

SAMSUNG

GSM TELEPHONE SGH-E330N

SERVICE *Manual*

GSM TELEPHONE



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BASIC.

1. Specification

1-1. GSM General Specification

	GSM900 Phase 1	DCS1800 Phase 1	PC1900 Phase 1
Freq. Band[MHz] Uplink/Downlink	890~915 935~960	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range	1~124	512~885	512~810
Tx/Rx spacing	45MHz	95MHz	80MHz
Mod. Bit rate/ Bit Period	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
Modulation	0.3GMSK	0.3GMSK	0.3GMSK
MS Power	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm
Power Class	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl
Sensitivity	-102dBm	-100dBm	-100dBm
TDMA Mux	8	8	8
Cell Radius	35Km	2Km	-

1-2. GSM TX power class

TX Power control level	GSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
5	33±3 dBm	0	30±3 dBm	0	30±3 dBm
6	31±3 dBm	1	28±3 dBm	1	28±3 dBm
7	29±3 dBm	2	26±3 dBm	2	26±3 dBm
8	27±3 dBm	3	24±3 dBm	3	24±3 dBm
9	25±3 dBm	4	22±3 dBm	4	22±3 dBm
10	23±3 dBm	5	20±3 dBm	5	20±3 dBm
11	21±3 dBm	6	18±3 dBm	6	18±3 dBm
12	19±3 dBm	7	16±3 dBm	7	16±3 dBm
13	17±3 dBm	8	14±3 dBm	8	14±3 dBm
14	15±3 dBm	9	12±4 dBm	9	12±4 dBm
15	13±3 dBm	10	10±4 dBm	10	10±4 dBm
16	11±5 dBm	11	8±4dBm	11	8±4dBm
17	9±5dBm	12	6±4 dBm	12	6±4 dBm
18	7±5 dBm	13	4±4 dBm	13	4±4 dBm
19	5±5 dBm	14	2±5 dBm	14	2±5 dBm
		15	0±5 dBm	15	0±5 dBm

2. Circuit Description

2-1. SGH-E330N RF Circuit Description

2-1-1. RX PART

- ASM(U103) Switching Tx, Rx path for GSM900, DCS1800, PCS1900 by logic controlling.
- ASM Control Logic (U103) Truth Table

	VC1	VC2	VC3
GSM Tx Mode	H	L	L
DCS Tx Mode	L	H	L
PCS Tx Mode	H	L	L
GSM Rx Mode	L	L	L
DCS Rx Mode	L	L	L
PCS Rx Mode	L	L	H

- FILTER

To convert Electromagnetic Field Wave to Acoustic Wave and then pass the specific frequency band.

- GSM FILTER (F100) For filtering the frequency band between 869 and 894 MHz
- DCS FILTER (F102) For filtering the frequency band between 1805 and 1880 MHz.
- PCS FILTER (F101) For filtering the frequency band between 1930 and 1990 MHz.

- VC-TCXO (OSC100)

This module generates the 26MHz reference clock to drive the logic and RF. After division by two a reference clock of 13MHz is supplied to the other parts of the system through the pin CLKOUT. After additional process, the reference clock applies to the U100 Rx IQ demodulator and Tx IQ modulator. And then, the oscillator is controlled by serial data to select channel and use fast lock mode for GPRS high class operation.

- Transceiver (U100)

The receiver front-end which amplifies the GSM, DCS aerial signal, converts the chosen channel down to a low IF signal of 100 kHz. The first stages are symmetrical low noise amplifiers (LNAs). The LNAs are followed by an IQ down mixer. It consists of two mixers in parallel but driven by quadrature out of phase LO signals. The In phase (I) and Quadrature phase (Q) IF signals are low pass filtered to provide protection from high frequency offset interferes. The low IF I and Q signals are then fed into the channel filter. The front-end low IF I and Q outputs enter the integrated bandpass channel filter with provision for five 8 dB gain steps in front of the filter.

2-1-2. TX PART

I and Q baseband signals are applied to the IQ modulator that shifts the modulation spectrum up to the transmit IF. It is designed for low harmonic distortion, low carrier leakage and high image rejection to keep the phase error as small as possible.

The modulator is loaded at its IF output by an integrated low pass filter that suppress unwanted spurs prior to get into the phase detector. The clock drive is generated by division of the RFLO signal provided for the transmit offset mixer. Baseband IQ signal fed into offset PLL, this function is included inside of U100 chip. OSC101 chip generates modulator signal which power level is about 6.5dBm and fed into Power Amplifier(U102). The PA output power and power ramping are well controlled by Auto Power Control circuit. We use offset PLL below table.

Modulation Spectrum	200kHz offset 30 kHz bandwidth	GSM	-35dBc
		DCS	-35dBc
	400kHz offset 30 kHz bandwidth	GSM	-66dBc
		DCS	-65dBc
	600kHz ~ 1.8MHz offset 30 kHz bandwidth	GSM	-75dBc
		DCS	-68dBc

2-2. Baseband Circuit description of SGH-E330N

2-2-1. PCF50601

- Power Management

Ten 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, and 5.0V 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 PCF50601 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.

But, this phone (SGH-E330N) is use UFB LCD. UFB LCD controls backlight brightness by contrast setting.

So "BL_VDD" voltage is always high value when phone is in active mode. When phone is in dimming mode "BL_VDD" goes to about 10% duty PWM.

- Clock Generator

The Clock Generator (CG) generates all clocks for internal and external usage. The 32768 Hz crystal oscillator provides an accurate low clock frequency for the PCF50601 and other circuitry.

2-2-2. LCD Connector

LCD is consisted of main LCD(color 65K UFB LCD) and sub LCD (4Gray LCD).

Chip select signals LCD_MAIN_CS and LCD_SUB_CS, can enable Each LCD. BACKLIGHT signal enables white LED of main LCD. "RESET_2V8" signal initiates the reset process of the LCD.

16-bit data lines(LD(0)~LD(15)) transfers data and commands to LCD through bypass capacitor. 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 state of LCD is whether input or output, is required. But in this system, there is no input state from LCD. So only "L_WR" signal is used to indicate write data or command to LCD. Power signals for LCD are "VBAT" and "VDD2".

"M_SCL", "M_SCA", "PCLK", "FVALID", "LVALID" and "STANDBY" signals are all related to camera working.

"CAMERA_FLASH_SUPPLY" is voltage supply to flash led , and "SVC_LED" is signal for service led when the signal is low led is on and vice versa. "SPK_P" and "SPK_N" are used for audio speaker containing voice or melody. And "VDD_VIB" from PCF50601 enables the motor.

2-2-3. Key

This is consisted of key interface pins among OM6359, KBIO(0:7). These signals compose the matrix. Result of matrix informs the key status to key interface in the OM6359. Power on/off key is separated from the matrix. So power on/off signal is connected with PCF50601 to enable PCF50601. Fifteen key LEDs are use the "VBAT" as supply voltage.

"VDD_KEY" signal enables LEDs. "FLIP" informs the status of folder (open or closed) to the OM6359. This uses the hall effect IC, SH248CSP. A magnet under main LCD enables SH248CSP.

2-2-4. EMI ESD Filter

This system uses the EMI ESD filter, EMIF09 to protect noise from IF CONNECTOR part.

2-2-5. IF connetor

It is 18-pin connector. They are designed to use VBAT, V_EXT_CHARGE, TXD0, RXD0, RTS0, CTS0, JIG_REC, CHARGER_OK, RXD1, TXD1, AUX_MIC, AUX_SPK and GND. They connected to power supply IC, microprocessor and signal processor IC.

2-2-6. Battery Charge Management

A complete constant-current/constant-voltage linear charger is used 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.

2-2-7. Audio

EARP_P and EARP_N from OM6359 are connected to the main speaker. AUXSP is connected to the Hands free kit. MIC_P and MIC_N are connected to the main MIC. And AUX_MIC_P and AUX_MIC_N are connected to the Hands free kit.

YMU762C is a LSI for portable telephone that is capable of playing high quality music by utilizing FM synthesizer and ADPCM decoder that are included in this device.

As a synthesis, YMU762C is equipped 32 voices with different tones. Since the device is capable of simultaneously generating up to synchronous with the play of the FM synthesizer, various sampled voices can be used as sound effects. Since the play data of YMU762C are interpreted at anytime through FIFO, the length of the data(playing period) is not limited, so the device can flexibly support application such as incoming call melody music distribution service. The hardware sequencer built in this device allows playing of the complex music without giving excessive load to the CPU of the portable telephones.

Moreover, the registers of the FM synthesizer can be operated directly for real time sound generation, allowing, for example, utilization of various sound effects when using the game software installed in the portable telephone. YMU762C includes a speaker amplifier with high ripple removal rate whose maximum output is 550mW (SPVDD=3.6V). The device is also equipped with conventional function including a vibrator and a circuit for controlling LEDs synchronous with music.

For the headphone, it is provided with a stereophonic output terminal.

For the purpose of enabling YMU762C to demonstrate its full capabilities, Yamaha purpose to use "SMAF:Synthetic music Mobile Application Format" as a data distribution format that is compatible with multimedia. Since the SMAF takes a structure that sets importance on the synchronization between sound and images, various contents can be written into it including incoming call melody with words that can be used for training karaoke, and commercial channel that combines texts, images and sounds, and others. The hardware sequencer of YMU762C directly interprets and plays blocks relevant to synthesis (playing music and reproducing ADPCM with FM synthesizer) that are included in data distributed in SMAF.

2-2-8. Memory

Signals in the OM6359 enable two memories. They use only one volt supply voltage, VDD3 in the PCF50601. This system uses Samsung's memory, KBB06A500M-T402. It is consisted of 128M bits flash NOR memory and 128M bits flash NAND memory and 64M bits SCRAM. It has 16 bit data line, HD[0~15] which is connected to OM6359 and MV317S. It has 26 bit address lines, HA[1~26]. CS_NAND and NCSRAM signals are chip select. Writing process, HWR_N is low and it enables writing process to flash memory and SRAM. During reading process, HRD_N is low and it enables reading process to flash memory and SRAM. Each chip select signals in the OM6359 select memory among 2 flash memory and SCRAM. Reading or writing procedure is processed after HWR_N or HRD_N is enabled. Memories use reset, which is VDD3 delay from PCF50601. HA[25] signal enables lower byte of SRAM and HA[26] signal enables higher byte of SRAM.

2-2-9. OM6359

OM6359 is consisted of ARM core and DSP core. It has 8x1Kword on-chip program/data RAM, 55 Kwords on-chip program ROM in the DSP. It has 4K*32bits ROM and 2K*32bits RAM in the ARM core. DSP is consisted of KBS, JTAG, EMI and UART. ARM core is consisted of EMI, PIC(Programmable Interrupt Controller), reset/power/clock unit, DMA controller, TIC(Test Interface Controller), peripheral bridge, PPI, SSI(Synchronous Serial Interface), ACC(Asynchronous communications controllers), timer, ADC, RTC(Real-Time Clock) and keyboard interface. KBIO(0:7), address lines of DSP core and HD[0~15]. HA[1~26], address lines of ARM core and HD[0~15], data lines of ARM core are connected to memory, YMU762C. MV317S(Camera DSP Chip) controls the communication between ARM core and DSP core.

CS_NAND, NCSRAM, NCSFLASH in the ARM core are connected to each memory. HWR_N and HRD_N control the process of memory. External IRQ(Interrupt ReQuest) signals from each units, such as, PMU need the compatible process. KBIO[0~7] receive the status from key and RXD0/TXD0 are used for the communication using data link cable(DEBUG_DTR/RTS/TXD/RXD/CTS/DSR).

It has JTAG control pins(TDI/TDO/TCK) for ARM core and DSP core. It receives 13MHz clock in CKI pin from external TCXO. ADC(Analog to Digital Convertor) part receives the status of temperature, battery type and battery voltage.

2-2-10. TOH2600DGI4KRA(26MHz)

This system uses the 26MHz TCXO, TOH2600DGI4KRA, SEM. AFC control signal from OM6359 controls frequency from 26MHz x-tal. The clock output frequency of UAA3536 is 13MHz. This clock is connected to OM6359, YMU762C.

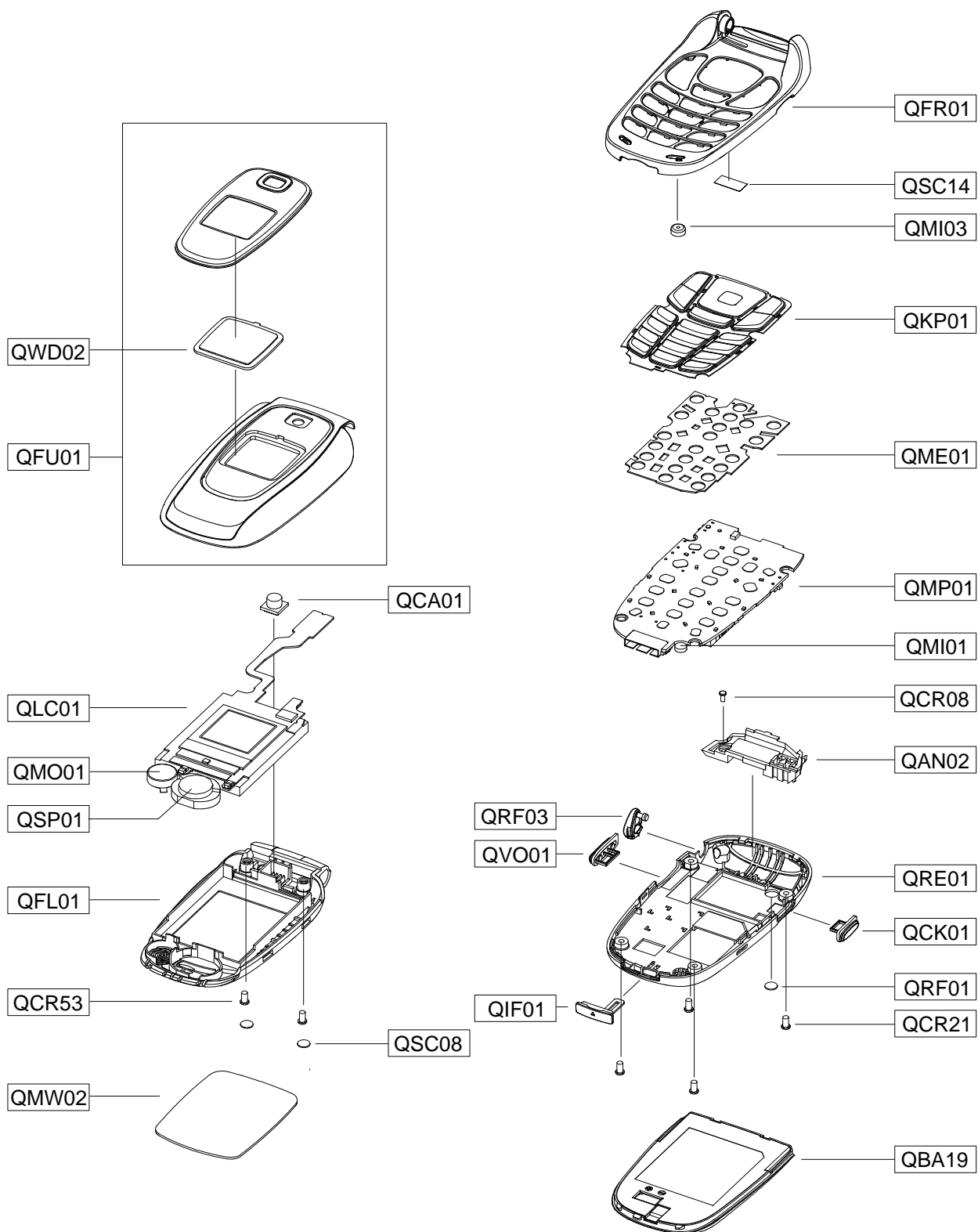
2-2-11. Camera DSP(MV3018SAQ)

MV3018 is a Camera Control Processor providing the most efficient camera functions for portable terminal devices such as mobile handsets. MV3018 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. MV3018 directly transmits and previews the RGB data to the LCD graphic memory by processing the sensor output data according to the cell phone's command. MV3018 can allow the host processor to download with scalable sized compressed data. In addition, MV3018 can download the compressed image to either store the original RGB data or transfer the image to the LCD. This feature allows the main processor to minimize its function while obtaining the result of the image process. MV3018 can support sensors up to 300K pixels.

The main processor to minimize its function while obtaining the result of the image process. MV3018 can support sensors up to VGA pixels.

3. Exploded Views and Parts List

3-1. Exploded View



3-2. Parts List

Location No		Description	SEC Code
QAN02		ANTENNA-SGHE330N; IAPT0GDP3815SC,SGH-	GH42-00623A
QBA19		BATTERY-800MAH,ANT SIL,EU,M;BST5068S	GH43-01988A
QCA01		UNIT-CAMERA; SGH-E335,MOMFH150G2A,-,U	GH59-02050A
QCK01		MEC-CAMERA KEY ASSY;SGH-X640,XEF,-,-	GH75-06567A
QCR08		SCREW-MACHINE; CH,+,M1.4,L3,BLK,SWRCH	6001-001456
QCR21		SCREW-MACHINE; BH(1.0),+,M1.7,L3.5,BL	6001-001507
QCR53		SCREW-MACHINE; CH,+,M1.7,L5,ZPC(BLK),	6001-001639
QFL01		MEC-FOLDER LOWER;SGH-E330N,EU,-,-,-,	GH75-07535A
QIF01		PMO-IF COVER; SGH-E330N,PC+RUBBER,SIL	GH72-23262A
QKP01		MEC-KEYPAD; SGH-E330N,EU,-,-,-,-,SIL,	GH75-07639A
QLC01		LCD-SGHE335 MAIN MODULE; UG-12R110-C,	GH07-00689A
QME01		UNIT-METAL DOME;SGH-E330N,-,-,XET,12	GH59-02405A
QMI01		MICROPHONE-ASSY; 2,130~500uA,-44dB,2.	GH30-00130A
QMO01		MOTOR-DC; 12000rpm,0g.cm,3V,80mA	3101-001401
QMP01		PBA MAIN-SGHE330N; SGH-E330N,XEF,UNKD	GH92-02281A
QMW02		PCT-MAIN WINDOW; SGH-E330N,ACRYLIC,TR	GH72-23488A
QRE01		MEC-REAR COVER;SGH-E330N,EU,-,-,-,-,	GH75-07536A
QRF01		MPR-RF SHEET; SGH-X640,PET+TESA 4972,	GH74-13063A
QSC08		MPR-SCREW SHEET L; SGH-E330N,PC SHEET	GH74-16222A
QSC14		MPR-TAPE FRONT FPC; SGH-E330,3M 1352	GH74-08876A
QSP01		SPEAKER; 0.8W,8ohm,86,750Hz±20%	3001-001731
QVO01		MEC-VOLUME KEY ASSY;SGH-X640,XEF,-,-	GH75-06566A
QFU01		MEC-FOLDER UPPER; SGH-E330N,EU,-,-,-,-,	GH75-07534A
	QWD02	PCT-WINDOW DUAL; SGH-E335,ACRYL,TRP,-	GH72-19294A
QFR01		MEC-FRONT COVER; SGH-E330N,EU,-,-,-,-	GH75-07547A
	QRF03	PMO-EAR COVER; SGH-E330N,PC,SIL,-,-,-	GH72-19199F
	QMI03	RMO-MIC RUBBER; SGH-X640,UR RUBBER,7X	GH73-04064A

Description	SEC Code
BAG PE; LDPE, T0.05, W80, L180, TRP, -, -	6902-000634
ADAPTOR-TAD; TAD137ESE, SGH-P100, -, 110	GH44-00482A
UNIT-EARPHONE; SGH-C200, AEP299SLE, -, E	GH59-01694A
SPRING ETC-LOCKER; SGH-T108, KSD3509, 0	GH61-00028A
LABEL(P)-WATER SOAK; COMM, NORGE, 100G,	GH68-02026A
MANUAL-SFC LEAFLET; COMM, XEE, ENGLISH,	GH68-06655A
MANUAL-SFC CARD; COMM, XEE, ENGLISH, NOW	GH68-06656A
MANUAL-WEEE CARD; COMM, SEC, ENGLISH, UN	GH68-07013A
LABEL(R)-MAIN(EU); SGH-E330N, CHAN, POL	GH68-07492A
MANUAL-USER; SGH-E330N, XEE, SWEDISH, SW	GH68-08465A
MANUAL-USER; SGH-E330N, XEE, NORWEGIAN,	GH68-08466A
MANUAL-USER; SGH-E330N, XEE, DANISH, DNM	GH68-08467A
MANUAL-USER; SGH-E330N, XEE, FINNISH, FI	GH68-08468A
CUSHION-CASE; SGH-E630, PULP, T0.8, 185,	GH69-02409A
BOX(P)-UNIT(EU); SGH-E330N, SC300+S12	GH69-03103A
PMO-BATT LOCKER; SGH-E330N, PC, SIL, -, -, -	GH72-19203F
MPR-F/LOWER BOHO VINYL; SGH-S500, 3M 4	GH74-05004A
MPR-LOWER FINAL PROTECT; SCH-E510, VIN	GH74-08502A
MPR-TAPE WINDOW MAIN; SGH-E330, 3M-949	GH74-08864A
MPR-TAPE DOME SHEET; SGH-E330, GOLD FA	GH74-10850A
MPR-TAPE WINDOW DUAL; SGH-E335, 3M 949	GH74-12787A
MPR-LCD TAPE SHOT; SGH-E335, 3M 1352 B	GH74-14727A
MPR-LCD TAPE GAP; SGH-E335, DPF-100, 32	GH74-14728A
MPR-TAPE LCD BIT; SGH-E335, 3M 851, 26X	GH74-14729A
MPR-TAPE LCD MAIN; SGH-E335, DPF-100 C	GH74-14955A
MPR-BOHO VINYL LCD CONN; SGH-E730, #95	GH74-15350A
MPR-GASKET L; SGH-E330N, GASKET SPONGE	GH74-16546A
MPR-GASKET R; SGH-E330N, GASKET SPONGE	GH74-16547A
MPR-TAPE PBA; SGH-E330N, TPF-100, 3.5X4	GH74-16734A
MEC-HAND STRAP; SGH-E620, SEC, -, -, ANTI	GH75-03207U

3-3. Test Jig (GH80-01909A)



3-3-1. RF Test Cable
(GH39-00283A)



3-3-2. Test Cable
(GH39-00217A)



3-3-3. Serial Cable



3-3-4. Power Supply Cable



3-3-5. DATA CABLE
(GH39-00219A)



3-3-6. TA
(GH44-00482A)



4. Electrical Parts List

Design LOC	Description	SEC CODE	STATUS
BAT30	BATTERY - LI(2ND)	4302-001157	SA
C100	C - CER,CHIP	2203-005482	SA
C101	C - CER,CHIP	2203-005057	SA
C102	C - CER,CHIP	2203-005057	SA
C103	C - CER,CHIP	2203-005482	SA
C104	C - CER,CHIP	2203-000995	SA
C105	C - CER,CHIP	2203-005138	SA
C106	C - CER,CHIP	2203-000359	SA
C107	C - CER,CHIP	2203-000836	SA
C108	C - CER,CHIP	2203-005482	SA
C109	C - CER,CHIP	2203-000812	SA
C110	C - CER,CHIP	2203-001101	SA
C111	C - CER,CHIP	2203-000854	SA
C112	C - CER,CHIP	2203-000812	SA
C113	C - CER,CHIP	2203-005057	SA
C114	C - CER,CHIP	2203-005482	SA
C115	C - CER,CHIP	2203-000812	SA
C116	C - CER,CHIP	2203-000854	SA
C117	C - CER,CHIP	2203-000812	SA
C118	C - CER,CHIP	2203-005496	SA
C119	C - CER,CHIP	2203-000438	SA
C120	C - CER,CHIP	2203-000438	SA
C121	C - CER,CHIP	2203-000278	SA
C122	C - CER,CHIP	2203-005496	SA
C123	C - CER,CHIP	2203-000233	SA
C124	C - CER,CHIP	2203-000278	SA
C125	C - CER,CHIP	2203-006053	SA
C126	C - CER,CHIP	2203-000254	SA
C127	C - CER,CHIP	2203-005482	SA
C128	C - CER,CHIP	2203-005057	SA
C129	C - CER,CHIP	2203-005057	SA
C130	C - CER,CHIP	2203-005482	SA
C131	C - CER,CHIP	2203-000233	SA
C132	C - CER,CHIP	2203-001153	SA
C133	C - CER,CHIP	2203-000604	SA
C134	C - CER,CHIP	2203-000854	SA
C135	C - CER,CHIP	2203-000278	SA
C136	C - CER,CHIP	2203-000585	SA
C137	C - CER,CHIP	2203-000585	SA
C138	C - CER,CHIP	2203-000585	SA
C139	C - CER,CHIP	2203-000585	SA
C141	C - TA,CHIP	2404-001239	SA
C142	C - CER,CHIP	2203-000254	SA
C144	C - CER,CHIP	2203-000812	SA
C145	C - CER,CHIP	2203-000233	SA
C146	C - CER,CHIP	2203-000233	SA
C147	C - CER,CHIP	2203-001383	SA
C148	C - CER,CHIP	2203-000311	SA
C149	C - CER,CHIP	2203-000585	SA
C150	C - CER,CHIP	2203-002443	SA

Design LOC	Description	SEC CODE	STATUS
C151	C - CER,CHIP	2203 - 005053	SA
C152	C - CER,CHIP	2203 - 000438	SA
C153	C - CER,CHIP	2203 - 001153	SA
C155	C - CER,CHIP	2203 - 000438	SA
C156	C - CER,CHIP	2203 - 000438	SA
C200	C - CER,CHIP	2203 - 005061	SA
C202	C - CER,CHIP	2203 - 005482	SA
C203	C - CER,CHIP	2203 - 005061	SA
C204	C - CER,CHIP	2203 - 000679	SA
C205	C - CER,CHIP	2203 - 000995	SA
C206	C - CER,CHIP	2203 - 000254	SA
C207	C - CER,CHIP	2203 - 005482	SA
C208	C - CER,CHIP	2203 - 000254	SA
C209	C - CER,CHIP	2203 - 000643	SA
C210	C - CER,CHIP	2203 - 005482	SA
C211	C - CER,CHIP	2203 - 005482	SA
C212	C - CER,CHIP	2203 - 005482	SA
C214	C - CER,CHIP	2203 - 006093	SA
C215	C - CER,CHIP	2203 - 005482	SA
C300	C - CER,CHIP	2203 - 000233	SA
C301	C - CER,CHIP	2203 - 000679	SA
C302	C - CER,CHIP	2203 - 005061	SA
C303	C - CER,CHIP	2203 - 000438	SA
C304	C - CER,CHIP	2203 - 005061	SA
C305	C - CER,CHIP	2203 - 005496	SA
C306	C - CER,CHIP	2203 - 006208	SA
C307	C - CER,CHIP	2203 - 005061	SA
C308	C - CER,CHIP	2203 - 001432	SA
C309	C - CER,CHIP	2203 - 002687	SA
C310	C - CER,CHIP	2203 - 005483	SA
C312	C - CER,CHIP	2203 - 006208	SA
C313	C - CER,CHIP	2203 - 005061	SA
C314	C - CER,CHIP	2203 - 000254	SA
C315	C - CER,CHIP	2203 - 005061	SA
C316	C - CER,CHIP	2203 - 000330	SA
C317	C - CER,CHIP	2203 - 005061	SA
C318	C - CER,CHIP	2203 - 000330	SA
C319	C - CER,CHIP	2203 - 006053	SA
C320	C - CER,CHIP	2203 - 000254	SA
C321	C - CER,CHIP	2203 - 005061	SA
C322	C - CER,CHIP	2203 - 006053	SA
C400	C - CER,CHIP	2203 - 005482	SA
C402	C - CER,CHIP	2203 - 006208	SA
C403	C - CER,CHIP	2203 - 005482	SA
C406	C - CER,CHIP	2203 - 000254	SA
C407	C - CER,CHIP	2203 - 000278	SA
C408	C - CER,CHIP	2203 - 006208	SA
C409	C - TA,CHIP	2404 - 001225	SA
C411	C - CER,CHIP	2203 - 000386	SA
C412	C - CER,CHIP	2203 - 005482	SA

Design LOC	Description	SEC CODE	STATUS
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C415	C - CER,CHIP	2203 - 006053	SA
C416	C - CER,CHIP	2203 - 006324	SA
C417	C - CER,CHIP	2203 - 000888	SA
C418	C - CER,CHIP	2203 - 006208	SA
C419	C - CER,CHIP	2203 - 006208	SA
C420	C - CER,CHIP	2203 - 006208	SA
C421	C - TA,CHIP	2404 - 001225	SA
C422	C - CER,CHIP	2203 - 005482	SA
C424	C - TA,CHIP	2404 - 001225	SA
C425	C - CER,CHIP	2203 - 001652	SA
C426	C - CER,CHIP	2203 - 006053	SA
C427	C - TA,CHIP	2404 - 001225	SA
C428	C - CER,CHIP	2203 - 006053	SA
C429	C - CER,CHIP	2203 - 006053	SA
C430	C - CER,CHIP	2203 - 006053	SA
C431	C - CER,CHIP	2203 - 006053	SA
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C505	C - CER,CHIP	2203 - 005061	SA
C506	C - TA,CHIP	2404 - 001268	SA
C507	C - TA,CHIP	2404 - 001268	SA
C508	C - CER,CHIP	2203 - 005061	SA
C600	C - CER,CHIP	2203 - 000330	SA
C602	C - CER,CHIP	2203 - 000995	SA
C603	C - CER,CHIP	2203 - 005061	SA
C604	C - CER,CHIP	2203 - 005061	SA
C605	C - CER,CHIP	2203 - 002443	SA
C606	C - CER,CHIP	2203 - 000854	SA
C608	C - CER,CHIP	2203 - 000628	SA
C609	C - CER,CHIP	2203 - 000278	SA
C610	C - CER,CHIP	2203 - 005061	SA
C611	C - CER,CHIP	2203 - 000386	SA
C612	C - CER,CHIP	2203 - 000330	SA
C613	C - CER,CHIP	2203 - 000278	SA
C614	C - CER,CHIP	2203 - 000679	SA
C615	C - CER,CHIP	2203 - 000679	SA
C617	C - CER,CHIP	2203 - 000854	SA
C619	C - CER,CHIP	2203 - 005482	SA
C620	C - CER,CHIP	2203 - 000438	SA
C621	C - CER,CHIP	2203 - 000438	SA
C622	C - CER,CHIP	2203 - 005482	SA
C625	C - CER,CHIP	2203 - 000812	SA
C626	C - TA,CHIP	2404 - 001352	SA
C627	C - TA,CHIP	2404 - 001352	SA
C628	C - CER,CHIP	2203 - 000278	SA
C703	C - CER,CHIP	2203 - 006257	SA
C704	C - CER,CHIP	2203 - 001437	SA
CN400	CONNECTOR - CARD EDGE	3709 - 001273	SA
CN500	CONNECTOR - INTERFACE	3710 - 001994	SA

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CN501	HEADER - BATTERY	3711 - 005783	SA
CN502	CONNECTOR - COAXIAL	3705 - 001355	SA
EAR60	JACK - EAR PHONE	3722 - 002249	SA
F100	FILTER - SAW	2904 - 001469	SA
F101	FILTER - SAW	2904 - 001537	SA
F102	FILTER - SAW	2904 - 001540	SA
F103	FILTER - EMI SMD	2901 - 001254	SA
F700	FILTER - EMI SMD	2901 - 001286	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
F705	FILTER - EMI SMD	2901 - 001286	SA
HDC70	HEADER - BOARD TO BOARD	3711 - 005551	SA
L100	INDUCTOR - SMD	2703 - 001728	SA
L101	INDUCTOR - SMD	2703 - 001613	SA
L102	INDUCTOR - SMD	2703 - 001728	SA
L103	INDUCTOR - SMD	2703 - 001722	SA
L104	INDUCTOR - SMD	2703 - 002267	SA
L105	INDUCTOR - SMD	2703 - 002199	SA
L106	INDUCTOR - SMD	2703 - 001748	SA
L107	INDUCTOR - SMD	2703 - 001722	SA
L109	INDUCTOR - SMD	2703 - 002204	SA
L110	INDUCTOR - SMD	2703 - 001723	SA
L111	R - CHIP	2007 - 000171	SA
L112	INDUCTOR - SMD	2703 - 001723	SA
L113	INDUCTOR - SMD	2703 - 001723	SA
L114	INDUCTOR - SMD	2703 - 002200	SA
L620	BEAD - SMD	3301 - 001729	SA
LED70	LED	0601 - 001602	SA
LED70	LED	0601 - 001602	SA
LED70	LED	0601 - 001602	SA
LED70	LED	0601 - 001602	SA
LED70	LED	0601 - 001602	SA
LED70	LED	0601 - 001602	SA
LED70	LED	0601 - 001602	SA
LED70	LED	0601 - 001602	SA
LED70	LED	0601 - 001602	SA
LED70	LED	0601 - 001790	SA
LED71	LED	0601 - 001602	SA
LED71	LED	0601 - 001602	SA
LED71	LED	0601 - 001790	SA
LED71	LED	0601 - 001790	SA
LED71	LED	0601 - 001790	SA
OSC10	OSCILLATOR - VCO	2806 - 001329	SA
OSC10	OSCILLATOR - VCTCXO	2809 - 001294	SA
OSC30	CRYSTAL - SMD	2801 - 004285	SA
Q700	TR - DIGITAL	0506 - 000107	SA
R100	R - CHIP	2007 - 007148	SA
R101	R - CHIP	2007 - 000141	SA
R102	R - CHIP	2007 - 007528	SA

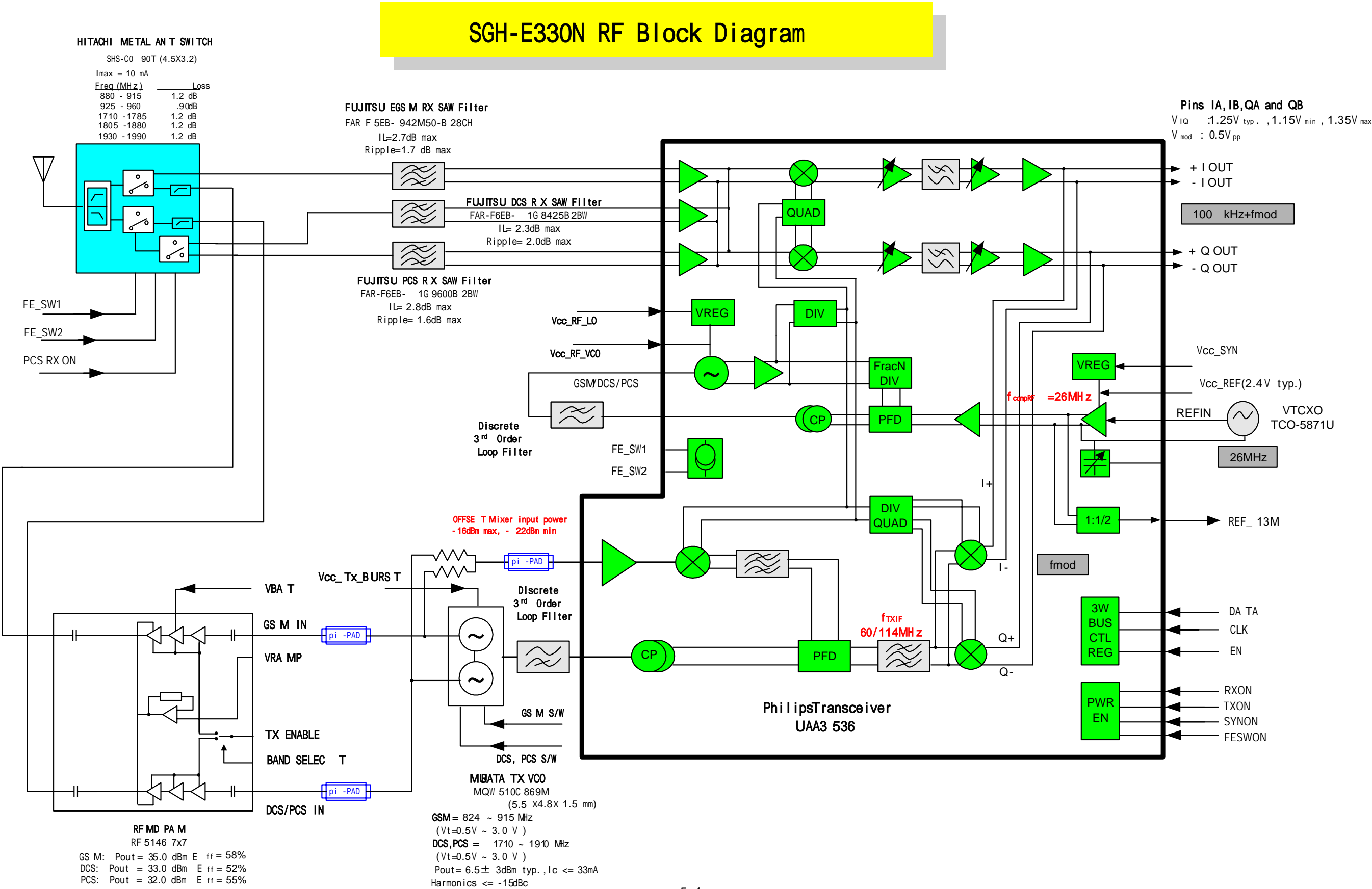
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R103	R-CHIP	2007-000566	SA
R104	R-CHIP	2007-003010	SA
R105	R-CHIP	2007-007142	SA
R106	R-CHIP	2007-007311	SA
R107	R-CHIP	2007-001313	SA
R108	R-CHIP	2007-001313	SA
R109	R-CHIP	2007-000566	SA
R110	R-CHIP	2007-000148	SA
R111	R-CHIP	2007-001305	SA
R112	R-CHIP	2007-008117	SA
R113	R-CHIP	2007-001305	SA
R114	R-CHIP	2007-001308	SA
R115	R-CHIP	2007-001305	SA
R116	R-CHIP	2007-000142	SA
R117	R-CHIP	2007-000142	SA
R118	R-CHIP	2007-000775	SA
R119	R-CHIP	2007-000142	SA
R120	R-CHIP	2007-000171	SA
R121	R-CHIP	2007-000142	SA
R123	R-CHIP	2007-000171	SA
R124	R-CHIP	2007-001288	SA
R125	R-CHIP	2007-001313	SA
R126	R-CHIP	2007-001313	SA
R127	R-CHIP	2007-000171	SA
R128	R-CHIP	2007-007314	SA
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R130	R-CHIP	2007-000148	SA
R131	R-CHIP	2007-000148	SA
R132	R-CHIP	2007-000171	SA
R200	R-CHIP	2007-000171	SA
R201	R-CHIP	2007-000162	SA
R202	R-CHIP	2007-007107	SA
R203	R-CHIP	2007-007142	SA
R204	R-CHIP	2007-007107	SA
R205	R-CHIP	2007-007142	SA
R206	R-CHIP	2007-000162	SA
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R208	R-CHIP	2007-007001	SA
R209	R-CHIP	2007-000141	SA
R210	R-CHIP	2007-000141	SA
R211	R-CHIP	2007-000162	SA
R212	R-CHIP	2007-000172	SA
R213	R-CHIP	2007-000172	SA
R300	R-CHIP	2007-007014	SA
R301	R-CHIP	2007-001313	SA
R302	R-CHIP	2007-007014	SA
R303	R-CHIP	2007-001325	SA
R304	R-CHIP	2007-000153	SA
R305	R-CHIP	2007-000171	SA
R306	R-CHIP	2007-001319	SA

Design LOC	Description	SEC CODE	STATUS
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R308	R-CHIP	2007-007001	SA
R310	R-CHIP	2007-000162	SA
R311	R-CHIP	2007-000162	SA
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R317	R-CHIP	2007-000143	SA
R318	R-CHIP	2007-007100	SA
R400	R-CHIP	2007-000148	SA
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R402	R-CHIP	2007-001325	SA
R403	R-CHIP	2007-000171	SA
R500	R-CHIP	2007-000162	SA
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R507	R-CHIP	2007-007573	SA
R508	R-CHIP	2007-000162	SA
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R511	R-CHIP	2007-007317	SA
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R600	R-CHIP	2007-000162	SA
R601	R-CHIP	2007-000140	SA
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R615	R-CHIP	2007-007489	SA
R700	R-CHIP	2007-000143	SA
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R711	R-CHIP	2007-000174	SA
R712	R-CHIP	2007-000174	SA
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R714	R-CHIP	2007-000174	SA
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R716	R-CHIP	2007-000174	SA
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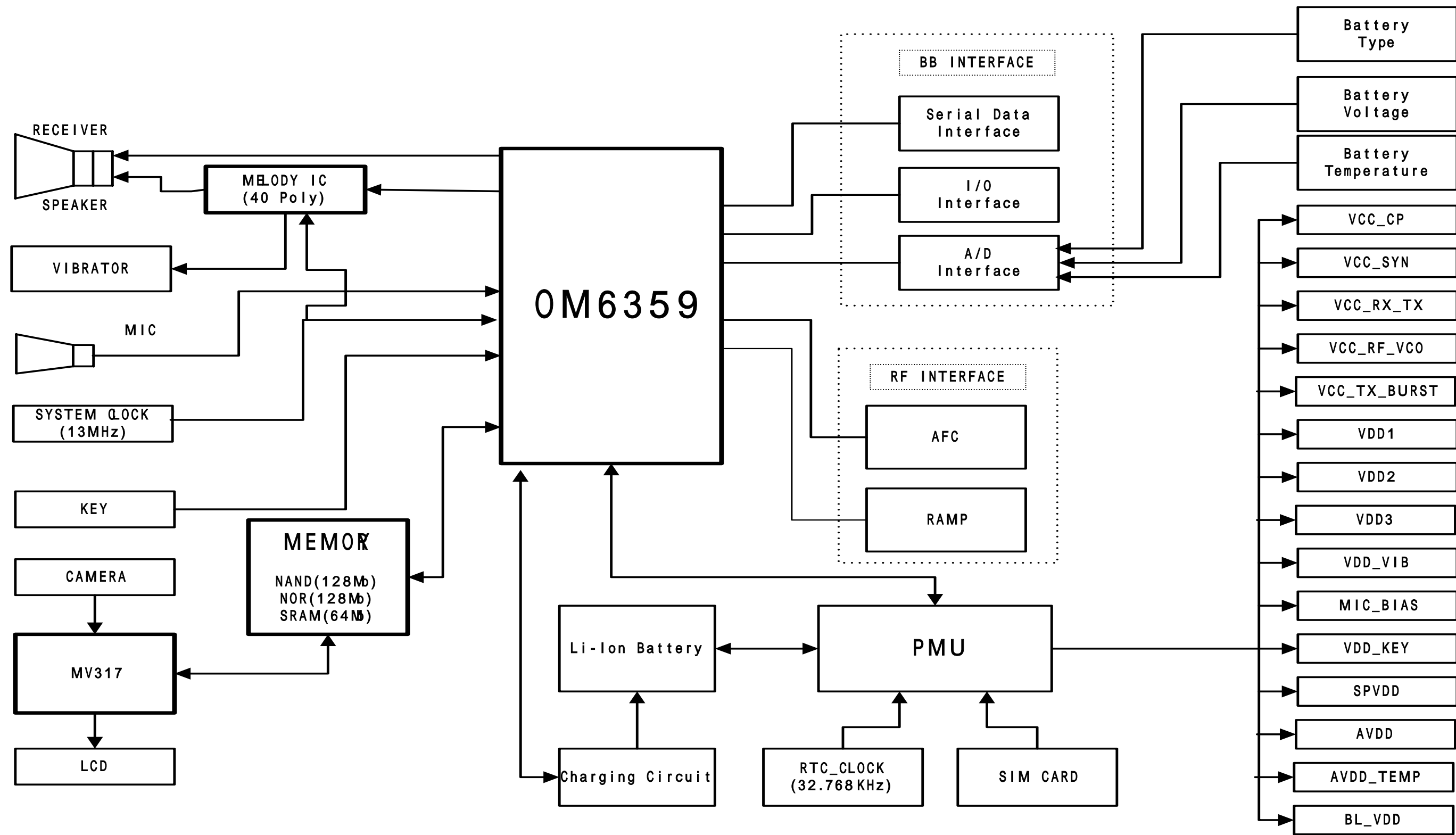
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SW600	IC-HALL EFFECT S/W	1009-001018	SA
SW700	SWITCH-TACT	3404-001152	SA
SW701	SWITCH-TACT	3404-001152	SA
TH200	THERMISTOR-NTC	1404-001221	SA
U100	IC- TRANSCEIVER	1205-002327	SA
U102	IC-POWER AMP	1201-002174	SA
U103	DUPLEXER-ASM	2909-001246	SA
U200	IC ASIC-SCHN480	GH13-00029A	SA
U201	IC-CMOS LOGIC	0801-002882	SA
U300	IC-CMOS LOGIC	0801-002237	SA
U301	IC-MELODY	1204-002161	SA
U302	IC-MCP	1109-001316	SA
U304	IC-CMOS LOGIC	0801-002882	SA
U306	IC-CMOS LOGIC	0801-002882	SA
U307	IC-MULTI REG.	1203-003459	SA
U308	IC-POS.FIXED REG.	1203-003688	SA
U400	IC-CONTROLLER	1205-002350	SA
U500	FILTER-EMI/ESD	2901-001246	SA
U502	IC-BATTERY	1203-003486	SA
U603	IC-ANALOG MULTIPLEX	1001-001306	SA
U610	IC-VOLTAGE COMP.	1202-001036	SA
U701	IC-POS.FIXED REG.	1203-001917	SA
U705	C-CER,CHIP	2203-005482	SA
U706	IC-COMM. CONTROLLER	1205-002607	SA
V200	VARISTOR	1405-001128	SA
V500	VARISTOR	1405-001128	SA
V600	VARISTOR	1405-001082	SA
V601	VARISTOR	1405-001082	SA
V602	VARISTOR	1405-001082	SA
V603	VARISTOR	1405-001082	SA
V604	VARISTOR	1405-001082	SA
V605	VARISTOR	1405-001082	SA
V700	VARISTOR	1405-001128	SA
V702	VARISTOR	1405-001128	SA
V704	VARISTOR	1405-001128	SA
V705	VARISTOR	1405-001128	SA
V706	VARISTOR	1405-001128	SA
V707	VARISTOR	1405-001128	SA
V708	VARISTOR	1405-001128	SA
V709	VARISTOR	1405-001128	SA
V710	VARISTOR	1405-001128	SA
V711	VARISTOR	1405-001128	SA
X400	CRYSTAL-SMD	2801-004339	SA
ZD501	DIODE-ZENER	0403-001427	SA
ZD502	DIODE-ZENER	0403-001387	SA
ZD600	DIODE-TVS	0406-001194	SA
ZD601	DIODE-TVS	0406-001194	SA
ZD700	DIODE-TVS	0406-001194	SA
ZD701	DIODE-TVS	0406-001194	SA

5. Block Diagrams

5-1. RF Solution Block Diagram



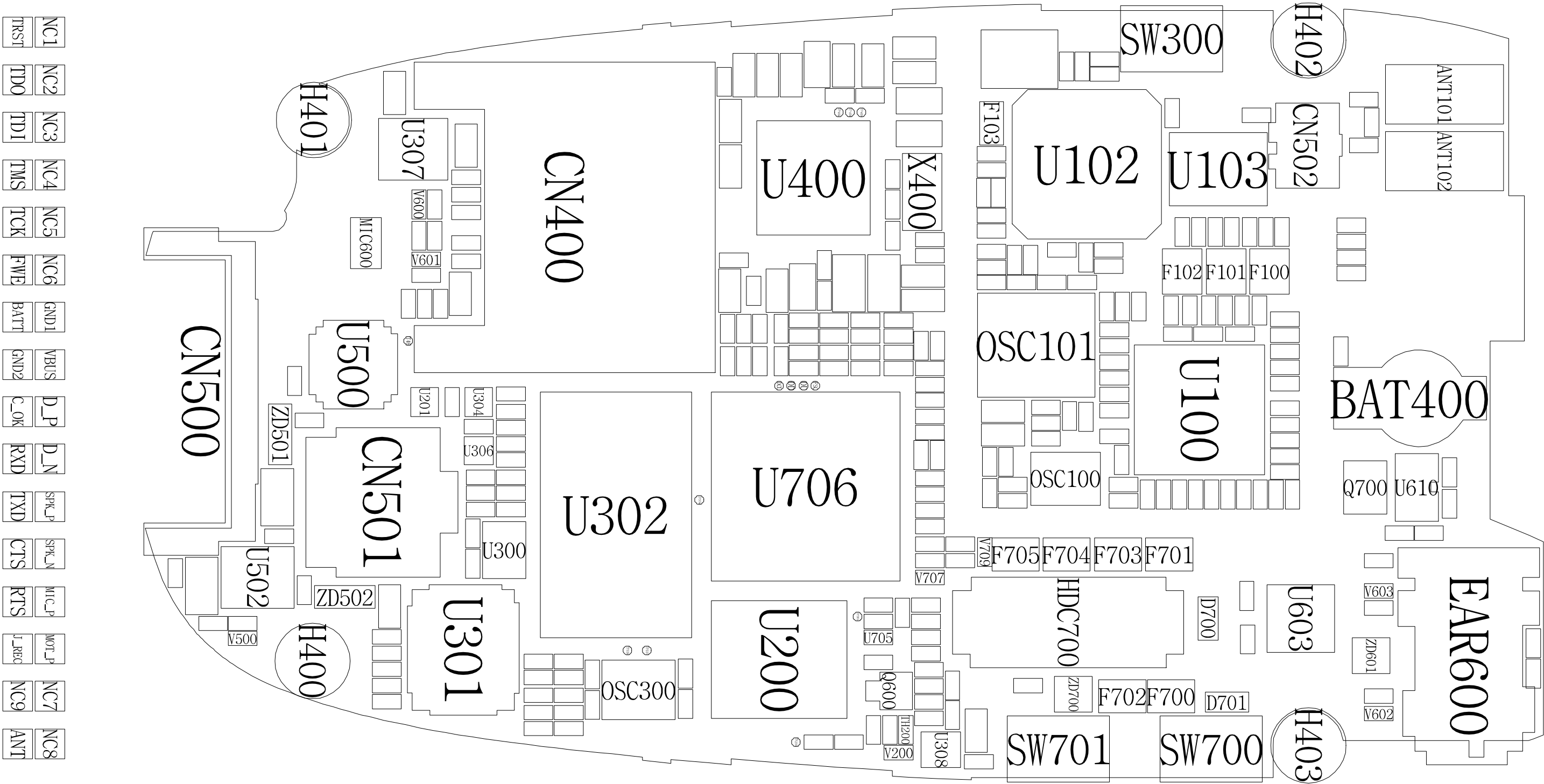
5-2. Base Band Solution Block Diagram



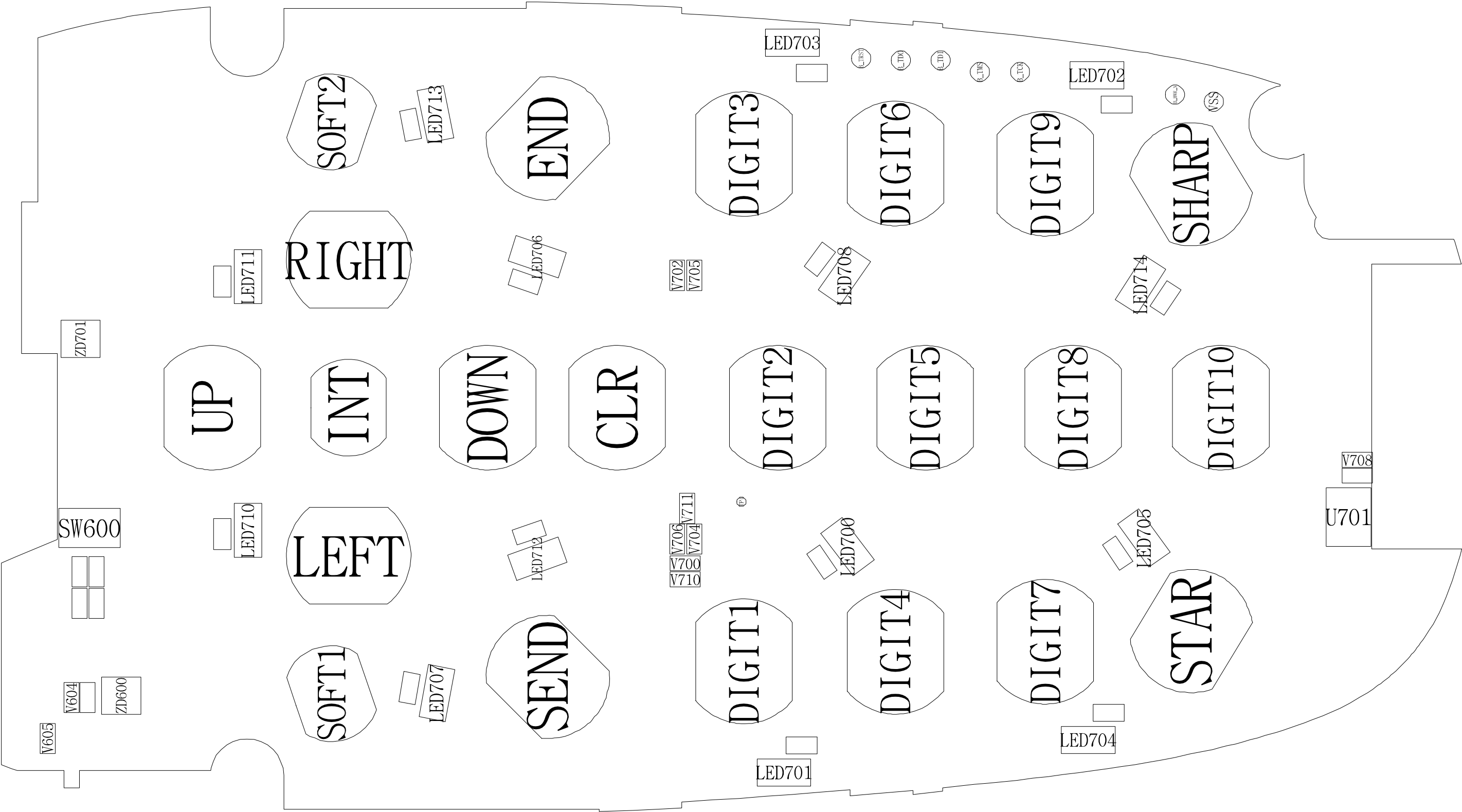
BB Block Diagram of SGH-E330N

6. PCB Diagrams

6-1. PCB Top Diagram

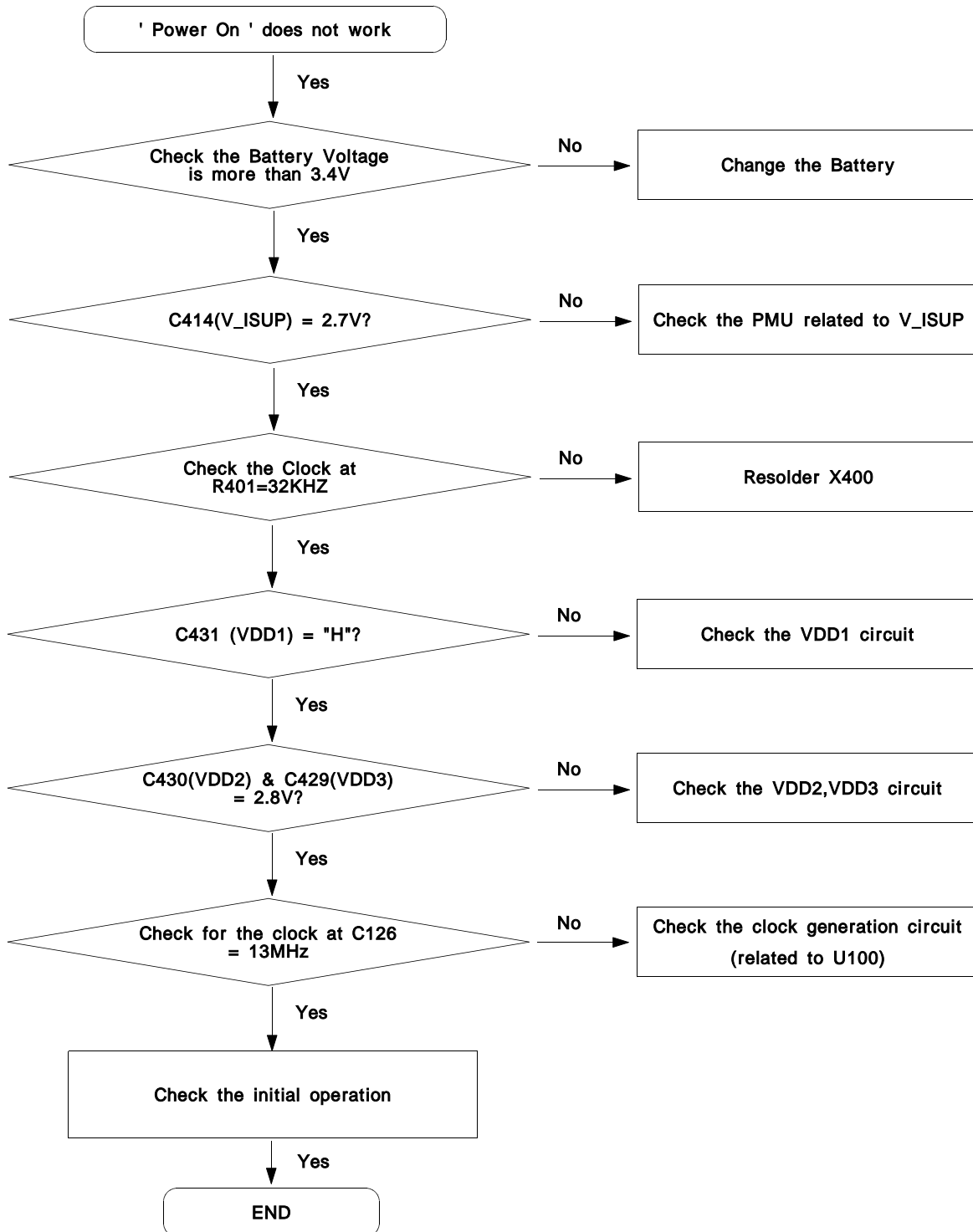


6-2. PCB Bottom Diagram

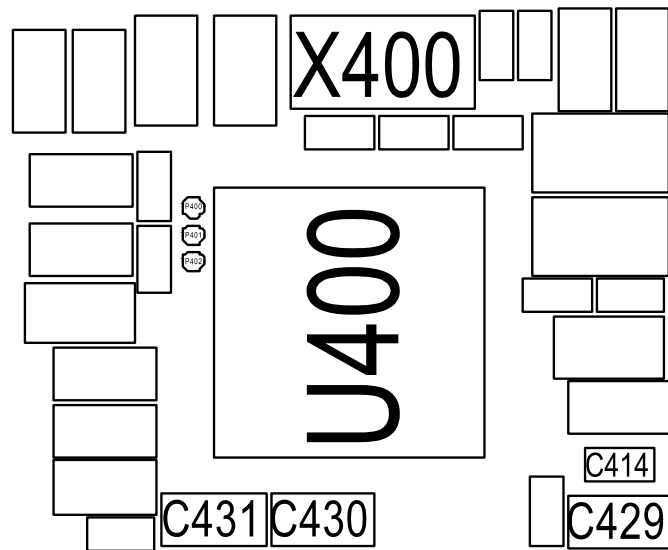


7. Flow Chart of Troubleshooting

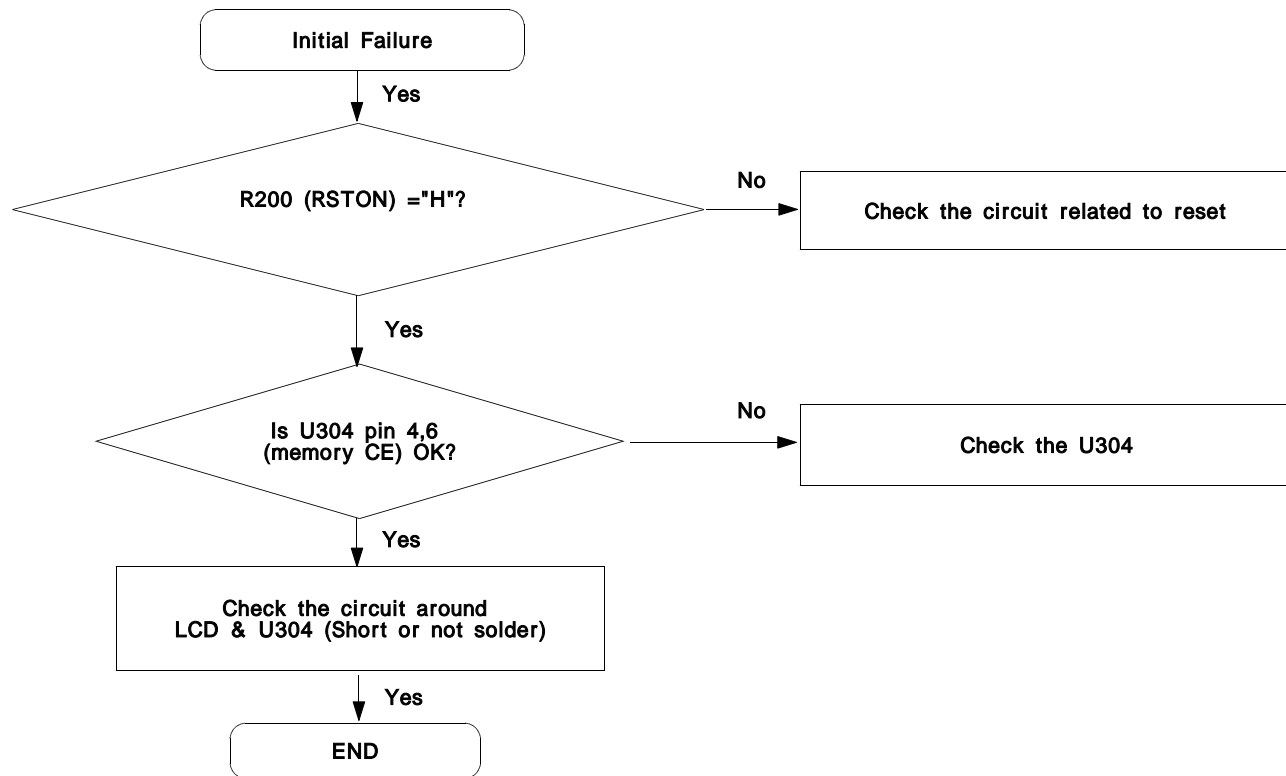
7-1. Power On



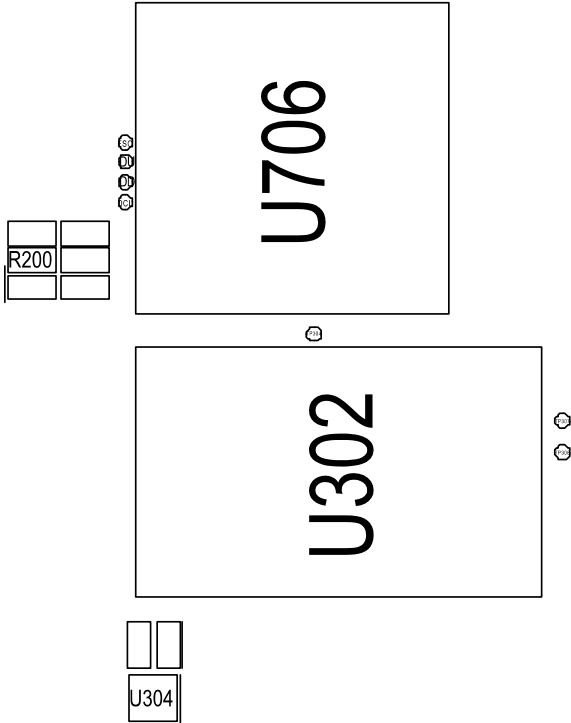




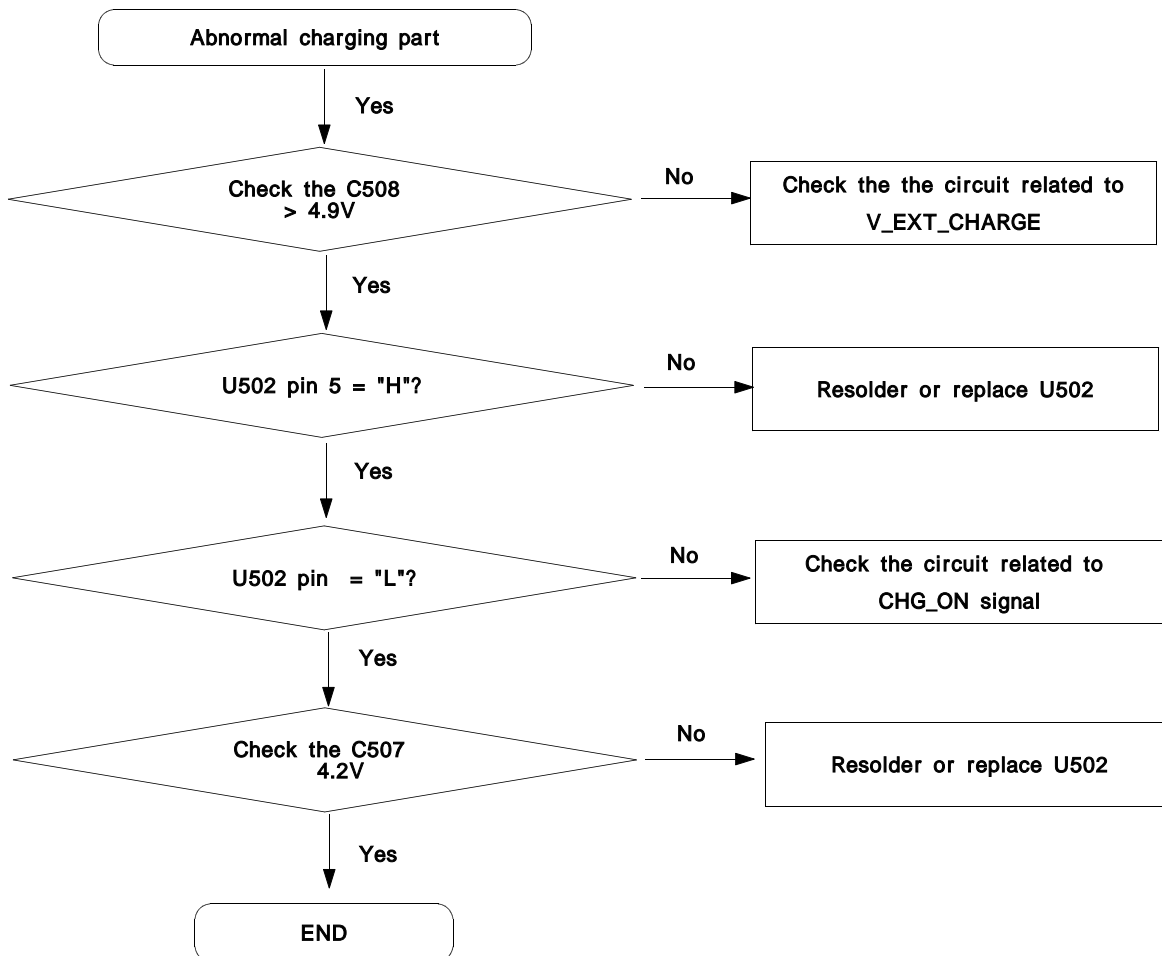
7-2. Initial



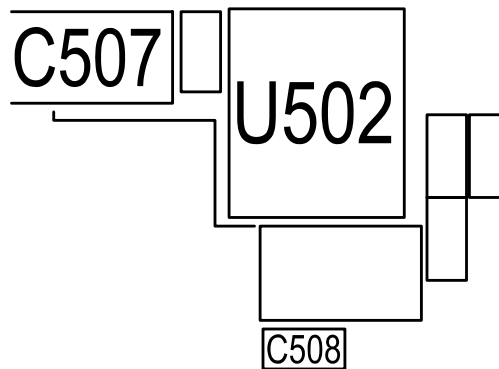
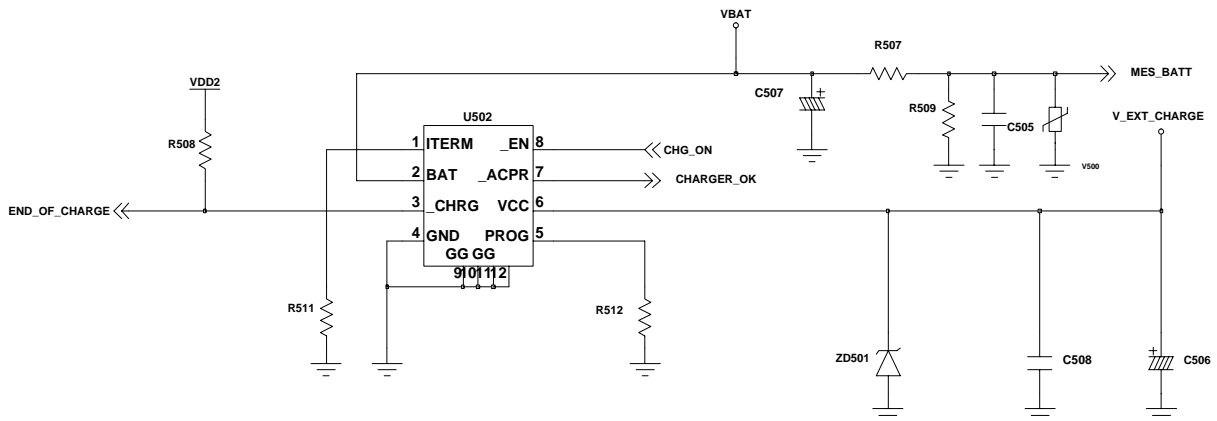




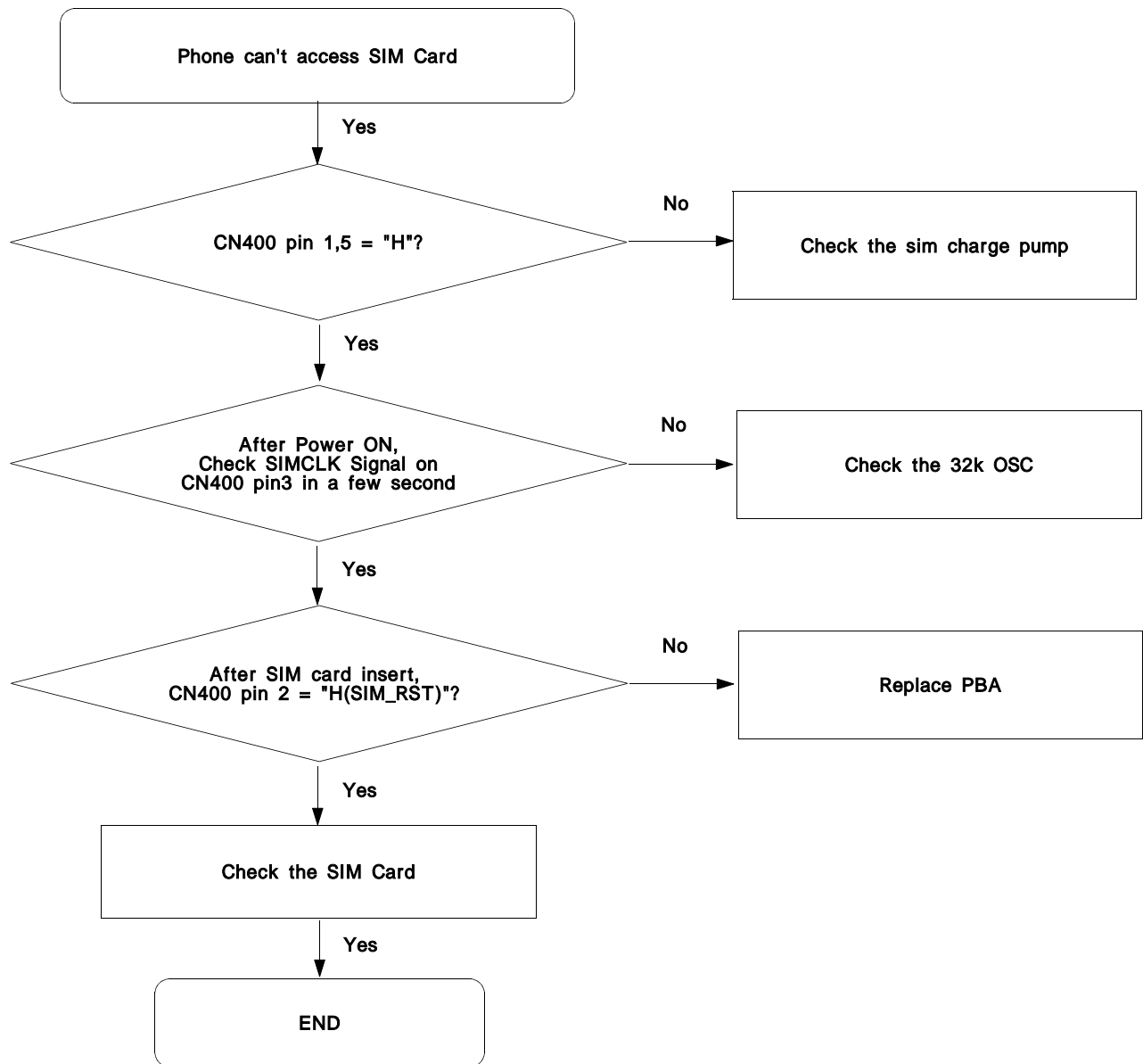
7-3. Charging Part



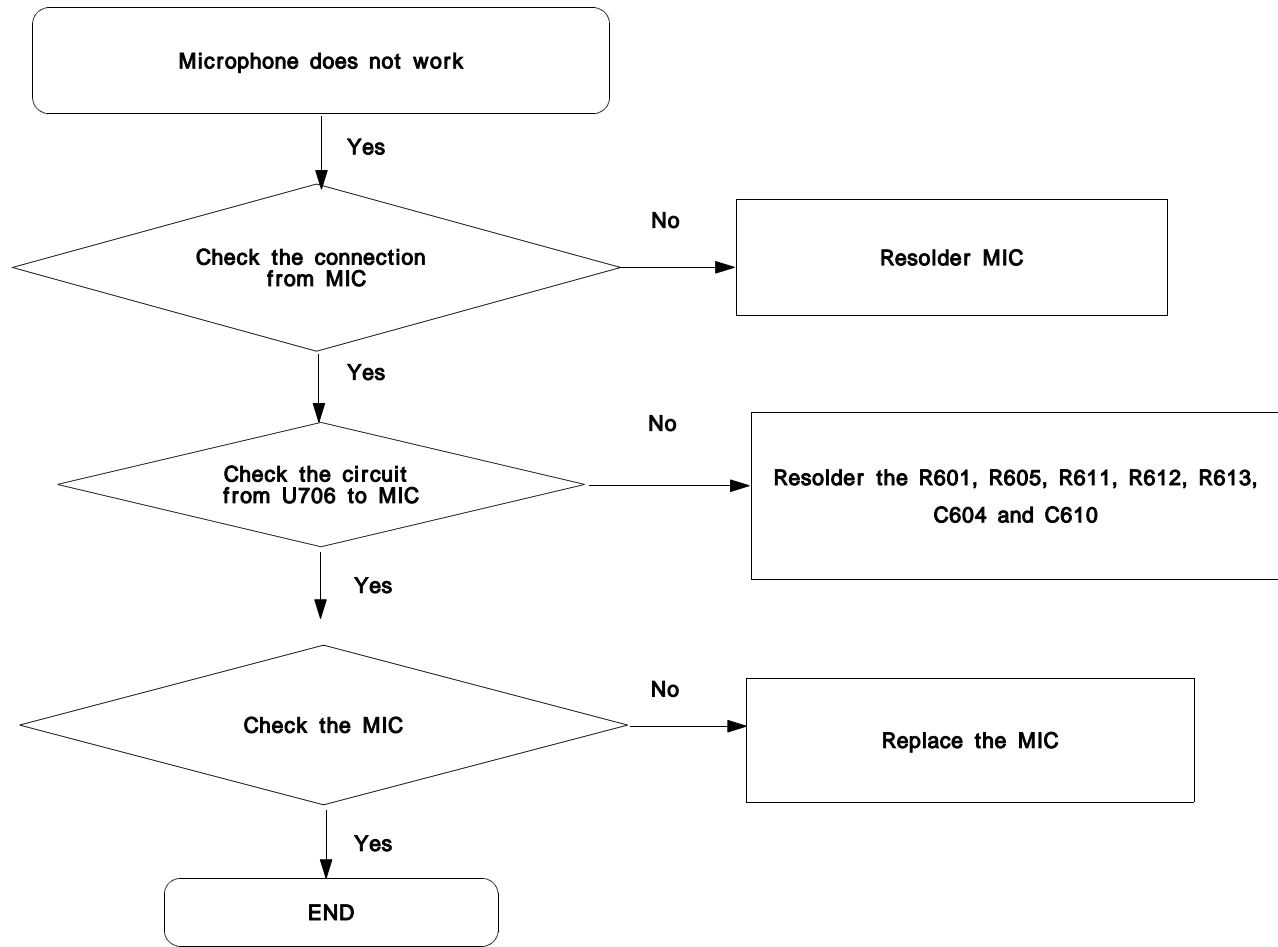
Charging



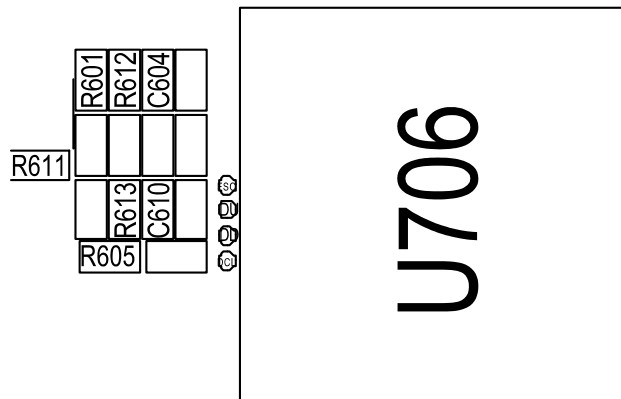
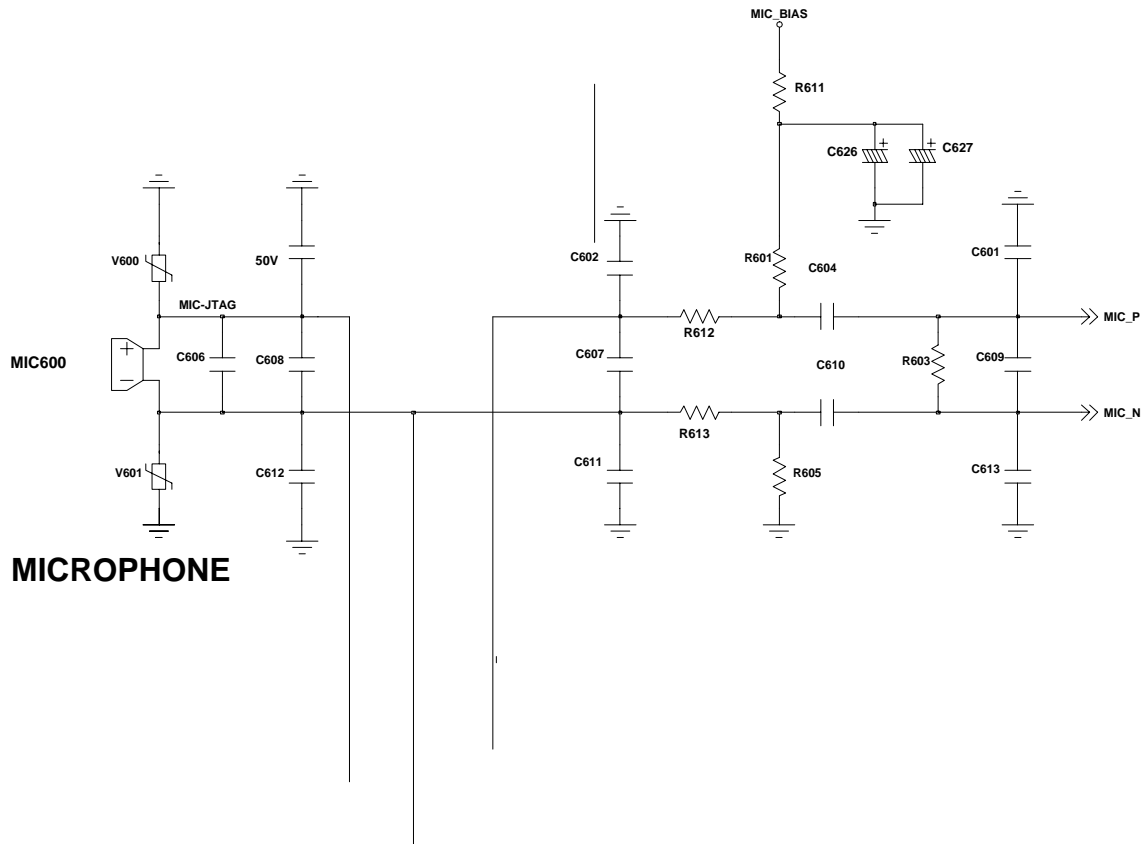
7-4. Sim Part



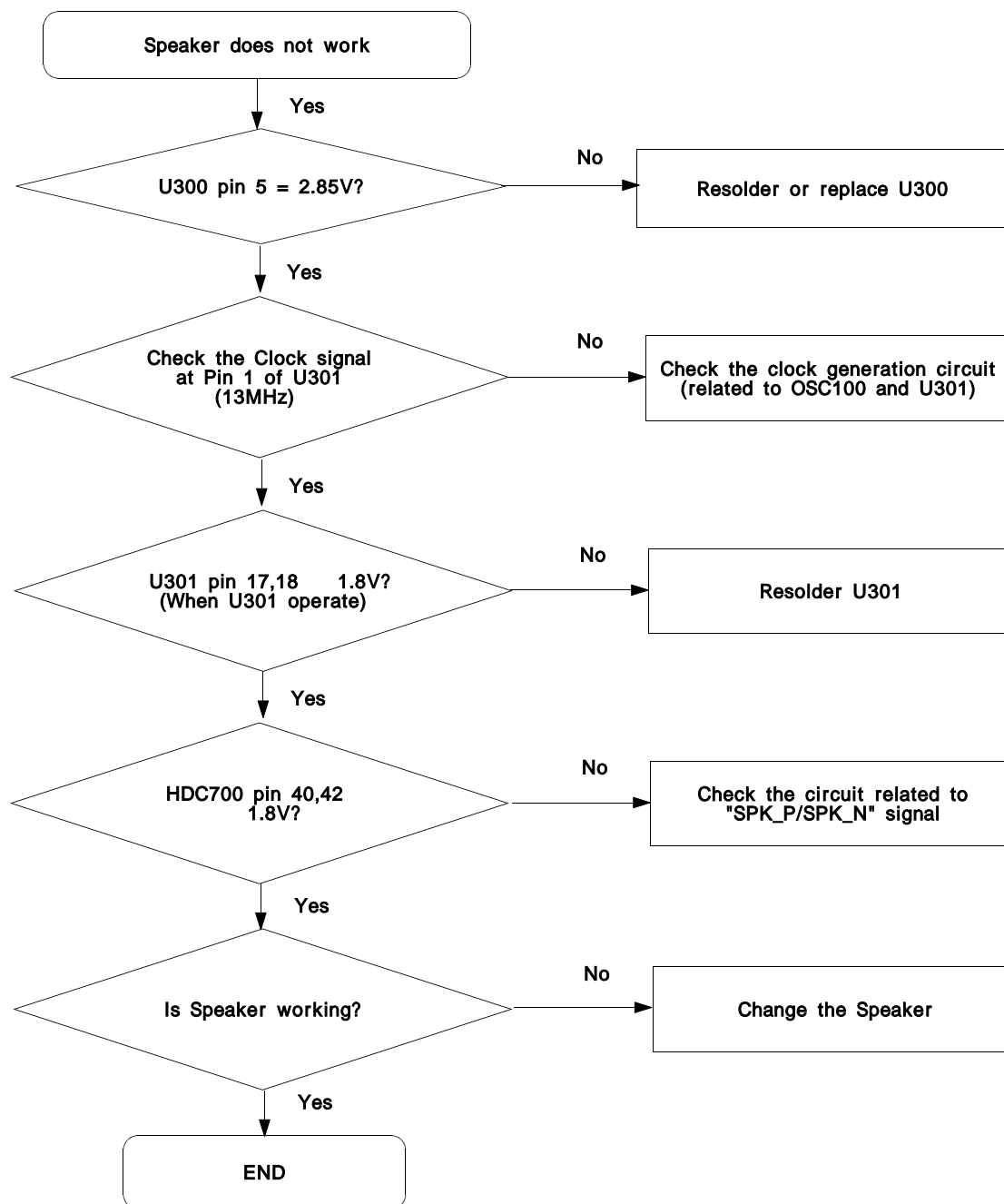
7-5. Microphone Part



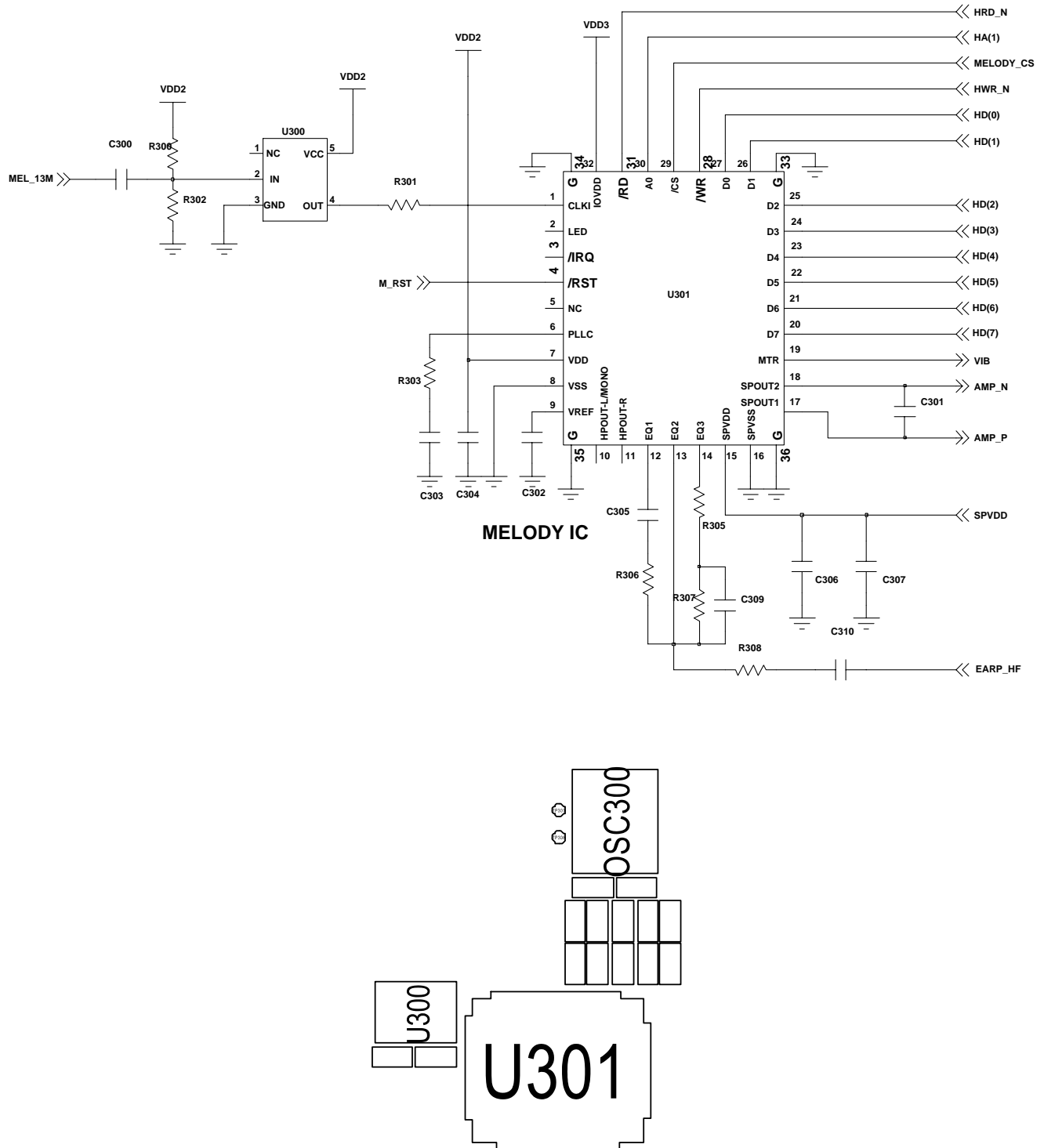
Microphone



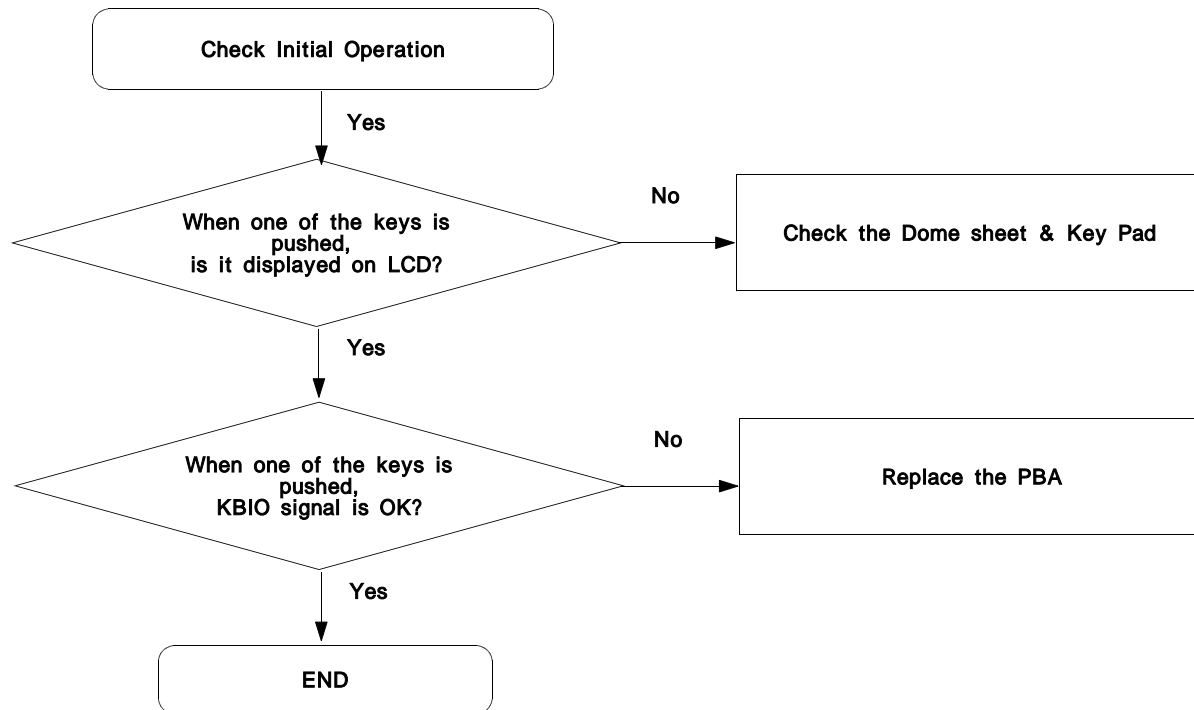
7-6. Speaker Part(Melody)



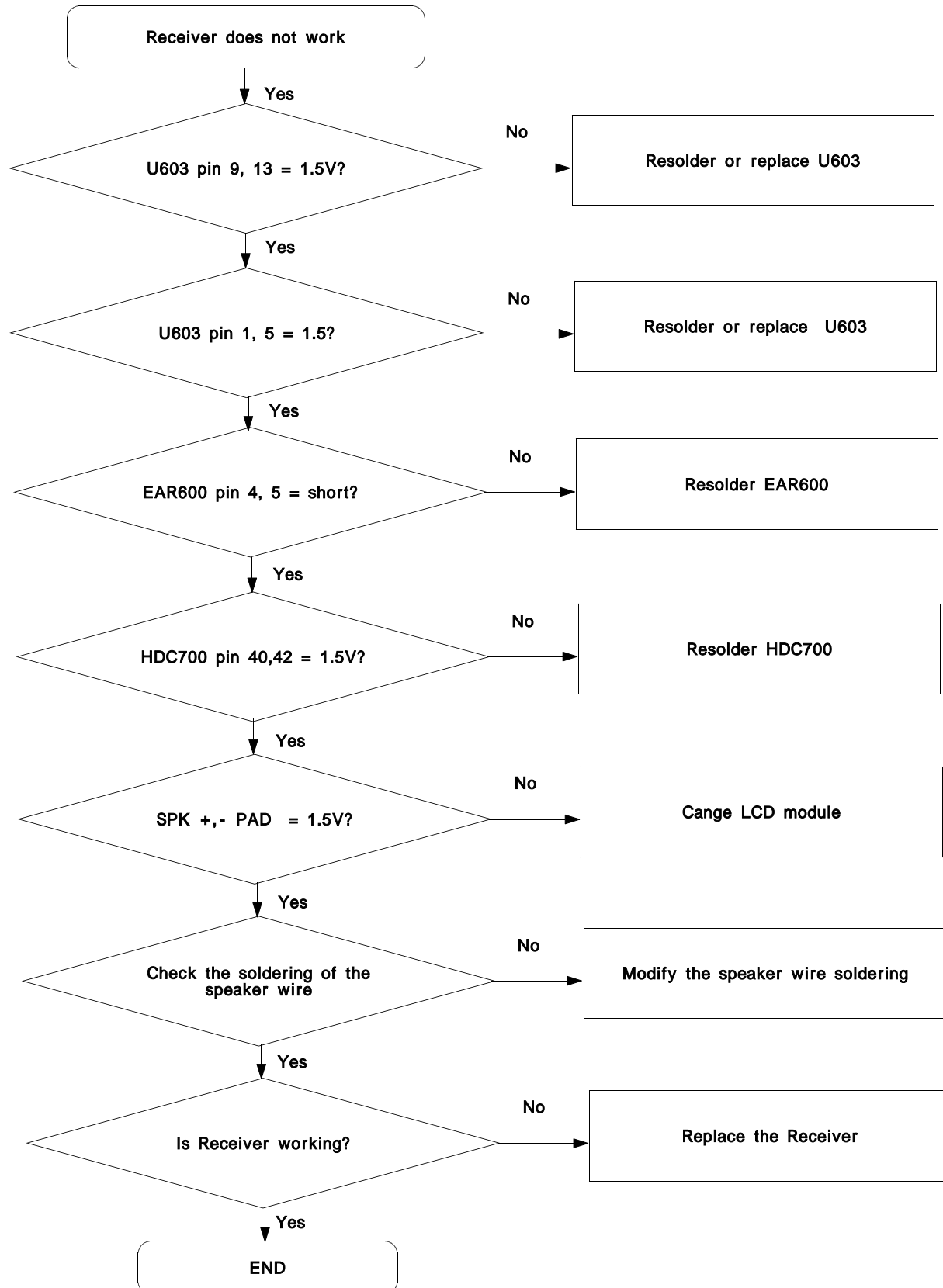
Speaker



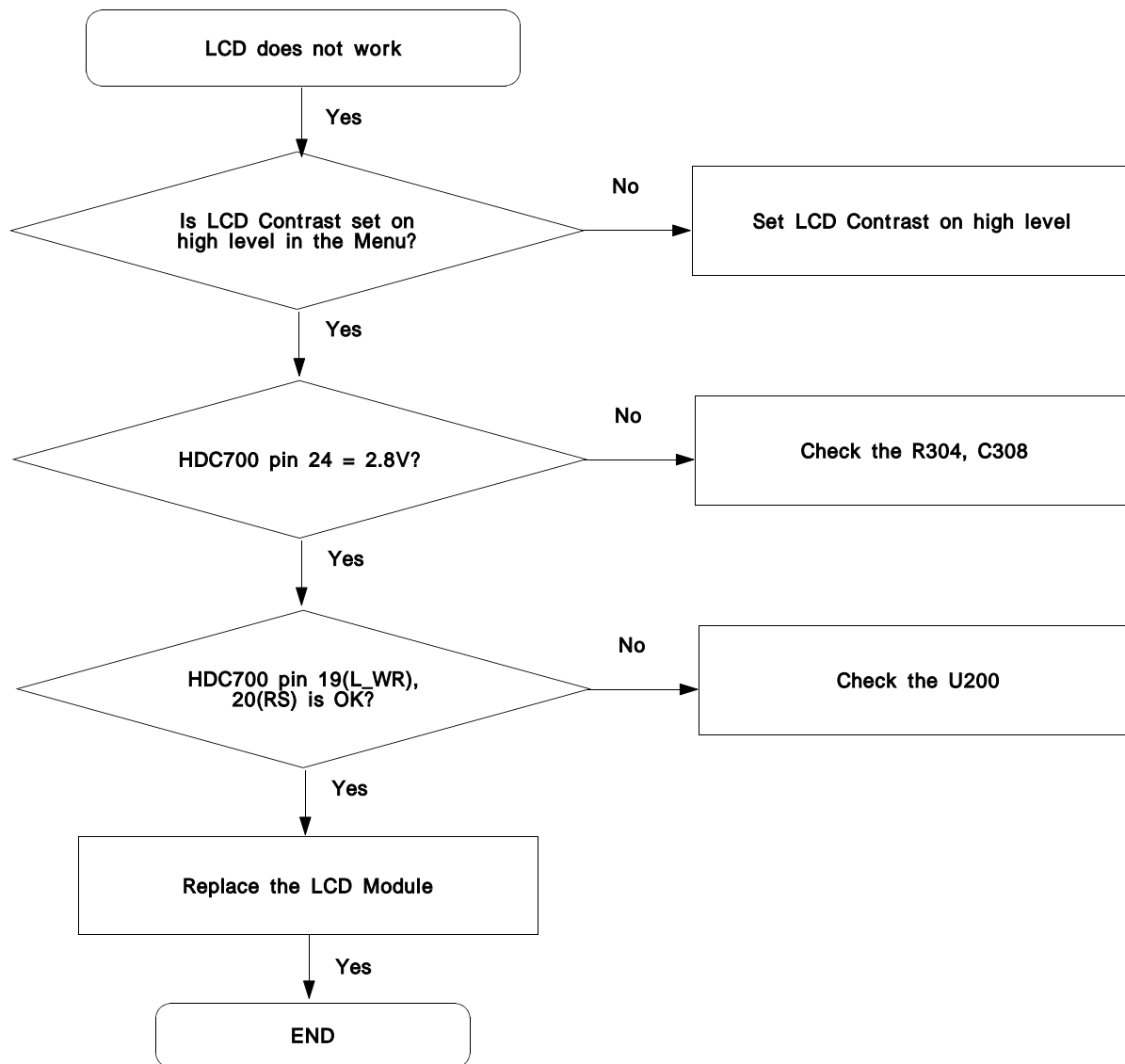
7-7. Key Data Input



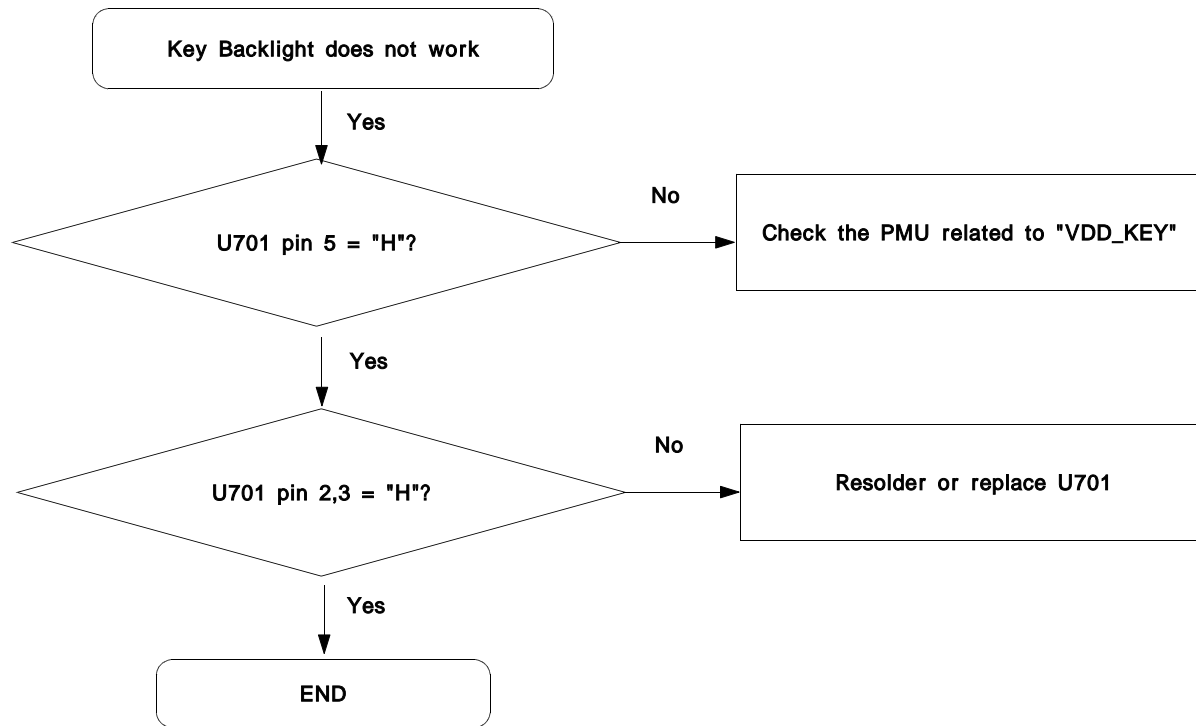
7-8. Receiver Part



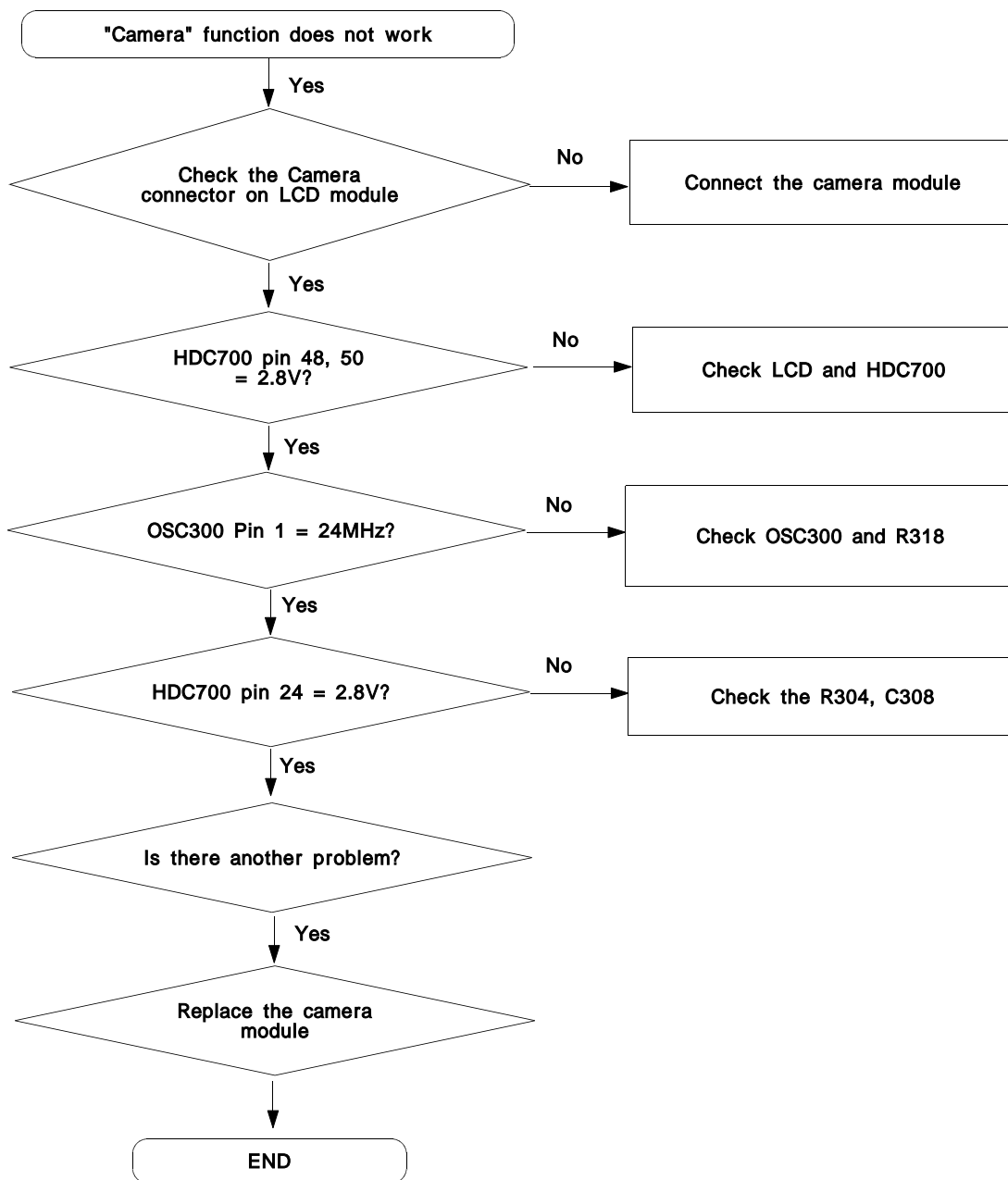
7-9. LCD Part



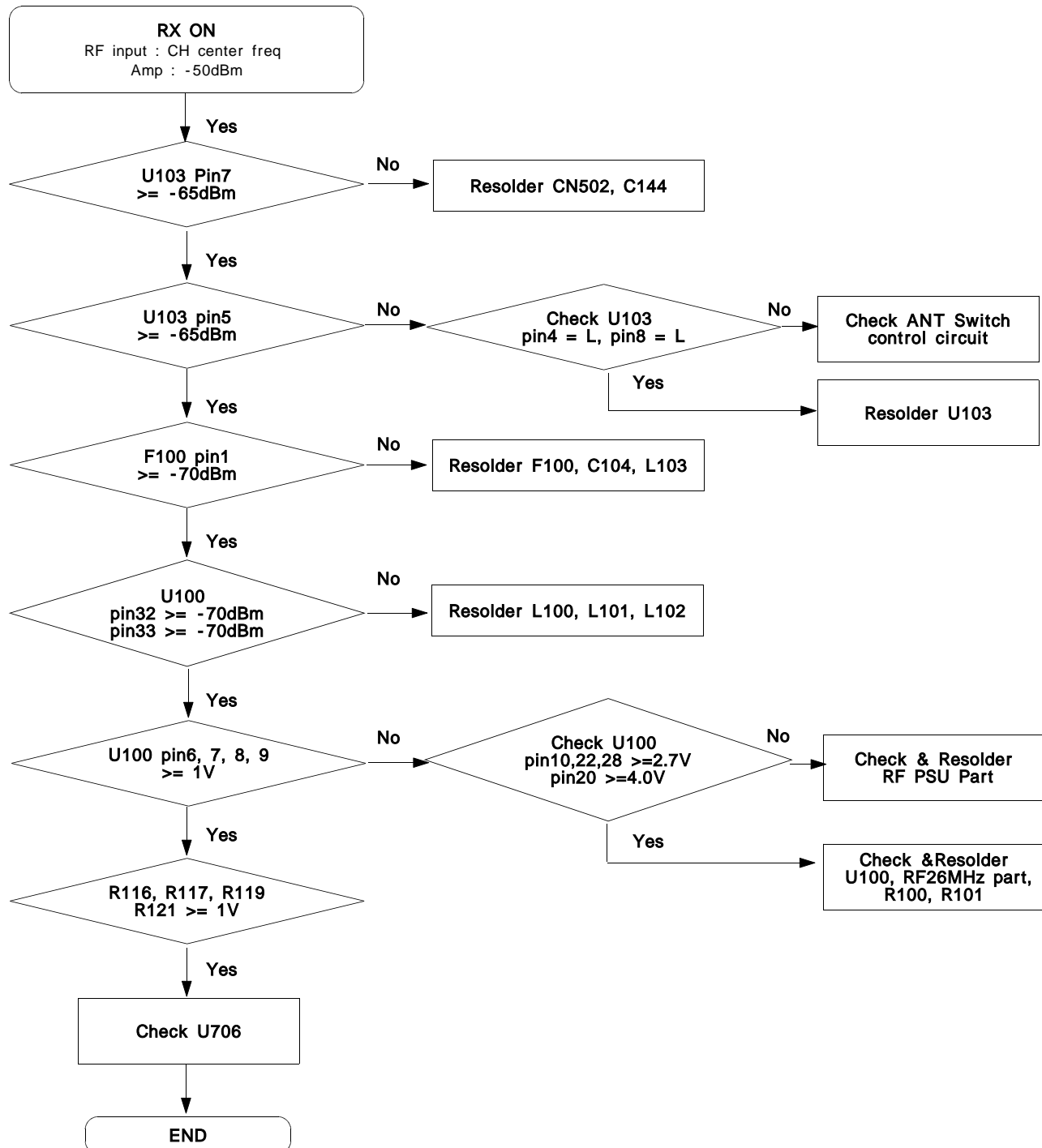
7-10. Key Back Light



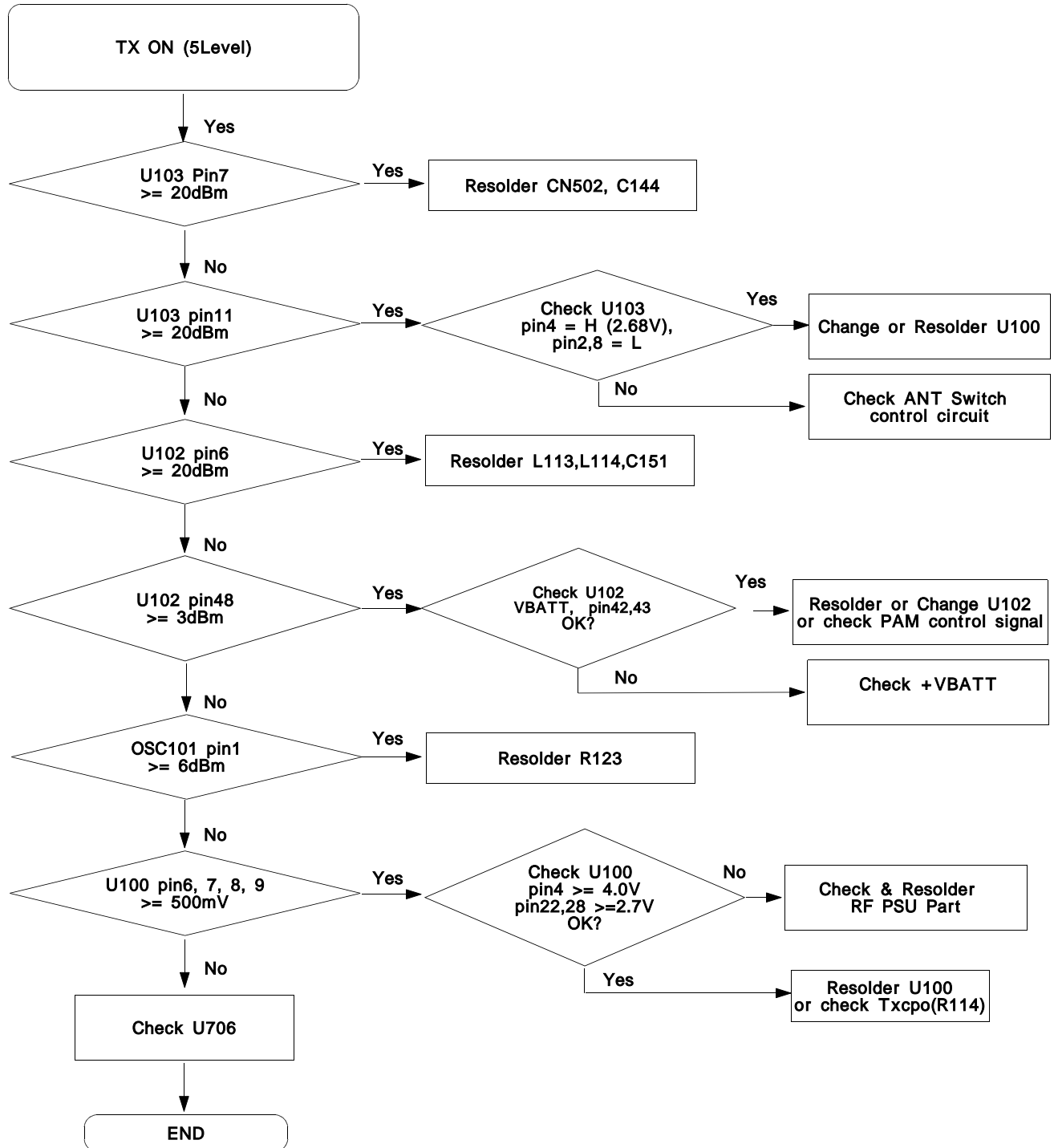
7-11. Camera part



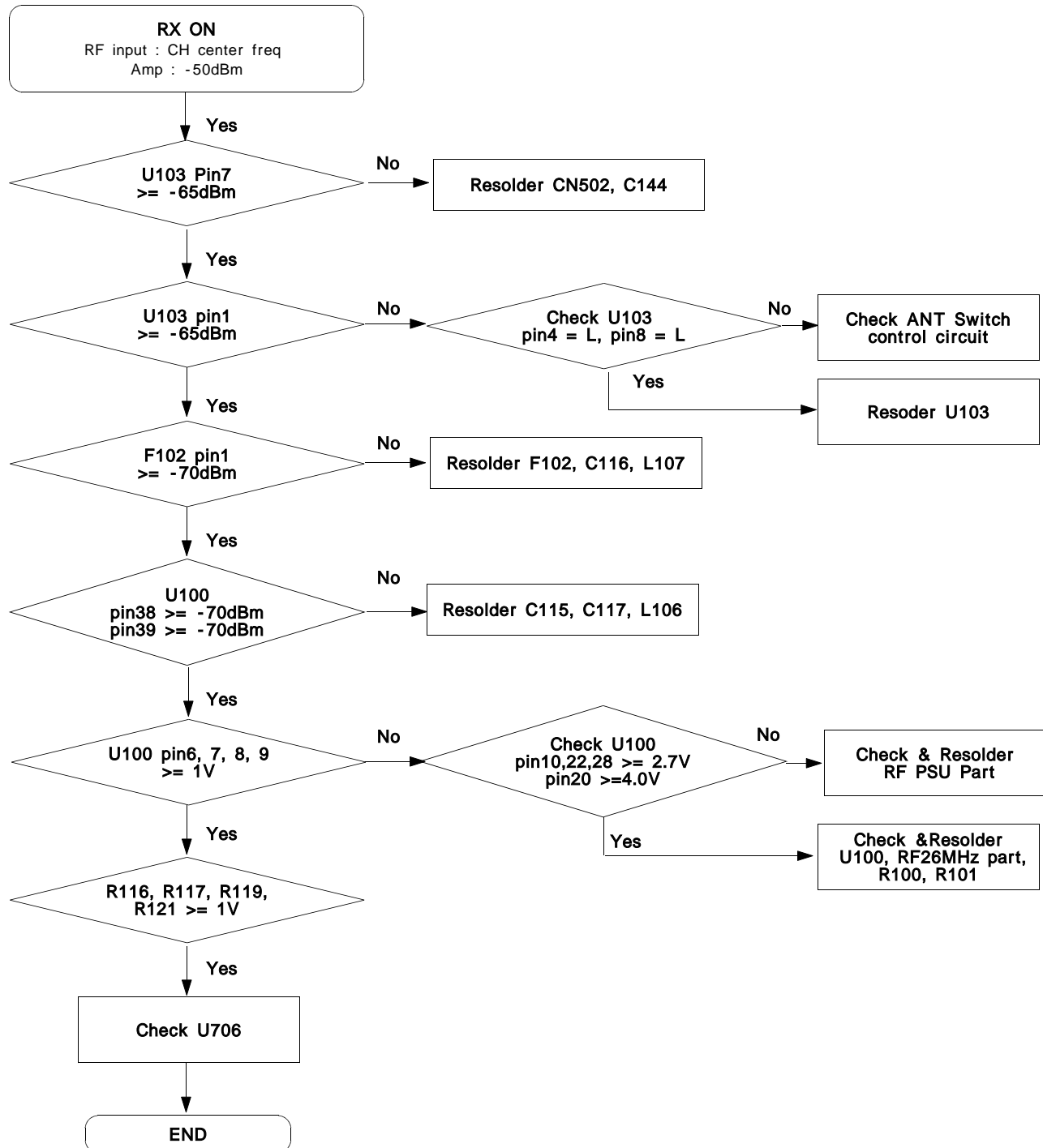
7-12. GSM Receiver



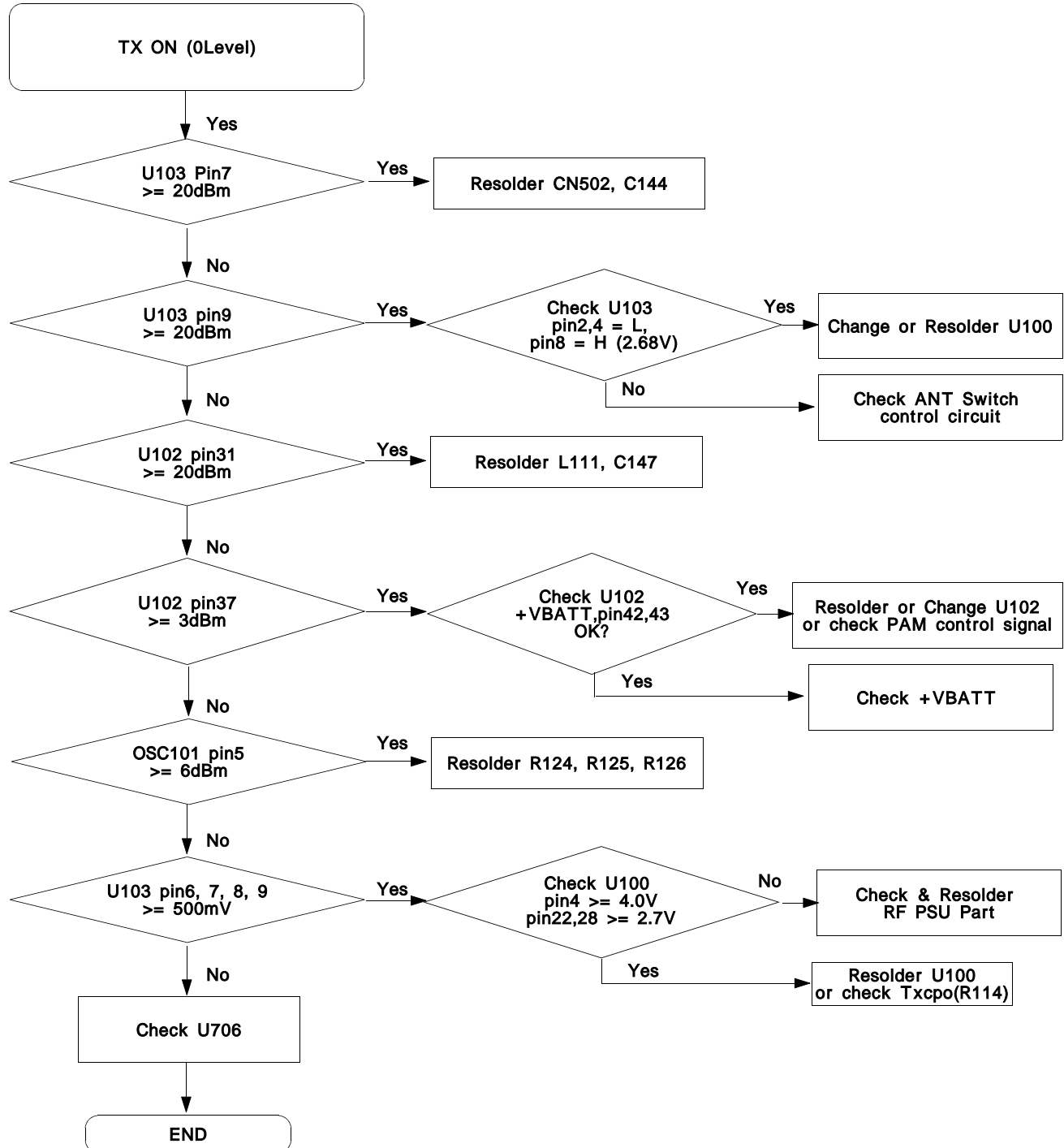
7-13. GSM Transmitter



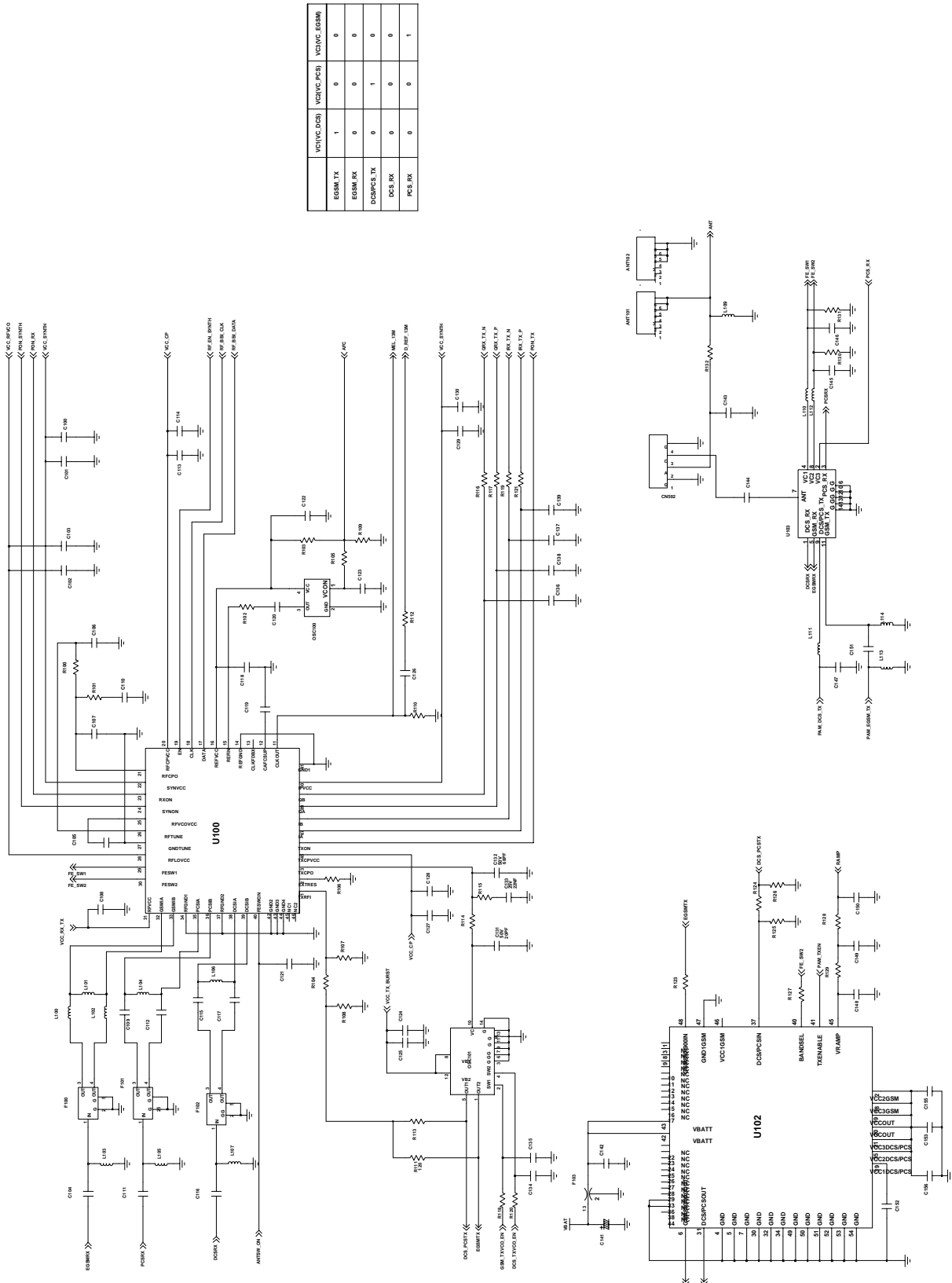
7-14. DCS Receiver

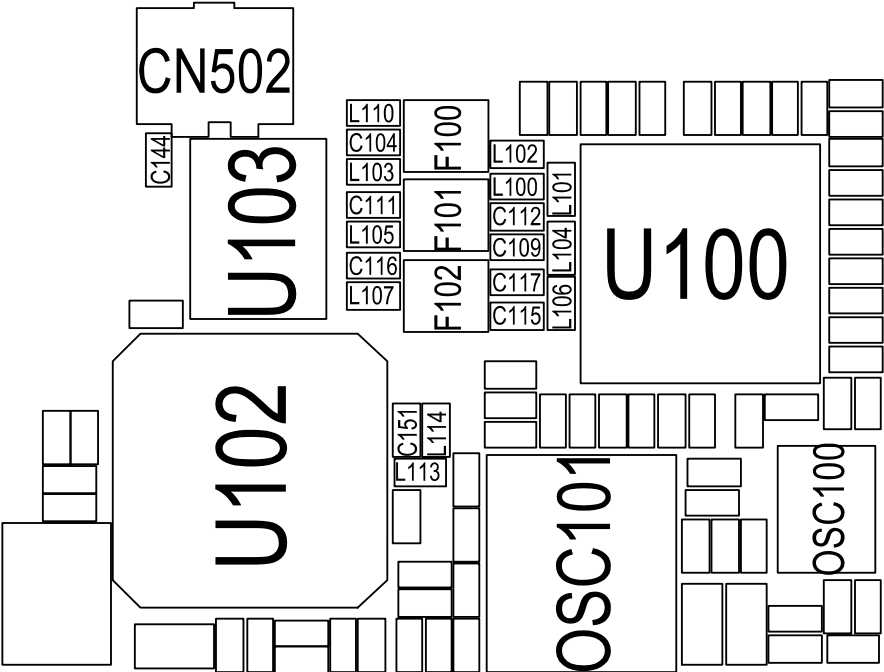


7-15. DCS Transmitter



Transmitter





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