SAMSUNG

GSM TELEPHONE
SGH-E360

SERVICE Manual

GSM TELEPHONE

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BASIC.

1. Specification

1-1. GSM General Specification

	GSM900 Phase 1	**EGSM 900 Phase 2**	**DCS1800 Phase 1**	**PCS1900**
Freq. Band[MHz] Uplink/Downlink	890~915 935~960	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range	1~124	0~124 & 975~1023	512~885	512~810
Tx/Rx spacing	45MHz	45MHz	95MHz	80MHz
Mod. Bit rate / Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us
Time Slot Period / Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK
MS Power	33dBm~5dBm	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm
Power Class	5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm
TDMA Mux	8	8	8	8
Cell Radius	35Km	35Km	2Km	-

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1-2. GSM TX power class

TX Power control level	GSM900
5	33±2 dBm
6	31±3 dBm
7	29±3 dBm
8	27±3 dBm
9	25±3 dBm
10	23±3 dBm
11	21±3 dBm
12	19±3 dBm
13	17±3 dBm
14	15±3 dBm
15	13±3 dBm
16	11±5 dBm
17	9±5 dBm
18	7±5 dBm
19	5±5 dBm

TX Power control level	DCS1800
0	30±2 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

TX Power control level	PCS1900
0	30±2 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

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1-3. GSM EDGE TX power class

TX Power control level	GSM900
8	27±3 dBm
9	25±3 dBm
10	23±3 dBm
11	21±3 dBm
12	19±3 dBm
13	17±3 dBm
14	15±3 dBm
15	13±3 dBm
16	11±5 dBm
17	9±5 dBm
18	7±5 dBm
19	5±5 dBm

TX Power control level	DCS1800
2	26 -4/+3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	12±3 dBm
9	10±3 dBm
10	14±3 dBm
11	12±4 dBm
12	10±4 dBm
13	8±4dBm
14	6±4 dBm
15	4±4 dBm

TX Power control level	PCS1900
2	26 -4/+3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	12±3 dBm
9	10±3 dBm
10	14±3 dBm
11	12±4 dBm
12	10±4 dBm
13	8±4dBm
14	6±4 dBm
15	4±4 dBm

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2. Circuit Description

2-1. SGH-E360 RF Circuit Description

2-1-1. RX PART

- ANTENNA SWITCH (Module1 Front End Module)

→ Switching Tx, Rx path for GSM900, DCS1800 and PCS1900 by logic controlling.

- ANTENNA SWITCH Control Losic (Module1) → Truth Table

	VC1	VC2	VC3
Tx Mode (GSM900)	H	L	L
Tx Mode (DCS1800/1900)	L	H	L(H)
Rx Mode (GSM900)	L	L	L
Rx Mode (DCS1800)	L	L	L
Rx Mode (PCS1900)	L	L	H

- TRANSCEIVER (U102)

This chip is fully integrated GSM GPRS tri-band transceiver with transmit baluns(balanced-unbalanced matching devices) , loop filters and most of the passive component in it.

And also fully integrated fractional N RF synthesizer with AFC control possibility, RF VCO with integrated supply regulator. Semi integrated reference oscillator with integrated supply regulator.

RF Receiver front-end amplifies the E-GSM900, DCS1800 and PCS1900 aerial signal, convert the chosen channel down to a low IF of 100kHz.

In IF section, further amplifies the wanted channel output level to the desired value and rejects DC.

-PAM(PAM101)

The module consists of two separated line-ups, one for low band(LB 850/900) and one for high band(HB,1800/1900) with input and output matching and internal power detection function and power control loop in GSM mode.

in GSM mode, the internal power control circuit ensures a stable power output, set by the level of V_{DAC} stabilsed to compensate variations of supply voltage, input power and temperature, with a control range fully compaliant with ETSI tome mask and power spectrum requirements

in EDGE mode the output power is controlled by the input power. The V_{REF} signal is used to control the efficiency by controlling the quiescent current of the final RF-statges of both line-ups.

2-1-2. TX PART

The transmitter is fully differential using a direct up conversion architecture. It consists of a signal side band power up mixer. Gain is controlled by 6 dB via 3-wire serial bus programing. The fully integrated VCO and power mixer achieve LO suppression, quadrature phase error, quadrature amplitude balance and low noise floor specification. Output matching/balun components drive a standard 50 ohms single ended load.

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2-2. Baseband Circuit description of SGH-E360

2-2-1. PCF50603 (U400)

- **Power Management**

Eight low-dropout regulators designed specifically for GSM applications power the terminal and help ensure optimal system performance and long battery life. A programmable boost converter provides support for 1.8V, 3.0V SIMs, while a self-resetting, electronically fused switch supplies power to external accessories. Ancillary support functions, such as RTC module and High Voltage Charge pump, Clock generator, aid in reducing both board area and system complexity.

I2C BUS serial interface provides access to control and configuration registers. This interface gives a microprocessor full control of the PCF50603 and enables system designers to maximize both standby and talk times.

Supervisory functions. including a reset generator, an input voltage monitor, and a temperature sensor, support reliable system design. These functions work together to ensure proper system behavior during start-up or in the event of a fault condition(low microprocessor voltage, insufficient battery energy, or excessive die temperature).

- **Backlight Brightness Modulator**

The Backlight Brightness Modulator (BBM) contains a programmable Pulse-width modulator (PWM) and FET to modulate the intensity of a series of LED's or to control a DC/DC converter that drives LCD backlight.

This phone (SGH-E360) use PWM control to contrast the backlight brightness.

- **Clock Generator**

The Clock Generator (CG) generates all clocks for internal and external usage. The 32.768 kHz crystal oscillator provides an accurate low clock frequency for the PCF50603 and other circuitry.

2-2-2. LCD Connector

LCD is consisted of main LCD(color 65K TFT LCD) and sub LCD(color 65K OLED LCD)

Chip select signals in the U305, LCD_MAIN_CS, LCD_SUB_CS can enable LCD. BACKLIGHT signal enables white LED of main LCD. These signal is from U200.

16-bit data lines(LD(0)~LD(15)) transfers data and commands to LCD. Data and commands use "RS" signal. If this signal is high, Inputs to LCD are commands. If it is low, Inputs to LCD are data. The signal which informs the input or output state to LCD, is required. But this system is not necessary this signal. So "L_WR" signal is used to write data or commands to LCD. Power signals for LCD are "VDD_IO_HIGH".

2-2-3. BLUE TOOTH

This system uses Blue Tooth module, LBMA46LCB2, Murata. This has signals, "BT_INT"(Interrupt signal), "RXD2"(input data) and "TXD2"(output data), PCM control signal(DCL[PCMCLK], DO[PCM_IN], DU[PCM_OUT], FSC[PCM_SYNC]) These signals are connected to PCF5213EL1EL1.

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2-2-4. Key

This is consisted of key interface pins KEY_ROW(0:4) and KEY_COL(0:4) in PCF5213EL1. These signals compose the matrix. Result of matrix informs the key status to key interface in the PCF5213EL1. Power on/off key is seperated from the matrix. So power on/off signal is connected with PCF50603 to enable PCF50603. Key LED is consisted of 12 LEDs. key LED use the 3.3V LDO(U606) for a supply voltage. KEY_LED_ON signal enables eight white LED.

"FLIP" informs the status of slide (up or down) to the PCF5213EL1. This uses the hall effect IC, EM-1681-FT(U701). A magnet under LCD enables EM-1681-FT.

2-2-5. EMI ESD Filter

This system uses the EMI ESD filter, U500 to protect noise from IF CONNECTOR part.

2-2-6. IF connetor(IFC500)

It is 18-pin connector. They are designed to use VBAT, V_EXT_CHARGE, USB_D+, +VBUS, USB_D-, TXD1, RXD1, AUX_ON, EXT1, EXT2 and GND. They connected to power supply IC, microprocessor and signal processor IC.

2-2-7. Battery Charge Management

A complete constant-current/constant-voltage linear charger for single cell lithium-ion batteries.

If TA connected to phone, "V_EXT_CHARGE" enable charger IC and supply current to battery.

When fault condition caused, "CHG_ON" signal level change low to high and charger IC stop charging process.

2-2-8. Audio

HFR_P and HFR_N from PCF5213EL1 are connected to the main speaker via analog switches. MIC_P and MIC_N are connected to the main MIC as well. EAR1 is the source of External Speaker. YMU762 is a synthesizer LSI for mobile phones. This LSI has a built-in speaker amplifier for outputting sounds that are used by mobile phones in addition to game sounds and ringing melodies that are replayed by a synthesizer.

The synthesizer section adopts “stereophonic hybrid synthesizer system” that are given advantages of both FM synthesizers and Wave Table synthesizers to allow simultaneous generation of up to 32 FM voices and 32 Wave Table voices. It provides simultaneous generation of up to 40 tones by stereophonic hybrid synthesizer.

YMU762 has built a speaker amplifier of which maximum out is 580 mW at SPVDD=3.6V in this device.

There is Stereophonic analog output for Headphone.

2-2-9. Memory(UME301)

This system uses Samsung's memory, KAP17SG00A. The KAP17SG00A is a Multi Chip Package Memory which combines 256Mbit Synchronous Burst Multi Bank NOR Flash Memory and two 512Mbit OneNAND Flash and 128Mbit Synchronous Burst UtRAM.

It has 16 bit data line, HD[1~16] which is connected to PCF5213EL1 and MV3018SAQ, also has 24 bit address lines, HA[1~24]. There are 3 chip select signals, CS0n_FLASH, CS4n_NAND, and CS1n_RAM.

In the Writing process, WEn is fallen to low and it enables writing process to operate. During reading process, OEn is fallen to low and it enables reading process to operate. Each chip select signals in the PCF5213EL1 choose different memories.

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2-2-10. PCF5213EL1(UCP200)

The PCF5213EL1 is mainly composed of embeded DSP and ARM core. The DSP subsystem includes the Saturn DSP core with embedded RAM and ROM, and a set of peripherals. It has 24kx16 bits PRAM, 104k*16 bits, 32k*16 XYRAM and 63k*16 XYROM in the DSP.

The ARM946E-S consists of an ARM9E-S processor core, 8 kbyte instruction cache and 8 kbyte data cache, tghtly-coupled ITCM(Instruction Tightly Coupled Memory) and DTCM(Data Tightly Coupled Memory) memories, a memory protection unit, and an AMBA(Advanced Microcontroller Bus Architecture) AHB(Advanced High-performance Bus) bus interface with a write buffer.

HD(0:15), data lines and HA(0:23), address lines are connected to KAP17SG00A (memory), MV3018B (image dsp) and YMU762 (melody IC). It has 64 kbyte SC RAM (0.5 Mbit) and 32 kbyte SC program ROM for bootstrap loader in the ARM core.

HD(0:15), data lines and HA(0:23), address lines are connected to memory and YMU762 to communicate.

MV3018B(Camera DSP Chip) controls the communication between ARM core and DSP core.

OEn, WEn control the access of memory. KROW, and KCOL recognize the key string input status.

It has J-TAG control pins (TDI/TDO/TCK) for ARM and DSP core. J-SEL signal controls different access to ARM and DSP core.

ADC(Analog to Digital Convertor) receives the condition of temperature, battery type and battery voltage.

2-2-11. TOH2600DGI4KRA (26MHz)(OSC101)

This system uses the 26MHz VCTCXO; TOH2600DGI4KRA. AFC control signal form PCF5213EL1 controls frequency from 26MHz x-tal. It generates the clock frequency. This clock is connected to PCF5213EL1, YMU762 and UAA3587C2.

2-2-12. Camera DSP(MV3018SAQ)(U306)

MV3018SAQ provides rich video functions up to 30-frame display with minimized tasks in the handset main processor as well as hardware based real-time JPEG compression and decompression. MV3018SAQ directly transmits and previews the RGB data to the LCD graphic memory by processing the sensor output data according to the handset's command. It can save the raw RGB data up to VGA resoultion into its image buffer and allows the host processor to download with scalable sized compressed data.

It utilizes 16 bit data bus for communication with the main processor, including bus interface types.

2-2-13. FM Radio (Si4700)

The Si4700 is a single chip electronically tuned FM stereo radio for low voltage application with fully integrated IF selectivity and demodulation.

Si4700K provide FM mixer for conversion of the US/Europe (87.5 MHz to 108 MHz) and Japanese FM band (76 MHz to 90 MHz) to IF.Preset tuning to receive Japanese TV audio up to 108 MHz, raster 100 kHz. and is connected to PCF5213EL1 of I2C.

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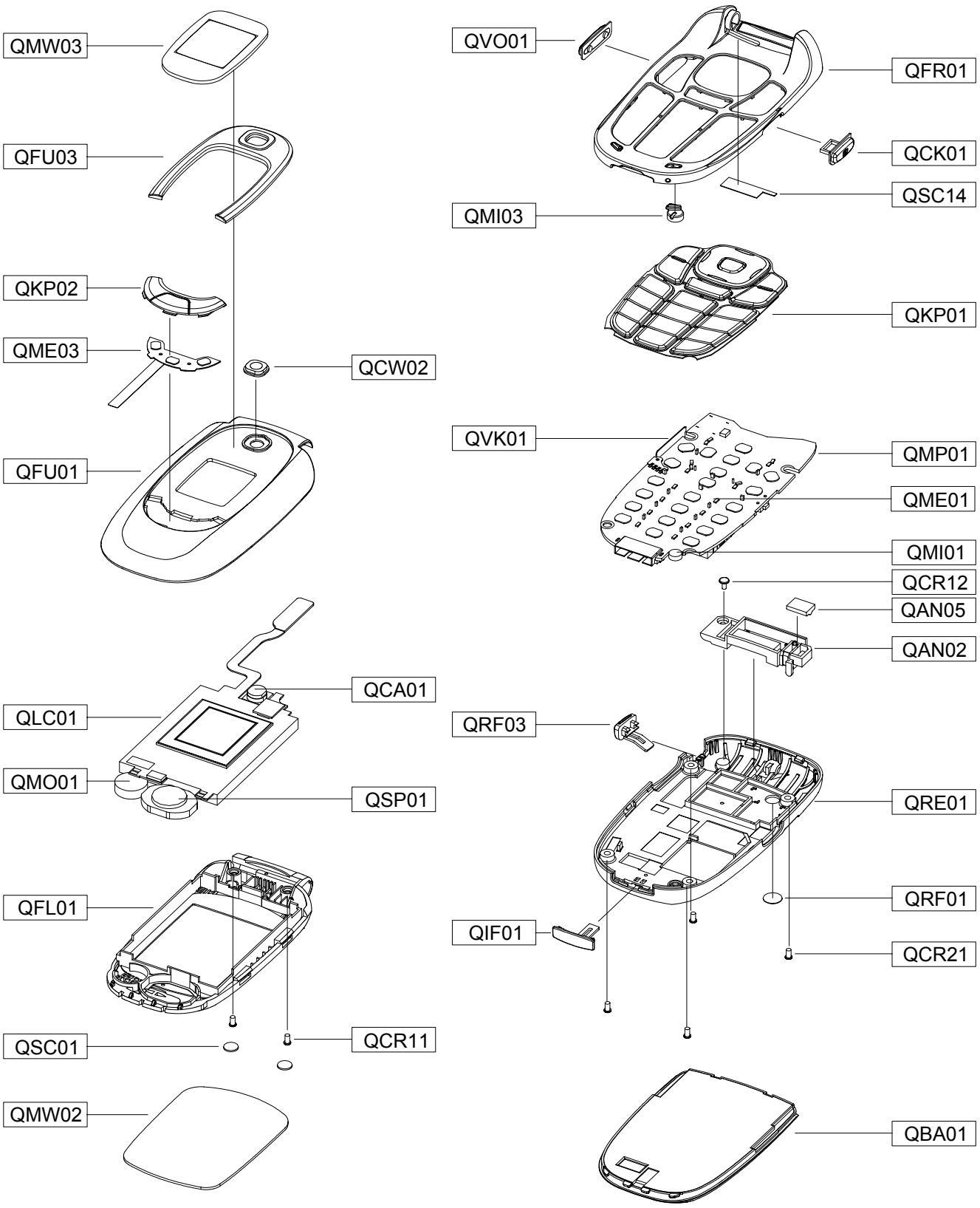
3. Exploded View and Parts List

3-1. Exploded View



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3-2. Parts List

Location NO.		Description	SEC CODE
QAN02		INTENNA-SGHE360	GH42-00717A
QAN05		MEC-INTENNA CONN RUBBER	GH75-08200A
QBA01		BATTERY-800MAH,SIL,ENG,M	GH43-02067A
QCA01		UNIT-CAMERA	GH59-02420A
QCK01		MEC-CAMERA KEY	GH75-07171A
QCR11		SCREW-MACHINE	6001-001654
QCR12		SCREW-MACHINE	6001-001530
QCR21		SCREW-MACHINE	6001-001507
QCW02		PCT-WINDOW CAMERA	GH72-24951A
QFL01		MEC-FOLDER LOWER	GH75-08048A
QFR01		MEC-FRONT COVER	GH75-08049A
QFU01		MEC-FOLDER UPPER	GH75-08047A
QFU03		NDC-FOLDER DECO DUMMY	GH71-05554A
QIF01		PMO-IF COVER	GH72-20212A
QKP01		MEC-KEYPAD	GH75-08052A
QKP02		MEC-KEY FOLD	GH75-08051A
QLC01		MEA-LCD MODULE KIT(E360)	GH97-05188A
QME01		UNIT-METAL DOME F/K	GH59-02396A
QME03		UNIT-MP3 KEY	GH59-02398A
QMI01		MICROPHONE-ASSY-SGHE360	GH30-00224A
QMO01		MOTOR DC-SGHE360	GH31-00198A
QMP01		PBA MAIN-SGHE360S MAIN	GH92-02402A
QMW02		PCT-WINDOW MAIN	GH72-24952A
QMW03		PCT-WINDOW SUB	GH72-24950A
QRF01		MPR-RF SHEET	GH74-17797A
QSC01		MPR-SHEET SCREW	GH74-17787A
QSC14		MPR-TAPE FRONT FPC	GH74-08876A
QSP01		SPEAKER	3001-001844
QVK01		UNIT-VOLUME KEY	GH59-02397A
QVO01		MEC-VOLUME KEY	GH75-07170A
QRE01		MEC-REAR COVER	GH75-08050A
	QRF03	PMO-EAR COVER V2	GH72-23676A
	QMI03	MEC-RUBBER MIC	GH75-08856A

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Description	SEC CODE
BAG PE	6902-000634
ADAPTOR-SCHN391 HUTCHSON	GH44-00745A
UNIT-EARPHONE(SIL)	GH59-02472B
LABEL(P)-WATER SOAK	GH68-02026A
MANUAL-USER	GH68-08186A
LABEL(R)-MAIN(XSA)	GH68-08359B
BOX(P)-SGHE360(SEA)	GH69-03293B
CUSHION-CASE(1-2)	GH69-03294A
PMO-BATT LOCKER	GH72-20209A
RMO-RUBBER LCD	GH73-05923A
MPR-MAIN LCD BOHO VINYL(S)	GH74-05008A
MPR-BOHO VINYL MAIN SPON	GH74-14238A
MPR-BOHO VINYL LCD CONN	GH74-15350A
MPR-SPONGE PCB ESD	GH74-15513A
MPR-TAPE PBA JTAG	GH74-17791A
MPR-TAPE I MP3 CON	GH74-19881A
MPR-TAPE E LCD D	GH74-19883A
MPR-TAPE E LCD R	GH74-19884A
MPR-TAPE E KEYPAD	GH74-19886A
MPR-SPONGE MOTOR	GH74-19887A
MPR-TAPE E LCD L	GH74-19888A
MPR-SPONGE IF CONN	GH74-19913A
MPR-TAPE F/UPPER HOLE	GH74-19914A
MPR-BOHO VINYL SET	GH74-19916A
MEC-HAND STRAP	GH75-03207A

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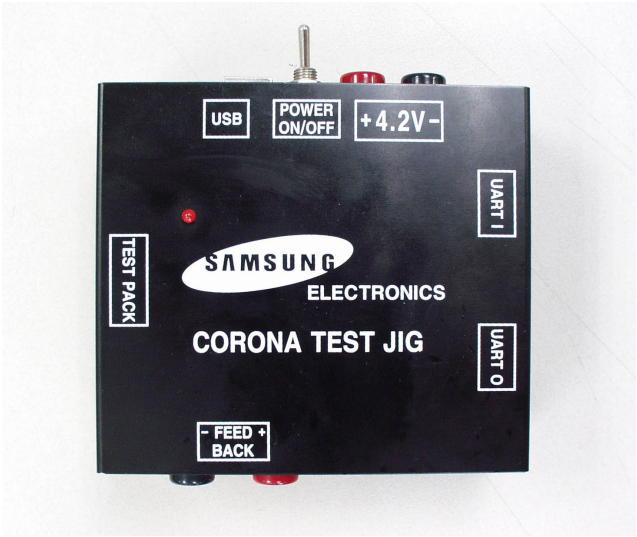
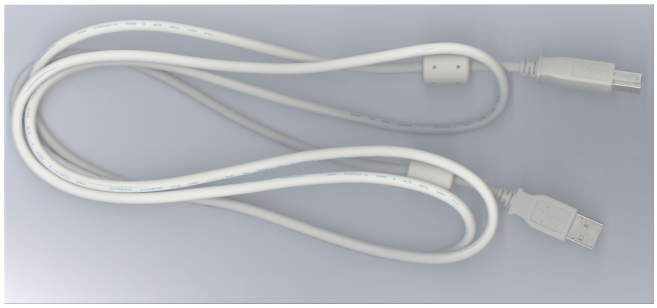
3-3. Test Jig (GH80-03306A)



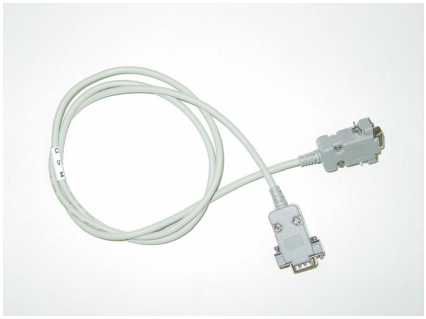
3-3-1. USB JIG Cable



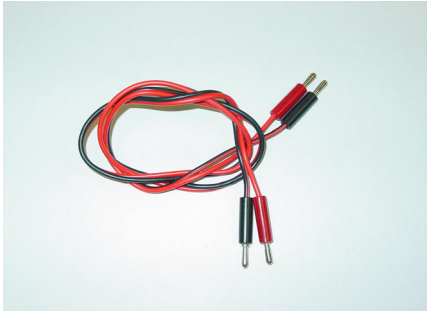
3-3-2. RF Test Cable (GH39-00283A)

3-3-3. Test Cable (GH39-00337A)

3-3-4. Serial Cable (CSA LL64151-A)



3-3-5. Power Supply Cable



3-3-6. DATA CABLE (GH39-00331A]

3-3-7. TA (GH44-00482A)

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4. Electrical Parts List

Design LOC	Description	SEC CODE	STATUS
ANT1	NPR-ANTENNA CONTACT	GH71-04302A	SA
ANT2	NPR-ANTENNA CONTACT	GH71-04302A	SA
ANT300	ANTENNA-CHIP	4202-001099	SA
AR201	R-NET	2011-001394	SA
BAT400	BATTERY-LI(2ND)	4302-001181	SA
BTC501	CONNECTOR-BATTERY	3711-005829	SA
C101	C-CER,CHIP	2203-000278	SA
C102	C-CER,CHIP	2203-000278	SA
C104	C-CER,CHIP	2203-000278	SA
C105	C-CER,CHIP	2203-000278	SA
C106	C-CER,CHIP	2203-000812	SA
C107	C-CER,CHIP	2203-001072	SA
C109	C-CER,CHIP	2203-000278	SA
C110	C-CER,CHIP	2203-000278	SA
C112	C-CER,CHIP	2203-000812	SA
C113	C-CER,CHIP	2203-000233	SA
C114	C-CER,CHIP	2203-000233	SA
C115	C-CER,CHIP	2203-000812	SA
C116	C-CER,CHIP	2203-000233	SA
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C123	C-CER,CHIP	2203-000278	SA
C124	C-CER,CHIP	2203-005281	SA
C125	C-CER,CHIP	2203-005281	SA
C126	C-CER,CHIP	2203-000233	SA
C127	C-CER,CHIP	2203-000278	SA
C130	C-CER,CHIP	2203-000854	SA
C131	C-CER,CHIP	2203-000854	SA
C132	C-CER,CHIP	2203-000254	SA
C134	C-CER,CHIP	2203-005052	SA
C136	C-CER,CHIP	2203-000530	SA
C137	C-CER,CHIP	2203-000233	SA
C142	C-CER,CHIP	2203-001072	SA
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C213	C-CER,CHIP	2203-005482	SA
C214	C-CER,CHIP	2203-000812	SA

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C218	C-CER,CHIP	2203-006190	SA
C301	C-CER,CHIP	2203-000254	SA
C302	C-CER,CHIP	2203-005482	SA
C303	C-CER,CHIP	2203-005482	SA
C304	C-CER,CHIP	2203-000233	SA
C305	C-CER,CHIP	2203-000679	SA
C306	C-CER,CHIP	2203-005482	SA
C307	C-CER,CHIP	2203-005482	SA
C308	C-CER,CHIP	2203-000438	SA
C309	C-CER,CHIP	2203-006348	SA
C310	C-CER,CHIP	2203-005482	SA
C311	C-CER,CHIP	2203-000438	SA
C312	C-CER,CHIP	2203-005482	SA
C313	C-CER,CHIP	2203-005512	SA
C315	C-CER,CHIP	2203-000679	SA
C316	C-CER,CHIP	2203-006562	SA
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C319	C-CER,CHIP	2203-005482	SA
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C321	C-CER,CHIP	2203-006562	SA
C322	C-CER,CHIP	2203-005482	SA
C323	C-CER,CHIP	2203-005482	SA
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C402	C-CER,CHIP	2203-006208	SA
C403	C-CER,CHIP	2203-006201	SA
C404	C-CER,CHIP	2203-006562	SA
C405	C-CER,CHIP	2203-006324	SA
C406	C-CER,CHIP	2203-000386	SA
C407	C-CER,CHIP	2203-006257	SA
C408	C-CER,CHIP	2203-000386	SA
C409	C-CER,CHIP	2203-006257	SA
C410	C-CER,CHIP	2203-000233	SA
C412	C-CER,CHIP	2203-000812	SA
C413	C-CER,CHIP	2203-006208	SA
C414	C-CER,CHIP	2203-006399	SA
C415	C-CER,CHIP	2203-006208	SA
C416	C-CER,CHIP	2203-006257	SA
C417	C-CER,CHIP	2203-006257	SA
C419	C-CER,CHIP	2203-006208	SA
C420	C-CER,CHIP	2203-005482	SA
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C423	C-CER,CHIP	2203-006208	SA
C424	C-CER,CHIP	2203-006257	SA
C425	C-CER,CHIP	2203-006257	SA
C501	C-CER,CHIP	2203-002443	SA
C502	C-CER,CHIP	2203-006399	SA
C503	C-CER,CHIP	2203-000812	SA

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Design LOC	Description	SEC CODE	STATUS
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C505	C-CER,CHIP	2203-005482	SA
C506	C-CER,CHIP	2203-005482	SA
C507	C-CER,CHIP	2203-006562	SA
C508	C-CER,CHIP	2203-000812	SA
C552	C-CER,CHIP	2203-000233	SA
C601	C-CER,CHIP	2203-000643	SA
C602	C-CER,CHIP	2203-000278	SA
C604	C-CER,CHIP	2203-005482	SA
C605	C-CER,CHIP	2203-002668	SA
C606	C-CER,CHIP	2203-000995	SA
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C608	C-CER,CHIP	2203-000278	SA
C612	C-CER,CHIP	2203-000254	SA
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C615	C-CER,CHIP	2203-003054	SA
C616	C-CER,CHIP	2203-006137	SA
C617	C-CER,CHIP	2203-003054	SA
C629	C-CER,CHIP	2203-006137	SA
C630	C-CER,CHIP	2203-000995	SA
C701	C-CER,CHIP	2203-006201	SA
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C730	C-CER,CHIP	2203-006137	SA
C731	C-CER,CHIP	2203-000679	SA
EAR600	JACK-PHONE	3722-002082	SA
F101	DUPLEXER-ASM	2911-000018	SA
F102	FILTER-EMI SMD	2901-001254	SA
F103	FILTER-SAW	2904-001553	SA
F701	FILTER-EMI SMD	2901-001286	SA
F702	FILTER-EMI SMD	2901-001286	SA
F703	FILTER-EMI SMD	2901-001286	SA
F704	FILTER-EMI SMD	2901-001286	SA
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L110	INDUCTOR-SMD	2703-002485	SA
L111	INDUCTOR-SMD	2703-001752	SA
L112	INDUCTOR-SMD	2703-002267	SA
L114	BEAD-SMD	3301-001729	SA

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L117	INDUCTOR-SMD	2703-002268	SA
L200	BEAD-SMD	3301-001789	SA
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L401	BEAD-SMD	3301-001120	SA
L402	INDUCTOR-SMD	2703-002653	SA
L501	BEAD-SMD	3301-001534	SA
L601	BEAD-SMD	3301-001534	SA
L602	BEAD-SMD	3301-001534	SA
L603	INDUCTOR-SMD	2703-001231	SA
L604	INDUCTOR-SMD	2703-002198	SA
L607	INDUCTOR-SMD	2703-002198	SA
L613	INDUCTOR-SMD	2703-002308	SA
L614	INDUCTOR-SMD	2703-002308	SA
L617	INDUCTOR-SMD	2703-002308	SA
L703	INDUCTOR-SMD	2703-001673	SA
LED701	LED	0601-002037	SA
LED702	LED	0601-002037	SA
LED703	LED	0601-002037	SA
LED704	LED	0601-002037	SA
LED705	LED	0601-002037	SA
LED706	LED	0601-002037	SA
LED707	LED	0601-002037	SA
LED708	LED	0601-002037	SA
LED709	LED	0601-002037	SA
LED710	LED	0601-002037	SA
LED711	LED	0601-002037	SA
LED712	LED	0601-002037	SA
MOD301	BLUETOOTH MODULE	4709-001377	SA
OSC101	OSCILLATOR-VCTCXO	2809-001281	SA
OSC400	CRYSTAL-SMD	2801-004466	SA
PAM101	IC-POWER AMP	1201-002280	SA
R103	R-CHIP	2007-000171	SA
R104	R-CHIP	2007-000171	SA
R107	R-CHIP	2007-000148	SA
R108	R-CHIP	2007-000172	SA
R109	R-CHIP	2007-000566	SA
R110	R-CHIP	2007-003001	SA
R111	R-CHIP	2007-000566	SA
R112	R-CHIP	2007-000171	SA
R113	R-CHIP	2007-000932	SA
R114	R-CHIP	2007-000932	SA
R115	R-CHIP	2007-000171	SA
R116	R-CHIP	2007-000140	SA
R117	R-CHIP	2007-001288	SA
R118	R-CHIP	2007-001313	SA
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R121	R-CHIP	2007-000171	SA
R122	R-CHIP	2007-000171	SA

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Design LOC	Description	SEC CODE	STATUS
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R124	R-CHIP	2007-000171	SA
R125	R-CHIP	2007-000171	SA
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R204	R-CHIP	2007-000162	SA
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R215	R-CHIP	2007-000171	SA
R301	R-CHIP	2007-000171	SA
R302	R-CHIP	2007-007014	SA
R303	R-CHIP	2007-001303	SA
R304	R-CHIP	2007-000157	SA
R305	R-CHIP	2007-001325	SA
R306	R-CHIP	2007-000151	SA
R307	R-CHIP	2007-001323	SA
R308	R-CHIP	2007-000143	SA
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R310	R-CHIP	2007-000162	SA
R311	R-CHIP	2007-000141	SA
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R313	R-CHIP	2007-000162	SA
R314	R-CHIP	2007-000148	SA
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R512	R-CHIP	2007-007334	SA
R513	R-CHIP	2007-000164	SA
R514	R-CHIP	2007-000156	SA

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R541	R-CHIP	2007-000171	SA
R603	R-CHIP	2007-000242	SA
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R608	R-CHIP	2007-007573	SA
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R615	R-CHIP	2007-000162	SA
R616	R-CHIP	2007-001339	SA
R619	R-CHIP	2007-000171	SA
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R716	R-CHIP	2007-000171	SA
R718	R-CHIP	2007-000172	SA
R719	R-CHIP	2007-000172	SA
R732	R-CHIP	2007-000171	SA
R733	R-CHIP	2007-000171	SA
R734	R-CHIP	2007-000148	SA
R735	R-CHIP	2007-000758	SA
R736	R-CHIP	2007-000171	SA
R737	R-CHIP	2007-000138	SA
RFS101	CONNECTOR-COAXIAL	3705-001358	SA
SIM400	CONNECTOR-CARD EDGE	3709-001355	SA
SOC701	HEADER-BOARD TO BOARD	3711-005918	SA
TA101	C-TA,CHIP	2404-001411	SA
TA401	C-TA,CHIP	2404-001394	SA
TA501	C-TA,CHIP	2404-001394	SA
TA502	C-TA,CHIP	2404-001394	SA
TA601	C-TA,CHIP	2404-001402	SA
TAC701	SWITCH-TACT	3404-001152	SA
U102	IC-TRANSCEIVER	1205-002817	SA
U300	IC-MELODY	1204-002161	SA
U301	IC-CMOS LOGIC	0801-003022	SA
U302	IC-CMOS LOGIC	0801-003025	SA
U305	FET-SILICON	0505-001923	SA

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Design LOC	Description	SEC CODE	STATUS
U306	IC ASIC-SCHN480	GH13-00029A	SA
U400	IC-POWER SUPERVISOR	1203-003882	SA
U401	IC-POSI.FIXED REG.	1203-003754	SA
U402	IC-DC/DC CONVERTER	1203-003736	SA
U500	DIODE-TVS	0406-001188	SA
U501	FILTER-EMI SMD	2901-001315	SA
U502	IC-BATTERY	1203-003742	SA
U503	TR-DIGITAL	0504-001151	SA
U504	IC-HALL EFFECT S/W	1009-001020	SA
U600	IC-ANALOG MULTIPLEX	1001-001351	SA
U601	IC-VOLTAGE COMP.	1202-001068	SA
U603	IC-ANALOG SWITCH	1001-001231	SA
U604	IC-ANALOG MULTIPLEX	1001-001345	SA
U605	IC-ANALOG SWITCH	1001-001231	SA
U607	IC-ANALOG SWITCH	1001-001231	SA
U700	IC-POSI.FIXED REG.	1203-003754	SA
U701	IC-ANALOG SWITCH	1001-001231	SA
U725	IC-TUNER	1204-002510	SA
UCP200	IC-COMM. CONTROLLER	1205-002670	SA
UME301	IC-MCP	1108-000018	SA
VR400	DIODE-TVS	0406-001231	SA
VR401	DIODE-TVS	0406-001231	SA
VR500	THERMISTOR-NTC	1404-001221	SA
VR701	DIODE-TVS	0406-001231	SA
VR702	DIODE-TVS	0406-001231	SA
VR703	DIODE-TVS	0406-001231	SA
VR704	DIODE-TVS	0406-001231	SA
VR705	DIODE-TVS	0406-001231	SA
VR706	DIODE-TVS	0406-001231	SA
VR707	DIODE-TVS	0406-001231	SA
VR708	DIODE-TVS	0406-001231	SA
VR709	DIODE-TVS	0406-001231	SA
VR710	DIODE-TVS	0406-001231	SA
VR711	DIODE-TVS	0406-001231	SA
VR712	DIODE-TVS	0406-001231	SA
VR713	DIODE-TVS	0406-001231	SA
VR714	DIODE-TVS	0406-001231	SA
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ZD501	DIODE-ZENER	0403-001427	SA
ZD502	DIODE-TVS	0406-001150	SA
ZD600	DIODE-TVS	0406-001190	SA
ZD601	DIODE-TVS	0406-001104	SA
ZD602	DIODE-TVS	0406-001104	SA
ZD701	DIODE-TVS	0406-001150	SA
ZD702	DIODE-TVS	0406-001150	SA
ZD703	DIODE-TVS	0406-001150	SA

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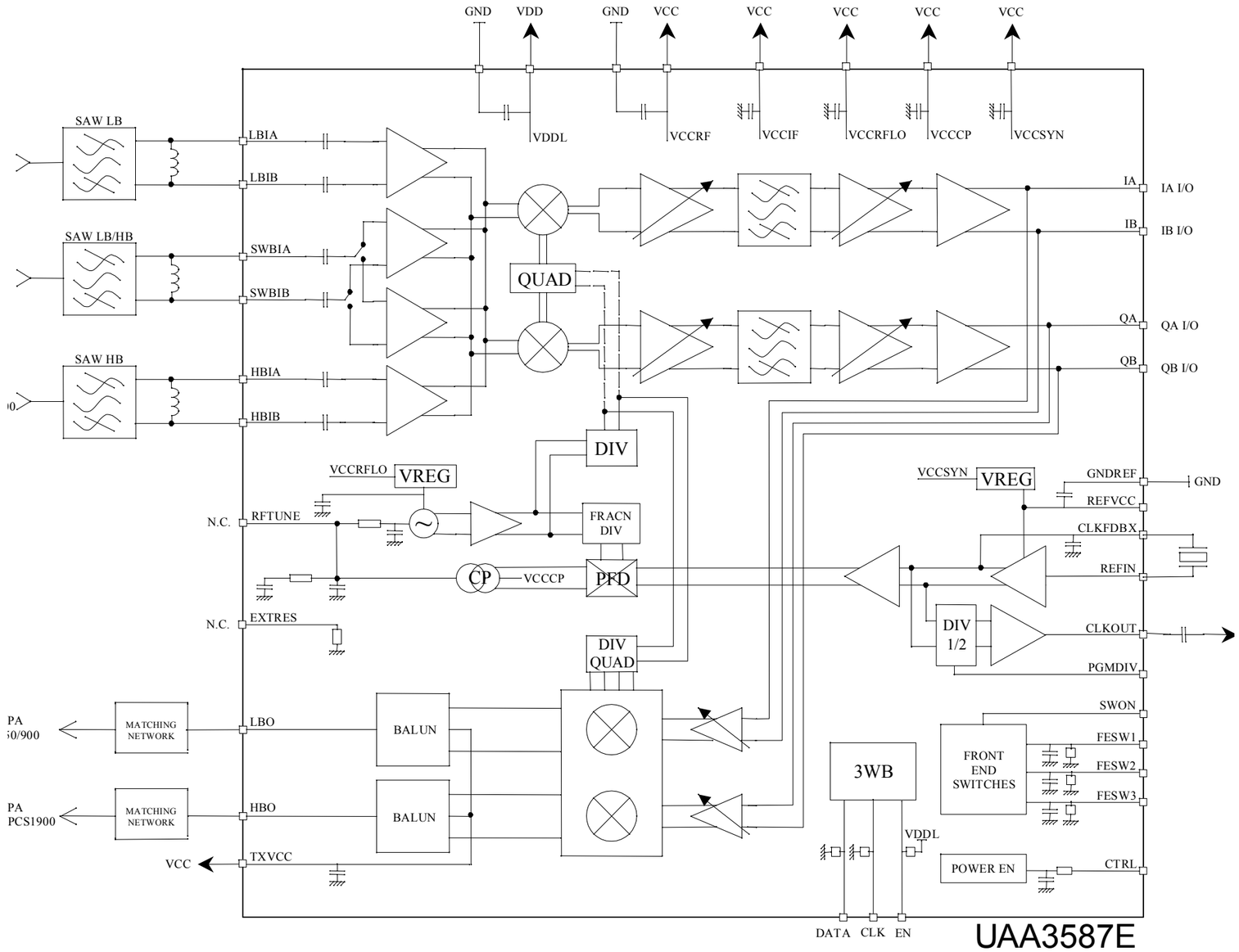
5. Block Diagrams

5-1. RF Solution Block Diagram



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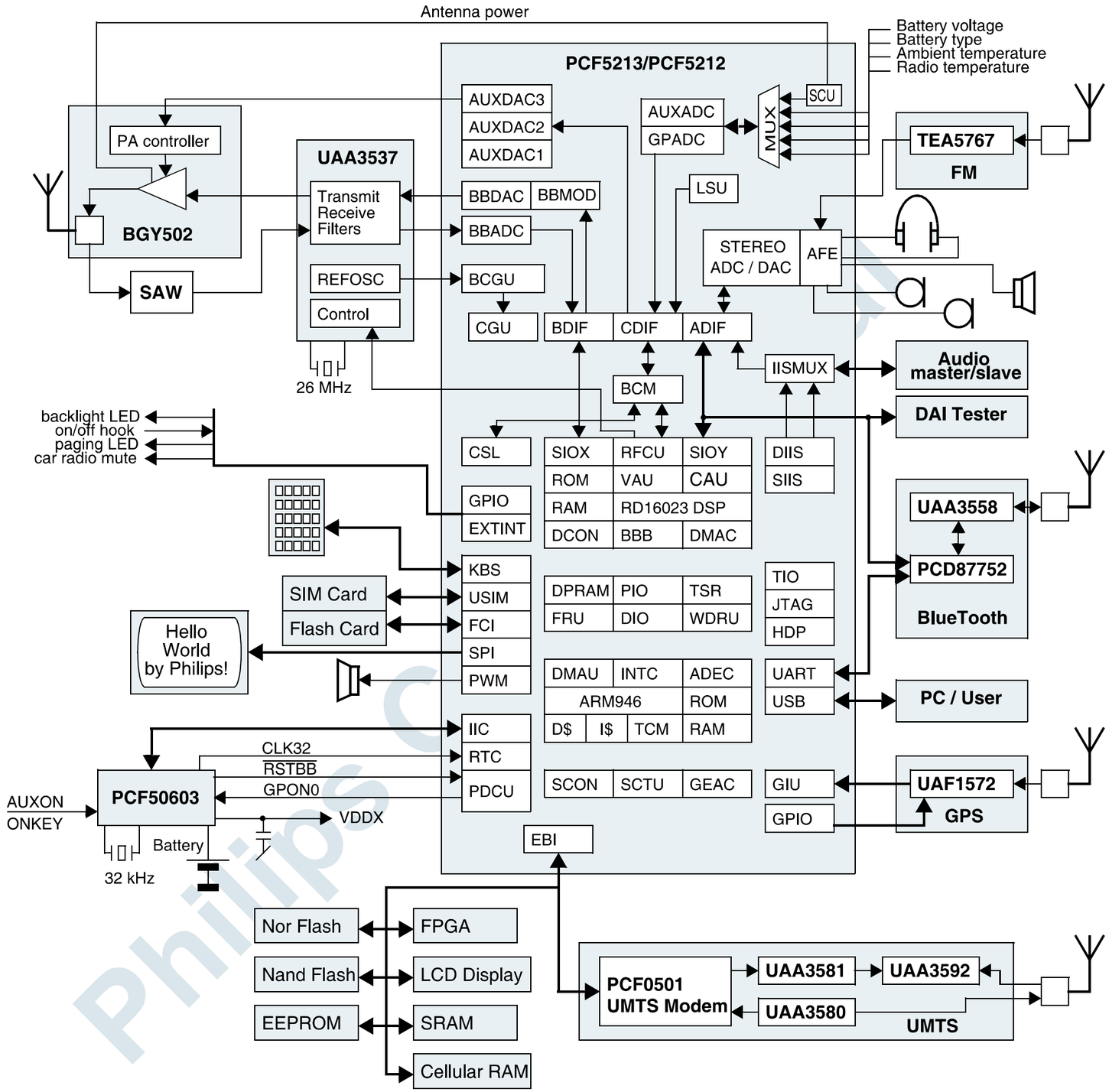
5-2. Base Band Solution Block Diagram



Philips C

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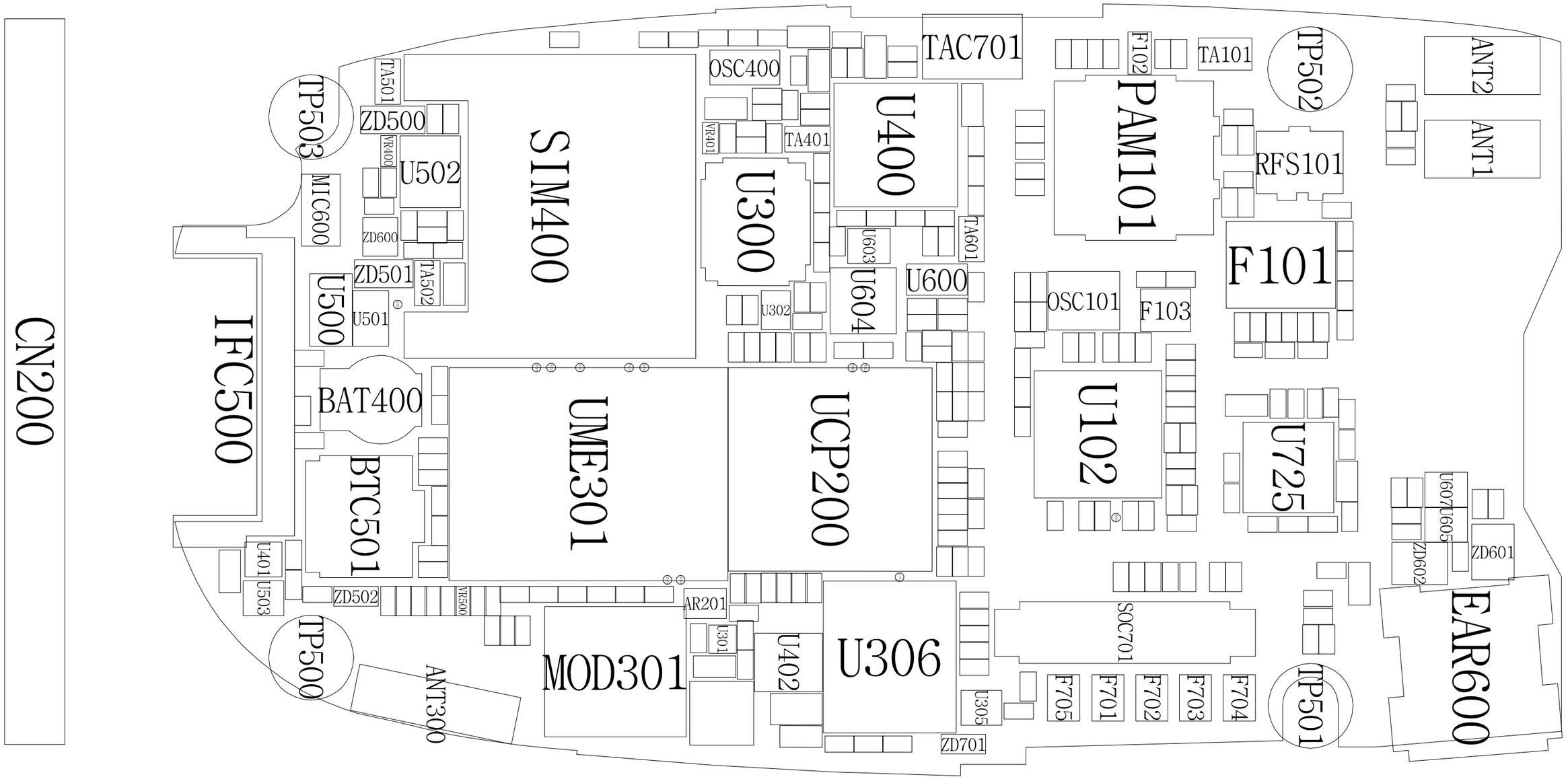
6. PCB Diagrams

6-1. PCB Top Diagram



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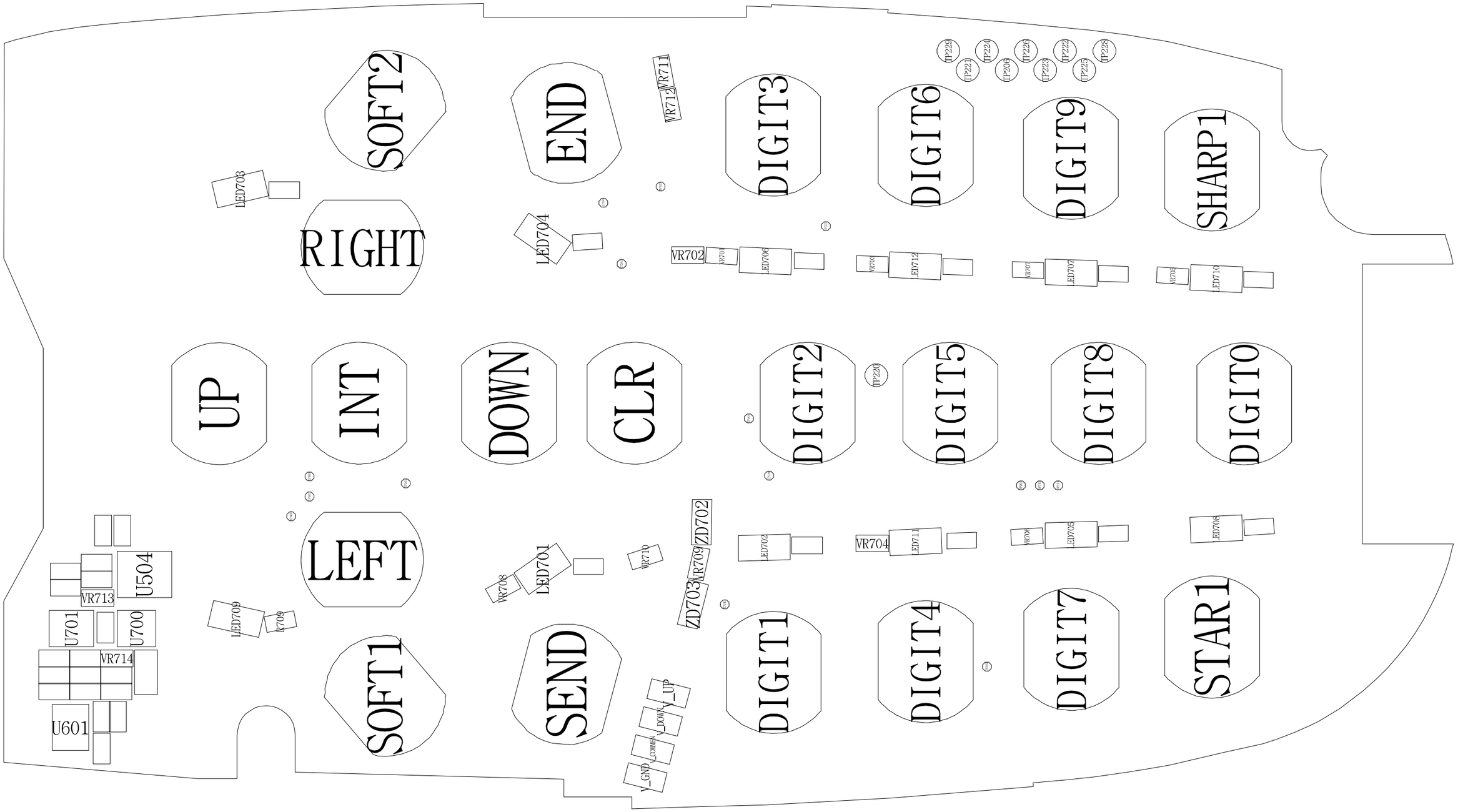
6-2. PCB Bottom Diagram



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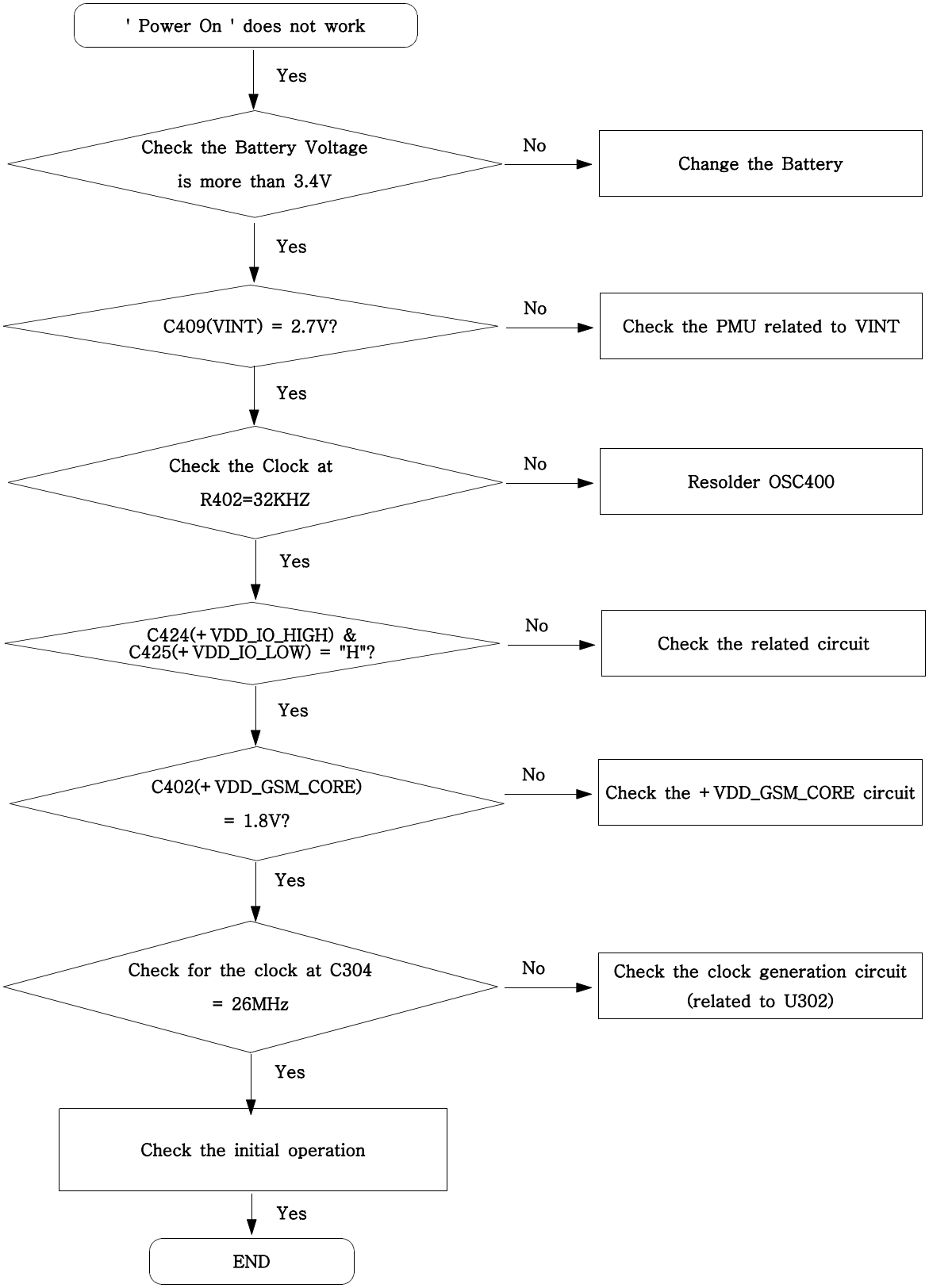
7. Flow Chart of Troubleshooting

7-1. Power On



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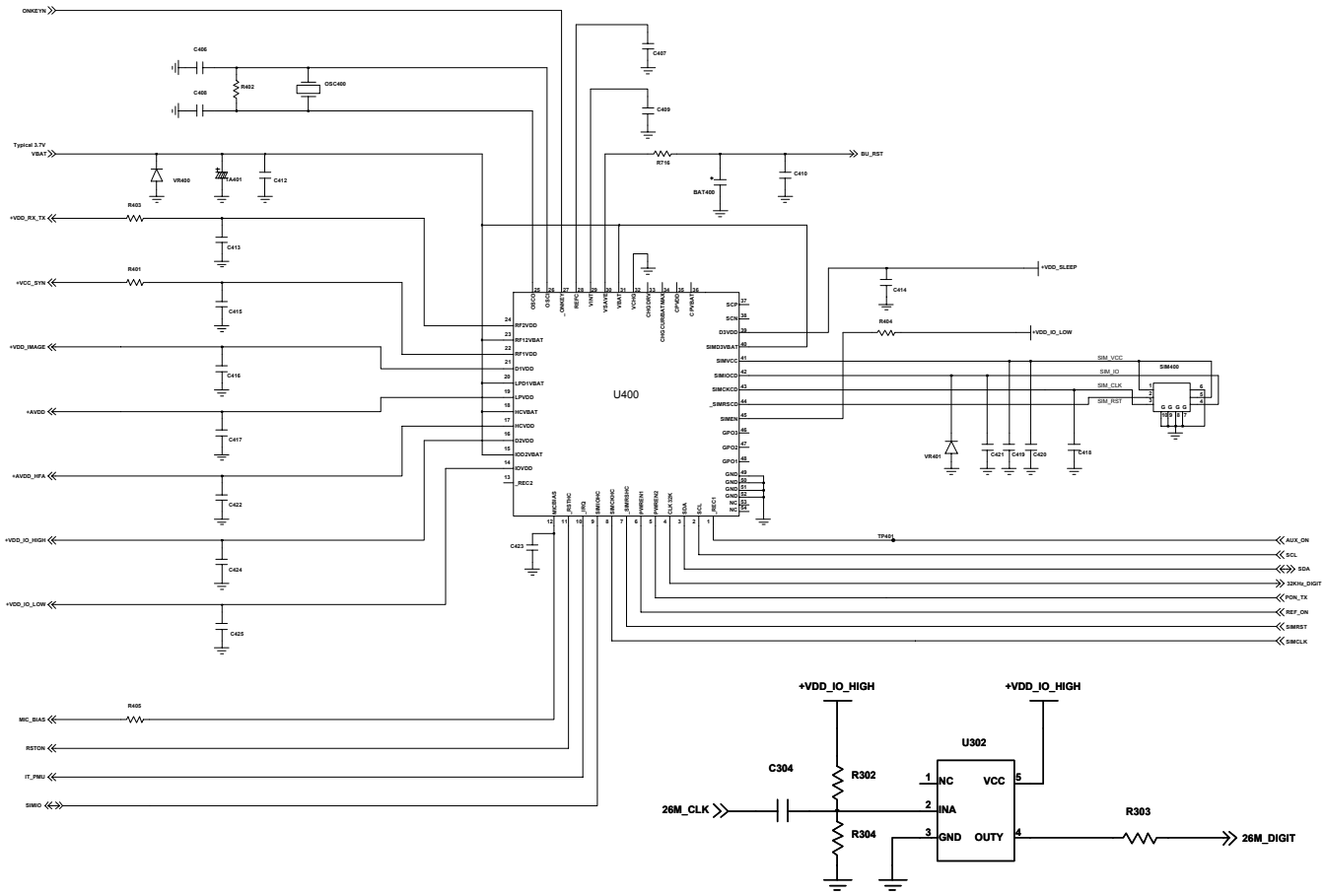

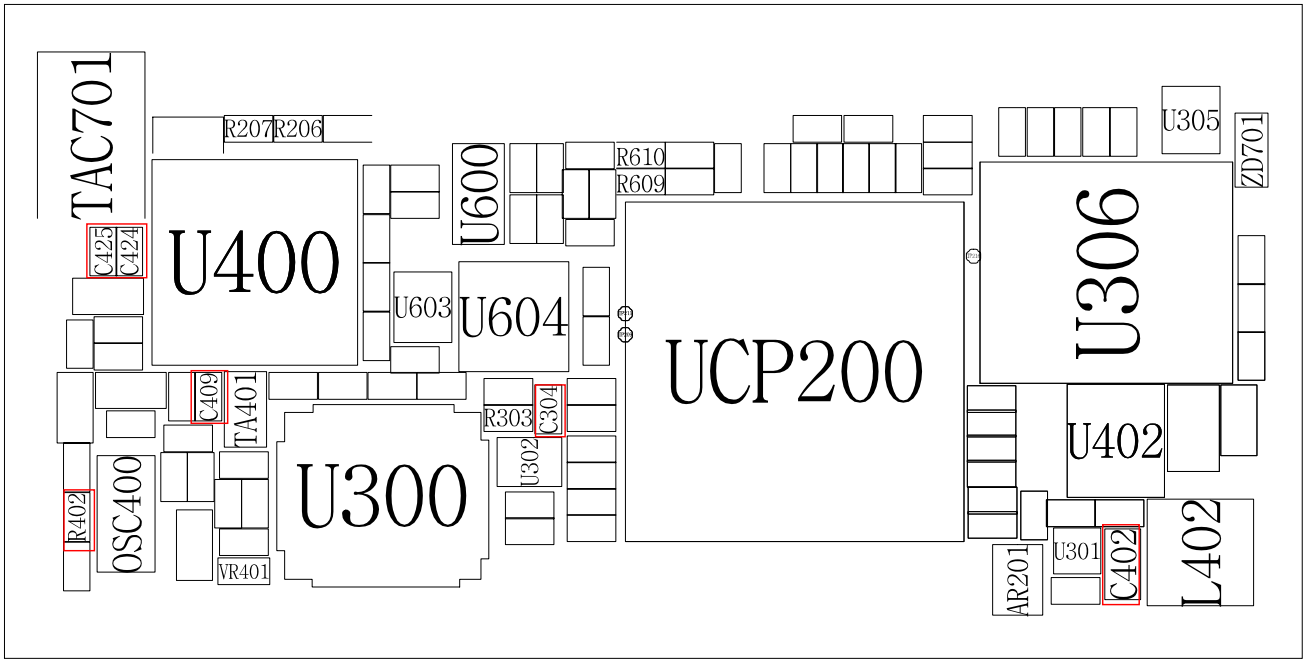

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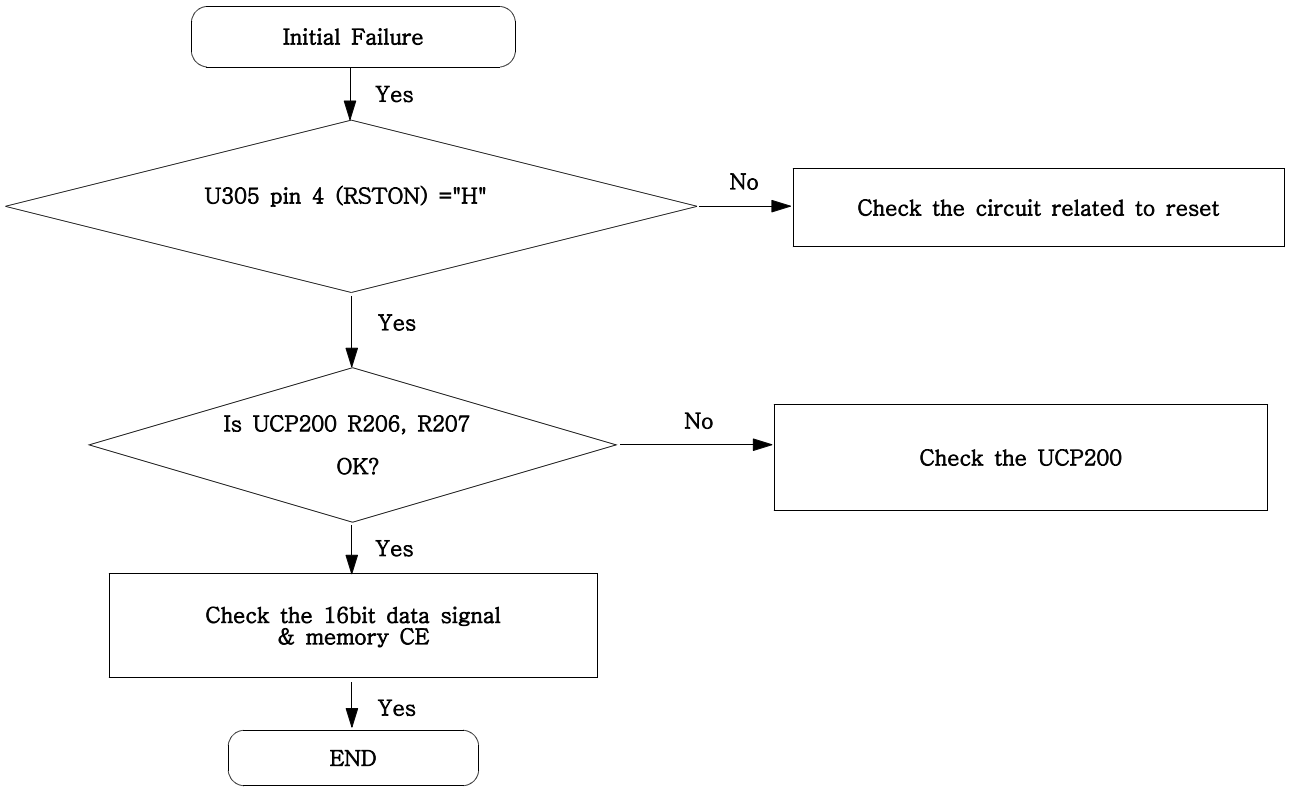
7-2. Initial



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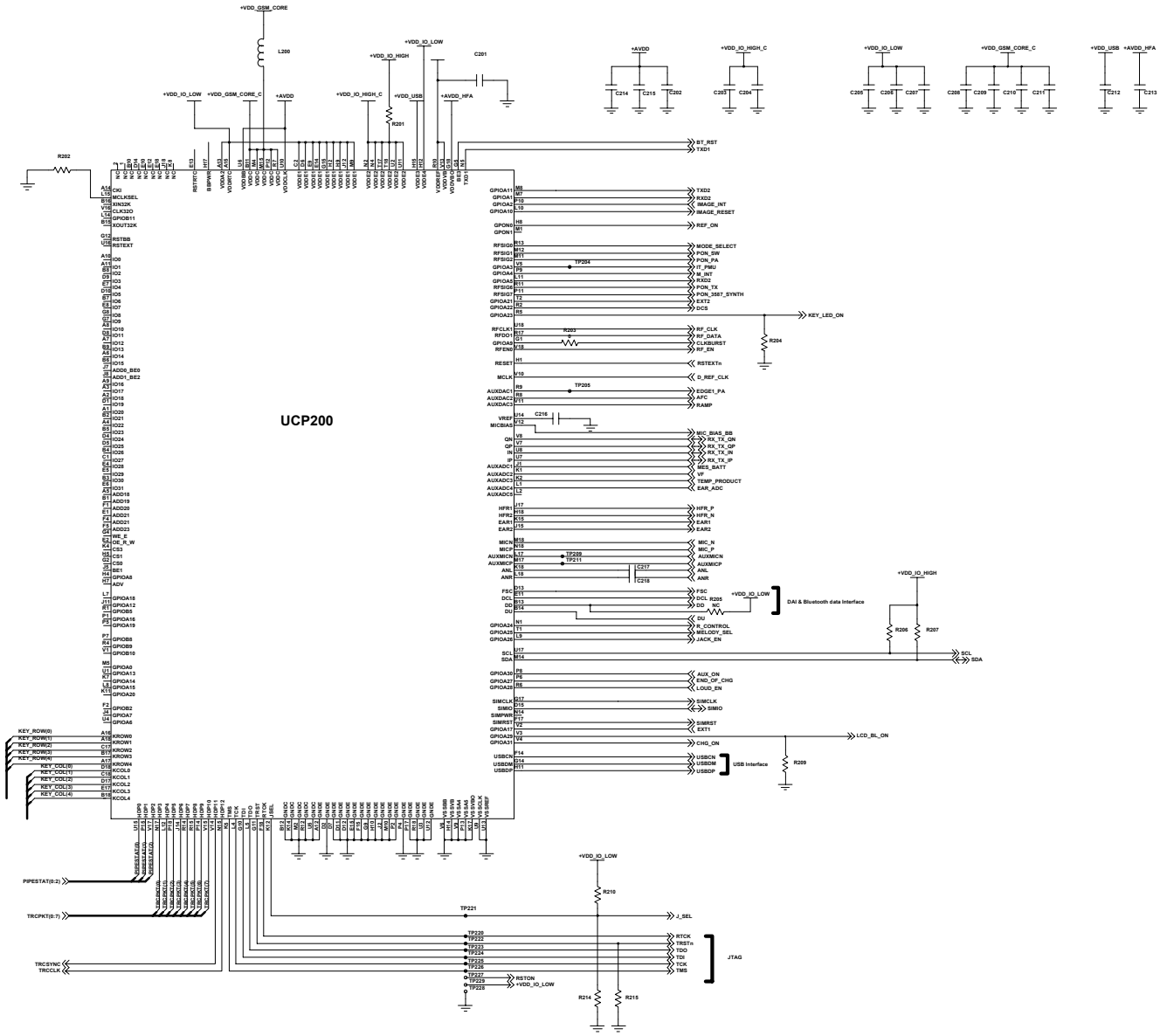

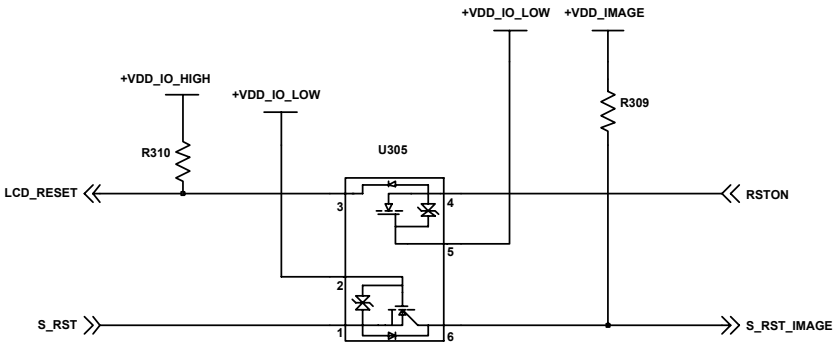

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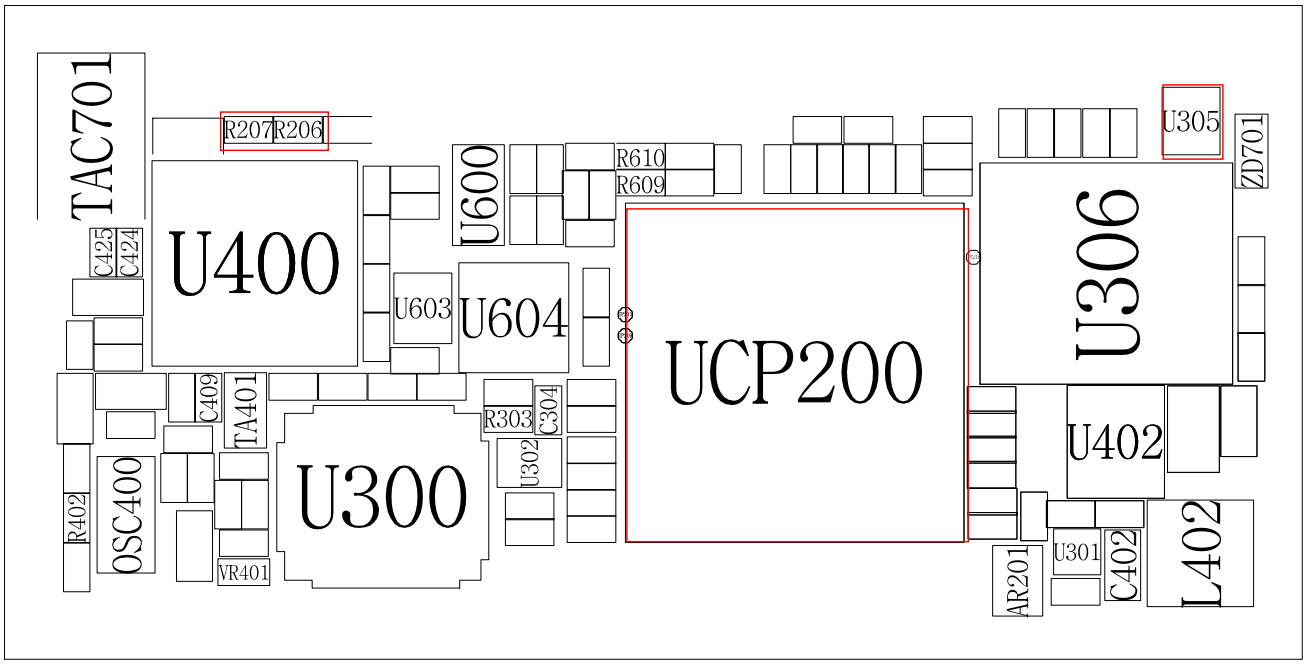

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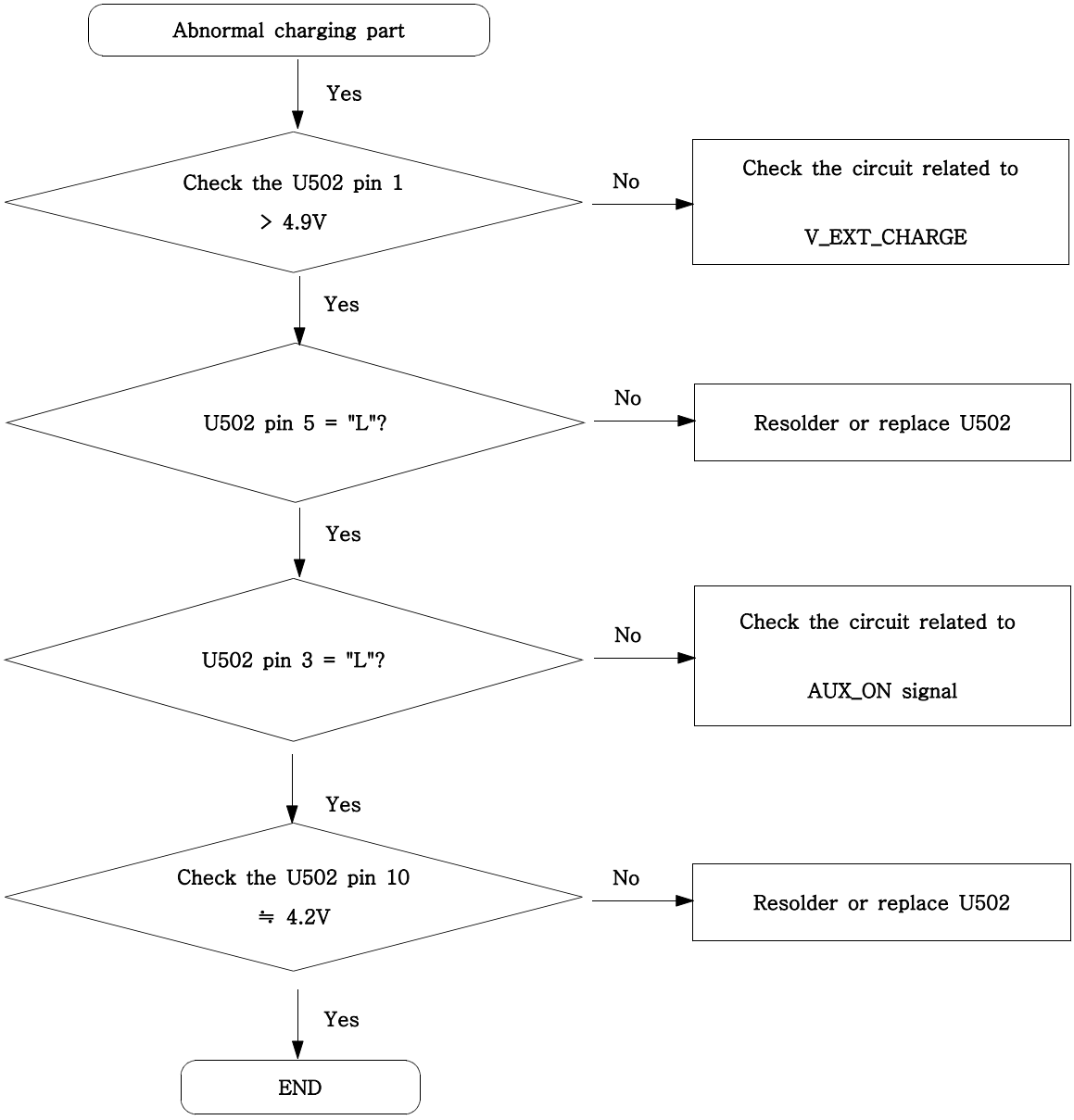
7-3. Charging Part



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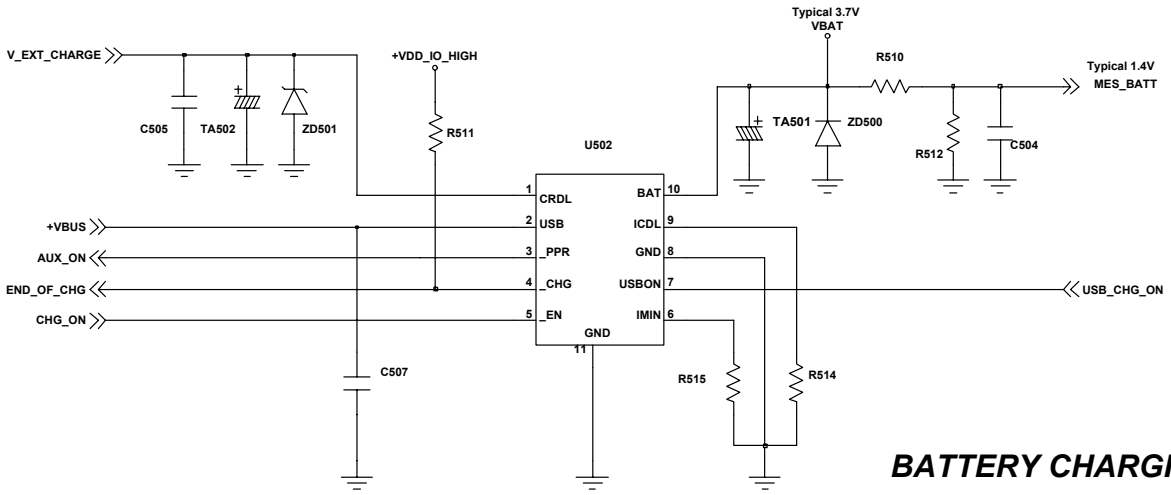
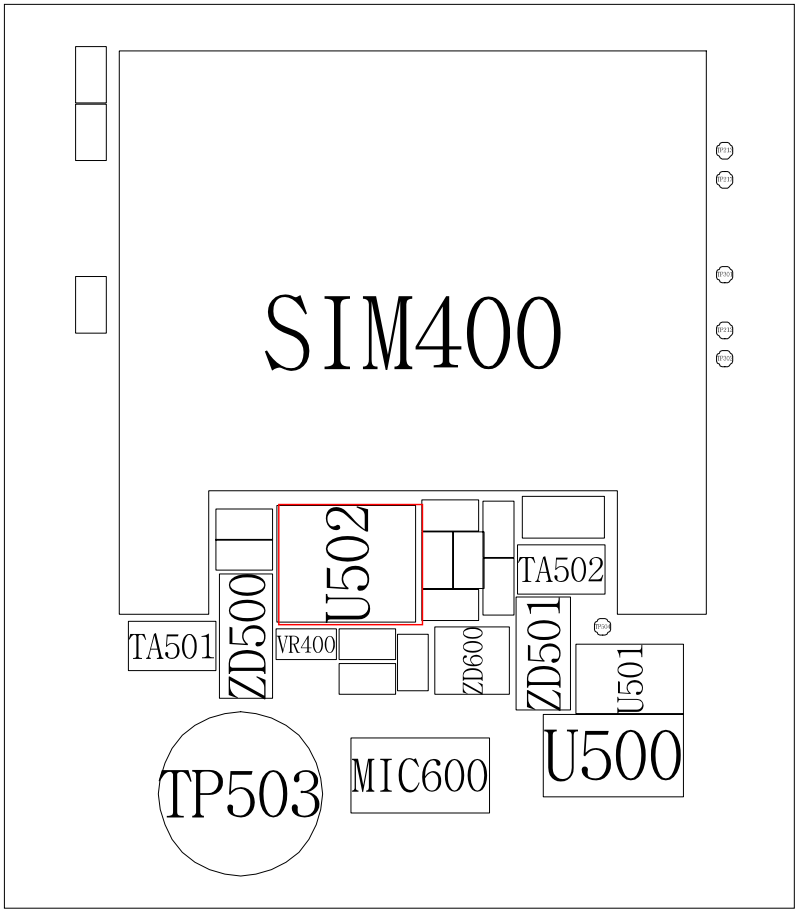


BATTERY CHARGING



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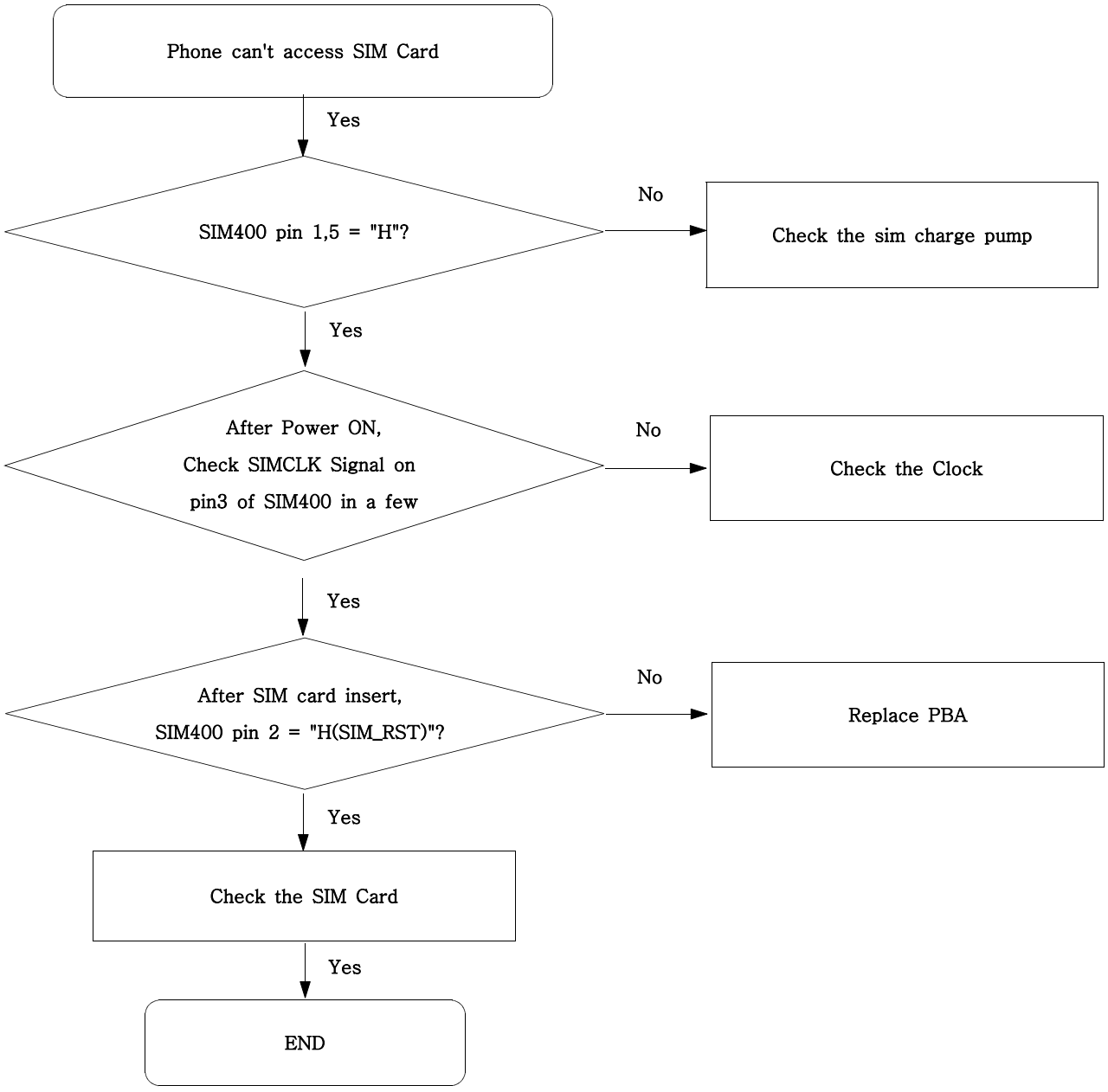
7-4. Sim Part



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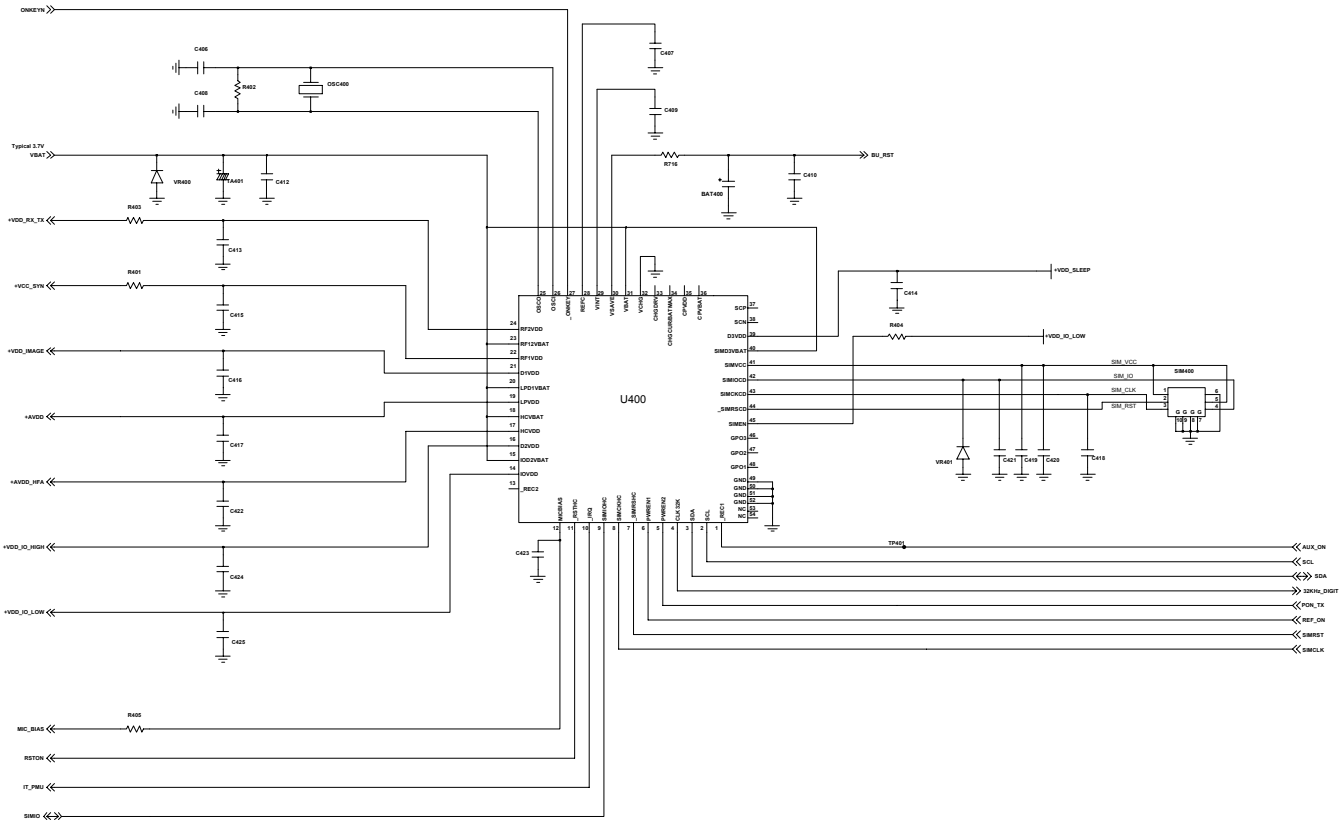

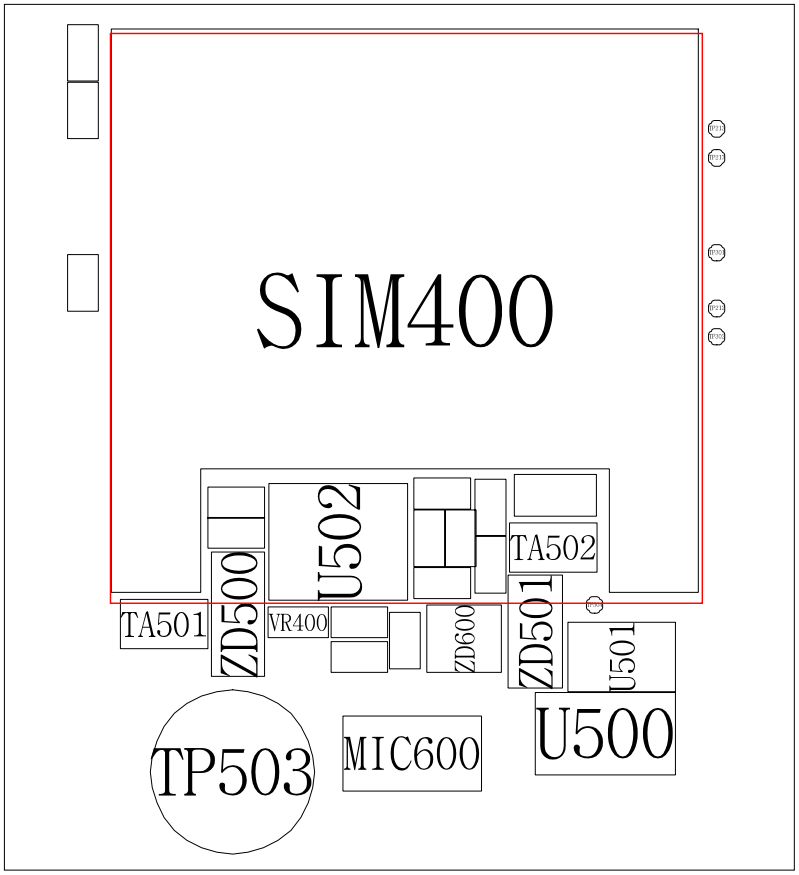

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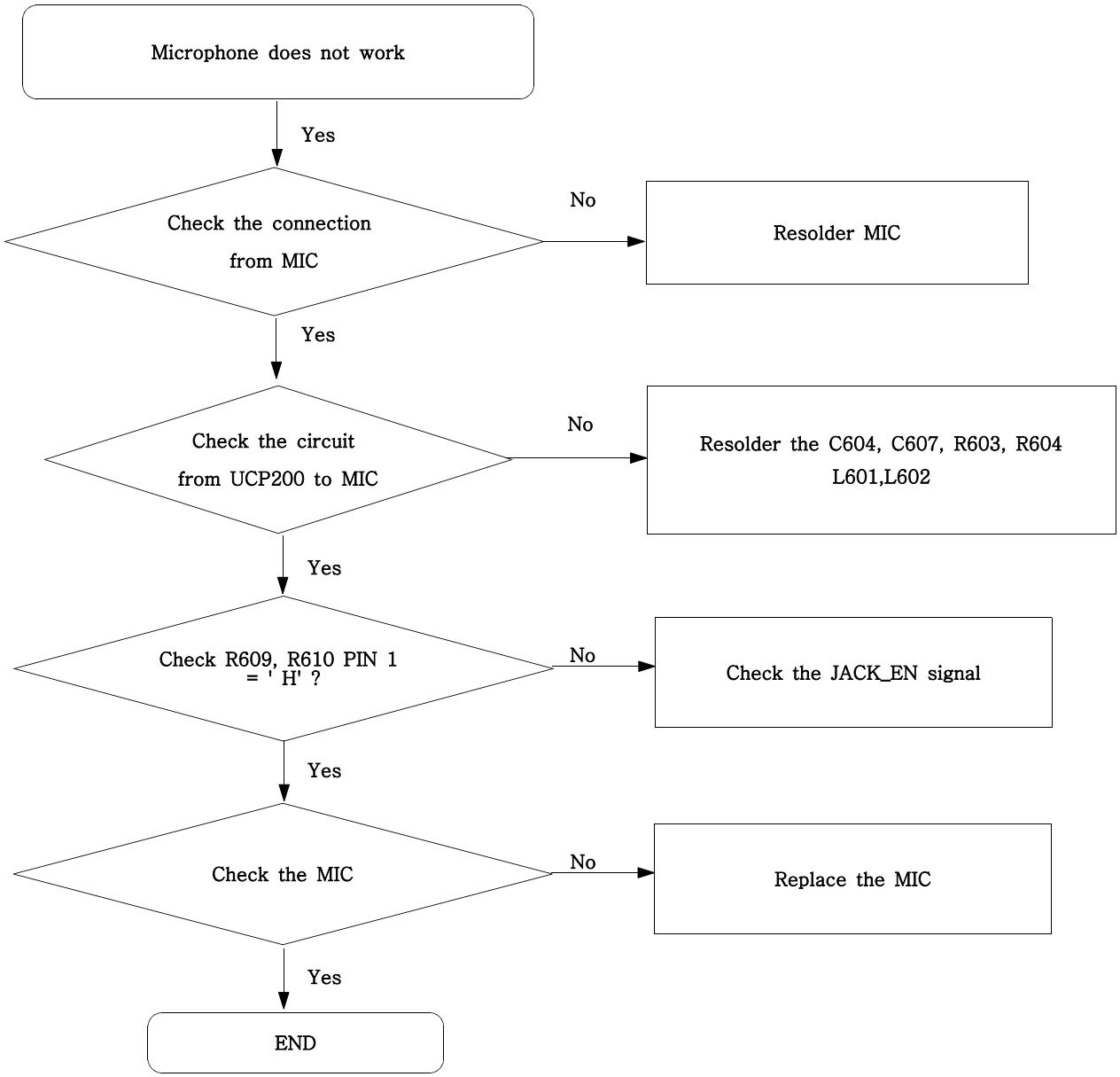
7-5. Microphone Part



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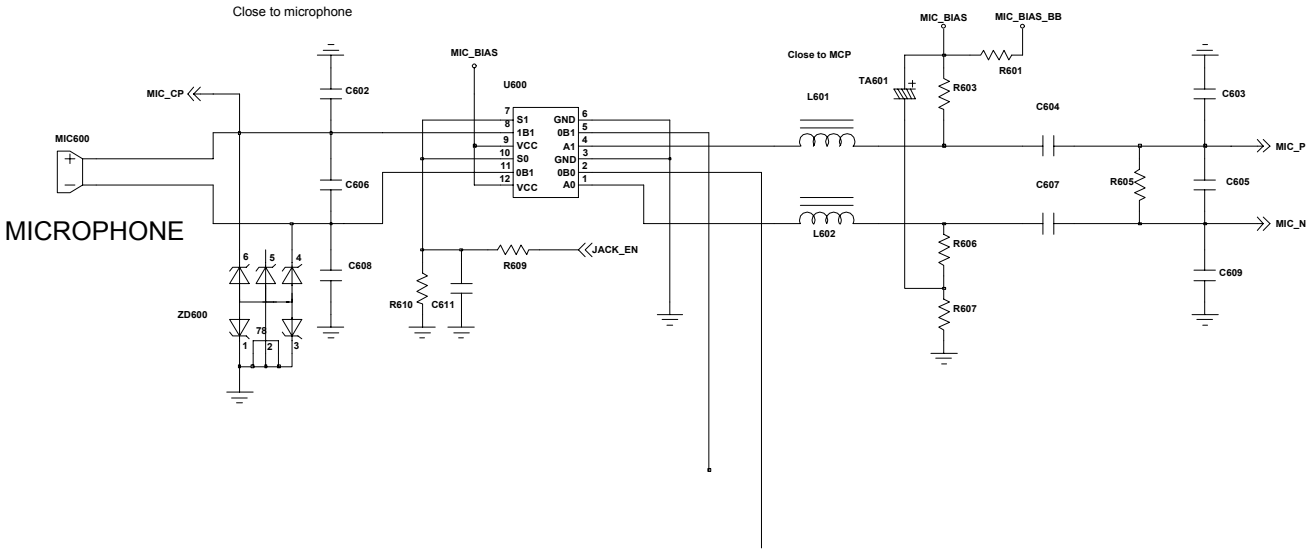

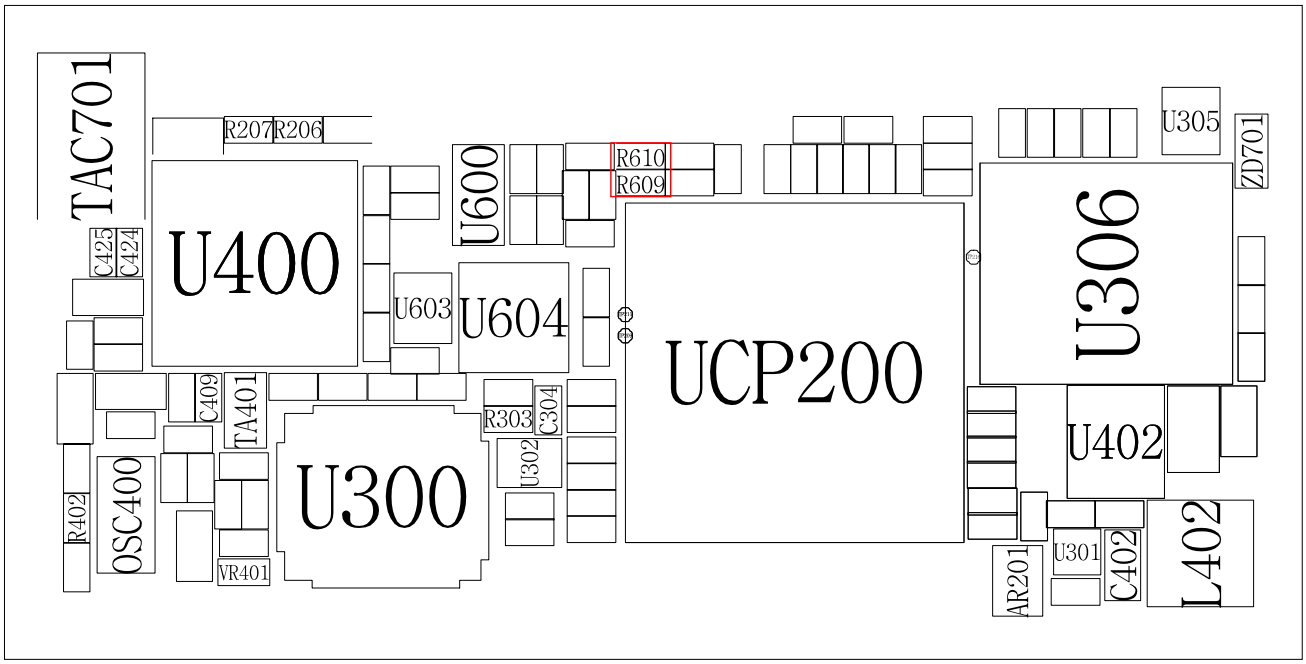

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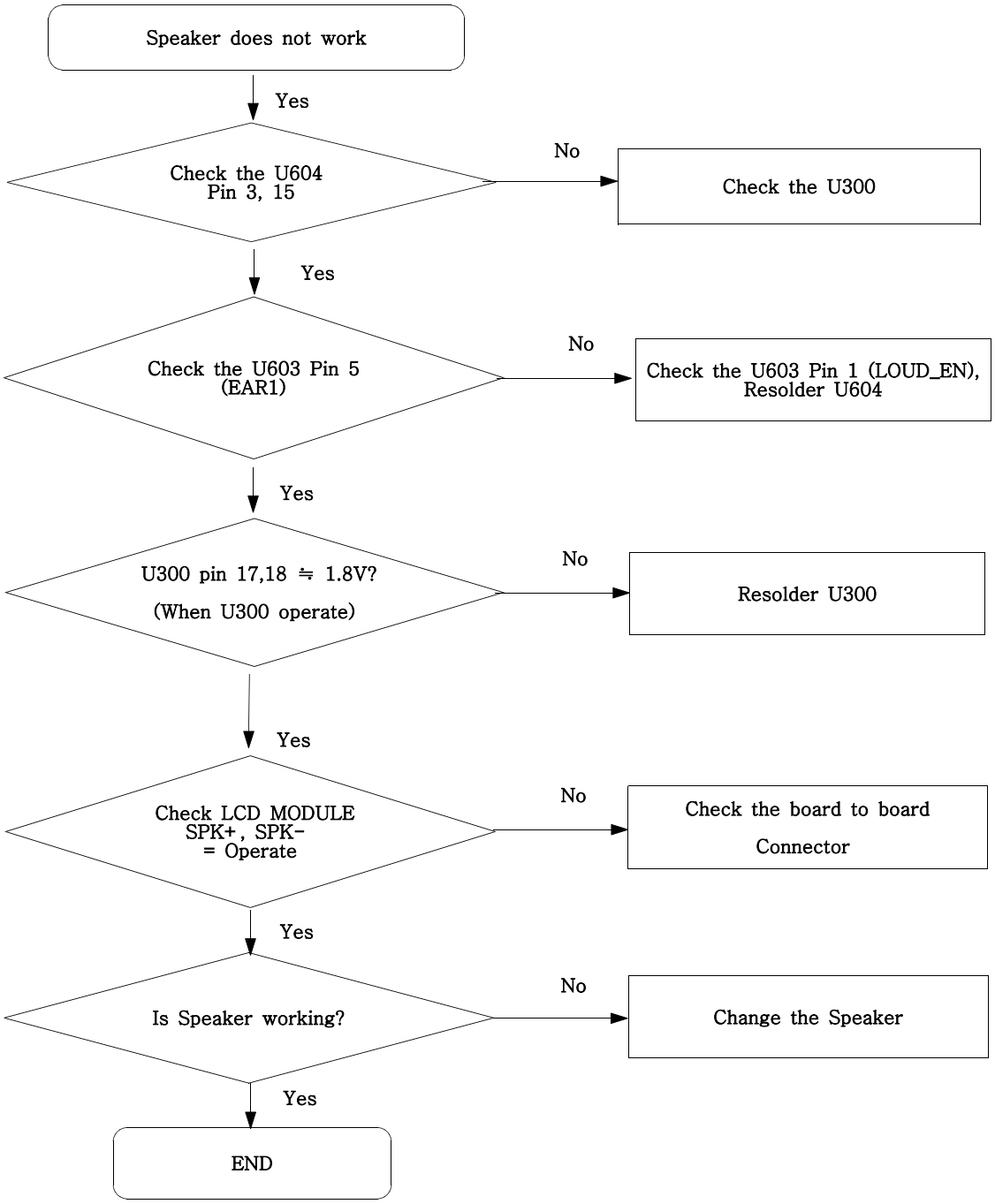
7-6. Speaker Part(Melody)



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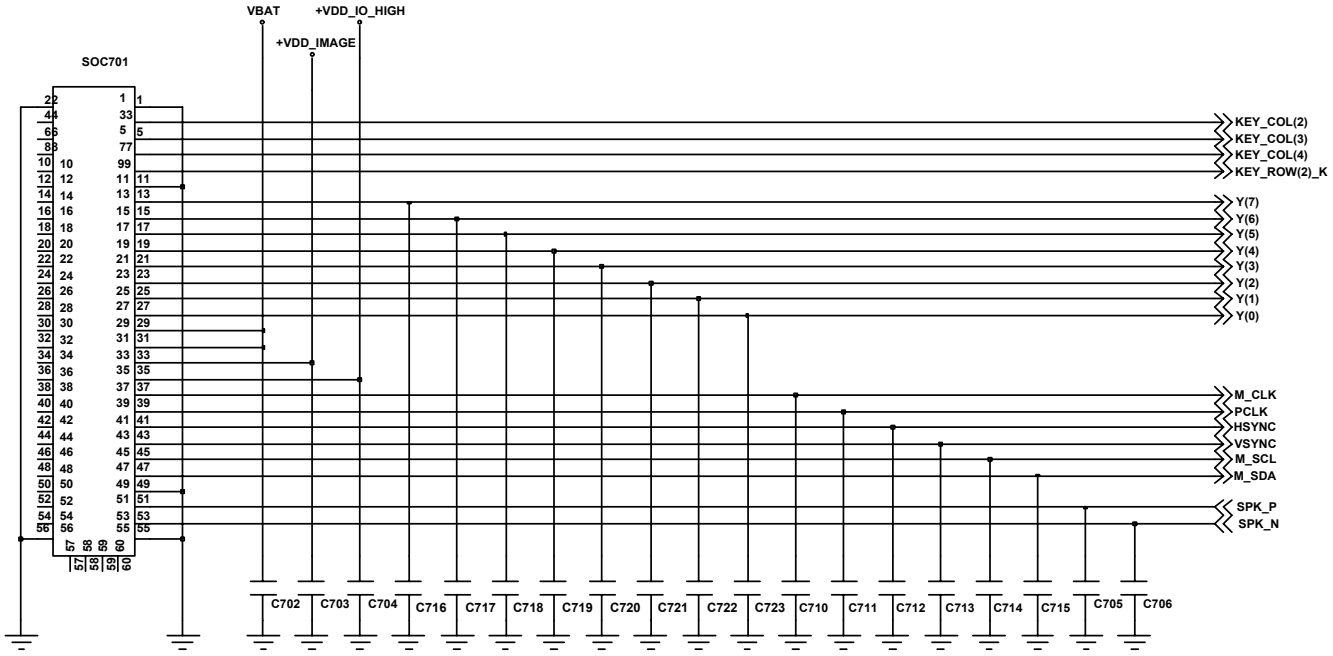

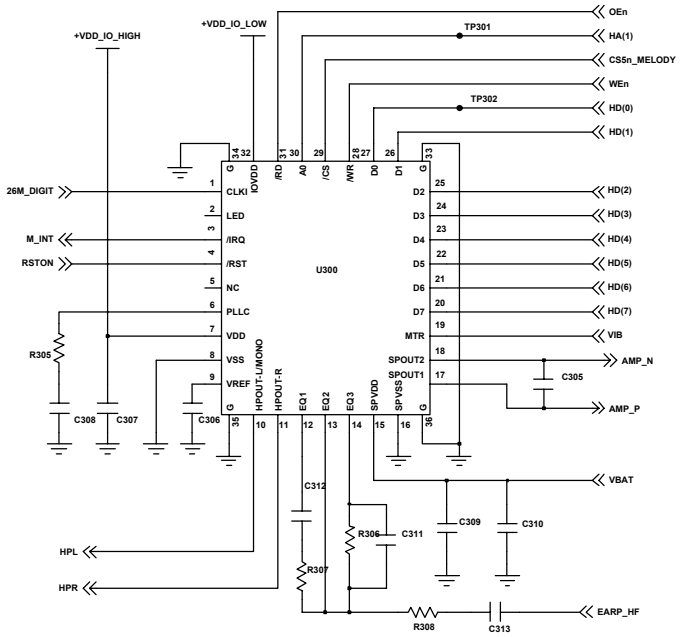

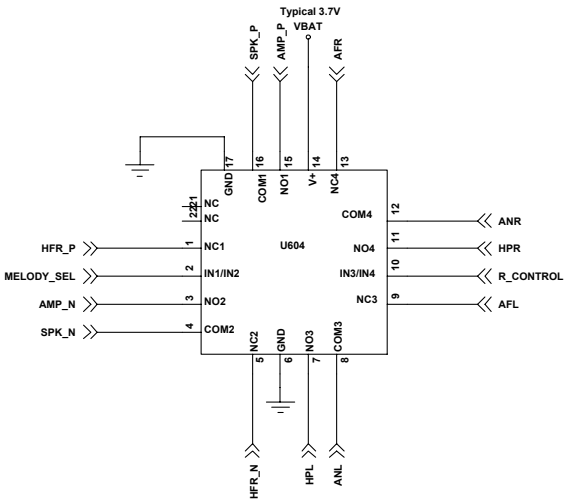

MELODY IC

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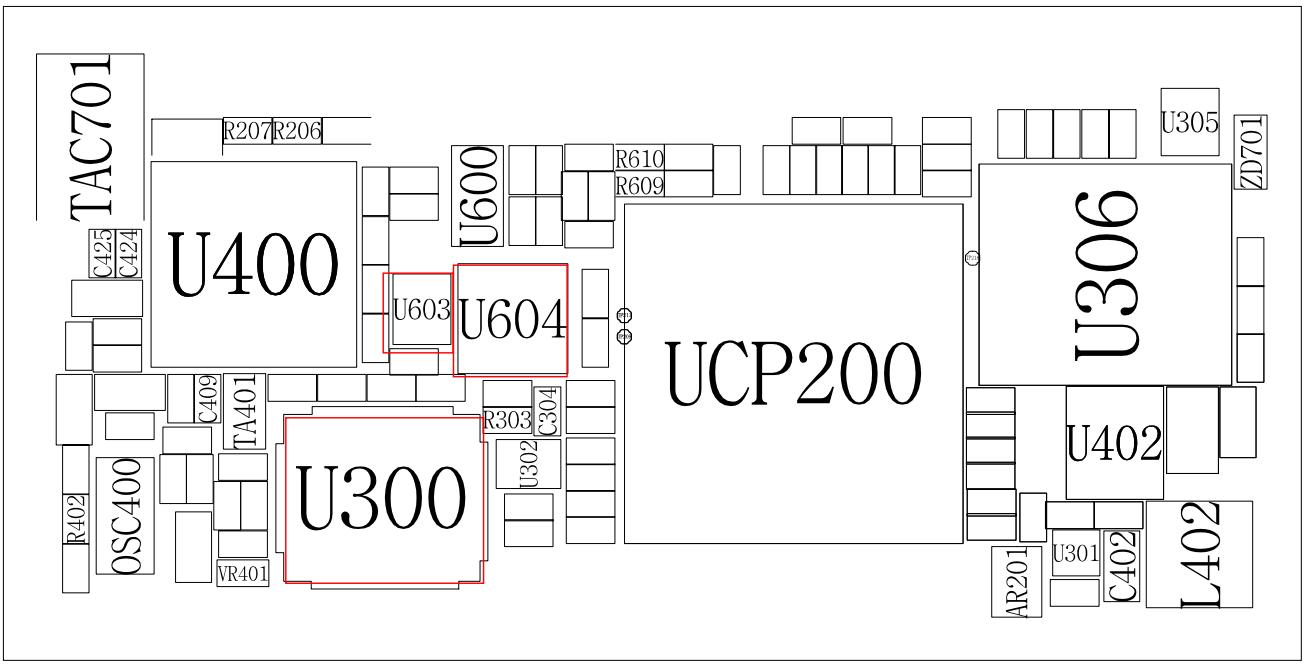

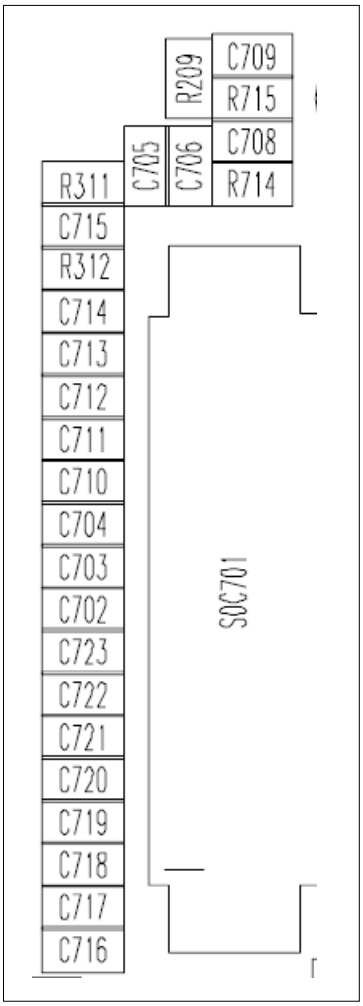

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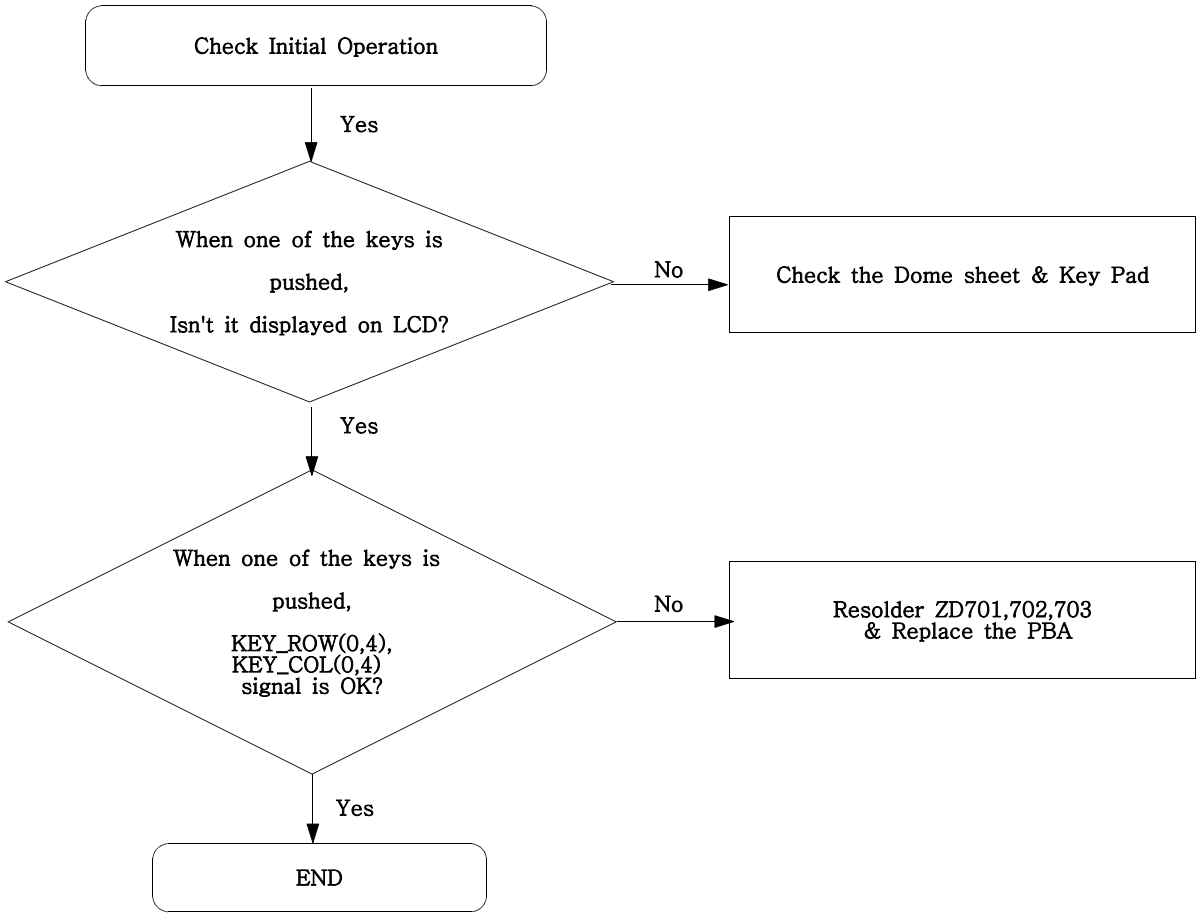
7-7. Key Data Input



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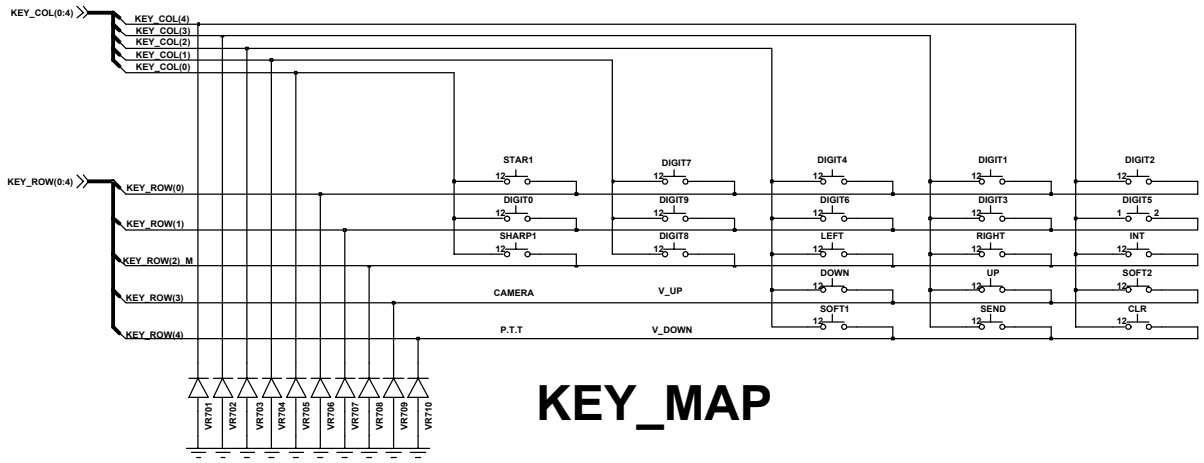

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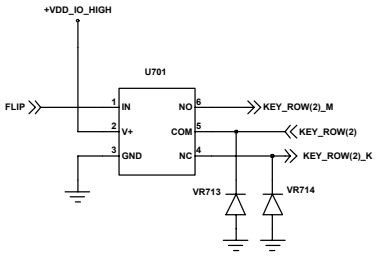

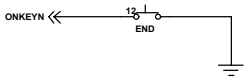

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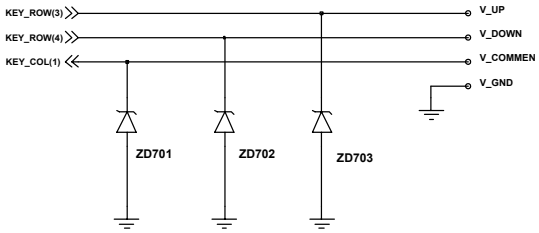

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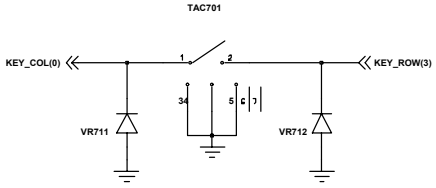

CAMERA_KEY

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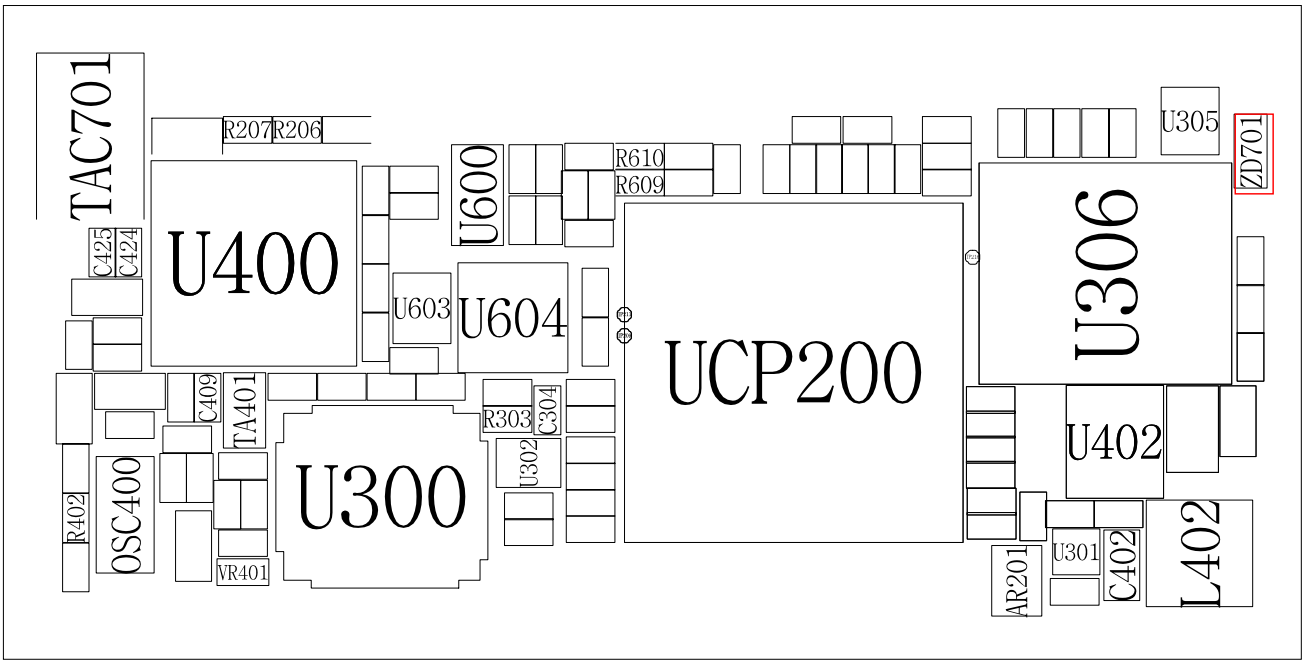

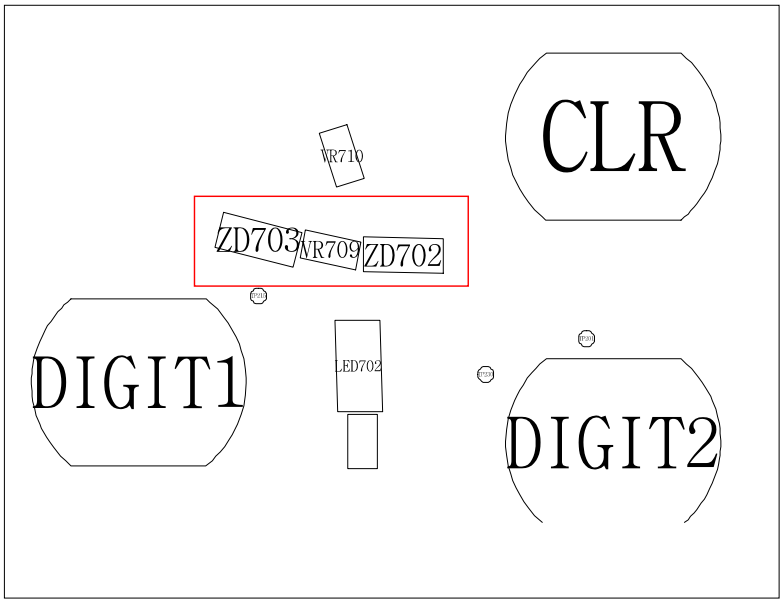

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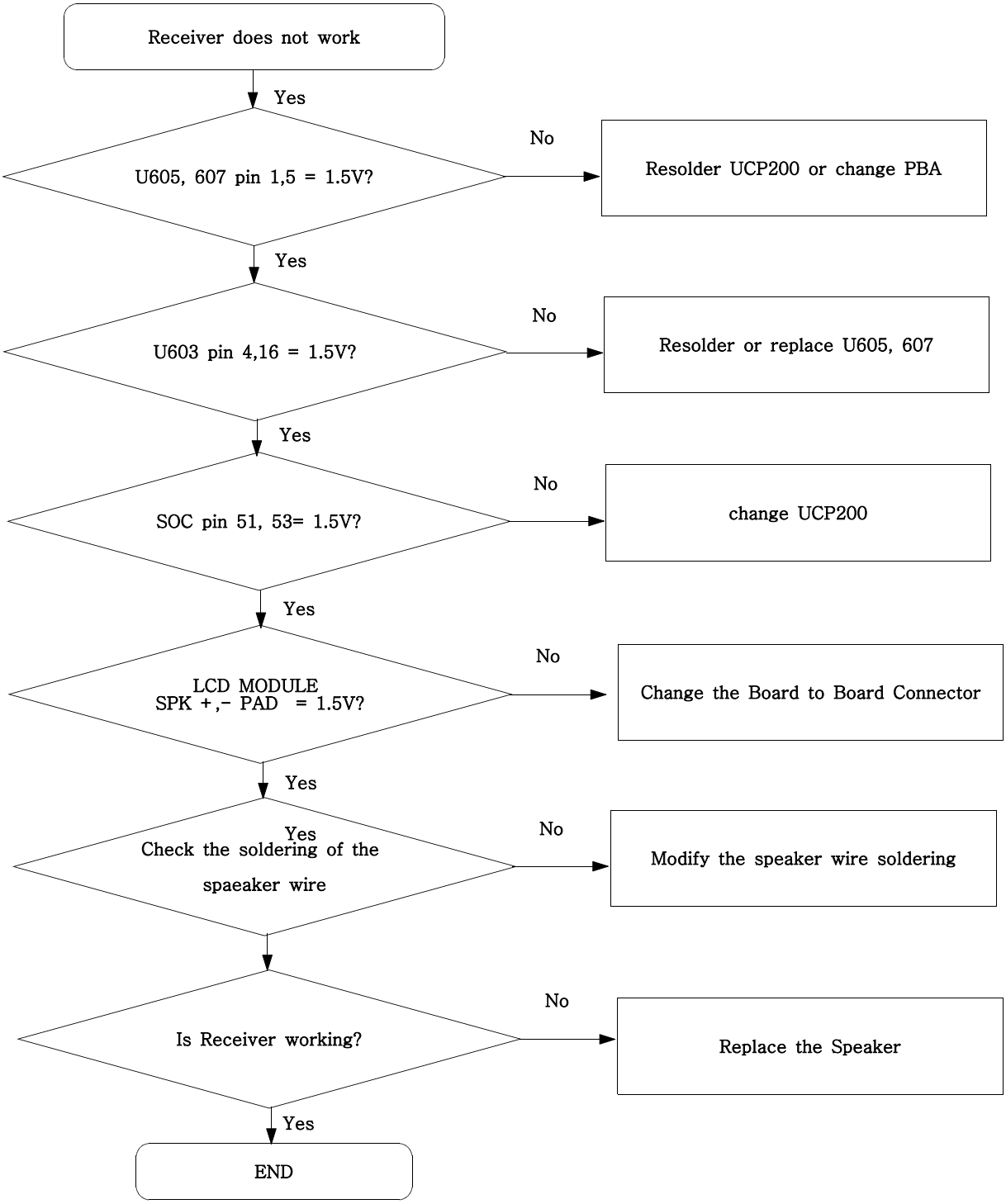
7-8. Receiver Part



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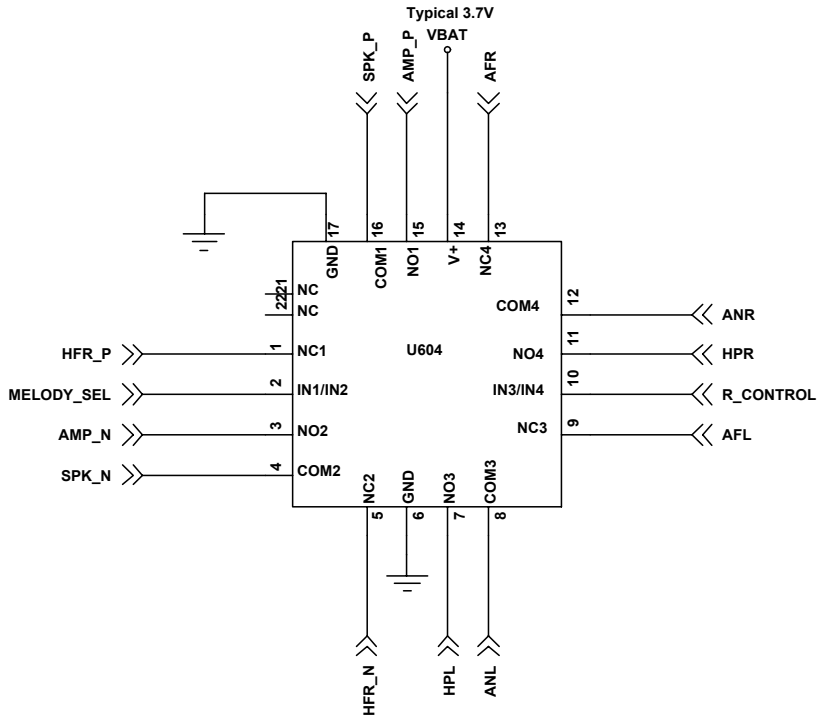

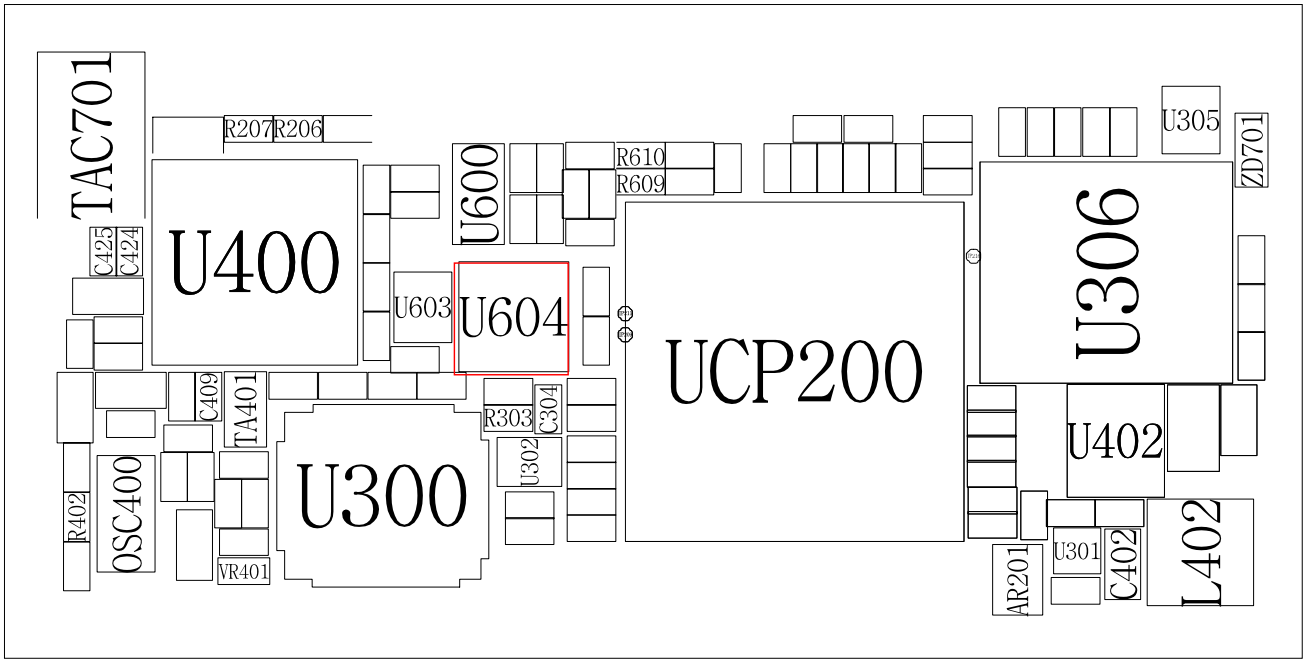

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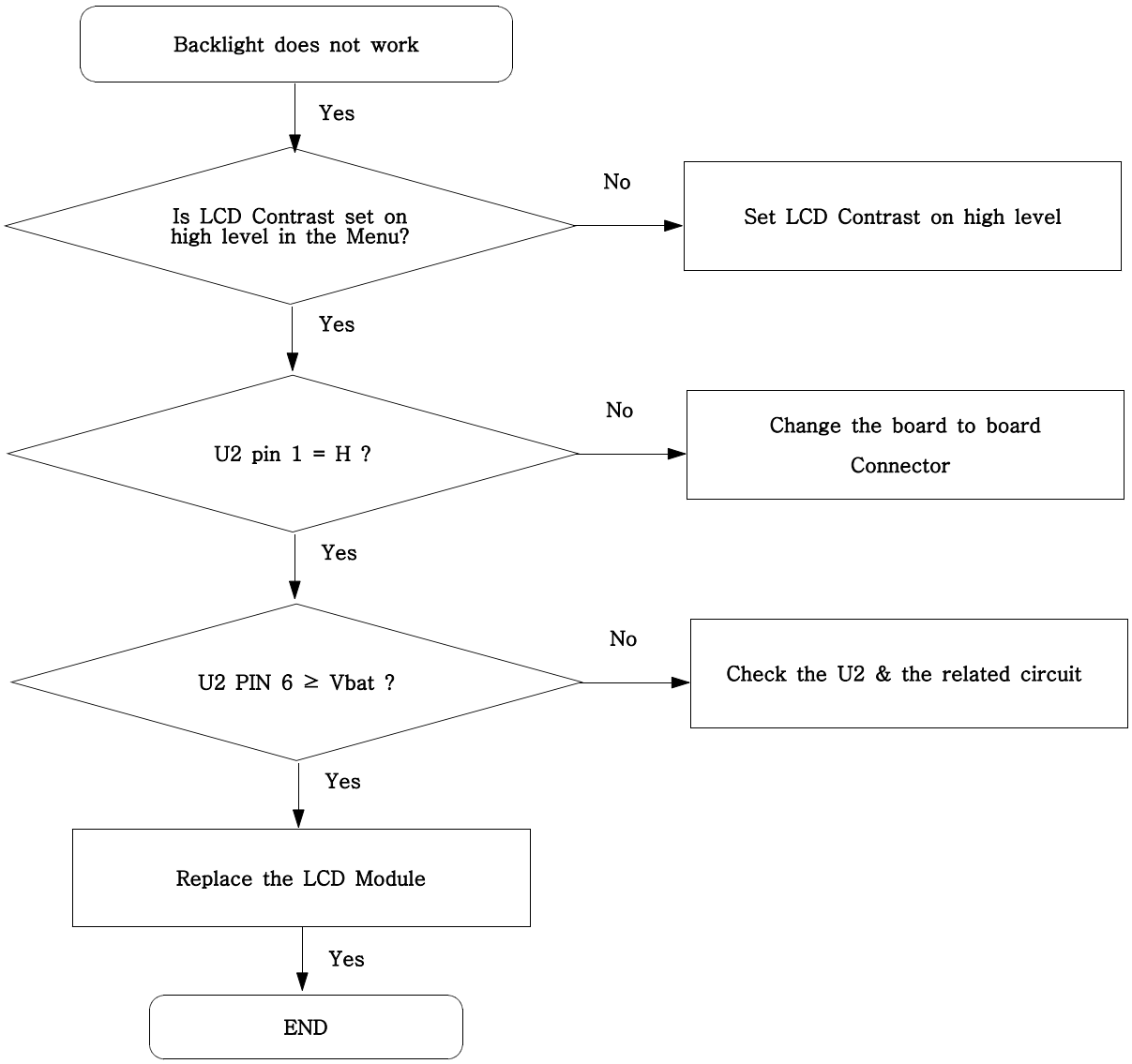
7-9. Back Light (for Color Main LCD)



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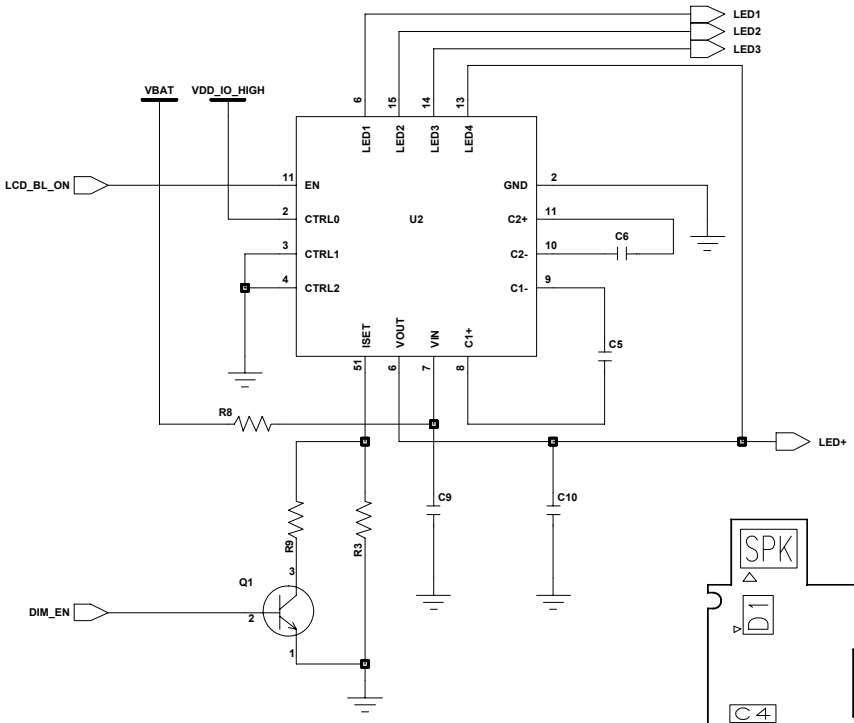

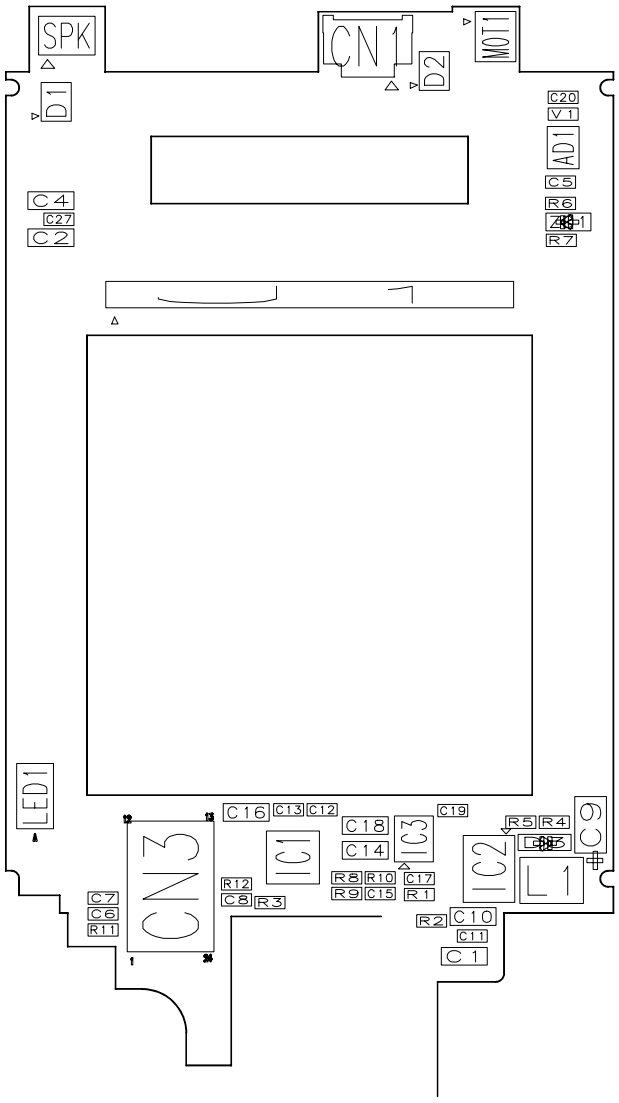

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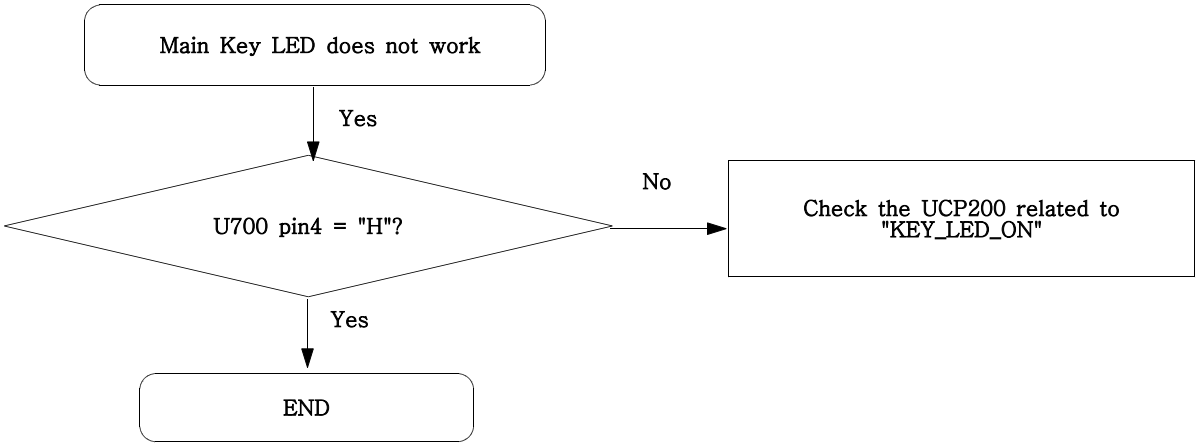
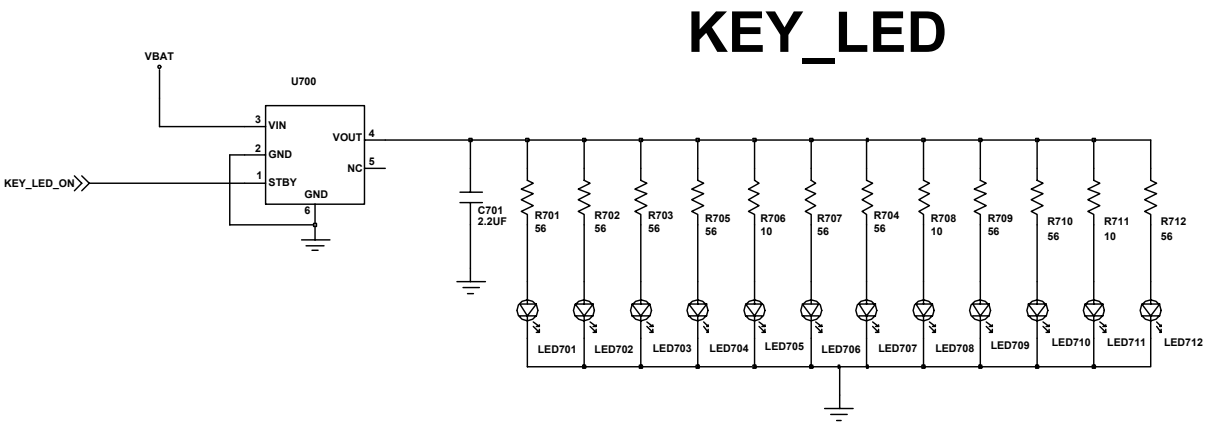
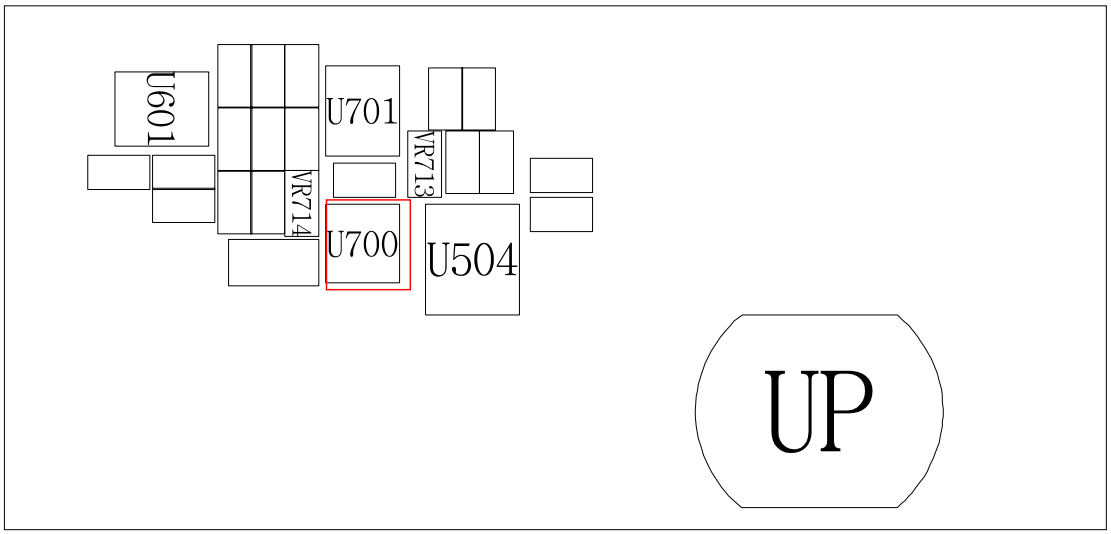
7-10. Key Back Light







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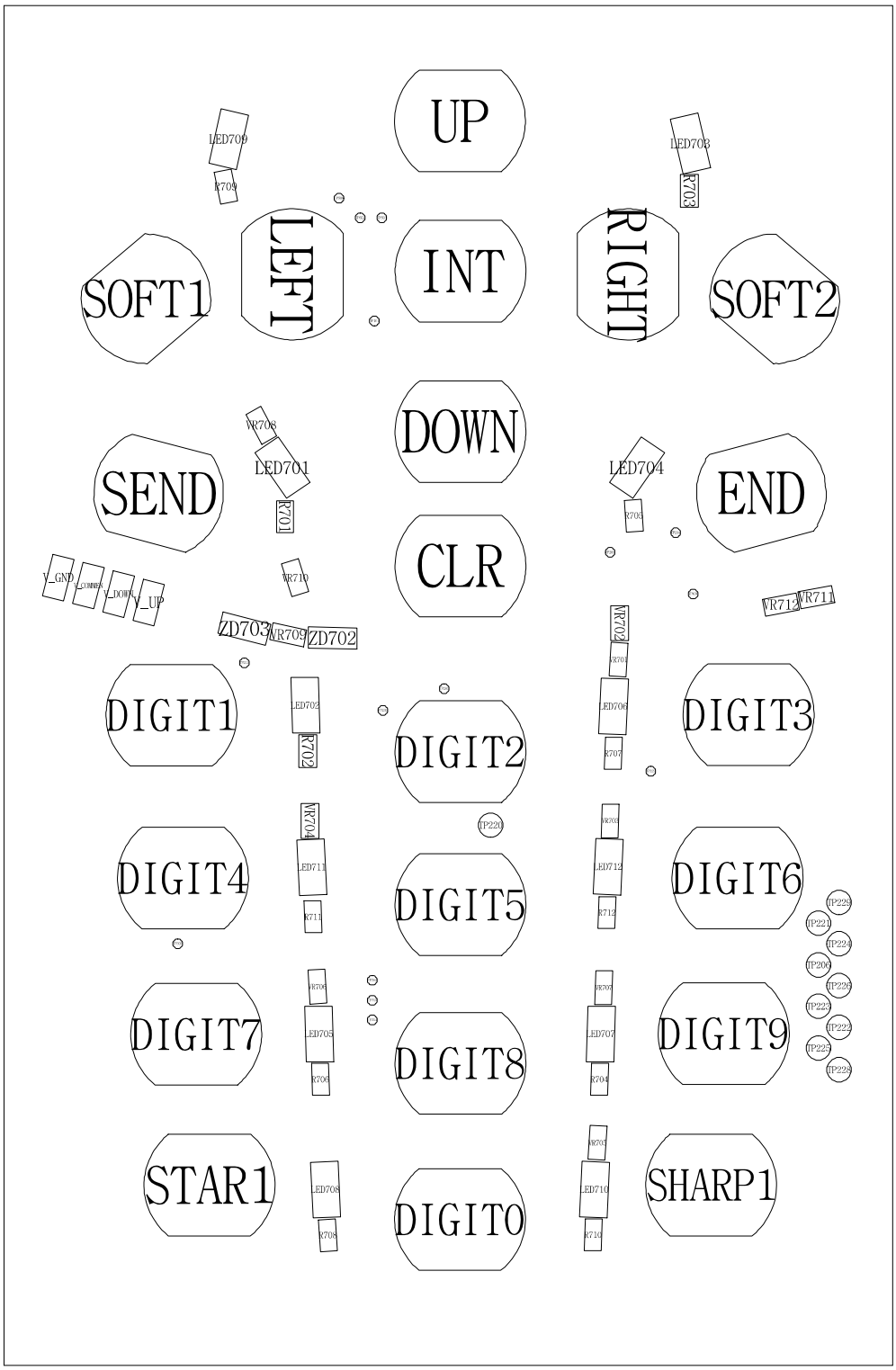

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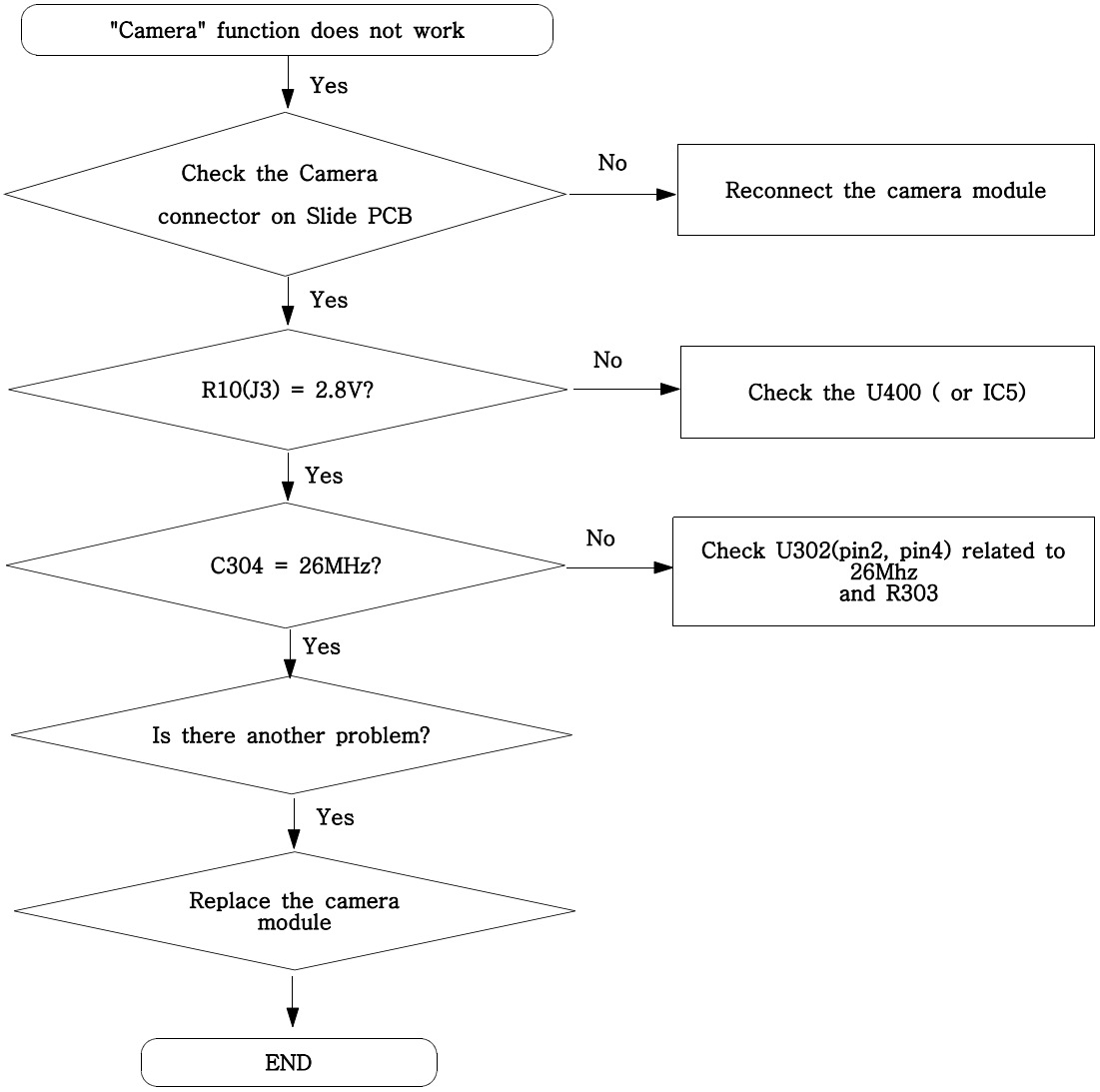
7-11. Camera part



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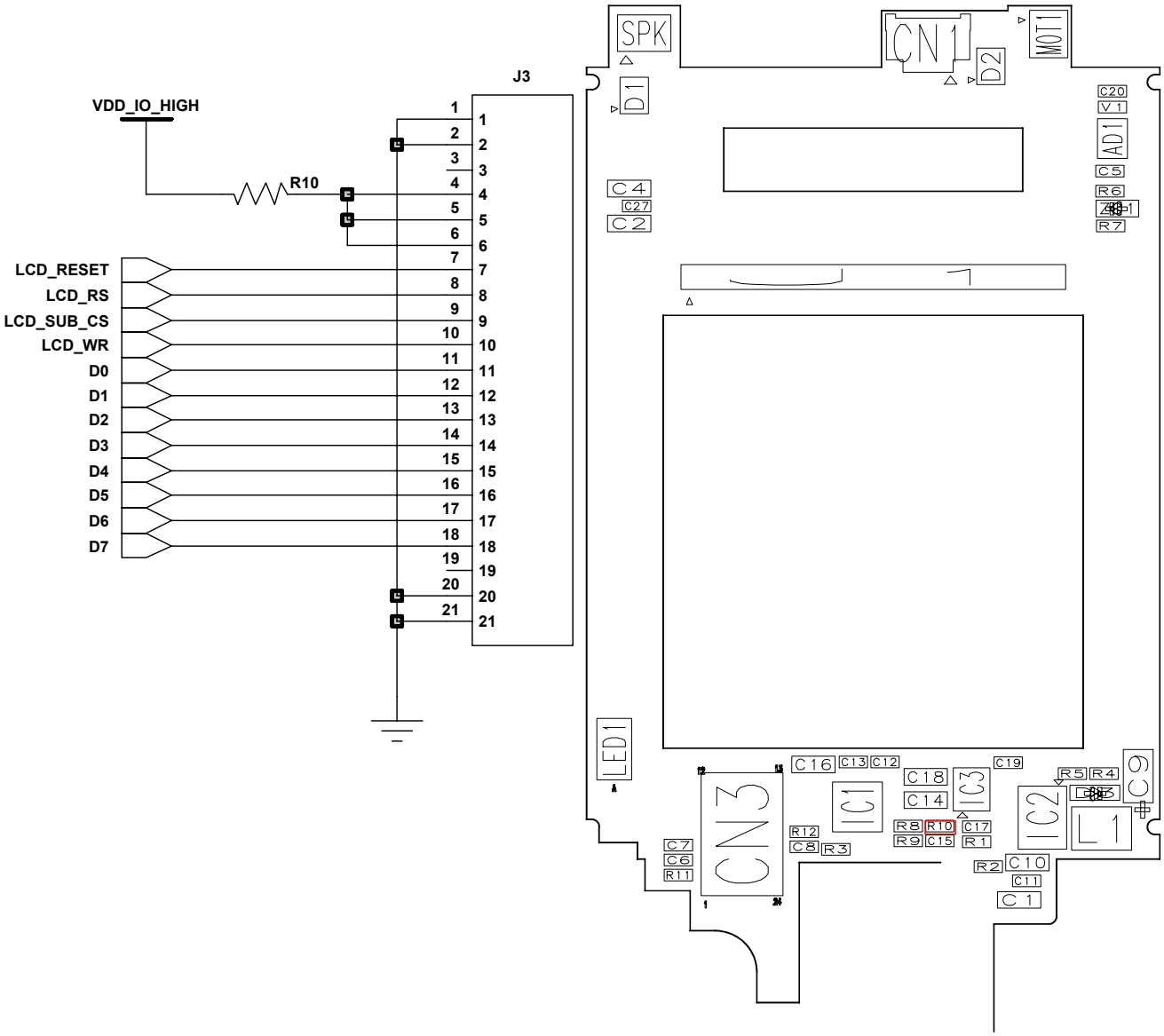

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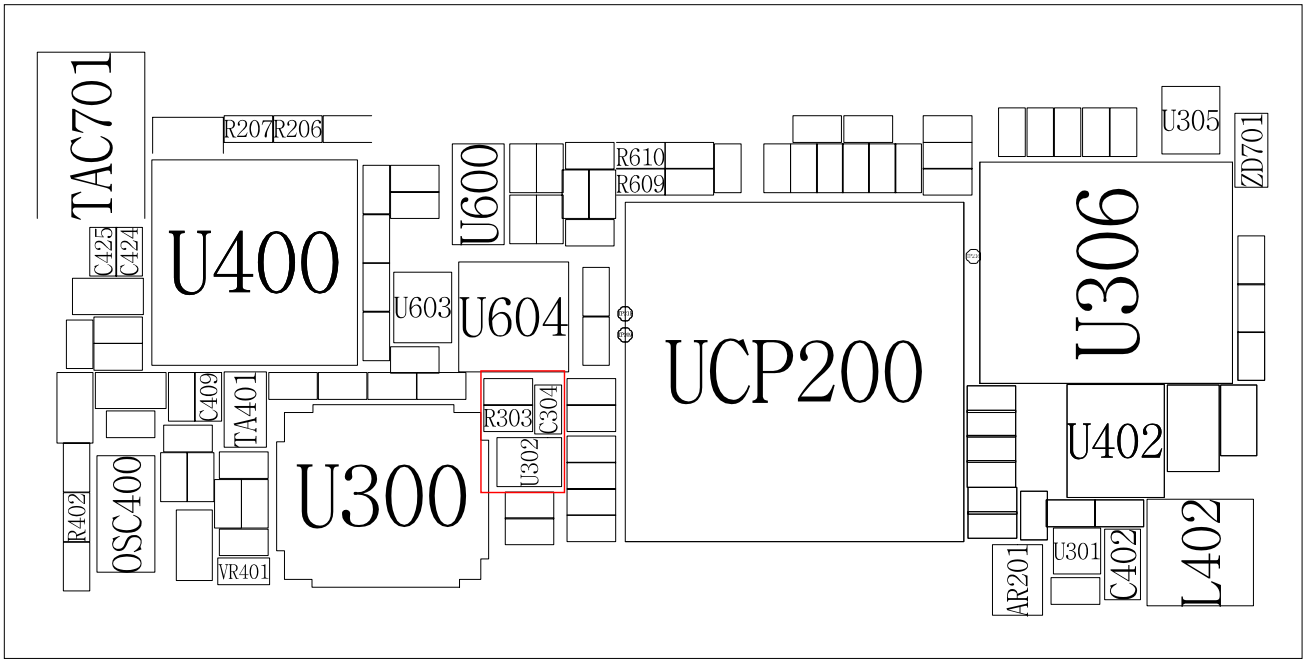

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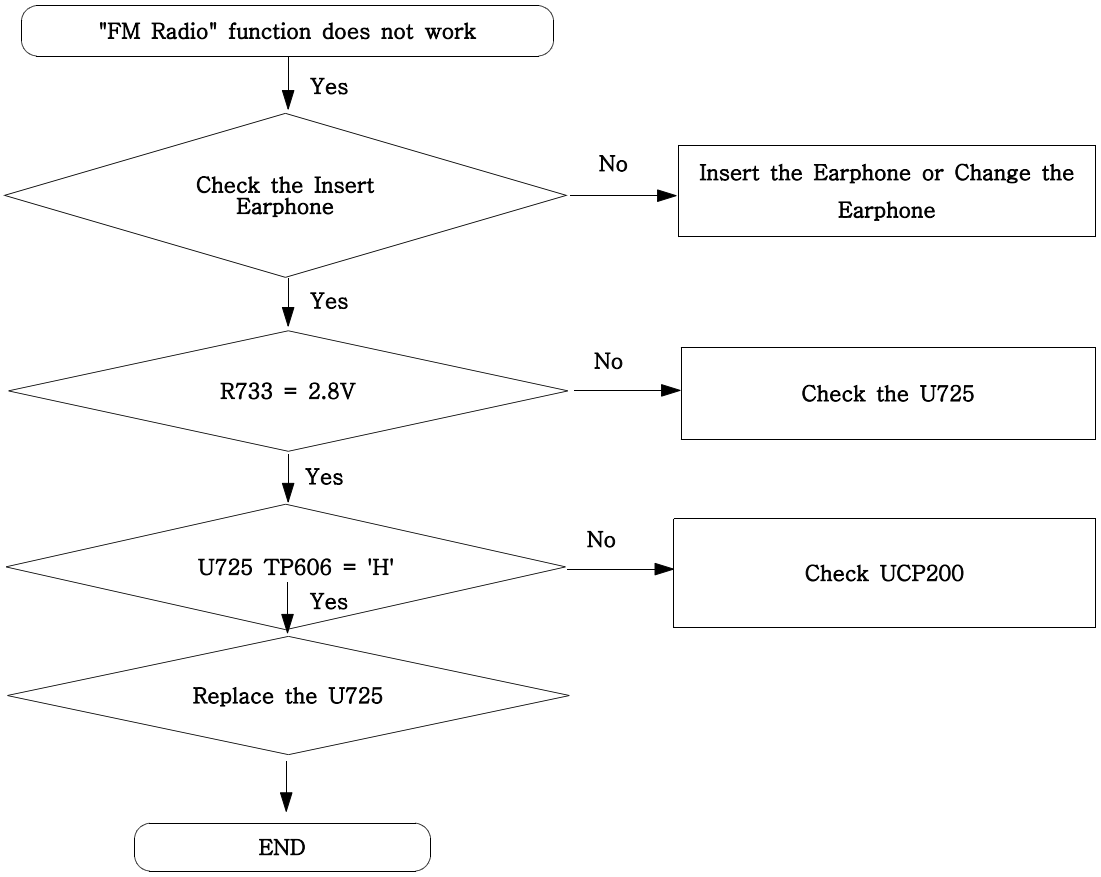
7-12. FM RADIO



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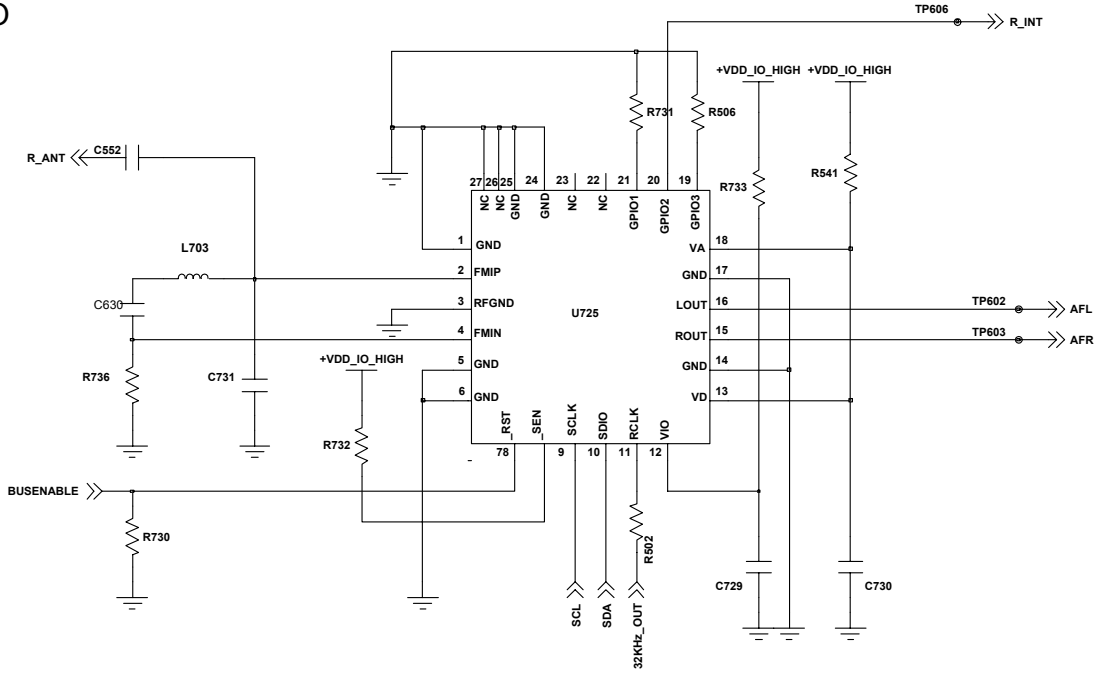
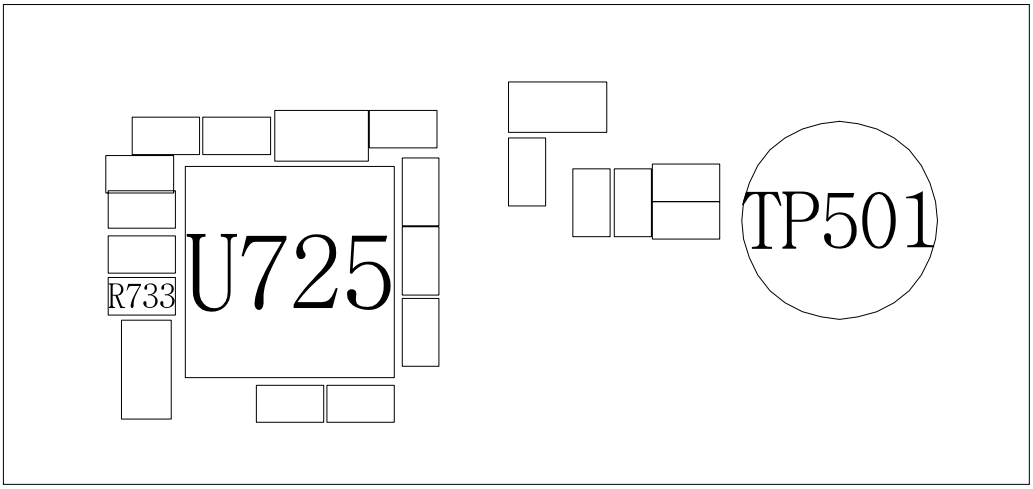
FM RADIO





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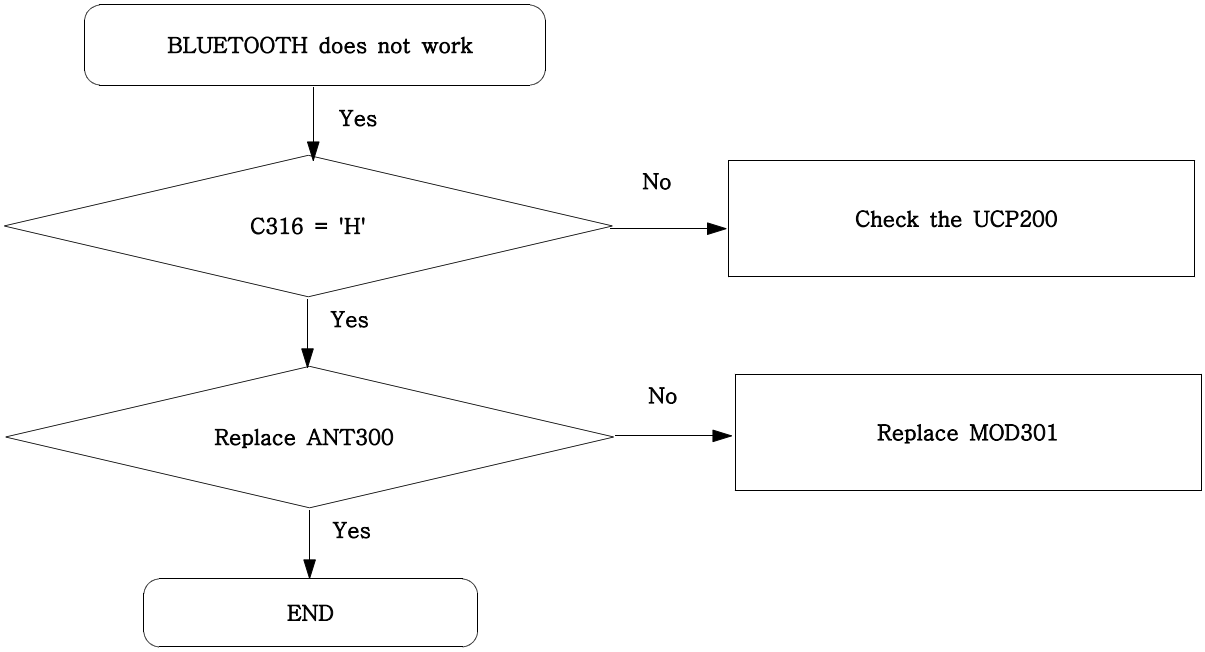
7-13. BLUETOOTH



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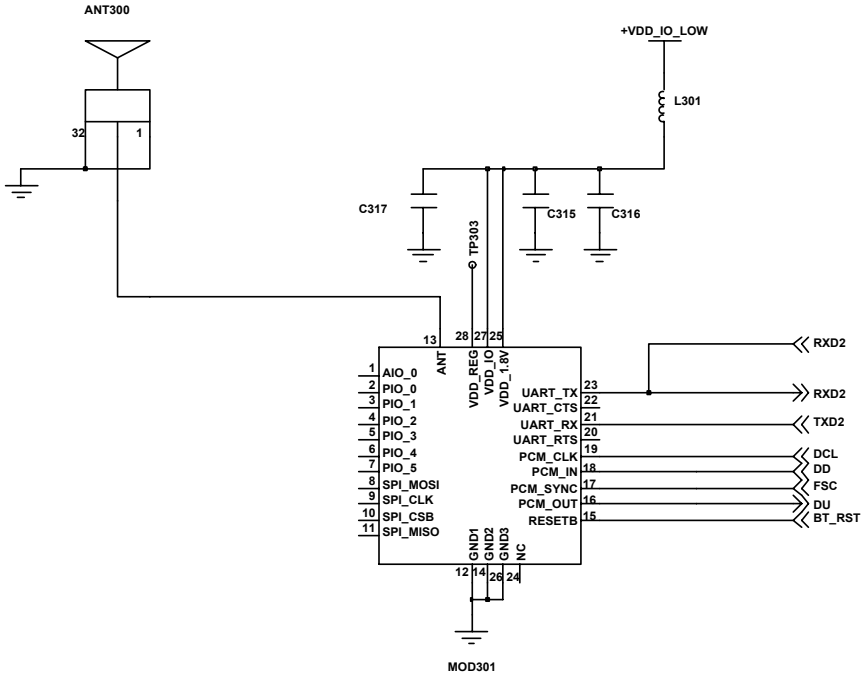
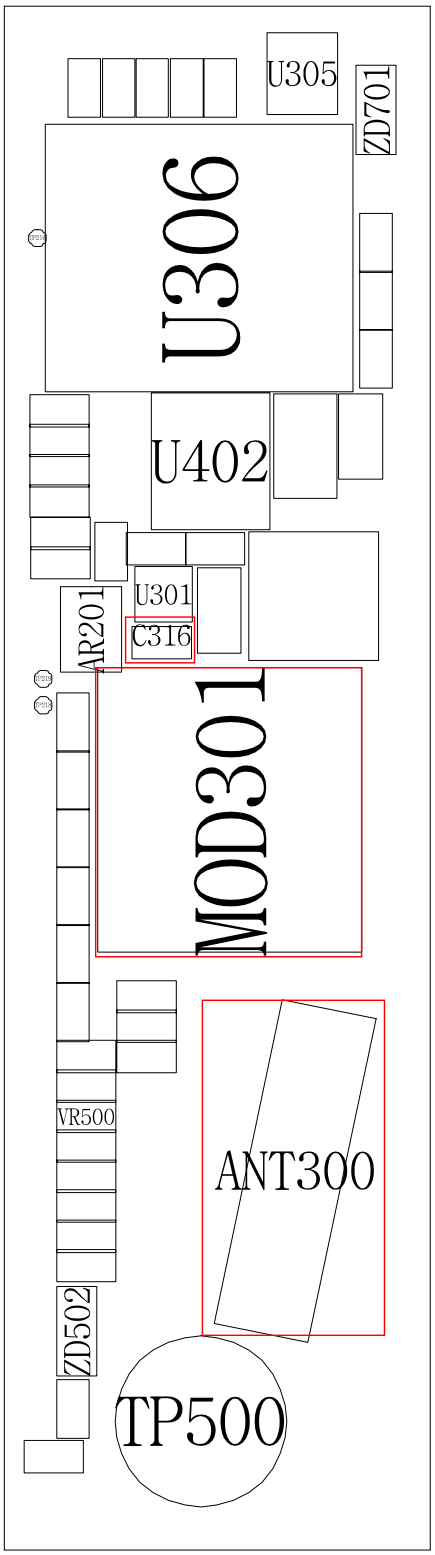


BLUE TOOTH



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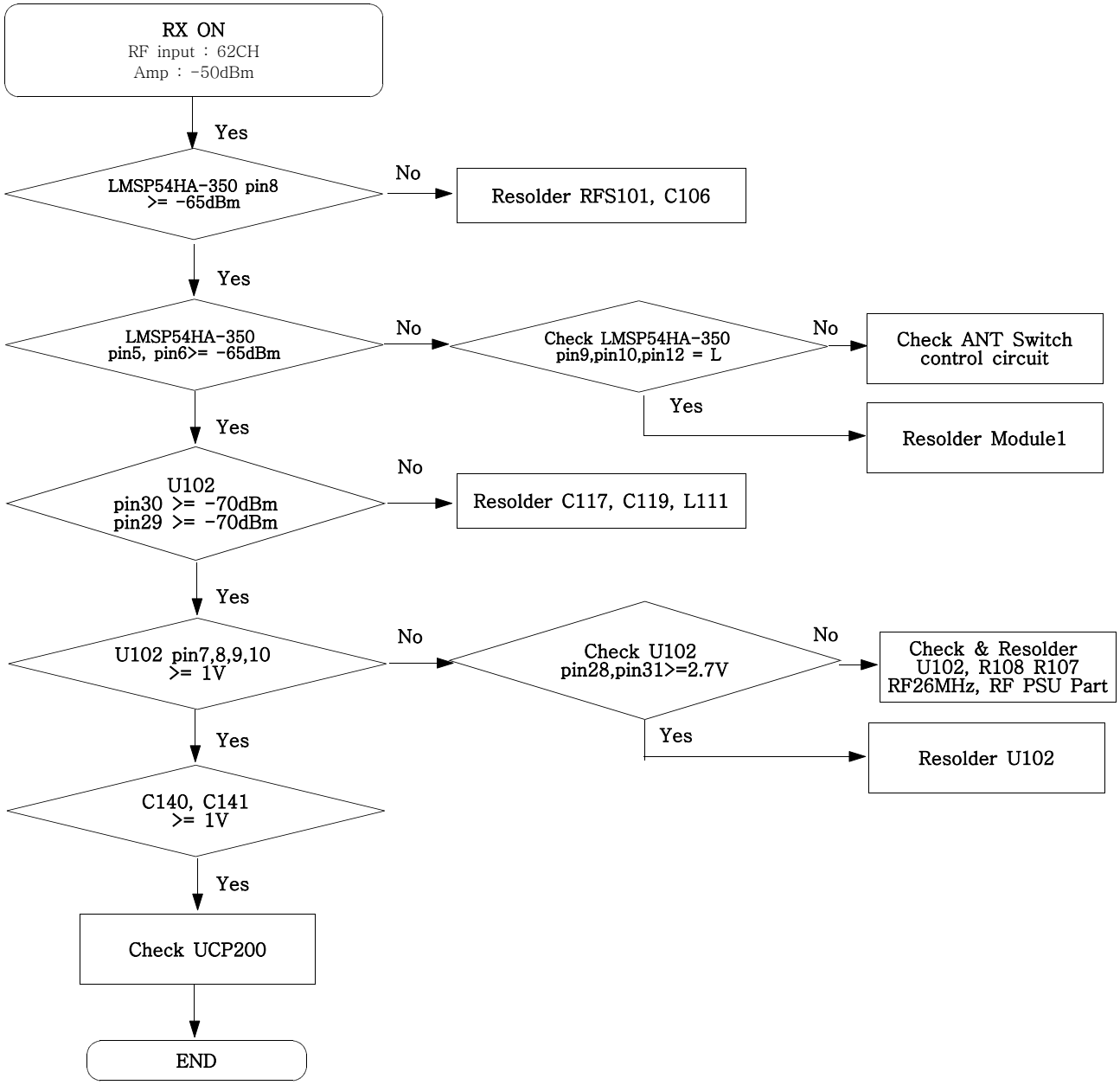
7-14. GSM Receiver



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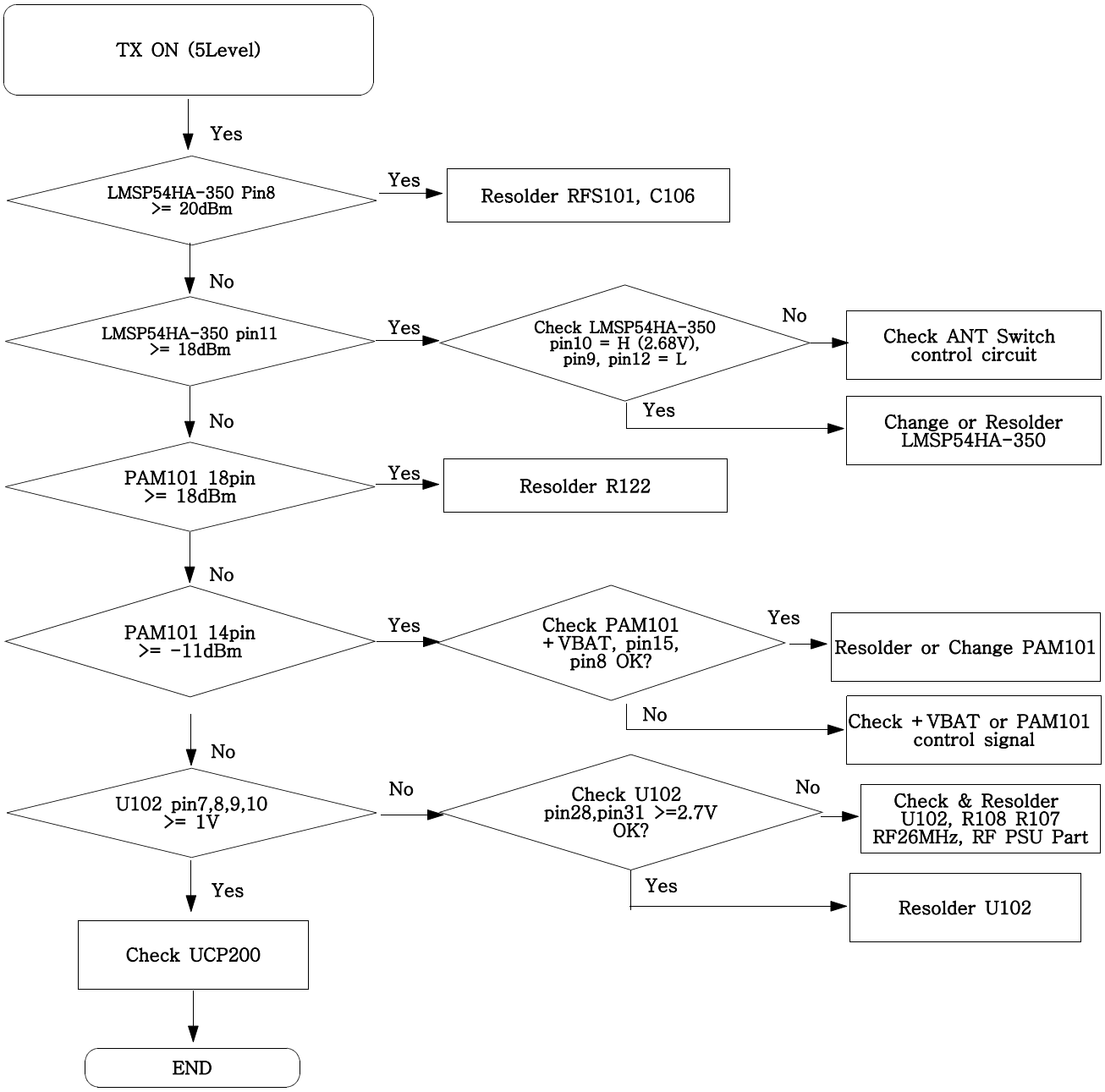
7-15. GSM Transmitter



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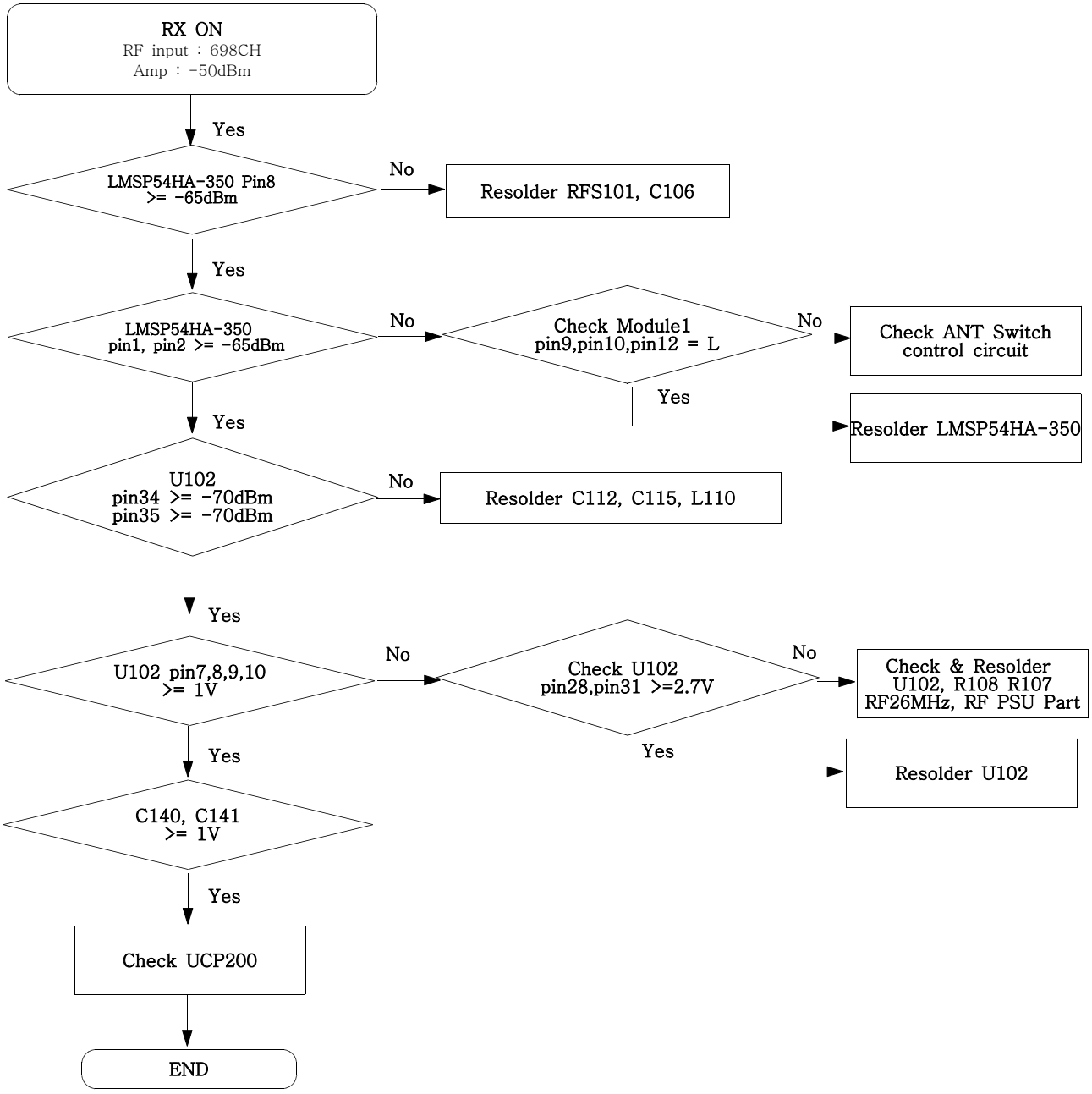
7-16. DCS Receiver



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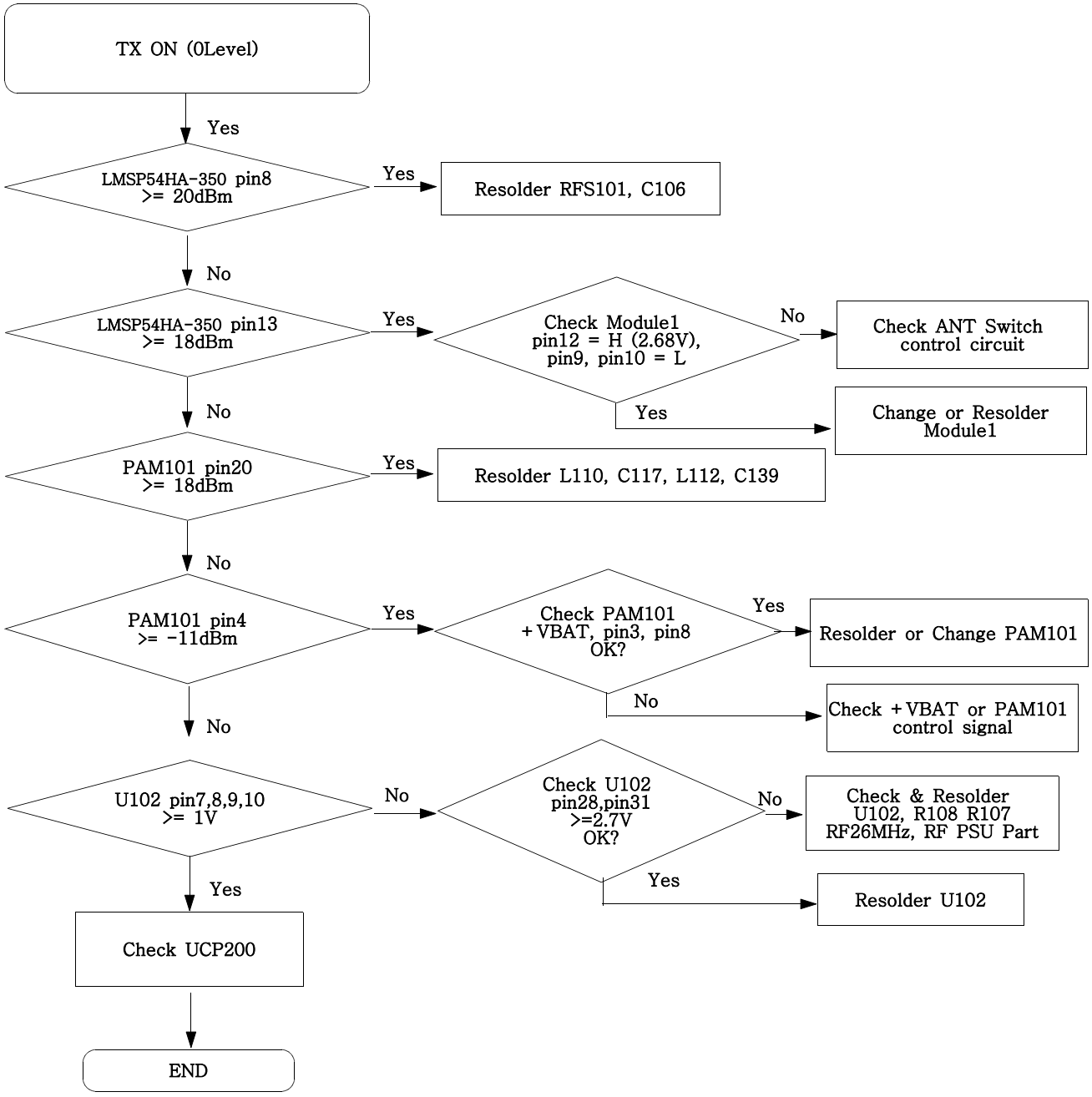
7-17. DCS Transmitter



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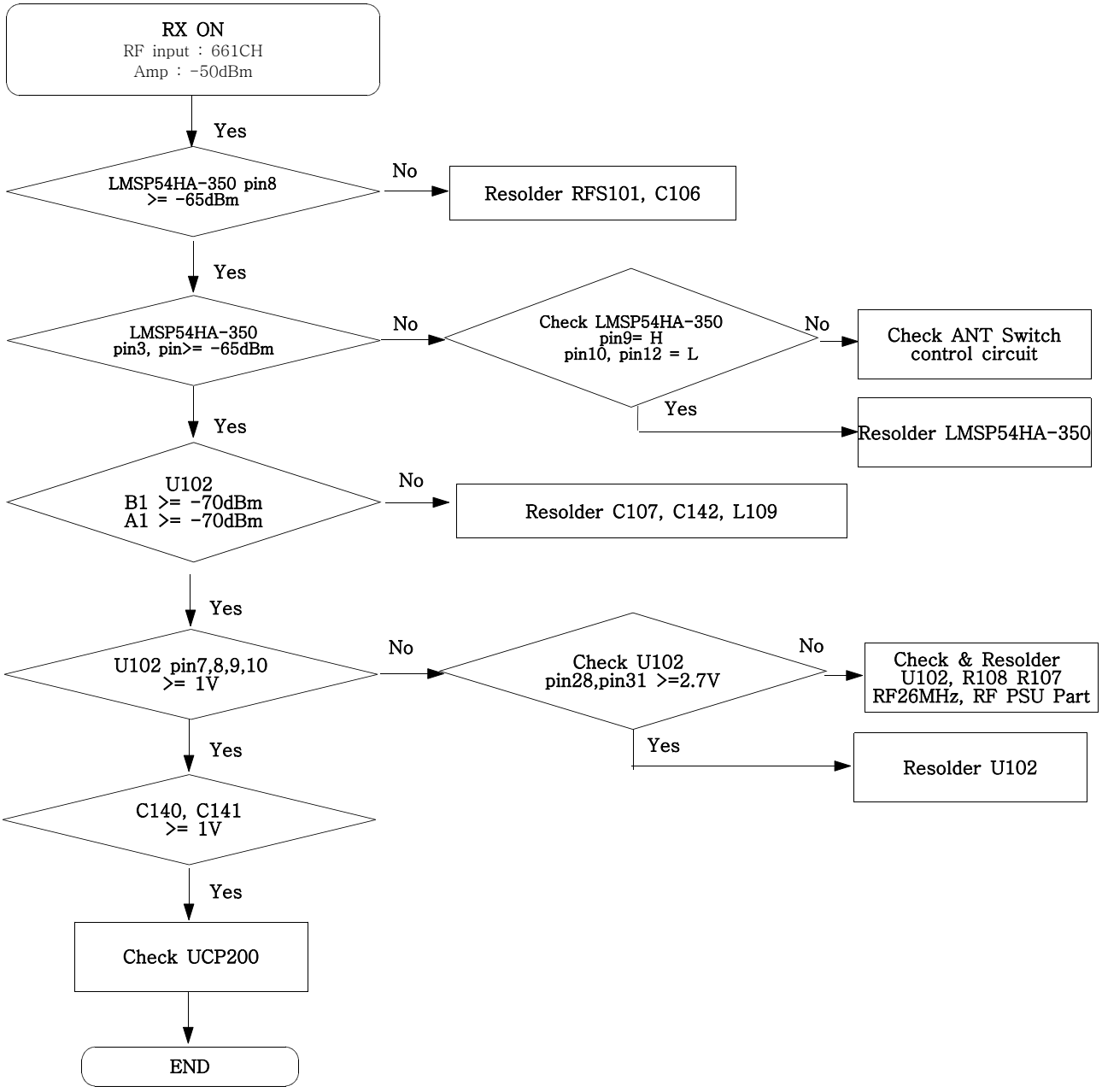
7-18. PCS Receiver



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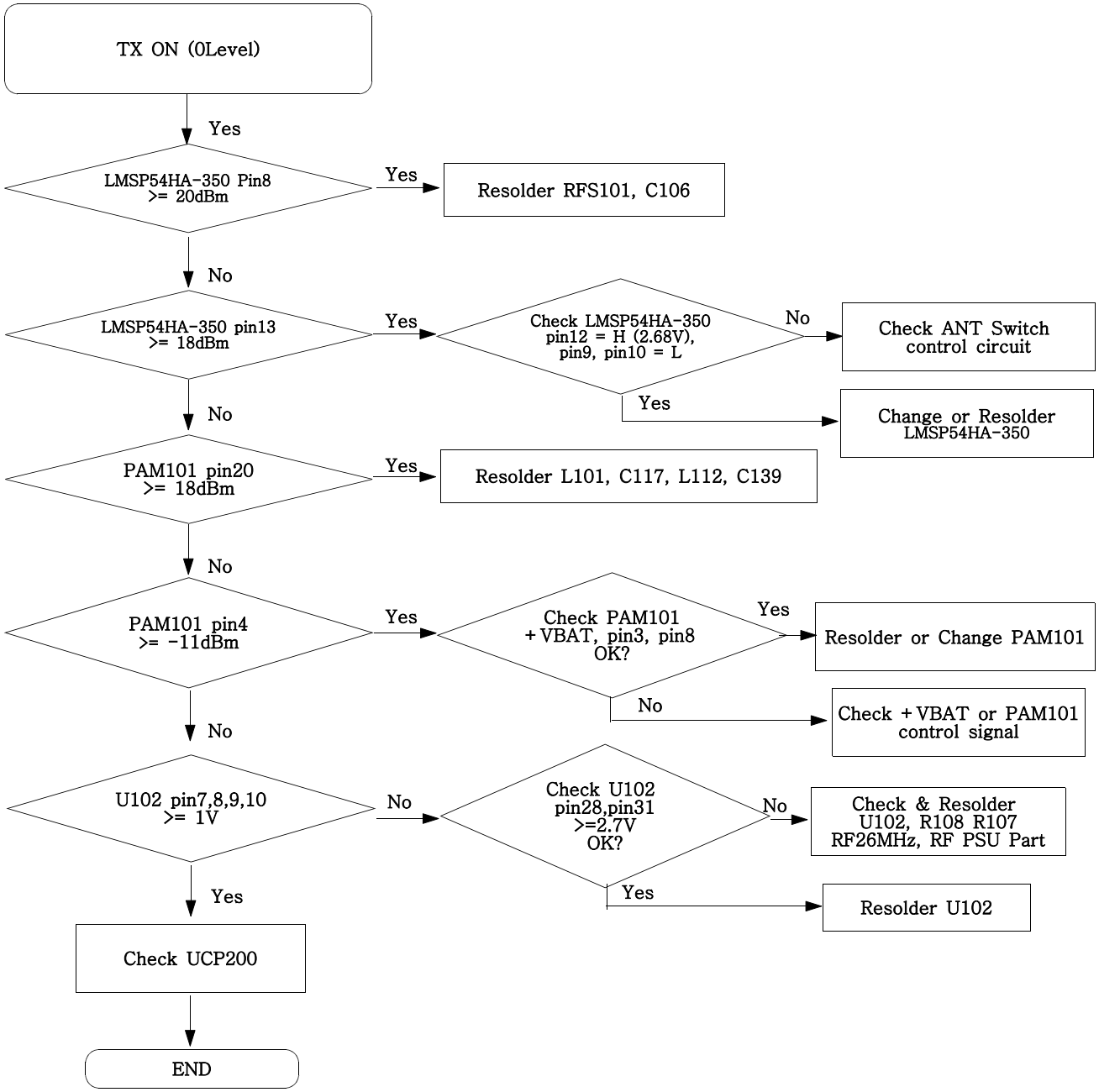
7-19. PCS Transmitter



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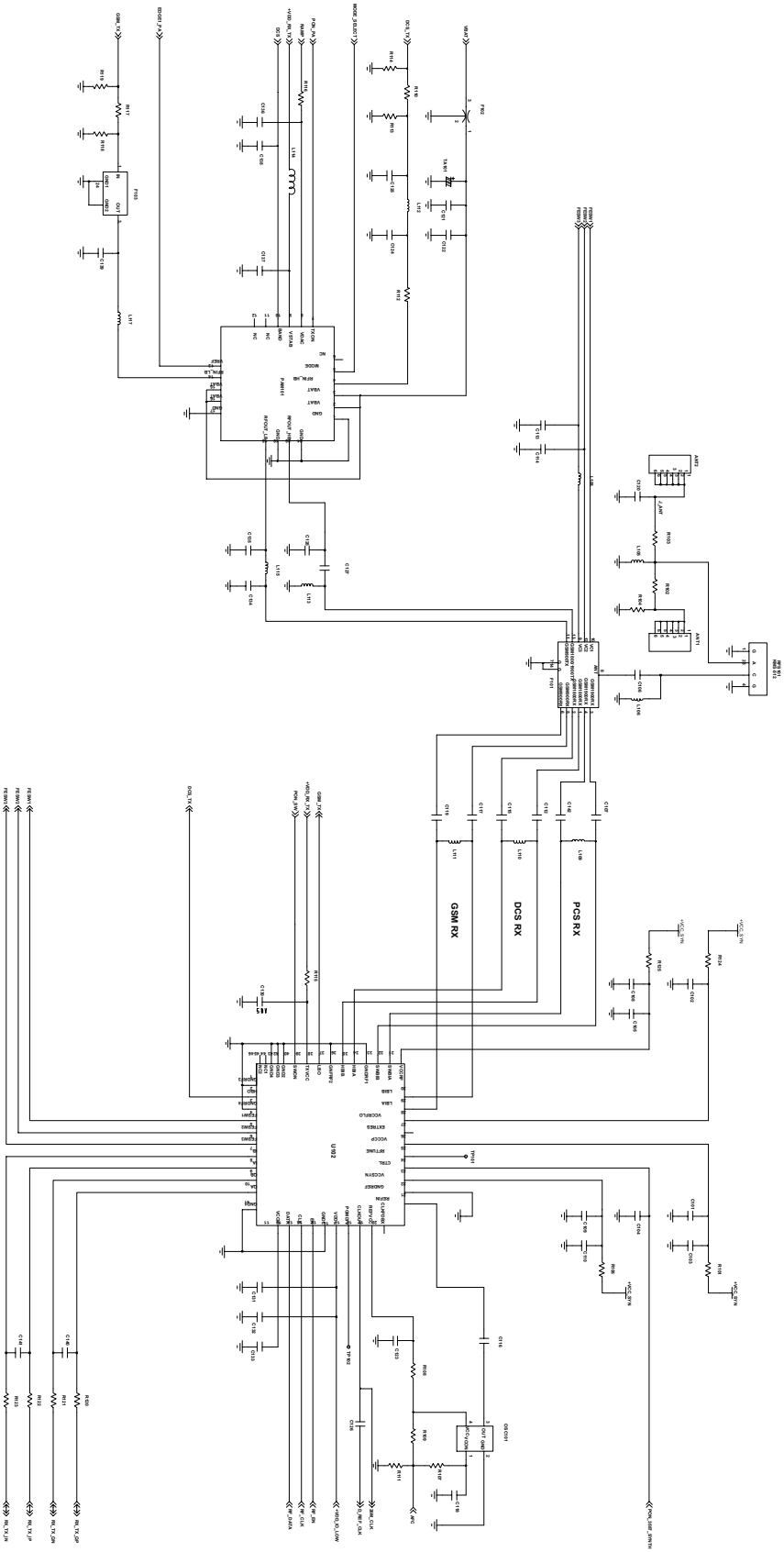

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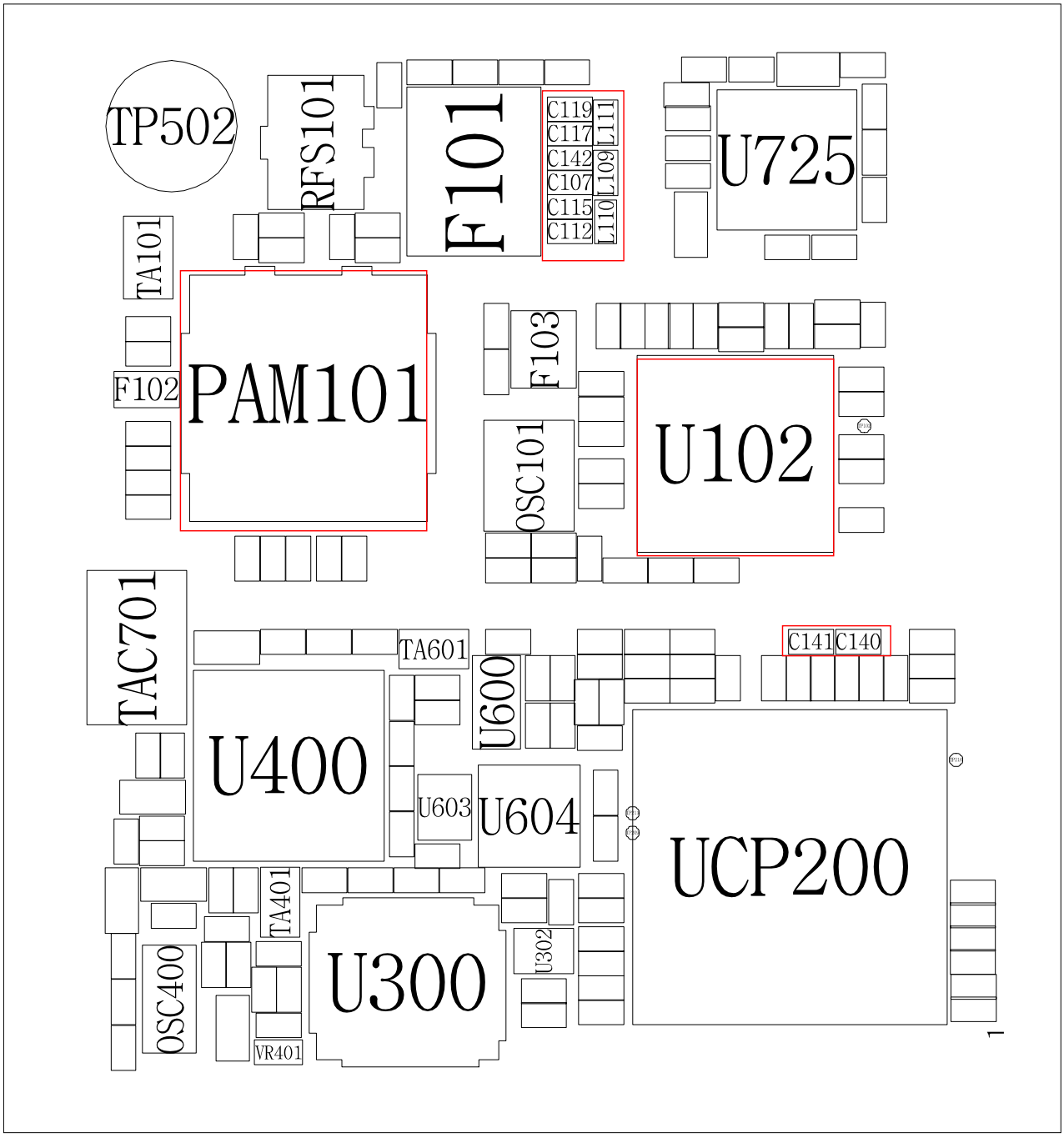

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