



Service Manual

MG225d



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1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services. System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it. The manufacturer will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the this phone or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on this model must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs except as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

1. INTRODUCTION

E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

Phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated  by the sign. Following information is ESD handling:

- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

1.3 Abbreviations

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Baseband
BER	Bit Error Ratio
CC-CV	Constant Current - Constant Voltage
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIO	General Purpose Interface Bus
GSM	Global System for Mobile Communications
IPUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode
OPLL	Offset Phase Locked Loop

1. INTRODUCTION

PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
PSRAM	Pseudo SRAM
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol

2. PERFORMANCE

2.1 H/W Features

Item	Feature	Comment
Standard Battery	Li-ion, 830mAh	
Stand by TIME	Up to 200 hrs : Paging Period 9, RSSI 85dBm	
Talk time	Up to 200min : GSM Tx Level 7	
Stand by time	Up to 200 hours (Paging Period: 9, RSSI: -85 dBm)	
Charging time	Approx. 3 hours	
RX Sensitivity	GSM850: -109dBm, DCS: -109dBm	
TX output power	GSM850: 32.5dBm(Level 5), DCS , PCS: 29.5dBm(Level 0)	
GPRS compatibility	Class 10	
SIM card type	3V Small	
Display	LCD : CSTN 128 × 128 pixel 65K Color	
Status Indicator	Hard icons. Key Pad 0 ~ 9, #, *, Up/Down Navigation Key Menu Key, Clear Key Send Key, END/PWR Key Soft Key(Left/Right)	
ANT	Internal	
EAR Phone Jack	Yes (mono)	
PC Synchronization	Yes	
Speech coding	EFR/FR/HR/AMR	
Data and Fax	Yes	
Vibrator	Yes	
Loud Speaker	Yes	
Voice Recoding	Yes	
Microphone	Yes	
Speaker/Receiver	One way speaker	
Travel Adapter	Yes	
MIDI	40 Poly (Mono SPK)	
Camera	VGA	

2. PERFORMANCE

2.2 Technical Specification

Item	Description	Specification																																																						
1	Frequency Band	GSM850 • TX: 824.2 + 0.2 x(n-128) MHz • RX: 869.2 + 0.2 x(n-128) MHz (n=128~251) PCS • TX: 1850.2 + 0.2 ? (n-512) MHz • RX: 1930.2 + 0.2 ? (n-512) MHz (n=512~810) DCS • TX: 1710 + 0.2?(n-512) MHz • RX: 1805 + 0.2?(n-512) MHz (n=512~885)																																																						
2	Phase Error	RMS < 5 degrees Peak < 20 degrees																																																						
3	Frequency Error	< 0.1 ppm																																																						
4	Power Level	GSM850																																																						
		<table><tr><th>Level</th><th>Power</th><th>Toler.</th><th>Level</th><th>Power</th><th>Toler.</th></tr><tr><td>5</td><td>33 dBm</td><td>±2dB</td><td>13</td><td>17 dBm</td><td>±3dB</td></tr><tr><td>6</td><td>31 dBm</td><td>±3dB</td><td>14</td><td>15 dBm</td><td>±3dB</td></tr><tr><td>7</td><td>29 dBm</td><td>±3dB</td><td>15</td><td>13 dBm</td><td>±3dB</td></tr><tr><td>8</td><td>27 dBm</td><td>±3dB</td><td>16</td><td>11 dBm</td><td>±5dB</td></tr><tr><td>9</td><td>25 dBm</td><td>±3dB</td><td>17</td><td>9 dBm</td><td>±5dB</td></tr><tr><td>10</td><td>23 dBm</td><td>±3dB</td><td>18</td><td>7 dBm</td><td>±5dB</td></tr><tr><td>11</td><td>21 dBm</td><td>±3dB</td><td>19</td><td>5 dBm</td><td>±5dB</td></tr><tr><td>12</td><td>19 dBm</td><td>±3dB</td><td></td><td></td><td></td></tr></table>	Level	Power	Toler.	Level	Power	Toler.	5	33 dBm	±2dB	13	17 dBm	±3dB	6	31 dBm	±3dB	14	15 dBm	±3dB	7	29 dBm	±3dB	15	13 dBm	±3dB	8	27 dBm	±3dB	16	11 dBm	±5dB	9	25 dBm	±3dB	17	9 dBm	±5dB	10	23 dBm	±3dB	18	7 dBm	±5dB	11	21 dBm	±3dB	19	5 dBm	±5dB	12	19 dBm	±3dB			
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		12	19 dBm	±3dB																																																				
		PCS																																																						
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7	16 dBm	±3dB	15	0 dBm	±5dB																																																			

2. PERFORMANCE

Item	Description	Specification	
5	Output RF Spectrum (due to modulation)	GSM850	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600~ <1,200	-60
		1,200~ <1,800	-60
		1,800~ <3,000	-63
		3,000~ <6,000	-65
		6,000	-71
		PCS	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600~ <1,200	-60
		1,200~ <1,800	-60
		1,800~ <3,000	-65
		3,000~ <6,000	-65
		6,000	-73
6	Output RF Spectrum (due to switching transient)	GSM850	
		Offset from Carrier (kHz)	Max. (dBm)
		400	-19
		600	-21
		1,200	-21
		1,800	-24

2. PERFORMANCE

Item	Description	Specification		
6	Output RF Spectrum (due to switching transient)	PCS		
		Offset from Carrier (kHz).		Max. (dBm)
		400		-22
		600		-24
		1,200		-24
		1,800		-27
7	Spurious Emissions	Conduction, Emission Status		
8	Bit Error Ratio	GSM850 BER (Class II) < 2.439% @-102 dBm		
		PCS BER (Class II) < 2.439% @-100 dBm		
9	RX Level Report Accuracy	±3 dB		
10	SLR	8 ±3 dB		
11	Sending Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	0	-12
		1,000	0	-6
		2,000	4	-6
		3,000	4	-6
		3,400	4	-9
		4,000	0	-
12	RLR	2 ±3 dB		
13	Receiving Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	2	-7
		500	*	-5
		1,000	0	-5
		3,000	2	-5
		3,400	2	-10
		4,000	2	
		* Mean that Adopt a straight line in between 300 Hz and 1,000 Hz to be Max. level in the range.		

2. PERFORMANCE

Item	Description	Specification	
14	STMR	13 ± 5 dB	
15	Stability Margin	> 6 dB	
16	Distortion	dB to ARL (dB)	Level Ratio (dB)
		-35	17.5
		-30	22.5
		-20	30.7
		-10	33.3
		0	33.7
		7	31.7
		10	25.5
17	Side Tone Distortion	Three stage distortion < 10%	
18	System frequency (13 MHz) tolerance	≤ 2.5 ppm	
19	32.768KHz tolerance	≤ 30 ppm	
20	Ringer Volume	At least 65 dBspl under below conditions: 1. Ringer set as ringer. 2. Test distance set as 50 cm	
21	Charge Current	Fast Charge : < 430 mA Slow Charge : < 160 mA	
22	Antenna Display	Antenna Bar Number	Power
		5	-85 dBm ~
		4	-90 dBm ~ -86 dBm
		3	-95 dBm ~ -91 dBm
		2	-100 dBm ~ -96 dBm
		1	-105 dBm ~ -101 dBm
		0	~ -105 dBm
23	Battery Indicator	Battery Bar Number	Voltage
		0	3.48 ~ 3.63 V
		1	3.63 ~ 3.70 V
		2	3.70 ~ 3.76 V
		3	3.76 ~ 3.89 V
		4	3.89 V ~
24	Low Voltage Warning	3.63 ± 0.03 V (Call) every 1 minutes	
		3.48 ± 0.03 V (Standby)	

2. PERFORMANCE

Item	Description	Specification
25	Forced shut down Voltage	3.33 ± 0.03 V
26	Battery Type	1 Li-ion Battery Standard Voltage = 3.7 V Battery full charge voltage = 4.2 V Capacity: 830mAh
27	Travel Charger	Switching-mode charger Input: 100 ~ 240 V, 50/60 Hz Output: 5.2 V, 800 mA

3. TECHNICAL BRIEF

3.1 Power Transceiver (SKY77328, U500)

The SKY77328 Power Amplifier Module (PAM) is designed in a low profile (1.2 mm), compact form factor for quad-band cellular handsets comprising GSM850/900, DCS1800, and PCS1900 operation. The PAM also supports Class 12 General Packet Radio Service (GPRS) multi-slot operation. The module consists of separate GSM850/900 PA and DCS1800/PCS1900 PA blocks, impedancematching circuitry for 50 Ω input and output impedances, and a Power Amplifier Control (PAC) block with an internal current-sense resistor. The custom BiCMOS integrated circuit provides the internal PAC function and interface circuitry. Fabricated onto a single Gallium Arsenide (GaAs) die, one Heterojunction Bipolar Transistor (HBT) PA block supports the GSM850/900 bands and the other supports the DCS1800 and PCS1900 bands. Both PA blocks share common power supply pins to distribute current. The GaAs die, the Silicon (Si) die, and the passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold. RF input and output ports of the SKY77328 are internally matched to a 50 Ω load to reduce the number of external components for a quad-band design. Extremely low leakage current (2.5 μ A, typical) of the dual PA module maximizes handset standby time. The SKY77328 also contains band-select switching circuitry to select GSM (logic 0) or DCS/PCS (logic 1) as determined from the Band Select (BS) signal. In Figure 1 below, the BS pin selects the PA output (DCS/PCS OUT or GSM850/900 OUT) and the Analog Power Control (VAPC) controls the level of output power. The VBATT pin connects to an internal current-sense resistor and interfaces to an integrated power amplifier control (iPAC™) function, which is insensitive to variations in temperature, power supply, process, and input power. The ENABLE input allows initial turn-on of PAM circuitry to minimize battery drain. Figure 1. Functional Block Diagram

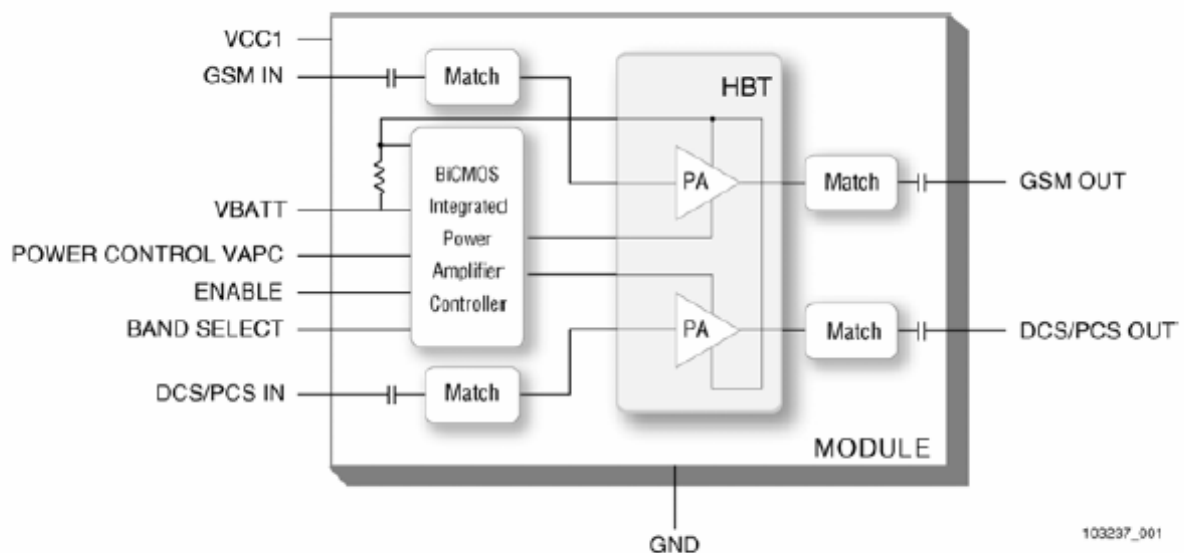
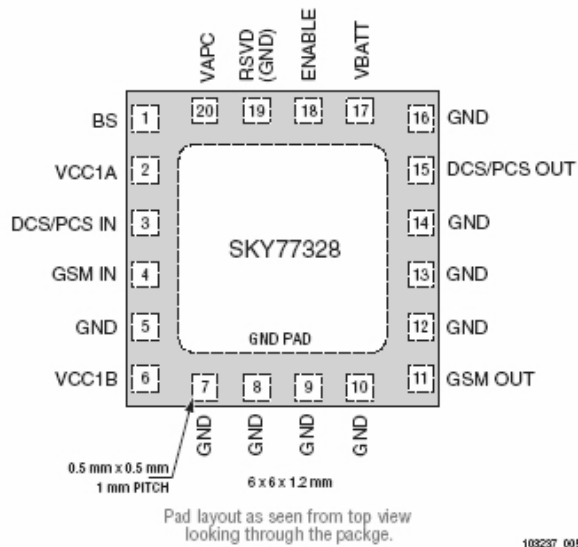


Figure1. Functional Block Diagram

3. TECHNICAL BRIEF



SKY77328 PAM Pin Configuration-20-Pin Leadless (Top View)

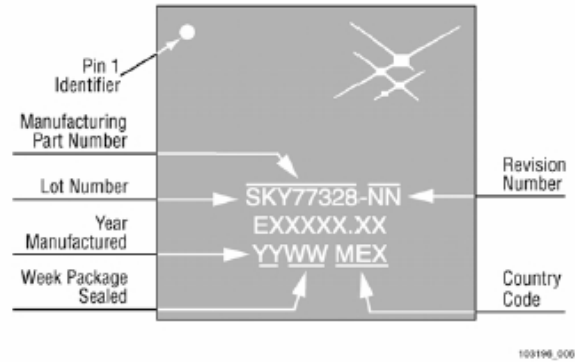


Figure 6. Typical Case Makings

Table 4. SKY77328 Pin Names and Signal Descriptions

Pin	Mame	Description
1	BS	Band Select
2	VCC1A	VCC (to GSM 1st stage, DCS/PCS 1st stages, BiCMOS PAC)
3	DCS/PCS IN	RF input 1710-1910 MHz (DCS1800, PCS1900)
4	GND IN	RF input 824-915 MHz (GSM850/900)
5	GND	RF and DC Ground
6	VCC1B	RF and DC Ground
7	GND	RF and DC Ground
8	GND	RF and DC Ground
9	GND	RF and DC Ground
10	GND	RF and DC Ground
11	GSM OUT	RF Output 824-915 MHz (GSM850/900)
12	GND	RF and DC Ground
13	GND	RF and DC Ground
14	GND	RF and DC Ground
15	DCS/PCS OUT	RF Output 1710-1910 MHz (DCS 1800, PCS1900)
17	VBATT	Battery input to high side of internal sense resistor
18	ENABLE	BiCMOS Enable
19	RSVD(GND)	RF and DC Ground
20	VAPC	Power Control Bias Voltage
GMD PAD(21)	GND	Ground Pad, bottom

3.2 FEM for Triband

Select Mode	Vc(EGSM)	Vc(DCS/PCS)
EGSM-Rx	Low	Low
EGSM-Tx	High	Low
DCS-Rx	Low	Low
PCS-Rx	Low	Low
DCS/PCS	Low	High

Table 3-1 Band SW Logic Table

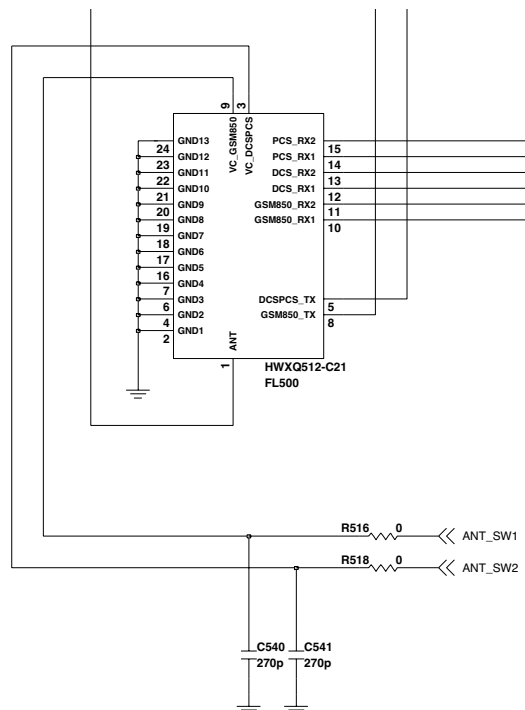


Figure 3- 2 FEM CIRCUIT DIAGRAM

3. TECHNICAL BRIEF

3.3 26 MHz Clock (VCTCXO, X500)

The 26 MHz clock(X500) consists of a TCXO(Temperature Compensated Crystal Oscillator) which oscillates at a frequency of 26 MHz. It is used within the SKY77328, base band processor(AD6720,U101), Midi(U203, YMU762C-QZ) , CAMERA(U403,CL761A)

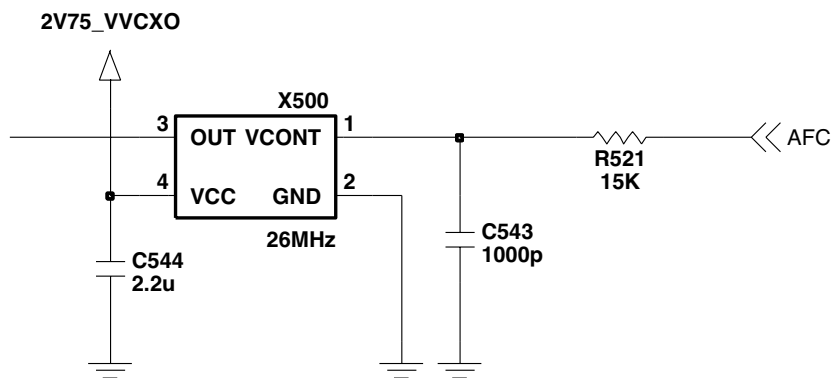


Figure 3-3. VCTCXO CIRCUIT DIAGRAM

3.4 Baseband Processor (AD6720 , U101)

- AD6720 is an ADI designed processor
- AD6720 consists of
 1. Control Processor Subsystem including:
 - 32-bit MCU ARM7TDMI® Control Processor
 - 39 MHz operation at 1.8V
 - 1Mb of on-chip System SRAM Memory
 2. DSP Subsystem including:
 - 16-bit Fixed Point DSP Processor
 - 91 MIPS[1] at 1.8V
 - Data and Program SRAM
 - Program Instruction Cache
 - Full Rate, Enhanced Full Rate and Half Rate
 - Speech Encoding/Decoding
 - Capable of Supporting AMR & PDC Speech Algorithms
 3. Peripheral Functions
 - Parallel and Serial Display Interface
 - Keypad Interface
 - Flash Memory Interface
 - Page-Mode Flash Support
 - 1.8V and 3.0V, 64 kbps SIM Interface
 - Universal System Connector Interface
 - Data Services Interface
 - Battery Interface (e.g. Dallas)
 4. Other
 - Supports 13 MHz and 26 MHz Input Clocks
 - 1.8V Typical Core Operating Voltages
 - 289-Ball Package (12x12mm) , 0.65mm Ball pitch
 5. The AD6720 baseband transmit section supports the following
 - mobile station GMSK modulation power classes:
 - GSM 900/850 power classes 4 and 5,
 - DCS 1800 power classes 1 and 2, and
 - PCS 1900 power classes 1 and 2



3.4.1 Interconnection with external devices

A. RTC block interface

Countered by external X-TAL

The X-TAL oscillates 32.768KHz

B. LCD module interface

The LCD module is controlled by CAMERA IC, CL761A

If CL761A is in the state of by-pass mode, the LCD control signals from AD6720 are by-passed through CL761A.

In operating mode, the CL761A controls the LCD module through L_MAIN_LCD_CS, L_SUB_LCD_CS, LCD_RESET, LCD_RS, LCD_WR, LCD_RD, L_DATA[15-00], 2V85_VCAM, IF_MODE, LCD_ID[1:3].

Signals	Description
L_MAIN_LCD_CS	MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin
LCD_ID1	Select LCD module maker(2.4V : SII, 0V : HyeLCD)
LCD_RESET	This pin resets LCD module. This signal comes from AD6720 directly.
LCD_WR	Enable writing to LCD Driver.
LCD_RD	Enable reading to LCD Driver.
LCD_RS	This pin determines whether the data to LCD module are display data or control data. LCD_RS can select 16 bit parallel bus.
2V85_VCAM	2.85V voltage is supplied to LCD driver IC.
IF_MODE	Select 16bits or 8bits interface mode for MAIN LCD. For the future

Table 3-2 . LCD CONTRON SIGNALS DISCRIPTION

3. TECHNICAL BRIEF

The backlight of LCD module is controlled by AD6720 via AAT3157 , U404. The control signals related to Backlight LED are given bellow.

Signals	Description
MLED	Current source for backlight LED
LCD_DIM_CTL	Control LCD backlight level in 16 steps
MLED[1:2]	This pins are returned-paths for backlight LED current source (MLED)

Table 3-3. DESCRIPTION OF LCD BACKLIGHT LED CONTROL

C. RF interface

The AD6720 control RF parts through PA_BAND, ANT_SW1, ANT_SW2, ANT_SW3 , CLKON , PA_EN, S_EN, S_DATA, S_CLK, RF_PWR_DWN.

Signals	Description
PA_BAND (GPO 17)	PAM Band Select
ANT_SW1 (GPO 9)	Antenna switch Band Select
ANT_SW2 (GPO 11)	Antenna switch Band Select
RF_PWR_DWN(GPO 4)	Power down Input
CLKON	RF LDO Enable/Disable
PA_EN (GPO 16)	PAM Enable/Disable
S_EN (GPO 19)	PLL Enable/Disable
S_DATA (GPO 20)	Serial Data to PLL
S_CLK (GPO 21)	Clock to PLL

Table 3-4. RF CONTROL SIGNALS DESCRIPTION

D. SIM interface

The AD6720 provides SIM Interface Module. The AD6720 checks status periodically during established call mode whether SIM card is inserted or not, but it doesn't check during deep Sleep mode. In order to communicate with SIM card, 3 signals SIM_DATA, SIM_CLK, SIM_RST(GPIO_23) are required. The descriptions about the signals are given by bellow Table 3-5 in detail.

Signals	Description
SIM_DATA	This pin receives and sends data to SIM card. This model can support only 3.0 volt interface SIM card.
SIM_CLK	Clock 3.25MHz frequency.
SIM_RST (GPIO_23)	Reset SIM block

Table 3-5. SIM CONTROL SIGNALS DESCRIPTION

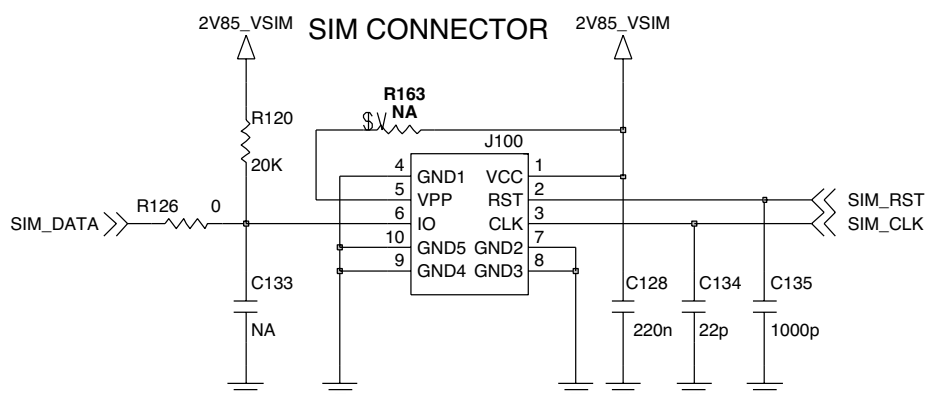


Figure 3-5. SIM Interface of AD6720

3. TECHNICAL BRIEF

E. LDO Block

There are 8 LDOs in the AD6720.

- VCORE : supplies Digital baseband Processor core and AD6720 digital core
- VMEM : supplies external memory and the interface to the external memory on the digital baseband processor (1.8V or 2.8V, 150mA)
- VEXT : supplies Radio digital interface and high voltage interface (2.8V, 170mA)
- VSIM : supplies the SIM interface circuitry on the digital processor and SIM card (2.85V, 20mA)
- VRTC : supplies the Real-Time Clock module (1.8 V, 20 μ A)
- VABB : supplies the analog portions of the AD6720
- VMIC : supplies the microphone interface circuitry (2.5 V, 1 mA)
- VVCXO : supplies the voltage controlled crystal oscillator (2.75 V, 10 mA)

3.5 Battery Charging Block

1. It can be used to charge Lithium Ion batteries.

Charger initialization, trickle charging, and Li-Ion charging control are implemented in hardware.

2. Charging Process

- Check charger is inserted or not
- If AD6720 detects that Charger is inserted, the CC-CV charging starts.
- Exception : When battery voltage is lower than 3.2V, the precharge(low current charge mode) starts firstly.
- And the battery voltage reach to 3.2V the CC-CV charging starts.

3. Pins used for charging

- VCHG : charger supply.
- GATEDRIVE : charge DAC output
- ISENSE : charge current sense input
- VBATSENSE : battery voltage sense input.
- BATTYPE : battery type identification input
- REFCHG : voltage reference output

4. TA (Travel Adaptor)

- Input voltage: AC 85V ~ 260V, 50~60Hz
- Output voltage: DC 5.2V (0.2 V)
- Output current: Max 800mA (50mA)

5. Battery

- Li-ion battery (Max 4.2V, Nom 3.7V)
- Standard battery: Capacity - 830mAh

3. TECHNICAL BRIEF

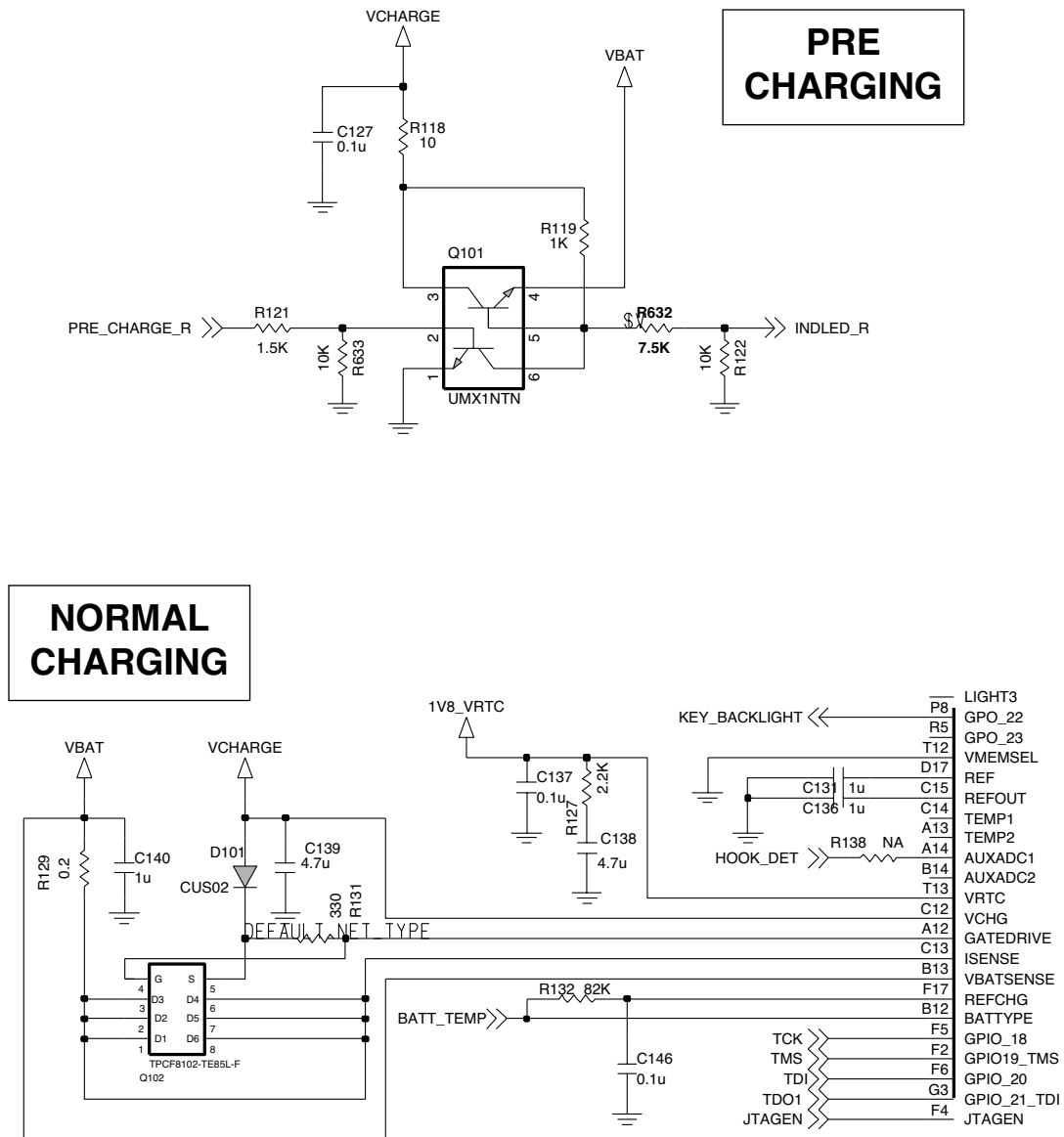


Figure 3-6. CIRCUIT FOR BATTERY CHARGING

3. TECHNICAL BRIEF

3.6 Display and Interface

- Main LCD

Properties	Spec.	Unit
Active Screen Size	35.78*40.05*2.8	mm
Color Depth	65,536	colors
Resolution	128 X RGB X 128	dots

Controlled by L_MAIN_LCD_CS, LCD_RESET, LCD_RS, LCD_WR, LCD_RD, IFMODE, L_DATA[00:15] ports

- L_MAIN_LCD_CS : MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin
- LCD_RST : This pin resets LCD module. This signal comes from AD6720 directly.
- LCD_RS: This pin determines whether the data to LCD module are display data or control data.
- L_WR : Write control Signal
- L_RD : Read control Signal. But this pin used only for debugging.
- L_DATA[00:15] : Parallel data lines.
- LCD_ID[1:2] : LCD type selection signals
 - LCD_ID1 : LCD maker(2.4V is SII, 0V is HyeLCD)
 - LCD_ID[2:3] : for the future using
- For using 65K color, data buses should be 16 bits.

3. TECHNICAL BRIEF

3.7 Camera IC(CL761A , U403)

This model has a built-in VGA(640 x 480) camera module. And the camera produces JPG pictures. Camera module is controlled by CL761A. Interface is done by I2C and YCbCr format. I2C is a control signal and YCbCr is real data interface signal.

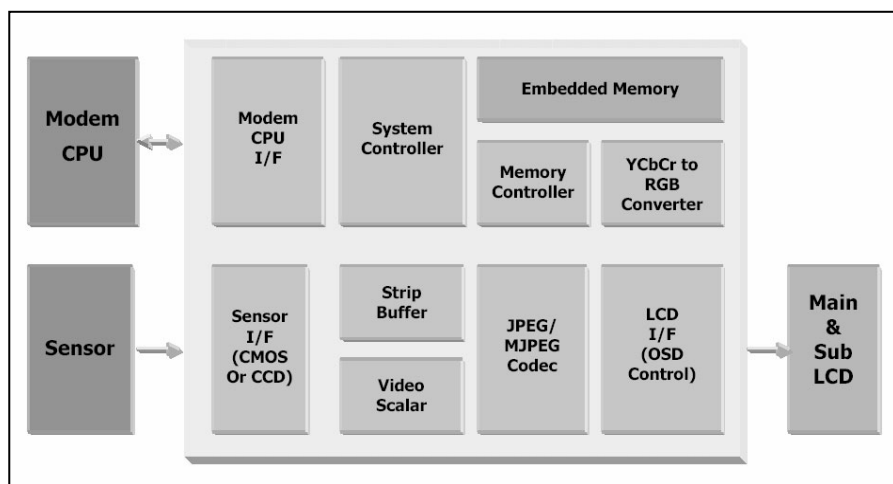


Figure 3-8. CL761A BLOCK DIAGRAM

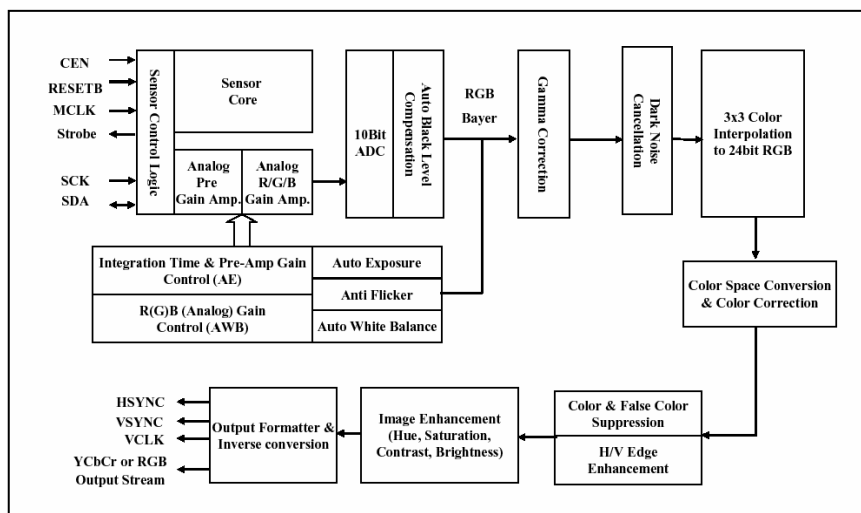


Figure 3-9. SENSOR CHIP BLOCK DIAGRAM

3. TECHNICAL BRIEF

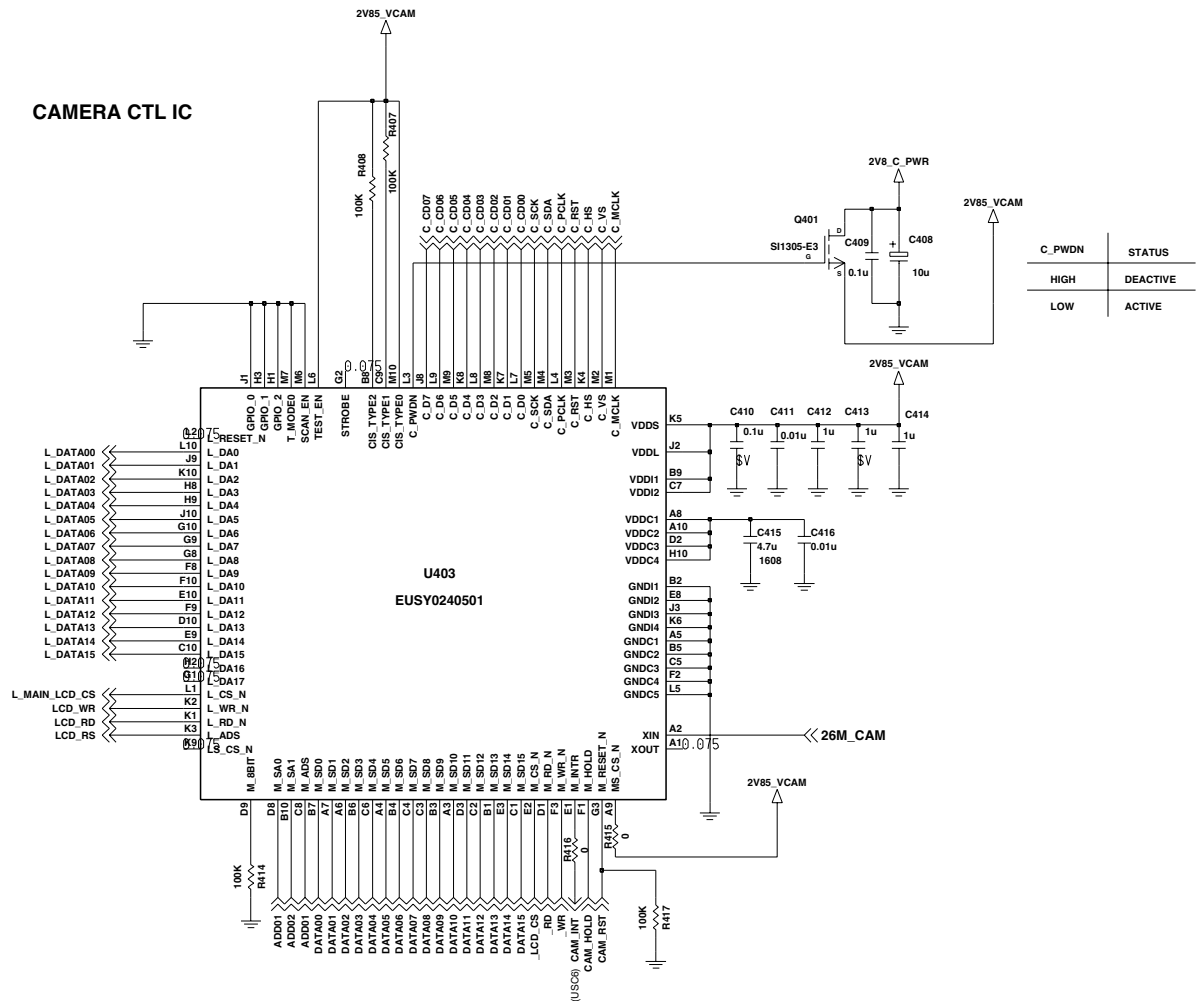


Figure 3-10. CL761A CIRCUIT

3. TECHNICAL BRIEF

3.8 Keypad Switches and Scanning

The key switches are metal domes, which make contact between two concentric pads on the keypad layer of the PCB when pressed. There are 26 switches (Normal Key 24EA, Volume up down side key), connected in a matrix of 5 rows by 5 columns and additional GPIO 35 for KEY_ROW5, as shown in Figure 3-11, except for the power switch (KB1), which is connected independently. Functions, the row and column lines of the keypad are connected to ports of AD6720. The columns are outputs, while the rows are inputs and have pull-up resistors built in. When a key is pressed, the corresponding row and column are connected together, causing the row input to go low and generate an interrupt. The columns/rows are then scanned by AD6720 to identify the pressed key.

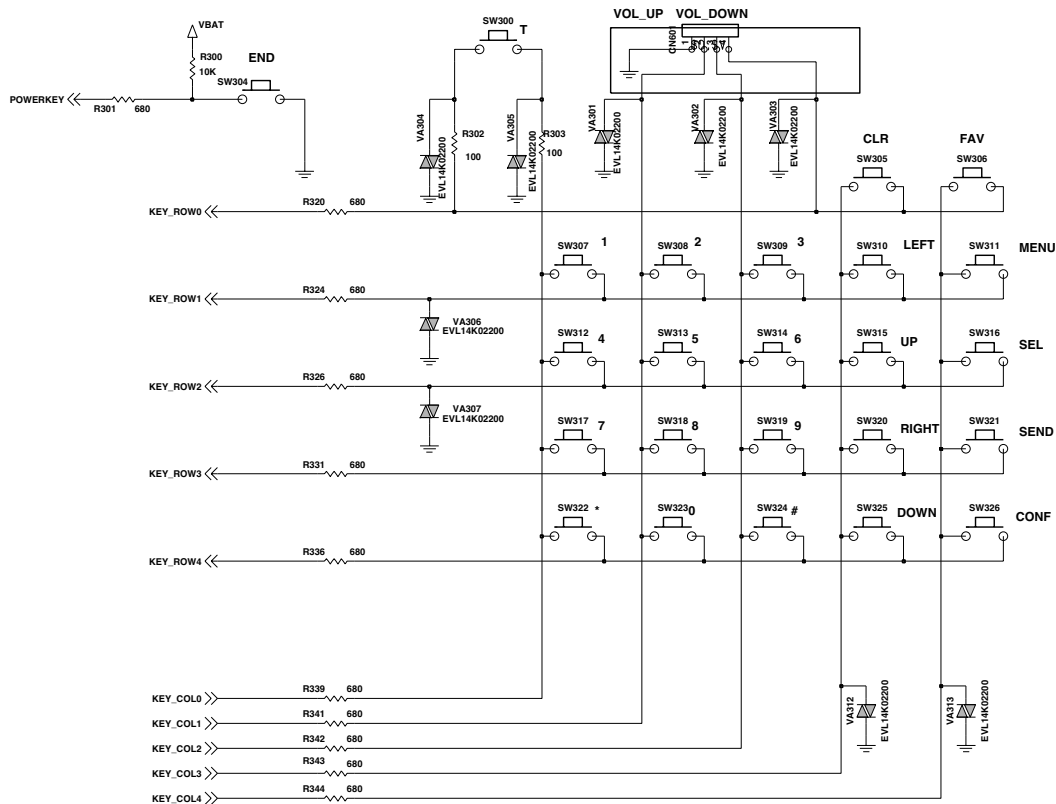


Figure 3-11. Keypad Switches and Scanning

3.9 Microphone

The microphone is placed to the front cover and contacted to main PCB. The audio signal is passed to AIN1P and AIN1N pins of AD6720. The voltage supply VMIC is output from AD6720, and is a biased voltage for the AIN1P. The AIN1P and AIN1N signals are then A/D converted by the voiceband ADC part of AD6720. The digitized speech (PCM 8KHz , 16KHz) is then passed to the DSP section of AD6720 for processing (coding, interleaving etc).

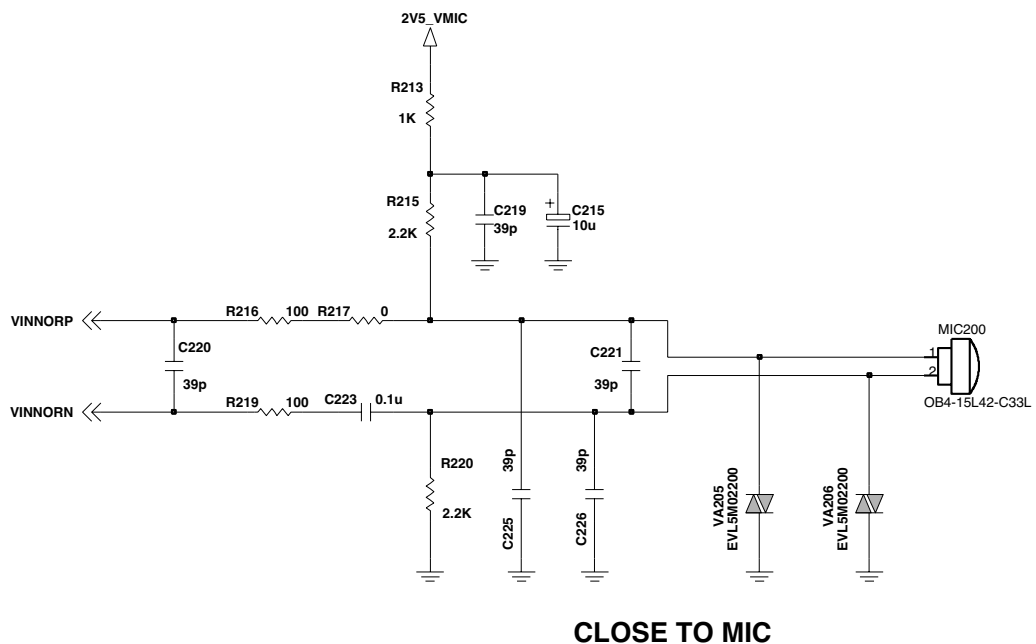


Figure 3-12. Connection between Microphone and AD6535

3. TECHNICAL BRIEF

3.10 Main Speaker

The main speaker is driven directly by AD6720 AOUT1P and AOUT1N pins and the gain is controlled by the PGA in an AD6720. The receiver is placed in the folder cover and connected to AOUT1x terminal via FPCB.

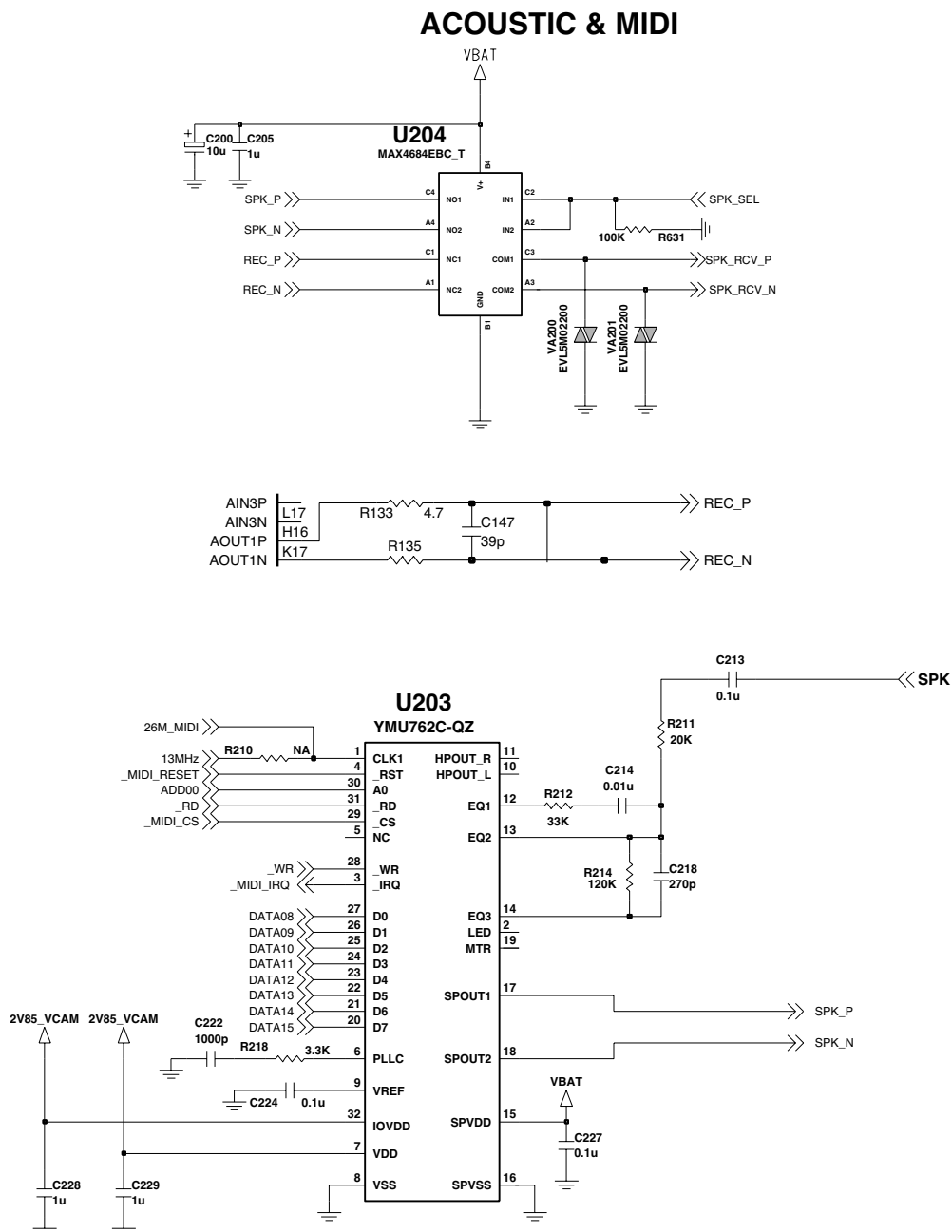


Figure 3-13. MAIN SPEAKER

3. TECHNICAL BRIEF

3.12 Key Back-light Illumination

In key back-light illumination, there are 14 Blue LEDs in Main Board, which are driven by KEY_BACKLIGHT signal from AD6720.

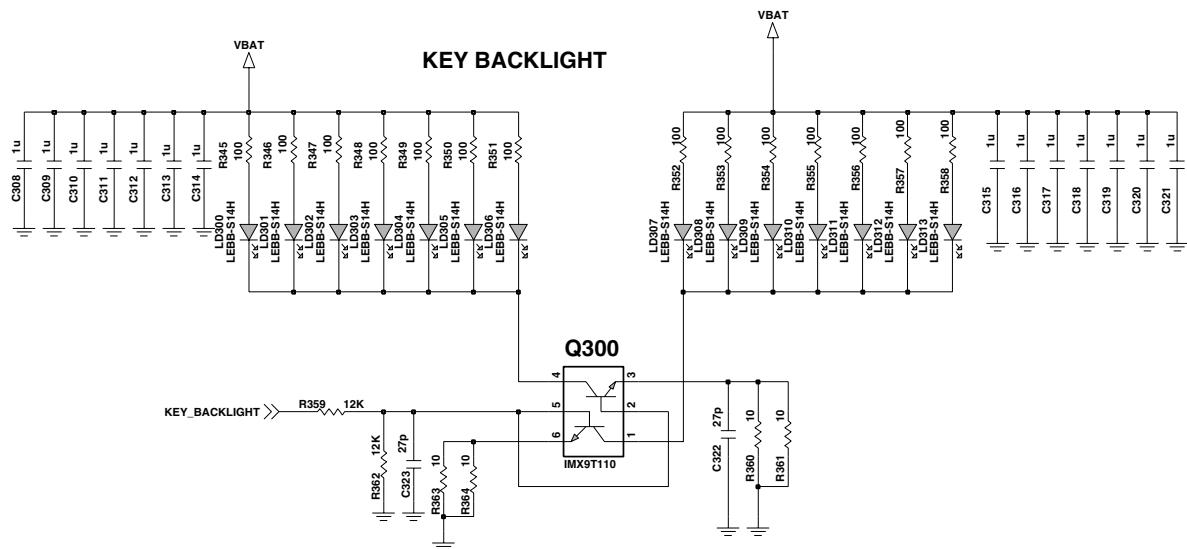


Figure 3-15. KEY BACK-LIGHT ILLUMINTION

LCD backlight LEDs is controlled by AD6720 via AAT3157, U404.

3. TECHNICAL BRIEF

3.14 VIBRATOR

The vibrator is placed in the folder cover and contacted to LCD MODULE. The vibrator is driven from VIBRATOR (GPIO_0) of AD6720

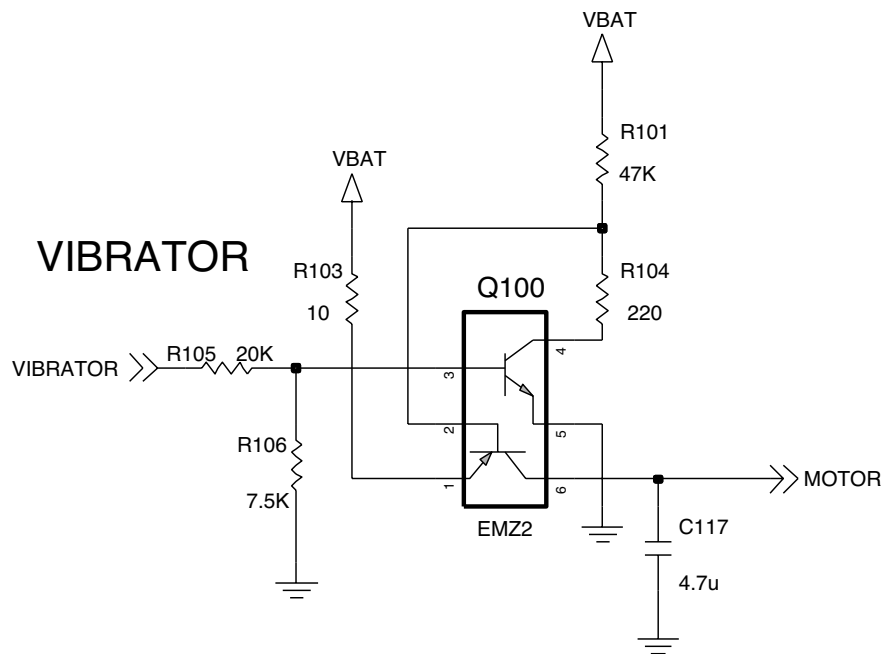


Figure 3-17. MOTOR

4. TROUBLE SHOOTING

4.1 RF Component

TEST POINT

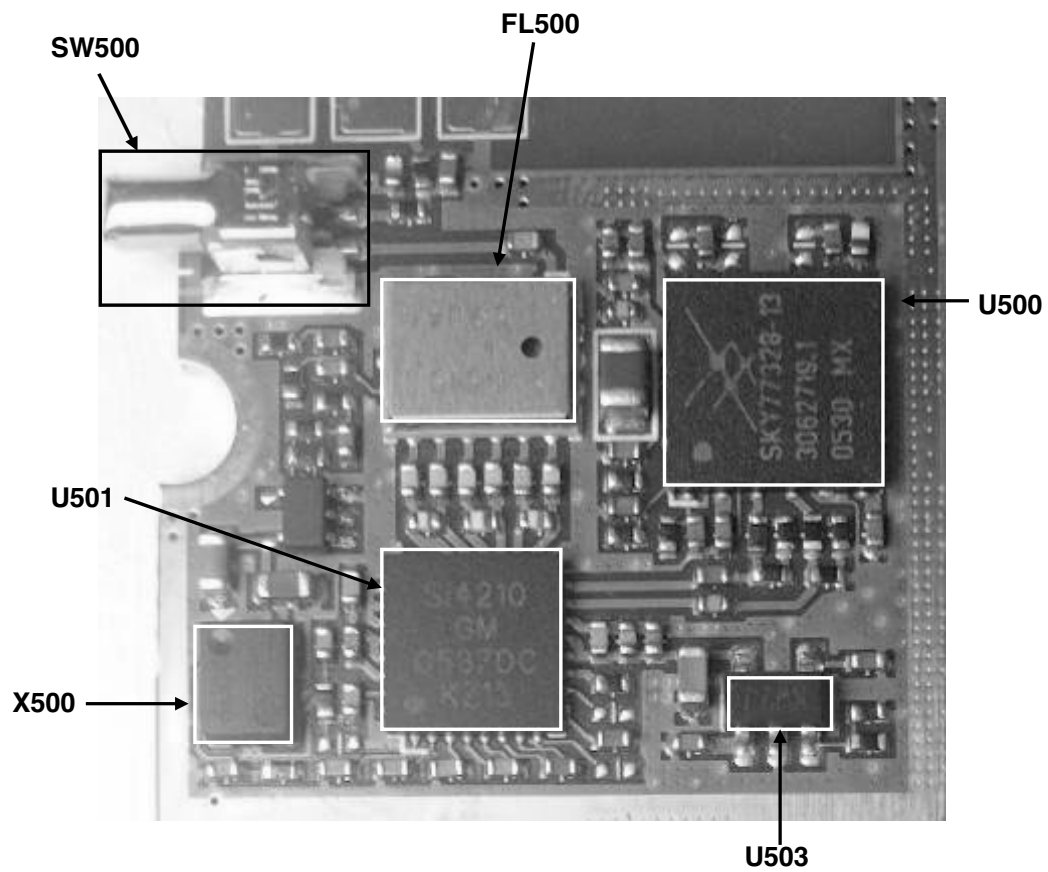


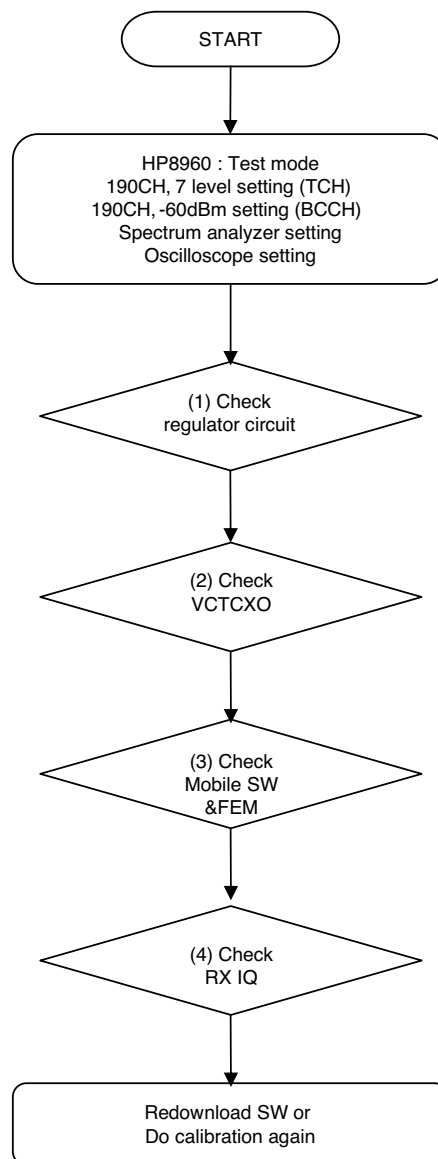
Figure 4-1

U500	Power Amp Module (SKY77328)
U501	RF Main Chip (SI4210)
U503	2.85V Regulator
X500	VCTCXO, 26MHz Clock
FL500	FEM
SW500	Mobile Switch

4. TROUBLE SHOOTING

4.2 RX Trouble

Checking Flow

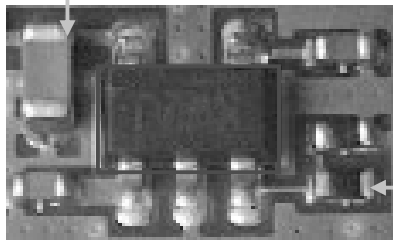


4. TROUBLE SHOOTING

(1) Checking Regulator Circuit

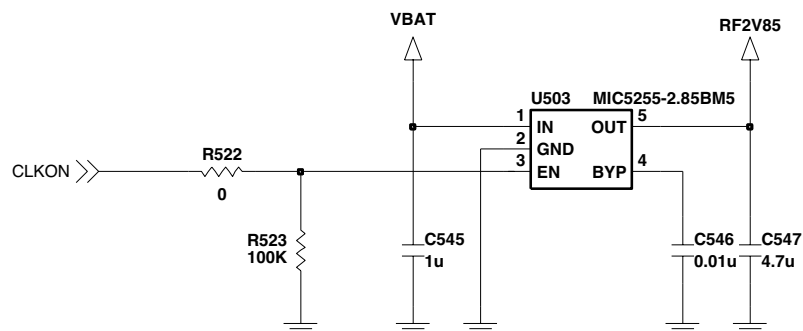
TEST POINT

U503. 5
(OUT)

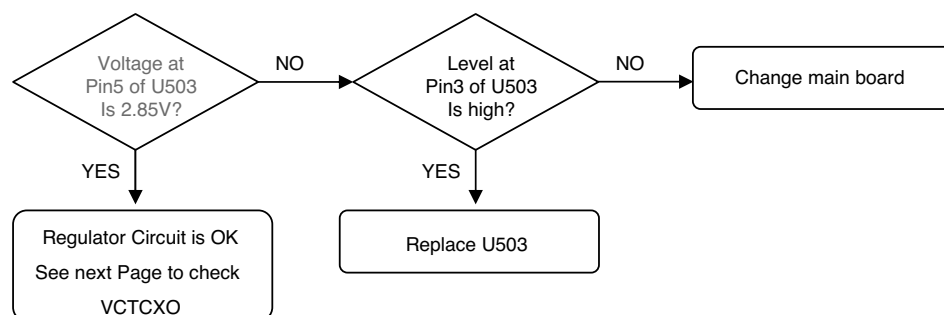


U503. 3
(EN)

CIRCUIT



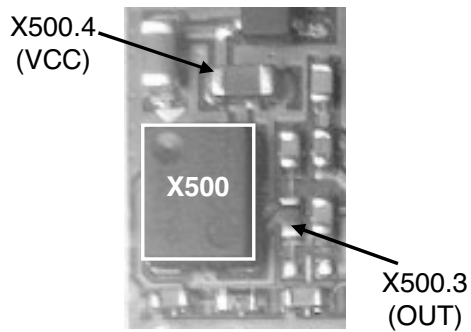
Checking Flow



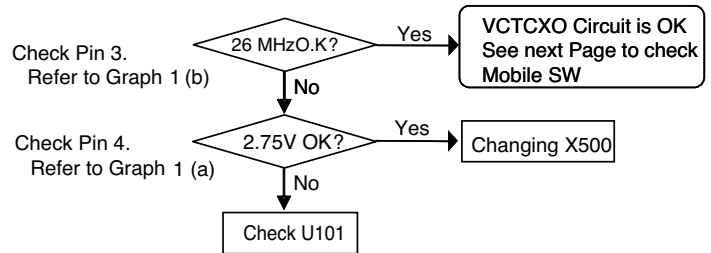
4. TROUBLE SHOOTING

(2) Checking FEM & Mobile SW

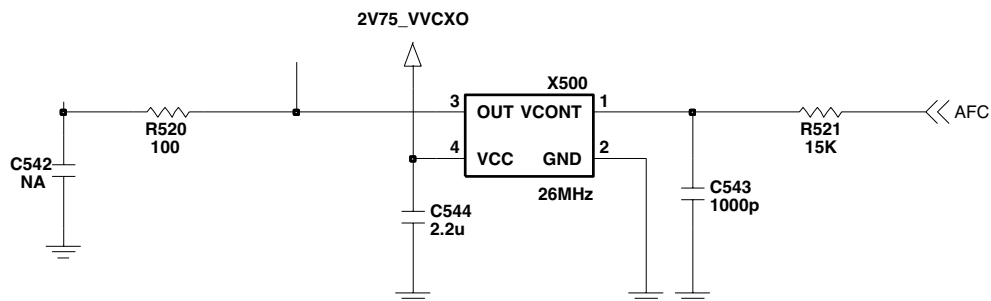
TEST POINT



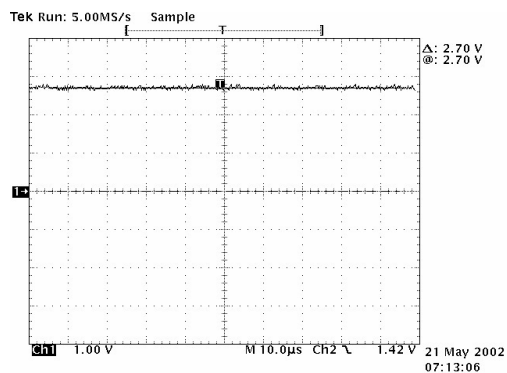
Checking Flow



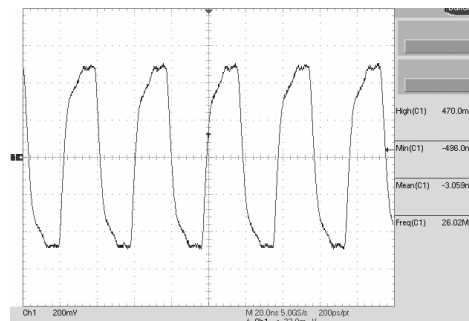
CIRCUIT



Waveform



Graph 1(a)

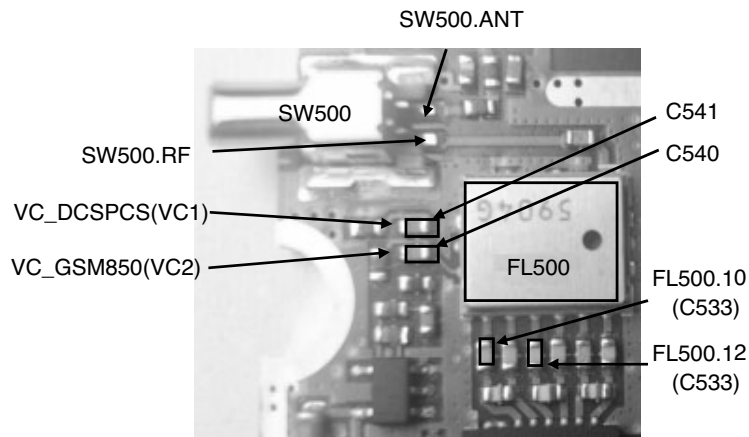


Graph 1(b)

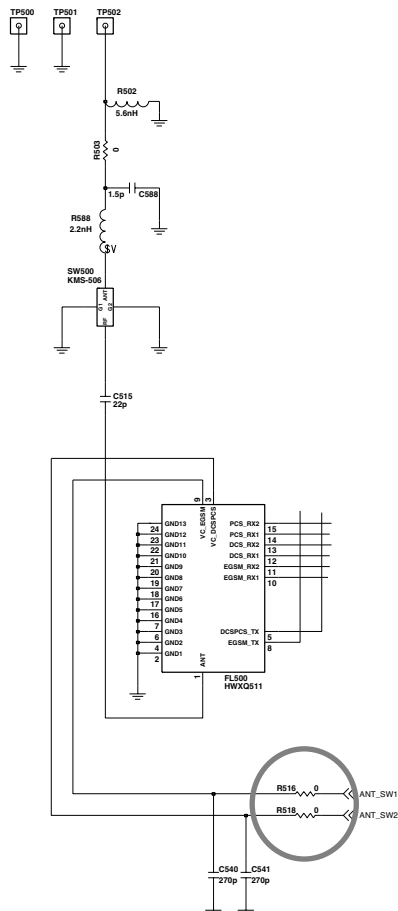
4. TROUBLE SHOOTING

(3) Checking Mobile SW & FEM

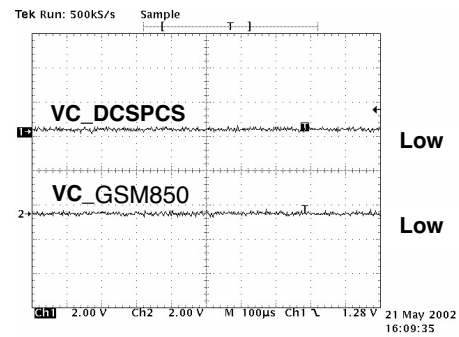
TEST POINT



CIRCUIT



Waveform



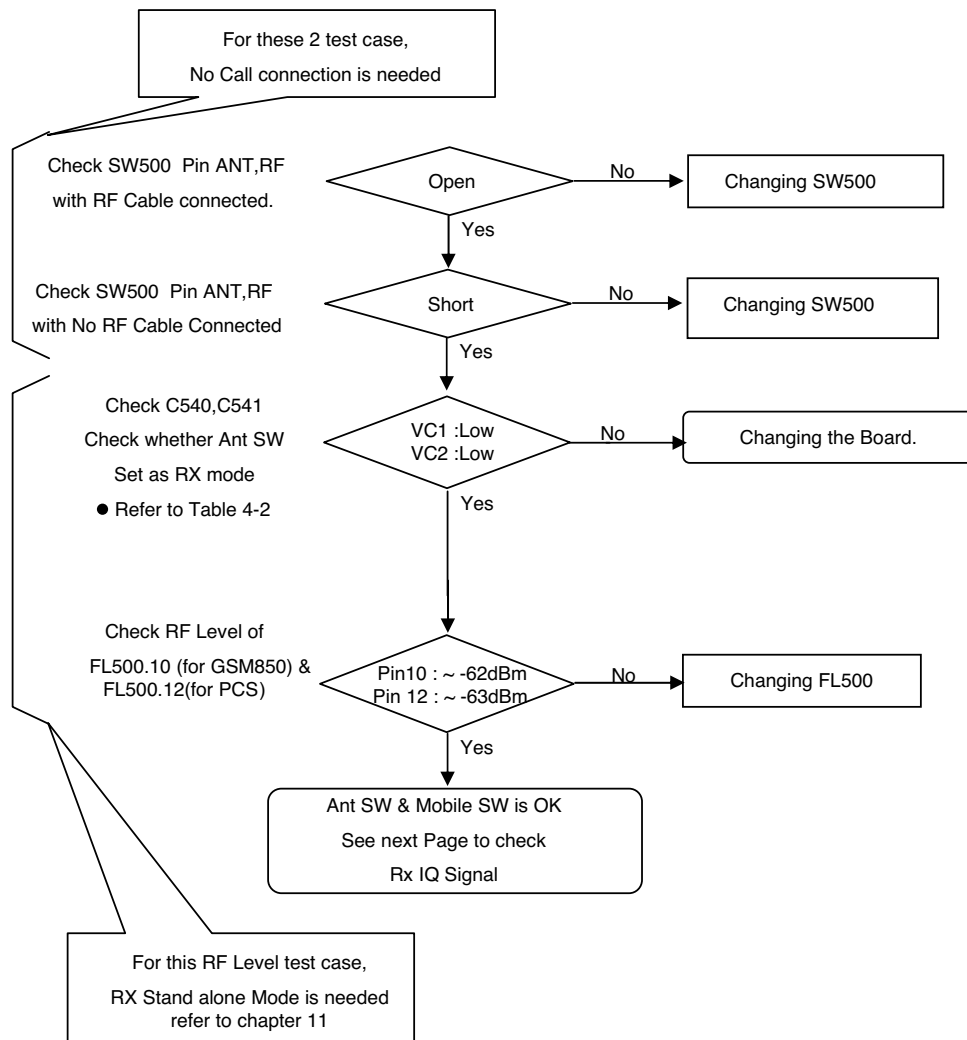
ANT SW Control GSM850& PCS RX Mode
Graph 2

Select Mode	Vc(EGSM)	Vc(DCS/PCS)
GSM850-Rx	LOW	LOW
GSM850-Tx	HIGH	LOW
DCS-Rx	LOW	LOW
PCS-Rx	LOW	LOW
DCS/PCS-Tx	LOW	HIGH

Table 1

4. TROUBLE SHOOTING

Checking Flow



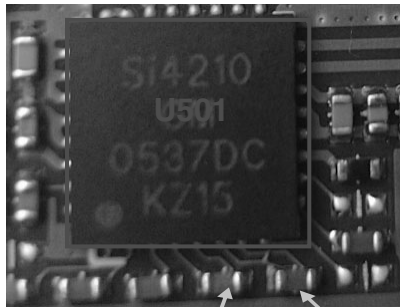
	ANT_SW1	ANT_SW2
GSM850_TX	HIGH	LOW
PCS_TX	LOW	HIGH
RX	LOW	LOW

Table 4-2

4. TROUBLE SHOOTING

(4) Checking RX IQ

TEST POINT

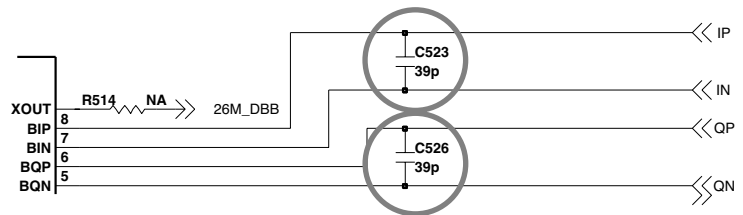


C526

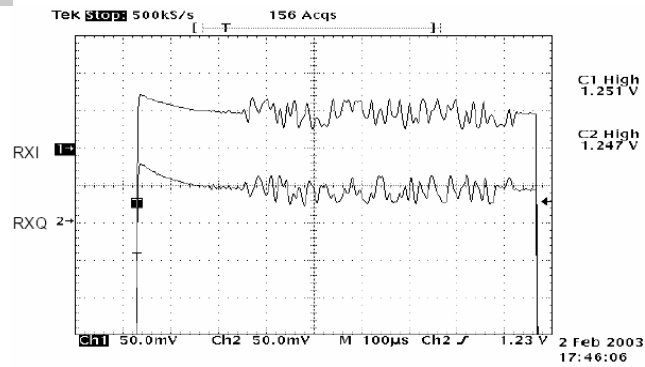
C523

Figure 5

CIRCUIT

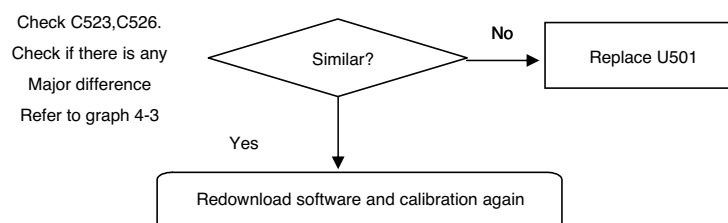


Waveform



Graph 3

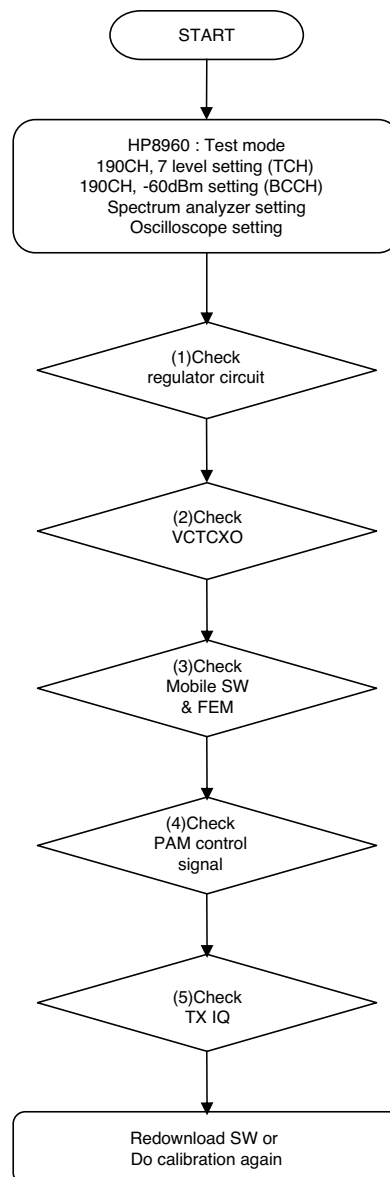
Checking Flow



4. TROUBLE SHOOTING

4.3 TX Trouble

Checking Flow



(1) Checking Regulator Circuit

TEST POINT

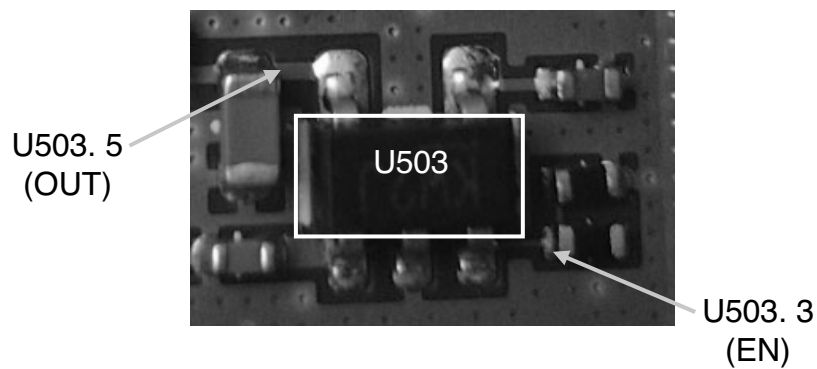
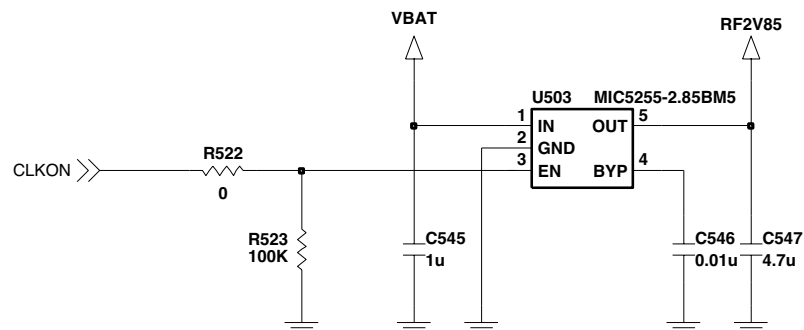
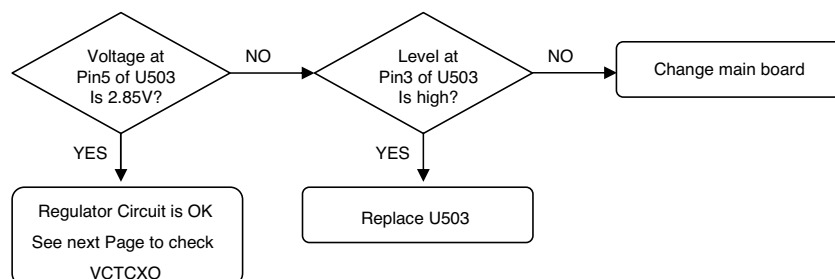


Figure 6

CIRCUIT



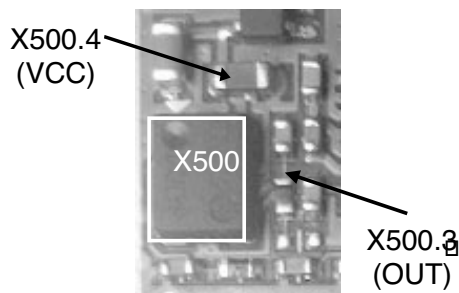
Checking Flow



4. TROUBLE SHOOTING

(2) Checking VCTCXO Circuit

TEST POINT



Checking Flow

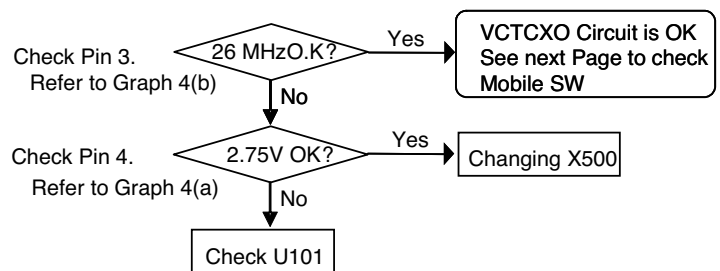
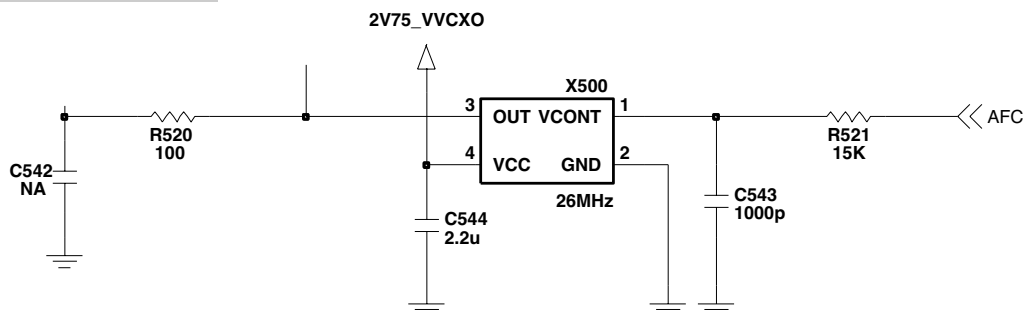
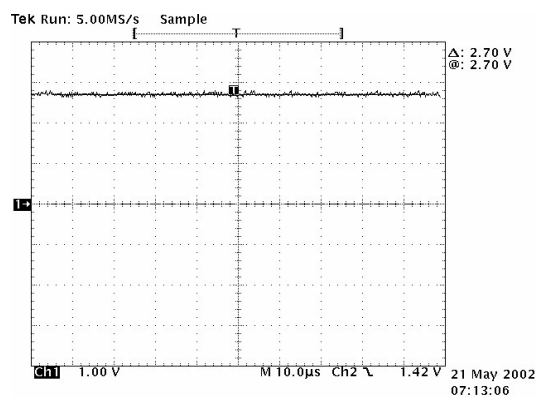


Figure 7

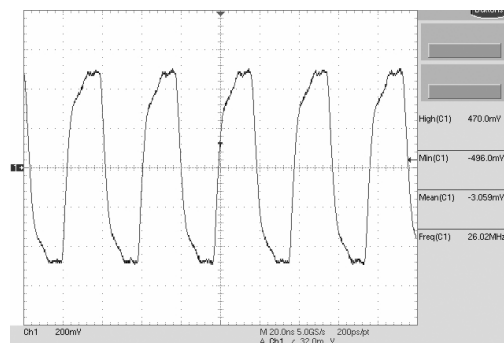
CIRCUIT



Waveform



Graph 4(a)



Graph 4(b)

4. TROUBLE SHOOTING

(3) Checking Mobile SW & FEM

TEST POINT

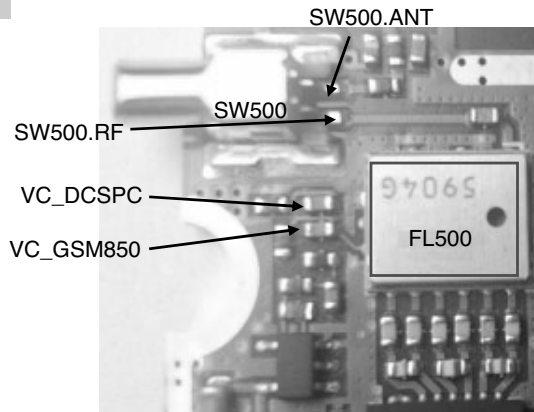
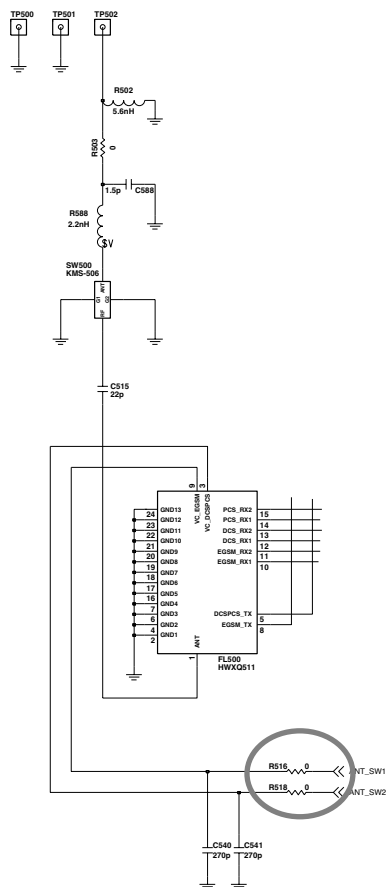
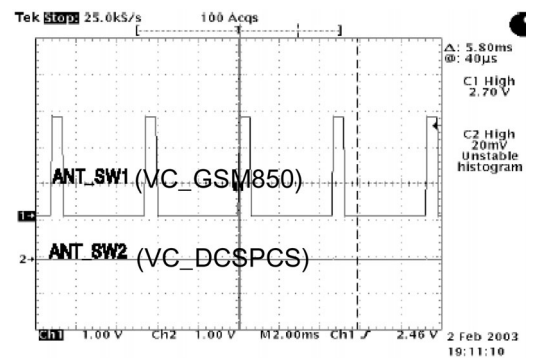


Figure 8

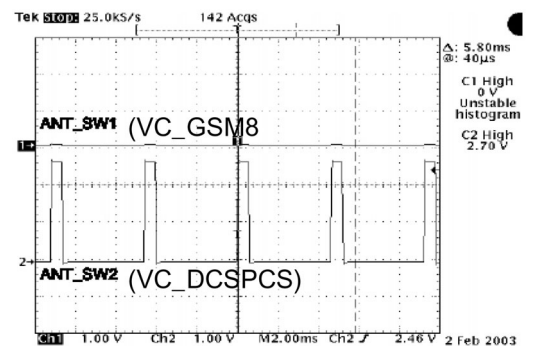
CIRCUIT



Waveform



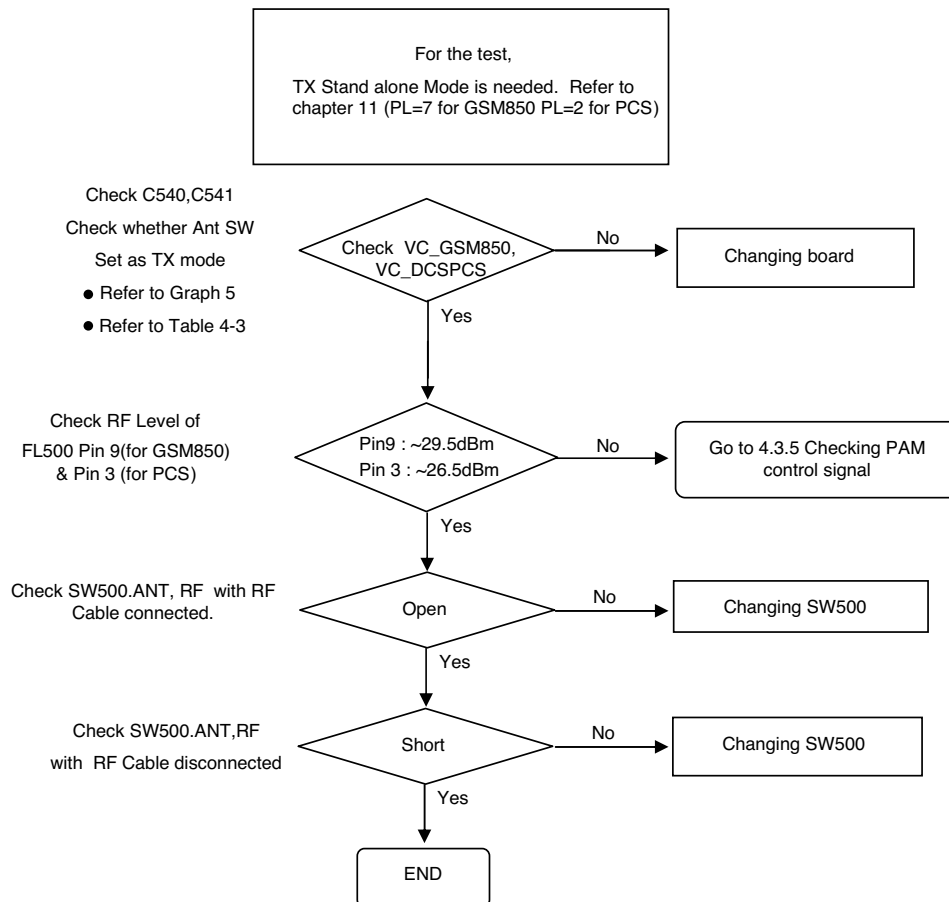
Graph 5(a) GSM850 Tx mode



Graph 5(b) DCS,PCS Tx mode

4. TROUBLE SHOOTING

Checking Flow



ANT SW	VC_GSM850	VC_DCSPCS
PCS_TX	0	1
GSM850 TX	1	0
GSM850, PCS RX	0	0

Table 4-3

4. TROUBLE SHOOTING

(4) Checking PAM Control Signal

TEST POINT

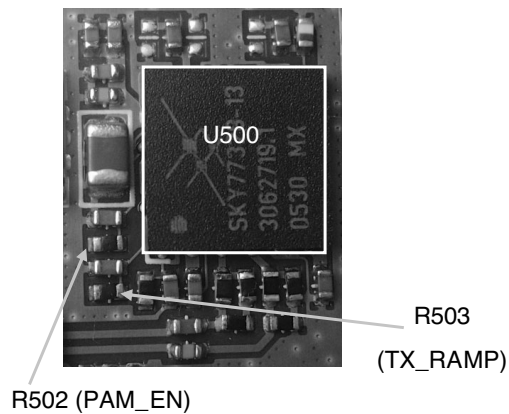
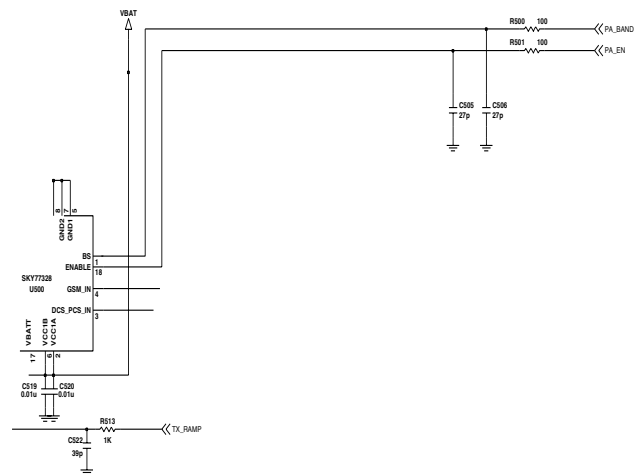
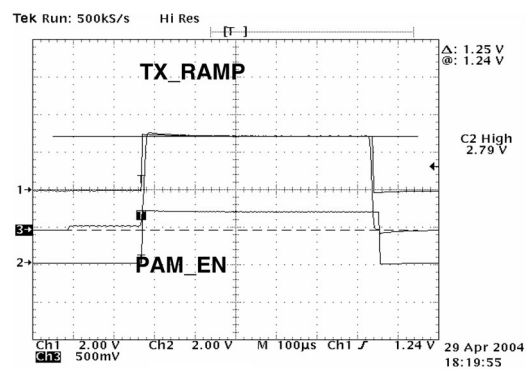


Figure 9

CIRCUIT

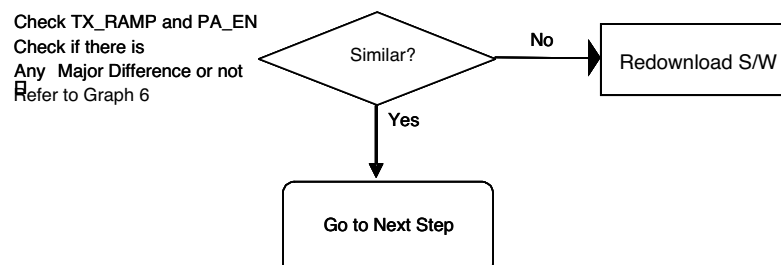


Waveform



Graph 6

Checking Flow



4. TROUBLE SHOOTING

(5) Checking TX IQ

TEST POINT

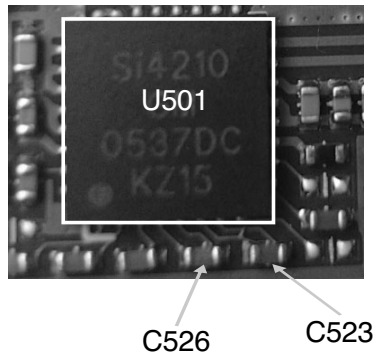
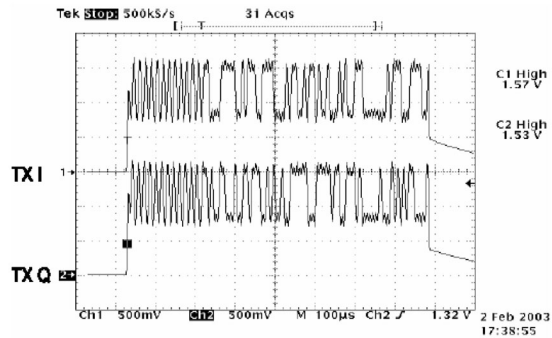


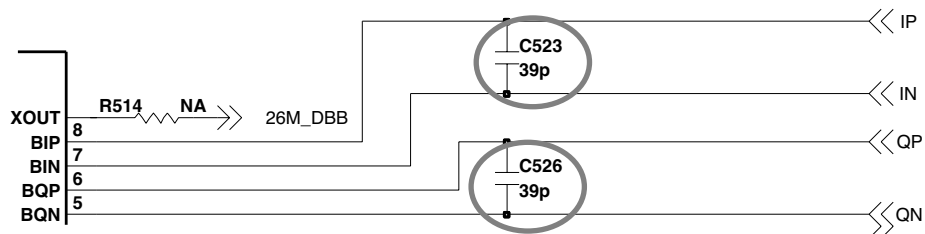
Figure 10

Waveform

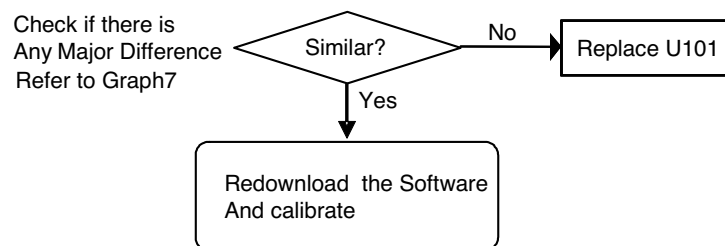


Graph 7

CIRCUIT



Checking Flow



4.4 Power On Trouble

TEST POINT

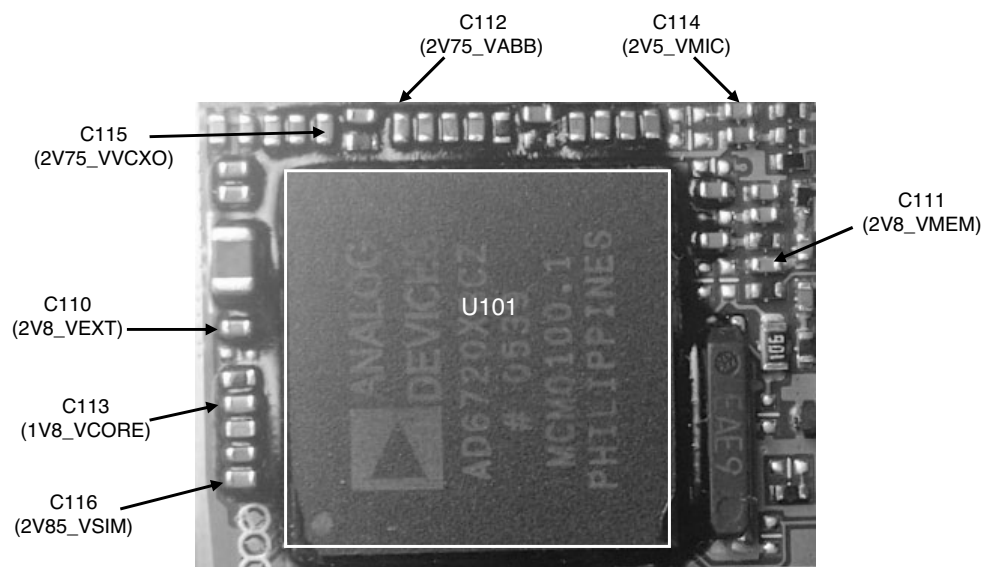
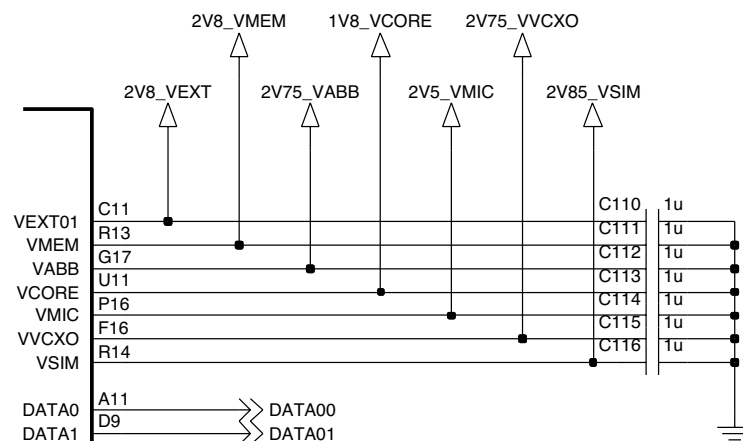


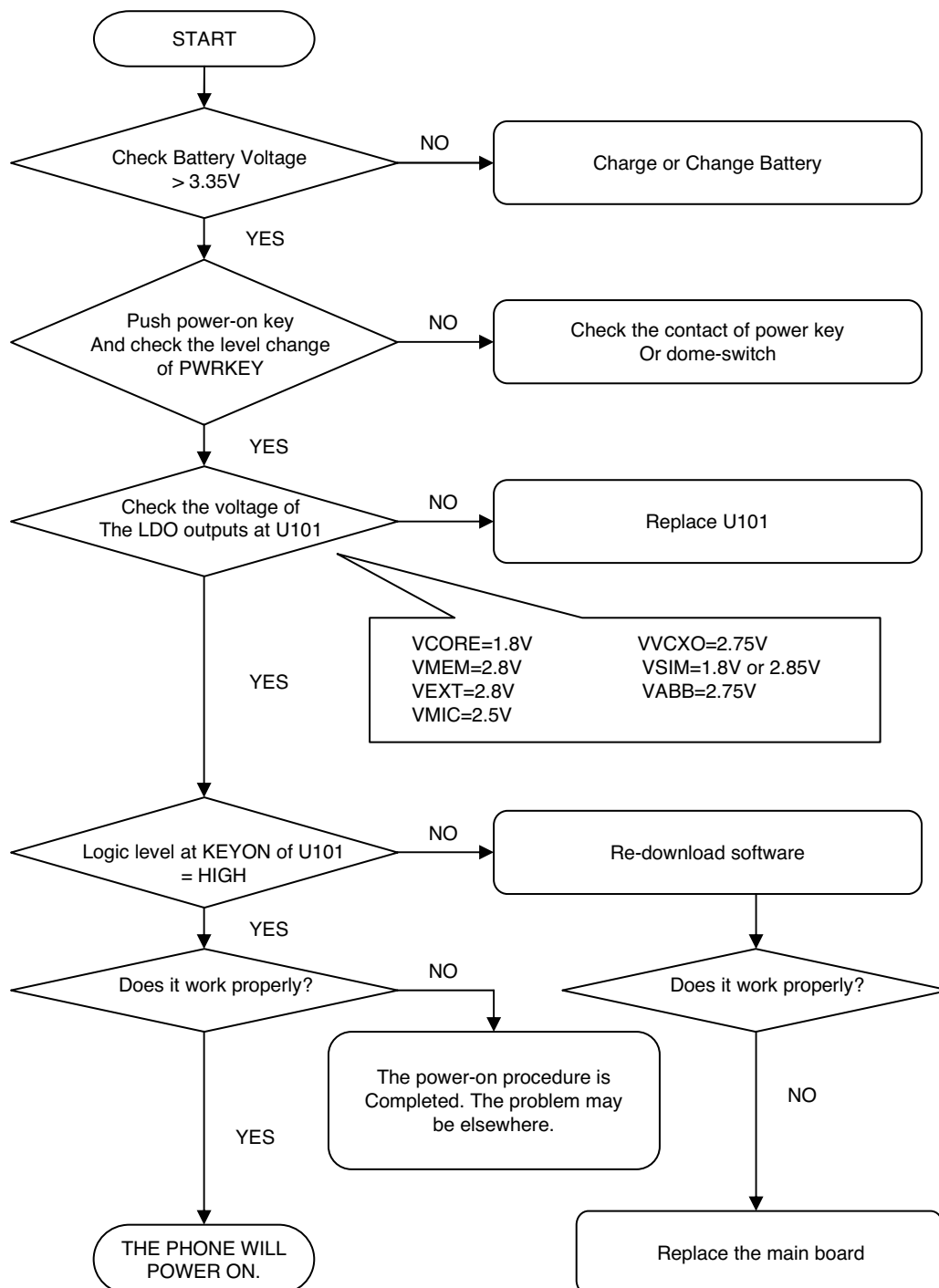
Figure 11

CIRCUIT



4. TROUBLE SHOOTING

Checking Flow



4.5 Charging Trouble

TEST POINT

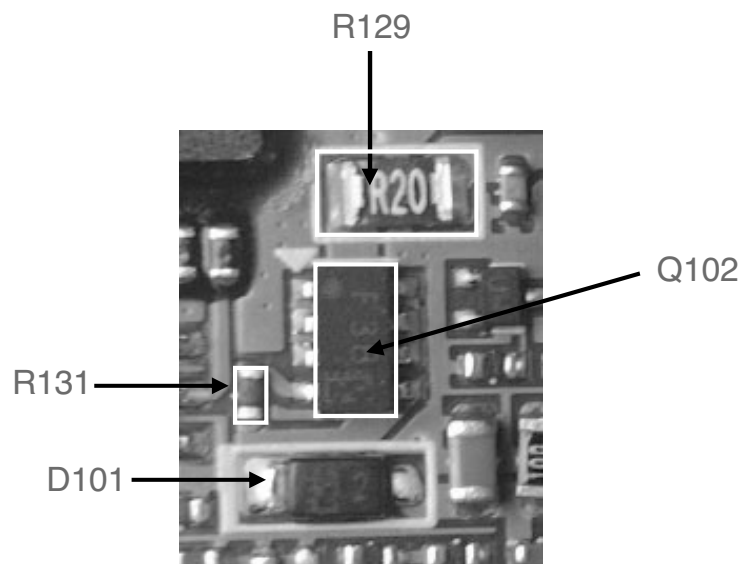
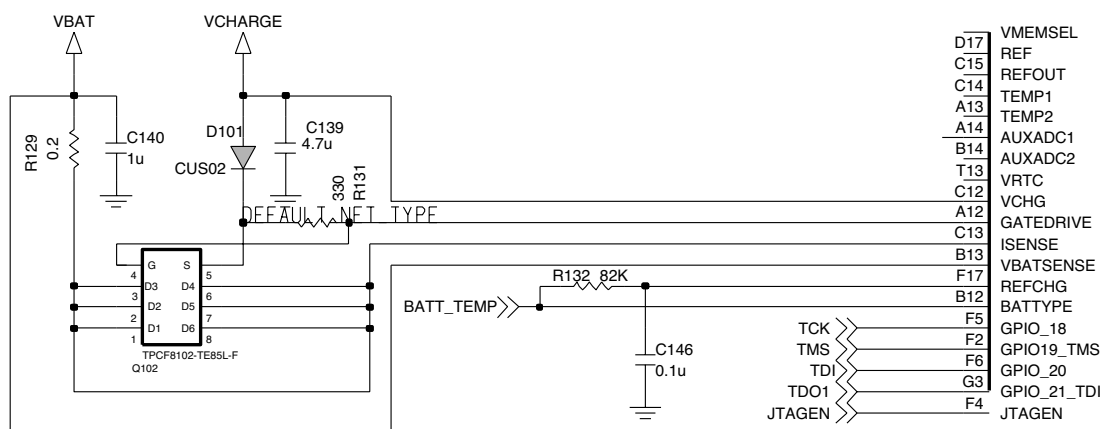


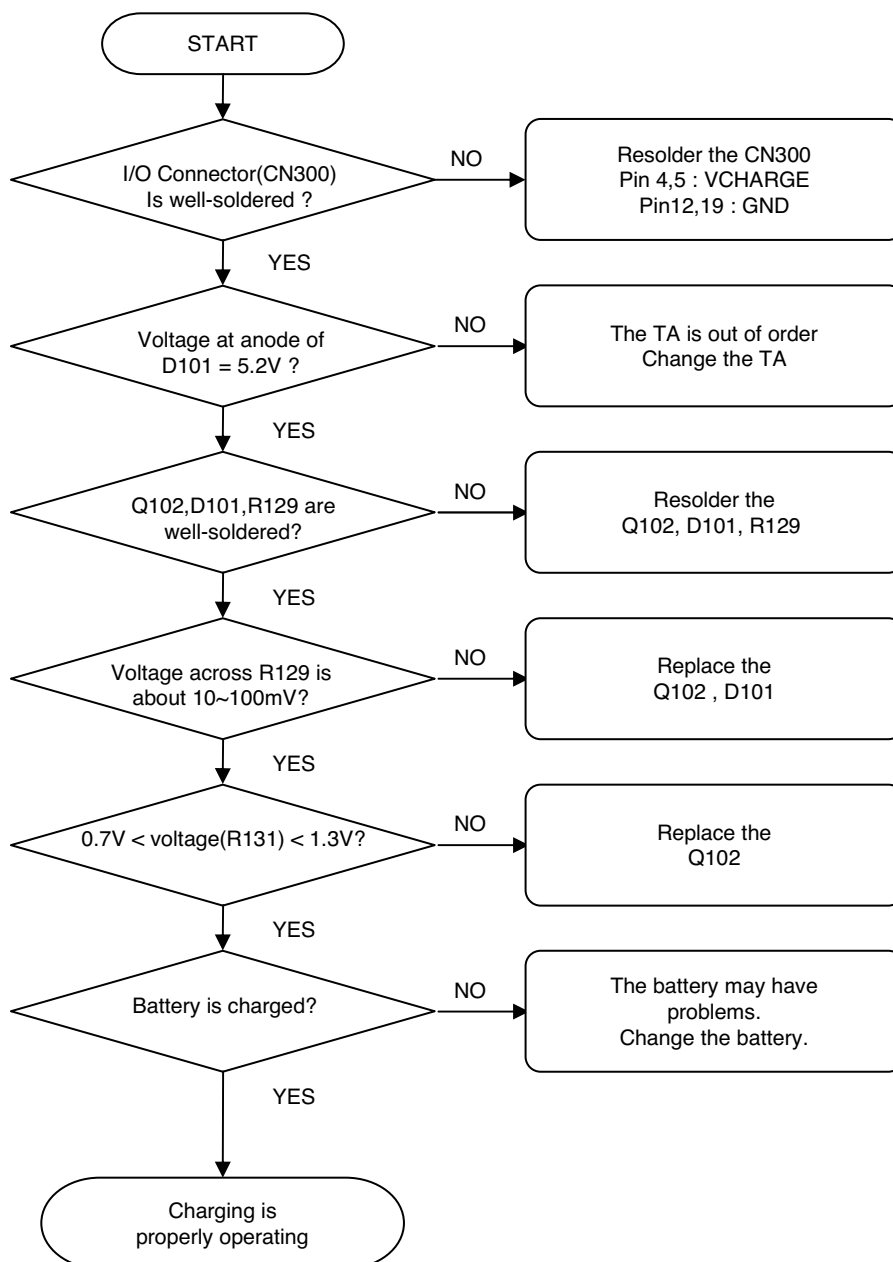
Figure 12

CIRCUIT



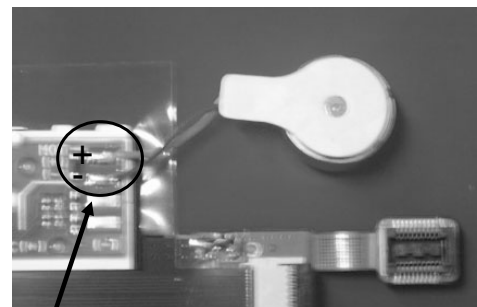
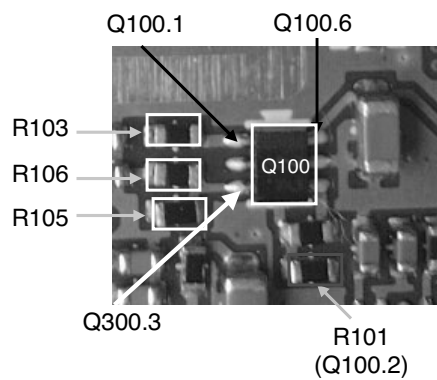
4. TROUBLE SHOOTING

Checking Flow



4.6 Vibrator Trouble

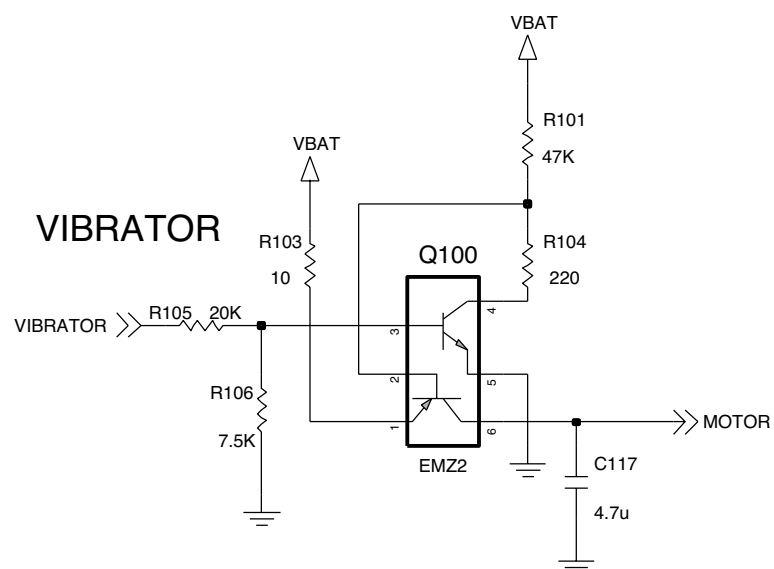
TEST POINT



Soldering C heck in LC D Module

Figure 13

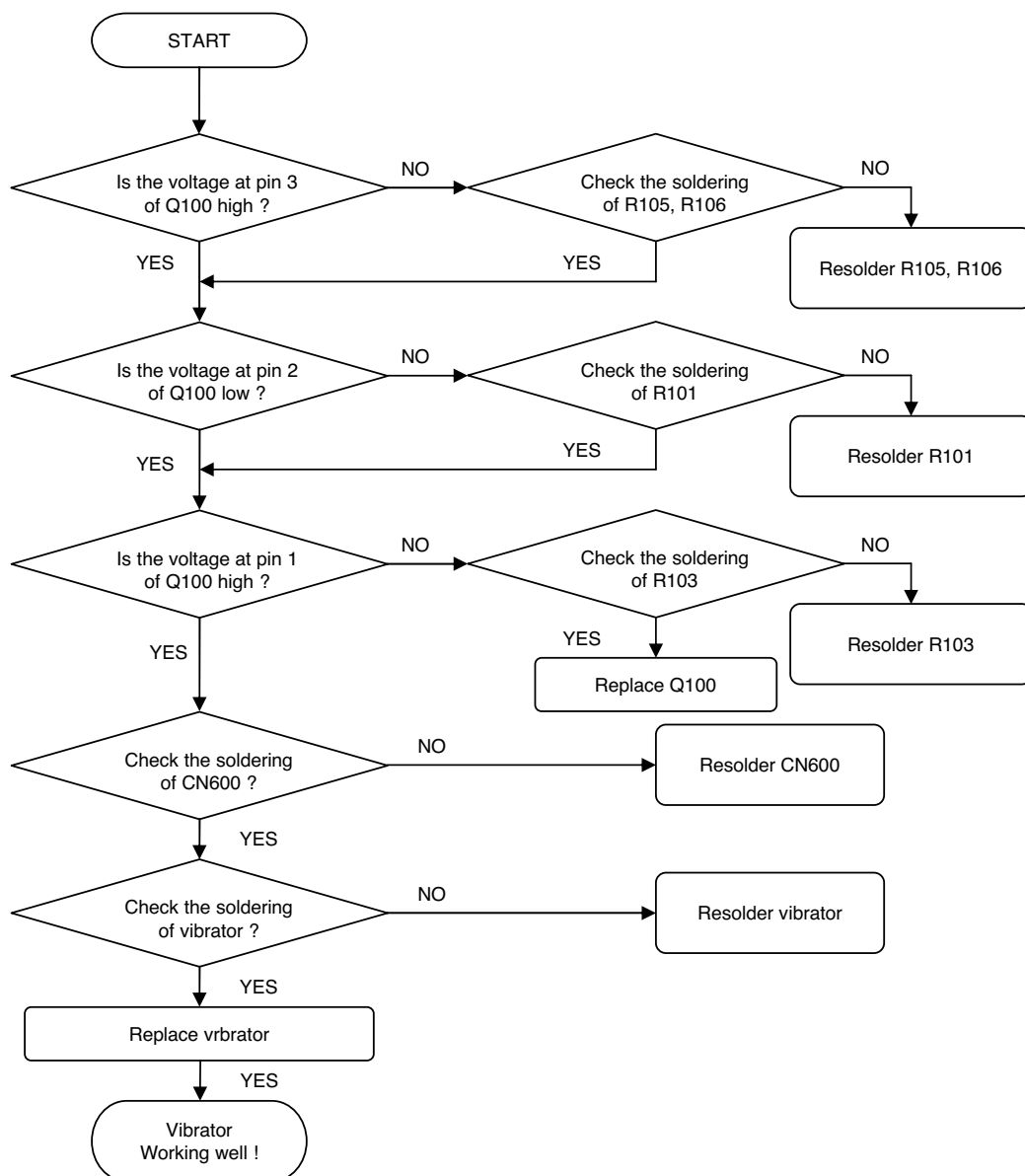
CIRCUIT



4. TROUBLE SHOOTING

Checking Flow

SETTING : Enter the engineering mode, and set vibrator on at vibration of BB test menu



4.7 LCD Trouble

TEST POINT

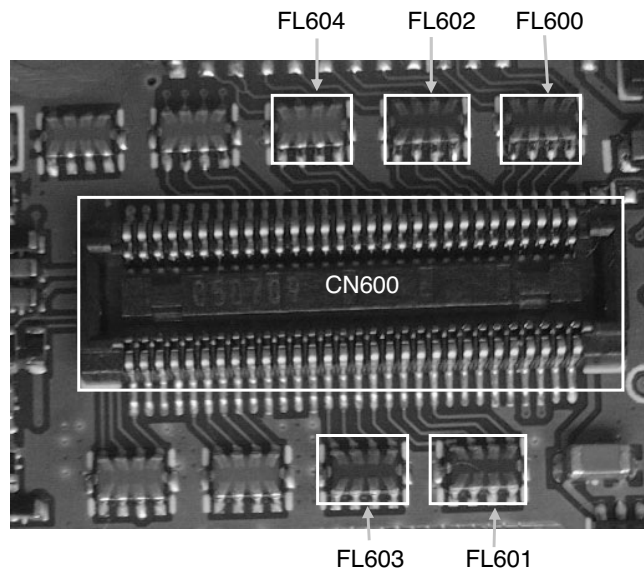


Figure 14

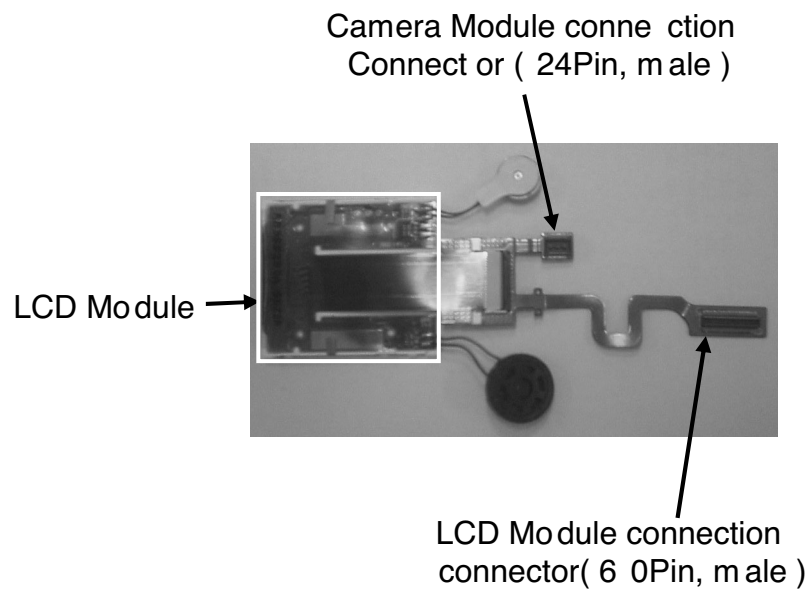
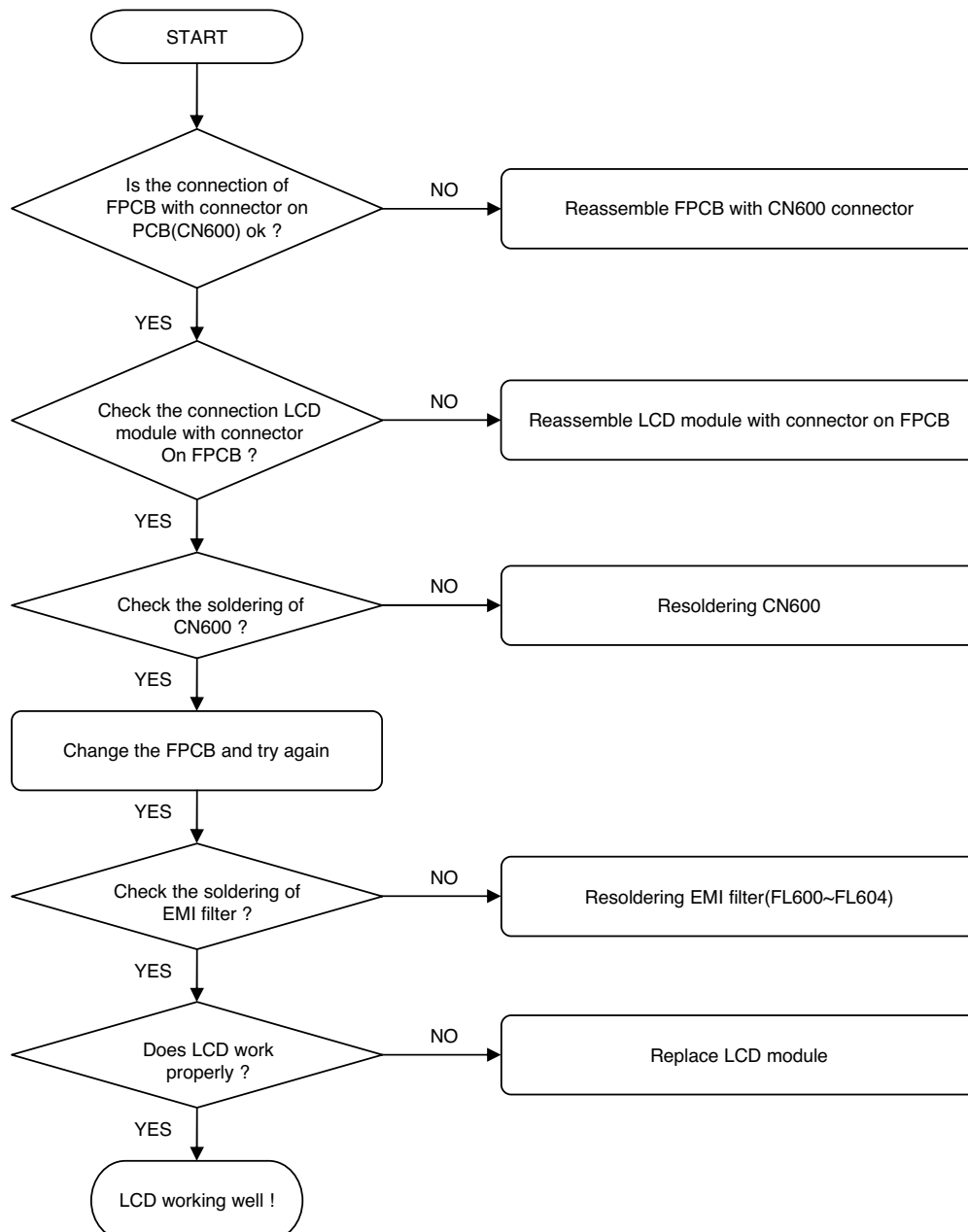


Figure 15

4. TROUBLE SHOOTING

Checking Flow



4.8 Camera Trouble

TEST POINT

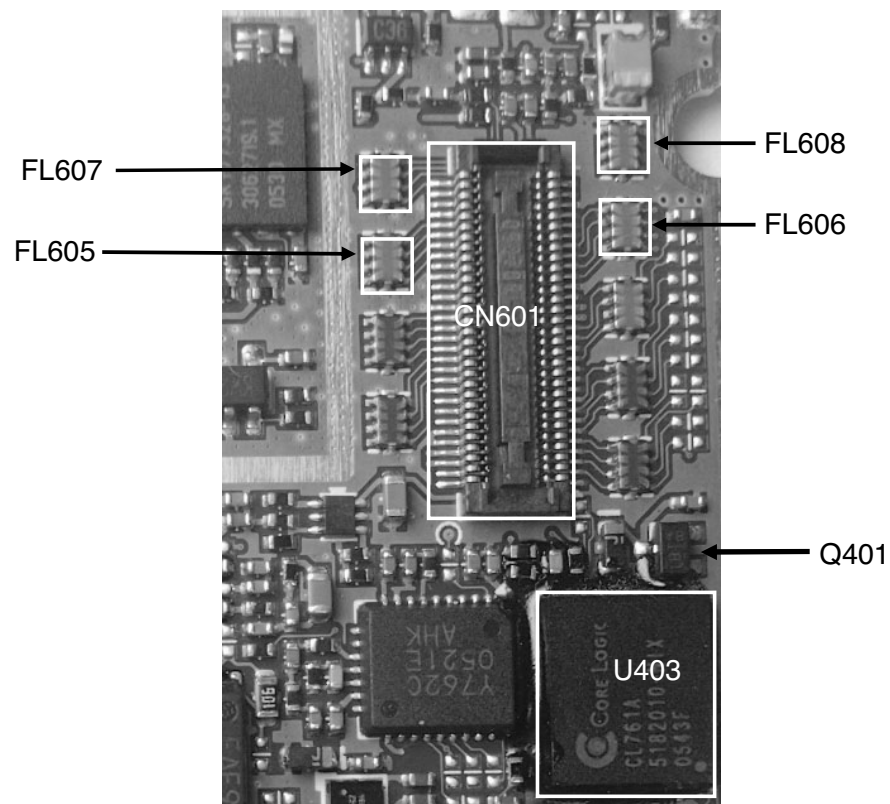


Figure 16

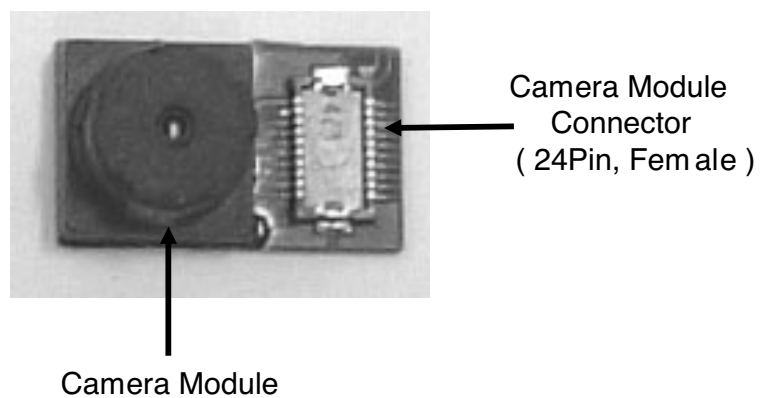
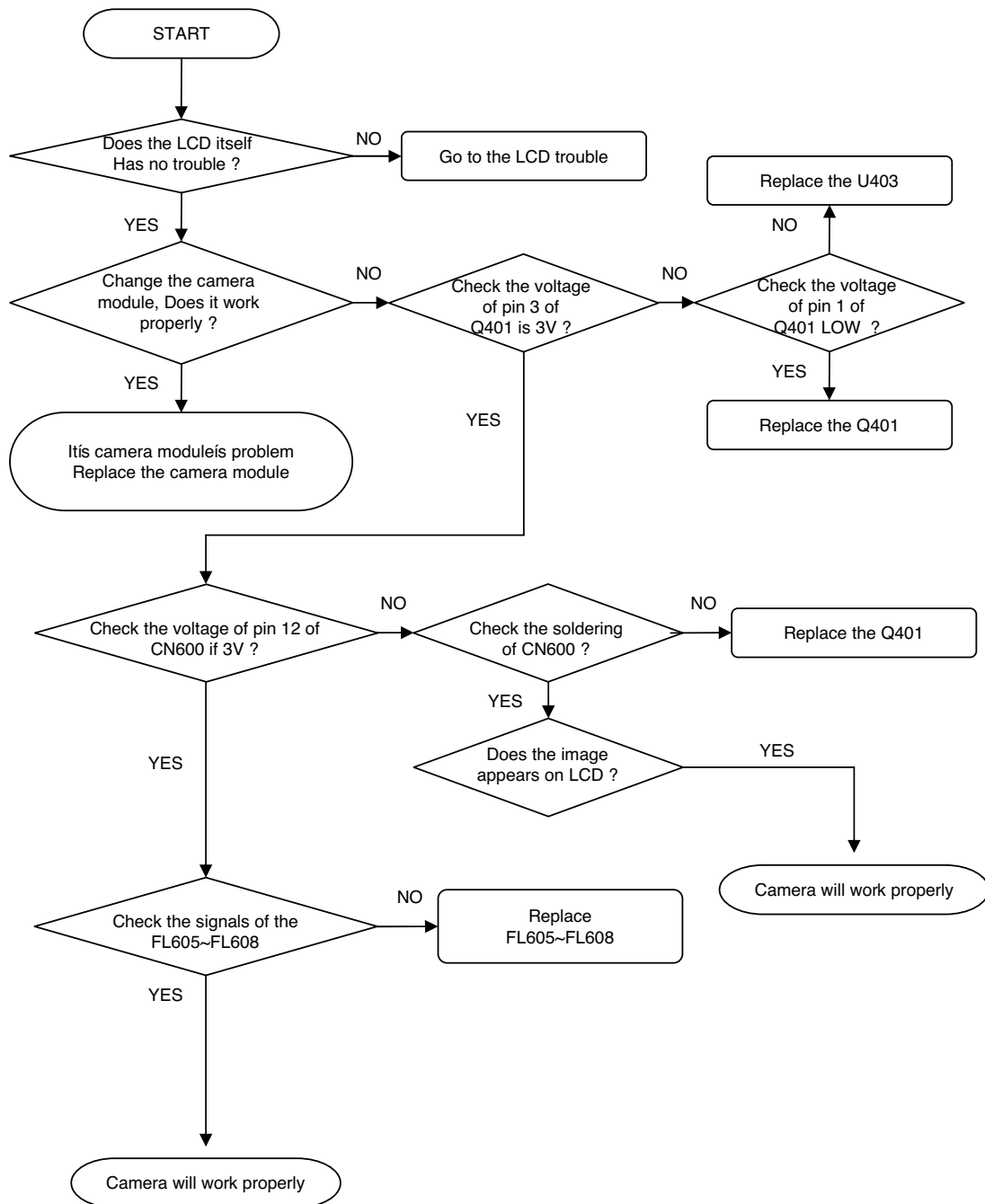


Figure 17

4. TROUBLE SHOOTING

Checking Flow



4.9 Speaker Trouble

TEST POINT

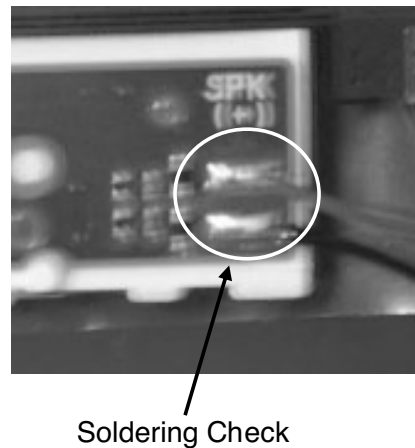
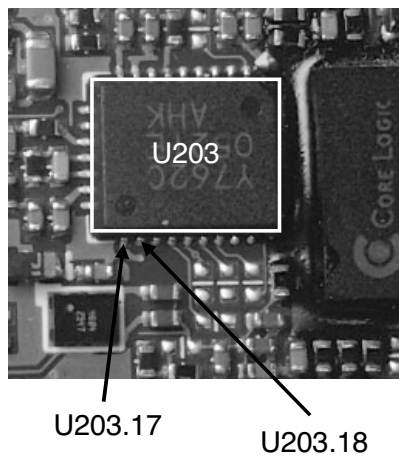
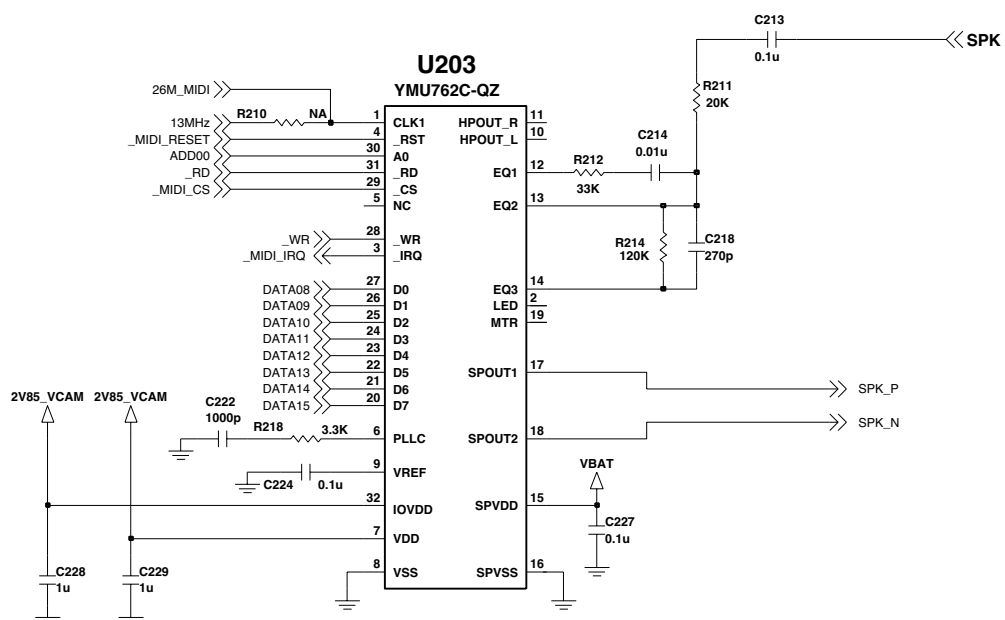


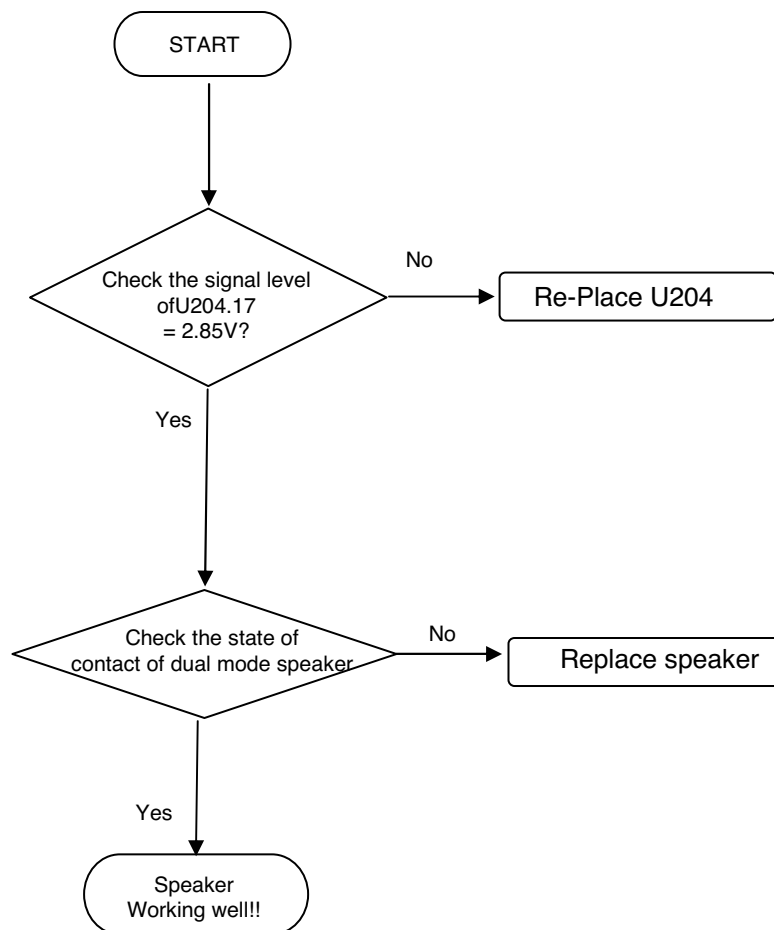
Figure 18

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

Checking Flow



4.10 SIM Card Interface Trouble

TEST POINT

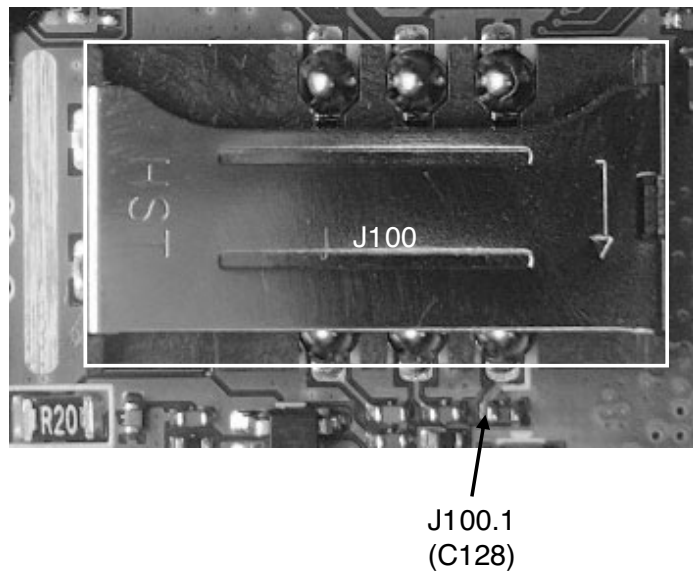
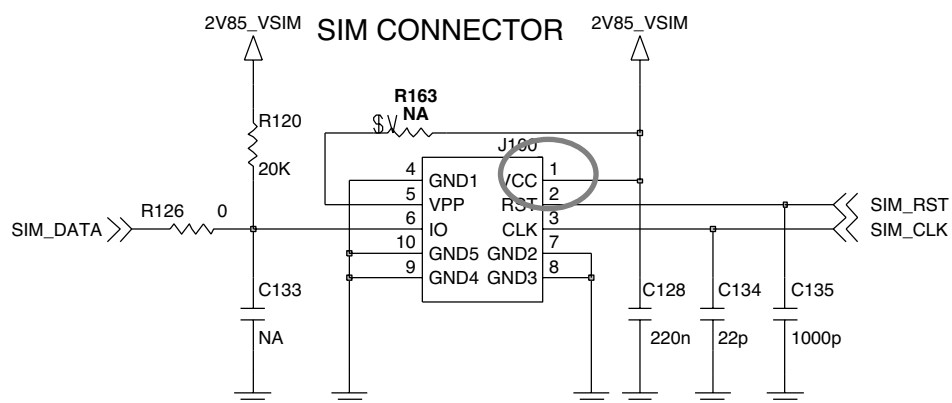


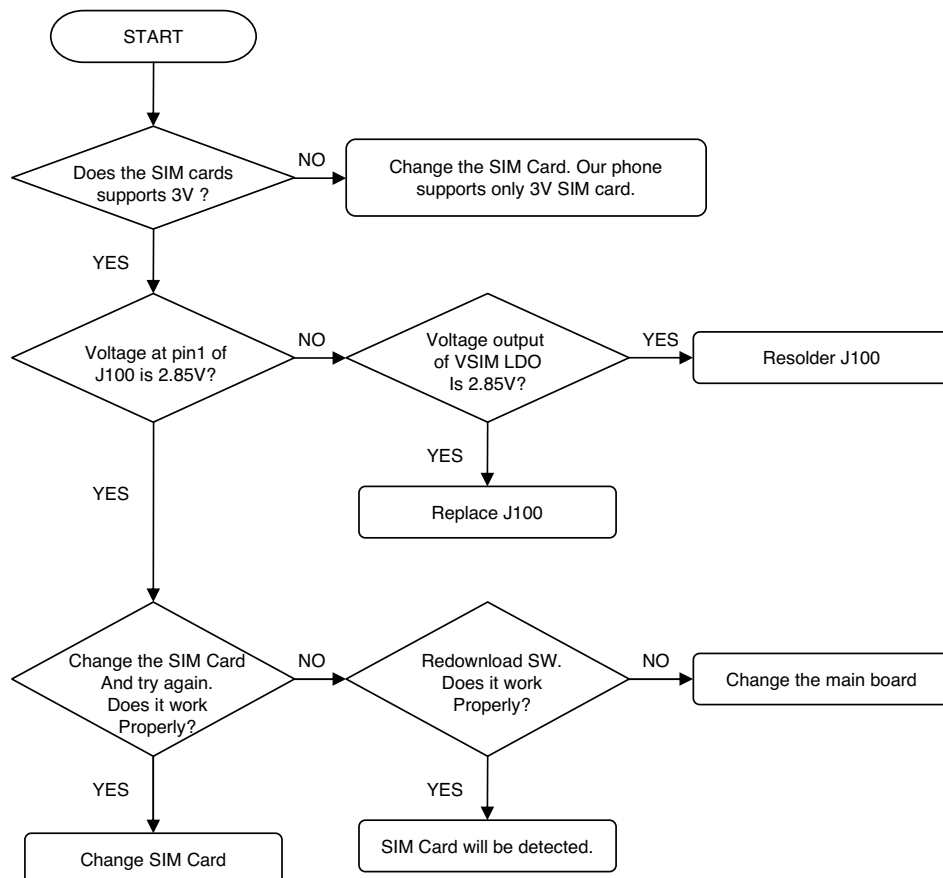
Figure 19

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

Checking Flow



4.11 Earphone Trouble

TEST POINT

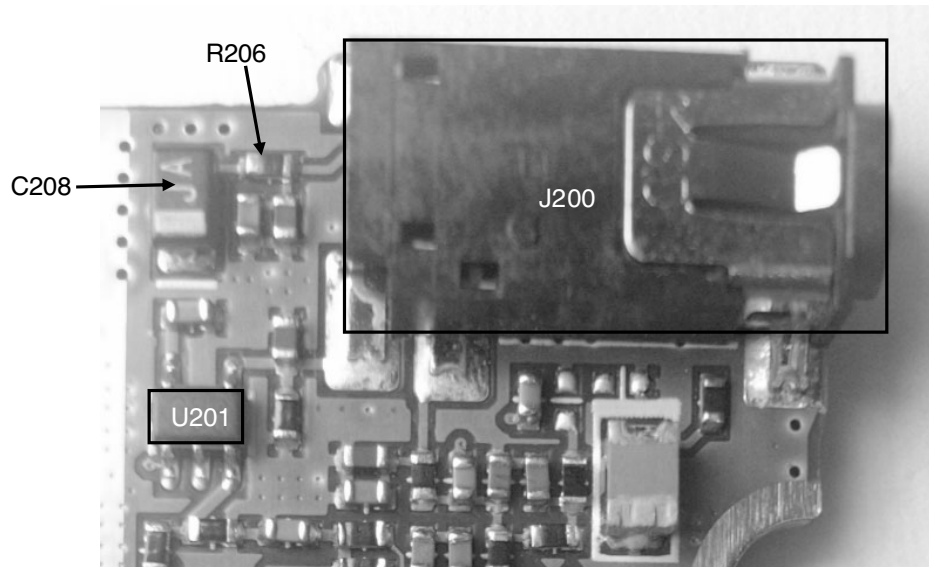
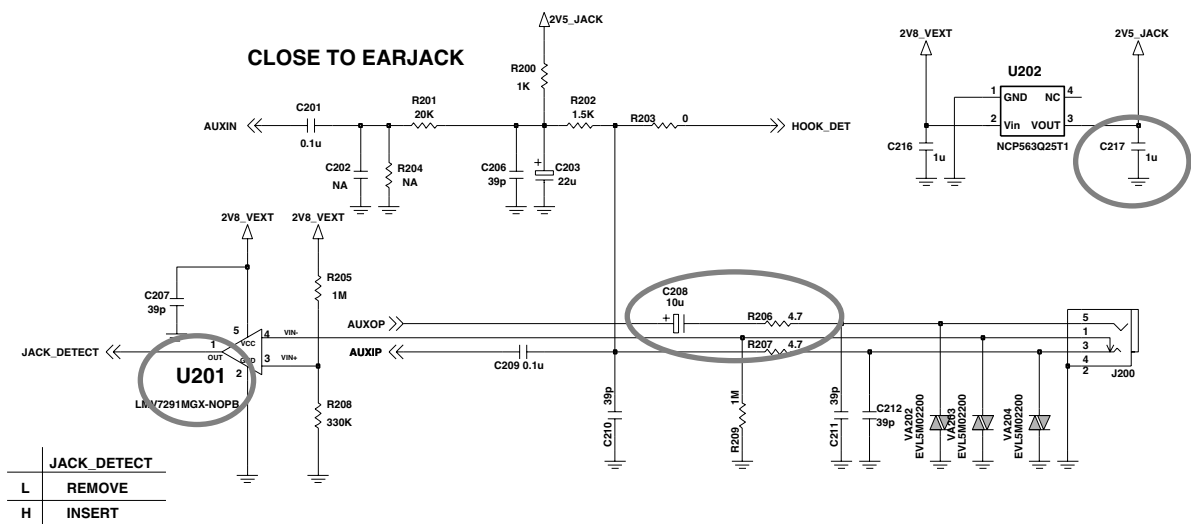


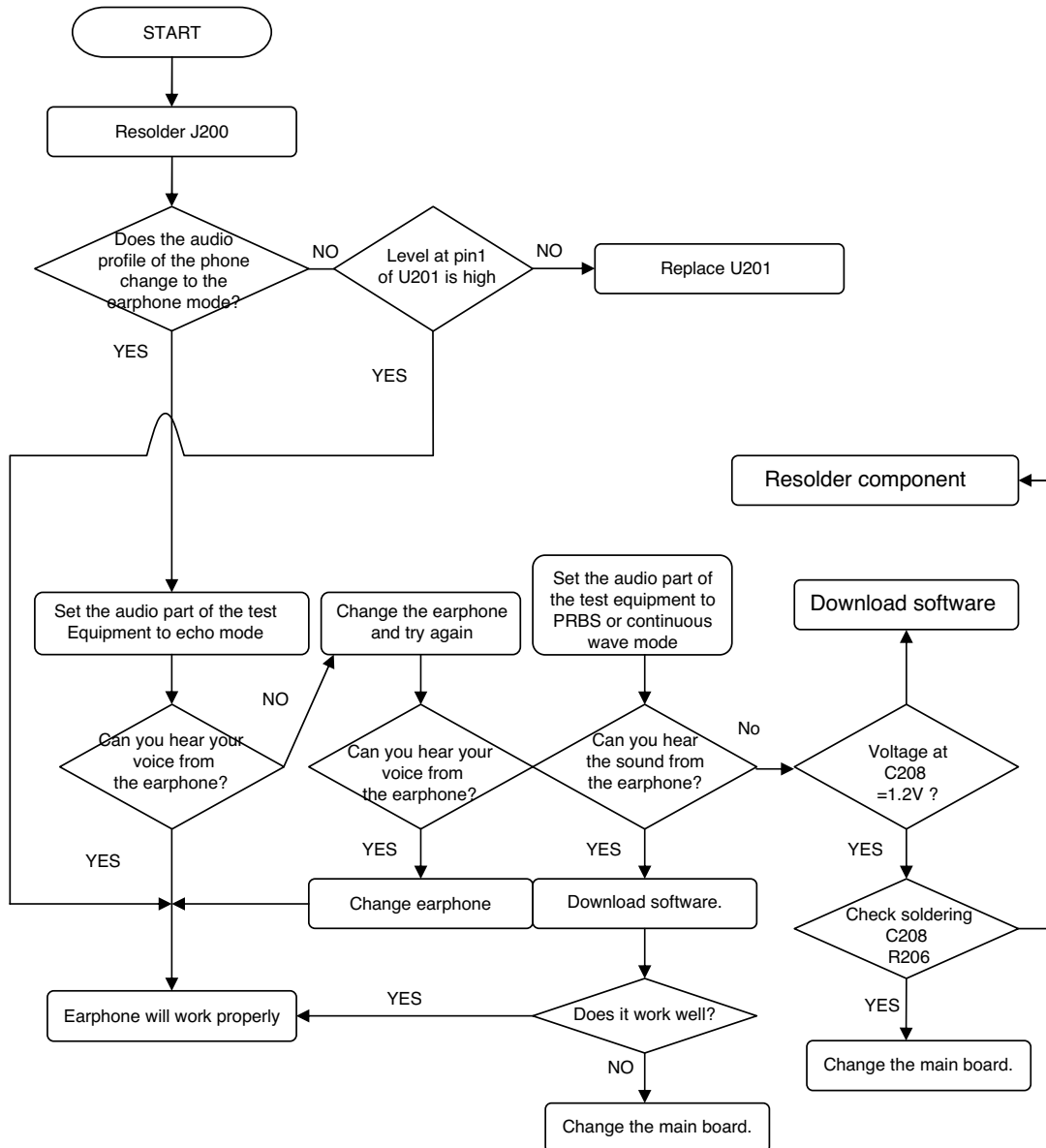
Figure 20

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

Checking Flow



4.12 KEY backlight Trouble

TEST POINT

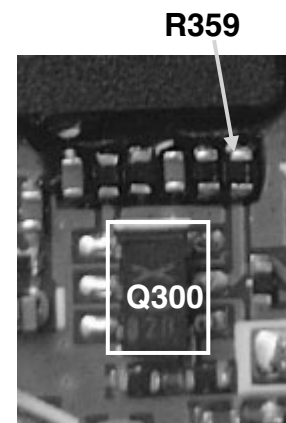
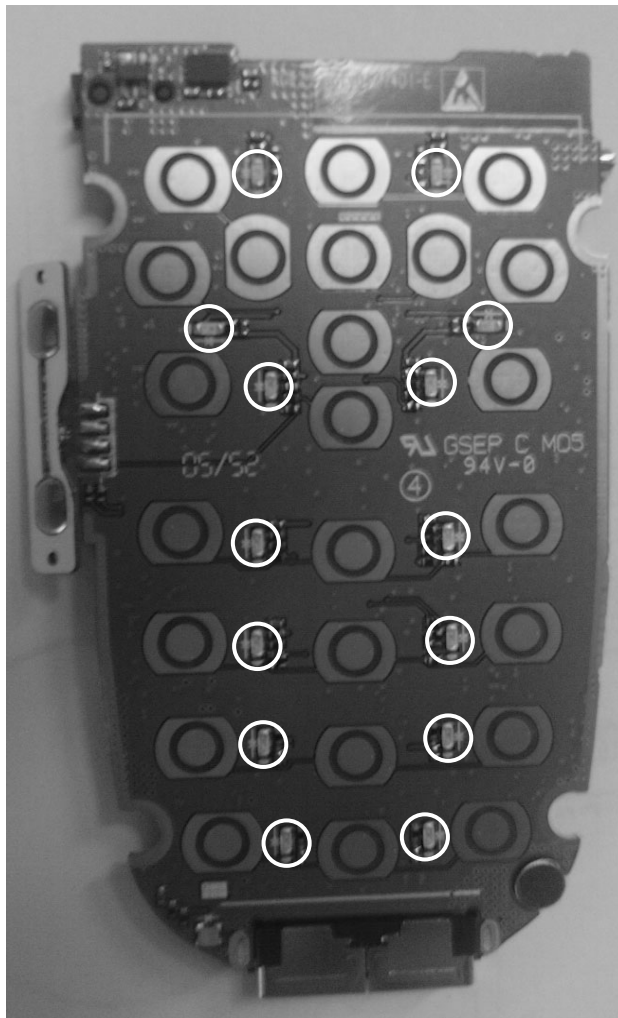
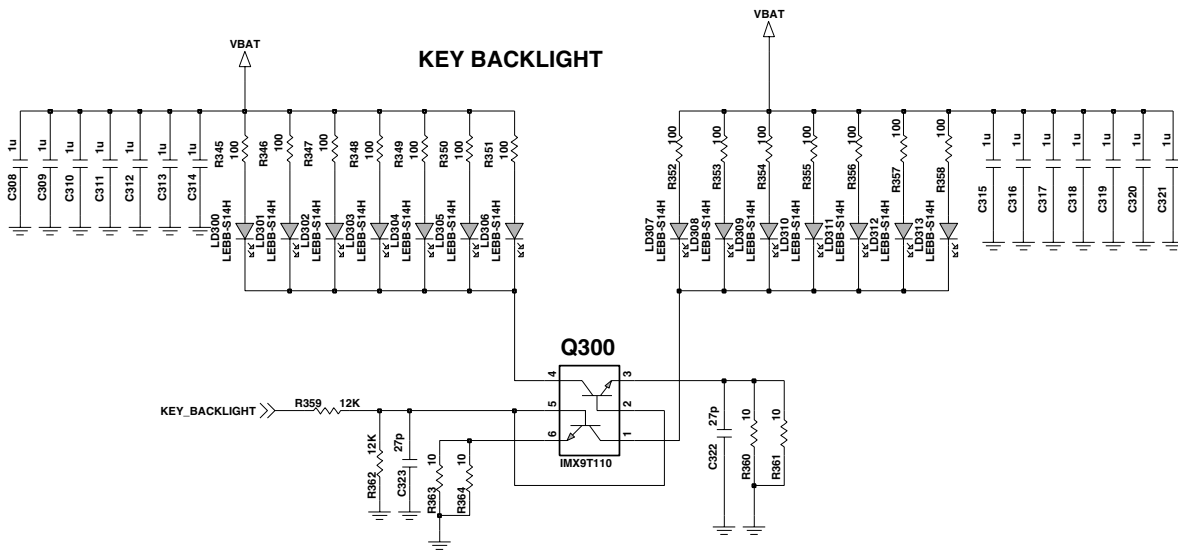


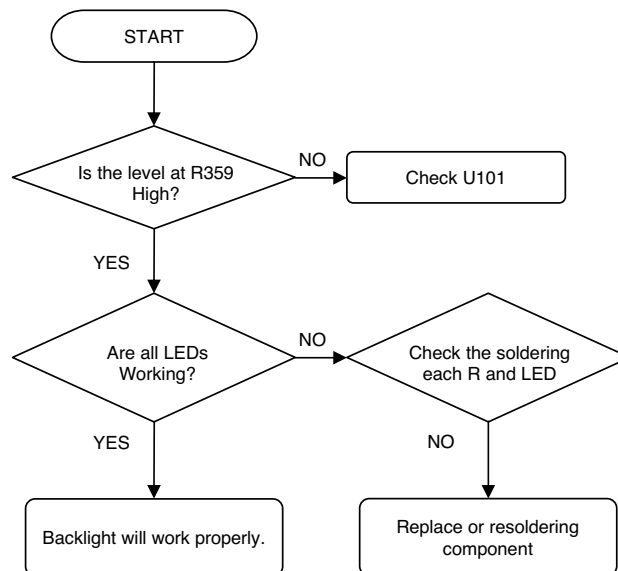
Figure 21

4. TROUBLE SHOOTING

CIRCUIT



Checking Flow



TEST POINT

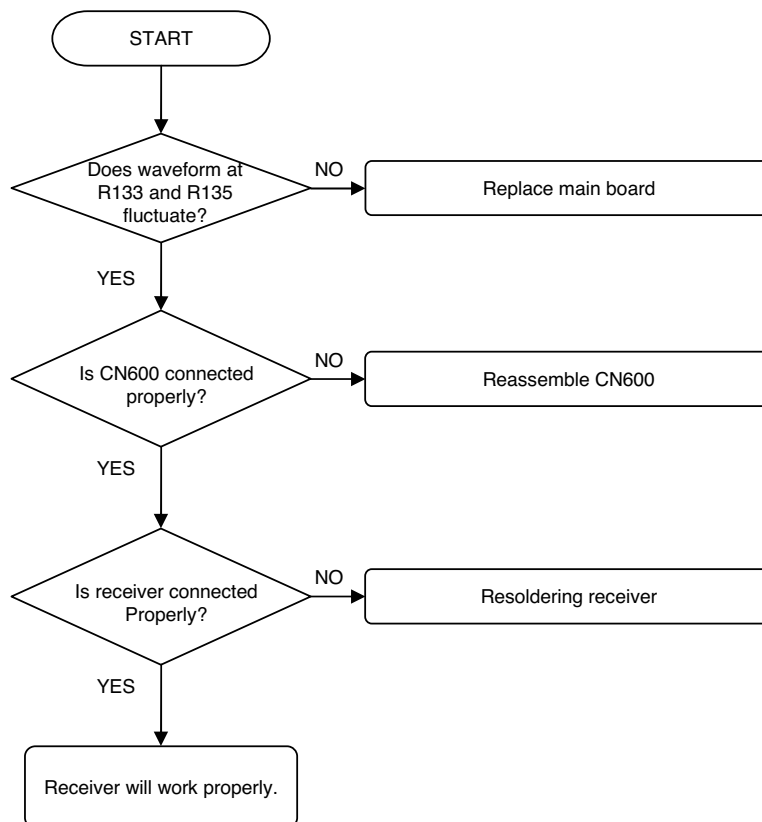


4. TROUBLE SHOOTING

Checking Flow

SETTING : After initialize Agilent 8960, Test GSM850, PCS

Set the property of audio as PRBS or continuous wave. Set the receiving volume of mobile as Max.



4.14 Microphone Trouble

TEST POINT

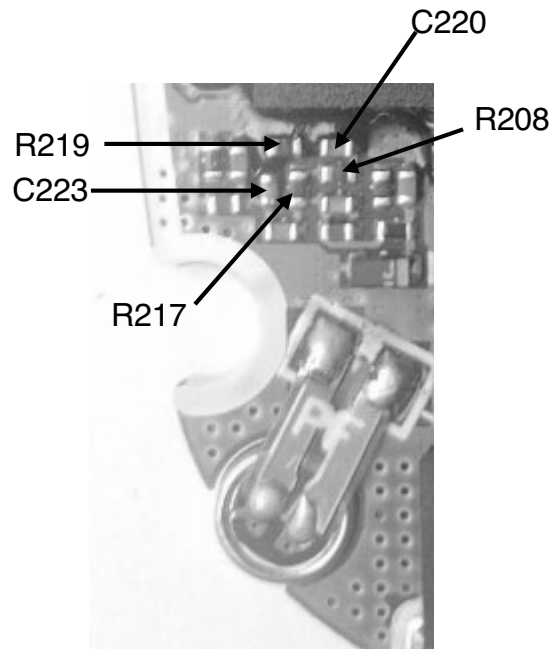
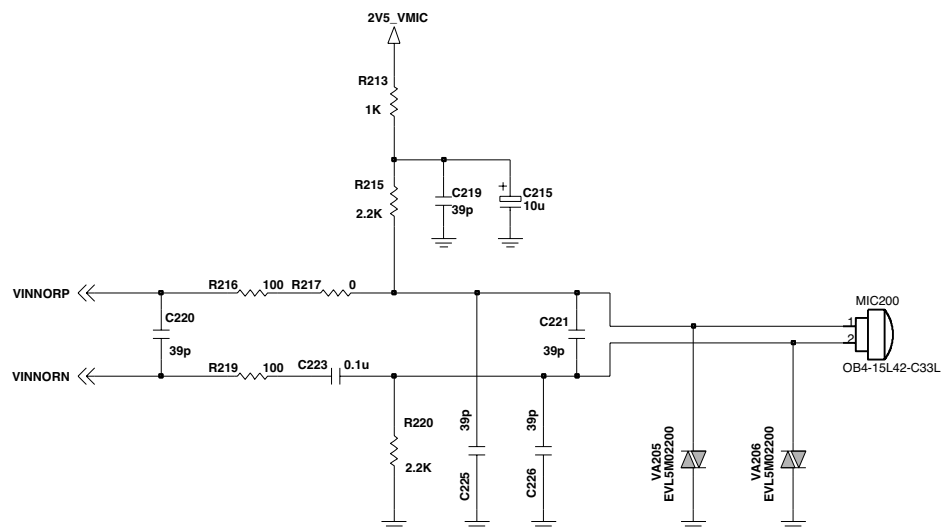


Figure 23

CIRCUIT DIAGRAM

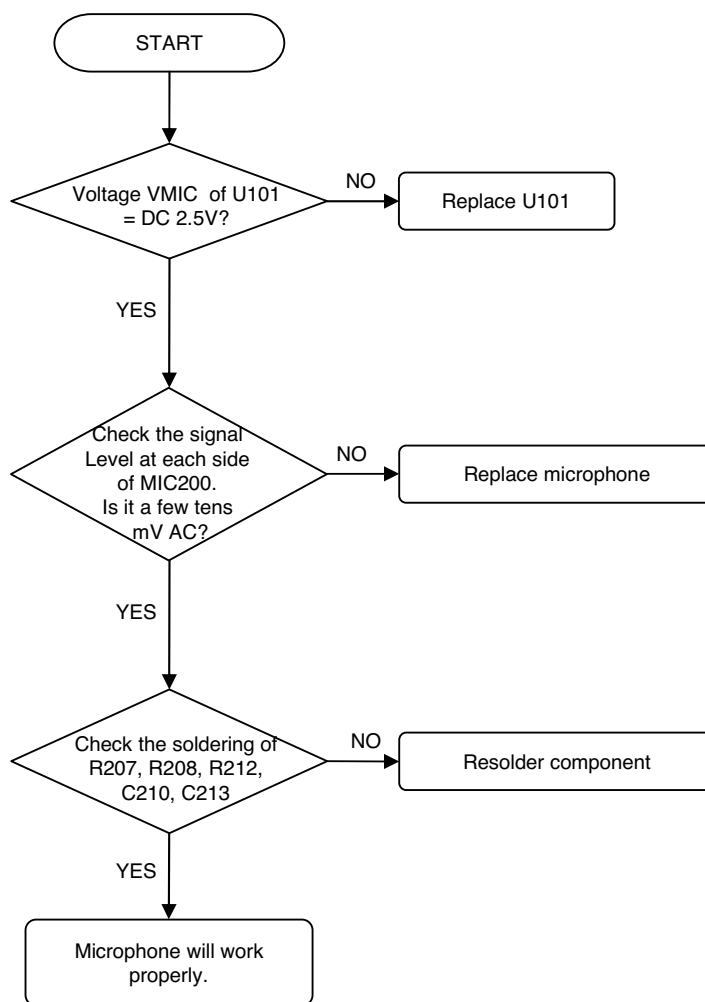


CLOSE TO MIC

4. TROUBLE SHOOTING

Checking Flow

SETTING : After initialize Agilent 8960, Test GSM850, PCS



4.15 RTC Trouble

TEST POINT

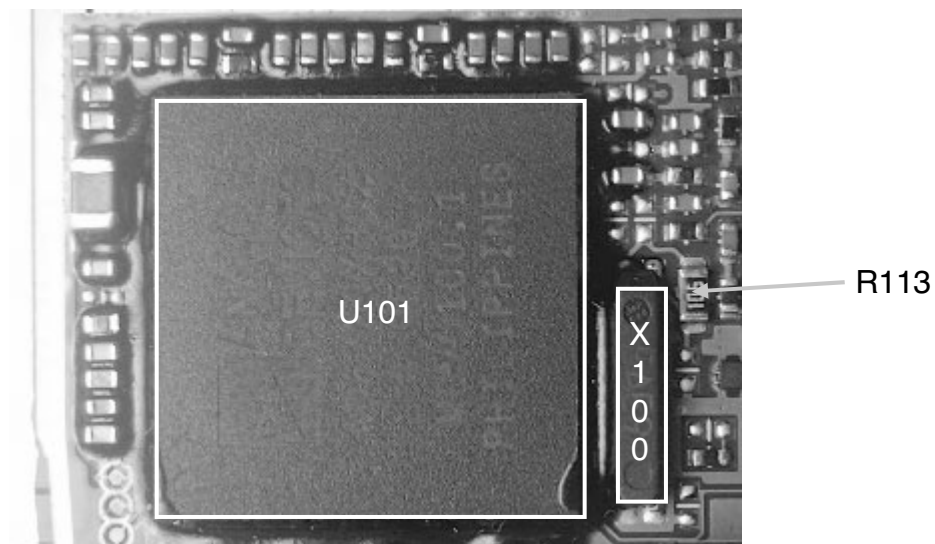
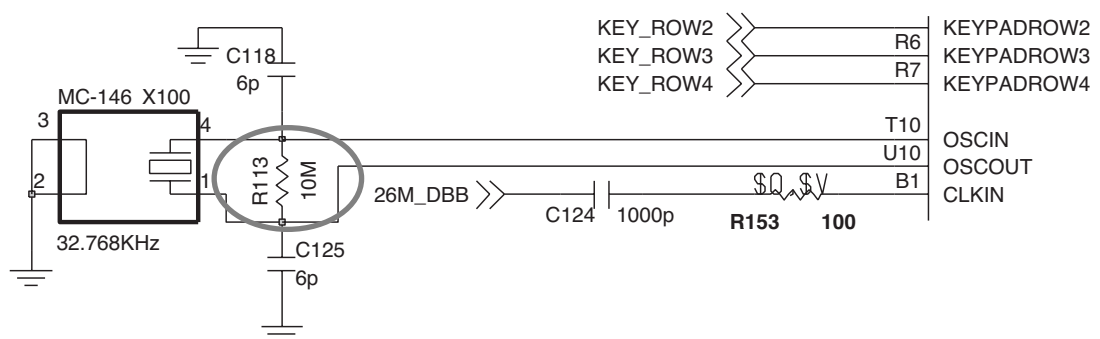


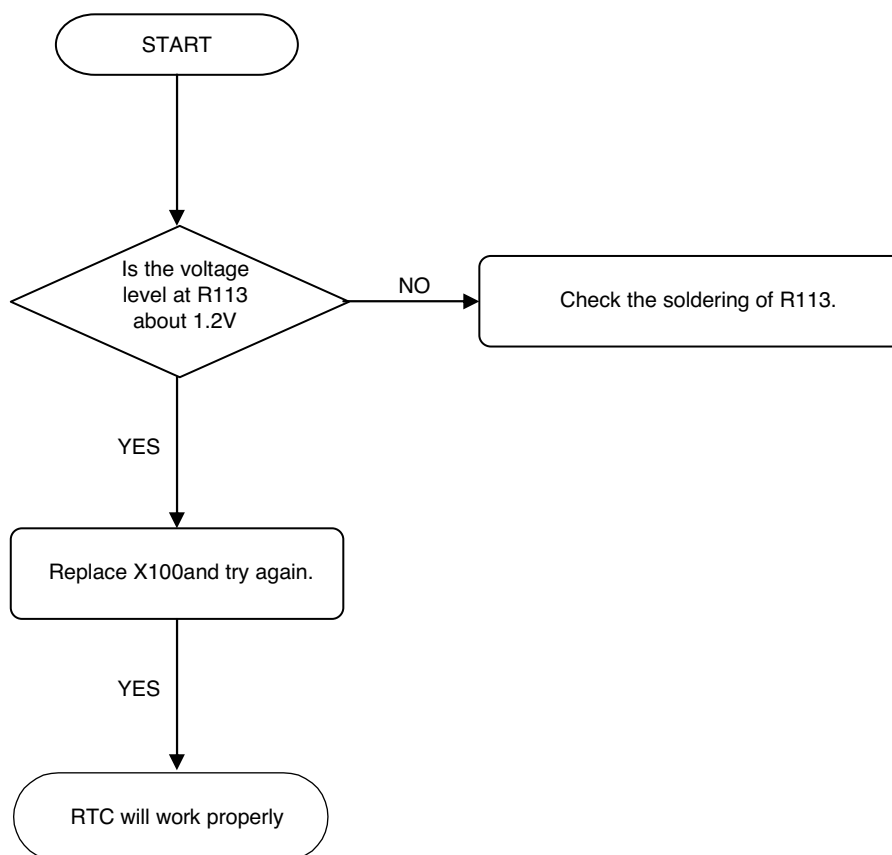
Figure 24

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

Checking Flow



4.16 Indication LED Trouble

TEST POINT

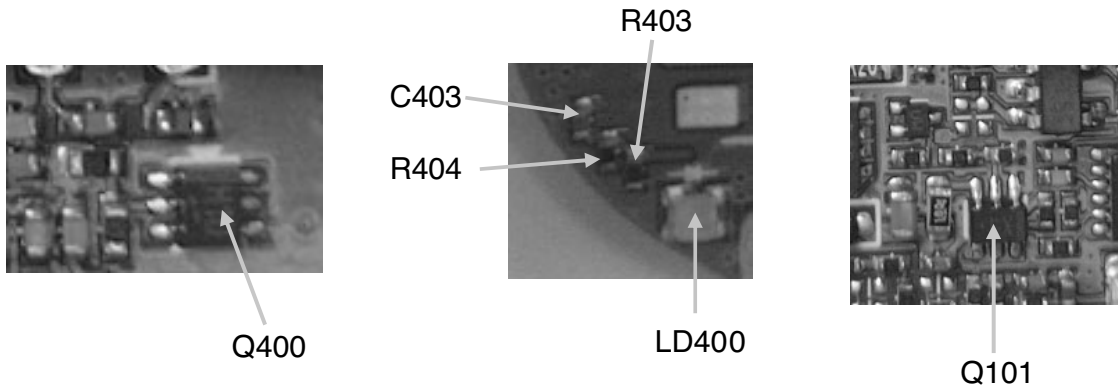
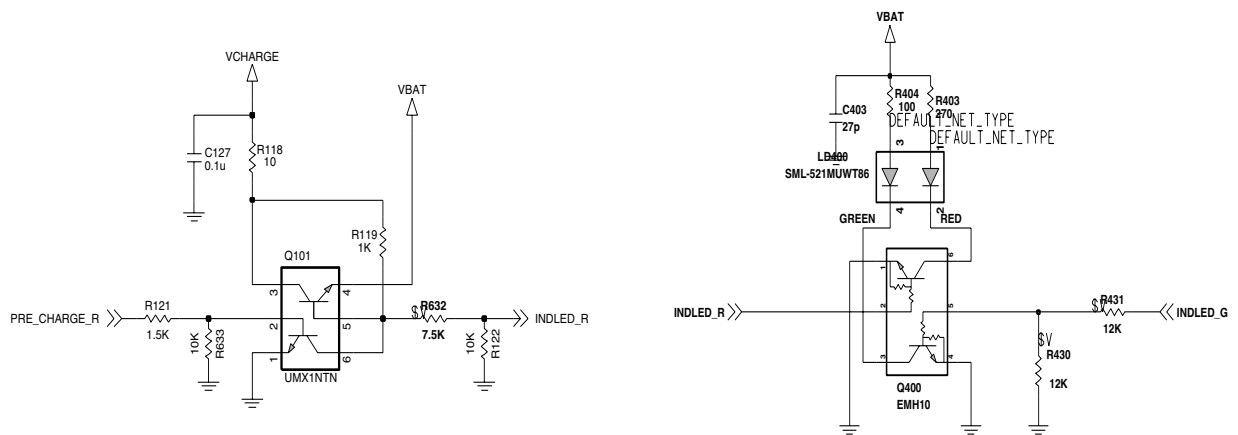


Figure 25

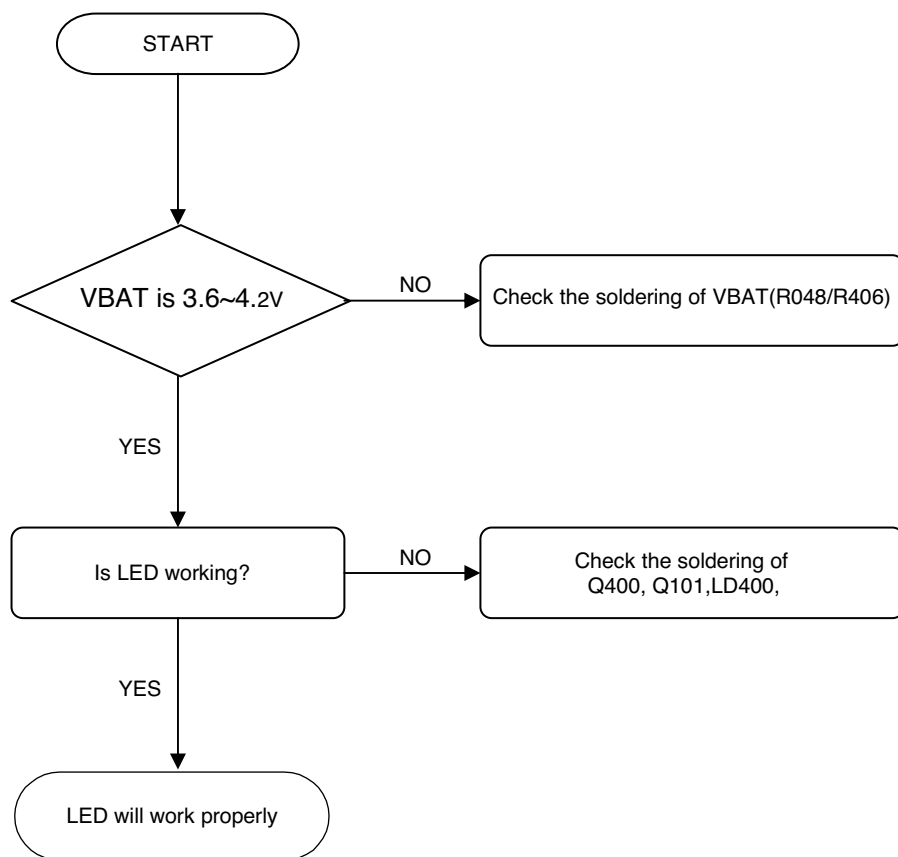
CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

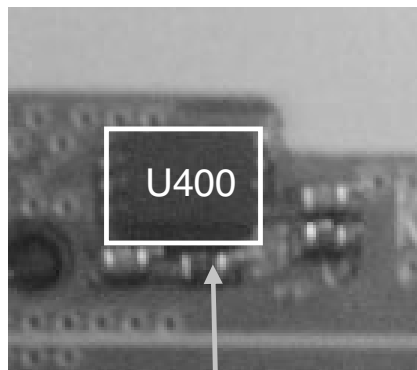
Checking Flow

Indication LED only operates in trickle charging mode.



4.17 Folder on/off Trouble

TEST POINT

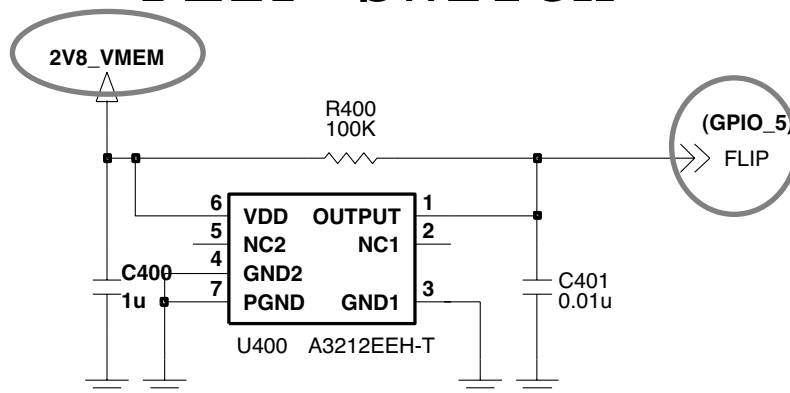


U400.6
(R400)

Figure 26

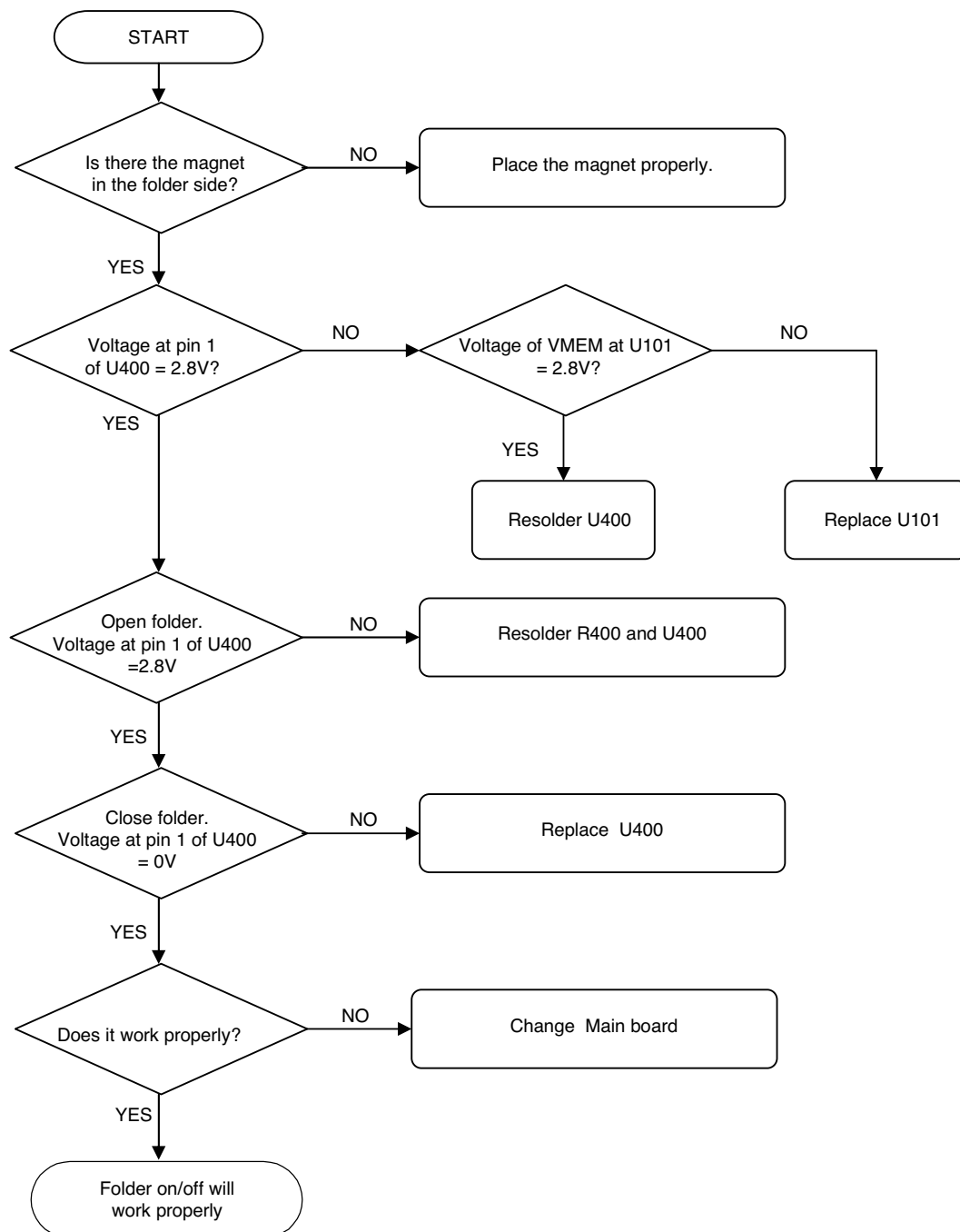
CIRCUIT DIAGRAM

FLIP SWITCH



4. TROUBLE SHOOTING

Checking Flow



5. DOWNLOAD

5.1 Download

A. Download Setup

Figure 5-1 describes Download setup

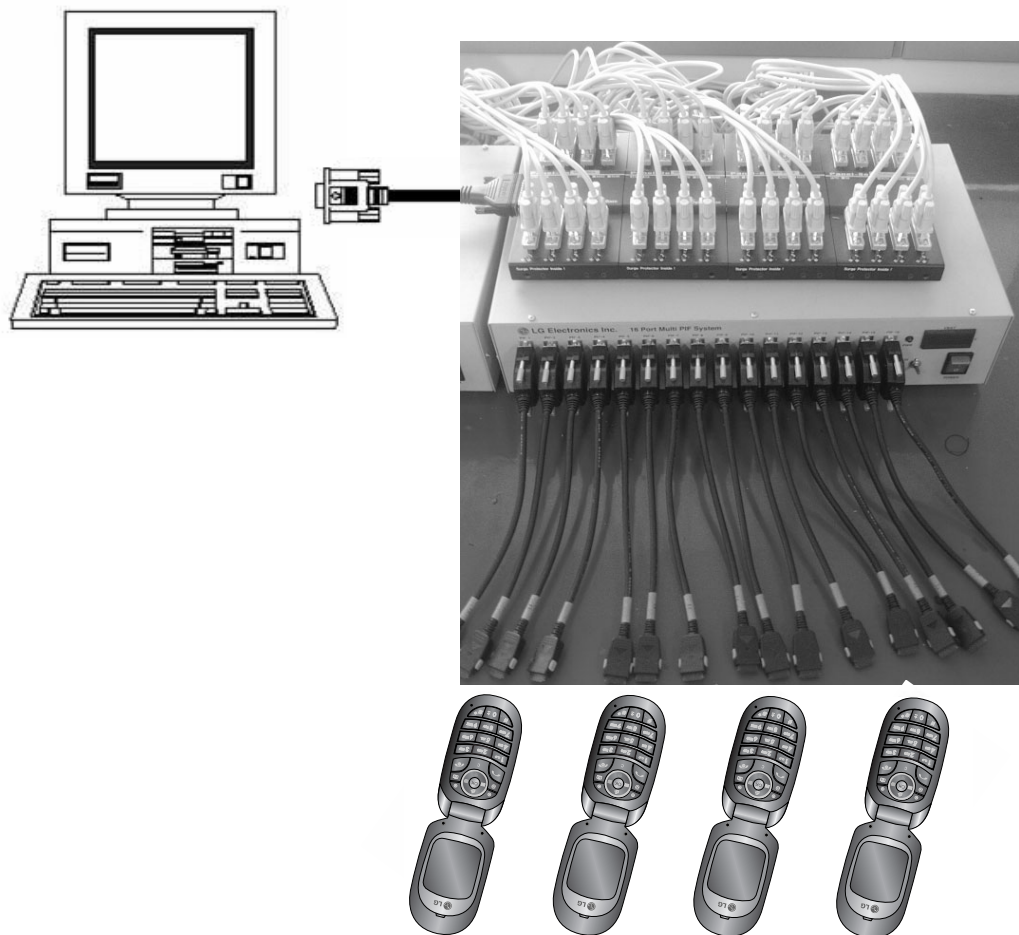


Figure 5-1. Download Setup

5. DOWNLOAD

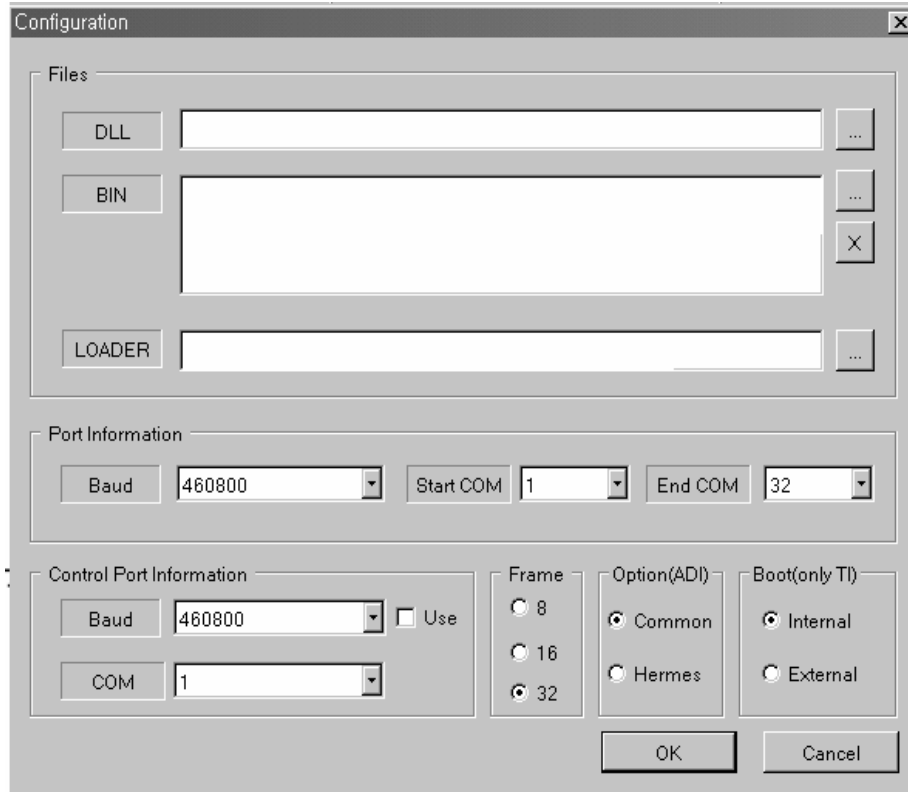
B. Multi Download Procedure

1. Run GSM Multi Download program and select Setting

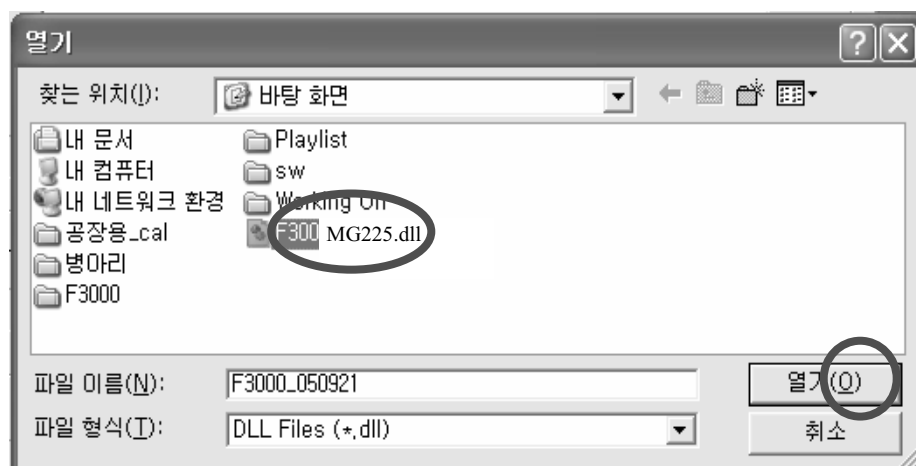


5. DOWNLOAD

2. Select Configuration from the menu and you may see this window

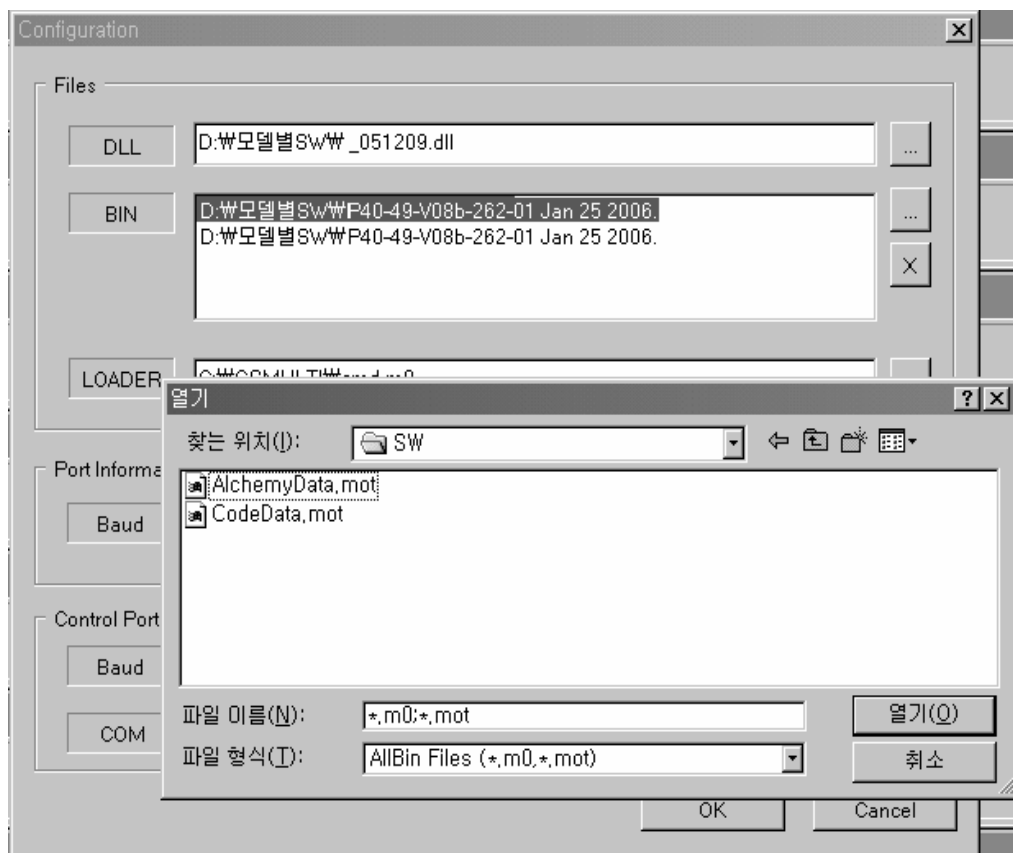


3. Press  key to select DLL file and press Open



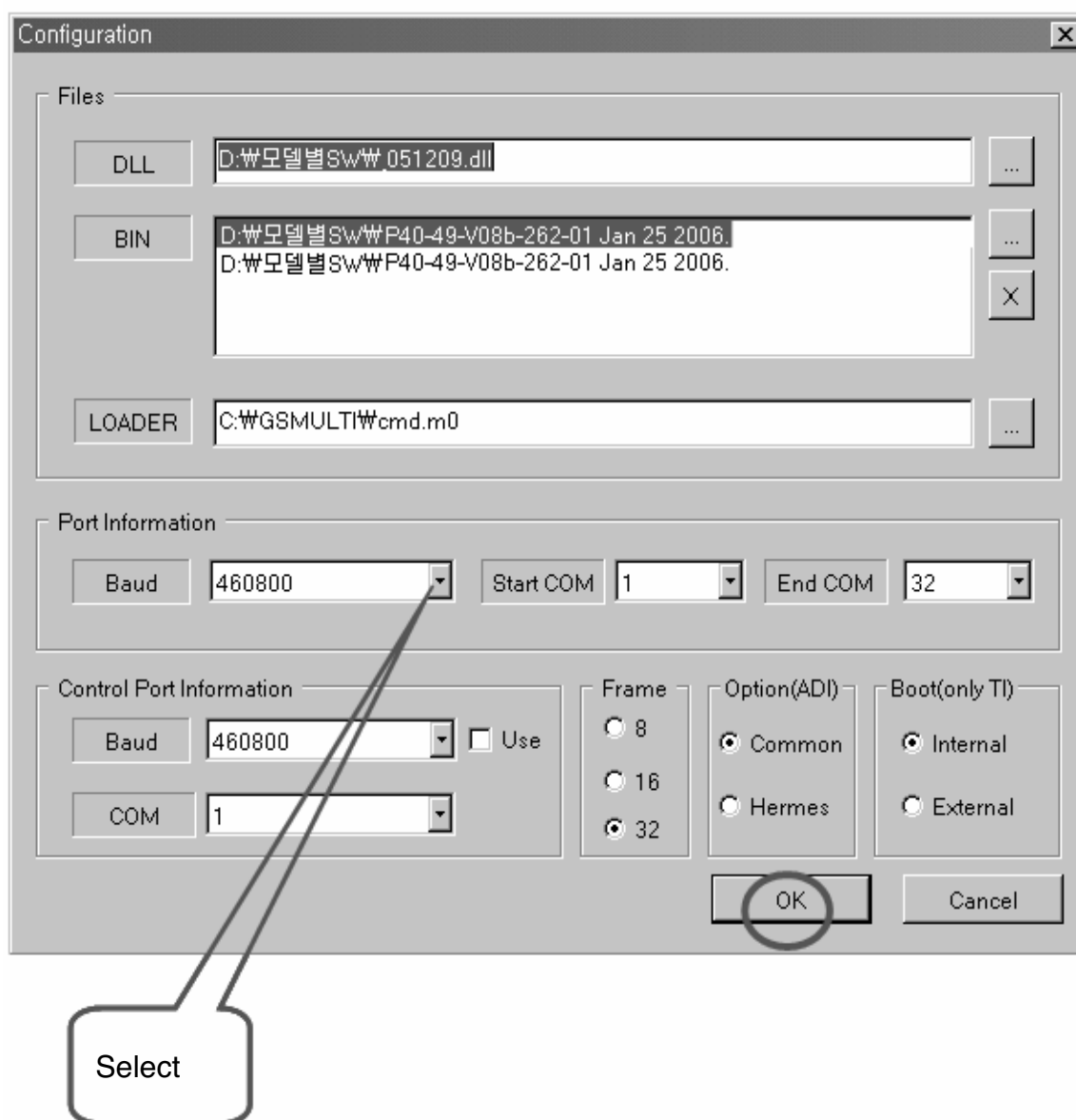
5. DOWNLOAD

4. Press  key to select the mot files
5. Select AlchemyData.mot and press open
6. Repeat step 4-5 to select CodeData.mot



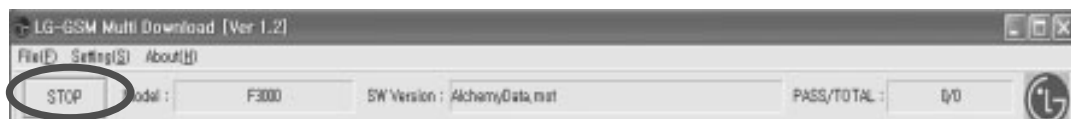
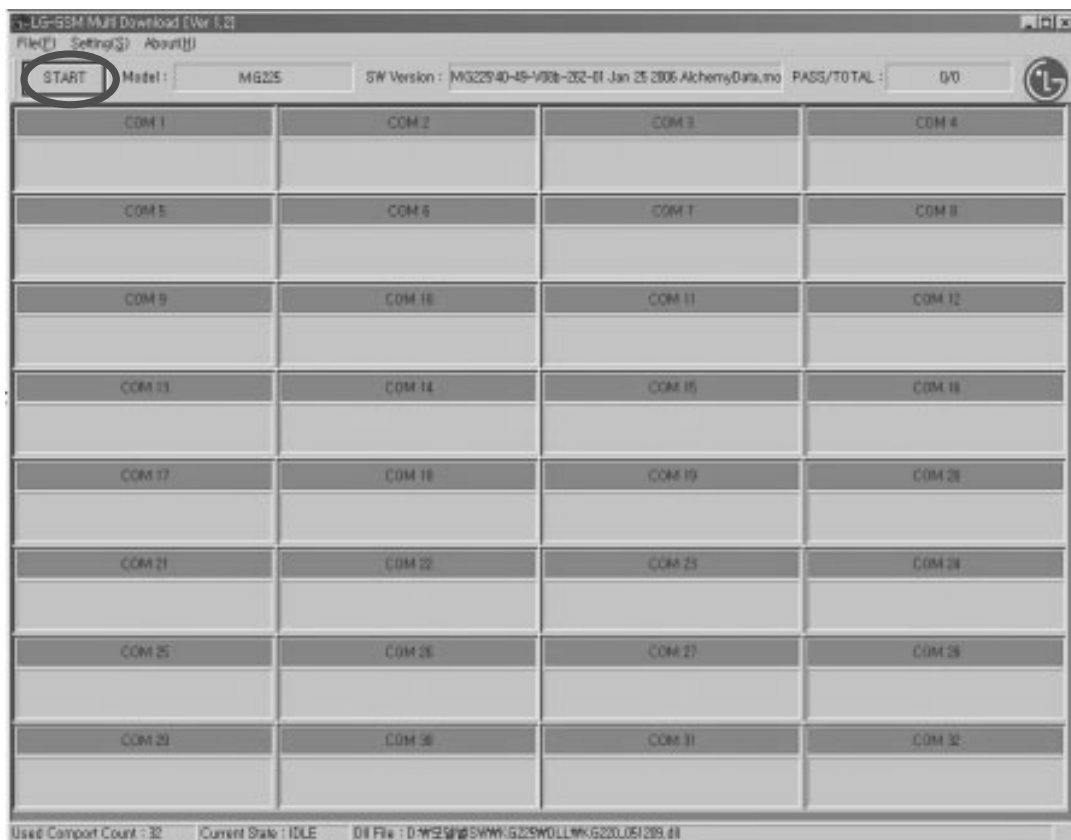
5. DOWNLOAD

7. Check if the ADI option is set to Hermes
8. Press OK to end Configuration

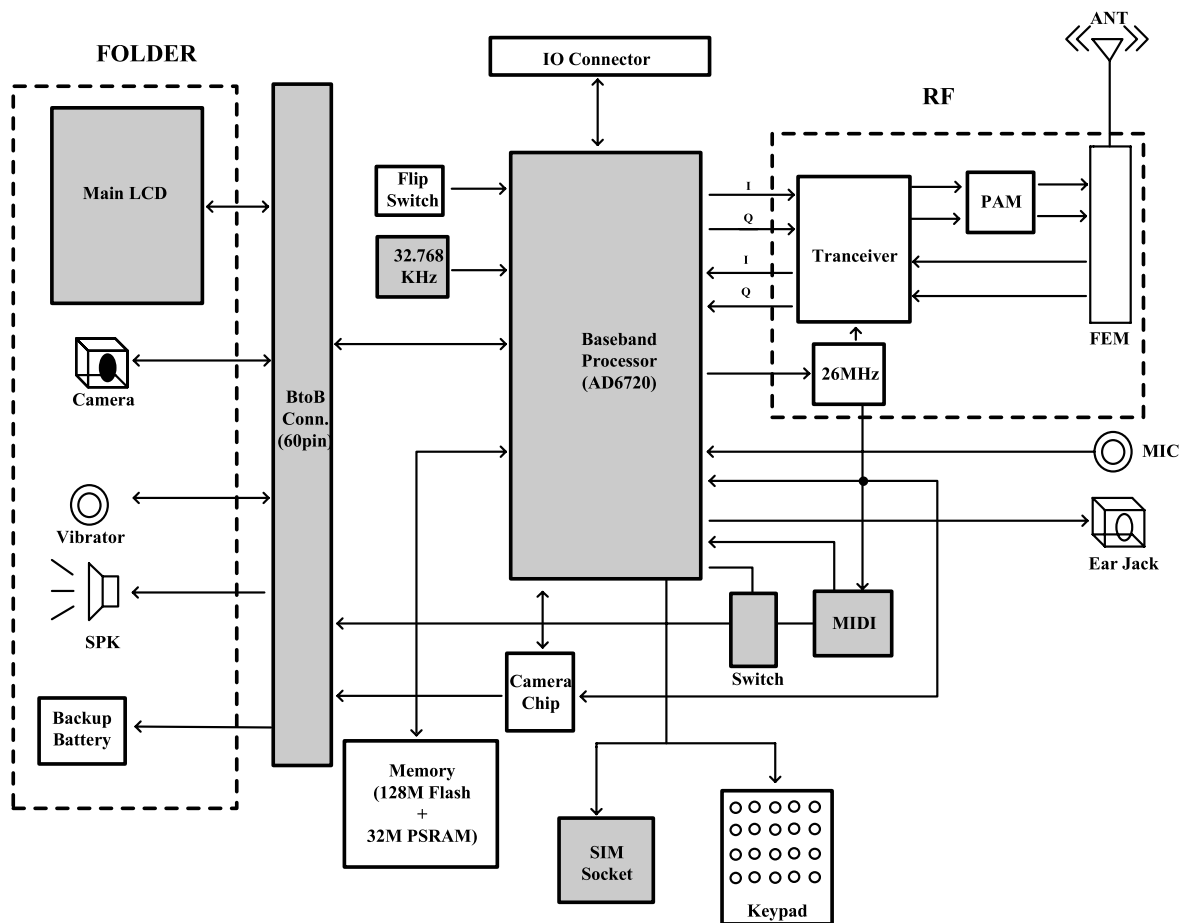


5. DOWNLOAD

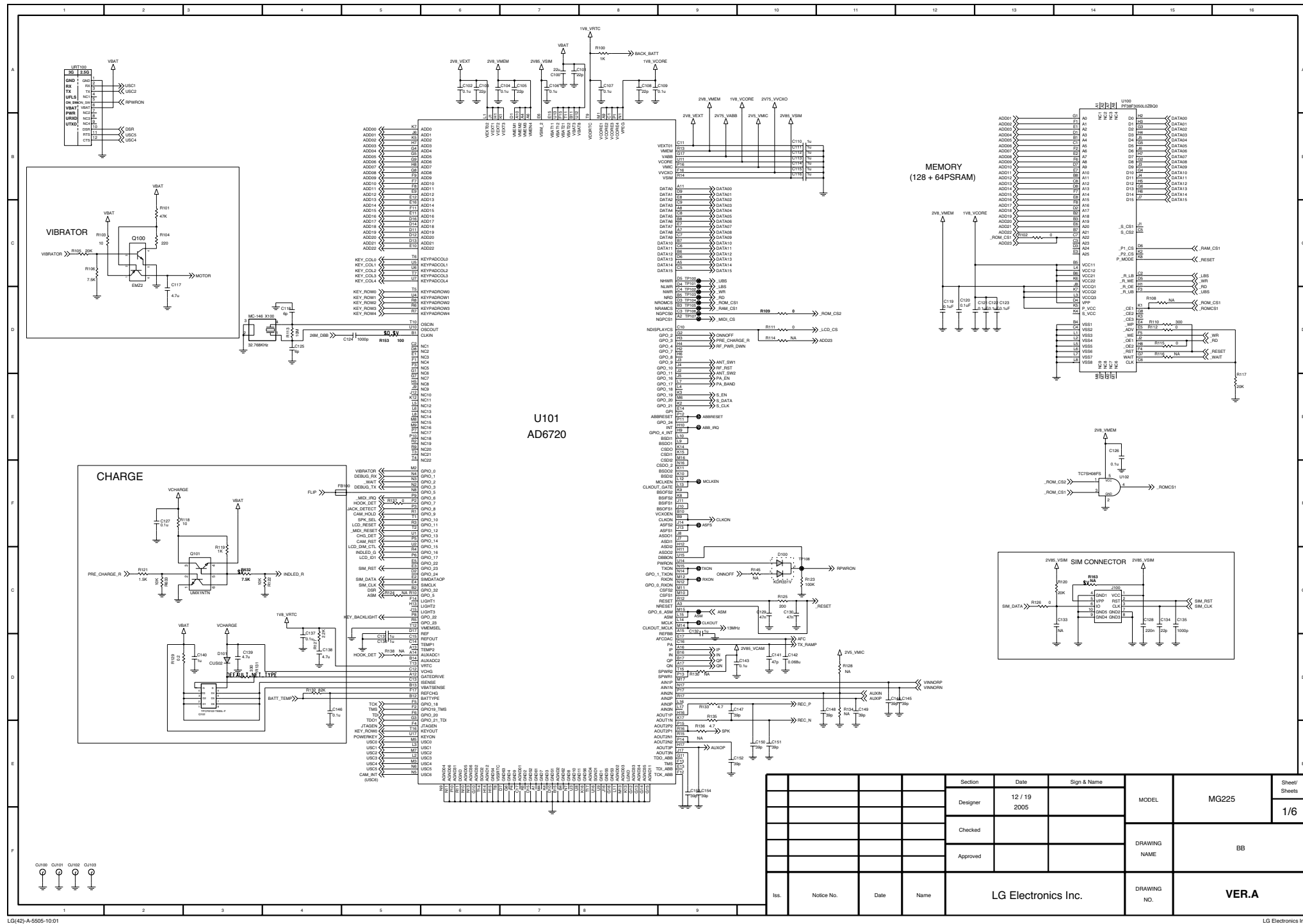
9. Press START to execute download
10. Once downloading is started, press STOP button to keep from re-downloading after downloading is completed.



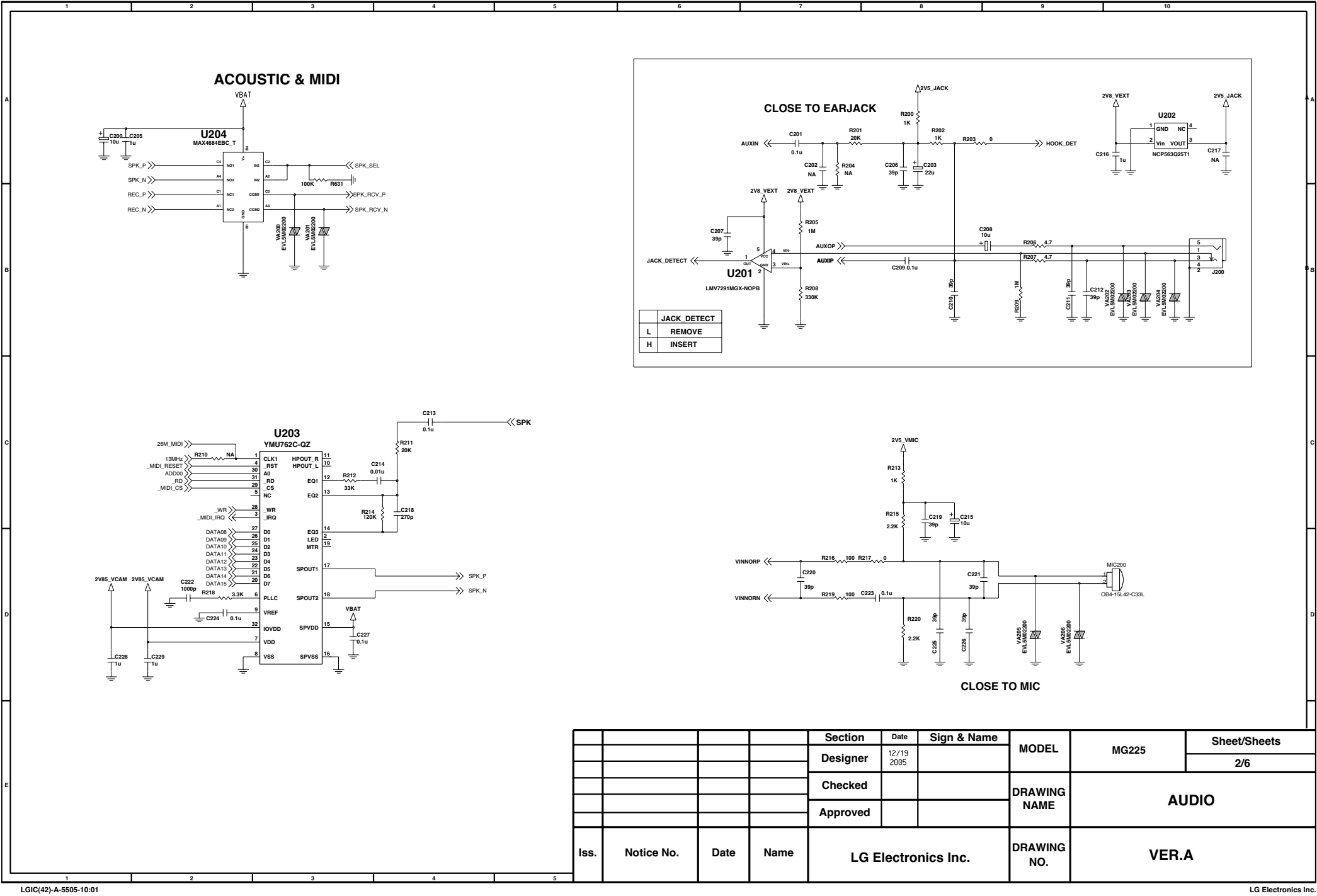
6. BLOCK DIAGRAM



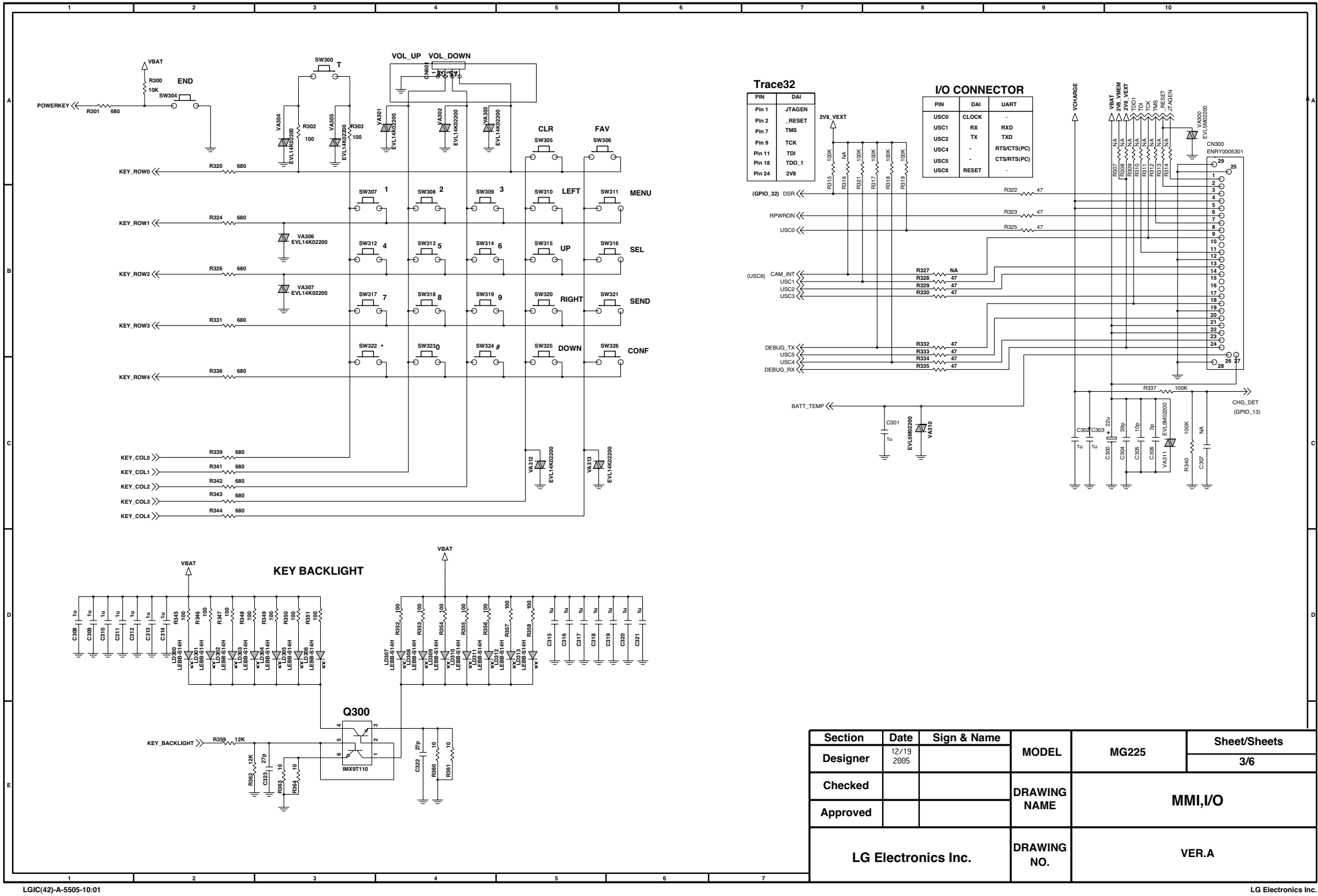
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM

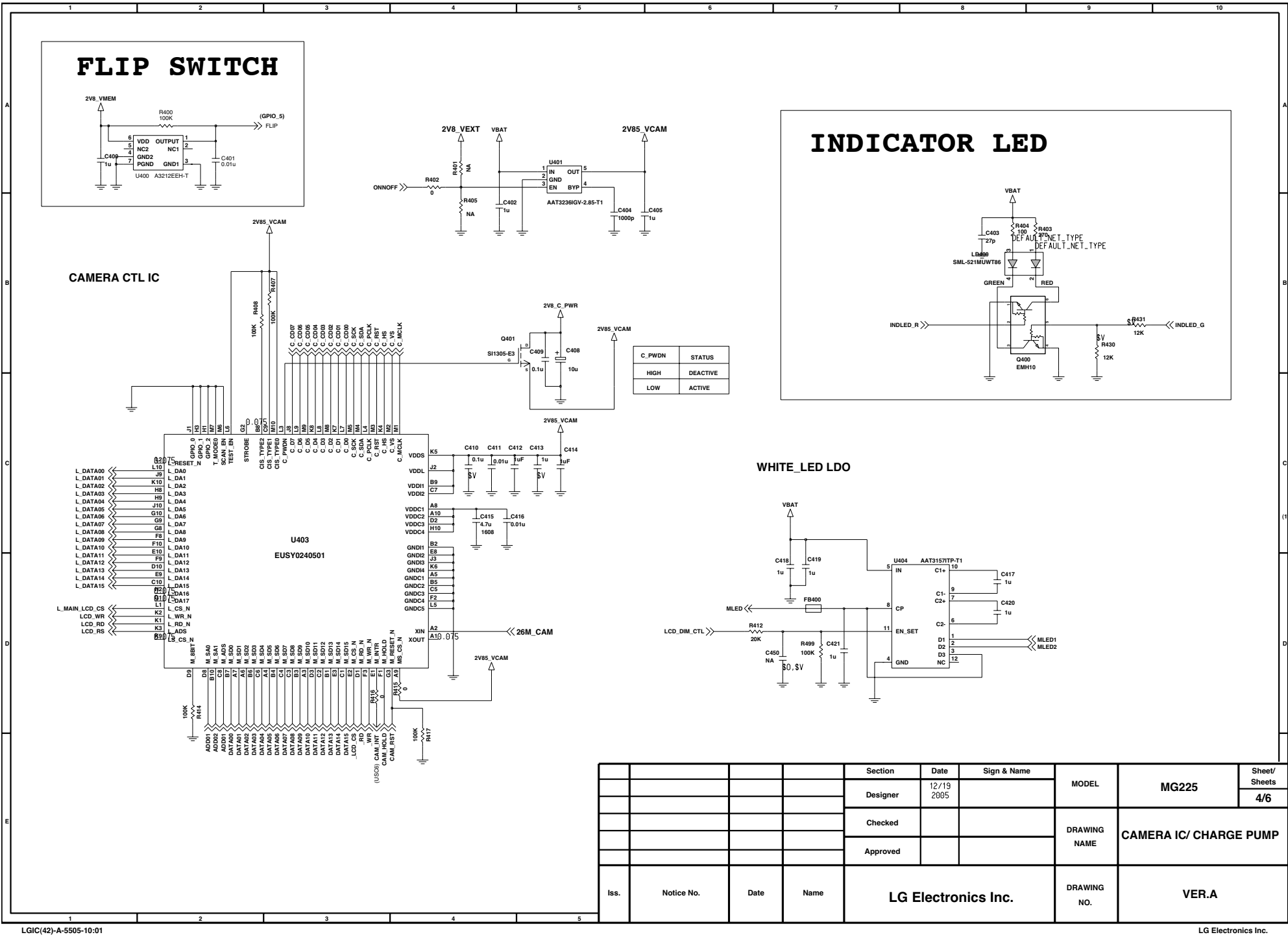


Section	Date	Sign & Name	MODEL	MG225	Sheet/Sheets
Designer	12/19 2005				3/6
Checked			DRAWING NAME	MMI,I/O	
Approved					
LG Electronics Inc.			DRAWING NO.	VER.A	

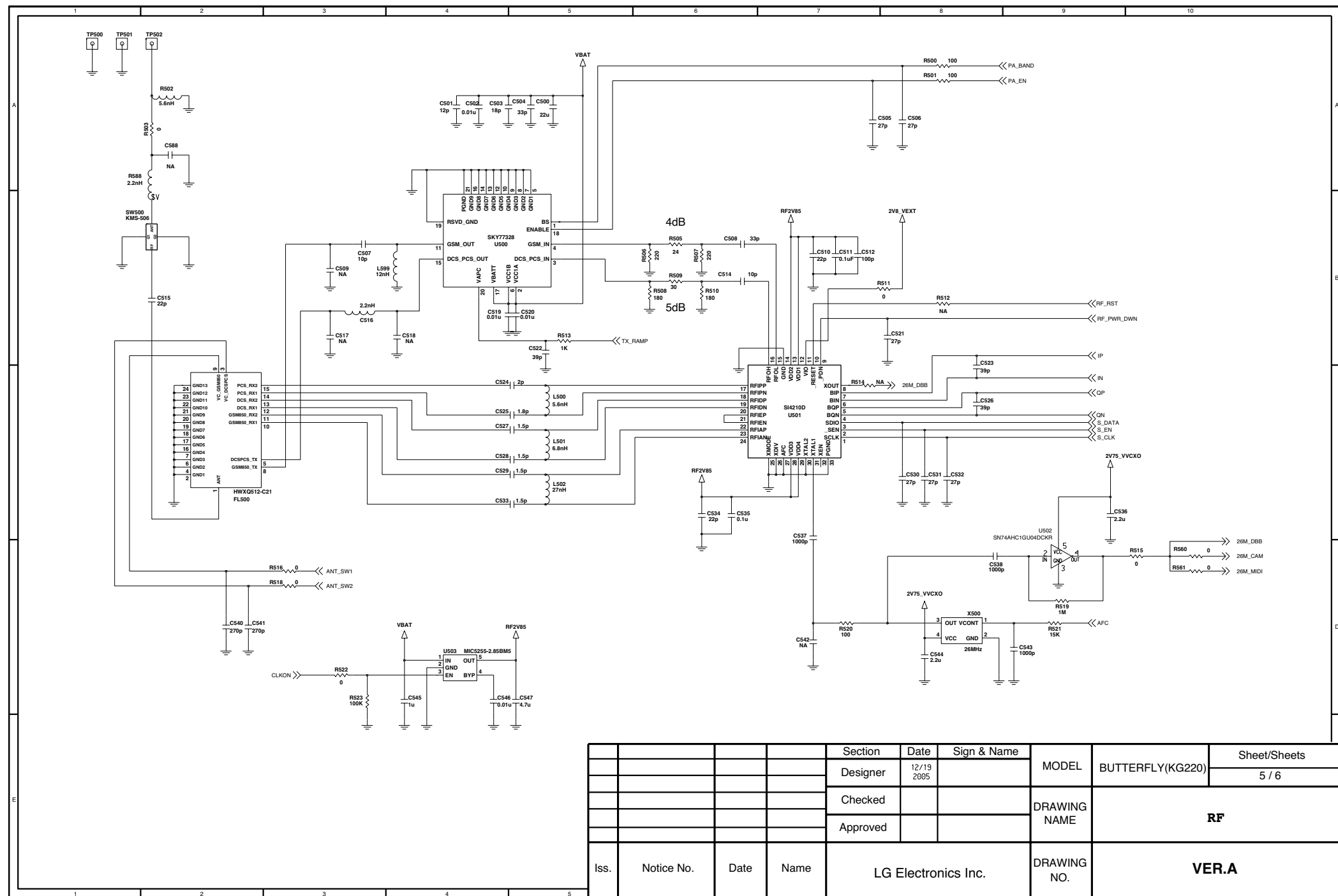
LGIC(42)-A-5505-10:01

LG Electronics Inc.

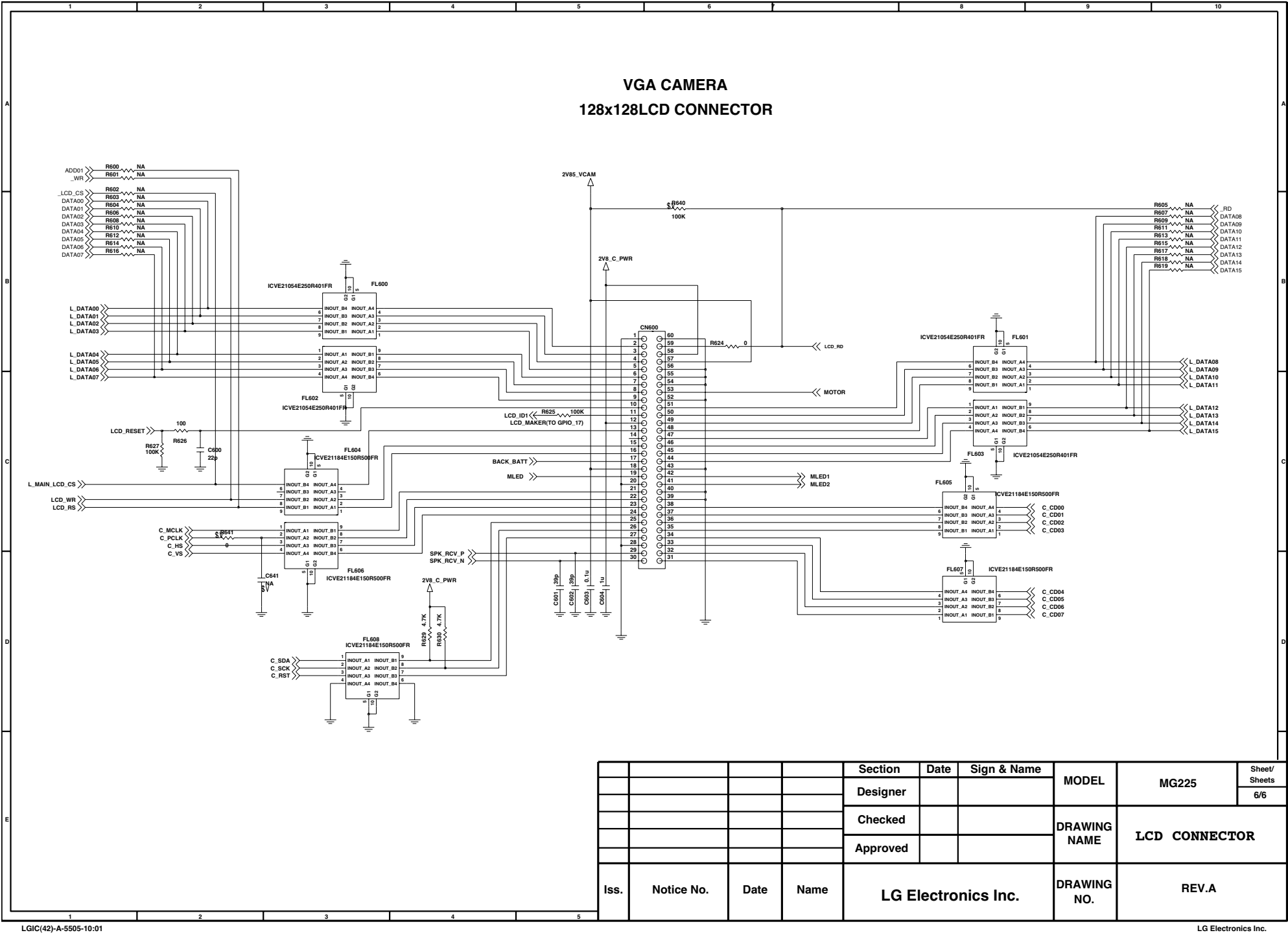
7. CIRCUIT DIAGRAM



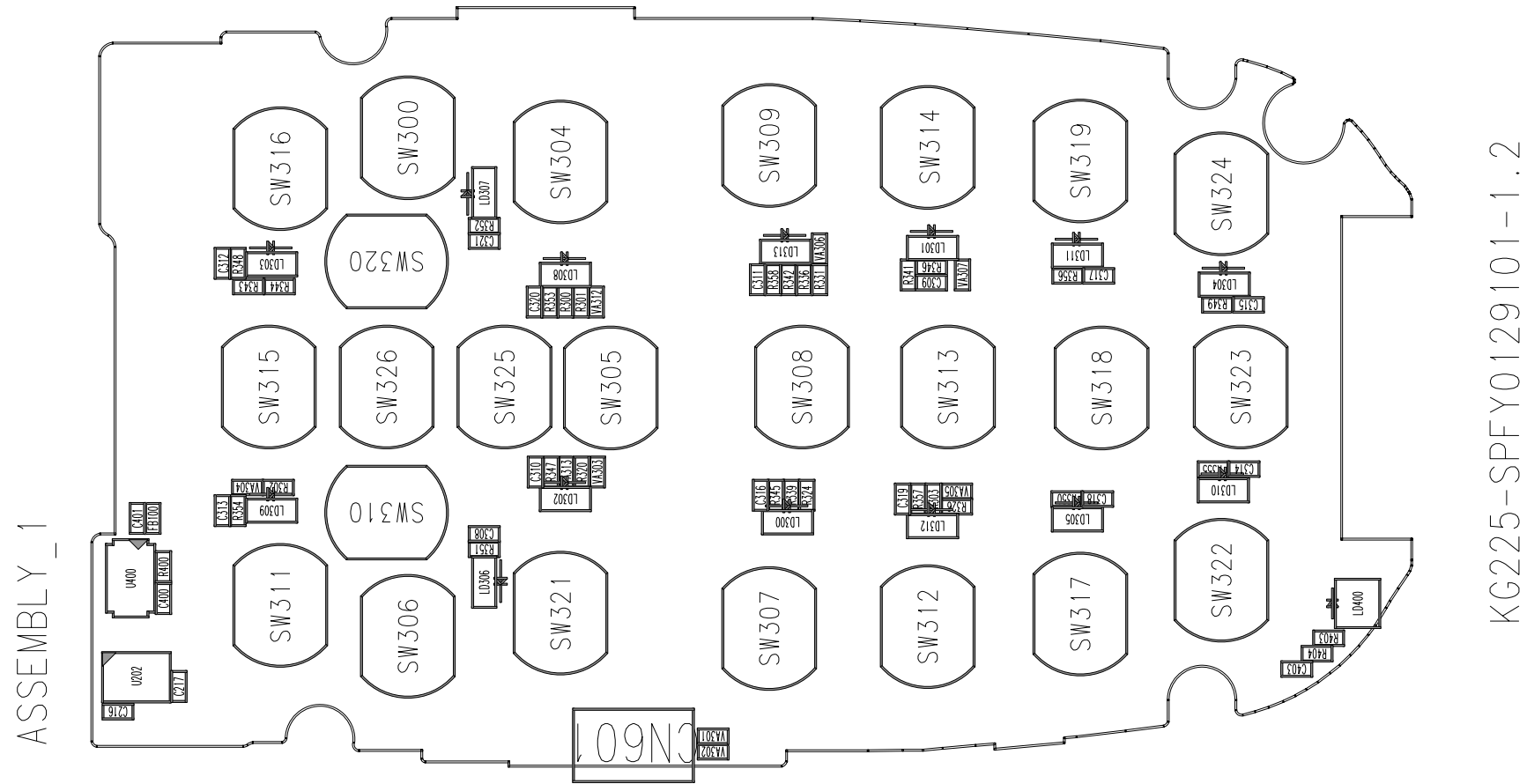
7. CIRCUIT DIAGRAM



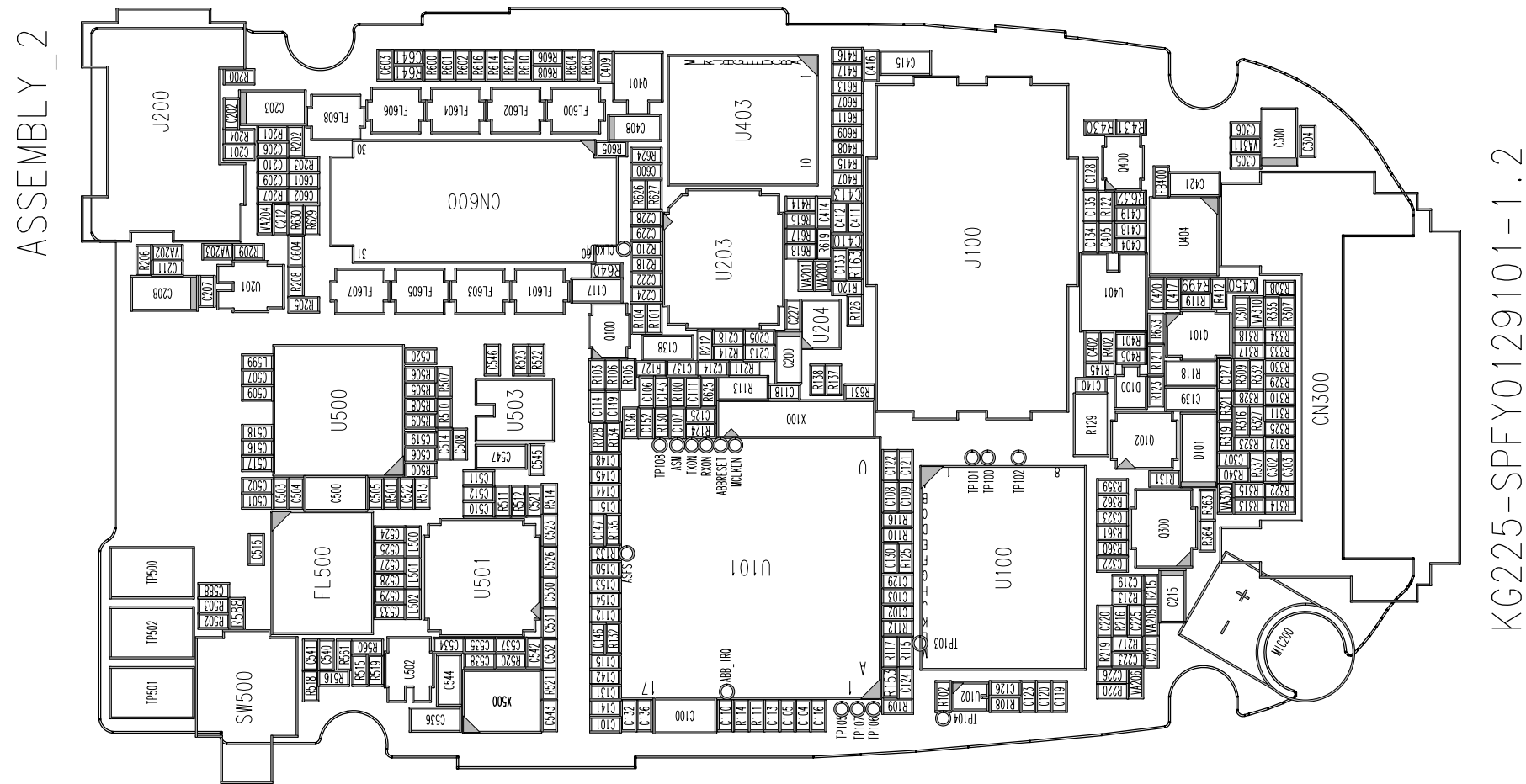
7. CIRCUIT DIAGRAM



8. PCB LAYOUT



8. PCB LAYOUT



KG225-SPFY0129101-1.2

9. ENGINEERING MODE

A. About Engineering Mode

Engineering mode is designed to allow a service man/engineer to view and test the basic functions provided by a handset.

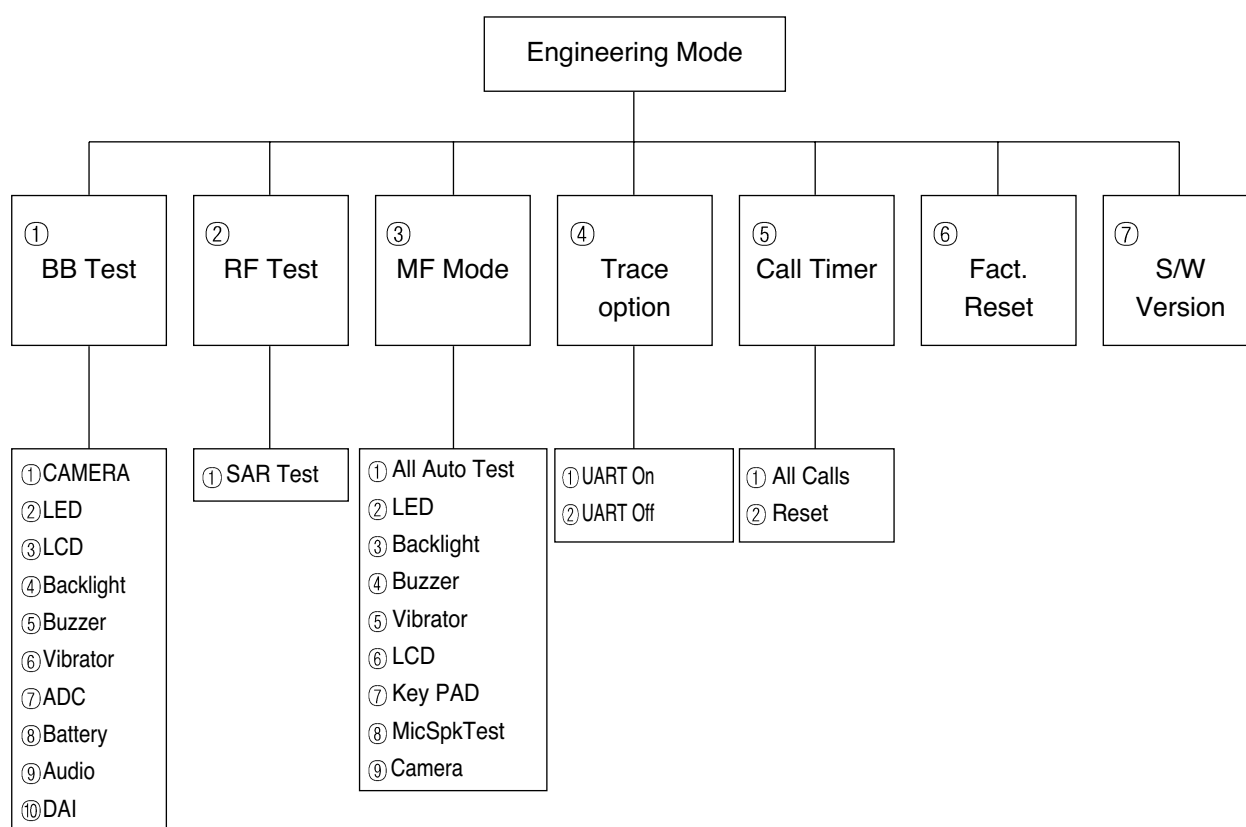
B. Access Codes

The key sequence for switching the engineering mode on is 2945##. Pressing END will switch back to non-engineering mode operation.

C. Key Operation

Use Up and Down key to select a menu and press 'select' key to progress the test. Pressing 'back' key will switch back to the original test menu.

D. Engineering Mode Menu Tree



9. ENGINEERING MODE

9.1 BB Test [MENU 1]

9.1.1 CAMERA

This menu is to test the Camera.

- 1) Main LCD preview : It shows the picture on Main LCD.

9.1.2 LED

This menu is to test the LED.

- 1) Green On
- 2) Green Off
- 3) Red On
- 4) Red Off

9.1.3 LCD

- 1) COLOUR : WHITE, RED, GREEN, BLUE, BLACK
- 2) Contrast Value

9.1.4 Backlight

This menu is to test the LCD Backlight and Keypad EL Backlight.

- 1) Backlight on : LCD Backlight and Keypad EL Backlight light on at the same time.
- 2) Backlight off : LCD Backlight and Keypad EL Backlight light off at the same time.
- 3) Backlight value : This controls brightness of Backlight. When entering into the menu, the present backlight-value in the phone is displayed. Use Left/Right key to adjust the level of brightness. The value of the brightness set at last will be saved in the NVRAM.

9.1.5 Buzzer

This menu is to test the melody sound.

- 1) Melody on : Melody sound is played through the speaker.
- 2) Melody off : Melody sound is off.

9.1.6 Vibrator

This menu is to test the vibration mode.

- 1) Vibrator on : Vibration mode is on.
- 2) Vibrator off : Vibration mode is off.

9.1.7 ADC (Analog to Digital Converter)

This displays the value of each ADC.

- 1) MVBAT ADC : Main Voltage Battery ADC
- 2) AUX ADC : Auxiliary ADC
- 3) TEMPER ADC : Temperature ADC

9.1.8 BATTERY

- 1) Bat Cal : This displays the value of Battery Calibration.

The following menus are displayed in order : BAT_LEV_4V, BAT_LEV_3_LIMIT, BAT_LEV_2_LIMIT, BAT_LEV_1_LIMIT, BAT_IDLE_LIMIT, BAT_INCALL_LIMIT, SHUT_DOWN_VOLTAGE, BAT_RECHARGE_LMT

- 2) TEMP Cal : This displays the value of Temperature Calibration.

The following menus are displayed in order : TEMP_HIGH_LIMIT, TEMP_HIGH_RECHARGE_LMT, TEMP_LOW_RECHARGE_LMT, TEMP_LOW_LIMIT

9.1.9 Audio

This is a menu for setting the control register of Voiceband Baseband Codec chip.

Although the actual value can be written over, it returns to default value after switching off and on the phone.

- 1) VbControl1 : VbControl1 bit Register Value Setting
- 2) VbControl2 : VbControl2 bit Register Value Setting
- 3) VbControl3 : VbControl3 bit Register Value Setting
- 4) VbControl4 : VbControl4 bit Register Value Setting
- 5) VbControl5 : VbControl5 bit Register Value Setting
- 6) VbControl6 : VbControl6 bit Register Value Setting

9.1.0 DAI (Digital Audio Interface)

This menu is to set the Digital Audio Interface Mode for Speech Transcoder and Acoustic testing.

- 1) DAI AUDIO : DAI audio mode
- 2) DAI UPLINK : Speech encoder test
- 3) DAI DOWNLINK : Speech decoder test
- 4) DAI OFF : DAI mode off

9. ENGINEERING MODE

9.2 RF Test [MENU 2]

9.2.1 SAR test

This menu is to test the Specific Absorption Rate.

- 1) SAR test on : Phone continuously process TX only. Call-setup equipment is not required.
- 2) SAR test off : TX process off

9.3 MF mode [MENU 3]

This manufacturing mode is designed to do the baseband test automatically. Selecting this menu will process the test automatically, and phone displays the previous menu after completing the test.

9.3.1 All auto test

LCD, Backlight, Vibrator, Buzzer, Key Pad, Mic&Speaker,

9.3.2 Backlight

LCD Backlight is on for about 1.5 seconds at the same time, then off.

9.3.3 Buzzer

This menu is to test the volume of Melody. It rings in the following sequence. Volume 1, Volume 2, Volume 3, Volume 0 (mute), Volume 4, Volume 5.

9.3.4 Vibrator

Vibrator is on for about 1.5 seconds.

9.3.5 LCD

1)LCD

Main LCD screen resolution tests horizontally and vertically one by one and fills the screen.

9.3.6 Key pad

When a pop-up message shows 'Press Any Key', you may press any keys including side keys, but not [Soft2 Key]. If the key is working properly, name of the key is displayed on the screen. Test will be completed in 15 seconds automatically.

9.3.7 MicSpk Test

The sound from MIC is recorded for about 3 seconds, then it is replayed on the speaker automatically.

9.4 Trace option [MENU 4]

This is NOT a necessary menu to be used by neither engineers nor users.

9.5 Call timer [MENU 5]

This menu is to set the Digital Audio Interface Mode for Speech Transcoder and Acoustic testing.

- 1) All calls : This displays total conversation time. User cannot reset this value.
- 2) Reset settings : This resets total conversation time to this, [00:00:00].

9.6 Fact. Reset [MENU 6]

This Factory Reset menu is to format data block in the flash memory and this procedure set up the default value in data block.

Attention

- ① Fact. Reset (i.e.Factory Reset) should be only used during the Manufacturing process.
- ② Servicemen should NOT progress this menu, otherwise some of valuable data such as Setting value, RF Calibration data, etc. cannot be restored again.

9.7 S/W version

This displays software version stored in the phone.

10. STAND ALONE TEST

10. STAND ALONE TEST

10.1 Introduction

This manual explains how to examine the status of RX and TX of the model.

A. Tx Test

TX test - this is to see if the transmitter of the phones is activating normally.

B. Rx Test

RX test - this is to see if the receiver of the phones is activating normally.

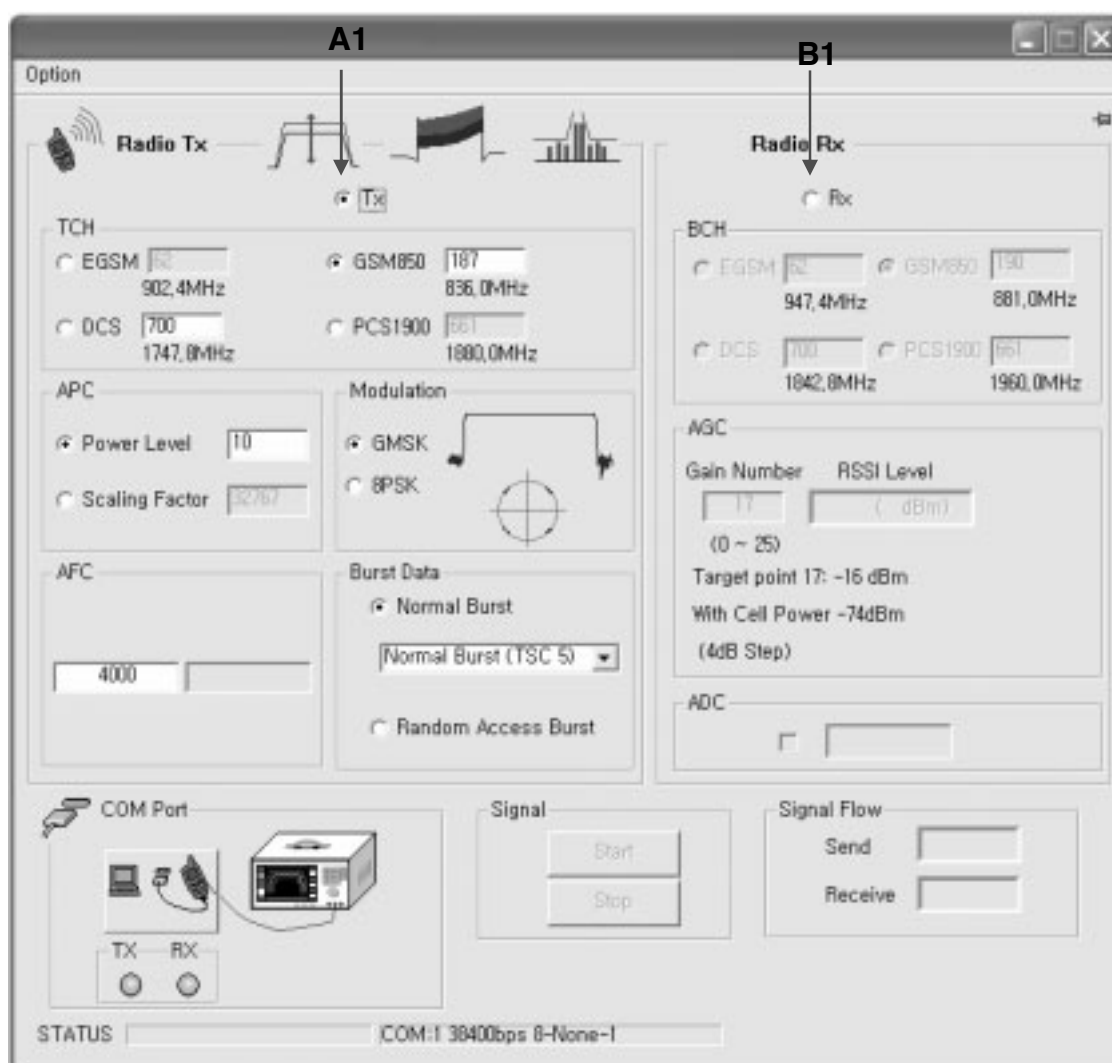


Figure 10-1. HW test program

10.2 Setting Method

A. COM port

- a. Click the right button of the mouse and select “Com setting”.
- b. In the “Dialog Menu”, select the values as explained below.
 - Port : select a correct COM port
 - Baud rate : 38400
 - Leave the rest as default values

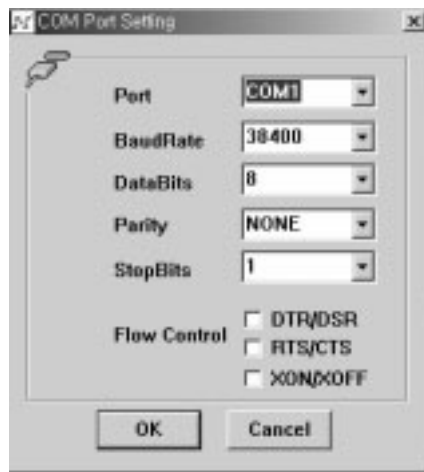


Figure 10-2. COM Port Setting

10. STAND ALONE TEST

B. Tx

1. Selecting Channel

- Select one of GSM850/EGSM or DCS/PCS Band and input appropriate channel.

2. Selecting APC

- Select either Power level or Scaling Factor.
- Power level
 - Input appropriate value GSM850/EGSM (between 5~19) or PCS/DCS (between 0~15)
- Scaling Factor
 - A 'Ramp Factor' appears on the screen.
 - You may adjust the shape of the Ramp or directly input the values.

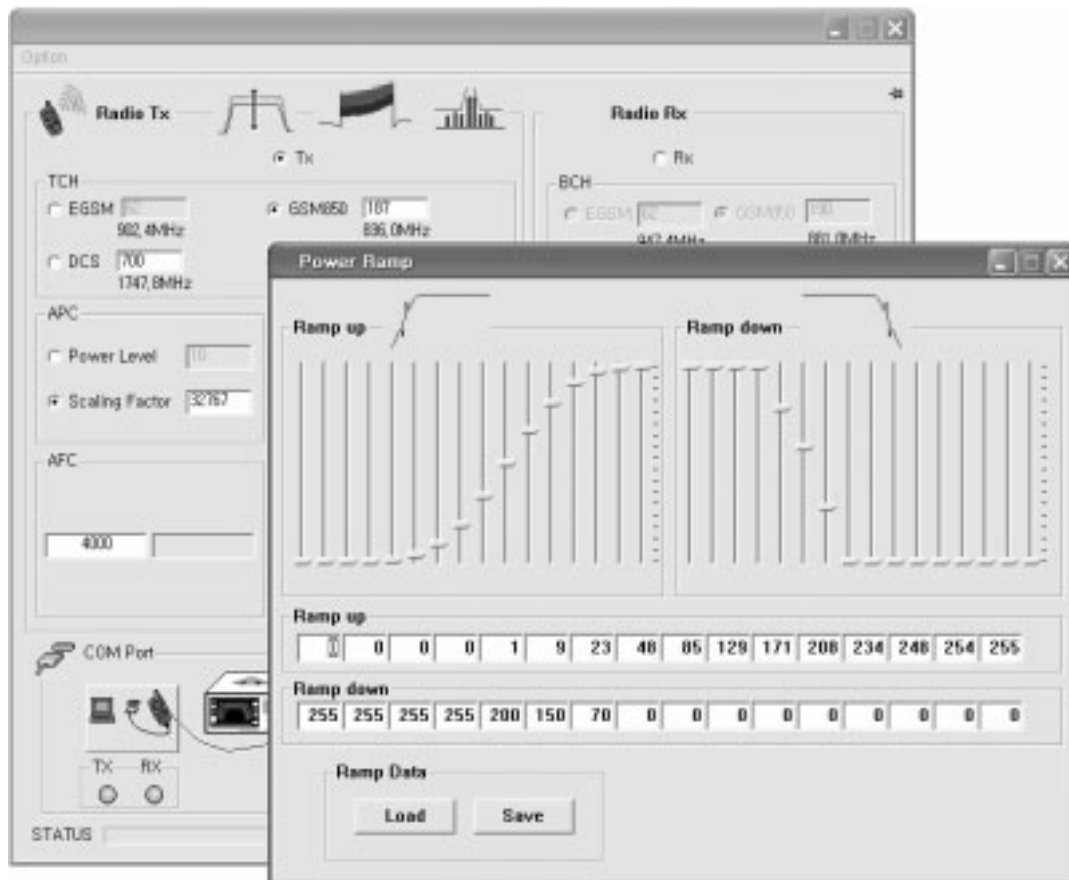


Figure 10-3. Ramping profile

10. STAND ALONE TEST

C. Rx

1. Selecting Channel

- Select one of GSM850/EGSM or PCS/DCS Band and input appropriate channel.

2. Gain Control Index (0~ 26) and RSSI level

- See if the value of RSSI is close to -16dBm when setting the value between 0 ~ 26 in Gain Control Index.
- Normal phone should indicate the value of RSSI close to -16dBm.

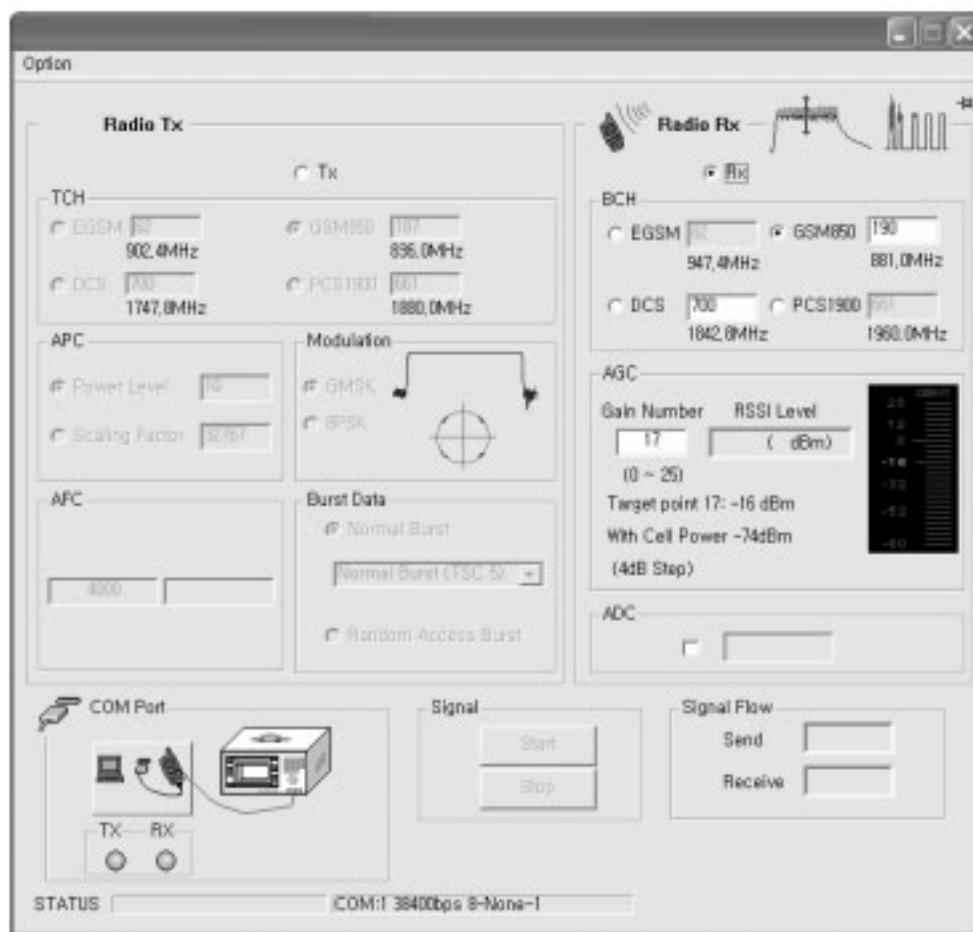


Figure 10-4. Rx test

10. STAND ALONE TEST

10.3 Means of Test

- a. Select a Tx or Rx
- b. Select band ,channel and COM port
- c. After setting them all above, press connect button.
- e. Press the start button

11. AUTO CALIBRATION

11.1 Overview

Auto-cal (Auto Calibration) is the PC side Calibration tool that perform Tx, Rx and Battery Calibration with Agilent 8960(GSM call setting instrument) and Tektronix PS2521G(Programmable Power supply). Auto-cal generates calibration data by communicating with phone and measuring equipment then write it into calibration data block of flash memory in GSM phone.

11.2 Equipment List

Equipment for Calibration	Type / Model	Brand
Wireless Communication Test Set	HP-8960	Agilent
RS-232 Cable and Test JIG		LG
RF Cable		LG
Power Supply	HP-66311B	Agilent
GPIO interface card	HP-GPIB	Agilent
Calibration & Final test software		LG
Test SIM Card		
PC (for Software Installation)	Pentium II class above 300MHz	

Table 11-1. Calibration Equipment List.

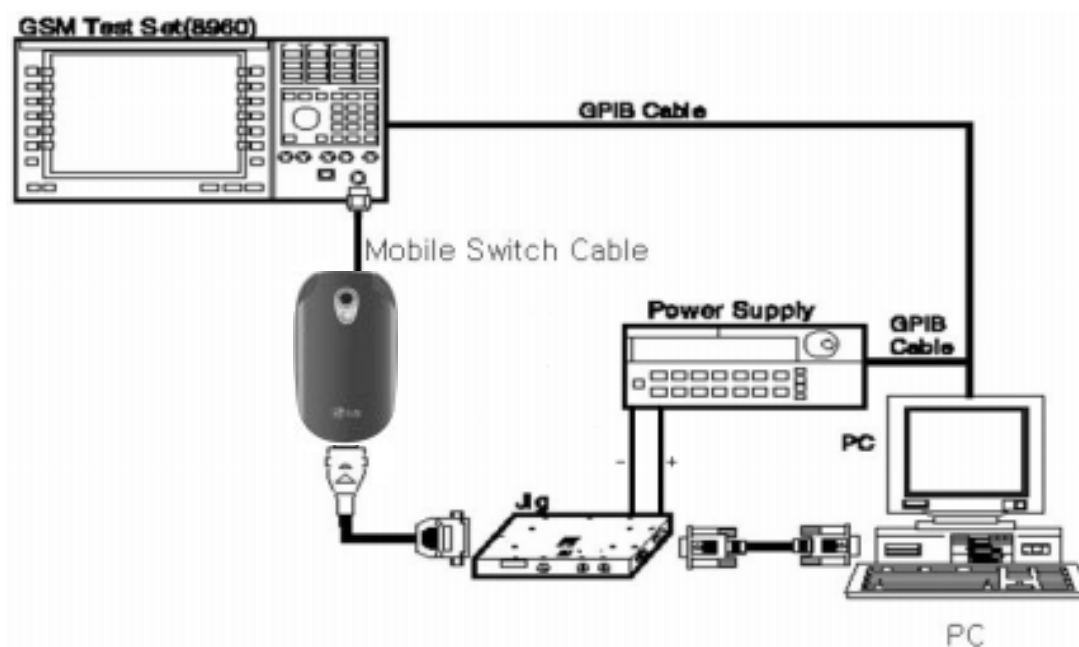


Figure 11-1. Equipment Setup

11. AUTO CALIBRATION

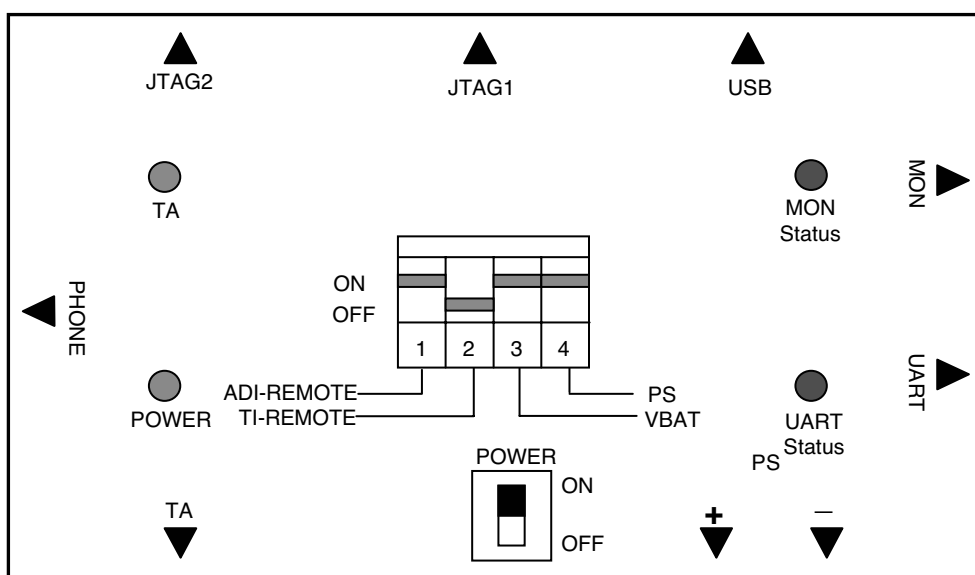


Figure 11-2 The top view of Test JIG

11.3 Test Jig Operation

Power Source	Description
Power Supply	Usually 4.0V

Table 11-2 Jig Power

Switch Number	Name	Description
Switch 1	ADI-REMOTE	In ON state, phone is awaked. It is used ADI chipset.
Switch 2	TI-REMOTE	In ON state, phone is awaked. It is used TI chipset.
Switch 3	VBAT	Power is provided for phone from battery
Switch 4	PS	Power is provided for phone from Power supply

Table 11-3 Jig DIP Switch

LED Number	Name	Description
LED 1	Power	Power is provided for Test Jig
LED 2	TA	Indicate charging state of the phone battery
LED 3	UART	Indicate data transfer state through the UART port
LED 4	MON	Indicate data transfer state through the MON port

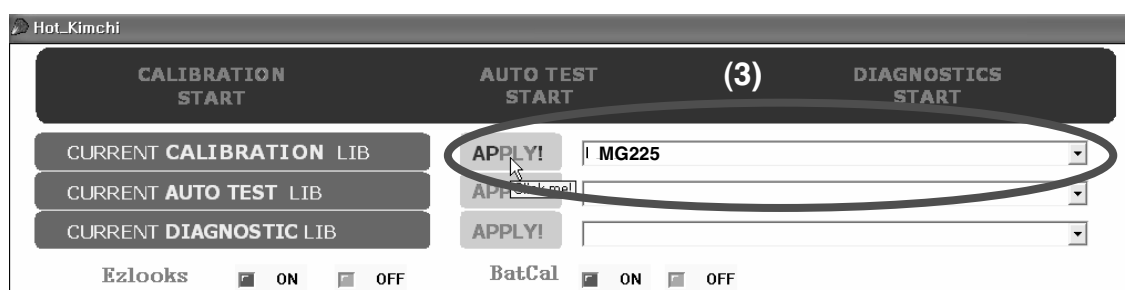
Table 11-4 LED Description

11. AUTO CALIBRATION

1. Connect as Fig 6-2(RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general)
2. Set the Power Supply 4.0V
3. Set the 3rd, 4th of DIP SW ON state always
4. Press the Phone power key, if the Remote ON is used, 1st ON state

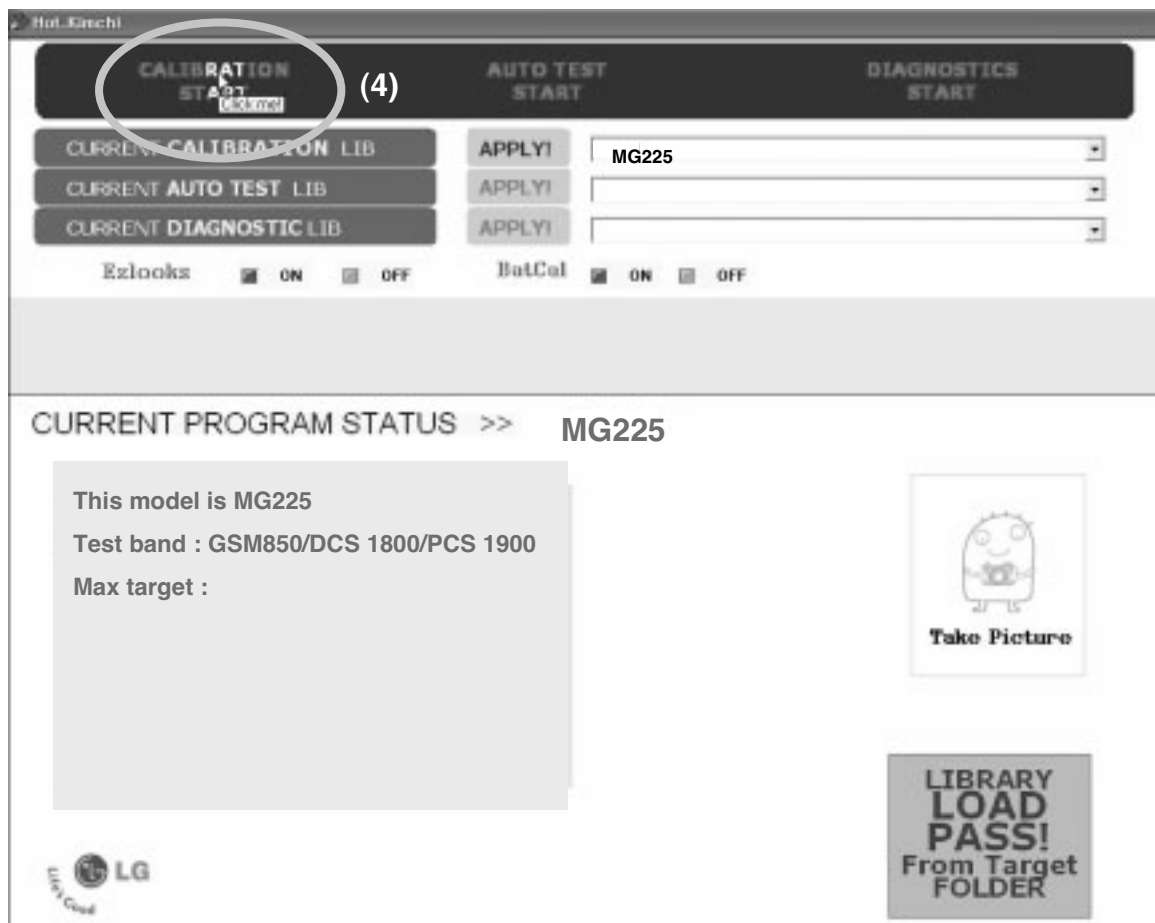
11.4 Procedure

1. Connect as Fig 11-2 (RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general.)
2. Run Hot_Kimchi.exe to start calibration.
3. From the Calibration Lib menu, Select MG225, then, Press APPLY!



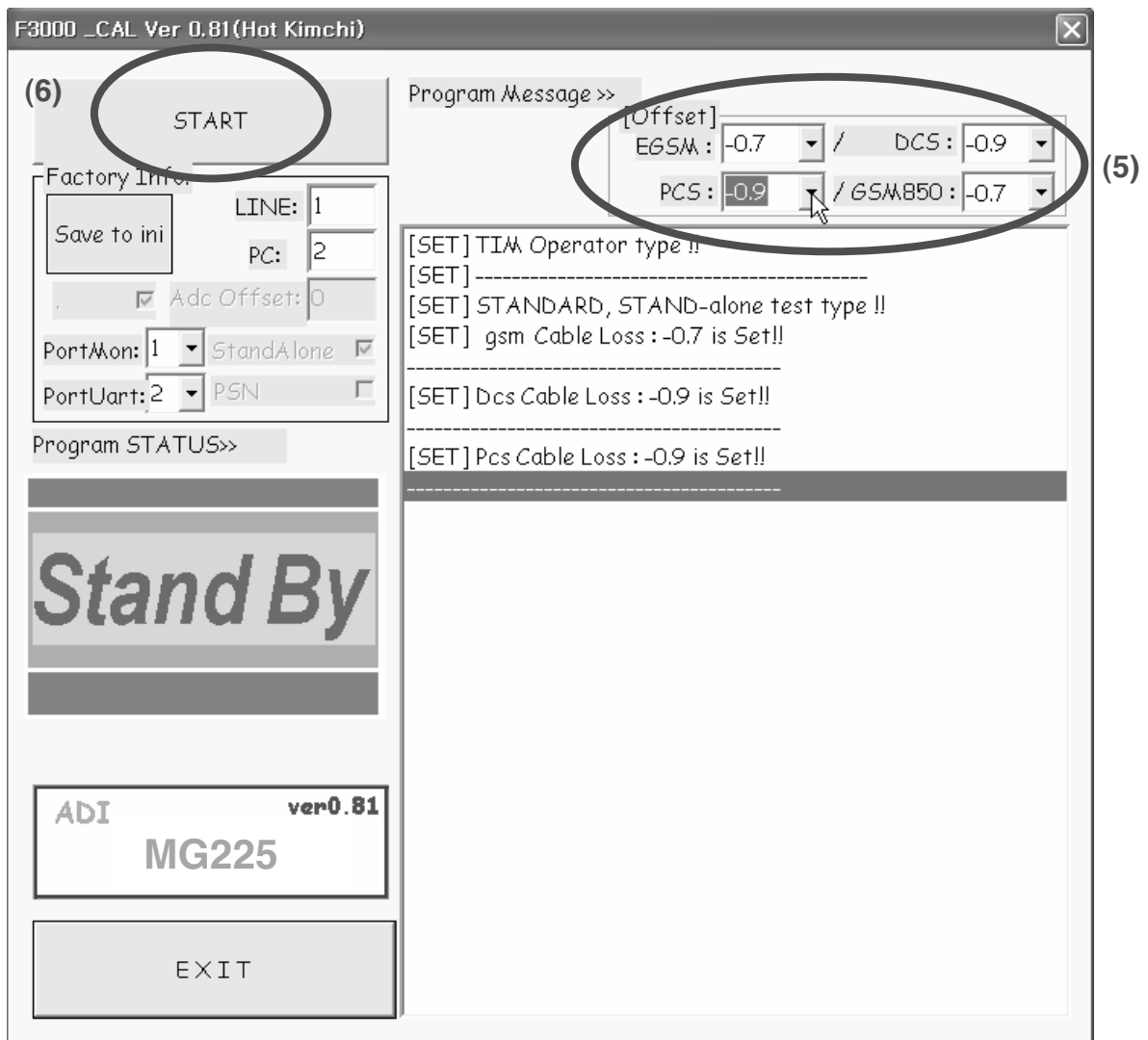
11. AUTO CALIBRATION

4. Press Calibration START



11. AUTO CALIBRATION

5. Select RF Cable Loss value from the Offset menu
6. Press START to execute calibration



11. AUTO CALIBRATION

11.5 AGC

This procedure is for Rx calibration.

In this procedure, We can get RSSI correction value. Set band GSM850 and press Start button the result window will show correction values per every power level and gain code and the same measure is performed per every frequency.

11.6 APC

This procedure is for Tx calibration.

In this procedure you can get proper scale factor value and measured power level.

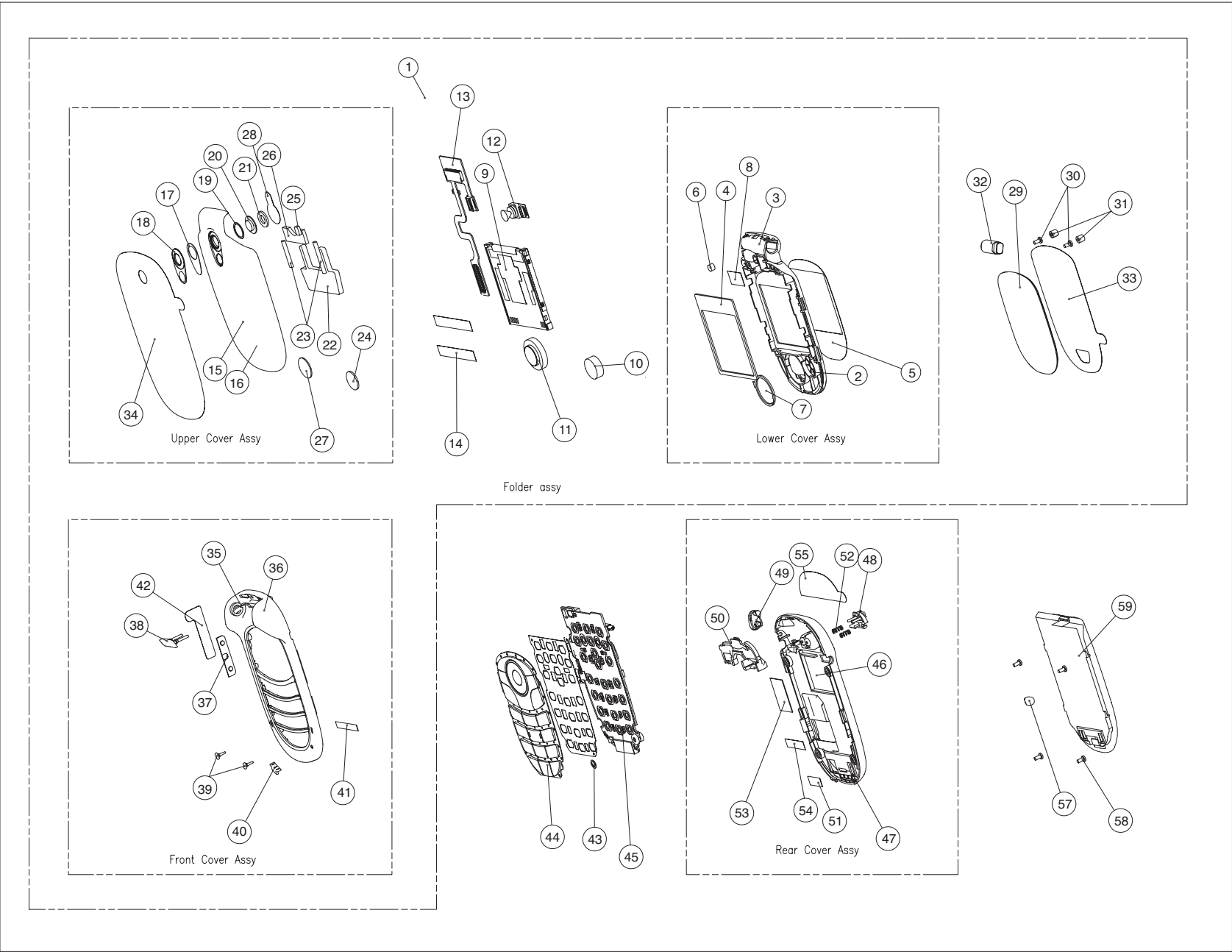
11.7 ADC

This procedure is for battery calibration.

You can get main Battery Config Table and temperature Config Table will be reset.

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW



NO	DESCRIPTION	Q'TY	PART NO.	REMARK
1	MG225_FOLDER_ASSY	1	ACGG0047804-MP	1
2	MG225_FOLDER_LOWER_ASSY	1	ACGH00419**-MP	2
3	MG225_FOLDER_LOWER	1	MCJH00336**-MP	3
4	MG225_MAIN_LCD_PAD	1	MPBG0041801-MP	3
5	KG225_FOLDER_MAIN_WINDOW_TAPE	1	MTAD0047101-MP	3
6	F2410_MAGNETIC	1	MMAA0001601-MP	3
7	KG225_FOLDER_SPK_PAD_L	1	MFBC0020101-MP	3
8	KG220_FOLDER_LOWER_CAMERA_TAPE	1	MTAZ0107301-MP	3
9	KG220_MAIN_LCD	1		2
10	KG220_MOTOR_IOP1_34	1		2
11	KG220_SPK_I5P1	1		2
12	KG220_CAMERA_MODULE	1		2
13	KG225_FOLDER_FPCB_3D_I228	1		2
14	KG220_MAIN_FPCB_TAPE	2	MTAZ0107401-MP	2
15	MG225_FOLDER_UPPER_ASSY	1	ACGJ00546**-MP	2
16	KG225_FOLDER_UPPER	1	MCJJ00414**-MP	3
17	KG225_FOLDER_CAMERA_TAPE	1	MTAA0105701-MP	3
18	KG225_FOLDER_CAMERA_DECO	1	MDAD0019901-MP	3
19	KG225_FOLDER_CAMERA_WINDOW_TAPE	1	MTAZ0107501-MP	3
20	KG225_FOLDER_CAMERA_WINDOW	1	MWAE0015401-MP	3
21	KG225_FOLDER_CAMERA_PAD	1	MPBT0025101-MP	3
22	KG225_FOLDER_UPPER_PAD	1	MPBS0004901-MP	3
23	KG225_FOLDER_GASKET_SHIELD_FOAM	2	MGAD0105601-MP	3
24	KG225_FOLDER_VIBRATOR_PAD	1	MPBJ0010301-MP	3
25	KG225_FOLDER_CAMERA_PAD_UPPER	1	MPBT0025102-MP	3
26	KG225_FOLDER_UPPER_SHIELD_FOAM	1	MGAD0105603-MP	3
27	KG225_FOLDER_UPPER_SPK_PAD	1	MPBN0030101-MP	3
28	KG225_FOLDER_CAME_PROTECT_TAPE	1	MTAB0098003-MP	3
29	KG225_FOLDER_MAIN_WINDOW	1	MWAC00638**-MP	2
30	SCREW_M14_30	2	GMZZ0017701-MP	2
31	KG225_FOLDER_SCREW_CAP	2	MCCH00750**-MP	2
32	G692_HINGE_58_PREXCO	1	MHFD0005901-MP	2
33	KG225_MAIN_WIN_PROTECTION_TAPE	1	MTAB0097801-MP	2
34	KG220_FOLDER_PROTECTION_TAPE	1	MTAB0095301-MP	2
35	KG225_COVER_FRONT_ASSY	1	ACGK00681**-MP	2
36	KG225_COVER_FRONT	1	MCJK00511**-MP	3
37	KG225_BUTTON_SIDE	1	MBJN0007801-MP	3
38	KG225_STOPPER	1	MSGB00137**-MP	3
39	KG225 BUMPER	2	MBHY00185**-MP	3
40	KG225_INDICATOR	1	MIAA0017701-MP	3
41	KG225_GASKET_FOAM_IO_FRONT	1	MGAD0105701-MP	3
42	KG225_TAPE_PROTECTION_SIDEKEY	1	MTAB0098001-MP	3
43	KG220_FILTER_MIKE	1	MPBD0016301-MP	3
44	MG225_MAIN_KEYPAD_ASSY	1	MBJA00206**-MP	1
45	MG220_PCB_ASSY	1		1
46	MG225_COVER_REAR_ASSY	1	ACGM00689**-MP	1
47	KG225_COVER_REAR	1	MCJN00507**-MP	2
48	KG225_LOCKER_BATTERY	1	MLEA00292**-MP	2
49	KG225_CAP_EARJACK_ASSY	1	MCCC0033501-MP	2
50	MG225_ANTENNA	1		2
51	KG225_GASKET_FOAM_IO_REAR	1	MGAD01058**-MP	2
52	KG225_SPRING_LOCKER	2	MSDC0008301-MP	2
53	KG225_GASKET_FOAM_CONNECTOR	1	MGAD01059**-MP	2
54	KG225_INSULATOR_REAR	1	MTAC0034801-MP	2
55	KG225_REAR_PROTECTION_TAPE	1	MTAB01172**-MP	2
56	KG225_CAP_MOBILE_SW	1	MCCF00335**-MP	1
57	SCREW_M14_30	4	GMZZ0017701-MP	1
58	KG225_COVER_BATTERY_ASSY	1	-	1

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
1		GSM(FOLDER)	TGFF0095801			
2	AAAY00	ADDITION	AAAY0140113		Black	
2	APEY00	PHONE	APEY0328918		Black	
3	ACGG00	COVER ASSY,FOLDER	ACGG0070804	KG225 BLACK W/O TMO LOGO	Black	
4	ACGH00	COVER ASSY, FOLDER(LOWER)	ACGH0041904	KG225 BLACK W/O TMO LOGO	Black	2
5	MCJH00	COVER,FOLDER(LOWER)	MCJH0033601		Black	3
5	MFBC00	FILTER,SPEAKER	MFBC0020101		Black	7
5	MMAA00	MAGNET,SWITCH	MMAA0001601	7100 magnetic	Silver	6
5	MPBG00	PAD,LCD	MPBG0041801		Black	4
5	MTAD00	TAPE,WINDOW	MTAD0047101		Black	5
5	MTAZ00	TAPE	MTAZ0107301	KG220 tape,Camera	Without Color	8
4	ACGJ00	COVER ASSY, FOLDER(UPPER)	ACGJ0054604	KG225 BLACK W/O TMO LOGO	Black	15
5	MCJJ00	COVER,FOLDER(UPPER)	MCJJ0041401		Black	16
5	MDAD00	DECO,CAMERA	MDAD0019901	KG225 Timobile	Black	18
5	MGAD01	GASKET,SHIELD FORM	MGAD0105601	FOLDER UPPER LCD SHIELD FOAM	Black	23
5	MGAD02	GASKET,SHIELD FORM	MGAD0105603	UPPER SHIELD FOAM	Black	26
5	MICZ00	INSERT	MICZ0002801	M1.4x2.3		
5	MPBJ00	PAD,MOTOR	MPBJ0030101		Black	24
5	MPBN00	PAD,SPEAKER	MPBN0030101	KG225_SPK_Upper_Pad	Black	27
5	MPBS00	PAD,FOLDER	MPBS0004901	PAD, UPPER	Black	22
5	MPBT00	PAD,CAMERA	MPBT0025101	PAD, CAMERA	Black	21
5	MPBT01	PAD,CAMERA	MPBT0025102	KG225 camera pad(upper rib)	Black	25
5	MTAA00	TAPE,DECO	MTAA0105701	CAMERA DECO	Black	17
5	MTAB00	TAPE,PROTECTION	MTAB0098002	KG225 FOLDER CAMERA DECO PROTECTION TAPE	Black	
5	MTAB01	TAPE,PROTECTION	MTAB0098003	KG225 FOLDER_CAMERA_PROTECTION_TAPE	Black	28
5	MTAZ00	TAPE	MTAZ0107501	CAMERA WINDOW TAPE	Black	19
5	MWAE00	WINDOW,CAMERA	MWAE0015401		Black	20
4	ACGK00	COVER ASSY,FRONT	ACGK0068101	KG225 Timobile	Black	35
5	MBHY00	BUMPER	MBHY0018501		Black	39

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
5	MBJN00	BUTTON,VOLUME	MBJN0007801	, , , , , ,	Black	37
5	MCJK00	COVER,FRONT	MCJK0055101	, , , , , ,	Black	36
5	MFBD00	FILTER,MIKE	MFBD0016301	Front_MIKE_FILTER	Black	43
5	MGAD00	GASKET,SHIELD FORM	MGAD0105701	GASKET, SHIELD FOAM<IO_FRONT>	Black	41
5	MIAA00	INDICATOR,LED	MIAA0017701	, , , , , ,	Black	40
5	MICZ00	INSERT	MICZ0002801	M1.4x2.3		
5	MSGB00	STOPPER,HINGE	MSGB0013701		Black	38
5	MTAB00	TAPE,PROTECTION	MTAB0098001	PROTECTION TAPE<SIDE KEY>	Black	42
4	GMZZ00	SCREW MACHINE	GMZZ0017701	1.4 mm,3.0 mm,MSWR3 ,N ,+ , - ,	Silver	58
4	MCCH00	CAP,SCREW	MCCH0075001		Black	31
4	MHFD00	HINGE,FOLDER	MHFD0005901	Pi5.8 5Kgf, CAN Type, Prexco(Head R1.0)	DEEP SILVER	32
4	MIDZ00	INSULATOR	MIDZ0090201	KG225 FPCB INSULATOR	Black	
4	MLAC00	LABEL,BARCODE	MLAC0003401	EZ LOOKS(user for mechanical)	Without Color	
4	MPBT00	PAD,CAMERA	MPBT0025102	KG225 camera pad(upper rib)	Black	
4	MRDY00	REINFORCE	MRDY0000601	COMPLEX, (empty), , , , ,	White	
4	MTAB	TAPE,PROTECTION	MTAB0097801	PROTECTION TAPE<MAIN WINDOW>	Black	33
4	MTAB00	TAPE,PROTECTION	MTAB0116101	KG225 PROTECTION TAPE	Without Color	
4	MTAZ00	TAPE	MTAZ0107401	KG220 ORFDB, Tape,FPCB	Without Color	14
4	MWAC00	WINDOW,LCD	MWAC0063801		Black	29
3	ACGM00	COVER ASSY,REAR	ACGM0068905	MG225 VIVO	Black	46
4	MCCC00	CAP,EARPHONE JACK	MCCC0033501	, , , , , ,	Black	49
4	MCJN00	COVER,REAR	MCJN0050701	, , , , , ,	Black	47
4	MGAD	GASKET,SHIELD FORM	MGAD0105801	GASKET, SHIELD FOAM<IO_REAR>	Black	51
4	MGAD01	GASKET,SHIELD FORM	MGAD0105901	COMPLEX, (empty), , , , ,	Black	53
4	MLEA00	LOCKER,BATTERY	MLEA0029201		Black	48
4	MSDC00	SPRING,LOCKER	MSDC0008301		Without Color	52
4	MTAB00	TAPE,PROTECTION	MTAB0117201	KG225 REAR PROTECTION	Without Color	55
4	MTAC00	TAPE,SHIELD	MTAC0034801	KG220 ORFDB (TAPE SIM REAR)	Without Color	54
3	GMZZ00	SCREW MACHINE	GMZZ0017701	1.4 mm,3.0 mm,MSWR3 ,N ,+ , - ,	Silver	30
3	MBJA00	BUTTON,DIAL	MBJA0020611	COMPLEX, (empty), , , , ,	Black	44
3	MCCF00	CAP,MOBILE SWITCH	MCCF0033501		Black	56

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
3	MLAK00	LABEL,MODEL	MLAK0019001	LG(30.5x19.5 4-1R)	White Pearl	
5	ADCA00	DOME ASSY,METAL	ADCA0046801	KG220 ORFDB	Without Color	
5	MPBH00	PAD,MIKE	MPBH0023601	PAD,MIKE	Black	
5	MPBZ00	PAD	MPBZ0135501	KG220 ORFBK (PAD MAIN PCB SIDEKEY)	Black	
5	MLAB00	LABEL,A/S	MLAB0000601	HUMIDITY STICKER	Without Color	
5	MLAC00	LABEL,BARCODE	MLAC0003301	BOX, DW, , , ,	Without Color	

12. EXPLODED VIEW & REPLACEMENT PART LIST

<Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
4	SACY00	PCB ASSY,FLEXIBLE	SACY0041902			
5	SACB00	PCB ASSY, FLEXIBLE,INSERT	SACB0027601			
6	SBCL00	BATTERY,CELL,LITHIUM	SBCL0001303	2 V,1 mAh,COIN ,SOLDER TYPE BACKUP BATTERY		
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0037002			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0020801			
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0013007	60 PIN,0.4 mm,STRAIGHT ,AU ,STACKING HEIGHT 1.5 / HEADER FOR LCM FPCB		
7	CN102	CONNECTOR,BOARD TO BOARD	ENBY0019501	20 PIN,.4 mm,ETC , ,H=1.5, Socket		
7	CN103	CONNECTOR,FFC/FPC	ENQY0010401	41 PIN,.3 mm,ETC , ,H=1.2		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0029901			
6	SPCY00	PCB,FLEXIBLE	SPCY0073101			
4	SJMY00	VIBRATOR,MOTOR	SJMY0006503	3 V,0.08 A,10*3.45 ,17mm double tape		
4	SUSY00	SPEAKER	SUSY0021401	ASSY ,8 ohm,89 dB,15 mm,		
4	SVCY00	CAMERA	SVCY0010101	CMOS ,VGA ,Omnivision Sensor		
4	SVLM00	LCD MODULE	SVLM0018201	MAIN ,128*128 ,35.78*40.05*2.8 ,65k ,CSTN ,TM ,S-44206D ,Single		
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0024201	3.0 ,-2.0 dBd,, ,internal, GSM850/DCS/PCS ,; ,TRIPLE ,-2.0 ,50 ,3.0		
3	SAFY00	PCB ASSY,MAIN	SAFY0156366			
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0061201			
5	SPKY00	PCB,SIDEKEY	SPKY0027401	POLYI ,0.4 mm,DOUBLE ,		
5	SUMY00	MICROPHONE	SUMY0003802	FPCB , -42 dB,4*1.5 ,		
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0078566			
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0074104			
6	C100	CAP,CERAMIC,CHIP	ECCH0000393	22 uF,6.3V ,M ,X5R ,HD ,2012 ,R/TP		
6	C101	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C104	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C106	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C107	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C108	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C109	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C110	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C111	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C114	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C115	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C116	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C117	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C118	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP		
6	C119	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C120	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C121	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C122	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C123	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C125	CAP,CERAMIC,CHIP	ECCH0000107	6 pF,50V,D,NP0,TC,1005,R/TP		
6	C126	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C127	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C128	CAP,CHIP,MAKER	ECZH0001211	220 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C129	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C130	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C131	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C132	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C135	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C136	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C138	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C141	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C142	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C143	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C144	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C145	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C146	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C147	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C148	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C149	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C150	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C151	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C152	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C153	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C154	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C200	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ ESR ,1608 ,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C203	CAP,TANTAL,CHIP,MAKER	ECTZ0003602	22 uF,6.3V ,M ,STD ,2012 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C208	CAP,TANTAL,CHIP,MAKER	ECTZ0003701	10 uF,6.3V ,M ,STD ,2012 ,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C215	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ ESR ,1608 ,R/TP		
6	C218	CAP,CHIP,MAKER	ECZH0001116	270 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C220	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C224	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C225	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C229	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C300	CAP,TANTAL,CHIP,MAKER	ECTZ0004201	22 uF,6.3V ,M ,STD ,2012 ,R/TP		
6	C301	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C302	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C304	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C306	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C322	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C323	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C402	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C404	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C408	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L ,ESR ,1608 ,R/TP		
6	C409	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C410	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C411	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C412	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C414	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C419	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C421	CAP,CHIP,MAKER	ECZH0001420	1 uF,10V ,K ,X5R ,HD ,1608 ,R/TP		
6	C500	CAP,CERAMIC,CHIP	ECCH0000393	22 uF,6.3V ,M ,X5R ,HD ,2012 ,R/TP		
6	C503	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C504	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C505	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C506	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C507	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C508	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C510	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C511	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C512	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C514	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C515	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C516	INDUCTOR,CHIP	ELCH0005001	2.2 nH,S ,1005 ,R/TP ,		
6	C519	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C520	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C521	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C522	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C523	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C524	CAP,CHIP,MAKER	ECZH0000803	2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C525	CAP,CERAMIC,CHIP	ECCH0000178	1.8 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP		
6	C526	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C527	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C528	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C529	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C530	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C531	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C532	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C533	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C534	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C535	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C536	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C537	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C538	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C540	CAP,CHIP,MAKER	ECZH0001116	270 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C541	CAP,CHIP,MAKER	ECZH0001116	270 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C543	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C544	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C545	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C546	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C547	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C600	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C601	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C602	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C603	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C604	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	CN300	CONNECTOR,I/O	ENRY0005301	3 PIN,0.5 mm,ETC , ,1.48Offset		
6	CN600	CONNECTOR,BOARD TO BOARD	ENBY0013008	60 PIN,0.4 mm,STRAIGHT ,AU ,STACKING HEIGHT 1.5 / SOCKET FOR LCM FPCB		
6	D100	DIODE,SWITCHING	EDSY0017301	VSM ,15 V,100 mA,R/TP ,PB-FREE		
6	D101	DIODE,SWITCHING	EDSY0012101	US-FLAT ,30 V,1 A,R/TP ,2.5*1.25*0.6(t)		
6	FB400	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FL500	FILTER,SEPERATOR	SFAY0005601	850 ,1800.1900 ,2.7 dB,3.0 dB,30 dB,ETC ,5.6*4.5*1.4, TRIPLE FEM		
6	FL600	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL601	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL602	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL603	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL604	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL605	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL606	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL607	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	FL608	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V ,SMD ,4ch. R-Varistor Array(50Ohm,15pF), Pb-free		
6	J100	CONN,SOCKET	ENSY0015101	6 PIN,ETC , ,2.54 mm,H=2.7		
6	J200	CONN,JACK/PLUG, EARPHONE	ENJE0002301	3,5 PIN,G7000 EAR JACK 3 pole, 5 pin KSD		
6	L500	INDUCTOR,CHIP	ELCH0005014	5.6 nH,S ,1005 ,R/TP ,		
6	L501	INDUCTOR,CHIP	ELCH0001003	6.8 nH,J ,1005 ,R/TP ,chip inductor PBFREE		
6	L502	INDUCTOR,CHIP	ELCH0005005	27 nH,J ,1005 ,R/TP ,		
6	L599	INDUCTOR,CHIP	ELCH0004701	12 nH,J ,1005 ,R/TP ,		
6	Q100	TR,BJT,ARRAY	EQBA0002701	EMT6 ,150 mW,R/TP ,NPN, PNP, 150 mA		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	Q101	TR,BJT,ARRAY	EQBA0000406	SC-70 ,0.2 W,R/TP ,CDMA,Common use		
6	Q102	TR,FET,P-CHANNEL	EQFP0004201	2.9*1.9*0.8(t) ,.7 W,20 V,-6 A,R/TP ,NDC652P upgrade(substitution) item, Pb free		
6	Q300	TR,BJT,NPN	EQBN0004801	SMT6 ,0.2 W,R/TP ,		
6	Q400	TR,BJT,NPN	EQBN0017701	TES6 ,150 mW,R/TP ,50 V, 100 mA, Dual Digital TR		
6	Q401	TR,FET,P-CHANNEL	EQFP0004501	SOT-323 ,.29 W,1.8 V,.86 A,R/TP ,P-Chanel MOSFET, Pb free		
6	R100	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R101	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J , 1005 ,R/TP		
6	R102	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R104	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP		
6	R105	RES,CHIP,MAKER	ERHZ0000438	20 Kohm,1/16W ,J , 1005 ,R/TP		
6	R106	RES,CHIP,MAKER	ERHZ0000533	7.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R109	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000458	300 ohm,1/16W ,J ,1005 ,R/TP		
6	R111	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R112	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R113	RES,CHIP	ERHY0000512	10M ohm,1/16W,J,1608,R/TP		
6	R115	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R117	RES,CHIP,MAKER	ERHZ0000438	20 Kohm,1/16W ,J , 1005 ,R/TP		
6	R118	RES,CHIP,MAKER	ERHZ0000702	10 ohm,1/10W ,J ,1608 ,R/TP		
6	R119	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R120	RES,CHIP,MAKER	ERHZ0000438	20 Kohm,1/16W ,J , 1005 ,R/TP		
6	R121	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R122	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J , 1005 ,R/TP		
6	R123	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R125	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R126	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R127	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R129	RES,CHIP	ERHY0001102	0.2 ohm,1/4W ,F ,2012 ,R/TP		
6	R131	RES,CHIP,MAKER	ERHZ0000464	330 ohm,1/16W ,J ,1005 ,R/TP		
6	R132	RES,CHIP,MAKER	ERHZ0000320	82 Kohm,1/16W ,F ,1005 ,R/TP		
6	R133	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R135	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R137	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R153	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R200	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000438	20 Kohm,1/16W ,J ,1005 ,R/TP		
6	R202	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R203	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R206	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R207	RES,CHIP,MAKER	ERHZ0000488	4.7 ohm,1/16W ,J ,1005 ,R/TP		
6	R208	RES,CHIP,MAKER	ERHZ0000467	330 Kohm,1/16W ,J ,1005 ,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R211	RES,CHIP,MAKER	ERHZ0000237	20 Kohm,1/16W ,F ,1005 ,R/TP		
6	R212	RES,CHIP,MAKER	ERHZ0000268	33 Kohm,1/16W ,F ,1005 ,R/TP		
6	R213	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R214	RES,CHIP,MAKER	ERHZ0000414	120 Kohm,1/16W ,J ,1005 ,R/TP		
6	R215	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R216	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R217	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R218	RES,CHIP,MAKER	ERHZ0000465	3300 ohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R220	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R317	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R318	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R319	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R321	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R322	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R323	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R325	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R328	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R329	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R330	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R332	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R333	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R334	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R335	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R337	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R340	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R359	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
6	R360	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R361	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R362	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
6	R363	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R364	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R407	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R408	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R412	RES,CHIP,MAKER	ERHZ0000438	20 Kohm,1/16W ,J ,1005 ,R/TP		
6	R414	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R415	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R416	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R417	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R430	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
6	R431	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
6	R499	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R500	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R501	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R502	INDUCTOR,CHIP	ELCH0005014	5.6 nH,S ,1005 ,R/TP ,		
6	R503	CAP,CHIP,MAKER	ECZH0000853	8.2 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP		
6	R505	RES,CHIP,MAKER	ERHZ0000522	24 ohm,1/16W ,J ,1005 ,R/TP		
6	R506	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP		
6	R507	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP		
6	R508	RES,CHIP,MAKER	ERHZ0000429	180 ohm,1/16W ,J ,1005 ,R/TP		
6	R509	RES,CHIP,MAKER	ERHZ0000457	30 ohm,1/16W ,J ,1005 ,R/TP		
6	R510	RES,CHIP,MAKER	ERHZ0000429	180 ohm,1/16W ,J ,1005 ,R/TP		
6	R511	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R513	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R515	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R516	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R518	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R519	RES,CHIP,MAKER	ERHZ0000205	1 Mohm,1/16W ,F ,1005 ,R/TP		
6	R520	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R521	RES,CHIP,MAKER	ERHZ0000422	15 Kohm,1/16W ,J ,1005 ,R/TP		
6	R522	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R523	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R560	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R561	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R588	INDUCTOR,CHIP	ELCH0004703	1 nH,S ,1005 ,R/TP ,		
6	R624	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R625	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R626	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R627	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R629	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R630	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R631	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R632	RES,CHIP,MAKER	ERHZ0000533	7.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R633	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R640	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R641	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	SW500	CONN,RF SWITCH	ENWY0002301	ANGLE ,SMD ,0.8 dB,		
6	U100	IC	EUSY0206101	80-ACTIVE BALL STACKED CSP ,88 PIN,R/TP ,128 MLC NOR (L30 : TYAX) / 64-PSRAM / PB FREE		
6	U101	IC	EUSY0280001	CSP_BGA ,289 PIN,R/TP ,GSM Onchip Baseband		
6	U102	IC	EUSY0227901	SON5-P-0.35(fSV) ,5 PIN,R/TP ,2-INPUT AND GATE, Pb Free		
6	U201	IC	EUSY0077701	SC70-5 ,5 PIN,R/TP ,1.8V Low Voltage Comparator with Rail-to-Rail Input, Pb Free		
6	U203	IC	EUSY0111601	32-PIN QFN ,32 PIN,R/TP ,MA-3 / 40 TONES / FM + WAVEFORM TABLE		
6	U204	IC	EUSY0119002	4X3 UCSP / CODE : B12-4 ,10 PIN,R/TP ,DUAL SPDT ANALOG SWITCHES(Pb Free)		
6	U401	IC	EUSY0145902	SOT23-5 ,5 PIN,R/TP ,300mA, 2.85V,LDO		
6	U403	IC	EUSY0240501	BGA(6.2*7.2*1.3t) ,96 PIN,R/TP ,128Kbyte SRAM, VGA Camera IC		
6	U404	IC	EUSY0238702	TSOPJW-12 ,12 PIN,R/TP ,3PORT Charge Pump(AAT2154 Low cost version)		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	U500	PAM	SMPY0008301	35 dBm,53 %,0.0000025 A, dBc,50 dB,6.0*6.0*1.2 ,SMD ,FOR QUAD BAND GSM AND GPRS		
6	U501	IC	EUSY0223202	5.0*5.0 ,32 PIN,R/TP ,AERO11 TRANSCEIVER, D Version		
6	U502	IC	EUSY0077201	SC70 ,5 PIN,R/TP ,Inverter Gate, Pb Free		
6	U503	IC	EUSY0118602	SOT23 ,5 PIN,R/TP ,2.85V/150mA Low Noise uCap LDO Regulator, PBFREE		
6	VA200	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	VA201	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	VA202	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	VA203	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	VA204	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	VA205	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	VA206	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	VA300	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	VA310	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	VA311	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF , 1005		
6	X100	X-TAL	EXXY0015601	32.768 KHz,20 PPM,7 pF,65000 ohm,SMD ,6.9*1.4*1.3 ,Overlapping Part Cleansing, Replace with EXXY0004601 , ,32.768KHz ,20PPM , , , ,SMD ,R/TP		
6	X500	VCTCXO	EXSK0006601	26 MHz,2.5 PPM,10 pF,SMD ,3.2*2.5*1.2 ,3ppm at -30~+75, AFC 0.1V~2.1V, 2.8V, Old Version Do Not Use , ,26MHz ,2.5PPM ,2.8V ,3.2 ,2.5 ,1.2 , ,SMD ,R/TP		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0073301			
6	C216	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C312	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C313	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C314	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C315	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C316	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C318	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C319	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C320	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C321	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C400	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C401	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C403	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	FB100	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	LD300	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD301	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD302	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD303	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD304	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD305	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD306	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD307	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD308	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD309	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD310	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD311	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD312	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD313	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD400	DIODE,LED,CHIP	EDLH0003401	RED, GREEN ,ETC ,R/TP ,SIZE 1315 , GSM DUAL LED		
6	R300	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R301	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R303	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R320	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R324	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R326	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R331	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R336	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R339	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R341	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R342	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R343	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R344	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R345	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R346	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R347	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R348	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R349	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R350	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R351	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R352	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R353	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R354	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R355	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R356	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R357	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R358	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R400	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R403	RES,CHIP,MAKER	ERHZ0000531	270 ohm,1/16W ,J ,1005 ,R/TP		
6	R404	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	U202	IC	EUSY0204801	SC82-AB (SC70-4) ,4 PIN,R/TP ,80mA CMOS LOW IQ LDO VOLTAGE REGULATOR / 2.5V		
6	U400	IC	EUSY0200301	Leadless chip ,6 PIN,R/TP ,Hall S/W, Pb Free		
6	VA301	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA302	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA303	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA304	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA305	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA306	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA307	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA312	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA313	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
5	SPFY00	PCB,MAIN	SPFY0129101	FR-4 ,0.8 mm,BUILD-UP 8 ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
3	SBPP00	BATTERY PACK,LI-POLYMER	SBPP0016304	3.7 V,800 mAh,1 CELL,PRISMATIC ,MG225 BATT, VIVO Logo, Pb-Free ; ,3.7 ,800 ,0.2C ,PRISMATIC ,50x34x38 , ,BLACK ,Hardpack ,Latin America Label	Black	
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0003204	L1200 ,MONO TYPE		
3	SSAD00	ADAPTOR,AC-DC	SSAD0007839	FREE ,50 Hz,5.2 V,800 mA,CE,CB ,		

Note
