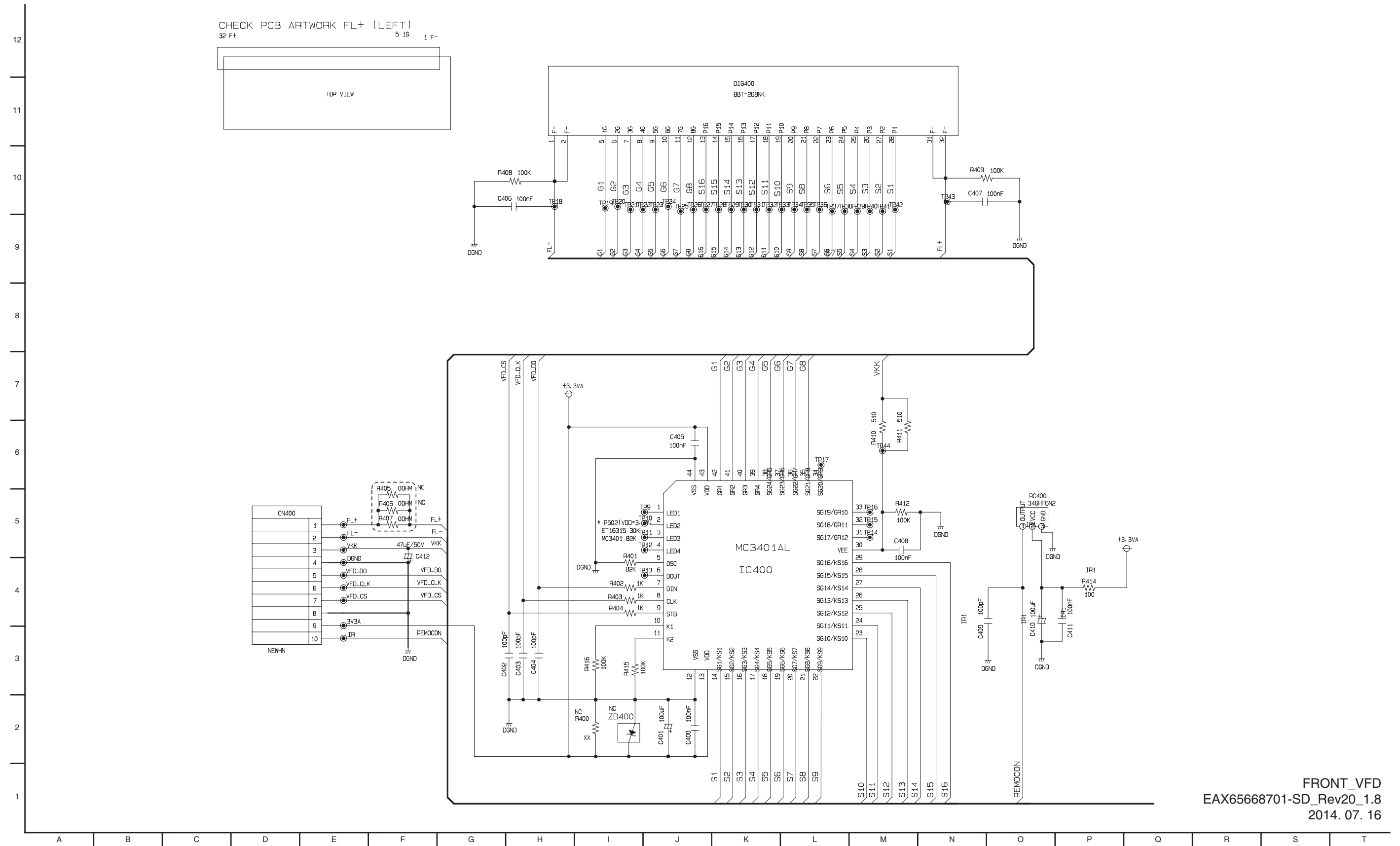
MAIN_AMP
EAX65685802-SD(#03)_Rev2_1.0
2014. 07. 16

5. FRONT_KEY/USB CIRCUIT DIAGRAM



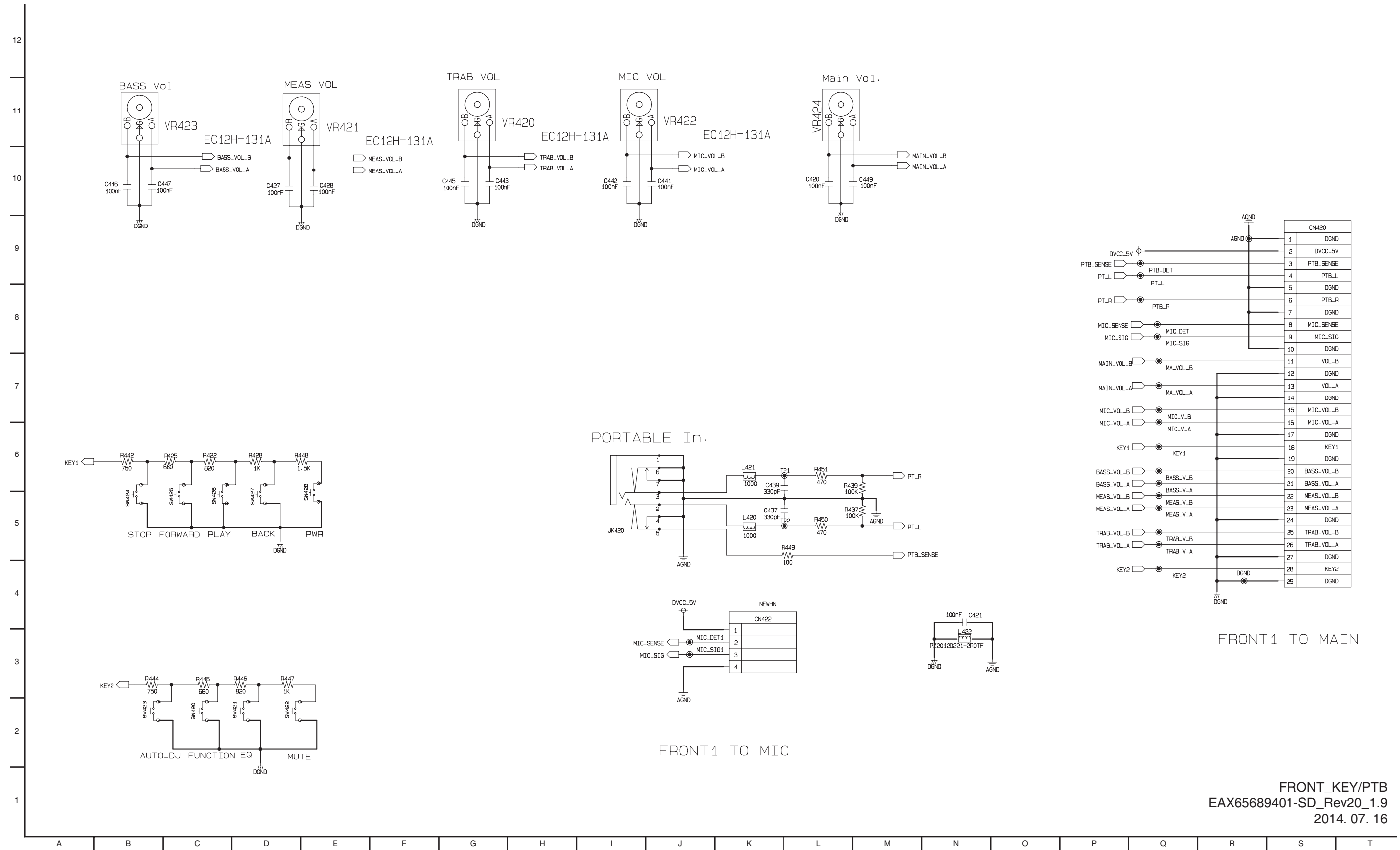
FRONT_KEY/USB
EAX65667301-SD_Rev20_1.8
2014. 07. 16

6. FRONT_VFD CIRCUIT DIAGRAM



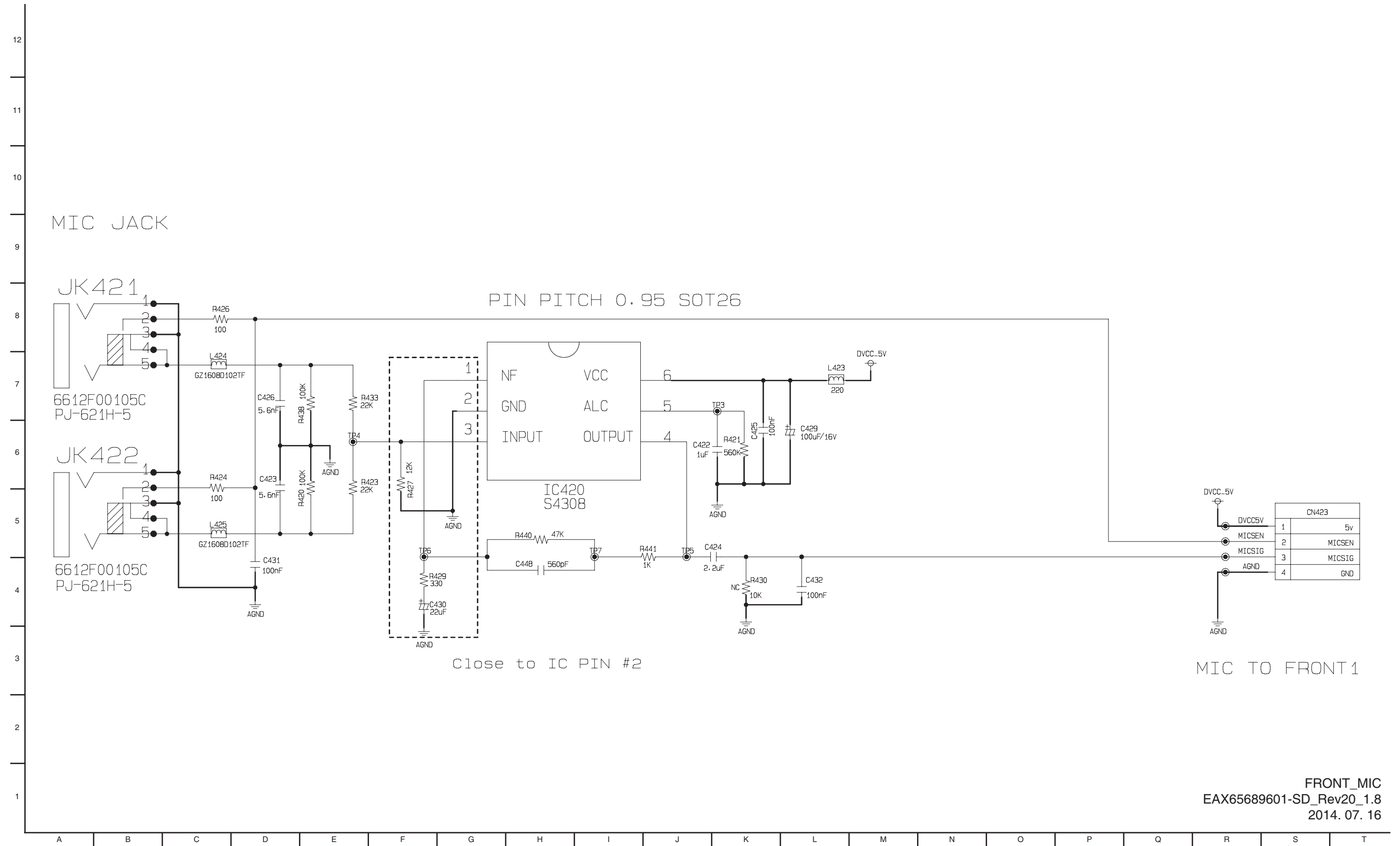
FRONT_VFD
EAX65668701-SD_Rev20_1.8
2014. 07. 16

7. FRONT_KEY/PTB CIRCUIT DIAGRAM



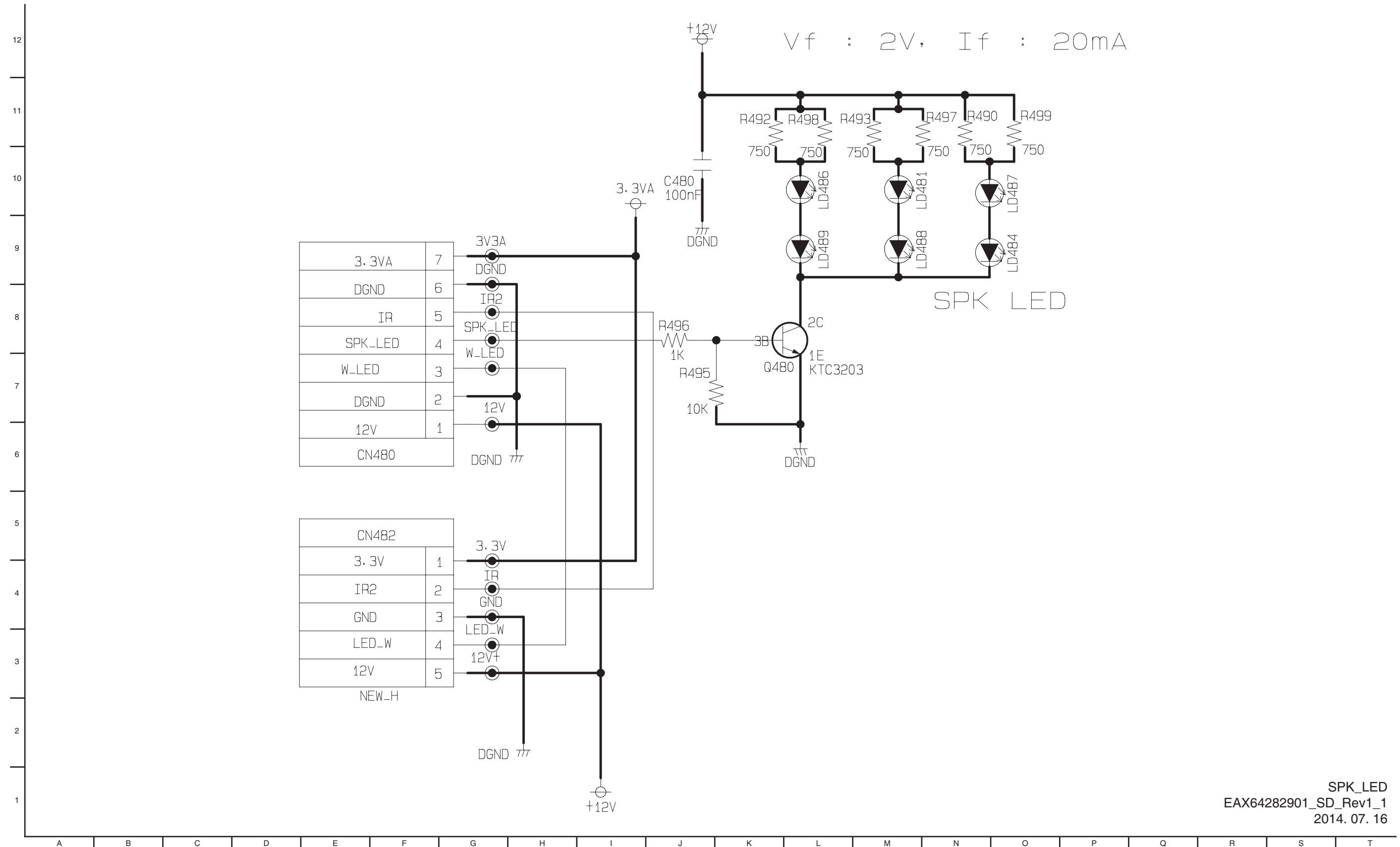
FRONT_KEY/PTB
EAX65689401-SD_Rev20_1.9
2014. 07. 16

8. FRONT_MIC CIRCUIT DIAGRAM

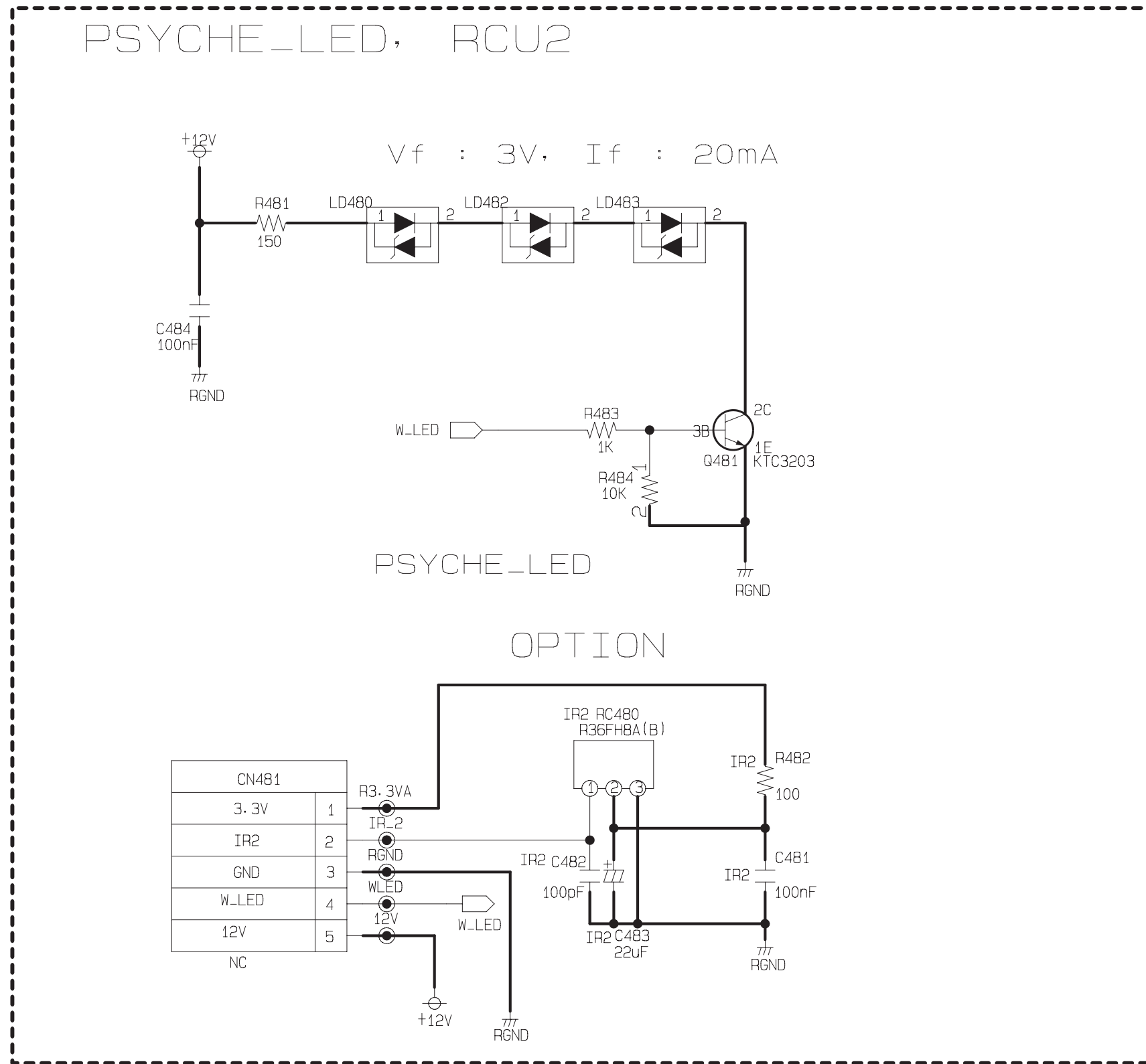


FRONT_MIC
EAX65689601-SD_Rev20_1.8
2014. 07. 16

9. SPK_LED CIRCUIT DIAGRAM



10. X_LED/RCU2 CIRCUIT DIAGRAM



X_LED/RCU2
EAX65632101-SD_Rev5_1.3
2014. 07. 16

CIRCUIT VOLTAGE CHART

1. ICs

Designator	PIN Number	Description	Part Site Specification	SPEC	REAL VALUE	CHECK LOC.
IC101	48	IC, Microcontrollers R5F100GHAFB	Supply Voltage(VDD)	3.10~3.50	3.28	L108
IC201	6,35,46	IC, A/D Converter CS5346	Core Supply Voltage(VDD)	3.13~3.46	3.27	C231
	14		PLL Supply Voltage(VDDA)	4.8~5.2	5.03	C229
IC202	IN 5.6 VA	IC, LDO Voltage Regulator	TJ4220GDP-ADJ 6.5V ADJ 0W SOP R/TP 8P - TAEJIN TECHNOLOGY CO., LTD.	5.6 V±0.2	5.65	-
	OUT 5VU			5 V±0.2	5.03	
IC203	6	IC, A/D Converter AK5358	Supply Voltage(VDD)	4.8~5.2	5.03	C242
	5		PLL Supply Voltage(VDDA)	3.13~3.46	3.28	C241
IC501	J4	IC, DIGITAL SIGNAL PROCESSORS MLC3730	Core Supply Voltage(VDD12INT)	1.08~1.32	1.18	C517
	A9,E9,J14,U4		Core Supply Voltage(VDD12CORE)	1.08~1.32	1.18	C535
	T10		Core Supply Voltage(VDD12ALIVE)	1.08~1.32	1.18	C542
	P12		Core Supply Voltage(VDD12PLL)	1.08~1.32	1.19	C548
	P9		Core Supply Voltage(VDD12USB20)	1.08~1.32	1.19	C538
	A10,D4,D14,P4,P14		IO Supply Voltage(VDD33IO)	3.00~3.60	3.28	C524
	U9		IO Supply Voltage(VDD33OSC)	3.00~3.60	3.28	C539
	A4		IO Supply Voltage(VDD33ADC)	3.00~3.60	3.28	C527
	B7		IO Supply Voltage(VDD33USB11)	3.00~3.60	3.28	C531
	U5,U6		IO Supply Voltage(VDD33xUDB20)	3.00~3.60	3.28	C532
	T16		VDD30RTC	2.75~3.30	3.23	C545
IC502	1,3,9,14,27,43,49,	IC, SDRAM M12L64164A-5TG2Y 64MBIT	Core Supply Voltage(VDD)	3.13~3.46	3.29	-
IC503	8	IC, Serial Flash Memory	Supply Voltage(VDD)	3.13~3.46	3.29	C554
IC505	-	-	-	-	3.63 3.00	-
IC507	IN 5.6VA	IC, LDO Voltage Regulator	AZ1117BH-1.2TRE1 15V 1.2V 0W S OT-223 R/TP 3P - BCD	5.6 V±0.2	4.86	-
	OUT VCC_5V			5 V±0.2	3.28	
IC508	IN 3.3VA	IC, LDO Voltage Regulator	LM37102D 2.25V TO 16V ADJ 770m W SOP R/TP 8P - TAEJIN TECHNOLOGY CO., LTD.	3.3 V±0.15	3.29	-
	OUT VDD12			1.2 V±0.1	1.20	
IC510	IN 5.0 VA	IC, LDO Voltage Regulator	AZ1117BH-ADJTRE1 15V ADJ 0W SOT223 R/TP 3P - BCD	4.8 V±0.3	4.87	-
	OUT 3.3 VA			3.3 V±0.15	3.29	
IC601	14,35,50	IC, Sound/Audio Processor TAS5548	Core Supply Voltage(VDD)	1.71~1.89	3.27	C612
	9		PLL Supply Voltage(VDDA)	3.13~3.46	3.28	C611
IC700	25,26,55,56,64	IC, Audio Amplifier TAS5631	Supply Voltage(VDD)	11.8~13.3	12.0	L706
	30,31,38,39,42,43,50,51		PVDD Supply Voltage(VDDA)	45.6~50.4	48.7	C734

2. CAPACITORS

Designator	Description	Polarity(+)	Polarity(-)
OM5540 FRONT			
C460	Capacitor, Ceramic, Chip	5.57	0
C462	Capacitor, Ceramic, Chip	5.11	0
OM5540 MIC			
C429	Capacitor, AL, Radial	5.03	0
C430	Capacitor, AL, Radial	2.02	0
OM5540 VFD			
C401	Capacitor, AL, Radial	3.28	0
C410	Capacitor, AL, Radial	3.19	0
OM5540 SPK LED			
C483	Capacitor, AL, Radial	3.18	0
OM5540 MAIN			
C501	Capacitor, AL, Chip	3.28	0
C508	Capacitor, AL, Chip	3.28	0
C526	Capacitor, AL, Chip	1.19	0
C591	Capacitor, AL, Chip	3.23	0
C706	Capacitor, AL, Chip	12.19	0
C714	Capacitor, AL, Radial	48.7	0
C731	Capacitor, AL, Radial	48.7	0
C244	Capacitor, AL, Chip	5.03	0
C618	Capacitor, AL, Chip	3.28	0
C624	Capacitor, AL, Chip	12.18	0
C643	Capacitor, AL, Chip	5.03	0

3. CONNECTORS

No.	PIN NAME	Output Voltage	SPEC
CN400			
1	FL+	-18.11	
2	FL-	-20.77	
3	Vkk	-23.42	
4	DGND	0	
5	VFD_DO		
6	VFD_CLK		
7	VFD_CS		
8	DGND	0	
9	3.3 VA	3.28	
10	REMOCON		
CN421			
1	DGND	0	
2	D1_P		
3	D1_M		
4	DGND	0	
5	D2_P		
6	D2_M		
7	5.6 VA	5.65	
8	KEY3	3.28	
9	USB_P_CTRL	3	
10	SEARCH_A	3.27	
11	SEARCH_B	3.27	
12	DGND	0	
CN422			
1	DVCC_5V	5.03	
2	MIC SENSE		
3	MIC SIG		
4	AGND		
CN482			
1	3.3 VA	3.29	3.1 ~ 3.5
2	REMOCON		
3	DGND		
4	W LED		
5	12 V	12.05	11.5 ~ 12.5
CN501			
1	PVDD	46.7	43.7 ~ 48.3
2	PVDD	46.7	43.7 ~ 48.3
3	PVDD	46.7	43.7 ~ 48.3
4	DGND		0
5	DGND		0
6	DGND		0
7	5.6 VA	5.69	5.4 ~ 5.8
8	5.6 VA	5.69	5.4 ~ 5.8
9	DGND		0

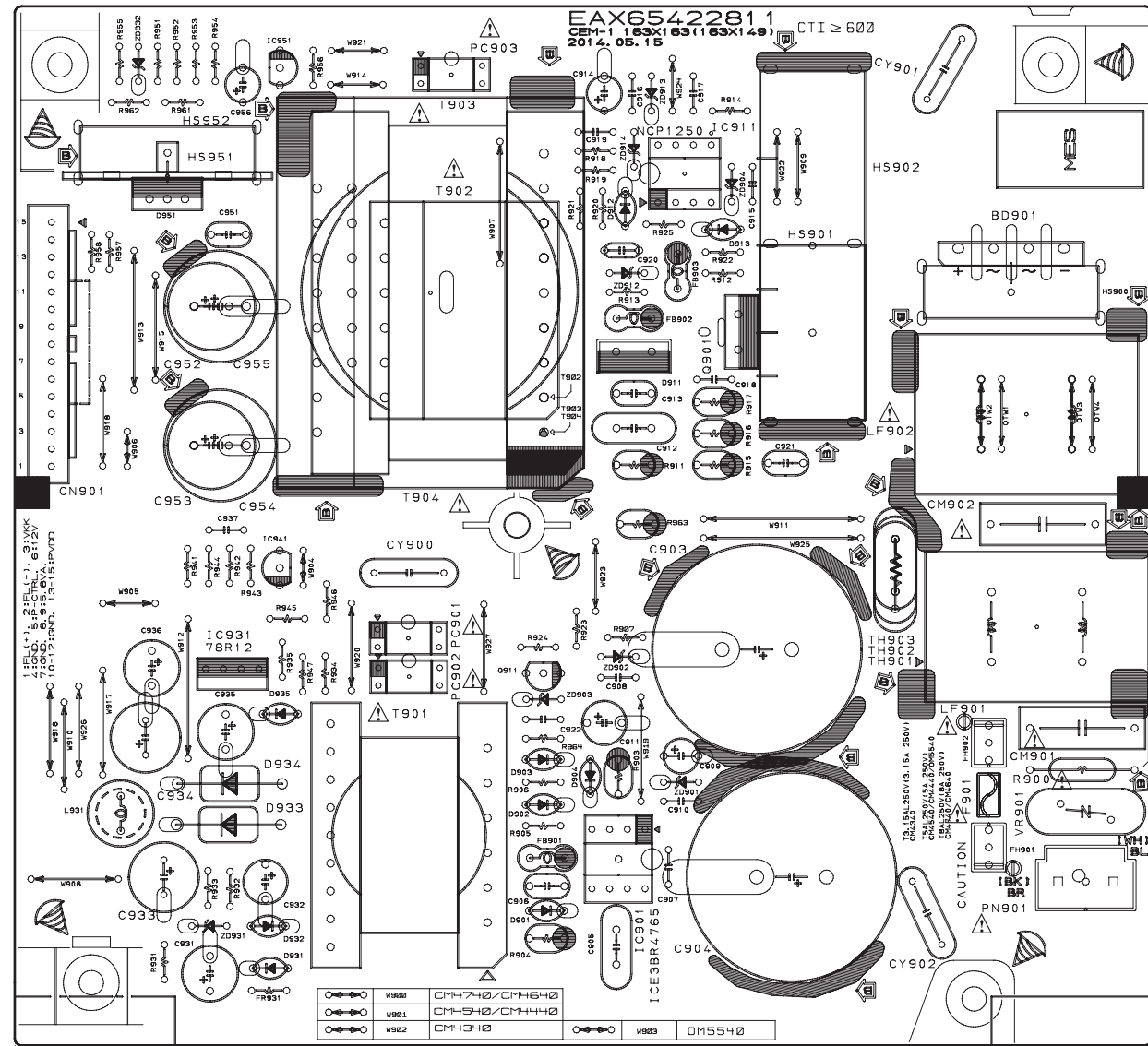
No.	PIN NAME	Output Voltage	SPEC
10	12 V	12.19	11.4 ~ 12.6
11	PWR-CTRL	2.23	3.1 ~ 3.4
12	DGND		0
13	VKK	-23.54	-23 ~ -29
14	FL-	-20.84	-20.1 ~ -24.4
15	FL+	-18	-17.5 ~ -22.1
CN502			
1	DGND	0	0
2	KEY2	3.28	2.5 ~ 2.75
3	DGND	0	0
4	TRAB_VOL A	3.28	2.8 ~ 3.3
5	TRAB_VOL B	3.28	2.8 ~ 3.4
6	DGND	0	0
7	MEAS_VOL A	3.28	3.1 ~ 3.5
8	MEAS_VOL B	3.28	3.1 ~ 3.5
9	BASS_VOL A	3.28	3.1 ~ 3.5
10	BASS_VOL B	3.28	3.1 ~ 3.5
11	DGND	0	0
12	KEY1	3.28	3.1 ~ 3.5
13	DGND	0	0
14	MIC_VOL_A	3.28	3.1 ~ 3.5
15	MIC_VOL_B	3.28	3.1 ~ 3.5
16	DGND	0	0
17	MAIN_VOL A	3.28	3.1 ~ 3.5
18	DGND	0	0
19	MAIN_VOL B	3.28	3.1 ~ 3.5
20	AGND	0	0
21	MIC SIG	3.28	3.1 ~ 3.5
22	MIC SENSE	3.28	3.1 ~ 3.5
23	AGND	0	0
24	PTB_R		
25	AGND	0	0
26	PTB_L		
27	PTB SENSE	3.3	3.1 ~ 3.5
28	DVCC_5V	5	4.8 ~ 5.2
29	AGND	0	0
CN504			
1	VDD	3.27	
2	RESET	3.28	
3	CTS		
4	RTS		
5	RXD		
6	GND	0	
7	TXD		
8	GND	0	

No.	PIN NAME	Output Voltage	SPEC
9	SCL		
10	SDA		
CN507			
1	12 V	12,19	
2	DGND	0	
3	W LED		
4	SPK LED		
5	IR2		
6	DGND	0	
7	3.3 VA	3.28	

PRINTED CIRCUIT BOARD DIAGRAMS

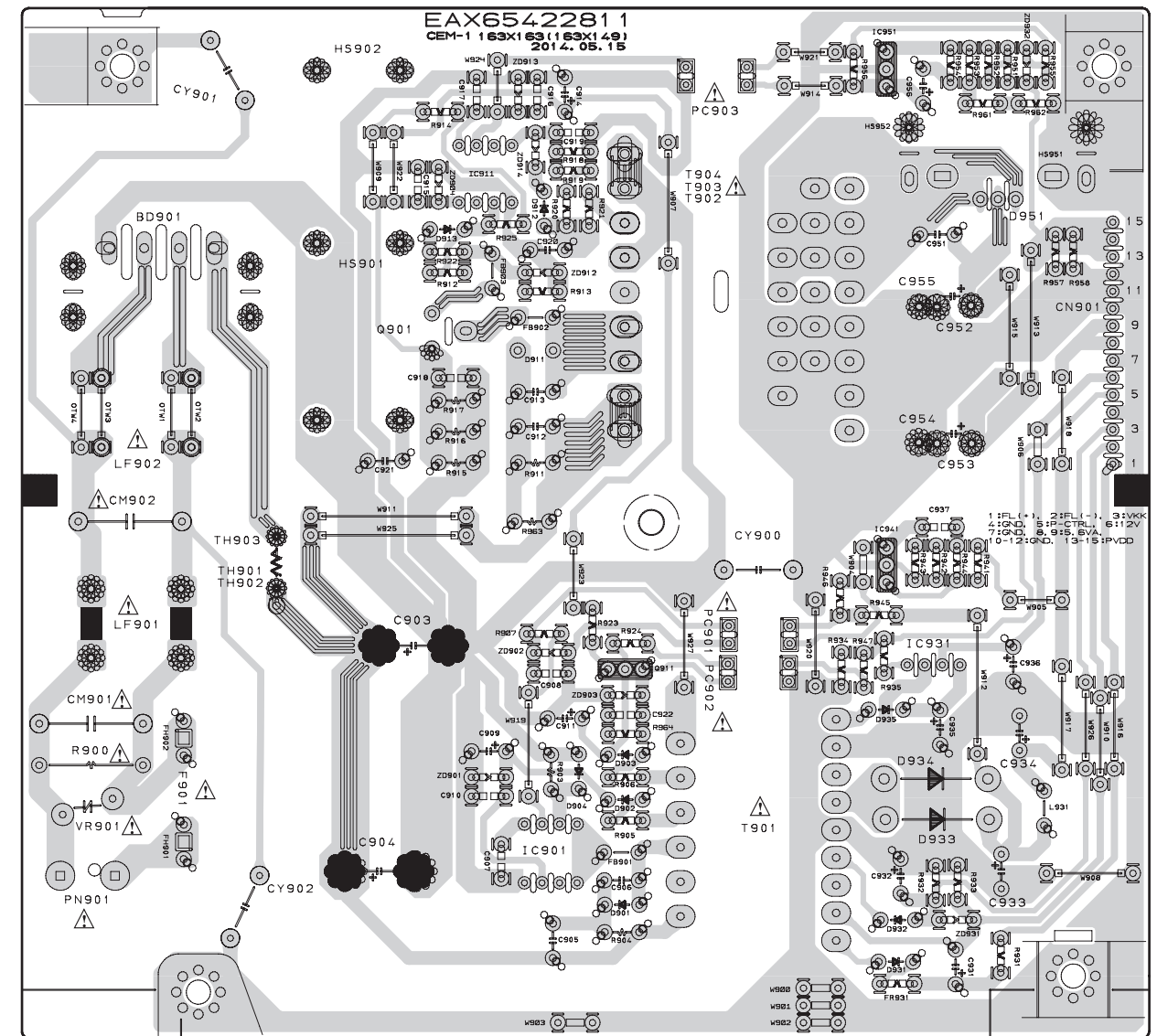
1. SMPS P.C.BOARD

(TOP VIEW)

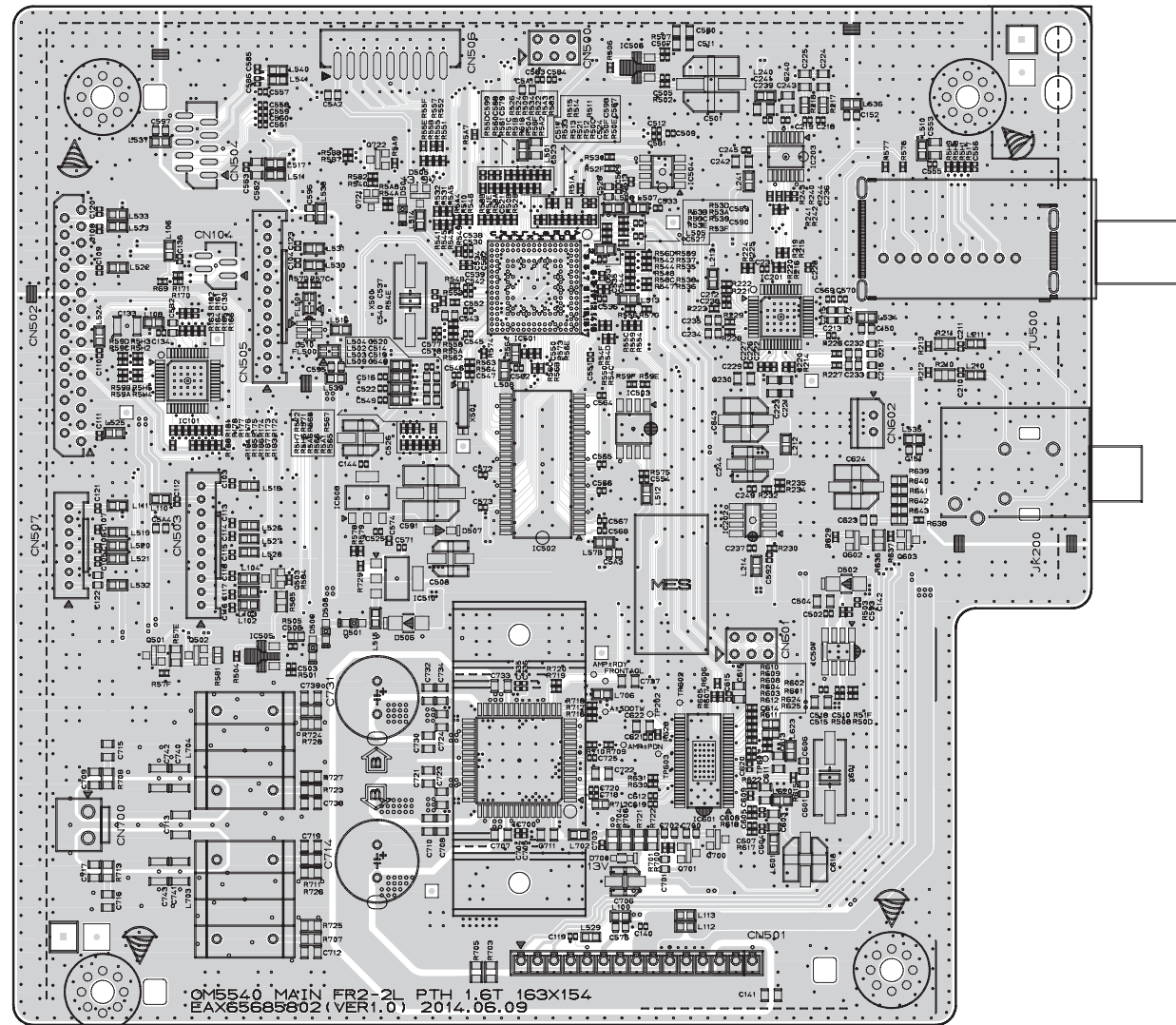


(BOTTOM VIEW)

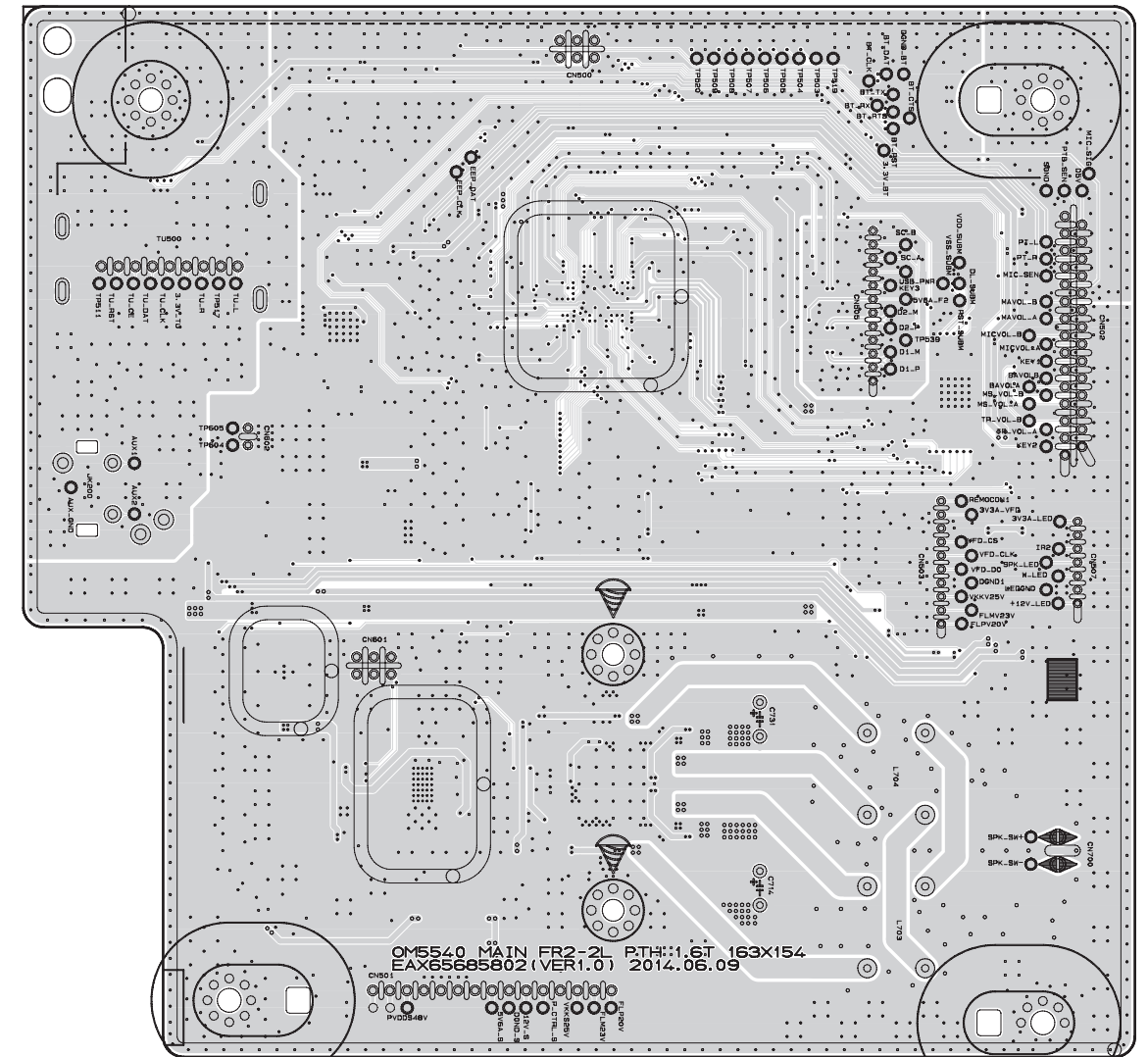
(NOTE) Warning
Parts that are critical with respect to risk of fire or electrical shock.



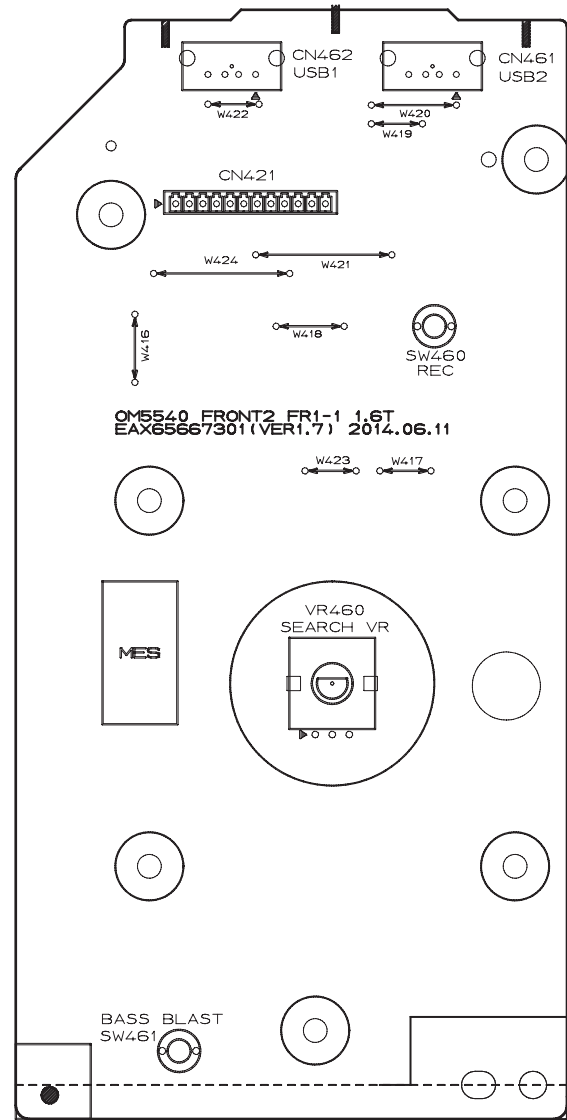
**2. MAIN P.C.BOARD
(TOP VIEW)**



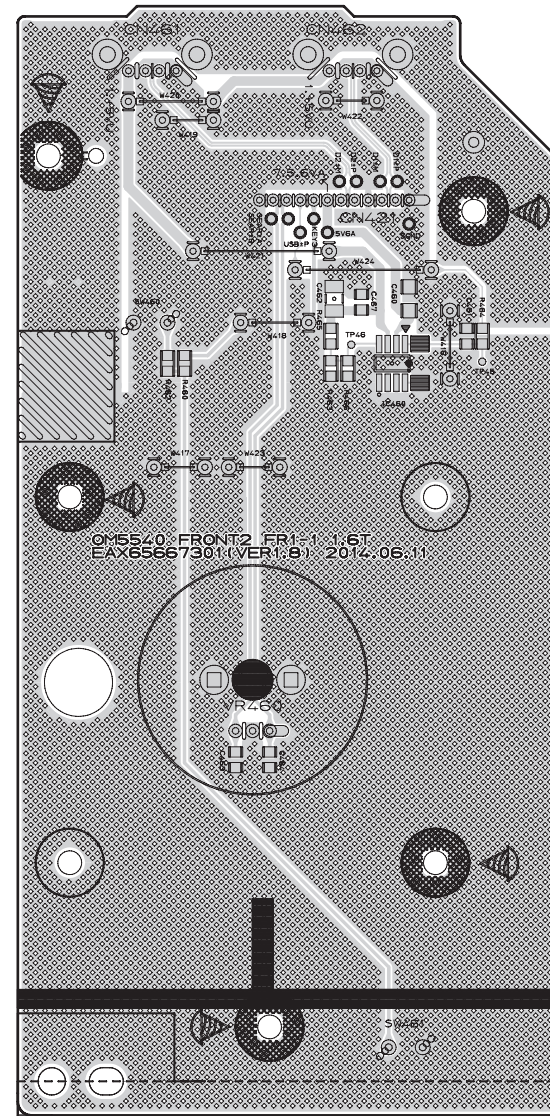
(BOTTOM VIEW)



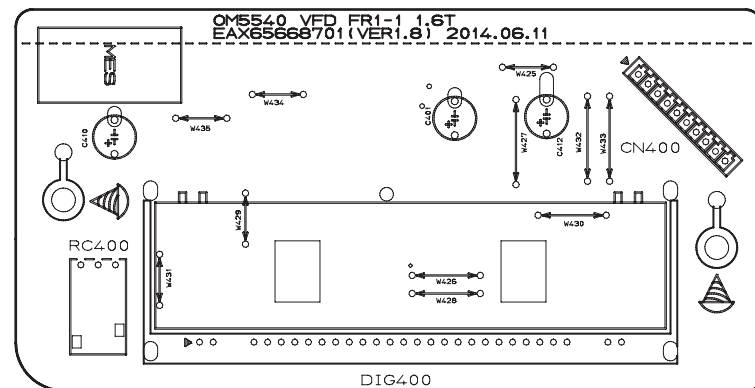
3. FRONT_KEY/USB P.C.BOARD (TOP VIEW)



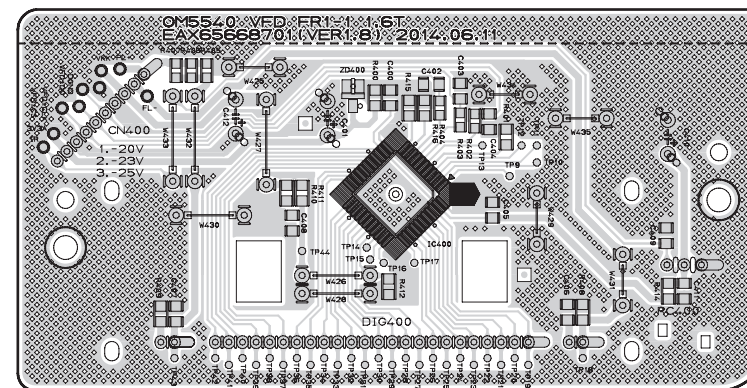
(BOTTOM VIEW)



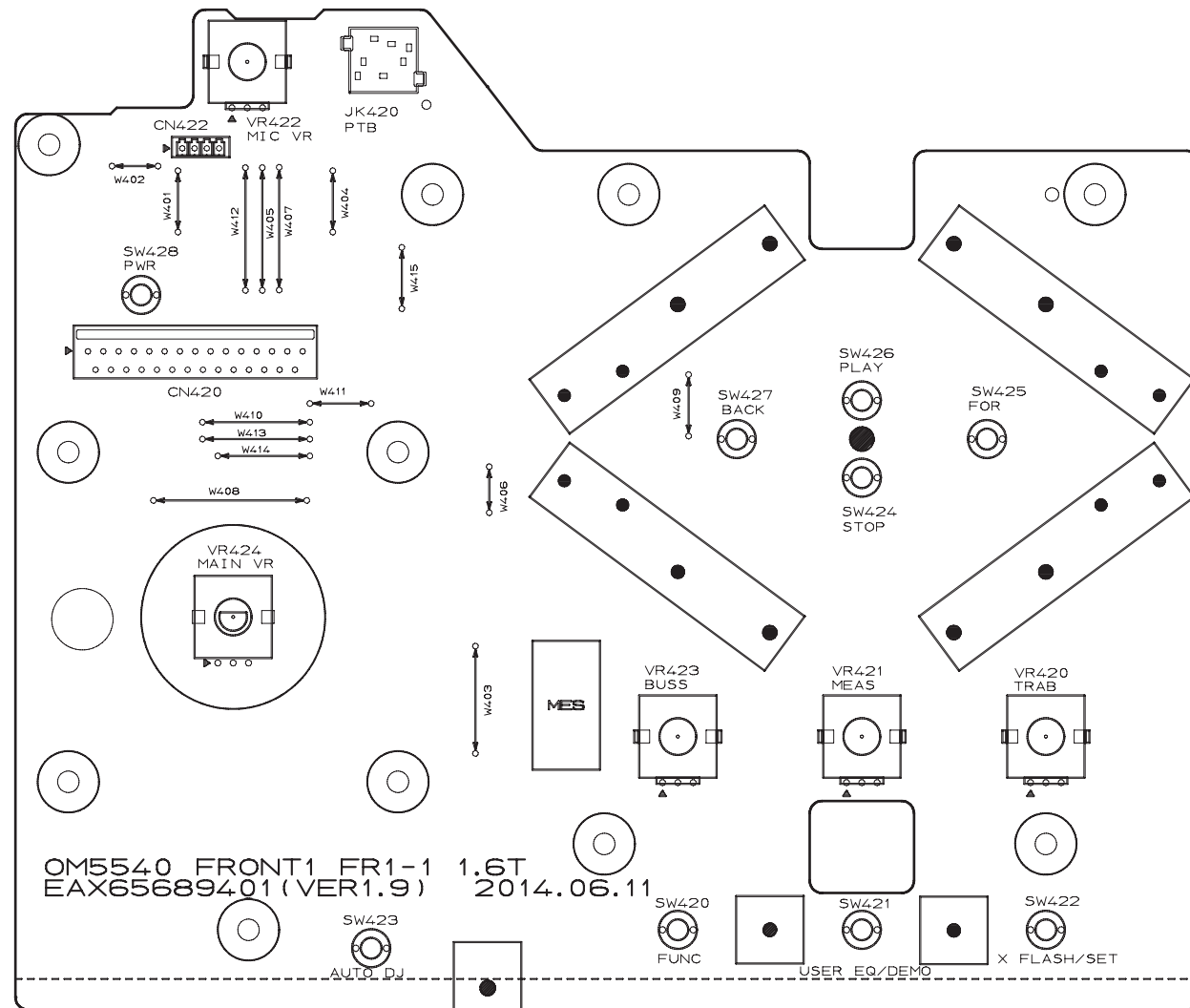
4. FRONT_VFD P.C.BOARD (TOP VIEW)



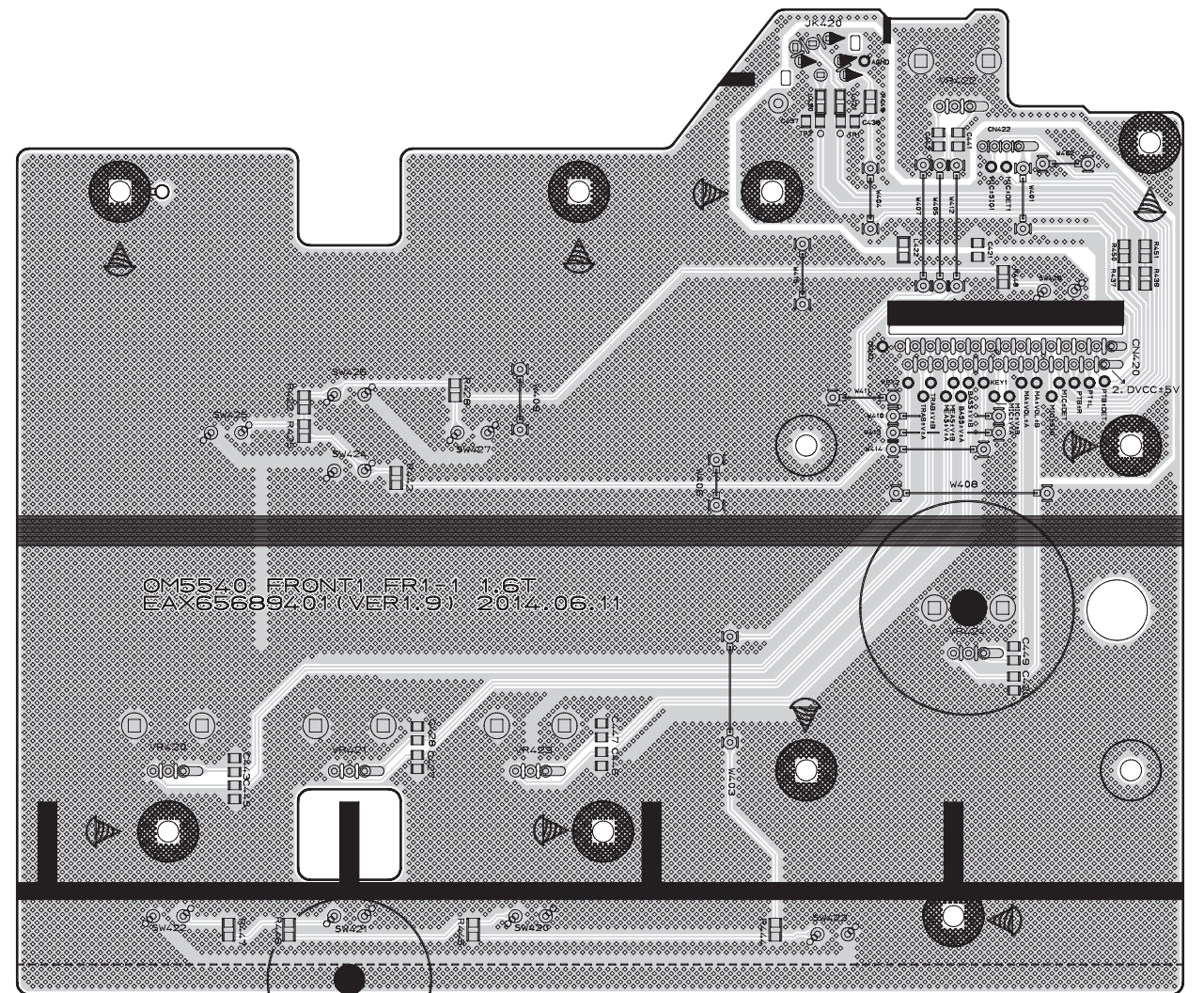
(BOTTOM VIEW)



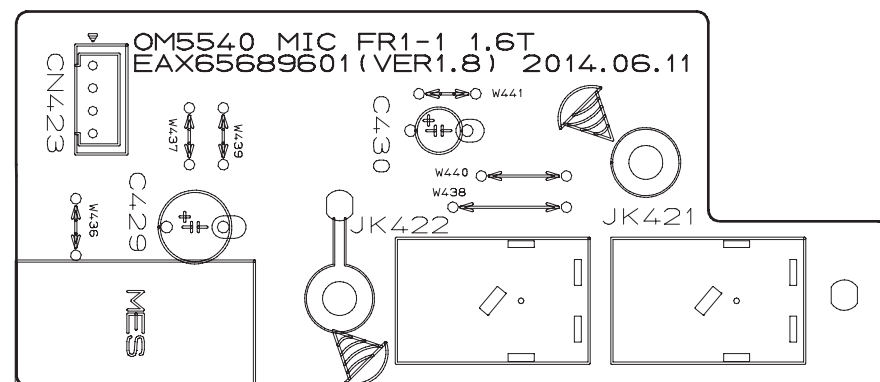
5. FRONT_KEY/PTB P.C.BOARD (TOP VIEW)



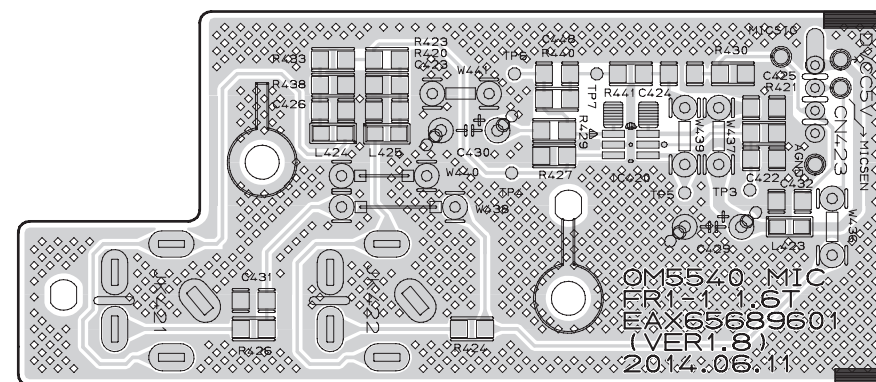
(BOTTOM VIEW)



6. FRONT_MIC P.C.BOARD (TOP VIEW)

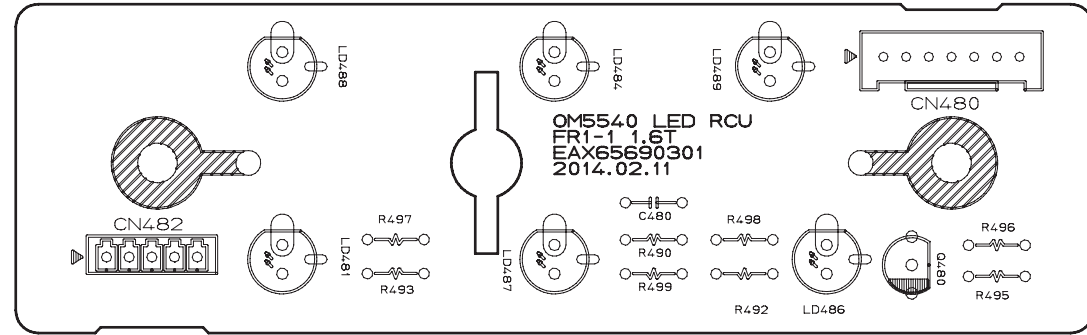


(BOTTOM VIEW)

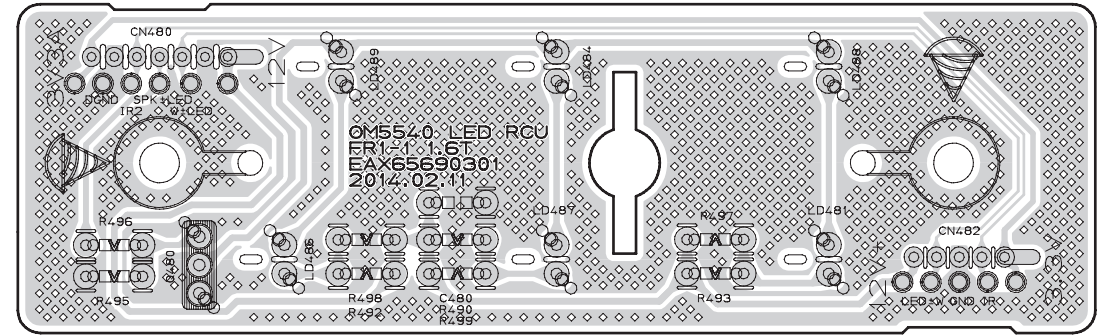


7. SPK_LED P.C.BOARD

(TOP VIEW)

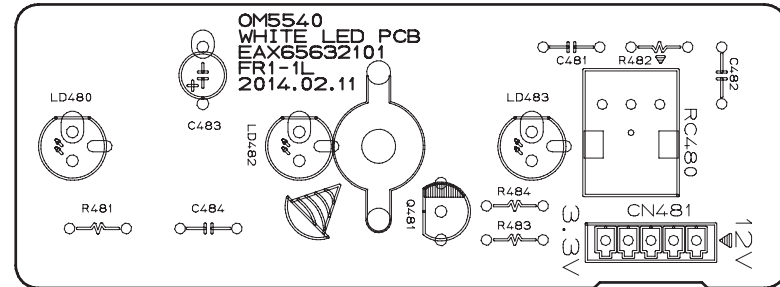


(BOTTOM VIEW)



8. X_LED/RCU2 P.C.BOARD

(TOP VIEW)



(BOTTOM VIEW)

