ORDER NO. KM41403805CE
F13

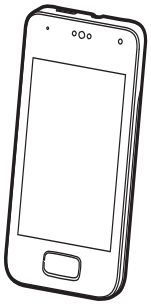
Service Manual

Telephone Equipment

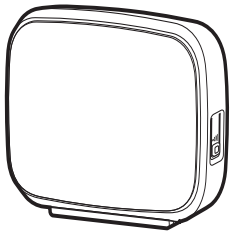
Model No. KX-PRX120W
KX-PRXA10W

Premium Design Phone with Touchscreen

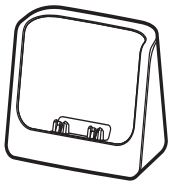
W: White Version
(for USA)



KX-PRXA10
(Handset)



(Base Unit)



(Charger Unit)

Configuration for each model

Model No	Base Unit	Handset	Charger Unit	Expandable
KX-PRX120	1	1 (PRXA10)	1	Up to 6
KX-PRXA10		1 (PRXA10)	1	

Panasonic®

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product, the printed circuit boards will be marked PbF. Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.
When this mark does appear, please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

- When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.
- The illustrations in this Service Manual may vary slightly from the actual product.

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1 Safety Precautions

1.1. For Service Technicians

- **Repair service shall be provided in accordance with repair technology information such as service manual so as to prevent fires, injury or electric shock, which can be caused by improper repair work**.
  1. When repair services are provided, neither the products nor their parts or members shall be remodeled.
  2. If a lead wire assembly is supplied as a repair part, the lead wire assembly shall be replaced.
  3. FASTON terminals shall be plugged straight in and unplugged straight out.

- **ICs and LSIs are vulnerable to static electricity.**
  When repairing, the following precautions will help prevent recurring malfunctions.
  1. Cover plastic parts boxes with aluminum foil.
  2. Ground the soldering irons.
  3. Use a conductive mat on worktable.
  4. Do not grasp IC or LSI pins with bare fingers.

2 Warning

2.1. Battery Caution

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Attention:

The lithium ion/polymer battery you have purchased is recyclable.
Please call 1-800-8-BATTERY (1-800-822-8837) for information on how to recycle this battery.

2.2. About Lead Free Solder (Pbf: Pb free)

Note:

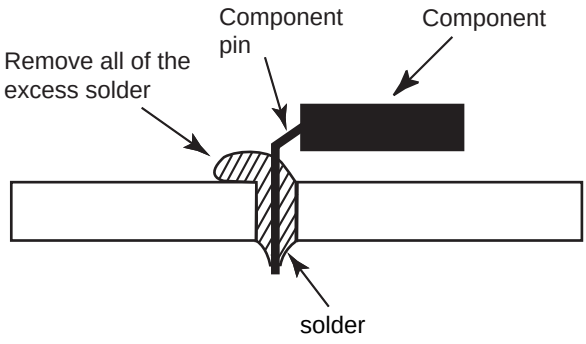
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF solder when discussing the lead free solder used in our manufacturing process which is made from Tin (Sn), Silver (Ag), and Copper (Cu).

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder.

Caution

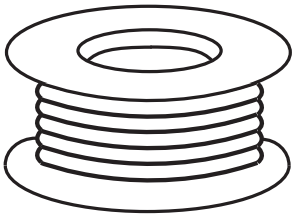
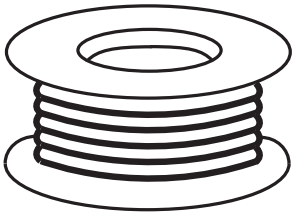
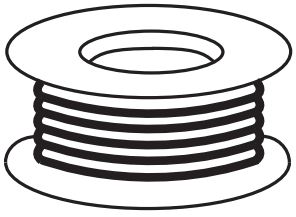
- PbF solder has a melting point that is 50 °F ~ 70 °F (30 °C ~ 40 °C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700 °F ± 20 °F (370 °C ± 10 °C).
- Exercise care while using higher temperature soldering irons.:
  Do not heat the PCB for too long time in order to prevent solder splash or damage to the PCB.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100 °F (600 °C).
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See the figure below).



(Slice View)

2.2.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper (Sn+Ag+Cu), you can also use Tin and Copper (Sn+Cu) or Tin, Zinc, and Bismuth (Sn+Zn+Bi). Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials.
The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3 mm, 0.6 mm and 1.0 mm.

0.3 mm X 100 g	0.6 mm X 100 g	1.0 mm X 100 g
		

2.3. Discarding of P.C. Board

When discarding P. C. Board, delete all personal information such as telephone directory and caller list or scrap P. C. Board.

3 Specifications

Standard:
DECT 6.0 (Digital Enhanced Cordless Telecommunications, 6.0)
WiFi IEEE802.11b/g/n
Bluetooth: version 3.0, Class 2
USB: version 2.0

Number of channels:
DECT: 10 channels (12 Connections/Channels)
WiFi: 11 channels
Bluetooth: 79 channels

Frequency range:
DECT: 1.92 to 1.93 GHz
WiFi: 2.412 to 2.462 GHz
Bluetooth: 2402 to 2480MHz

Duplex procedure:
DECT: TDMA-TDD
(Time Division Multiple Access Time Division Duplex)
WiFi: CSMA/CA
(Carrier Sense Multiple Access/Collision Avoidance)
Bluetooth: -

Channel spacing:
DECT: 1728kHz
WiFi: 5MHz
Bluetooth: 1MHz

Bit rate:
DECT: 1152kbit/s
WiFi: 135Mbit/s
Bluetooth: 2178.1kbit/s

Modulation:
DECT: GFSK(Gaussian Filtered Shift Keying)
WiFi: DSSS/OFDM
Bluetooth: FHSS

RF transmission power:
DECT: Approx. 115mW (peak transmission power)
WiFi: 25mW (peak transmission power)
Bluetooth: Approx. 1mW (peak transmission power)

Voice coding:
DECT: ADPCM 32kbit/s
Bluetooth: CVSD/PCM 64kbit/s

Power source (AC Adaptor):
120 V AC, 60 Hz
Base unit: PNLV226Z
Charger: PNLV226KZ

Power consumption
Base unit:
Standby: Approx. 0.4 W
Maximum: Approx. 0.8 W
Charger:
Standby: Approx. 0.1 W
Maximum: Approx. 4.0 W

Operating conditions:
0 °C – 40 °C (32 ° – 104 °), 20 %–80 % relative air humidity (dry)

Dimensions:
Base unit: Approx. 119 mm x 45 mm x 88 mm
Handset: Approx. 62 mm x 14 mm x 117 mm
Charger: Approx. 72 mm x 52 mm x 60 mm

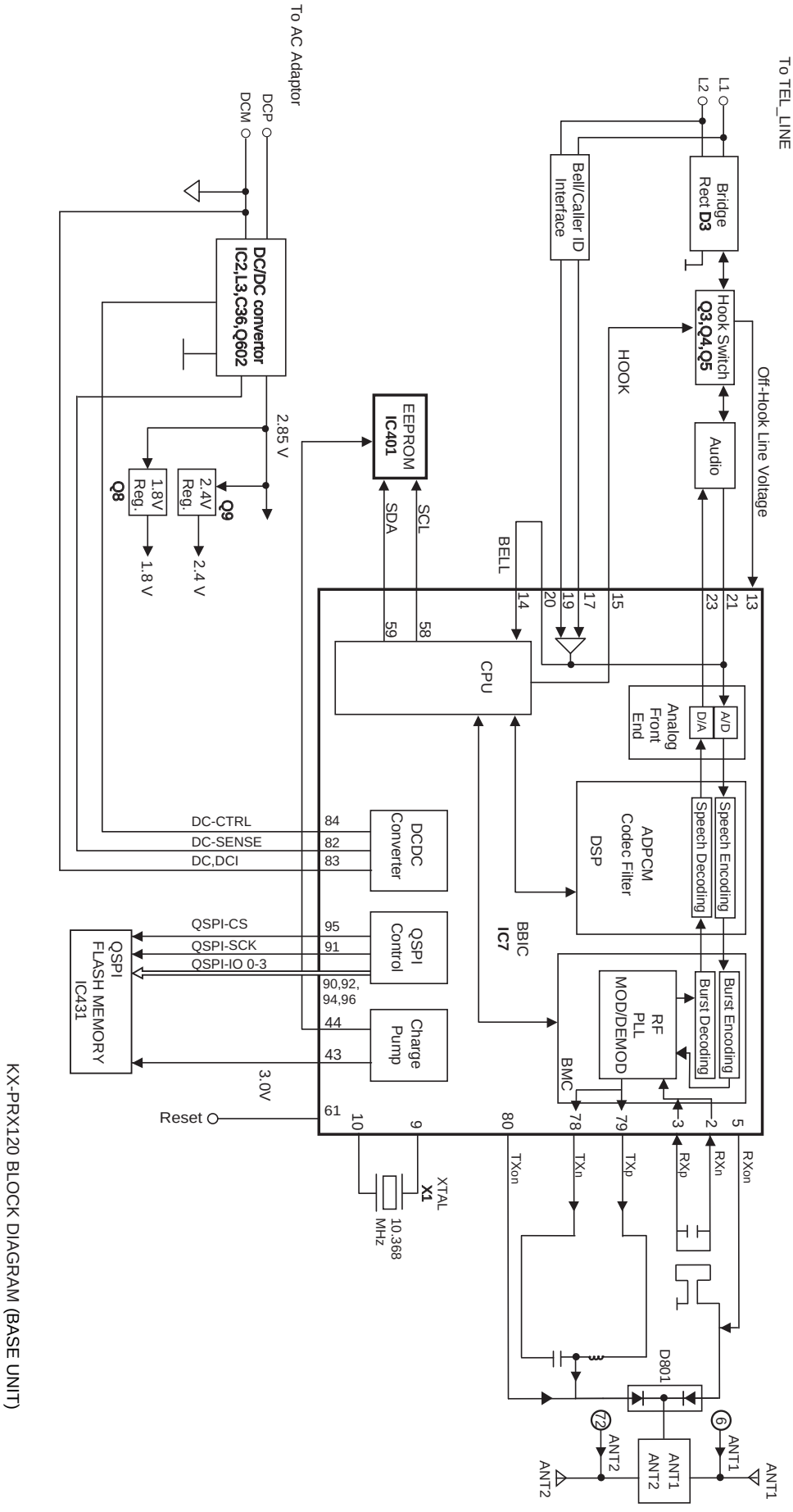
Mass (weight):
Base unit: Approx. 120 g
Handset: Approx. 140 g
Charger: Approx. 45 g

Note:
- Design and specifications are subject to change without notice.

Note for Service:
- **Operation range for DECT:** Up to 300 m outdoors, Up to 50 m indoors, depending on the condition.
- **Analog telephone connection:** Telephone Line
- **Optional Headset:** RP-TCM120
- **Optional Range extender:** KX-TGA405
- **Optional Key detector:** KX-TGA20

4 Technical Descriptions

4.1. Block Diagram (Base Unit)



KX-PRX120 BLOCK DIAGRAM (BASE UNIT)

4.2. Circuit Operation (Base Unit)

4.2.1. Outline

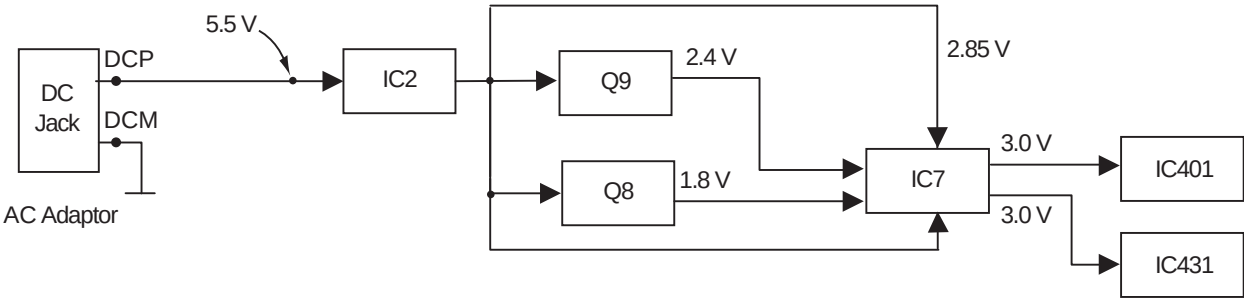
Base Unit consists of the following ICs as shown in **Block Diagram (Base Unit)** (P.7).

- DECT BBIC (**B**ase **B**and IC): IC7
  - Handling all the audio, signal and data processing needed in a DECT base unit
  - Controlling the DECT specific physical layer and radio section (**B**urst **M**odule **C**ontroller section)
  - ADPCM code filter for speech encoding and speech decoding (DSP section)
  - Echo-cancellation and Echo-suppression (DSP section)
  - Any tones (tone, sidetone, ringing tone, etc.) generation (DSP section)
  - DTMF receiver (DSP section)
  - Clock Generation for RF Module
  - ADC, DAC, timer, and power control circuitry
  - PLL Oscillator
  - Detector
  - Compress/Expander
  - First Mixer
  - All interfaces (ex: QSPI FLASH MEMORY, EEPROM, LED, Analog Front End, etc.)
  - DCDC Converter
  - Integrated 1.9GHz PA for DECT
- EEPROM: IC401
  - Temporary operating parameters (for RF, etc.)
- Additionally,
  - Power Supply Circuit (+3.0 V, +2.4 V, +1.8 V output)
  - Crystal Circuit (10.368 MHz)
  - Charge Circuit
  - Telephone Line Interface Circuit
- QSPI FLASH MEMORY : IC431
  - Main Program D/L Area

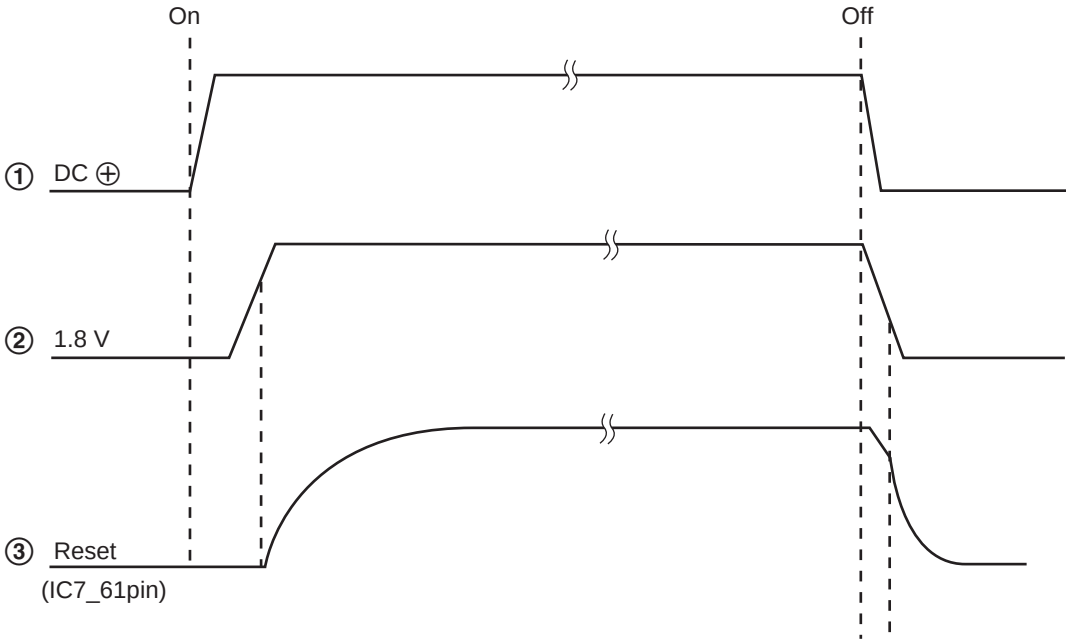
4.2.2. Power Supply Circuit

The power is supplied to the DECT BBIC, QSPI FLASH MEMORY and EEPROM from AC Adaptor (+5.5 V) as shown in Fig.101. The power supply is as follows;

- DECT BBIC (IC7):
  DC Jack (+5.5 V) → IC2 → IC7
  DC Jack (+5.5 V) → IC2 → Q9 → IC7
  DC Jack (+5.5 V) → IC2 → Q8 → IC7
- EEPROM (IC401):
  DC Jack (+5.5 V) → IC2 → IC7→ IC401
- QSPI FLASH MEMORY (IC431):
  DC Jack (+5.5 V) → IC2 → IC7 → IC431



<Fig.101>



4.2.3. Telephone Line Interface

<Function>

- Bell signal detection
- Clip signal detection
- ON/OFF hook circuit

Bell & Clip (: Calling Line Identification Presentation: Caller ID) signal detection:

In the standby mode, Q3 is open to cut the DC loop current and decrease the ring load.

When ring voltage appears at the L1T (A) and L1R (B) leads (when the telephone rings), the AC ring voltage is transferred as follows;

- B → P1 → C4 → R6 → R33 → IC7 Pin 17 (CID INp)
- A → C3 → R4 → R35 → IC7 Pin 19 (CID INn)

ON/OFF hook circuit:

In the standby mode, Q3 is open, and connected as to cut the DC loop current and to cut the voice signal. The unit is consequently in an **on-hook condition**.

When IC7 detects a ring signal or press the TALK Key onto the handset, Q4 turns on and then Q3 turns on, thus providing an **off-hook condition** (DC current flows through the circuit) and the following signal flow makes the loop current.

- B → P1 →D3 → Q3 → Q5 → R21 → R22 → D3 → A [**OFF HOOK**]

4.2.4. Transmitter/Receiver

- Audio Circuits and DTMF tone signal circuits.

Base Unit and Handset mainly consist of RF Module and DECT BBIC.

Base Unit and Handset transmit/receive voice signal and data signal through the antenna on carrier frequency.

Signal Path:

*Refer to **Signal Route** (P.14).

4.2.4.1. Transmitter Block

The voice signal input from the TEL LINE interface goes to DECT BBIC (IC7) as shown in **Block Diagram (Base Unit)** (P.7) The voice signal passes through the analog part of IC7 where it is amplified and converted to a digital audio stream signal. The burst switch controller processes this stream performing encryption and scrambling, adding the various other fields to produce the GAP (**G**eneric **A**ccess **P**rofile) standard DECT frame, assigning to a time slot and channel etc.

In IC7, the carrier frequency is changing, and frequency modulated RF signal is generated.In IC7, RF signal is amplified, and radiated from antenna. Handset detects the voice signal or data signal in the circuit same as the following explanation of Receiver Block.

4.2.4.2. Pulse Dialling

During pulse dialling the hookswitch (Q3, Q4) is used to generate the pulses using the HOOK control signal, which is set high during pulses. To force the line impedance low during the “pause” intervals between dial pulses, the PULSE_DIAL signal turns on Q2.

4.2.4.3. Receiver Block

The signal of 1900 MHz band (1881.792 MHz ~ 1897.344 MHz) which is input from antenna is input to IC7 as shown in **Block Diagram (Base Unit)** (P.7).

In IC7, the signal of 1900 MHz band is downconverted to 864 kHz signal and demodulated, as GAP (**G**eneric **A**ccess **P**rofile) standard DECT frames. It passes through the decoding section burst switch controller where it separates out the frame information and performs de-encryption and de-scrambling as required. It then goes to the DSP section where it is turned back into analog audio. This is amplified by the analog front end, and goes to the TEL LINE Interface.

4.3. Block Diagram (Handset)

4.3.1. KX-PRXA10

The following functions are controled by Android BBIC(MT6515).

Wireless function

- DECT
- WiFi
- Bluetooth

Sensor

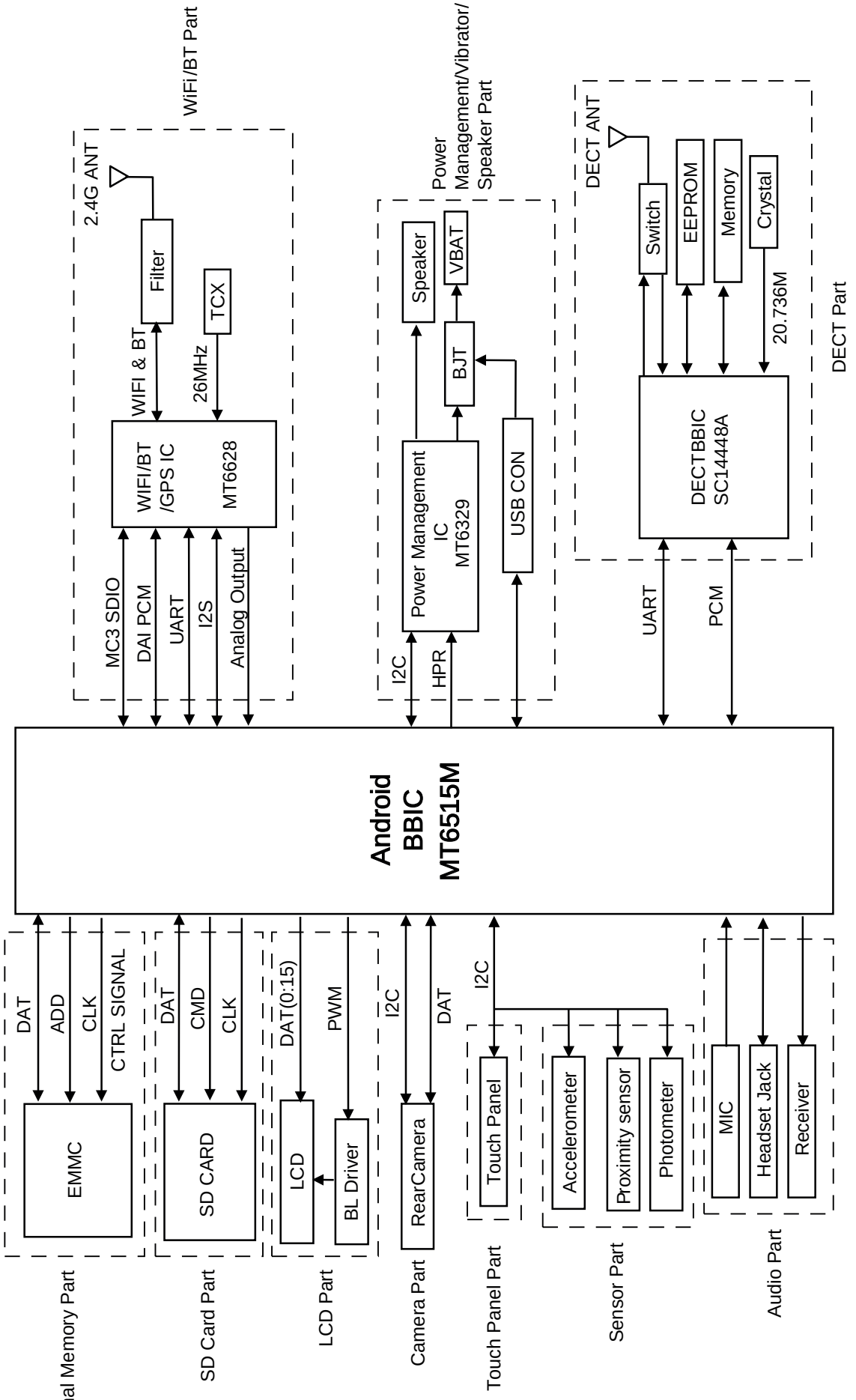
- Accelerometer
- Proximity sensor
- Photometer

Camera

- Front Camera

External Memory

- Micro SD Card



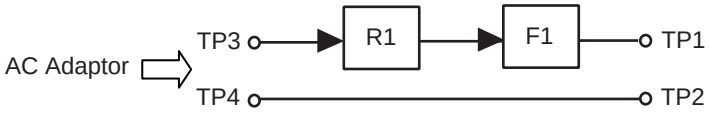
KX-PRXA10 BLOCK DIAGRAM (HANDSET)

4.4. Circuit Operation (Charger Unit)

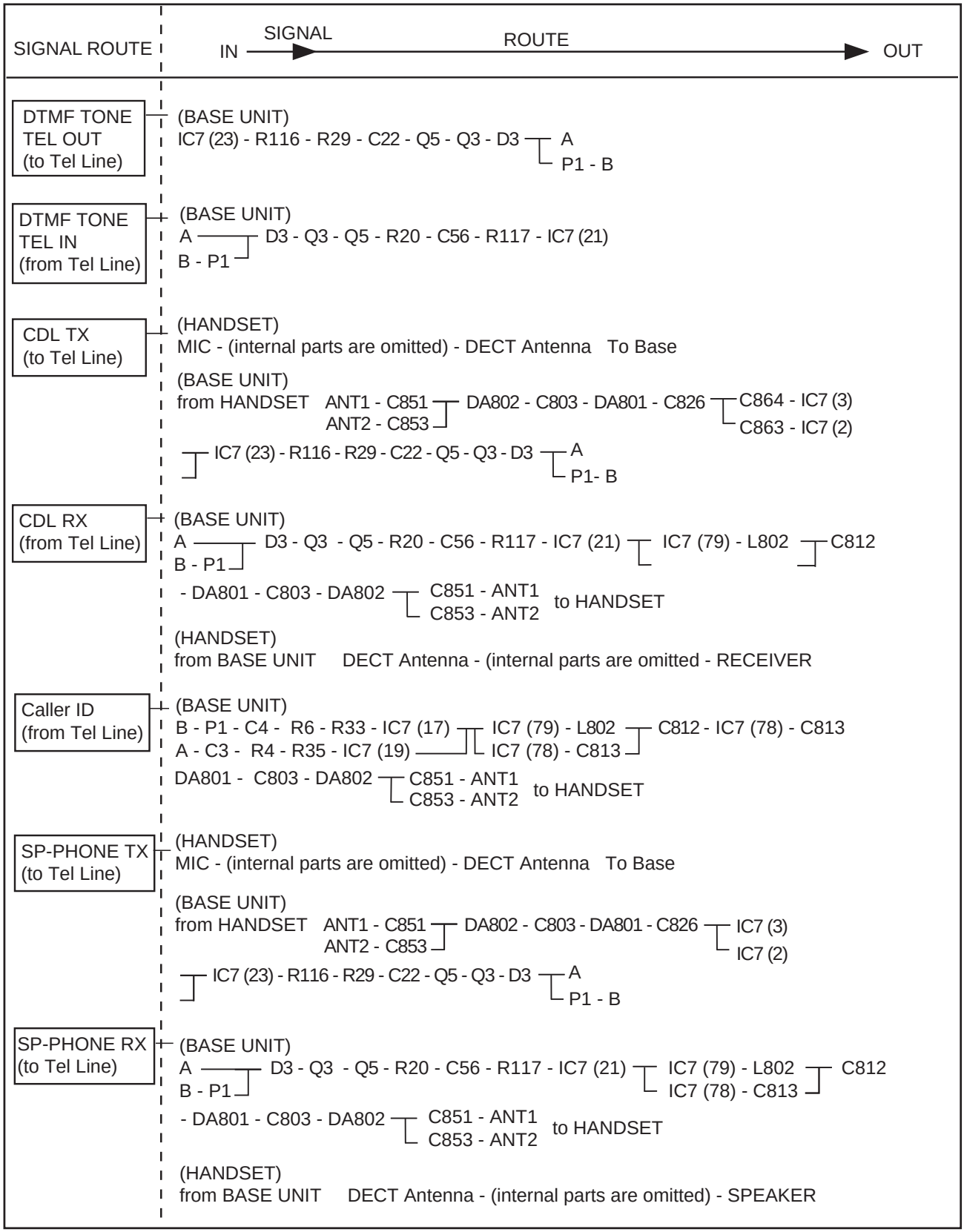
4.4.1. Power Supply Circuit

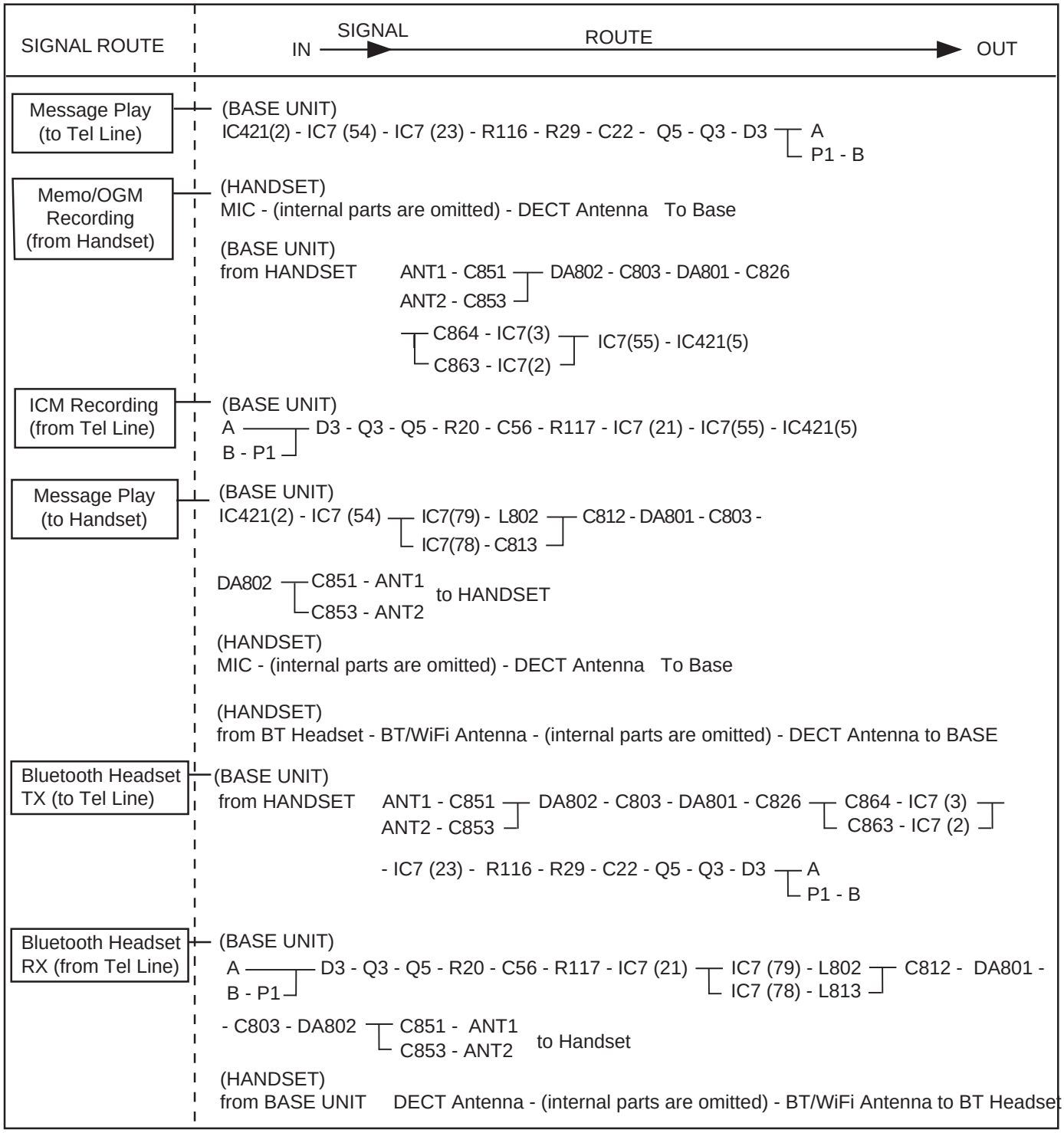
The power supply is as shown.

For KX-PRXA10



4.5. Signal Route




SIGNAL ROUTE
IN
SIGNAL
ROUTE
OUT
Message Play (to Tel Line)
(BASE UNIT)
IC421(2) - IC7 (54) - IC7 (23) - R116 - R29 - C22 - Q5 - Q3 - D3 - A / P1 - B
Memo/OGM Recording (from Handset)
(HANDSET)
MIC - (internal parts are omitted) - DECT Antenna To Base
(BASE UNIT)
from HANDSET ANT1 - C851 / ANT2 - C853 - DA802 - C803 - DA801 - C826
C864 - IC7(3) / C863 - IC7(2) - IC7(55) - IC421(5)
ICM Recording (from Tel Line)
(BASE UNIT)
A / B - P1 - D3 - Q3 - Q5 - R20 - C56 - R117 - IC7 (21) - IC7(55) - IC421(5)
Message Play (to Handset)
(BASE UNIT)
IC421(2) - IC7 (54) - IC7(79) - L802 / IC7(78) - C813 - C812 - DA801 - C803 -
DA802 - C851 - ANT1 / C853 - ANT2 to HANDSET
(HANDSET)
MIC - (internal parts are omitted) - DECT Antenna To Base
(HANDSET)
from BT Headset - BT/WiFi Antenna - (internal parts are omitted) - DECT Antenna to BASE
Bluetooth Headset TX (to Tel Line)
(BASE UNIT)
from HANDSET ANT1 - C851 / ANT2 - C853 - DA802 - C803 - DA801 - C826 - C864 - IC7 (3) / C863 - IC7 (2)
- IC7 (23) - R116 - R29 - C22 - Q5 - Q3 - D3 - A / P1 - B
Bluetooth Headset RX (from Tel Line)
(BASE UNIT)
A / B - P1 - D3 - Q3 - Q5 - R20 - C56 - R117 - IC7 (21) - IC7 (79) - L802 / IC7 (78) - L813 - C812 - DA801 -
- C803 - DA802 - C851 - ANT1 / C853 - ANT2 to Handset
(HANDSET)
from BASE UNIT DECT Antenna - (internal parts are omitted) - BT/WiFi Antenna to BT Headset

5 Location of Controls and Components

Refer to the Operating Instructions.

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

6 Installation Instructions

Refer to the Operating Instructions.

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

7 Operating Instructions

Refer to the Operating Instructions.

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

7.1. For Service Hint

Items	Contents
PIN Code	● Change the PIN using the following method. **1** Landline icon ⟶ Landline settings ⟶ Initial settings ⟶ Base Unit PIN **2** ✱7000 **3** Enter the new 4-digit base unit PIN.

8 Service Mode

8.1. Engineering Mode

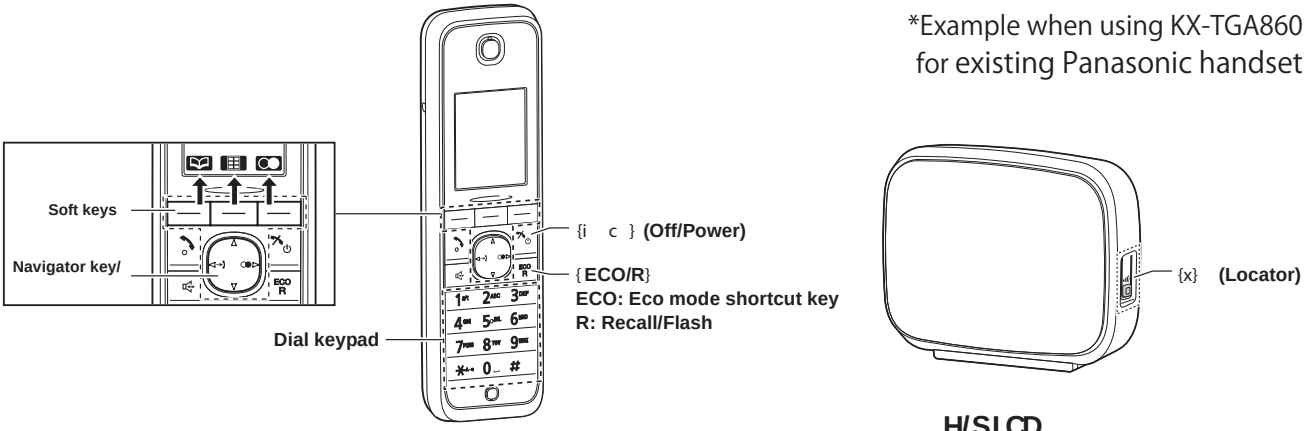
8.1.1. Base Unit

Important:

Make sure the address on LCD is correct when entering new data. Otherwise, you may ruin the unit.

Use existing Panasonic handset for this operation. (Example : KX-TGA860) , because KX-PRXA10 don't have the following menu.

*Example when using KX-TGA860 for existing Panasonic handset



H/S key operation

1). Register a Handset to a Base Unit. (*1)

2). Press 8 .

3). Select "Initial Setup" using {^}{V} then press M or {>}.

4). Select "Line Setup" using {^}{V} then press M or {>}.

5). Enter "7", "2", "6", "2", "7", "6", "6", "4".
Note: 7262 7664 = PANA SONI
(see letters printed on dial keys)

6). Select "Write EEP" using {^}{V} then press M or {>}.

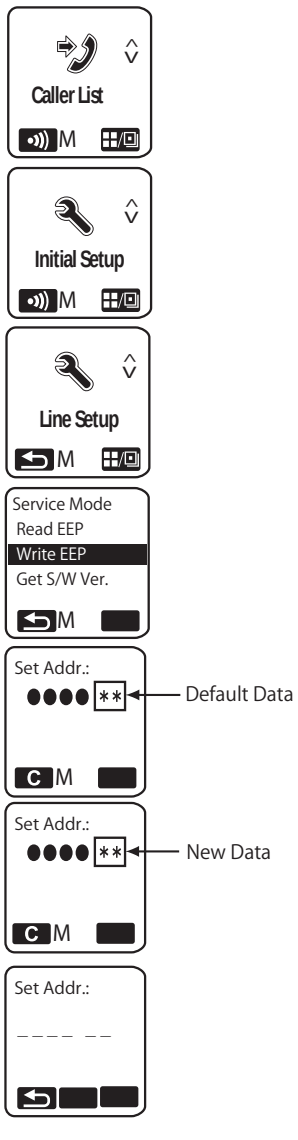
7). Enter "●", "●", "●", "●" (Address). (*2)

8). Enter "∗", "∗" (New Data). (*2)

9). Press M , a long confirmation beep will be heard.

10). Press {off} to return to standby mode.
After that, turn the base unit power off and then power on.

H/S LCD



Frequently Used Items (Base Unit)

ex.)

Items	Address	Default Data	New Data		Remarks
C-ID (FSK) sensitivity	06 B9/06 B8	00/51	00/39 (3 dB up)	00/28 (6 dB up)	When the hex change from 00/51 to 00/39 or 00/28, gain increases by 3 dB or 6 dB.
C-ID (DTMF) sensitivity	06 BF/06 BE	08/00	0B/4C (3 dB up)	0F/F6 (6 dB up)	When the hex change from 08/00 to 0B/FC or 0F/F6, gain increases by 3 dB or 6 dB.
Frequency	00 08/00 07	02/70	-	-	Use these items in a **READ-ONLY** mode to confirm the contents. Careless rewriting may cause serious damage to the computer system.
ID	00 02~00 06	Given value	-	-	
Bell length	389	3C (6sec) (*3)	1E (3 sec)	14 (2 sec)	This is time until bell stops ringing. (Unit: 100 ms)
PULSE Dial speed (10PPs->20PPs)	35A	28 (40 msec) (*3)	14 (20 msec)	-	This is pulse make time. (Unit:1msec)
	35B	3C (60 msec) (*3)	1F (30 msec)	-	This is pulse break time. (Unit:1msec)
	378	57 (870 msec) (*3)	2C (440 msec)	-	This is inter-digit time in pulse mode. (Unit:10 msec)

Note:

(*1) Refer to **Registering a Handset to a Base Unit** in the Operating Instructions.

(*2) When you enter the address or New Data, please refer to the table below.

Desired Number (hex)	Input Keys	Desired Number (hex)	Input Keys
0	0	A	[R] + 0
1	1	B	[R] + 1
.	.	C	[R] + 2
.	.	D	[R] + 3
.	.	E	[R] + 4
9	9	F	[R] + 5

(*3)

Bell length	3C(hex) = 60(dec) $\rightarrow$ 60 $\times$ 100 msec = 6000 msec (6 sec)
PULSE Dial speed (10PPS -> 20PPS)	28 (hex) = 40 (dec) $\rightarrow$ 40 $\times$ 1 msec = 40 msec
	3C (hex) = 60 (dec) $\rightarrow$ 60 $\times$ 1 msec = 60 msec
	57 (hex) = 87 (dec) $\rightarrow$ 87 $\times$ 10 msec = 870 msec

8.1.2. Handset

There is no description of this chapter. When handset operation is NG, substrate is exchanged and not carrying out adjustment. And the means which rewrites setting value by key operation of handset has not been implemented, either.

8.2. EEPROM LAYOUT (Handset)

There is no description of this chapter. When handset operation is NG, substrate is exchanged and not carrying out adjustment. And the means which rewrites setting value by key operation of handset has not been implemented, either.

8.3. Copying User Data when Repairing

You can copy the handset phonebook to another (compatible Panasonic) handset. This will help to save the original phonebook data which the customer has registered.
Refer to the following procedures.

8.3.1. Phonebook

1. Insert the blank micro SD Card.
2. Power on the handset.
3. People App Icon → Menu Button → Import/Export.
4. Follow the Instruction on Screen.

8.3.2. Other User Data

1. Insert the blank micro SD Card.
2. Power on the handset.
3. Start up “File Manager” App.
4. Back up the data and/or folder to Micro SD Card by using copy function of App.

8.4. How to Clear User Setting

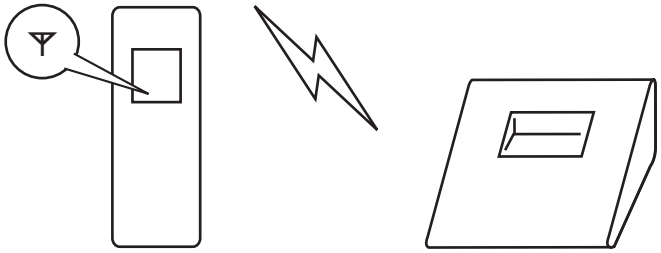
Units are reset to the Factory settings by this operation (Erase stored Phone numbers, Caller list and etc.)

Note:

- Some menus are not reset. Refer to **Operating Instructions** (P.16).
- The reset menus differ depending on the following operations.
- **This operation should not be performed for a usual repair.**

8.4.1. Resetting both base unit and handset

Both the base unit and the registered handset which you did the following steps ① to ⑩ are reset. Other registered handsets will not be reset.



Handset **Base unit**

① Connect the AC adaptor to the base unit and install the charged batteries into the handset.

② Confirm the handset is registered to the base unit ( ).
If the handset is not registered to the base unit ( ), register it. (*1)

③ Press "*#72627664*#" to enter Factory Mode.

④ Factory Reset --> Factory reset1

⑤ Keep pressing Power Button at language select screen and select shutdown.

⑥ Disconnect the AC adaptor of Base unit.

⑦ Keep pressing the power key and home key at the same time until "Android system recovery" is displayed. (about 10 seconds)

⑧ Move the focus to "wipe data/factory reset" by Volume button and push the power key.

⑨ Move the focus to "Yes -- delete all user data" by Volume button and push the power key

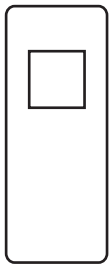
⑩ Remove the battery after the "Data wipe complete."

Note:

(*1) Refer to **Registering a Handset to a Base Unit** in the Operating Instructions.

8.4.2. Resetting only handset

The only handset is reset by doing the following steps ① to ⑧.



Handset

① Install the charged batteries into the handset.

② Press "*#72627664*#" to enter Factyory Mode.

③ Factory Reset --> Factory reset2.

④ Keep pressing Power Button at language select screen and select shutdown.

⑤ Keep pressing the power key and home key at the same time until "Android system recovery" is displayed. (about 10 seconds)

⑥ Move the focus to "wipe data/factory reset" by Volume button and push the power key.

⑦ Move the focus to "Yes -- delete all user data" by Volume button and push the power key (*2).

⑧ Remove the battery after the "Data wipe complete."

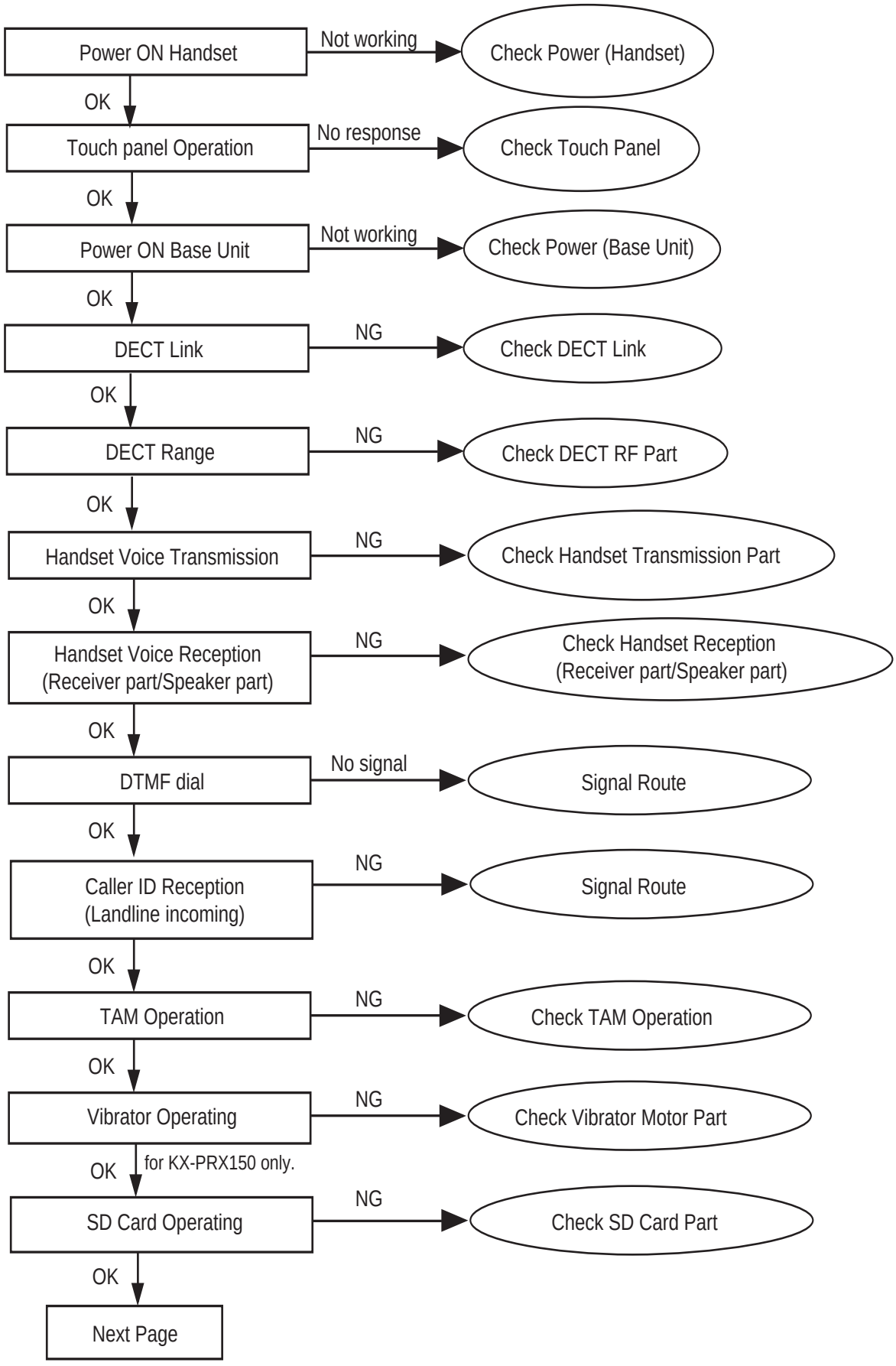
Note: (*2)

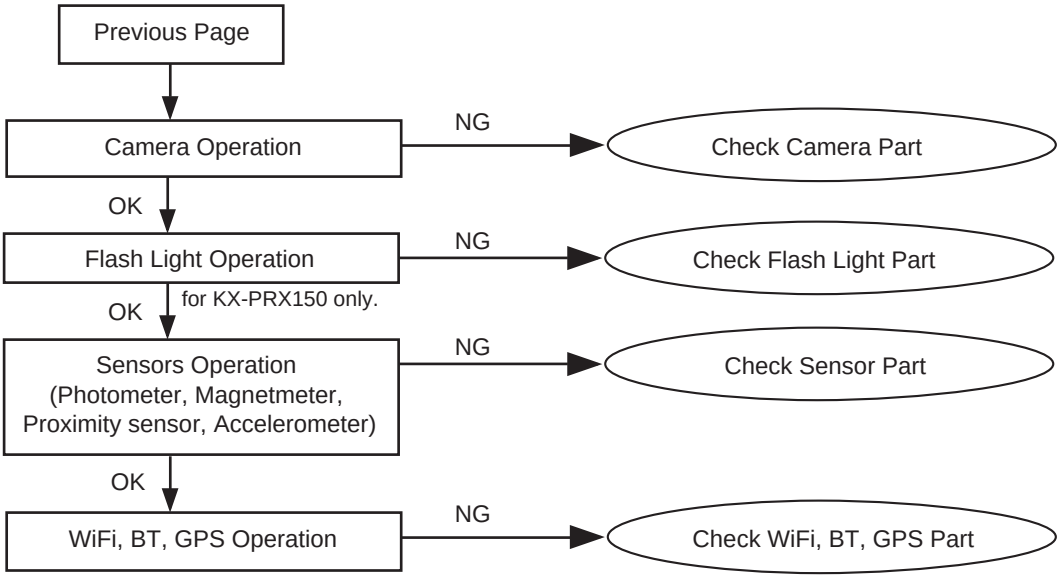
- The handset registration to the base unit is cancelled.
- If the handset needs to be registered to the base unit, refer to **Registering a Handset to a Base Unit** in the Operating Instructions.
- If users do not bring the base unit with them, the registration procedure has to be done by users themselves.

9 Troubleshooting Guide

9.1. Troubleshooting Flowchart

Flow Chart





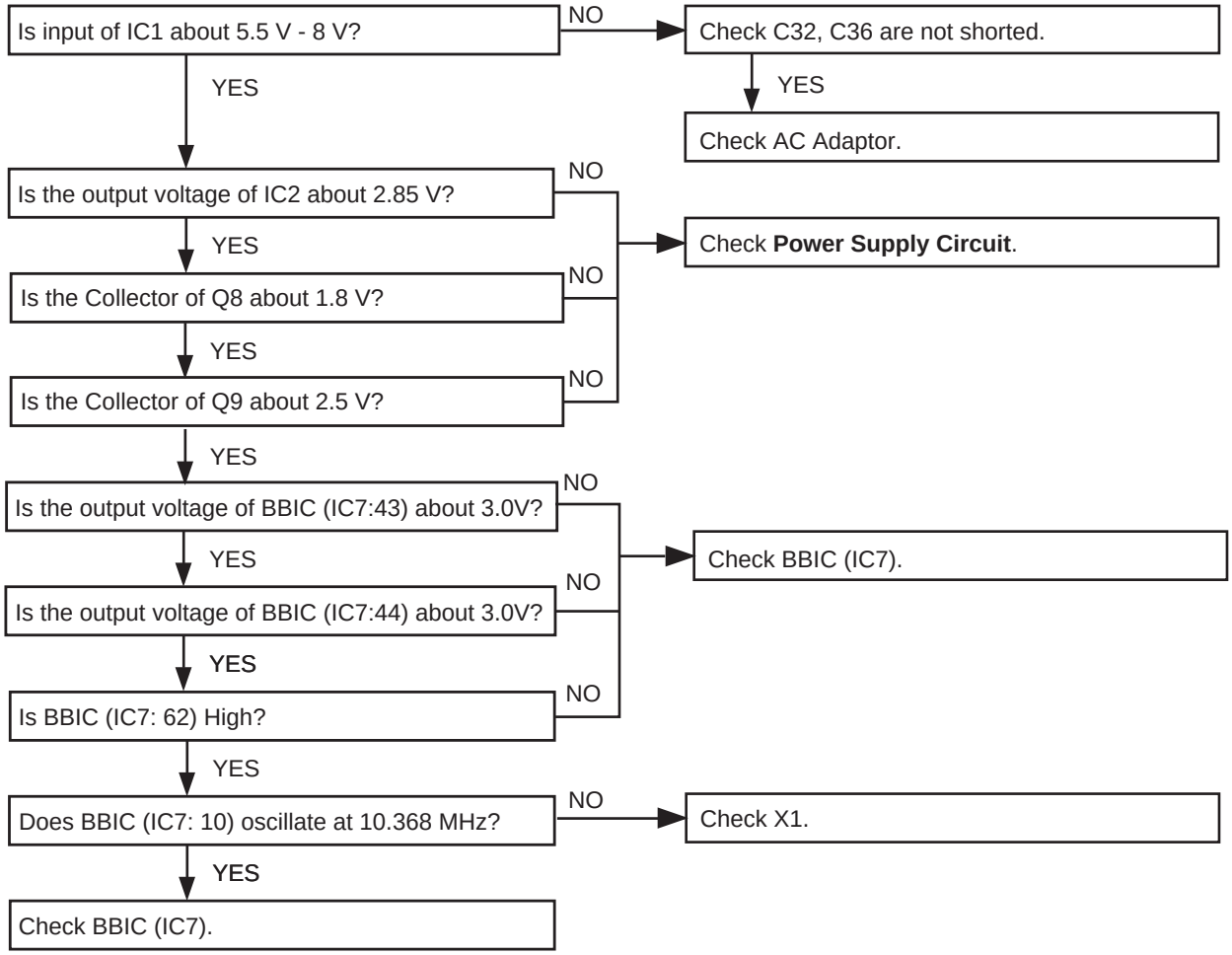
Cross Reference:

Check Power (Handset) (P.25)
Check Touch Panel (P.28)
Check Power (Base Unit) (P.24)
Check DECT Link (P.26)
Check DECT RF part (P.29)
Check Handset Transmission (P.30)
Check Handset Reception (Receiver part/Speaker part) (P.31)
Check TAM Operation Part (P.33)
Check SD Card Part (P.34)
Check Camera Part (P.34)
Check Sensor Part (P.35)
Check WiFi, BT Part (P.35)

9.1.1. Check Power

9.1.1.1. Check Power (Base Unit)

Is the AC Adaptor inserted into AC outlet? (*1)



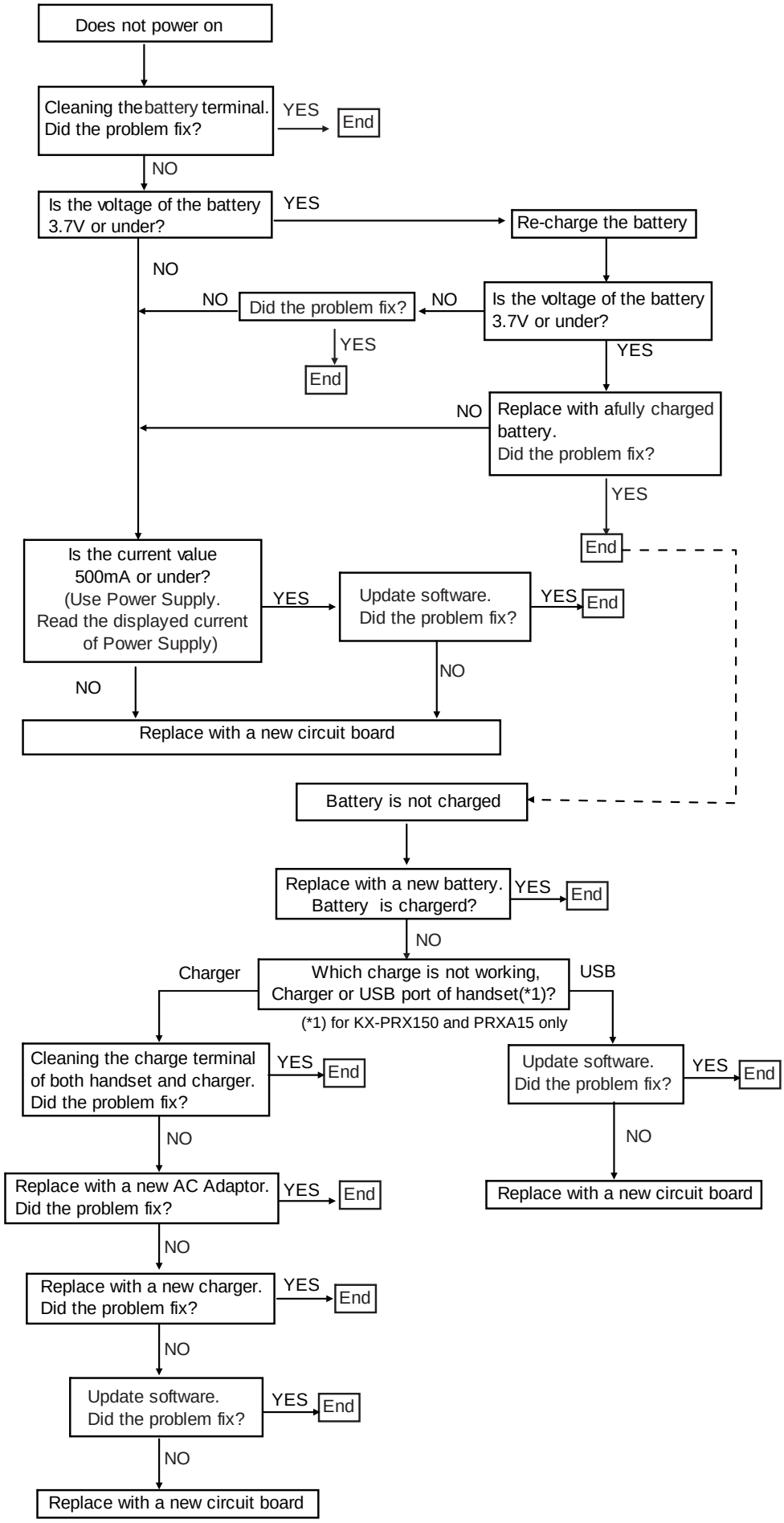
Cross Reference:

Power Supply Circuit (P.9)

Note:

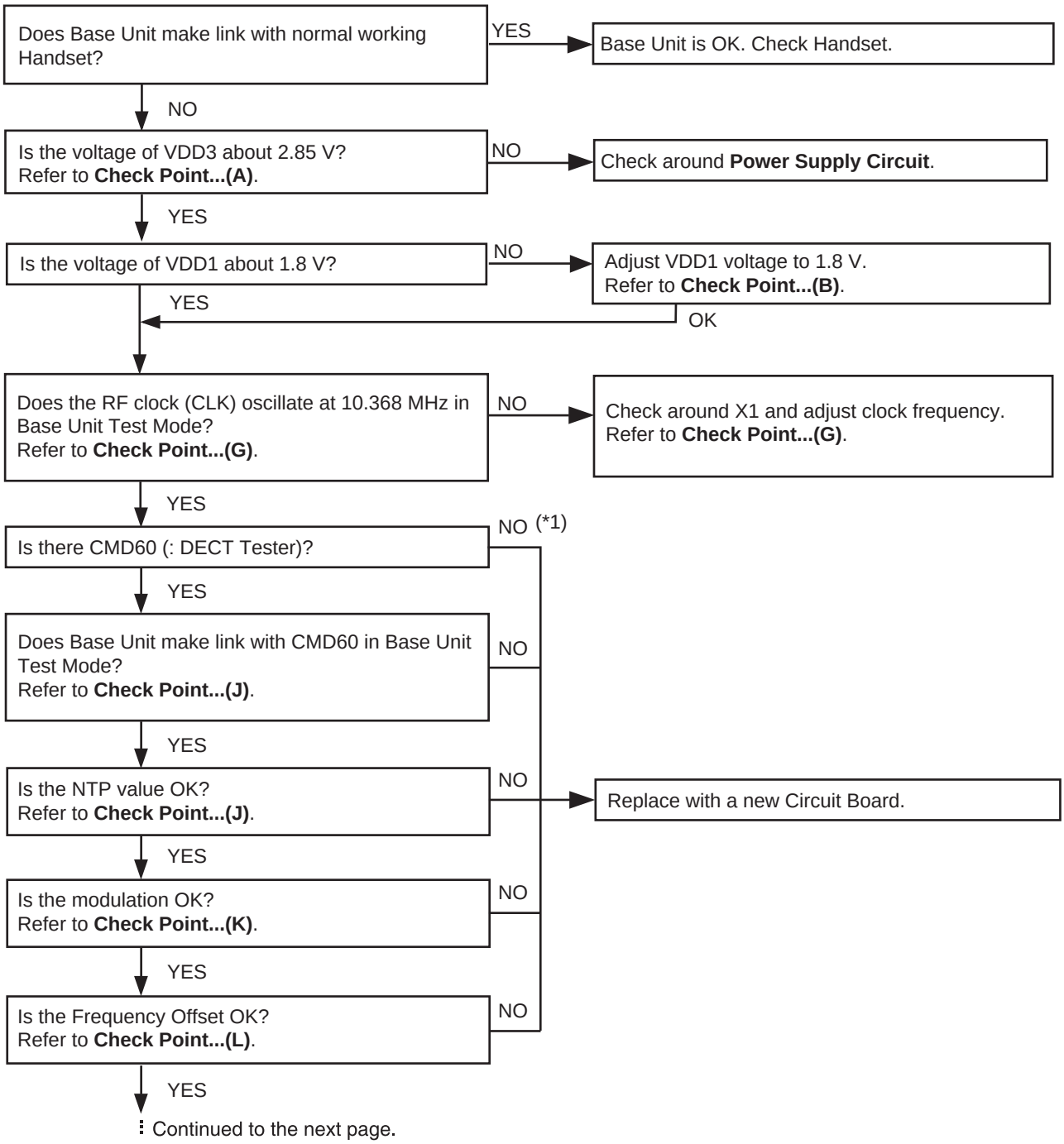
(*1) Refer to **Specifications** (P.6) for part number and supply voltage of AC Adaptor.

9.1.1.2. Check Power (Handset)



9.1.2. Check DECT Link

9.1.2.1. Base Unit



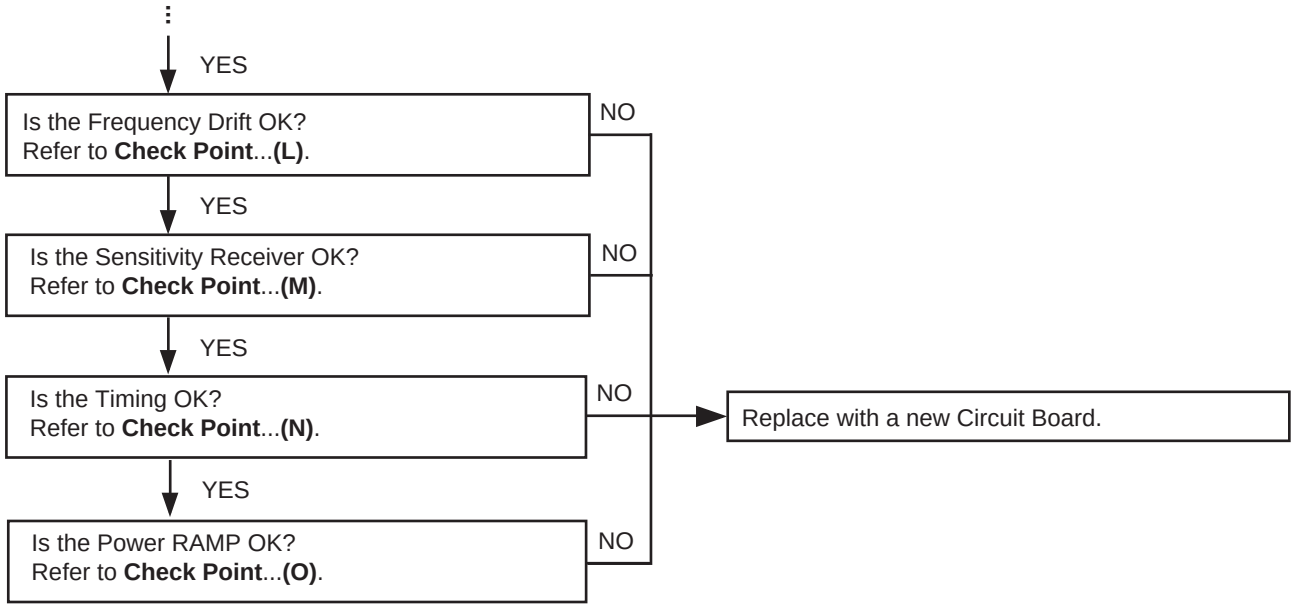
Note:

(*1) Refer to **Troubleshooting by Symptom (Base Unit and Charger Unit)** (P.36)

Cross Reference:

Check Point (Base Unit) (P.36)

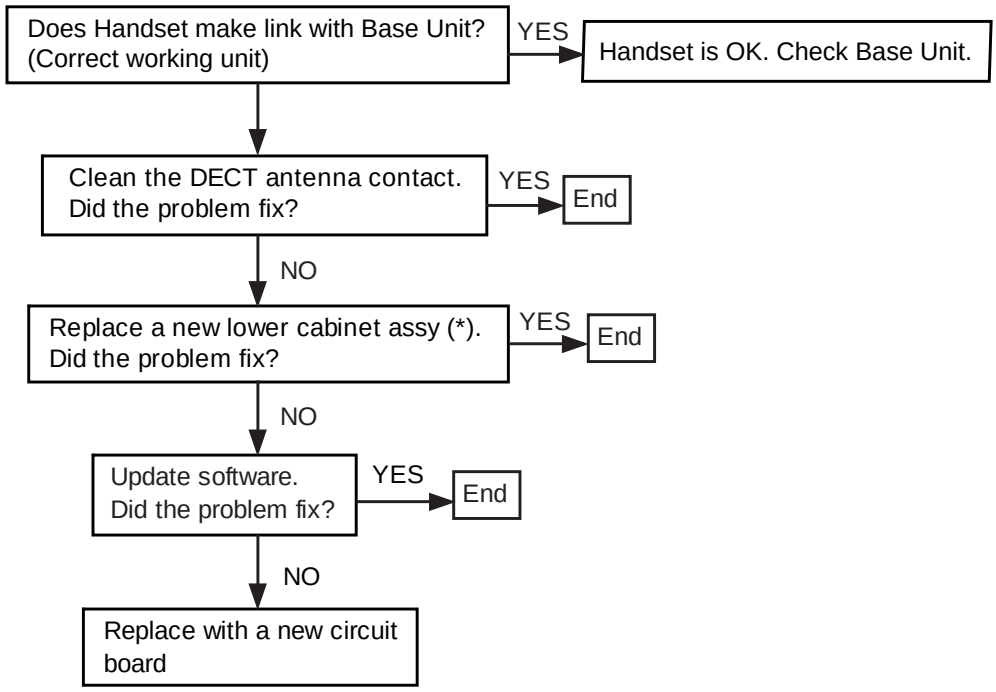
Power Supply Circuit (P.9)



Cross Reference:

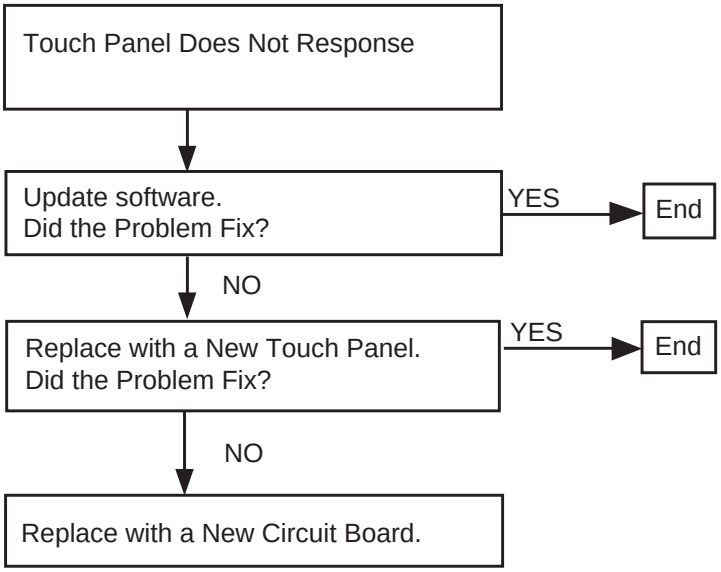
Check Point (Base Unit) (P.36)

9.1.2.2. Handset



* DECT antenna is placed on the lower cabinet.

9.1.3. Check Touch Panel



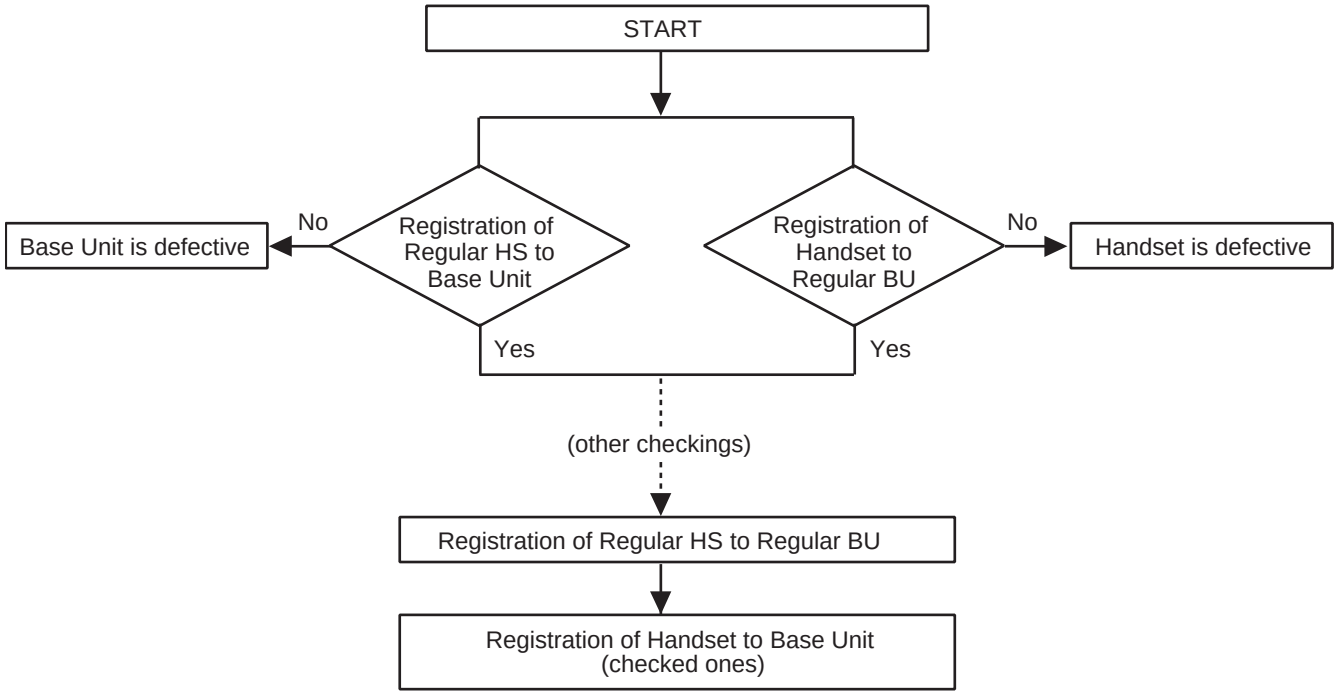
9.1.4. Check DECT RF part

9.1.4.1. Finding out the Defective part

1. Prepare Regular HS (Handset) and Regular BU (Base unit).
2. a. Re-register regular HS (Normal mode) to Base Unit (to be checked).
   If this operation fails in some ways, the Base Unit is defective.
   b. Re-register Handset (to be checked) to regular BU (Normal mode).
   If this operation fails in some ways, the Handset is defective.

After All the Checkings or Repairing

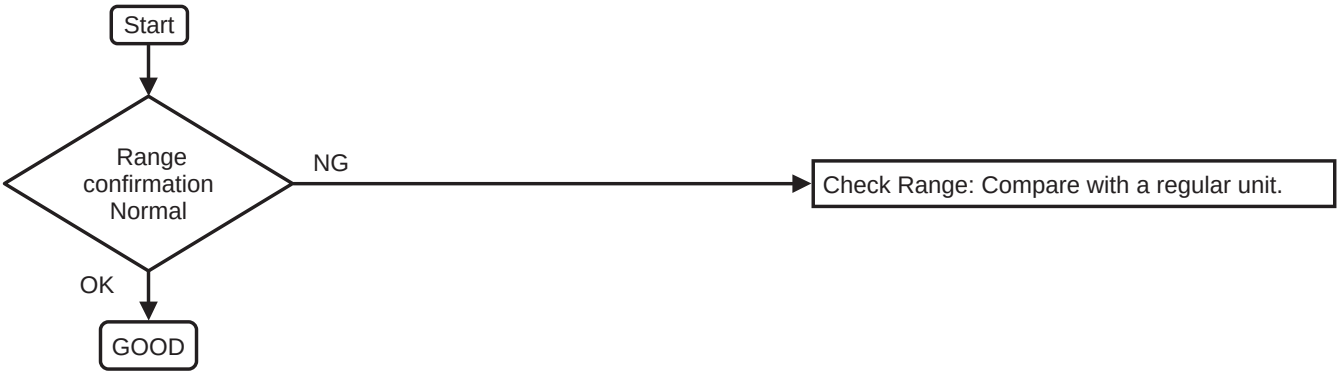
1. Re-register the checked Handset to the checked Base Unit, and Regular HS to Regular BU.



Note:

If you need to register a handset, refer to **Registering a Handset to a Base Unit** in the Operating Instructions.

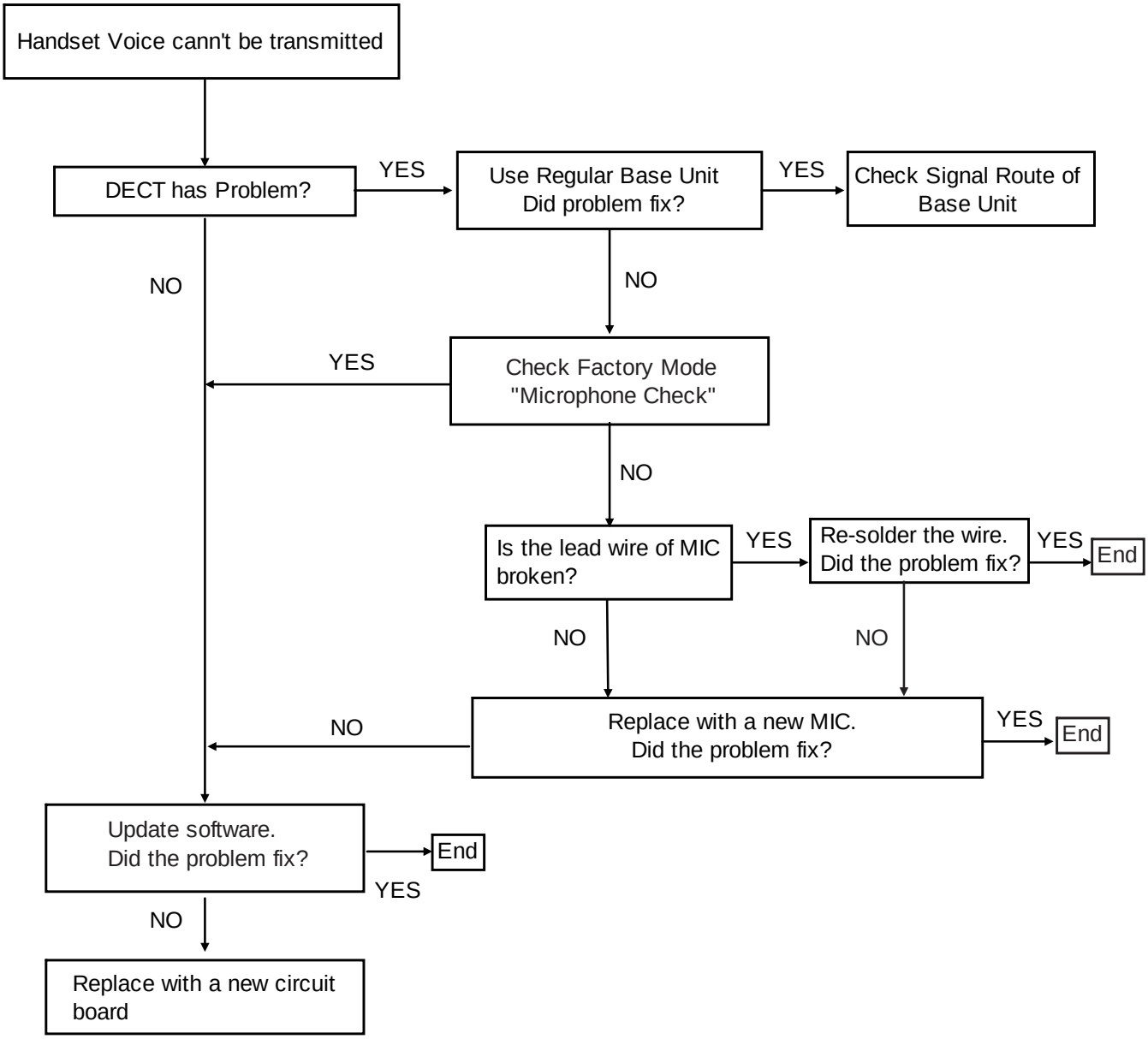
9.1.4.2. RF Check Flowchart



9.1.4.3. Check Table for RF part

Item	BU (Base Unit) Check	HS (Handset) Check
Range Confirmation Normal HS, BU Mode: [Normal mode]	1. Register Regular HS to BU (to be checked). 2. Press [Talk] key of the Regular HS to establish link. 3. Compare the range of the BU (being checked) with that of the Regular BU.	1. Register HS (to be checked) to Regular BU. 2. Press [Talk] key of the HS to establish link. 3. Compare the range of the HS (being checked) with that of the Regular HS.

9.1.5. Check Handset Transmission

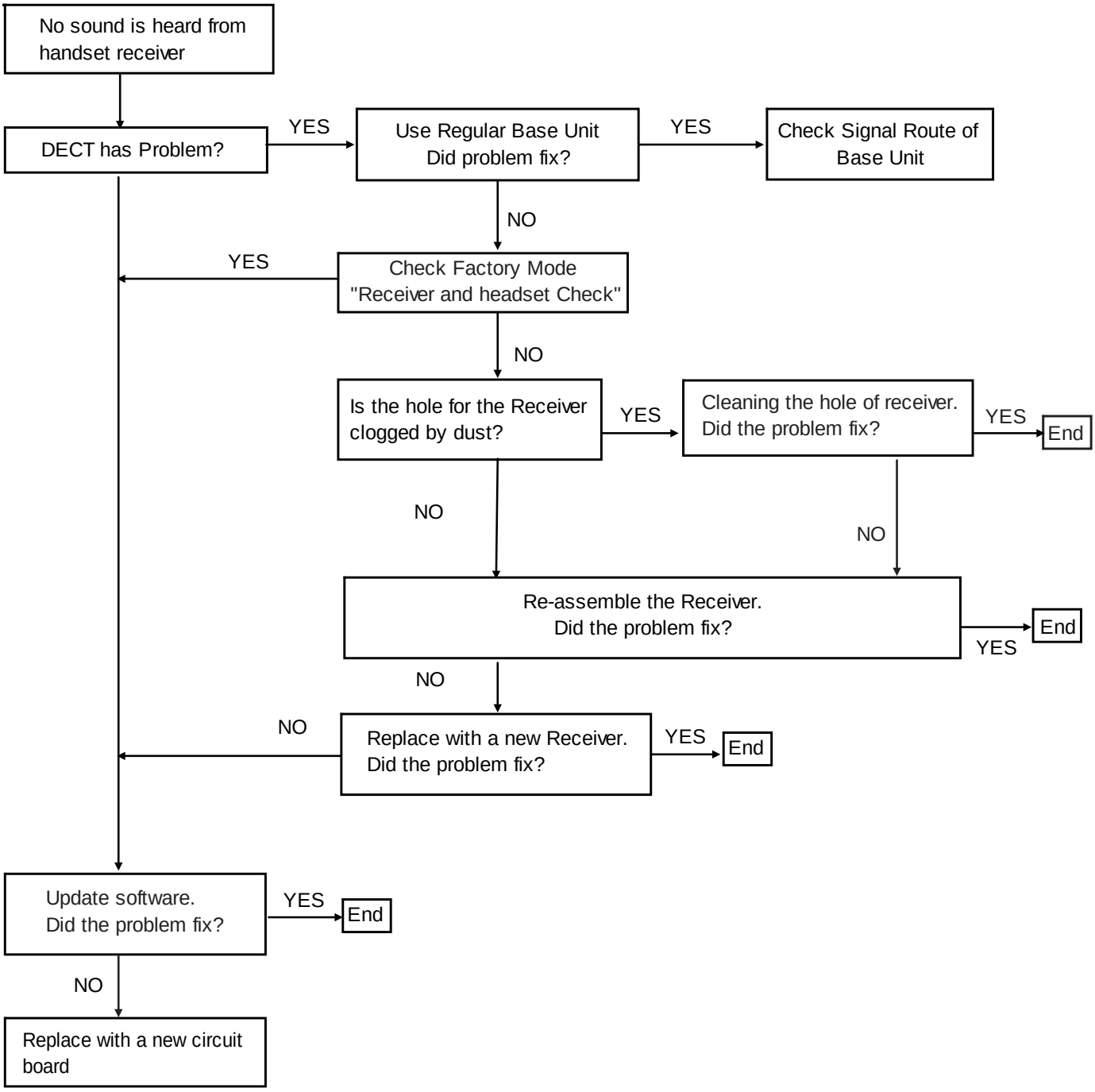


Cross Reference:

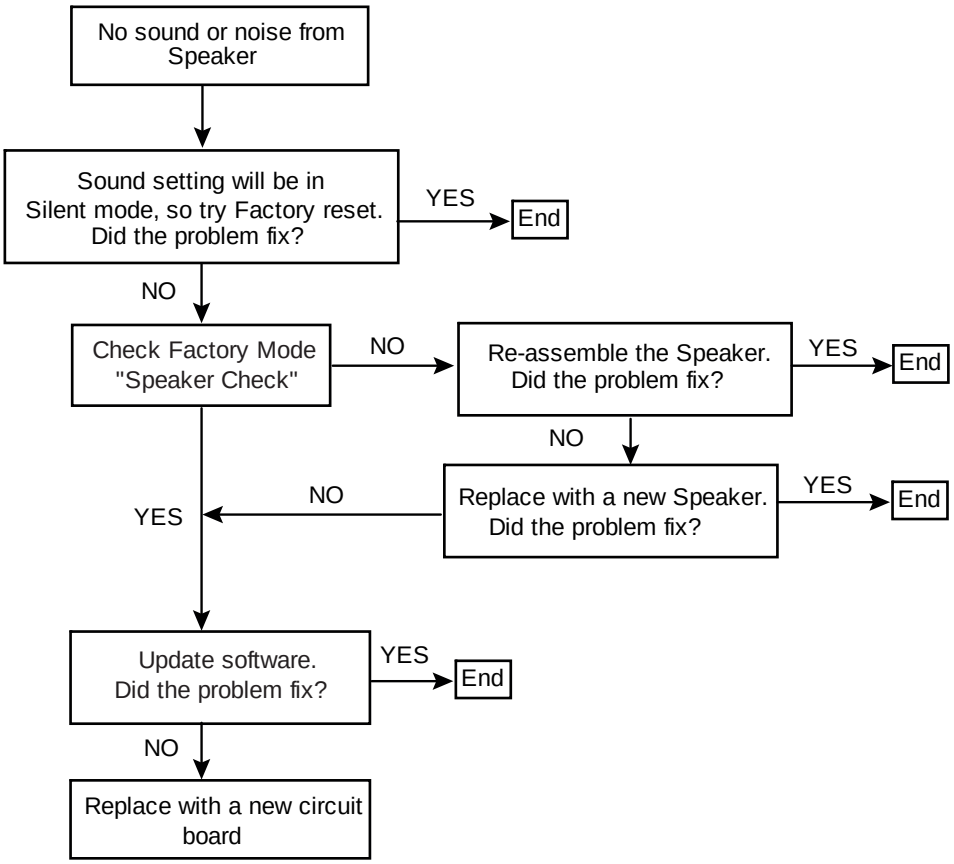
Signal Route (P.14)

9.1.6. Check Handset Reception

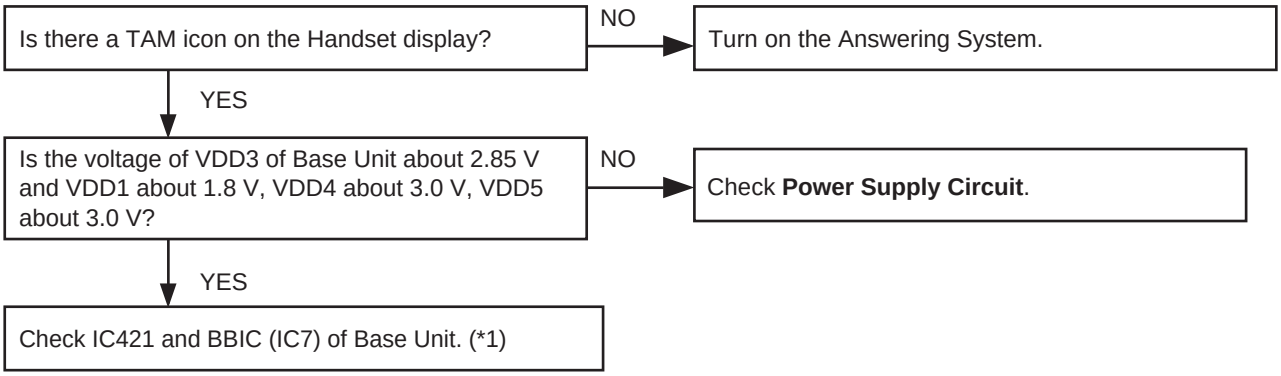
9.1.6.1. Receiver Part



9.1.6.2. Speaker Part



9.1.7. Check TAM Operation Part



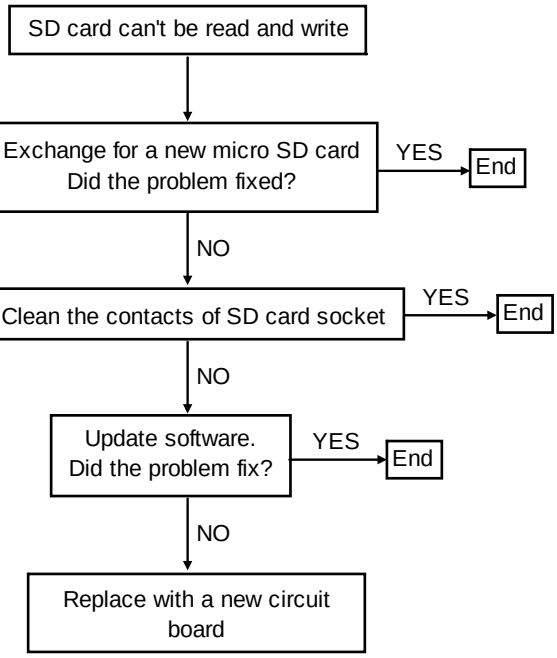
Cross Reference:

Power Supply Circuit (P.9)

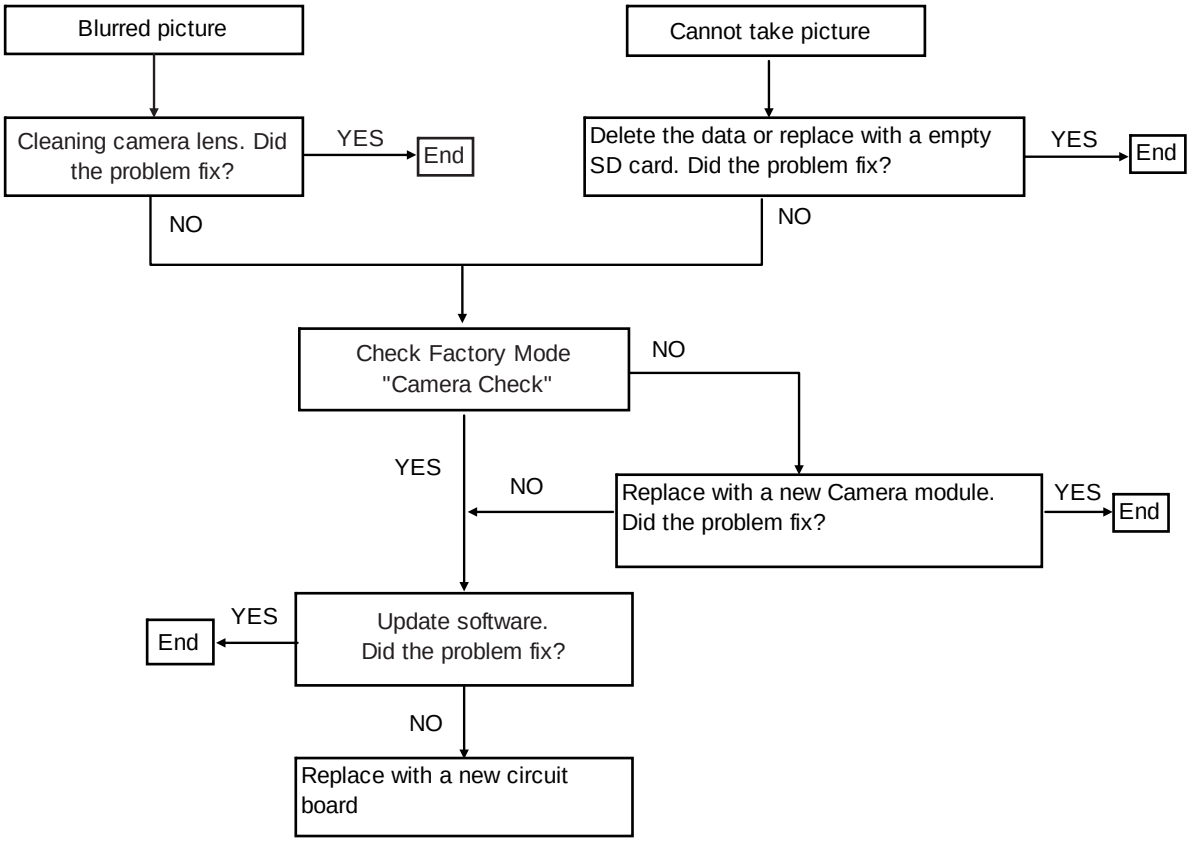
Note:

(*1) When replacing FLASH MEMORY (IC421), TAM data need to be written to it. Refer to **Base Unit** of **Things to Do after Replacing IC or X'tal** (P.50)

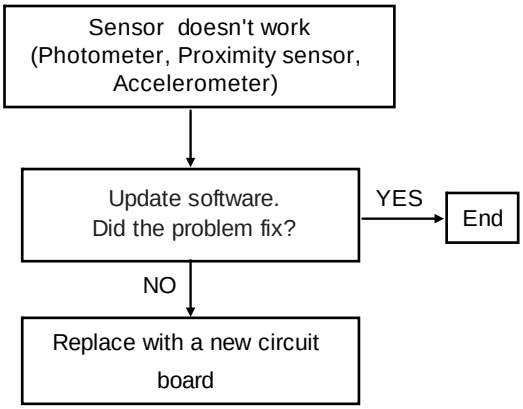
9.1.8. Check SD Card Part



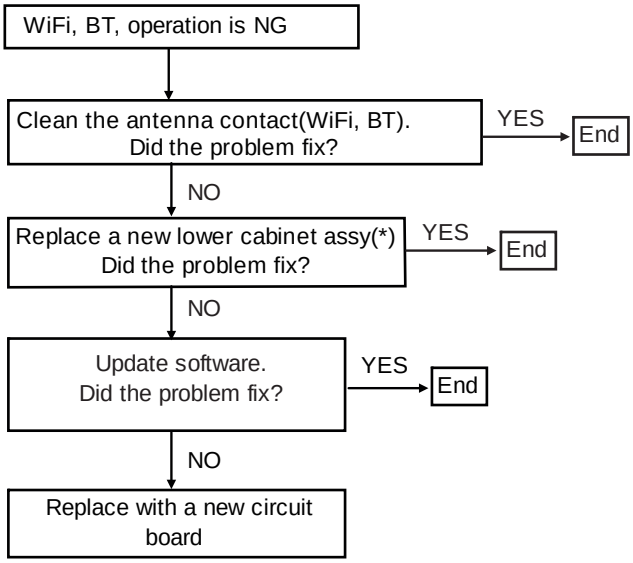
9.1.9. Check Camera Part



9.1.10. Check Sensor Part



9.1.11. Check WiFi, BT Part



* WiFi, BT, Antennas are place on the lower cabinet .

9.1.12. Check Battery Charge

As for battery charge, troubleshooting is described in **9.1.1.2 Check Power (Handset)** (P.25)

9.2. Troubleshooting by Symptom (Base Unit and Charger Unit)

If your unit has below symptoms, follow the instructions in remedy column. Remedies depend on whether you have DECT tester (*1) or not.

Symptom	Remedy (*2)	
	You don't have DECT Tester.	You have DECT Tester. (Model Number : CMD60)
You cannot dial.	Check item (**A**)-(**I**),(**T**).	Check item (**A**)-(**I**), (**J**)-(**P**),(**T**).
You cannot hear the caller's voice.	Check item (**A**)-(**G**),(**Q**),(**T**).	Check item (**A**)-(**G**), (**J**)-(**P**), (**Q**),(**T**).
You cannot use handset a little away from base unit even if the handset is within range of the base unit.	-	Check item (**J**)-(**P**).
The acoustic transmit level is high or low.	Check item (**Q**).	Check item (**Q**).
The acoustic reception level is high or low.	Check item (**Q**).	Check item (**Q**).
Base unit and handset do not link each other.	Check item (**A**)-(**I**), (**S**).	Check item (**A**)-(**P**), (**S**).
The unit cannot charge.	Check item (**T**).	Check item (**T**).

Note:

(*1) A general repair is possible even if you don't have the DECT tester because it is for confirming the levels, such as Acoustic level in detail.

(*2) Refer to **Check Point (Base Unit)** (P.36)

9.2.1. Check Point (Base Unit)

Please follow the items below when BBIC or EEPROM or FLASH is replaced.

Note:

After the measuring, suck up the solder of TP.

*: **The Setting Method of JIG (Base Unit)** (P.46) is required beforehand.

The connections of simulator equipment are as shown in **Adjustment Standard (Base Unit)** (P.48).

	Items	Check Point	Procedure	Check or Replace Parts
(**A**)	3.0 V Supply Confirmation	VDD3	1. Confirm that the voltage between test point VDD3 and GND is 2.85 V ± 0.2 V.	IC2, C32, C36, C86, C88, R91, R93, L3, C602, C38, R605, R607, R608, R609, R610, R612, Q602
(**B**)	1.8 V Supply Confirmation	VDD1	1. Confirm that the voltage between test point VDD1 and GND is 1.8 V ± 0.02 V. 2. Execute the command "VDD", then check the current value. 3. Adjust the 1.8V voltage of VDD1 executing command "VDD XX"(XX is the value).	Q8, C75, C614, C61, IC7, R611
(**C**)	Charge Pump 3.0V Supply Confirmation	VDD5	1. Confirm that the voltage between test point VDD5 and GND is 3.0 V -0.1/+0.3 V.	IC7,C625
(**D**)	Charge Pump 3.0V Supply Confirmation	VDD4	1. Confirm that the voltage between test point VDD4 and GND is 3.0 V ± 0.2 V.	IC7,C616, R620
(**E**)*	BBIC Confirmation	-	1. BBIC Confirmation (Execute the command "getchk"). 2. Confirm the returned checksum value. Connection of checksum value and program number is shown below. ex.) checksum value: F0D2 / program number: DDX1AA	IC7, X1, R77, RA80
(**F**)*	EEPROM Confirmation	-	1. EEP-ROM Confirmation (after you execute the command "sendchar EPD 2" ,and then execute "sendchar EPV"). 2. Confirm the returned Value (Value for reference is written at "EEPROM C/SUM" in Software_Version_Table.xls).	IC7, RA402, C51, R657, IC401
(**G**)*	BBIC Clock Adjustment	CLK	1. Confirm that the voltage between testpoint VDD4 and GND is less than 1.0 V. 2. Input Command "sendchar sfr", then you can confirm the current value. 3. Check X'tal Frequency. (10.368 MHz ± 100 Hz). 4. If the frequency is not 10.368MHz ± 100Hz, adjust the frequency of CLK executing the command "sendchar sfr xx xx (where xx is the value)" so that the reading of the frequency counter is 10.368000 MHz ± 5 Hz.	X1, IC7, R430, C305

	Items	Check Point	Procedure	Check or Replace Parts
(**H**)*	Hookswitch Check with DC Characteristics	-	1. Connect Telephone Socket to Tel-simulator which is connected with 600 Ω. 2. Set line voltage to 48 V and line current to 40mA at off-hook condition of normal telephone. 3. Execute the command “hookoff” 4. Confirm that the line current is 40 mA ± 5 mA. 5. Execute the command “hookon”. 6. Confirm that the line current is less than + 0.8 mA.	P1, Q3, R14, R15, Q4, R16, R17, D3, R18~R24, D21, Q5, R27, IC7
(**I**)	DTMF Generator Check	-	1. Connect Telephone Socket to DTMF tester. (Load=600 Ω) 2. Link Handset and push dial key. 3. Confirm DTMF character. 4. Confirm that the high Group is -6.0 dBm ~ -10.0 dBm. 5. Confirm that the low Group is -8.5 dBm ~ -12.5 dBm.	IC7, R116, R29, C22, Q5, D21
(**J**)*	Transmitted Power Confirmation	- ANTI_TP	Remove the Antenna before starting step from 1 to 7. 1. Configure the DECT tester (CMD60) as follows; <Setting> • Test mode: FP • Traffic Carrier: 5 • Traffic Slot: 4 • Mode: Loopback • PMID: 00000 • RF LEVEL = -70 dBm. 2. Execute the command ”sendchar TST”. 3. Execute the command “sendchar dmv 2 2”. 4. Check that “Signalling Status” has been set to “Locked”, then press “ACCEPT RFPI”. 5. Initiate connection from Dect tester (“set up connect”) 6. Execute the command “ANT1”. 7. Confirm that the NTP value at ANT is 19.0 dBm ~ 25.0 dBm.	IC7, C802~C806, C809~C813, C820, C837, C822, C823, C825, C863, C826, C864, C851, C853, DA801, DA802, L802, L803, C855~C858, R806, R807, R106, R109, Q9, C617,R71
(**K**)*	Modulation Check	- ANTI_TP	Follow steps 1 to 6 of **(J)**. 7.Confirm that the B-Field Modulation is -350±50/+350±50 kHz/div using data type Fig31.	IC7, C802~C806, C809~C813, C820, C837, C822, C823, C825, C863, C826, C864, C851, C853, DA801, DA802, L802, L803, C855~C858, R806, R807, R106, R109, Q9, C617,R71
(**L**)*	Frequency Offset Check	- ANTI_TP	Follow steps 1 to 6 of **(J)**. 7.Confirm that the frequency offset is < ± 50 kHz.	IC7, C802~C806, C809~C813, C820, C837, C822, C823, C825, C863, C826, C864, C851, C853, DA801, DA802, L802, L803, C855~C858, R806, R807, R106, R109, Q9, C617,R71
(**M**)*	Frequency Drift Confirmation	- ANTI_TP	Follow steps 1 to 6 of **(J)**. 7.Confirm that the frequency drift is < ± 35 kHz/ms.	IC7, C802~C806, C809~C813, C820, C837, C822, C823, C825, C863, C826, C864, C851, C853, DA801, DA802, L802, L803, C855~C858, R806, R807, R106, R109, Q9, C617,R71

	Items	Check Point	Procedure	Check or Replace Parts
(**N**)*	Sensitivity Receiver Confirmation	- ANTI_TP	Follow steps 1 to 6 of **(J)**. 7.Set DECT tester power to -88 dBm. 8.Confirm that the BER is < 1000 ppm.	IC7, C802~C806, C809~C813, C820, C837, C822, C823, C825, C863, C826, C864, C851, C853, DA801, DA802, L802, L803, C855~C858, R806, R807, R106, R109, Q9, C617,R71
(**O**)*	Timing Confirmation	- ANTI_TP	Follow steps 1 to 6 of **(J)**. 7.Confirm that the Timing accuracy is • ± 5.0 ppm (When adjust the frequency of CLK in item **(G)**). • ± 15 ppm (When do not adjust the frequency of CLK in item **(G)**).	IC7, C802~C806, C809~C813, C820, C837, C822, C823, C825, C863, C826, C864, C851, C853, DA801, DA802, L802, L803, C855~C858, R806, R807, R106, R109, Q9, C617,R71
(**P**)*	Power RAMP Confirmation	-	Follow steps 1 to 6 of **(J)**. 7.Confirm that Power RAMP is matching.	IC7, C802~C806, C809~C813, C820, C837, C822, C823, C825, C863, C826, C864, C851, C853, DA801, DA802, L802, L803, C855~C858, R806, R807, R106, R109, Q9, C617,R71
(**Q**)	Audio Check	-	1. Link with Handset which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 50mA. 3. Input -45dBm(600Ω)/1kHz to MIC of Handset. Measure the Level at Line I/F and distortion level. 4. Confirm that the level is -2.5dBm±5 dB and that the distortion level is <5% at TEL Line (600Ω Load). 5. Input -20dBm(600Ω)/1kHz to Line I/F. Measure the Level at Receiver of Handset and distortion level (Receive volume set to second position from minimum). 6. Confirm that the level is -30.0dBm± 4 dB and that the distortion level is <5% at Receiver (Receiver Load).	IC7, SA1, P1, D3, Q3, Q4, R14, R15, R16, R17, D21, Q5, R19, R20, C14, C56, R117, R116, R29, C22
(**S**)	2.4V Supply Confirmation VDD2	VDD2	1. Confirm that the voltage between test point VDD2 and GND is 2.5V ± 0.2V.	IC7, Q9, C617, R71

9.2.2. Check Point (Charger Unit)

	Items	Check Point	Procedure	Check or Replace Parts
(**T**)	Charging Check	-	1. Connect Charge Contact 10Ω/5W resistor between charge+ and charge-. 2. Measure and confirm voltage across the resistor is 5.0 V ± 0.3 V.	R1, F1

Note:

After the measuring, suck up the solder of TP.

The connection of adjustment equipment is as shown in **Adjustment Standard (Charger Unit)** (P.49).

9.3. Troubleshooting by Symptom (Handset)

If your unit has below symptoms, follow the instructions in remedy column.

Symptom	Remedy
Battery strength is not indicated correctly by Battery icon.	1. Clean the Battery Terminal. 2. If not fixed, update software. 3. If not fixed, replace with a new circuit board.
You cannot hear the caller's voice.	Check "Handset Transmission part" in Trouble shooting.
You cannot use handset a little away from base unit even if the handset is within range of the base unit.	Check "DECT Link" and "DECT RF part" in Trouble shooting.
Does not link between base unit and handset.	Check "DECT Link" in Trouble shooting.
The Audio level is high or low.	Check "Handset Reception (Receiver part/Speaker part)" in Trouble shooting.
The SP-Phone level is high or low.	Check "Handset Reception (Receiver part/Speaker part)" in Trouble shooting.

9.4. Function Check at Factory Mode

Items	Operations
Enter to Factory Mode	1) Enter "*#72627664*#" at key pad screen and go to the Factory Mode. 2) Select "单项测试 /Manual Test" and go to Menu screen.

Items	Operations	Checking Items
Microphone Check	1)Select "活筒测試". 15 2) Select "录音 / REC" and record voice for 3 seconds. 3) Select "播放 / PLAY". 4) Insert headset. 5) Select "录音 / REC" and record voice for 3 seconds. 6) Select "播放 / PLAY". 7) Press Home Key and go back to home screen.	3), 6) Confirm that recorded voice is played from speaker.
Receiver and headset Check	1) Select "听筒测試". 14 2) Press "最大音量播放 / MAX Vol.". 3) Insert headset. 4) Press Home Key and go back to home screen.	2) Confirm that sample melody is heard from receiver and there are no vibration. 3) Confirm that sample melody is heard from headset.
Speaker Check	1) Select "鈴声测試" 13 and play sample melody. Make volume maximum by pressing volume key. 2) Press Home Key and go back to home screen.	1) Confirm that sample melody is heard from speaker and there are no vibration.
Vibrator Check	1) Select "震动测试". 5 2) Press Home Key and go back to home screen.	1) Check the operation of vibrator.

Items	Operations	Checking Items
Camera Check	(For KX-PRX120 only) 1) Select Camera icon. 12 2) Press Shutter Button. 3) Play Photograph. 4) Press Home Key and go back to home screen. (For KX-PRX150 only) 1) Select Camera icon. 12 2) Press Shutter Button. 3) Play Photograph. 4) Change to Front camera. 5) Press Shutter Button. 6) Play Photograph. 7) Press Home Key and go back to home screen.	3) Confirm that photograph are played. 3) Confirm that the photograph taken with the rear camera are played. 6) Confirm that the photograph taken with the front camera are played.
Flash light Check	1) Select "内光灯测試". 17 2) Select "打升 / touch" 3) Select "打升 / touch" 4) Press Home Key and go back to home screen.	2) Confirm that LED is lighted. 3) Confirm that LED isn't lighted.

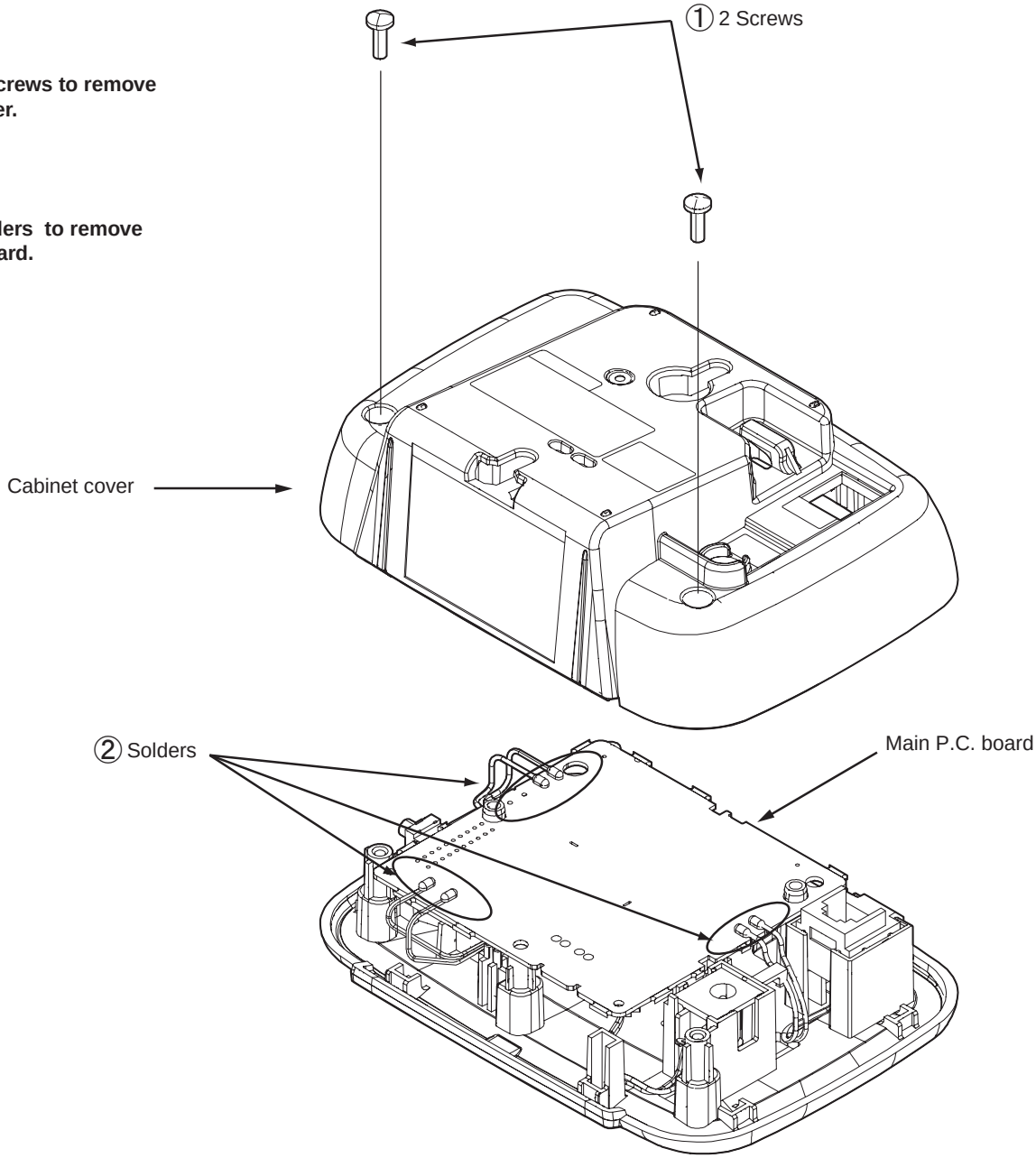
10 Disassembly and Assembly Instructions

10.1. Disassembly Instructions

10.1.1. Base Unit

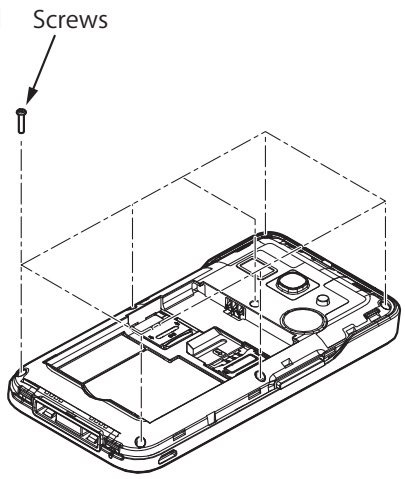
① **Remove the 2 screws to remove the cabinet cover.**

② **Remove the solders to remove the main P.C. board.**

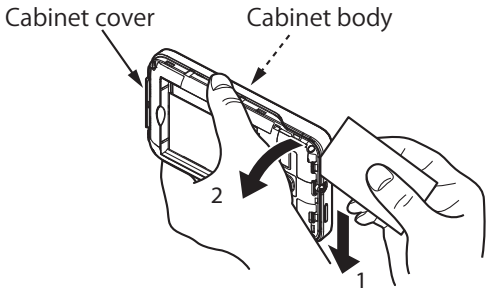


10.1.2. Handset

① Remove the special screw.



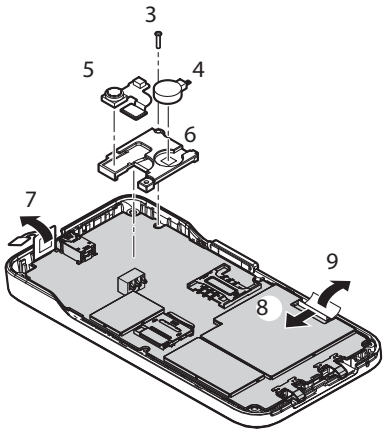
② Insert a plastic card.
(Ex. Used SIM card etc.)
between the cabinet body
and the cabinet cover, then
pull it along the gap to open
the cabinet.



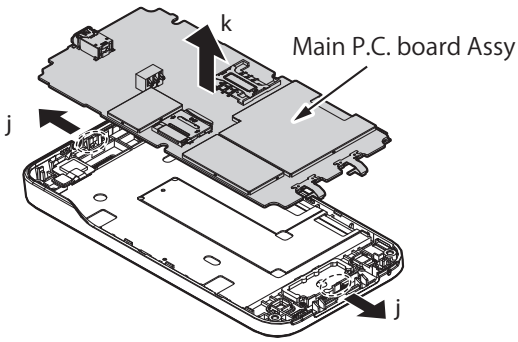
③ Remove screw.

④～⑥ Then, remove Motor, Back Camera and Motor Holder. (For KX-PRXA15 only)

⑦～⑨ After that, remove the Flexible Cables of Touch Panel and LCD.



j~ k **Unhook at the top and bottom to remove the main P. C. board.**

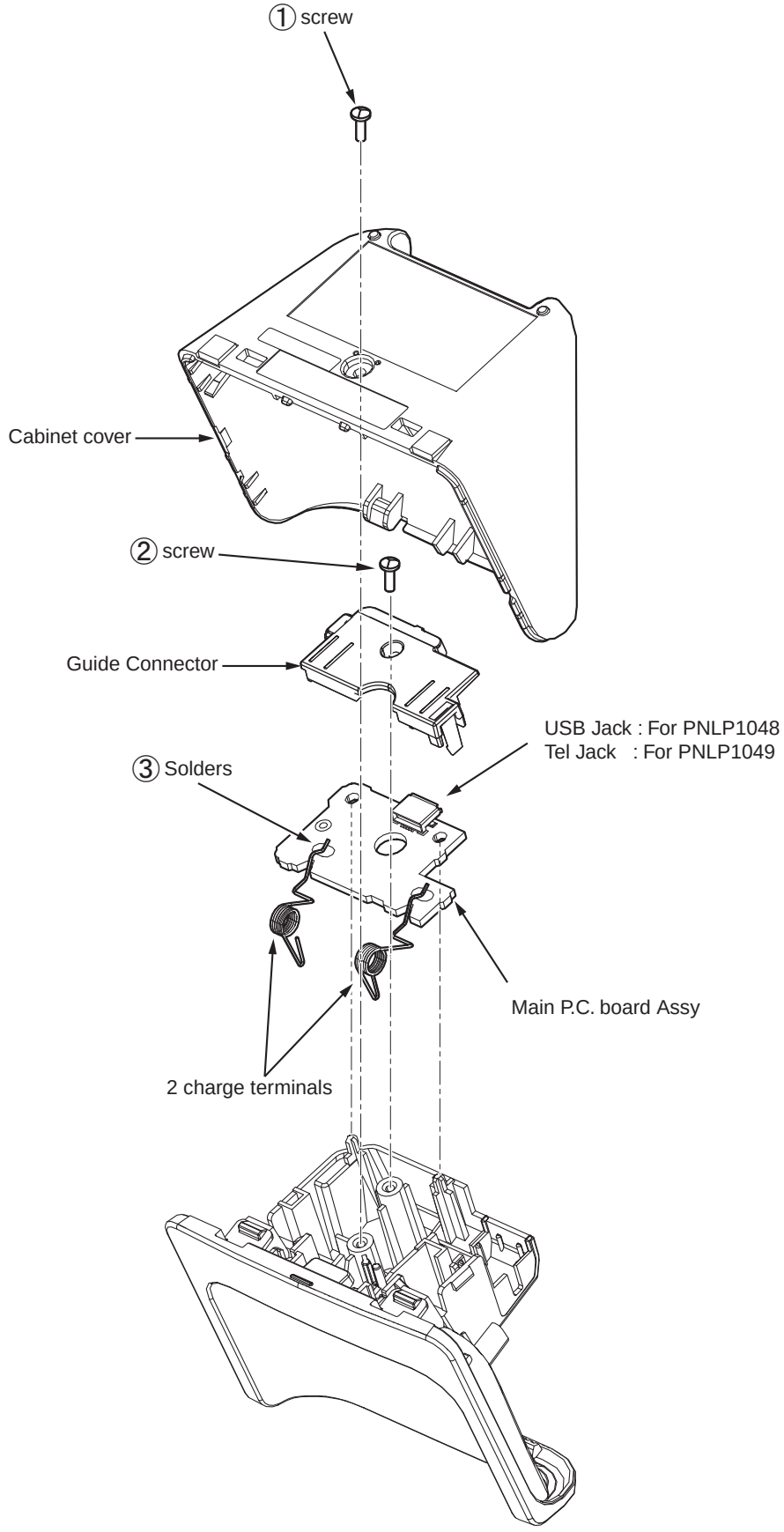


10.1.3. Charger Unit

① **Remove the screw to remove the cabinet cover.**

② **Remove the screw to remove the Guide Connector.**

③ **Remove the solders to remove the 2 charge terminals to remove the Main P.C board.**



11 Measurements and Adjustments

This chapter explainms the measuring equipment, the JIG connection, and the PC setting method necessary for the measurement in **Troubleshooting Guide** (P.22)

11.1. Equipment Required

- Digital multi-meter (DMM): it must be able to measure voltage and current.
- Oscilloscope.
- Frequency counter: It must be precise enough to measure intervals of 1 Hz (precision; ±4 ppm) Hewlett Packard, 53131A is recommended.
- DECT tester: Rohde & Schwarz, CMD 60 is recommended.

  This equipment may be useful in order to precisely adjust like a mass production.

11.2. The Setting Method of JIG (Base Unit)

This section explains the PC setting to use command required in **Check Point (Base Unit)**(P.36).

<Preparation>

- Serial JIG cable: PQZZ1CD300E*
- PC which runs in DOS mode
- **Batch file CD-ROM** for setting: PNZZPRX150

Note:

*: If you have the JIG Cable for TCD500 series (PQZZ1CD505E), change the following values of resistance. Then you can use it as a JIG Cable for both TCD300 and TCD500 series. (It is an upper compatible JIG Cable.)

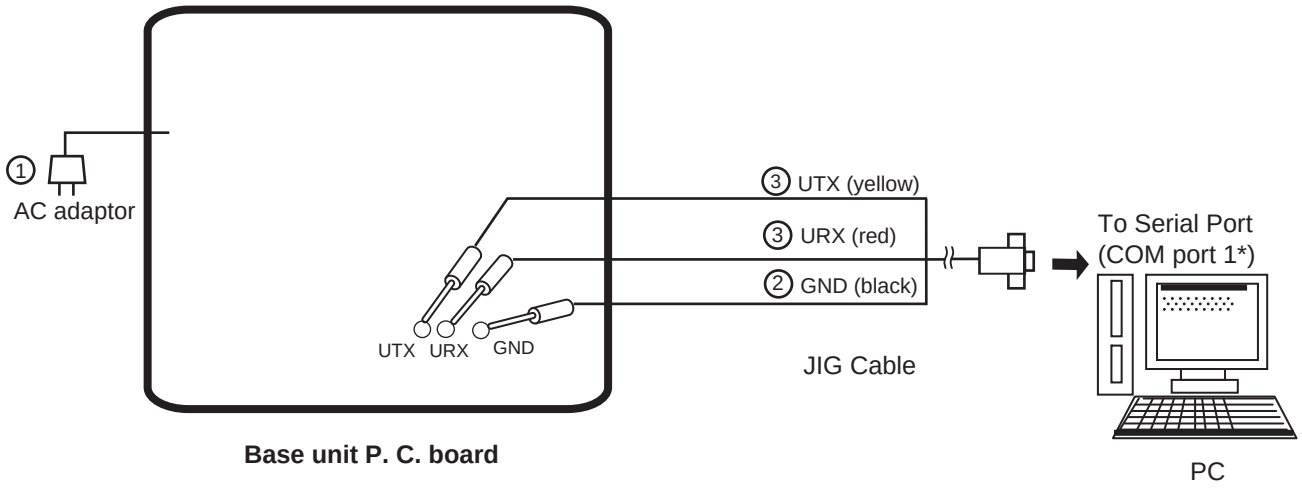
Resistor	Old value (kΩ)	New value (kΩ)
R2	22	3.3
R3	22	3.3
R4	22	4.7
R7	4.7	10

11.2.1. Connections

① Connect the AC adaptor to DC-JACK (base unit).

② Connect the JIG Cable GND (black) to GND.

③ Connect the JIG Cable RX (red) to URX and TX (yellow) to UTX.



Note:

*: COM port names may vary depending on what your PC calls it.

11.2.2. How to install Batch file into P.C.

1. Insert the Batch file CD-ROM into CD-ROM drive and copy PNZZTG**** folder to your PC (example: D drive).

2. Open an MS-DOS mode window.

<Example for Windows>

On your computer, click **[Start]**, select **Programs** (**All Programs** for Windows XP/Windows Server 2003), then click
MS-DOS Prompt. (for Windows 95/Windows 98)
Or
Accessories-MS-DOS Prompt. (for Windows Me)
Or
Command Prompt. (for Windows NT 4.0)
Or
Accessories-Command Prompt.
(for Windows 2000/Windows XP/Windows Server 2003)

3. At the DOS prompt, type "**D:**" (for example) to select the drive, then press the **Enter** key.

4. Type "**CD ¥PNZZTG*****"**, then press the **Enter** key.

5. Type "**SET_COM=X**", then press the **Enter** key
(**X**: COM port number used for the serial connection on your PC).

6. Type "**READID**", then press the **Enter** key.
- If any error messages appear, change the port number or check the cable connection.
- If any value appear, go to next step.

7. Type "**DOSKEY**", then press the **Enter** key.

<Example>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG****
D: ¥PNZZTG**** >SET_COM=X
D: ¥PNZZTG****>READID
00 52 4F A8 A8
D: ¥PNZZTG****>DOSKEY
D: ¥PNZZTG****>
```

<Example: error happens>

```
C: ¥Documents and Settings>D:
D: ¥>CD ¥PNZZTG****
D: ¥PNZZTG**** >SET_COM=X
D: ¥PNZZTG****>READID
   CreateFile error
ERROR 10: Can't open serial port
D: ¥PNZZTG ****>
```

Note:
- "*****" varies depending on the country or models.

11.2.3. Commands

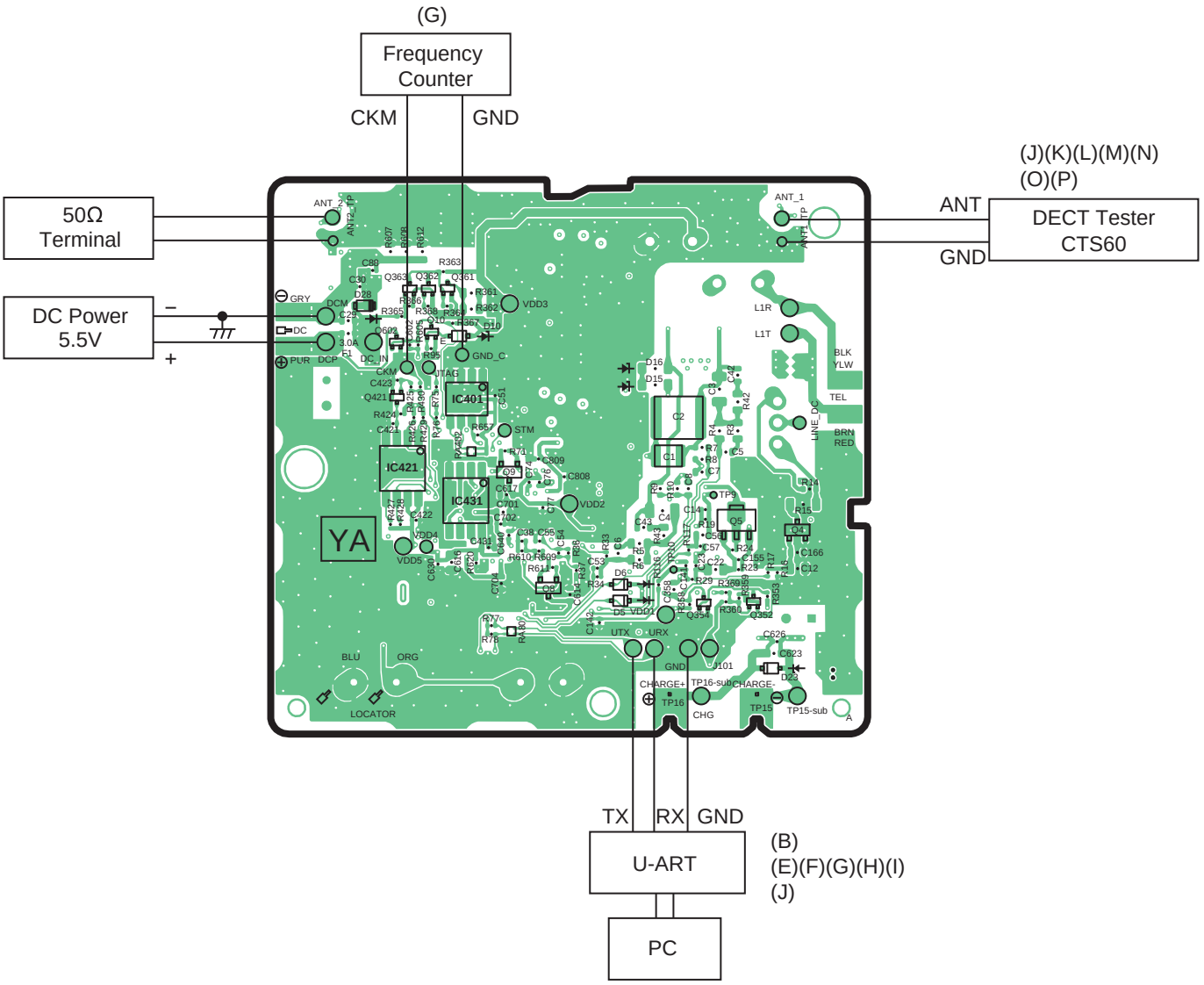
See the table below for frequently used commands.

Command name	Function	Example
rdeeprom	Read the data of EEPROM	Type "rdeeprom 00 00 FF", and the data from address "00 00" to "FF" is read out.
readid	Read ID (RFPI)	Type "readid", and the registered ID is read out.
writeid	Write ID (RFPI)	Type "writeid 00 18 E0 0E 98", and the ID "0018 E0 0E 98" is written.
hookoff	Off-hook mode on Base	Type "hookoff".
hookon	On-hook mode on Base	Type "hookon".
getchk	Read checksum	Type "getchk".
wreeprom	Write the data of EEPROM	Type "wreeprom 01 23 45". "01 23" is address and "45" is data to be written.

11.3. Adjustment Standard (Base Unit)

When connecting the simulator equipment for checking, please refer to below.

11.3.1. Bottom View



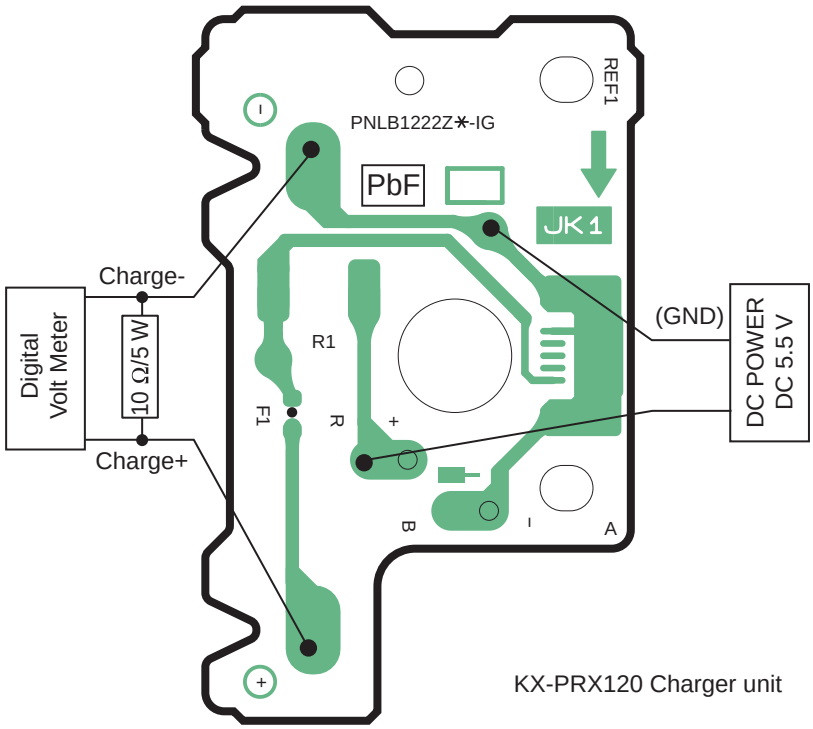
Note:

(**A**) - (**P**) is referred to **Check Point (Base Unit)** (P.36)

11.4. Adjustment Standard (Charger Unit)

When connecting the simulator equipment for checking, please refer to below.

11.4.1. Bottom View



KX-PRX120 Charger unit

11.5. Things to Do after Replacing IC or X'tal

If repairing or replacing BBIC (FLASH type), EEPROM and X'tal, it is necessary to download the required data such as Programming data or adjustment data, etc in memory.
The set doesn't operate if it is not executed.

11.5.1. How to download the data

11.5.1.1. Base Unit

First, operate the PC setting according to **The Setting Method of JIG (Base Unit)(**P.46).
Then download the appropriate data according to the following procedures.

Items		How to download/Required adjustment
FLASH(IC431)	Programming data is stored in memory.	1) Make sure to connect the JIG cable, then disconnect the DC Power in order to download the data. 2) Execute the command “flw441 *********.hex”. 3) Connect the DC Power. 4) Press the PC Enter key once. 5) After a few minutes, “Successful upgrade” is displayed on the PC indicating downloading has finished. 6) Detach the JIG cable, then disconnect the DC Power. 7) Connect the DC Power. 8) Connect the JIG cable again, and execute the command “getchk”, then confirm the checksum value is correct. • If the downloading fails, start again from step 1). 9) Default batch file: Execute the command “default.bat”. 10) Country version batch file: Execute the command “PRX1XXEX_WW_RevYYY.bat”. (*1) 11) Clock adjustment: Refer to Check Point (G). (*2)
EEPROM (IC401)	Adjusted parameter data is stored in memory. (country version batch file, default batch file, etc.)	1) Change the address “0001” of EEPROM to “CC” to download the data. 2) Default batch file: Execute the command “default.bat”. 3) Country version batch file: Execute the command “PRX1XXEX_WW_RevYYY.bat”. (*1) 4) Clock adjustment: Refer to Check Point (G). (*2)
X'tal (X1)	System clock	Clock adjustment data is in EEPROM, adjust the data again after replacing it. 1) Refer to Check Point (F). (*2)

Note:

(*1) WW: country code, XX: model number, YYY:revision number
"WW" and "YYY" vary depending on the country version. You can find them in the batch file, PNZZ- mentioned in **The Setting Method of JIG (Base Unit)** (P.46).

(*2) Refer to **Check Point (Base Unit)** (P.36)

11.6. RF Specification

11.6.1. Base Unit

Item	Value	Refer to -. *
TX Power	19 dBm ~ 25 dBm	**Check Point (Base Unit) (J)**
Modulation	-350±50/+350±50 kHz/div	**Check Point (Base Unit) (K)**
Frequency Offset	< ±50kHz	**Check Point (Base Unit) (L)**
Frequency Drift	±35kHz/ms	**Check Point (Base Unit) (M)**
RX Sensitivity	< 1000 ppm	**Check Point (Base Unit) (N)**
Timing Accuracy	< ± 5.0 ppm/<±15.0ppm	**Check Point (Base Unit) (O)**
Power RAMP	Power RAMP is matching	**Check Point (Base Unit) (P)**

*: Refer to **Check Point (Base Unit)** (P.36)

11.7. DECT Frequency Table (MHz)

	BASE UNIT		**HANDSET**	
Channel No	**Transmit Frequency**	Receive Frequency	**Transmit Frequency**	**Receive Frequency**
1	1897.344	1897.344	1897.344	1897.344
2	1895.616	1895.616	1895.616	1895.616
3	1893.888	1893.888	1893.888	1893.888
4	1892.160	1892.160	1892.160	1892.160
5	1890.432	1890.432	1890.432	1890.432
6	1888.704	1888.704	1888.704	1888.704
7	1886.976	1886.976	1886.976	1886.976
8	1885.248	1885.248	1885.248	1885.248
9	1883.520	1883.520	1883.520	1883.520
10	**1881.792**	**1881.792**	**1881.792**	**1881.792**

Note:

Channel No. 10: In the Test Mode on Base Unit and Handset.

11.8. Bluetooth Frequency Table

Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
0	2402	33	2435	66	2468
1	2403	34	2436	67	2469
2	2404	35	2437	68	2470
3	2405	36	2438	69	2471
4	2406	37	2439	70	2472
5	2407	38	2440	71	2473
6	2408	39	2441	72	2474
7	2409	40	2442	73	2475
8	2410	41	2443	74	2476
9	2411	42	2444	75	2477
10	2412	43	2445	76	2478
11	2413	44	2446	77	2479
12	2414	45	2447	78	2480
13	2415	46	2448		
14	2416	47	2449		
15	2417	48	2450		
16	2418	49	2451		
17	2419	50	2452		
18	2420	51	2453		
19	2421	52	2454		
20	2422	53	2455		
21	2423	54	2456		
22	2424	55	2457		
23	2425	56	2458		
24	2426	57	2459		
25	2427	58	2460		
26	2428	59	2461		
27	2429	60	2462		
28	2430	61	2463		
29	2431	62	2464		
30	2432	63	2465		
31	2433	64	2466		
32	2434	65	2467		

12 Miscellaneous

12.1. How to Replace the Flat Package IC

Even if you do not have the special tools (for example, a spot heater) to remove the Flat IC, with some solder (large amount), a soldering iron and a cutter knife, you can easily remove the ICs that have more than 100 pins.

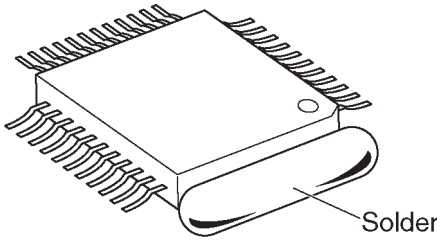
12.1.1. Preparation

- PbF (: Pb free) Solder
- Soldering Iron
  Tip Temperature of 700 °F ± 20 °F (370 °C ± 10 °C)
  Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- Flux
  Recommended Flux: Specific Gravity → 0.82.
  Type → RMA (lower residue, non-cleaning type)

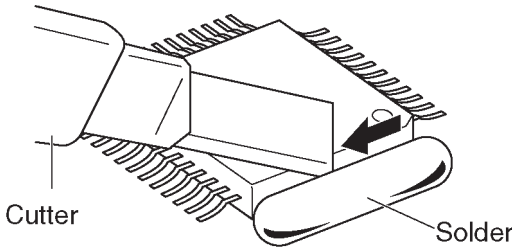
Note: See **About Lead Free Solder (Pbf: Pb free)** (P.4)

12.1.2. How to Remove the IC

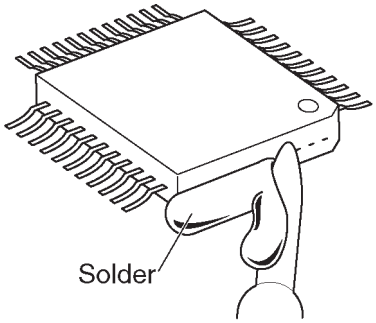
1. Put plenty of solder on the IC pins so that the pins can be completely covered.
   Note:
   If the IC pins are not soldered enough, you may give pressure to the P.C. board when cutting the pins with a cutter.



2. Make a few cuts into the joint (between the IC and its pins) first and then cut off the pins thoroughly.



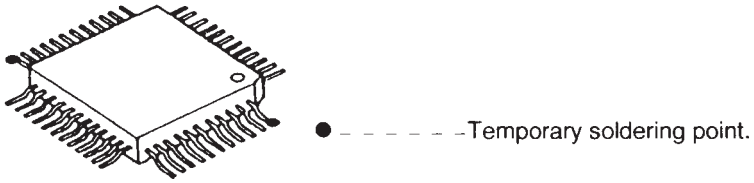
3. While the solder melts, remove it together with the IC pins.



When you attach a new IC to the board, remove all solder left on the board with some tools like a soldering wire. If some solder is left at the joint on the board, the new IC will not be attached properly.

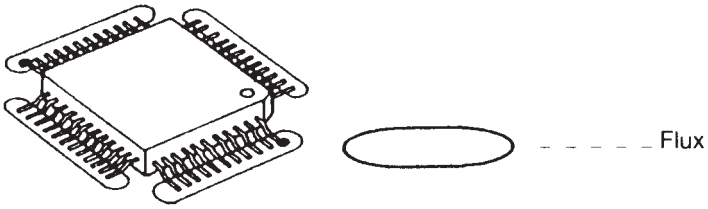
12.1.3. How to Install the IC

1. Temporarily fix the FLAT PACKAGE IC, soldering the two marked pins.

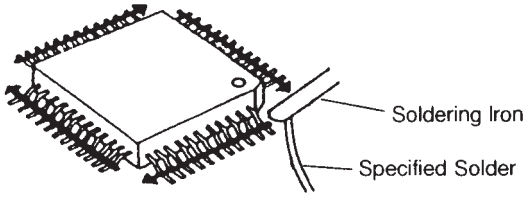


*Check the accuracy of the IC setting with the corresponding soldering foil.

2. Apply flux to all pins of the FLAT PACKAGE IC.

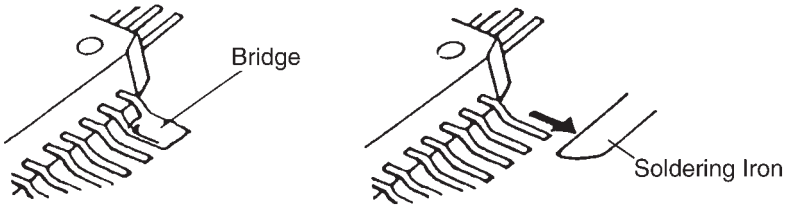


3. Solder the pins, sliding the soldering iron in the direction of the arrow.



12.1.4. How to Remove a Solder Bridge

1. Lightly resolder the bridged portion.
2. Remove the remaining solder along the pins using a soldering iron as shown in the figure below.



12.2. How to Replace the Shield Case

12.2.1. Preparation

- PbF (: Pb free) Solder
- Soldering Iron
  Tip Temperature of 700°F ± 20°F (370°C ± 10°C)
  Note:
  We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- Hot Air Desoldering Tool
  Temperature: 608°F ± 68°F (320°C ± 20°C)

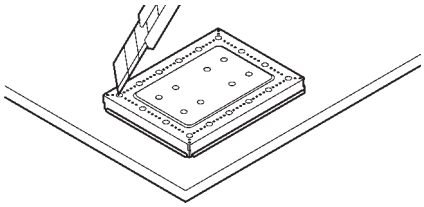
12.2.2. Caution

- To replace the IC efficiently, choose the right sized nozzle of the hot air desoldering tool that matches the IC package.
- Be careful about the temperature of the hot air desoldering tool not to damage the PCB and/or IC.

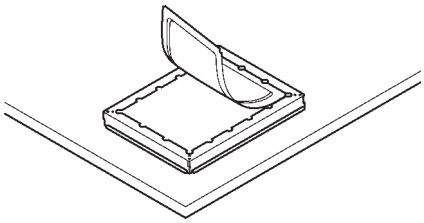
12.2.3. How to Remove the Shield Case

Note:
If you don't have special tools (ex. Hot air disordering tool), conduct the following operations.

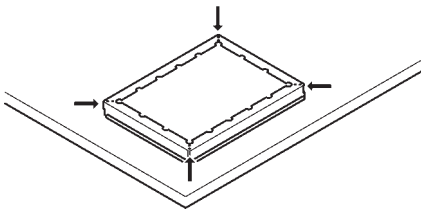
1. Cut the case along perforation.



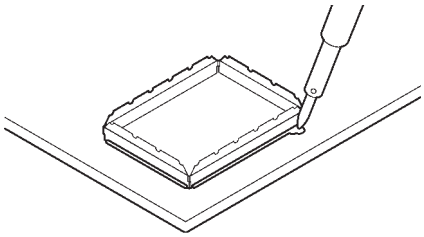
2. Remove the cut part.



3. Cut the four corners along perforation.



4. Remove the reminds by melting solder.

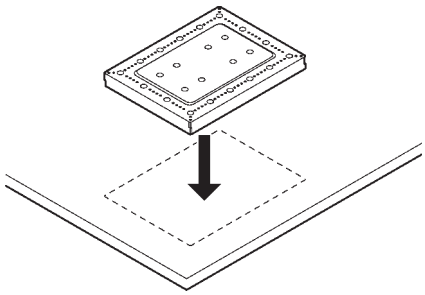


12.2.4. How to Install the Shield Case

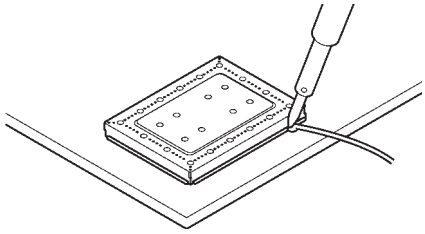
Note:

- If you don't have special tools (ex. Hot air disordering tool), conduct the following operations.
- Shield case's No. : PNMC1033Z

1. Put the shield case.



2. Solder the surroundings.



12.3. Terminal Guide of the ICs, Transistors and Diodes

12.3.1. Base Unit

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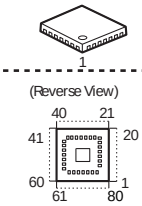
<td> 

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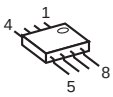
<td> 

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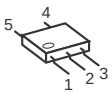
<td> 

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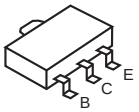
B1ACGP000007</td>
<td> 

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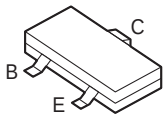
<td colspan="2"> 

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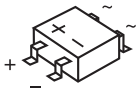
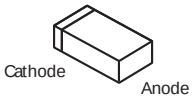
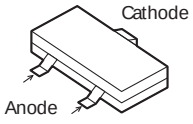
<td> 

PQVDMD5S</td>
<td> 

PQVDRLZ20A</td>
<td> 

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</table>

13 Schematic Diagram

13.1. For Schematic Diagram

13.1.1. Base Unit (Schematic Diagram (Base Unit))

Notes:

1. DC voltage measurements are taken with voltmeter from the negative voltage line.

> Important Safety Notice:
> Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

2. The schematic diagrams may be modified at any time with the development of new technology.

13.1.2. Handset (Schematic Diagram (Handset))

Notes:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagram may be modified at any time with the development of new technology.

13.1.3. Charger Unit (Schematic Diagram (Charger Unit))

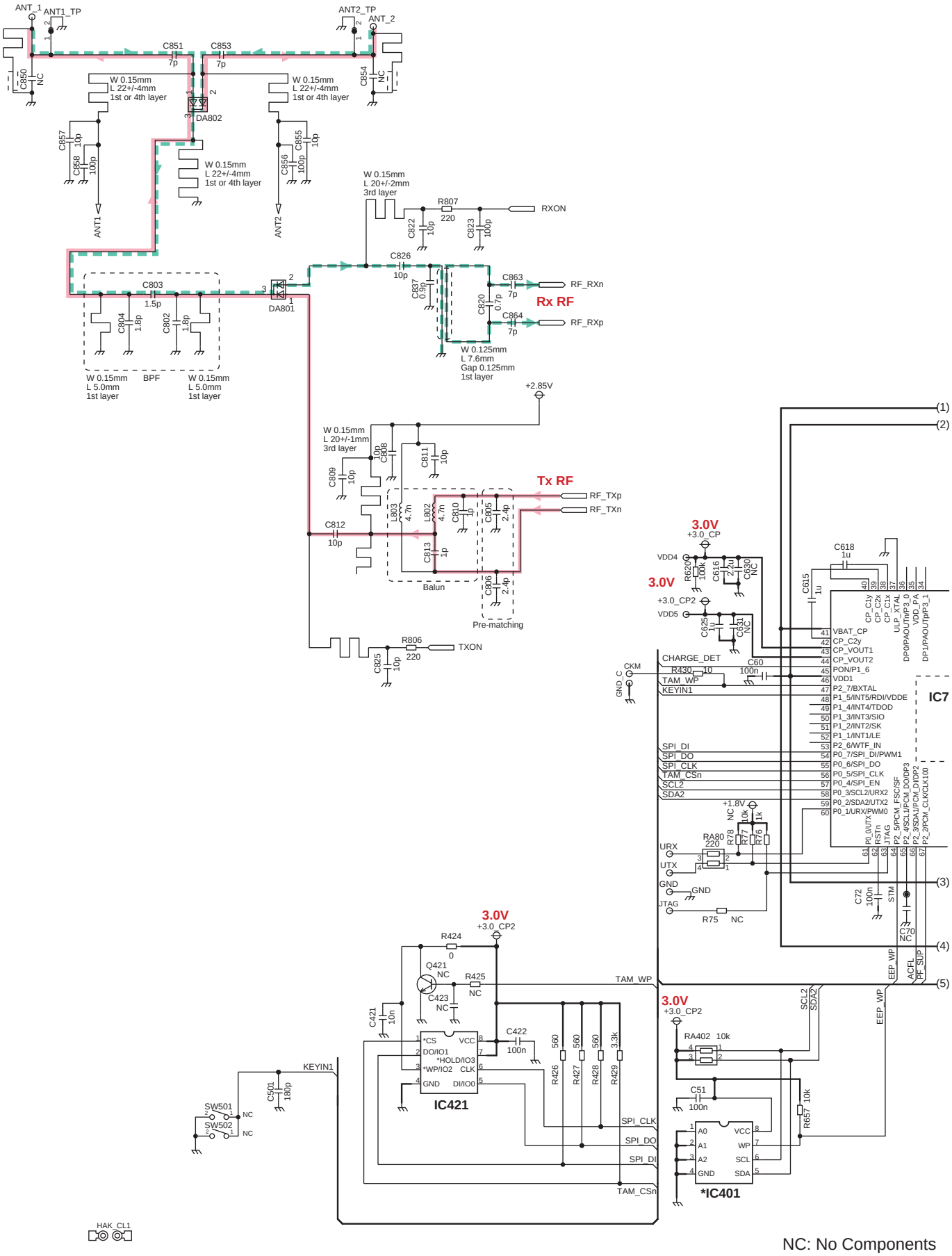
Notes:

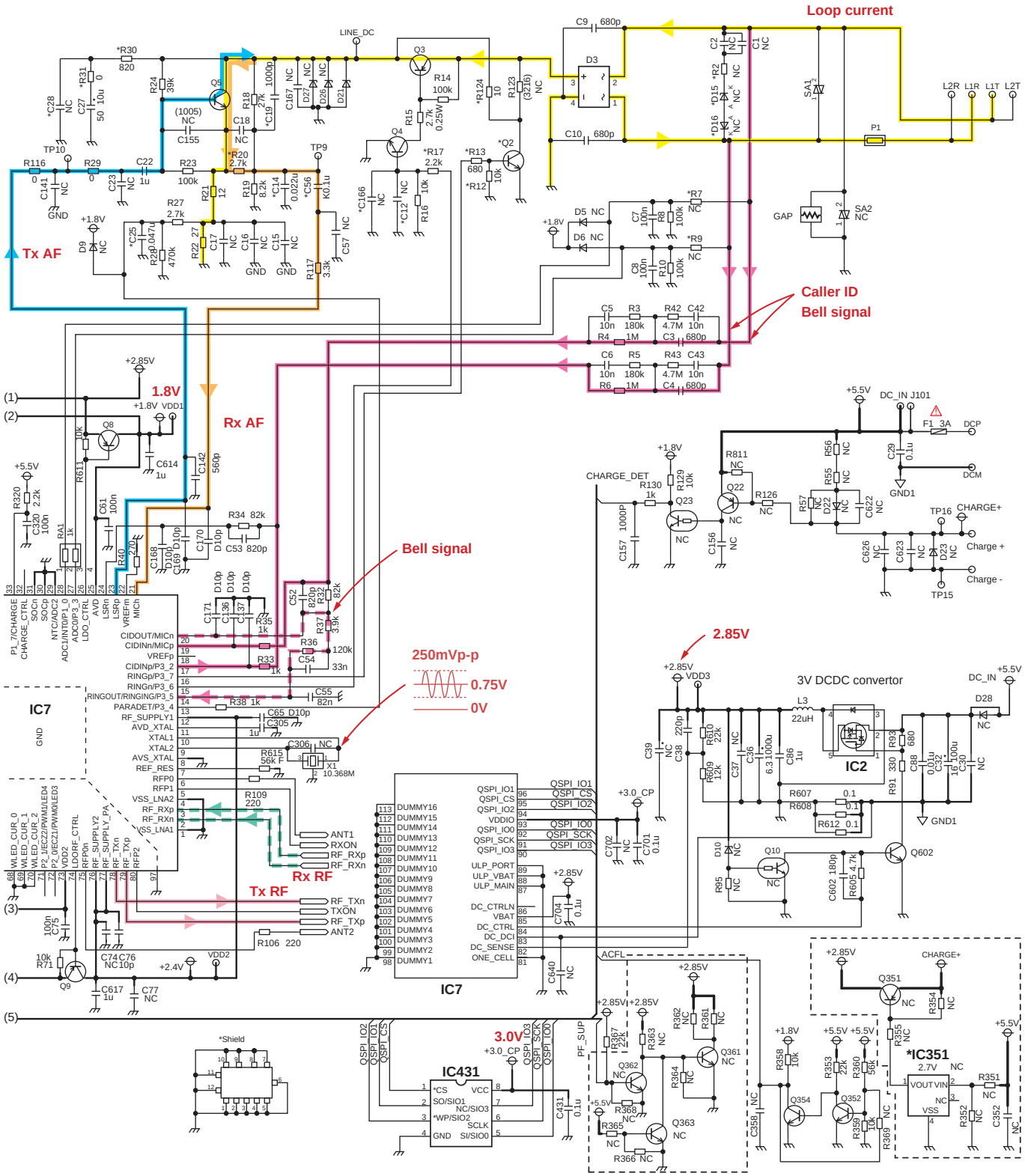
1. DC voltage measurements are taken with voltmeter from the negative voltage line.

> Important Safety Notice:
> Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only the manufacturer's specified parts.

2. The schematic diagram may be modified at any time with the development of new technology.

13.2. Schematic Diagram (Base Unit)



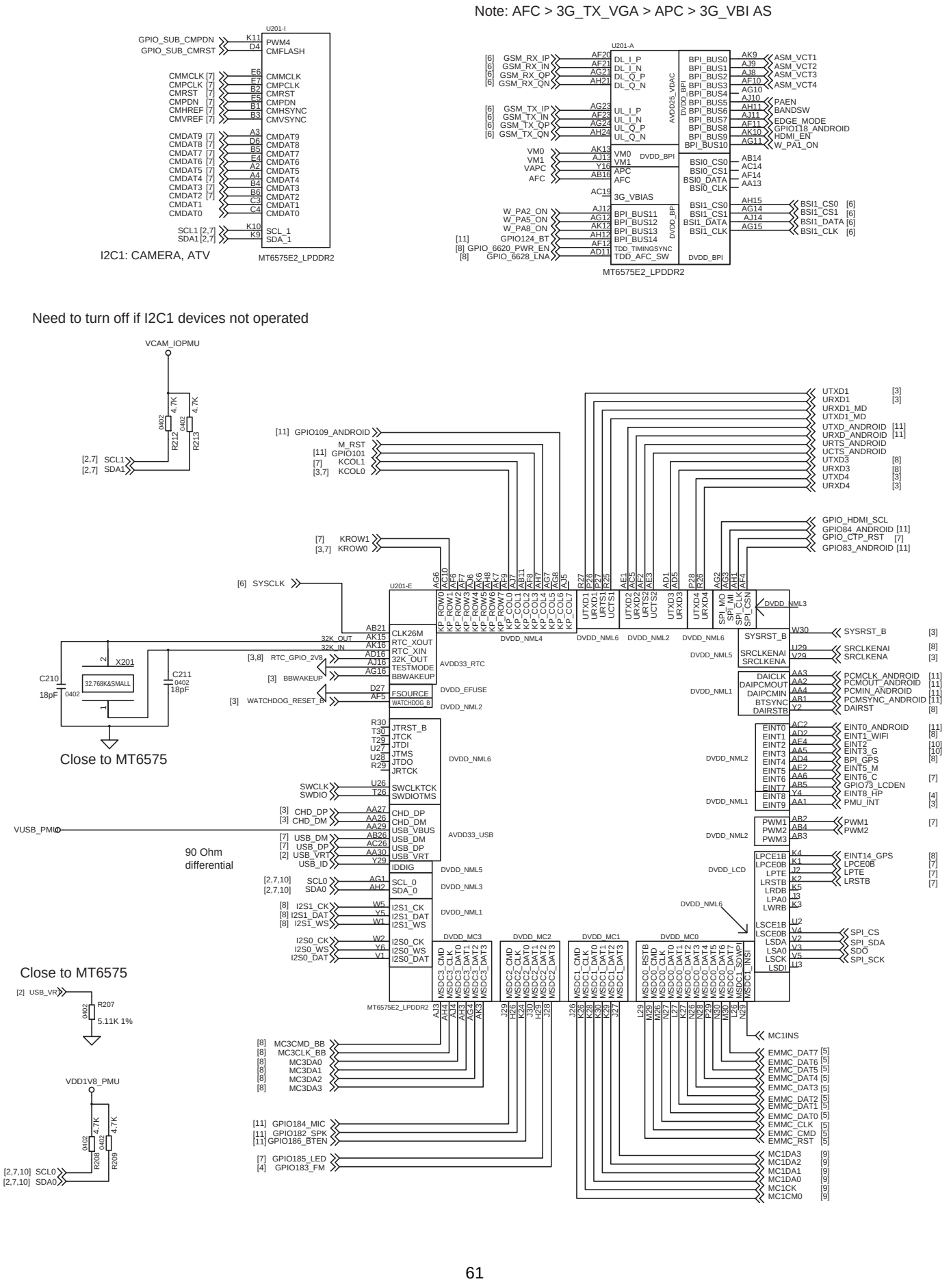


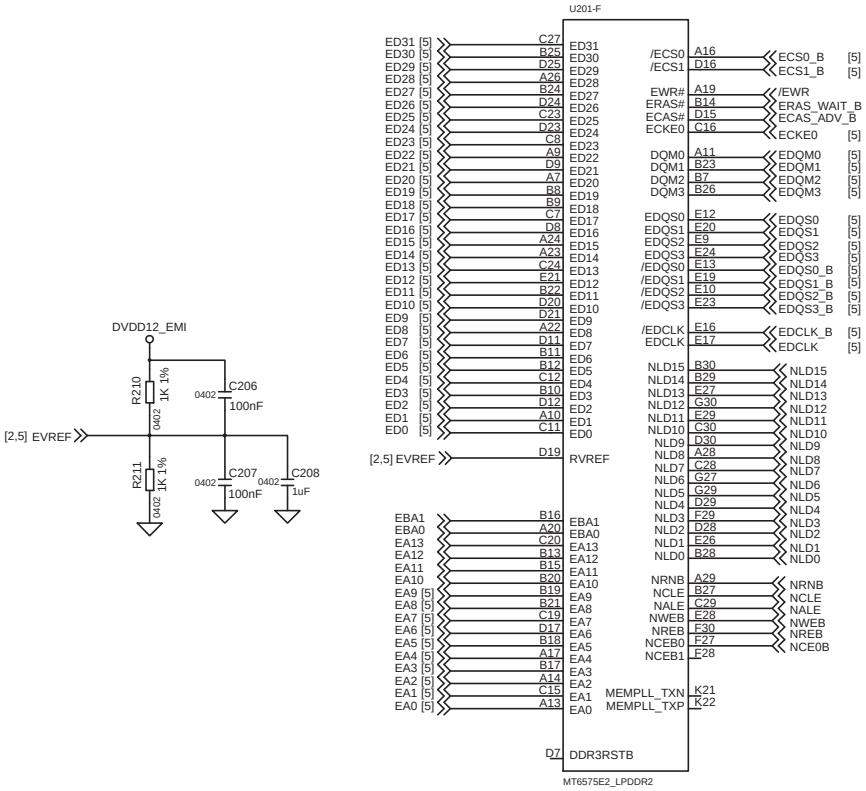
NC: No Components

KX-PRX120 SCHEMATIC DIAGRAM (Base Unit_Main)

13.3. Schematic Diagram (Handset)

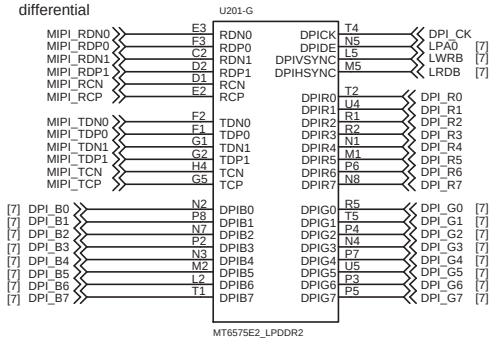
13.3.1. KX-PRXA10





driving calibration setting (LPDDR1/LPDDR2)

100 Ohm
differential



EINT0: OFN
EINT1: GYRO SENSOR
EINT2: ALS SENSOR
EINT3: G SENSOR
EINT4: G SENSOR
EINT5: M SENSOR
EINT6: CTP
EINT7: USB OTG
EINT8: Headset detect
EINT9: MT6329

I2C2 : PMIC

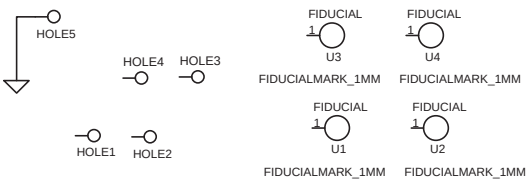
I2S0 : ATV
I2S1 : MT6620
MSDC0 : eMMC
MSDC1 : T-Card (Support SD3.0)
MSDC2 : 2.8V GPIO
MSDC3 : MT6620

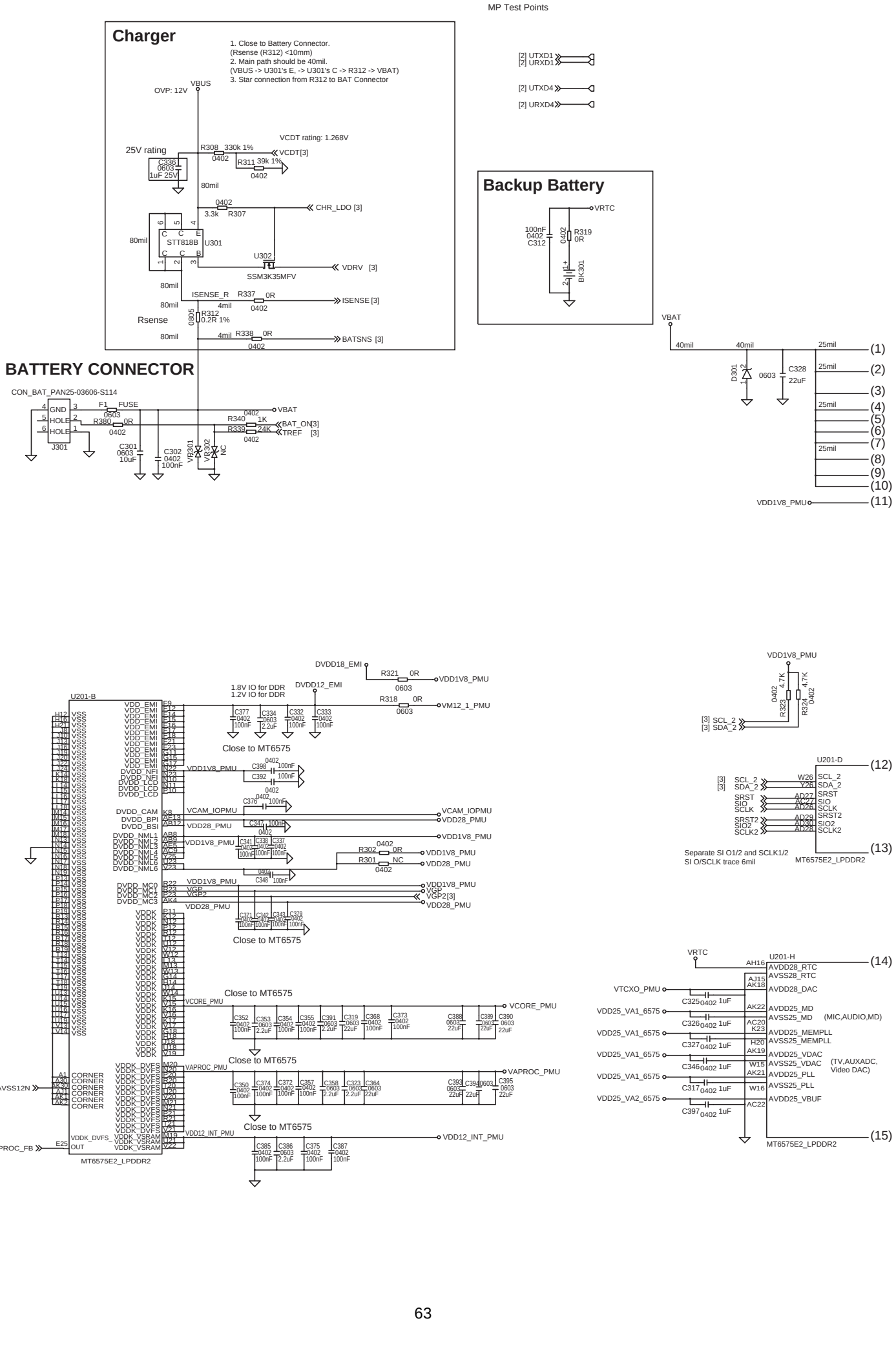
UART1: Download

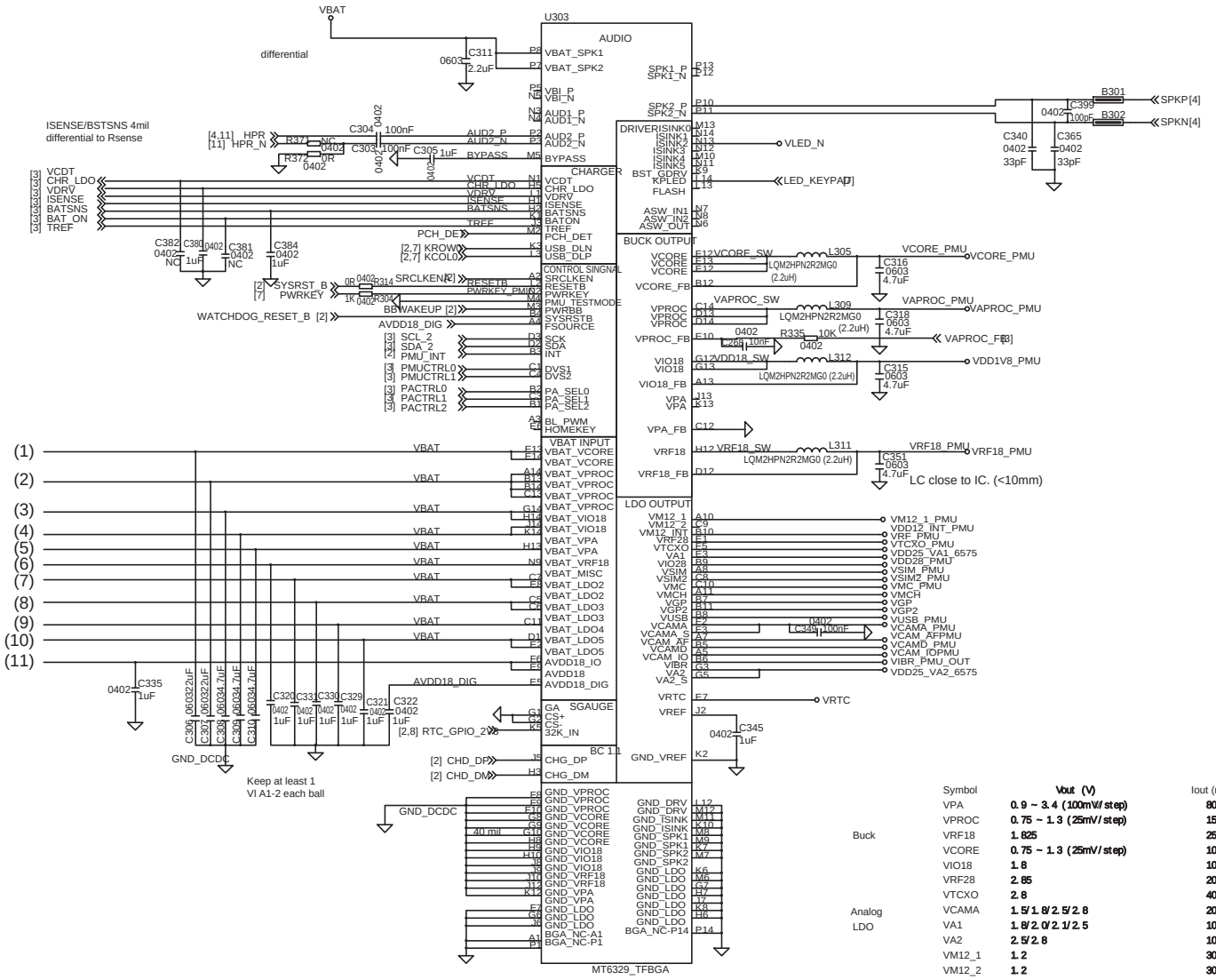
UART2: NFC
UART3: MT6620

I2C0 : G/M/GYRO/ CTP / OFN

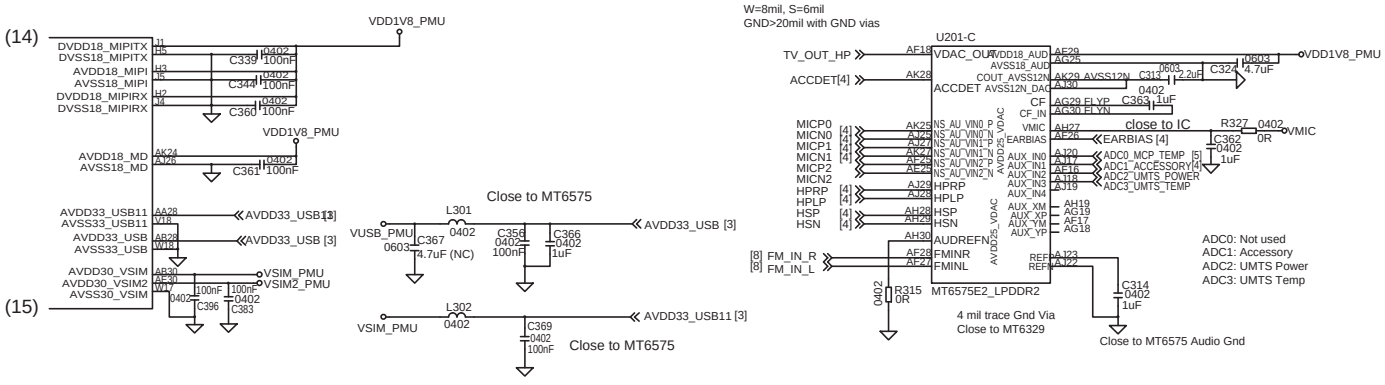
UART4: Debug
I2C1 : Camera / ATV



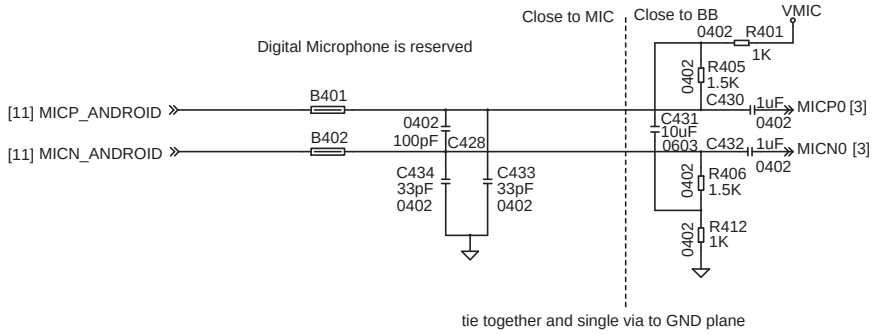

MP Test Points
[2] UTXD1
[2] URXD1
[2] UTXD4
[2] URXD4
Charger
1. Close to Battery Connector.
(Rsense (R312) <10mm)
2. Main path should be 40mil.
(VBUS -> U301's E, -> U301's C -> R312 -> VBAT)
3. Star connection from R312 to BAT Connector
VBUS
OVP: 12V
25V rating
C336 0603 1uF 25V
R308 330k 1% 0402
VCDT rating: 1.268V
VCDT[3]
R311 39k 1% 0402
80mil
R307 3.3k 0402
CHR_LDO [3]
STT818B U301
U302
SSM3K35MFV
VDRV [3]
ISENSE_R R337 0R 4mil 0402
ISENSE [3]
Rsense
R312 0.2R 1% 0805
R338 0R 4mil 0402
BATSNS [3]
Backup Battery
VRTC
100nF 0402 C312
R319 0R 0402
BK301
BATTERY CONNECTOR
CON_BAT_PAN25-03606-S114
J301
GND
HOLE
F1 FUSE 0603
R380 0R 0402
R340 1K 0402
R339 24K 0402
BAT_ON[3]
TREF [3]
C301 0603 10uF
C302 0402 100nF
VR301
VR302
NC
VBAT
40mil
D301
C328 0603 22uF
25mil
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(10)
VDD1V8_PMU
(11)
U201-B
MT6575E2_LPDDR2
DVDD18_EMI
R321 0R 0603
VDD1V8_PMU
1.8V IO for DDR
1.2V IO for DDR
DVDD12_EMI
R318 0R 0603
VM12_1_PMU
Close to MT6575
VCAM_IOPMU
VDD28_PMU
VGP
VGP2[3]
VCORE_PMU
VAPROC_PMU
VDD12_INT_PMU
AVSS12N
[3] VAPROC_FB
R323 4.7K 0402
R324 4.7K 0402
[3] SCL_2
[3] SDA_2
U201-D
SRST
SIO
SCLK
SRST2
SIO2
SCLK2
(12)
(13)
Separate SI O1/2 and SCLK1/2
SI O/SCLK trace 6mil
U201-H
VRTC
AH16
AVDD28_RTC
AVSS28_RTC
AJ15
AK18
AVDD28_DAC
VTCXO_PMU
C325 0402 1uF
AK22
AVDD25_MD
AVSS25_MD
(MIC,AUDIO,MD)
VDD25_VA1_6575
C326 0402 1uF
AC20
K23
AVDD25_MEMPLL
AVSS25_MEMPLL
C327 0402 1uF
H20
AK19
AVDD25_VDAC
AVSS25_VDAC
(TV,AUXADC, Video DAC)
W15
AK21
AVDD25_PLL
AVSS25_PLL
C346 0402 1uF
C317 0402 1uF
W16
AVDD25_VBUF
VDD25_VA2_6575
C397 0402 1uF
AC22
(14)
(15)



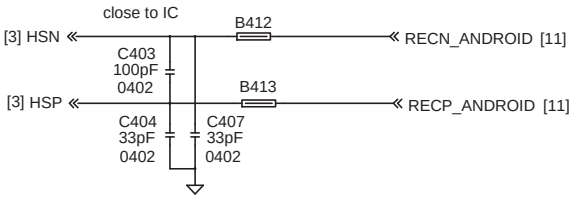
	Symbol	Vout (V)	Iout (mA)
Buck	VPA	0.9 ~ 3.4 (100mV/step)	800
	VPROC	0.75 ~ 1.3 (25mV/step)	1500
	VRF18	1.825	250
	VCORE	0.75 ~ 1.3 (25mV/step)	1000
	VIO18	1.8	1000
Analog LDO	VRF28	2.85	200
	VTCXO	2.8	40
	VCAMA	1.5/1.8/2.5/2.8	200
	VA1	1.8/2.0/2.1/2.5	100
	VA2	2.5/2.8	100
	VM12_1	1.2	300
	VM12_2	1.2	300
	VM12_INT	1.2	300
	VIO28	2.8	100
	VSIM1	1.8/3.0	100
	VSIM2	1.3/1.5/1.8/2.5/2.8/3.0/3.3	100
Digital LDO	VUSB	3.3	100
	VCAMD	1.2/1.3/1.5/1.8/2.5/2.8/3.0/3.3	300
	VCAM_IO	1.3/1.5/1.8/2.5/2.8/3.0/3.3	100
	VCAM_AF	1.3/1.5/1.8/2.5/2.8/3.0/3.3	200
	VMC	1.3/1.5/1.8/2.5/2.8/3.0/3.3	200
	VMCH	1.3/1.5/1.8/2.5/2.8/3.0/3.3	400
	VGP	1.3/1.5/1.8/2.5/2.8/3.0/3.3	100
	VGP2	1.3/1.5/1.8/2.5/2.8/3.0/3.3	100
Vibrator	VIBR	1.3/1.5/1.8/2.5/2.8/3.0/3.3	200
RTC	VRTC	1.8/2.0/2.1/2.8	2



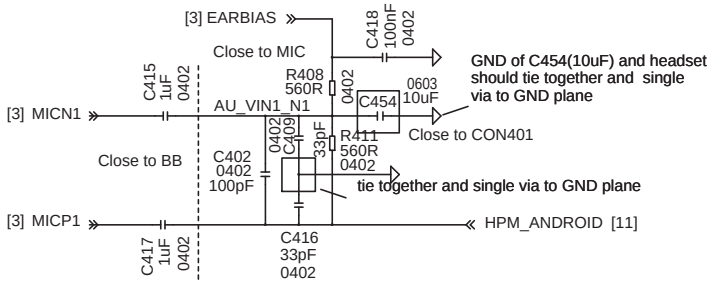
MTK MIC



MTK RECEIVER



MTK Earphone



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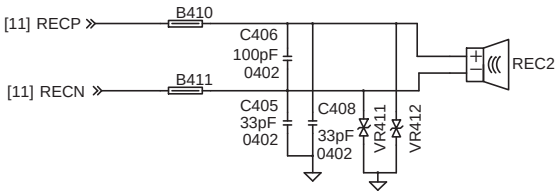
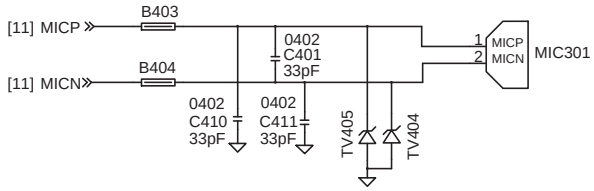
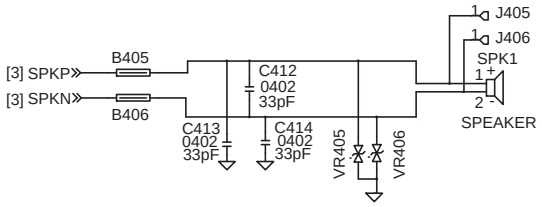


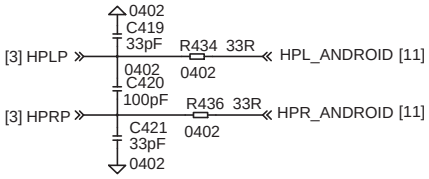
MIC



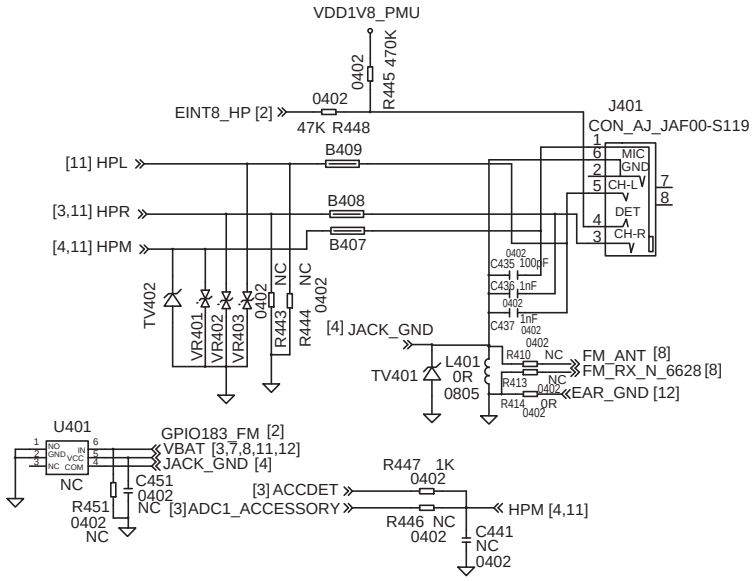
SPK

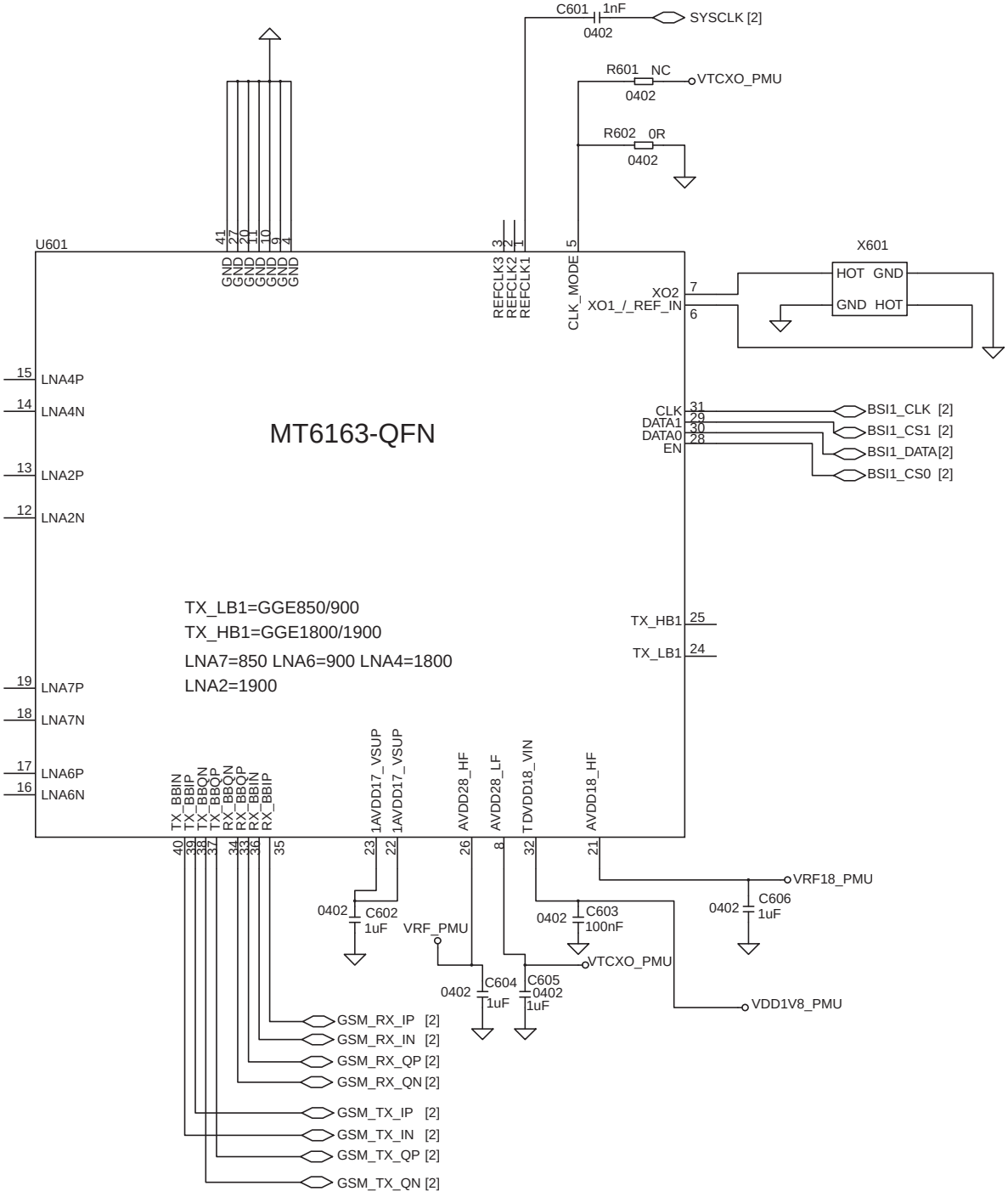


MTK Earphone



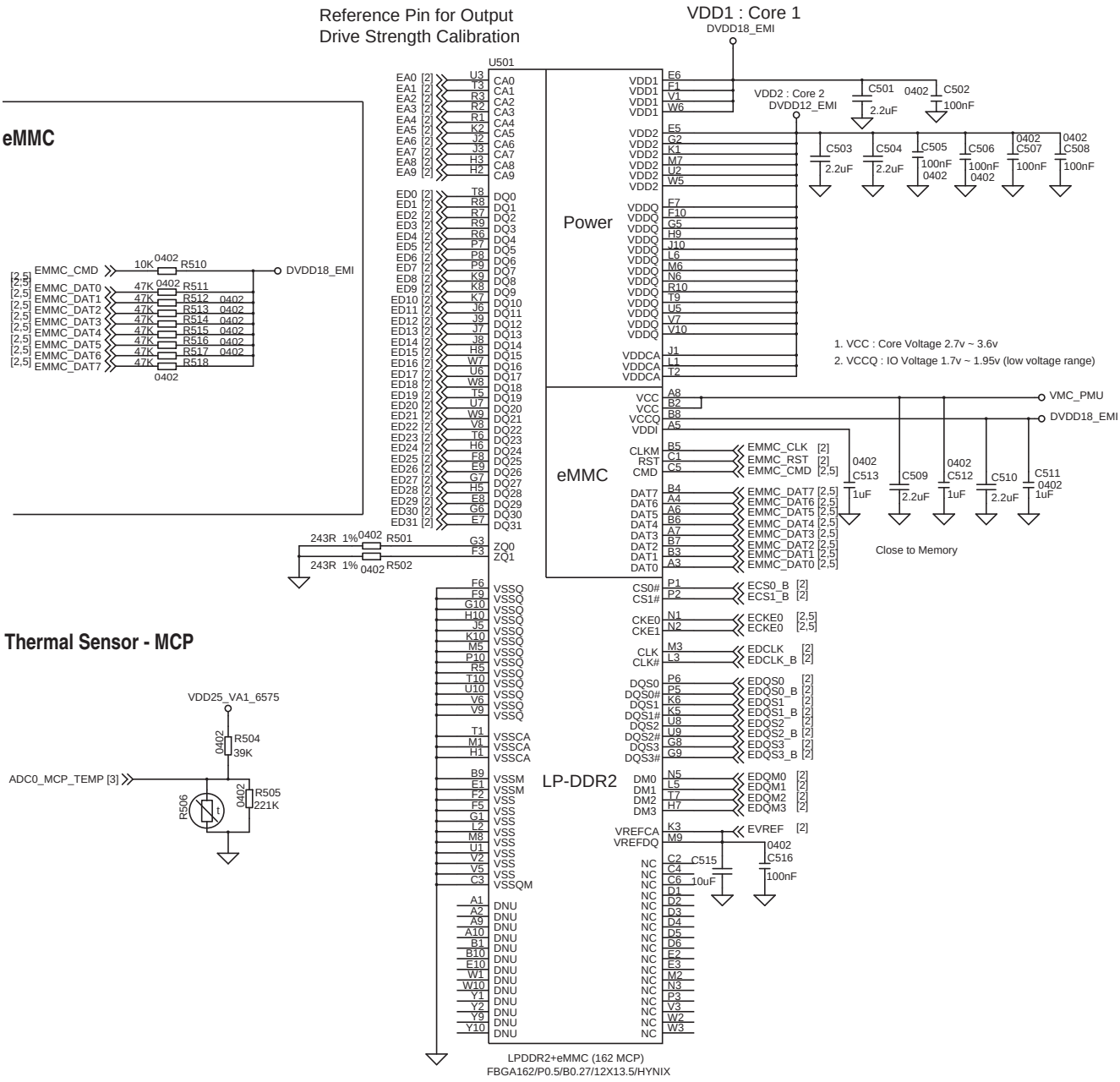
Earphone




C601 1nF
0402
SYSCLK [2]
R601 NC
0402
VTCXO_PMU
R602 0R
0402
U601
X601
HOT GND
GND HOT
MT6163-QFN
TX_LB1=GGE850/900
TX_HB1=GGE1800/1900
LNA7=850 LNA6=900 LNA4=1800
LNA2=1900
LNA4P
LNA4N
LNA2P
LNA2N
LNA7P
LNA7N
LNA6P
LNA6N
CLK
DATA1
DATA0
EN
BSI1_CLK [2]
BSI1_CS1 [2]
BSI1_DATA [2]
BSI1_CS0 [2]
TX_HB1
TX_LB1
GND
REFCLK3
REFCLK2
REFCLK1
CLK_MODE
XO2
XO1_/_REF_IN
TX_BBIN
TX_BBIP
TX_BBQN
TX_BBQP
RX_BBQN
RX_BBQP
RX_BBIN
RX_BBIP
1AVDD17_VSUP
AVDD28_HF
AVDD28_LF
TDVDD18_VIN
AVDD18_HF
C602 1uF
VRF_PMU
C603 100nF
C604 1uF
C605 1uF
C606 1uF
VRF18_PMU
VTCXO_PMU
VDD1V8_PMU
GSM_RX_IP [2]
GSM_RX_IN [2]
GSM_RX_QP [2]
GSM_RX_QN [2]
GSM_TX_IP [2]
GSM_TX_IN [2]
GSM_TX_QP [2]
GSM_TX_QN [2]

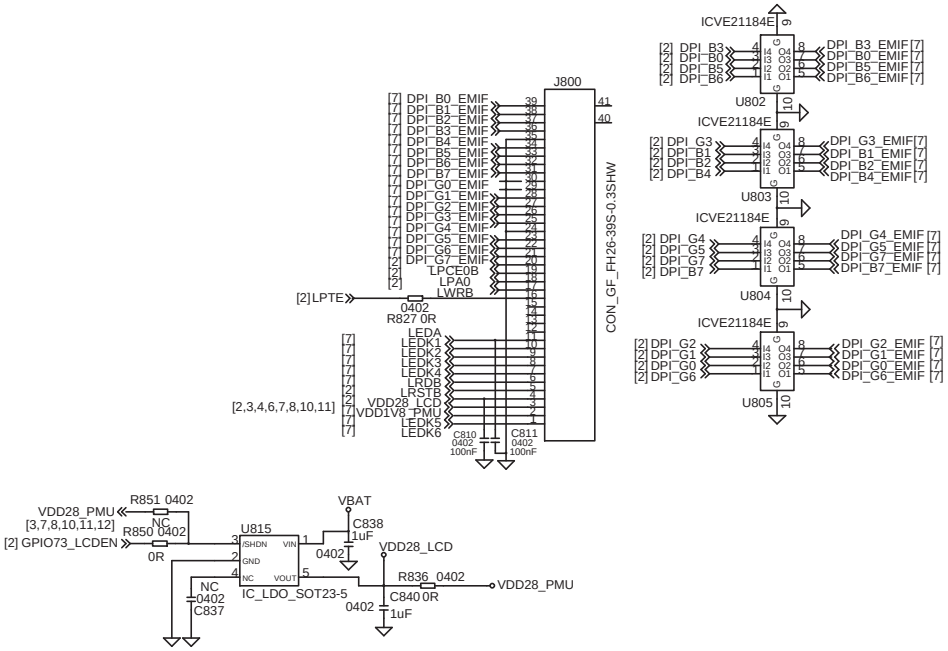
MCP

S4B VDD1=1.8V, VDD2=1.20V, VDDCA, VDDQ=1.20V

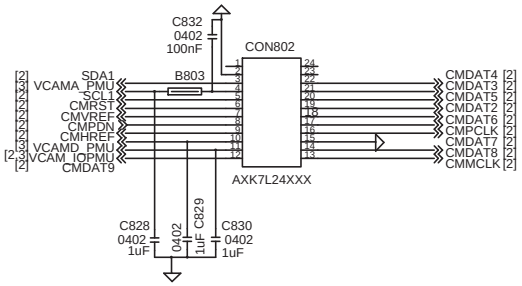


Thermal Sensor - MCP

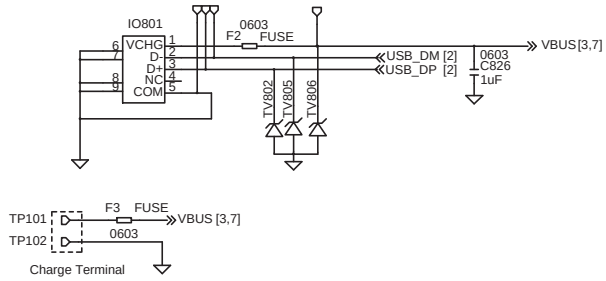
LCM Connector



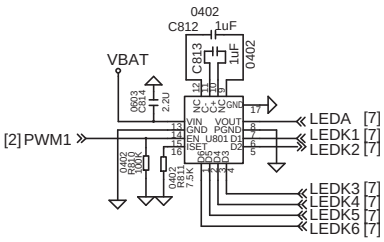
Main Camera



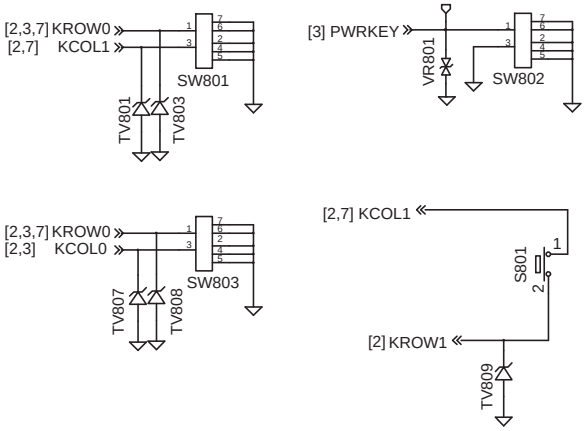
USB Connector



BACKLIGHT DRIVER

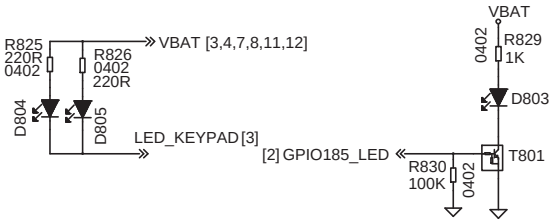


KEY

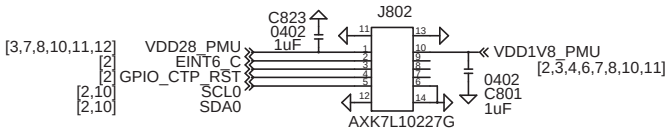


Keypad LED

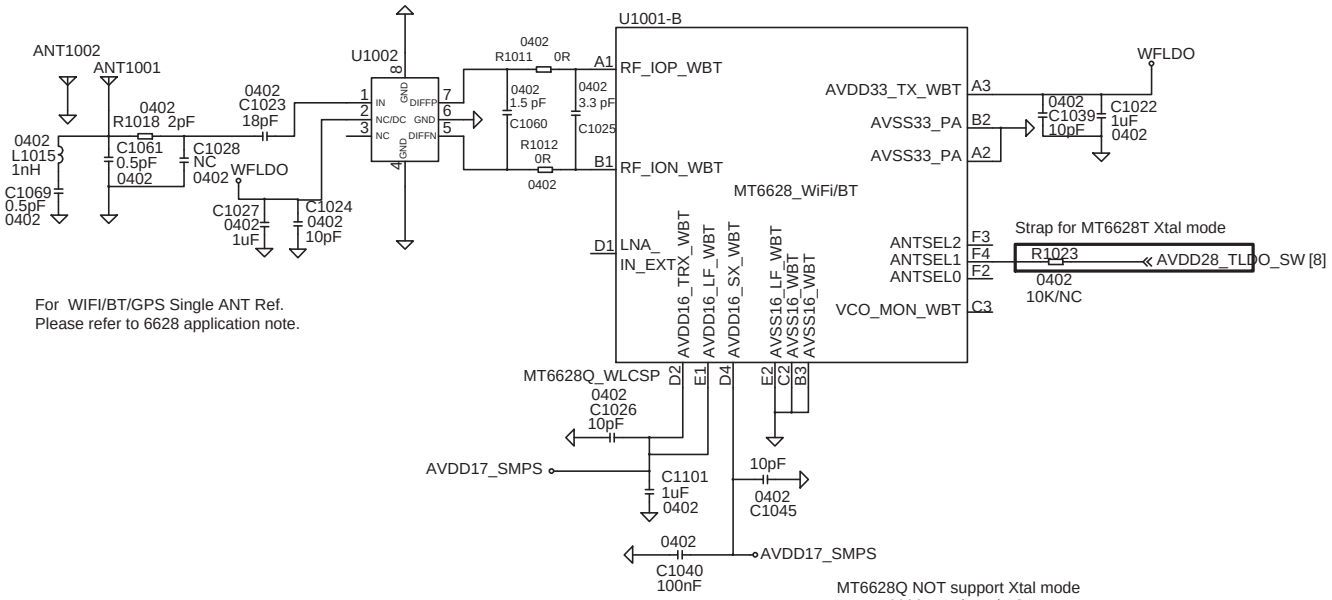
Charge LED



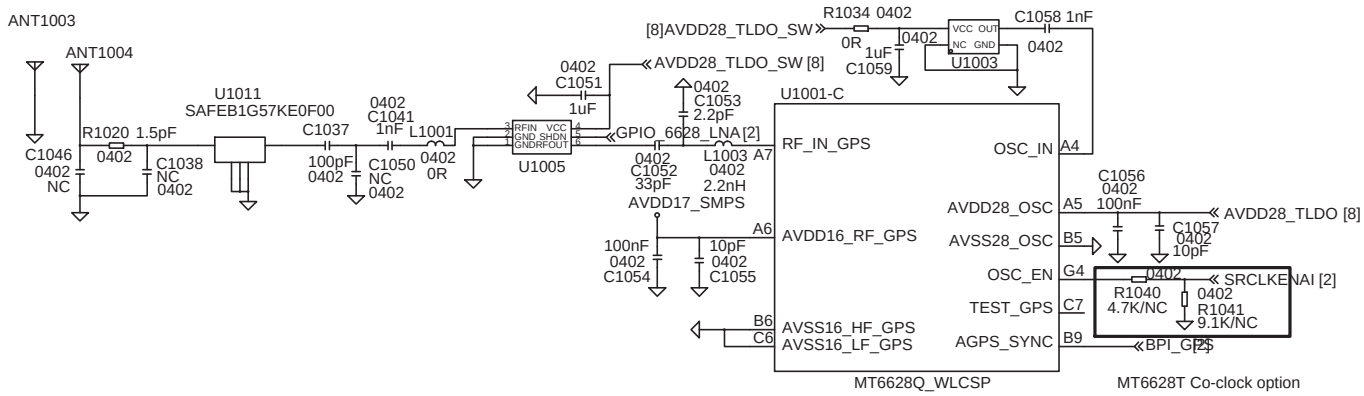
CTP Connector



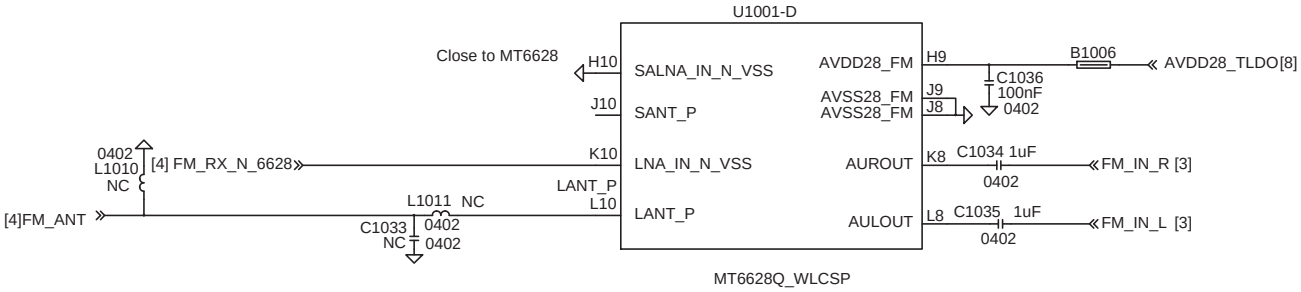
WIFI/BT



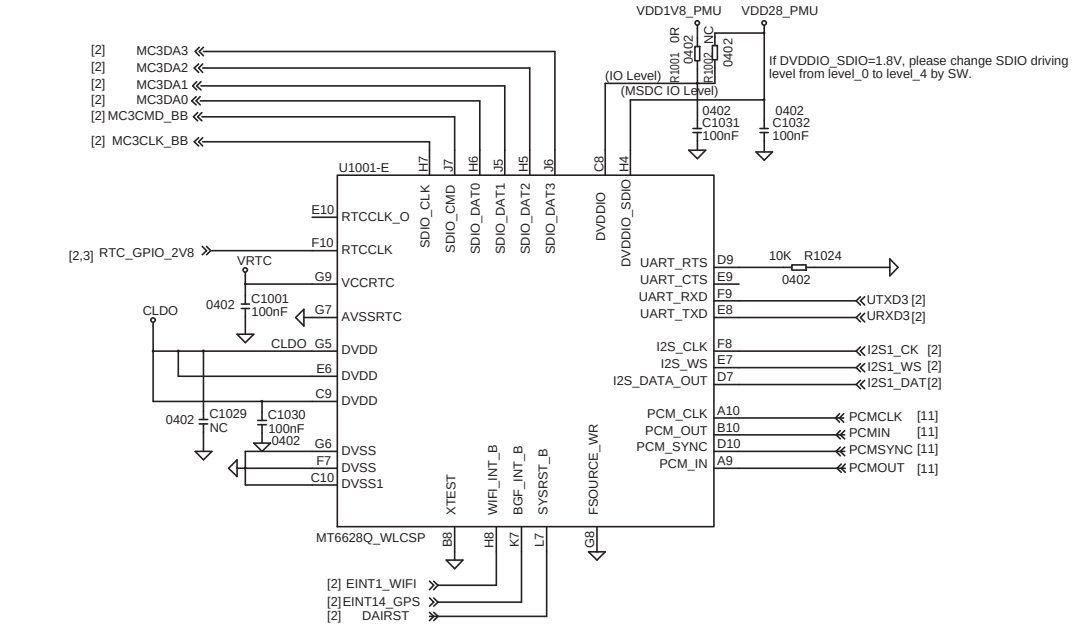
GPS



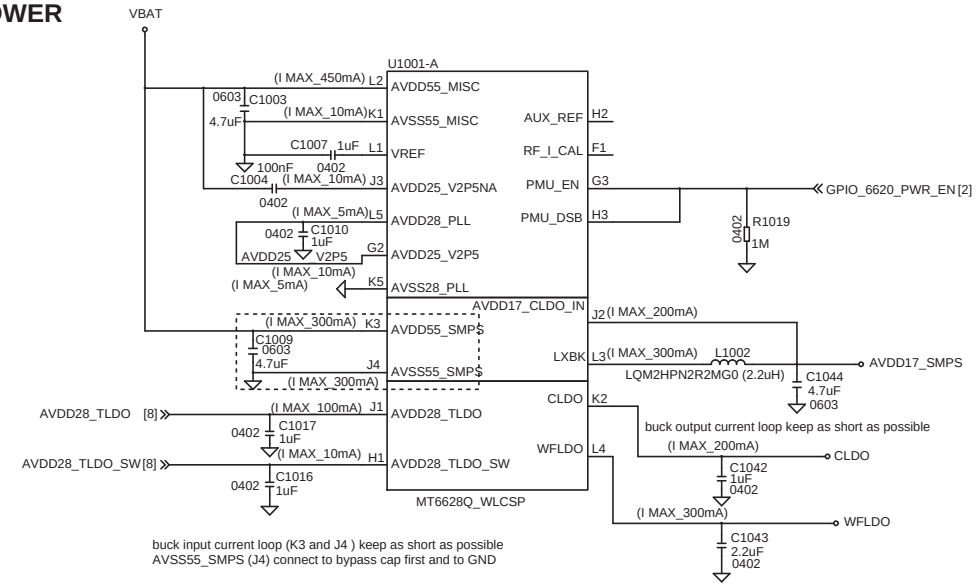
FM



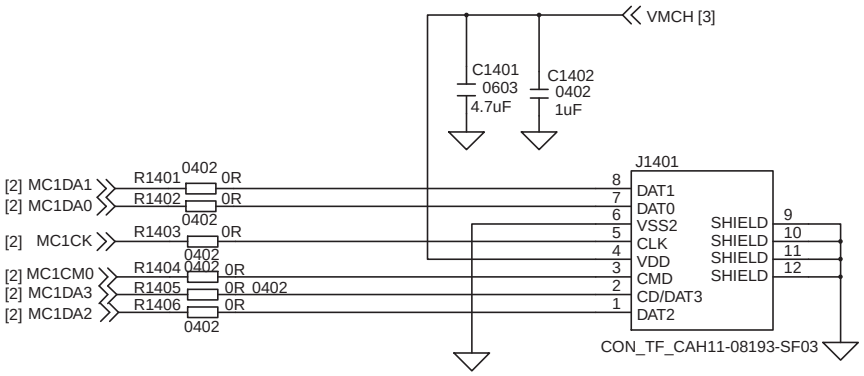
GIO


VDD1V8_PMU
VDD28_PMU
0R
R1001
R1002
NC
0402
If DVDDIO_SDIO=1.8V, please change SDIO driving level from level_0 to level_4 by SW.
(IO Level)
(MSDC IO Level)
C1031 100nF
C1032 100nF
[2] MC3DA3
[2] MC3DA2
[2] MC3DA1
[2] MC3DA0
[2] MC3CMD_BB
[2] MC3CLK_BB
U1001-E
RTCCLK_O
RTCCLK
[2,3] RTC_GPIO_2V8
VRTC
VCCRTC
AVSSRTC
C1001 100nF
CLDO
DVDD
DVSS
DVSS1
C1029 NC
C1030 100nF
SDIO_CLK
SDIO_CMD
SDIO_DAT0
SDIO_DAT1
SDIO_DAT2
SDIO_DAT3
DVDDIO
DVDDIO_SDIO
UART_RTS
UART_CTS
UART_RXD
UART_TXD
10K R1024
UTXD3 [2]
URXD3 [2]
I2S_CLK
I2S_WS
I2S_DATA_OUT
I2S1_CK [2]
I2S1_WS [2]
I2S1_DAT [2]
PCM_CLK
PCM_OUT
PCM_SYNC
PCM_IN
PCMCLK [11]
PCMIN [11]
PCMSYNC [11]
PCMOUT [11]
XTEST
WIFI_INT_B
BGF_INT_B
SYSRST_B
FSOURCE_WR
MT6628Q_WLCSP
[2] EINT1_WIFI
[2] EINT14_GPS
[2] DAIRST

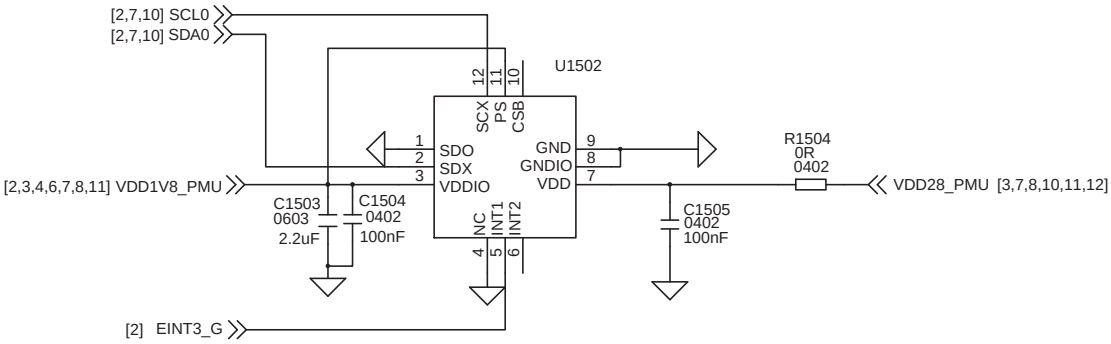
POWER


VBAT
U1001-A
AVDD55_MISC
AVSS55_MISC
VREF
AVDD25_V2P5NA
AVDD28_PLL
AVDD25_V2P5
AVSS28_PLL
AVDD17_CLDO_IN
AVDD55_SMPS
AVSS55_SMPS
AVDD28_TLDO
AVDD28_TLDO_SW
AUX_REF
RF_I_CAL
PMU_EN
PMU_DSB
LXBK
CLDO
WFLDO
GPIO_6620_PWR_EN [2]
R1019 1M
LQM2HPN2R2MG0 (2.2uH)
L1002
AVDD17_SMPS
C1044 4.7uF
C1042 1uF
C1043 2.2uF
C1003 4.7uF
C1007 1uF
C1004 100nF
C1010 1uF
C1009 4.7uF
C1017 1uF
C1016 1uF
MT6628Q_WLCSP
buck output current loop keep as short as possible
buck input current loop (K3 and J4) keep as short as possible
AVSS55_SMPS (J4) connect to bypass cap first and to GND

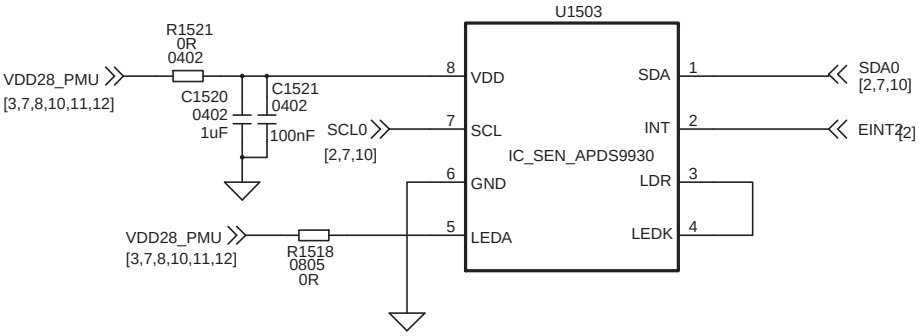
T-flash Card



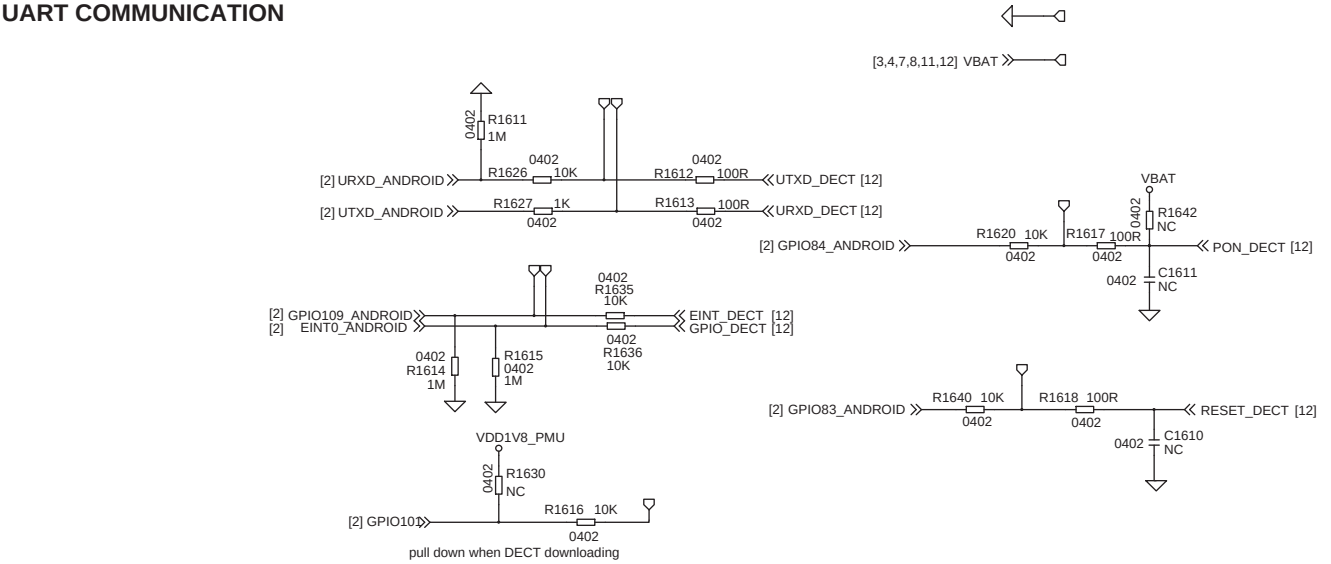
G-Sensor

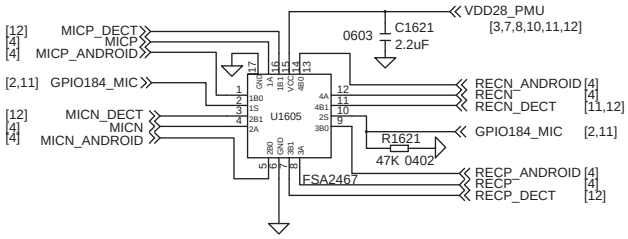


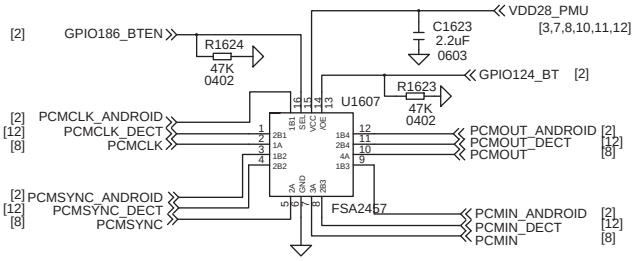
Light/Proximity-Sensor

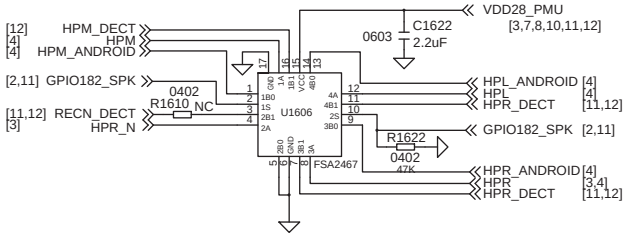


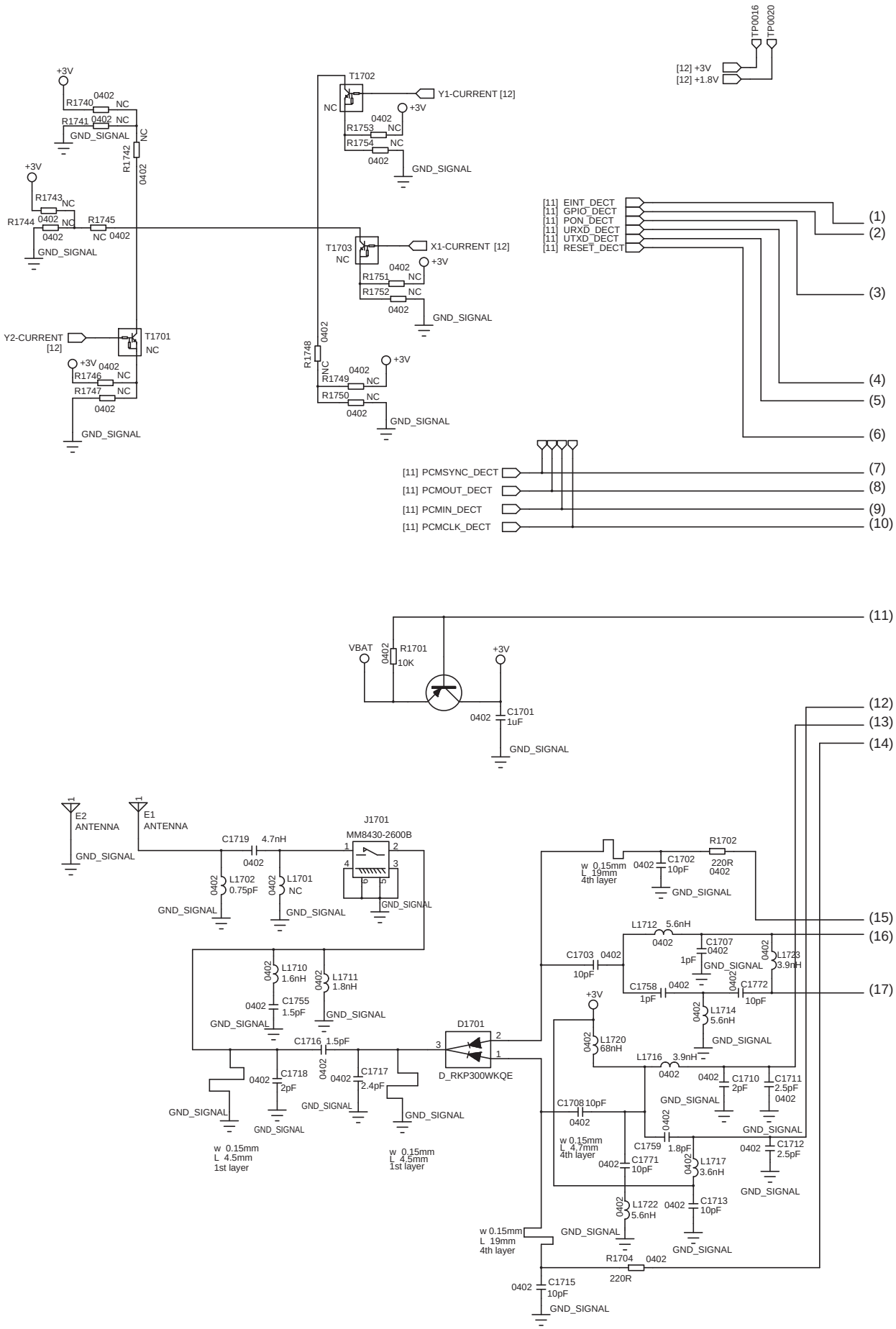
UART COMMUNICATION

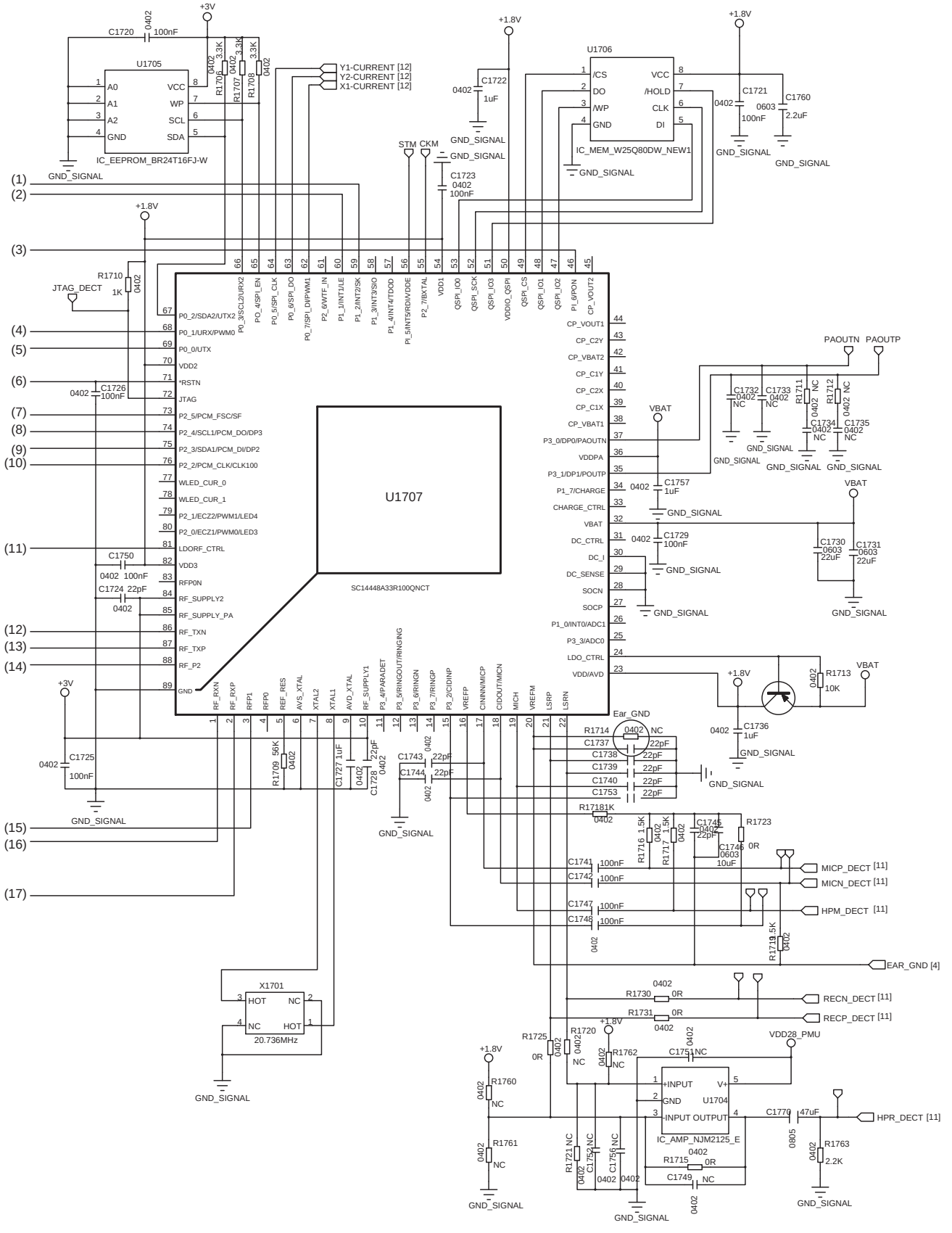




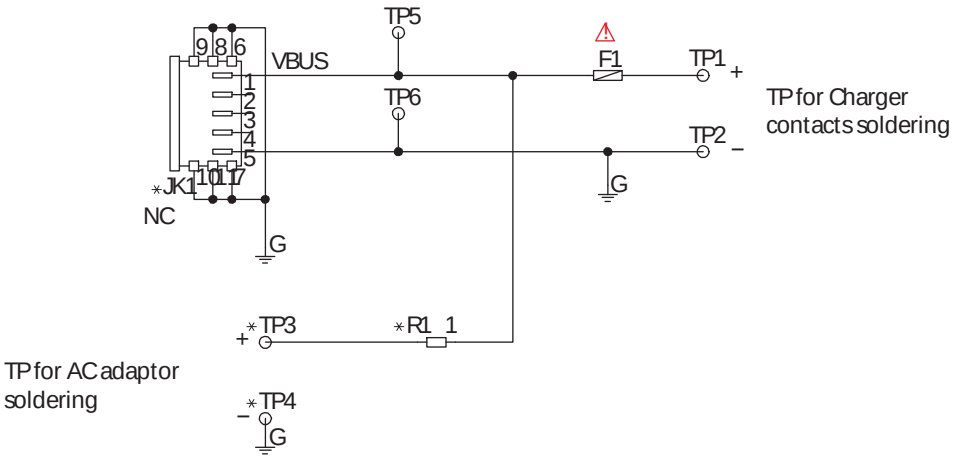





TP0016
TP0020
[12] +3V
[12] +1.8V
+3V
R1740 0402 NC
R1741 0402 NC
GND_SIGNAL
R1742 NC 0402
T1702
Y1-CURRENT [12]
NC
+3V
R1753 0402 NC
R1754 NC 0402
GND_SIGNAL
[11] EINT_DECT
[11] GPIO_DECT
[11] PON_DECT
[11] URXD_DECT
[11] UTXD_DECT
[11] RESET_DECT
(1)
(2)
(3)
(4)
(5)
(6)
R1743 NC
R1744 0402 NC
R1745 NC 0402
0402
GND_SIGNAL
T1703
X1-CURRENT [12]
R1751 0402 NC
R1752 NC 0402
Y2-CURRENT [12]
T1701
R1748 0402 NC
R1749 0402 NC
R1750 NC 0402
R1746 0402 NC
R1747 NC 0402
[11] PCMSYNC_DECT
[11] PCMOUT_DECT
[11] PCMIN_DECT
[11] PCMCLK_DECT
(7)
(8)
(9)
(10)
(11)
VBAT
R1701 0402 10K
C1701 0402 1uF
(12)
(13)
(14)
E2 ANTENNA
E1 ANTENNA
J1701
MM8430-2600B
C1719 4.7nH 0402
L1702 0.75pF 0402
L1701 NC 0402
C1755 1.5pF 0402
L1710 1.6nH 0402
L1711 1.8nH 0402
C1716 1.5pF
C1718 2pF 0402
C1717 2.4pF 0402
D1701
D_RKP300WKQE
w 0.15mm L 4.5mm 1st layer
w 0.15mm L 4.5mm 1st layer
R1702 220R 0402
C1702 10pF 0402
w 0.15mm L 19mm 4th layer
L1712 5.6nH 0402
C1707 1pF 0402
L1723 3.9nH 0402
C1703 10pF 0402
C1758 1pF 0402
C1772 10pF 0402
(15)
(16)
(17)
L1714 5.6nH 0402
L1720 68nH 0402
L1716 3.9nH 0402
C1710 2pF 0402
C1711 2.5pF 0402
C1708 10pF 0402
C1759 1.8pF 0402
C1712 2.5pF 0402
C1771 10pF 0402
L1717 3.6nH 0402
w 0.15mm L 4.7mm 4th layer
L1722 5.6nH 0402
C1713 10pF 0402
w 0.15mm L 19mm 4th layer
R1704 220R 0402
C1715 10pF 0402
GND_SIGNAL


U1707
SC14448A33R100QNCT
U1705
IC_EEPROM_BR24T16FJ-W
U1706
IC_MEM_W25Q80DW_NEW1
U1704
IC_AMP_NJM2125_E
X1701
20.736MHz
+3V
+1.8V
GND_SIGNAL
VBAT
PAOUTN
PAOUTP
JTAG_DECT
Y1-CURRENT [12]
Y2-CURRENT [12]
X1-CURRENT [12]
STM_CKM
Ear_GND
MICP_DECT [11]
MICN_DECT [11]
HPM_DECT [11]
EAR_GND [4]
RECN_DECT [11]
RECP_DECT [11]
HPR_DECT [11]
VDD28_PMU

13.4. Schematic Diagram (Charger Unit)

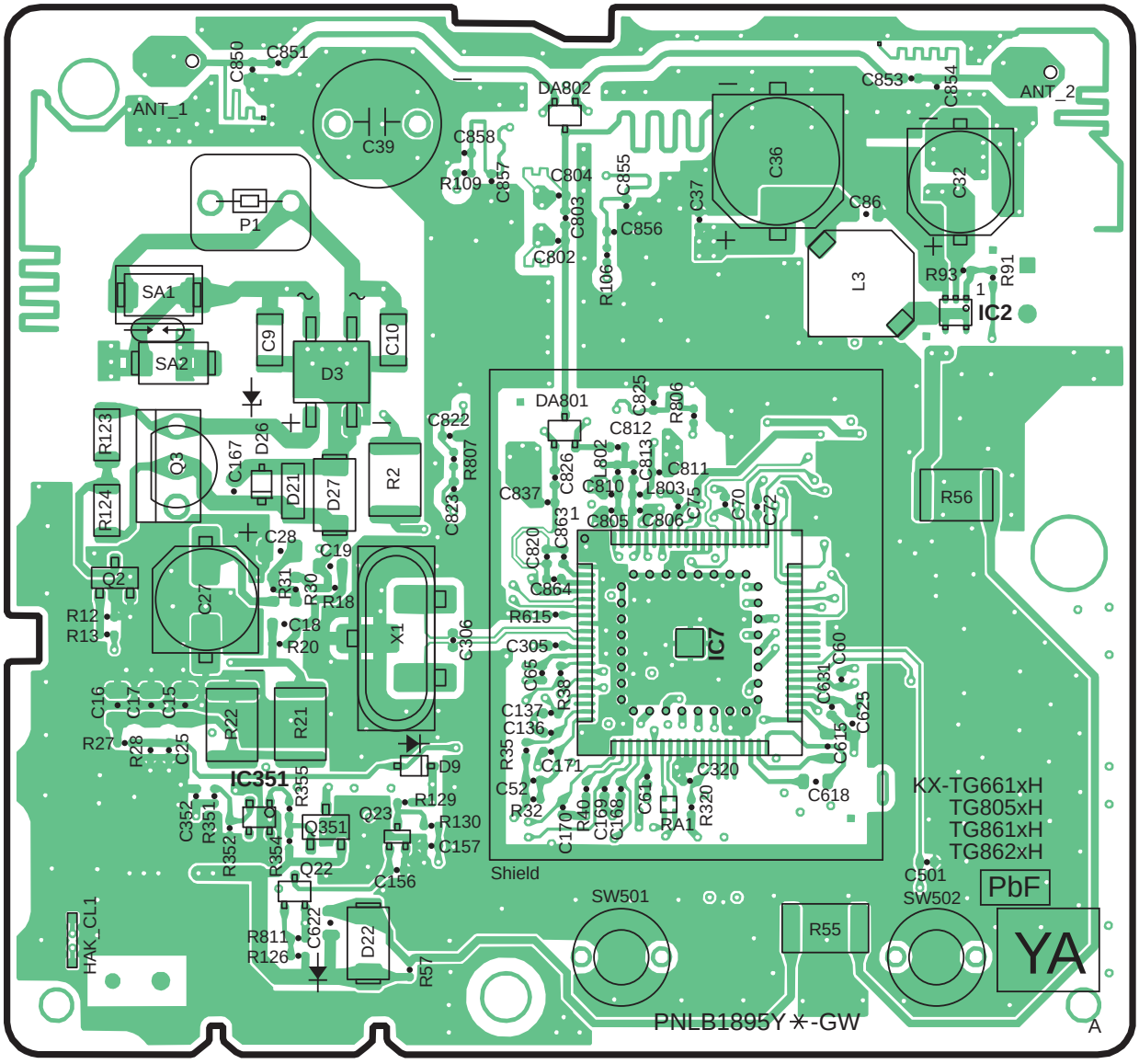


KX-PRX120 SCHEMATIC DIAGRAM (Charger Unit)

14 Printed Circuit Board

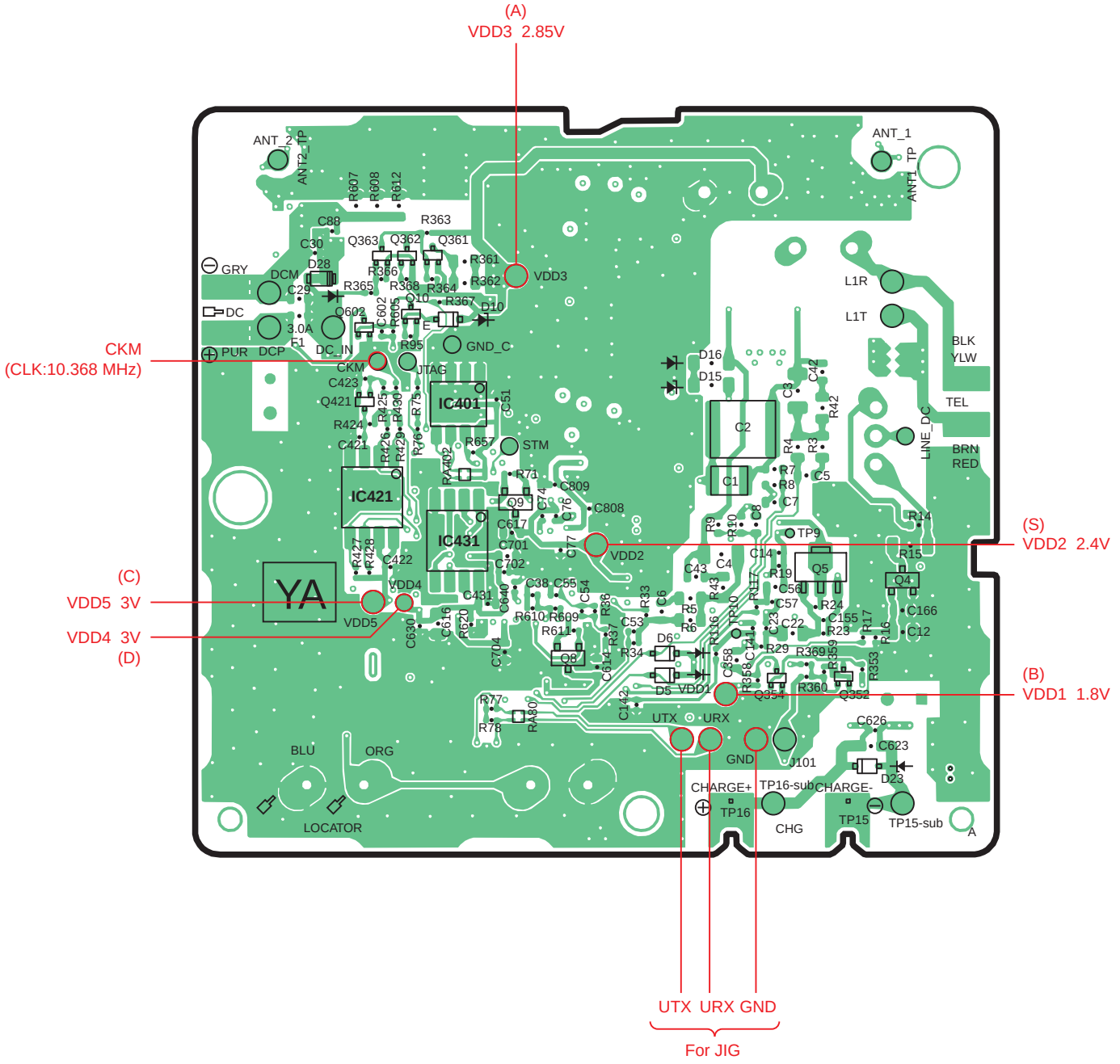
14.1. Circuit Board (Base Unit_Main)

14.1.1. Component View



KX-PRX120 CIRCUIT BOARD (Base Unit_Main (Component View))

14.1.2. Bottom View

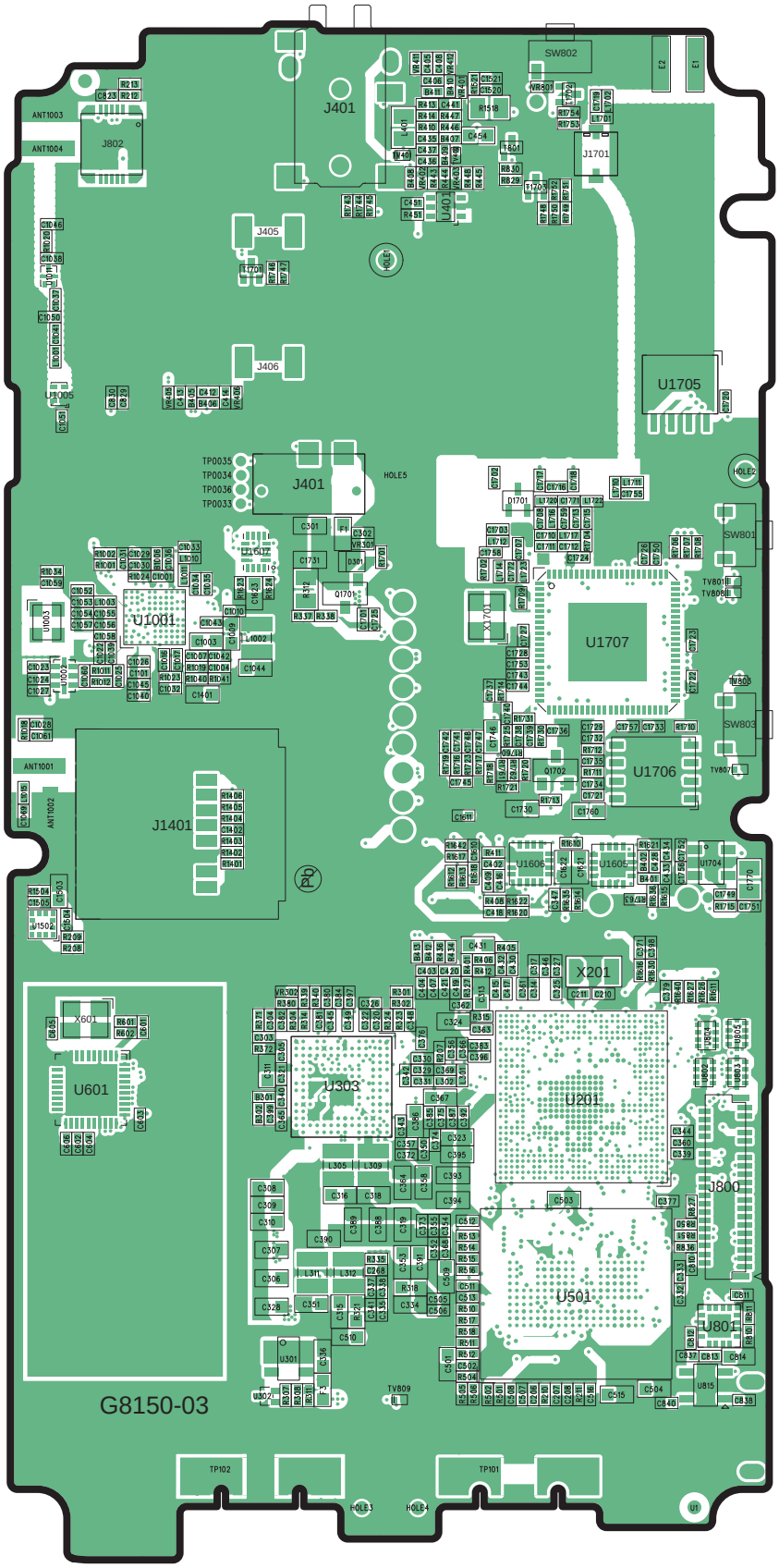


KX-PRX120 CIRCUIT BOARD (Base Unit_Main (Bottom View))

14.2. Circuit Board (Handset)

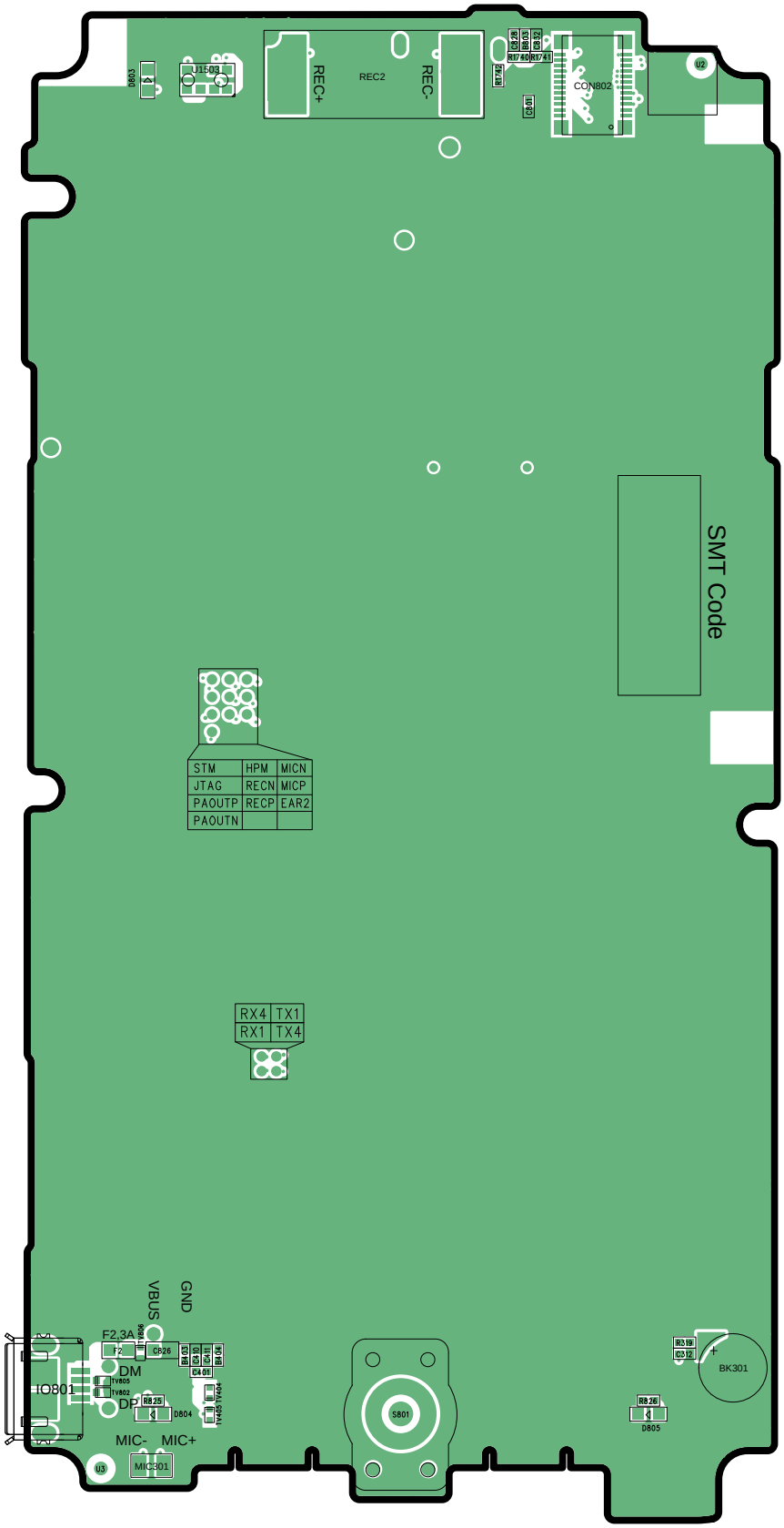
14.2.1. KX-PRXA10

14.2.1.1. Component View



KX-PRXA10 CIRCUIT BOARD (Handset_Main (Component View))

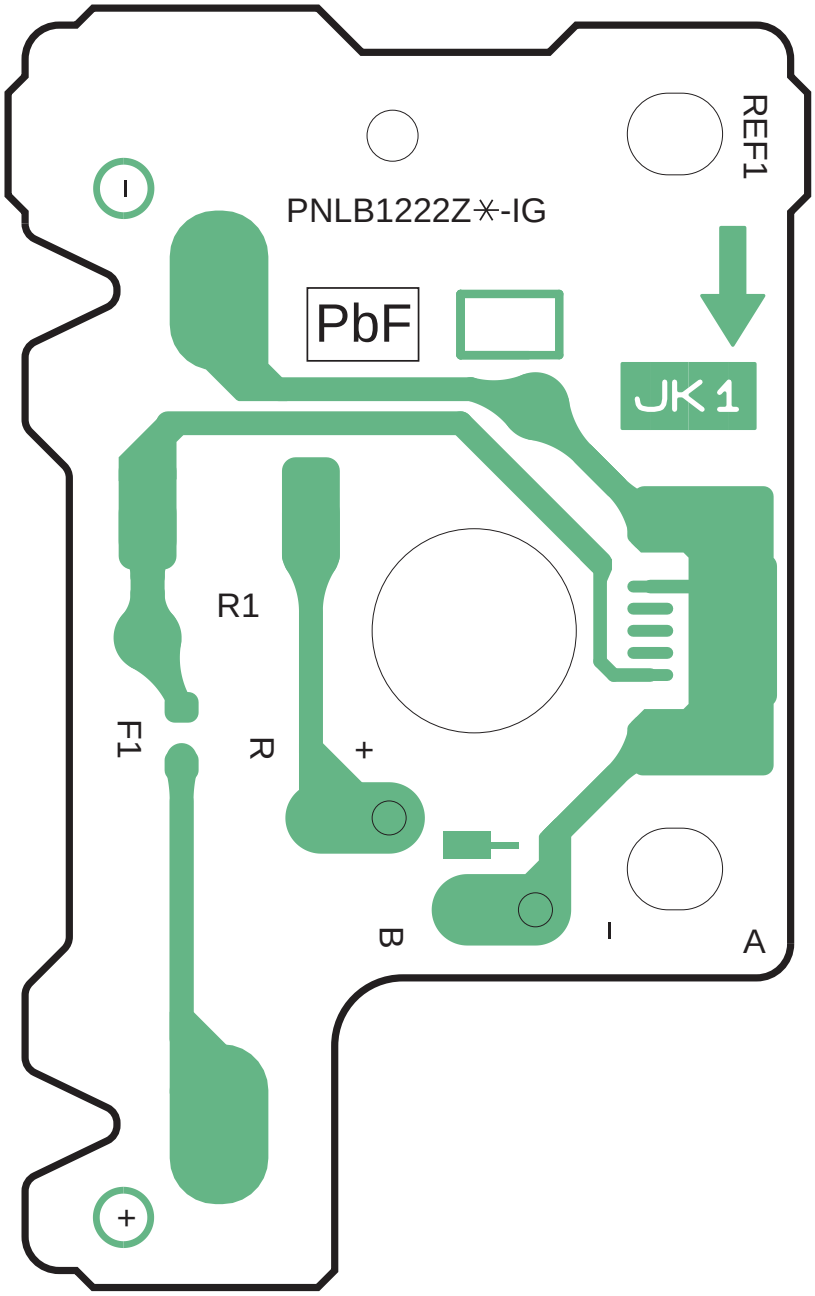
14.2.1.2. Bottom View



KX-PRXA10 CIRCUIT BOARD (Handset_Main (Bottom View))

14.3. Circuit Board (Charger Unit)

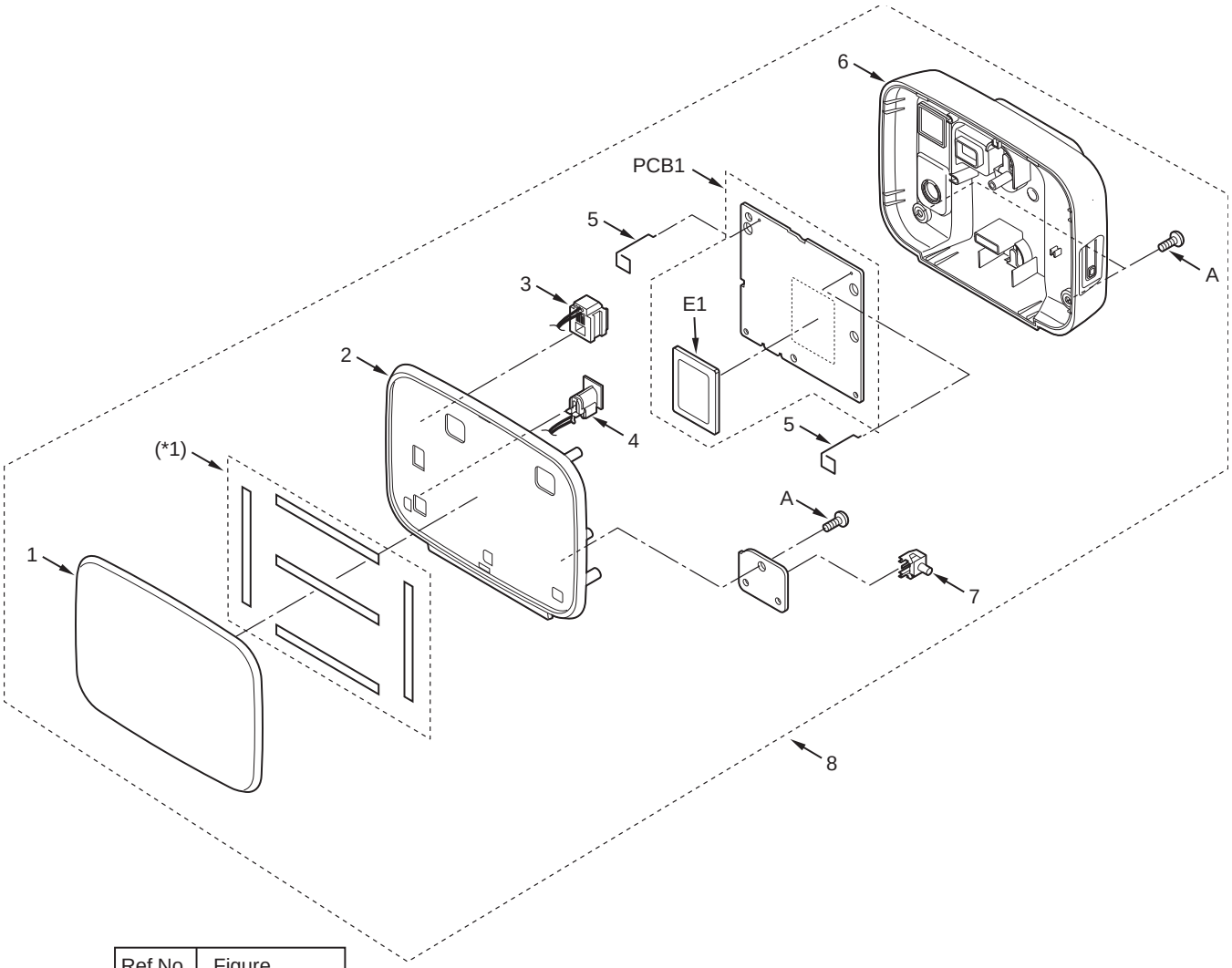
14.3.1. Component View



PRX120 CIRCUIT BOARD (Charger unit (Component View))

15 Exploded View and Replacement Parts List

15.1. Cabinet and Electrical Parts (Base Unit)

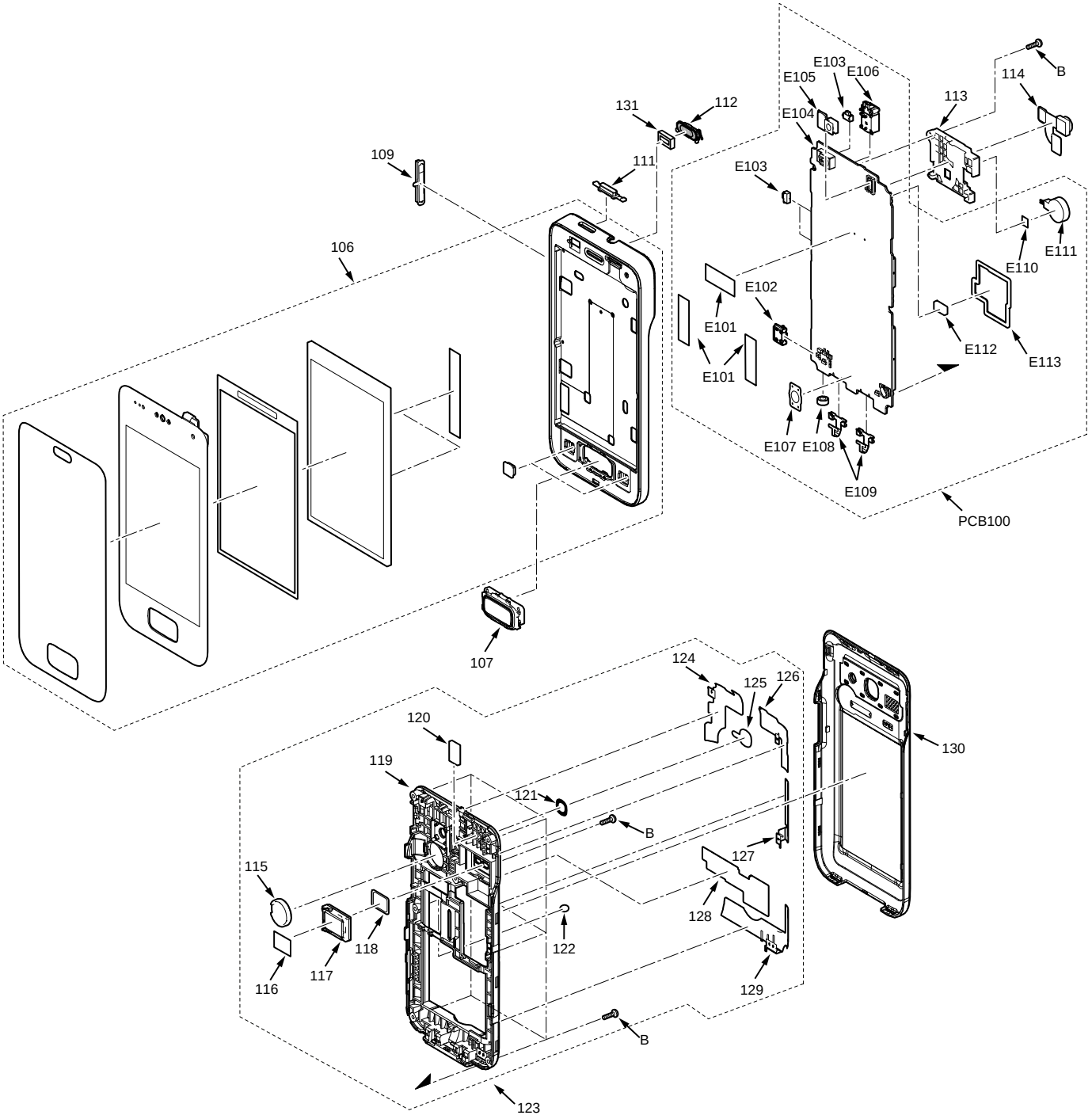


Ref.No.	Figure
A	ϕ 2.6 x 8 mm

Note:

(*1) Attach the double-faced tape to the exact location described above.

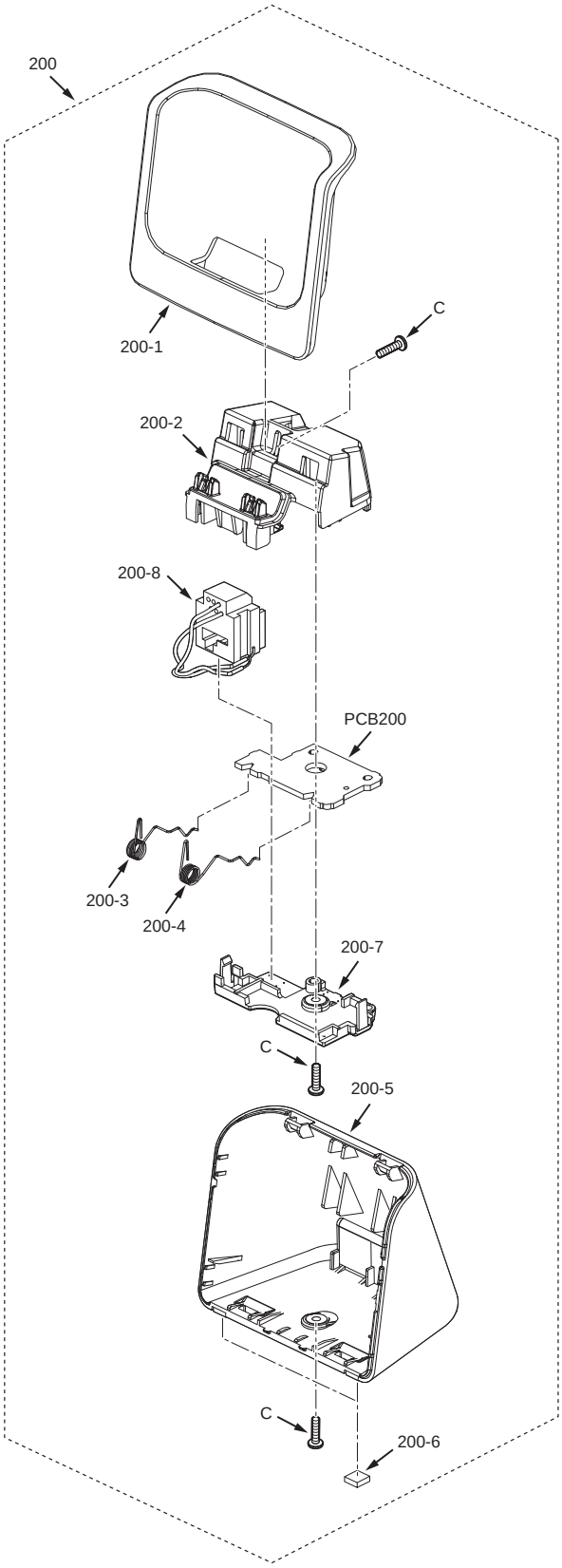
15.2. Cabinet and Electrical Parts (Handset)



Ref.No.	Figure
B	ϕ1.4 x 4 mm

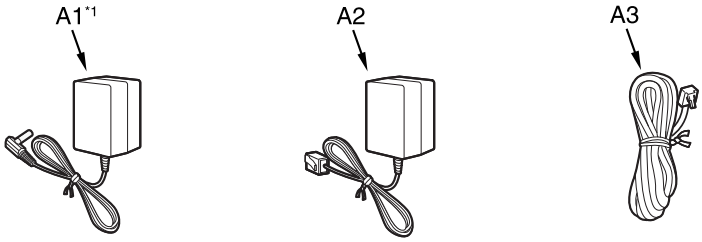
* + (PLUS) Screw driver

15.3. Cabinet and Electrical Parts (Charger Unit)



Ref.No.	Figure
C	ϕ2 × 8 mm

15.4. Accessories



Note:
(*1) For KX-PRX120W

15.5. Replacement Part List

1. RTL (Retention Time Limited)

   Note:

   The “RTL” marking indicates that its Retention Time is Limited.

   When production is discontinued, this item will continue to be available only for a specific period of time. This period of time depends on the type of item, and the local laws governing parts and product retention.

   At the end of this period, the item will no longer be available.

2. Important safety notice

   Components identified by the ⚠ mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture’s parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. ISO code (Example: ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS

   Unless otherwise specified;

   All resistors are in ohms (Ω) k=1000 Ω, M=1000 kΩ

   All capacitors are in MICRO FARADS (μF)p=μμF

   *Type & Wattage of Resistor

Type

ERC:Solid ERDS:Carbon ERJ:Chip	ERX:Metal Film ERG:Metal Oxide ER0:Metal Film	PQ4R:Chip ERS:Fusible Resistor ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage Of Capacitor

Type

ECFD:Semi-Conductor ECQS:Styrol ECUV,PQCUV,ECUE:Chip ECQMS:Mica	ECCD,ECKD,ECBT,F1K,ECUV:Ceramic ECQE,ECQV,ECQG:Polyester ECEA,ECST,EEE:Electlytic ECQP:Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H:50V 2A:100V 2E:250V 2H:500V	05:50V 1:100V 2:200V	0F:3.15V 1A:10V 1V:35V 0J:6.3V	0J :6.3V 1A :10V 1C :16V 1E,25:25V	1V :35V 50,1H:50V 1J :16V 2A :100V

15.5.1. Base Unit

15.5.1.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	1	PNGP1175W1	PANEL, UPPER	ABS-HB
	2	PNKM1214Z1	CABINET BODY	ABS-HB
	3	PQJJ1T039L	JACK, MODULAR	
	4	K2ECYZ000002	JACK, DC	
	5	PNLA1068Z	ANTENNA	
	6	PNKF1155Y1	CABINET COVER	PS-HB
	7	PQSH1A117Z	PUSH SWITCH	
	8	KXPRX120BH	BASE UNIT without Name Plate (RTL) (for KX-PRX120W)	

15.5.1.2. Main P.C.Board Parts

Note:

(*1) When replacing IC401, IC421, IC431 or X1, make the adjustment using PNZZPRX150 Refer to **How to download the data** (P.50) of **Things to Do after Replacing IC or X'tal.**

(*2) When removing E1, use special tools (ex. Hot air disordering tool).

(*3) Backside of this IC has a ground plate. Refer to **How to Replace the Flat Package IC** (P.53).

15.5.1.2.1. KX-PRX120

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB1	PNWPPRX120H	MAIN P.C.BOARD ASS'Y (RTL)	
			(ICs)	
	IC7	C1CB00003541	IC (*3)	
	IC401	PNWIPRX110H	IC (*1)	
	IC421	C3FBMY000286	IC (*1)	
	IC431	C3FBMY000286	IC (*1)	
			(TRANSISTORS)	
	IC2	B1ZBZ0000074	TRANSISTOR(SI)	
	Q2	--------	NC	
	Q3	B1ACGP000007	TRANSISTOR(SI)	
	Q4	B1ABDM000001	TRANSISTOR(SI)	
	Q5	DSC7003S0L	TRANSISTOR(SI)	
	Q8	B1ADGE000012	TRANSISTOR(SI)	
	Q9	B1ADGE000012	TRANSISTOR(SI)	
	Q602	B1ABDF000017	TRANSISTOR(SI)	
			(DIODES)	
	D3	PQVDMD5S	DIODE(SI)	
	D21	PQVDRLZ20A	DIODE(SI)	S
	DA801	B0DDCD000001	DIODE(SI)	
	DA802	B0DDCD000001	DIODE(SI)	
			(COILS)	
	L3	G1C220M00037	COIL	S
	L802	G1C4N7Z00006	COIL	
	L803	G1C4N7Z00006	COIL	
			(RESISTOR ARRAYS)	
	RA402	EXB24V103JX	RESISTOR ARRAY	
	RA80	D1H422120001	RESISTOR ARRAY	
	RA1	D1H410220001	RESISTOR ARRAY	
			(VARISTOR)	
	SA1	J0LE00000047	VARISTOR	
			(RESISTORS)	
	R3	PQ4R10XJ184	180k	S
	R4	PQ4R10XJ105	1M	S
	R5	PQ4R10XJ184	180k	S
	R6	PQ4R10XJ105	1M	S
	R7	ERJ3GEYJ565	5.6M	S
	R8	ERJ3GEYJ104	100k	
	R10	ERJ3GEYJ104	100k	
	R12	--------	NC	
	R13	--------	NC	
	R14	ERJ3GEYJ104	100k	
	R15	PQ4R18XJ272	2.7k	S
	R16	D0GA103JA021	10k	
	R17	ERJ2GEJ222	2.2k	
	R18	ERJ2GEJ273X	27k	
	R19	ERJ2GEJ822	8.2k	
	R20	ERJ2GEJ272	2.7k	
	R21	ERJ12YJ120	12	
	R22	ERJ12YJ270	27	
	R23	D0GA104JA021	100k	
	R24	ERJ2GEJ393X	39k	
	R27	D0GA104JA021	100k	
	R28	ERJ2GEJ474X	470k	S
	R29	ERJ2GE0R00	0	S
	R30	ERJ3GEYJ821	820	
	R31	ERJ3GEY0R00	0	S

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	R32	ERJ2GEJ823	82k	S
	R33	D0GA102JA021	1k	
	R34	ERJ2GEJ823	82k	S
	R35	D0GA102JA021	1k	
	R36	D0GA124JA015	120k	
	R37	D0GA392JA015	3.9k	
	R38	D0GA102JA021	1k	
	R40	ERJ2GEJ271	270	
	R42	PQ4R10XJ475	4.7M	S
	R43	PQ4R10XJ475	4.7M	S
	R71	D0GA103JA021	10k	
	R76	D0GA102JA021	1k	
	R77	D0GA103JA021	10k	
	R91	ERJ2GEJ331	330	S
	R93	D0GA681JA021	680	
	R106	D0GA221JA021	220	
	R109	D0GA102JA021	220	
	R116	ERJ2GE0R00	0	S
	R117	D0GA332JA015	3.3k	
	R124	--------	NC	
	R129	D0GA103JA021	10k	
	R130	D0GA102JA021	1k	
	R320	ERJ2GEJ222	2.2k	
	R424	ERJ2GE0R00	0	S
	R426	ERJ2GEJ561	560	
	R427	ERJ2GEJ561	560	
	R428	ERJ2GEJ561	560	
	R429	D0GA332JA015	3.3k	
	R430	ERJ2GEJ100	10	S
	R605	ERJ2GEJ472X	4.7k	
	R607	ERJ6RSJR10V	0.1	
	R608	ERJ6RSJR10V	0.1	
	R609	ERJ2RKF1202	12k	
	R610	ERJ2RKF2202X	22k	
	R611	D0GA103JA021	10k	
	R612	ERJ6RSJR10V	0.1	
	R615	D0GA563ZA006	56k	
	R620	D0GA104JA021	100k	
	R657	D0GA103JA021	10k	
	R806	D0GA221JA021	220	
	R807	D0GA221JA021	220	
			(CAPACITORS)	
	C3	F1K2H681A008	680p	
	C4	F1K2H681A008	680p	
	C5	ECUV1C103KBV	0.01	S
	C6	ECUV1C103KBV	0.01	S
	C7	ECUV1C104KBV	0.1	S
	C8	ECUV1C104KBV	0.1	S
	C9	F1K2H681A008	680p	
	C10	F1K2H681A008	680p	
	C14	ECUE1C223KBQ	0.022	S
	C19	ECUV1H102KBV	1000p	S
	C22	PQCUV1A105KB	1	S
	C25	ECUE1C103KBQ	0.047	S
	C27	EEE1HA100SP	10	
	C28	----------	NC	S
	C29	ECUV1C104KBV	0.1	S
	C32	F2G1C1010034	100	
	C36	F2G0J1020022	1000	
	C38	ECUE1H221JCQ	220p	S
	C42	ECUV1C103KBV	0.01	S
	C43	ECUV1C103KBV	0.01	S
	C51	ECUE1A104KBQ	0.1	S
	C52	ECUE1H821KBQ	820p	S
	C53	ECUE1H821KBQ	820p	S
	C54	ECUE1A333KBQ	0.033	S
	C55	ECUE1A823KBQ	0.082	S
	C56	ECUV1C104KBV	0.1	S
	C60	ECUE1A104KBQ	0.1	S
	C61	ECUE1A104KBQ	0.1	S
	C65	ECUE1H100DCQ	10p	S
	C72	ECUE1A104KBQ	0.1	S
	C75	ECUE1A104KBQ	0.1	S
	C76	ECUE1H100DCQ	10p	S
	C86	ECUV1A105KBV	1	S
	C88	ECUE1C103KBQ	0.01	S
	C136	ECUE1H100DCQ	10p	S
	C137	ECUE1H100DCQ	10p	S
	C142	ECUE1H561KBQ	560p	S
	C157	ECUE1H102KBQ	0.001	S
	C168	ECUE1H100DCQ	10p	S
	C169	ECUE1H100DCQ	10p	S
	C170	ECUE1H222KBQ	0.0022	S
	C171	ECUE1H100DCQ	10p	S
	C305	ECUE0J105KBQ	1	S
	C320	ECUE1A104KBQ	0.1	S
	C421	ECUE1C103KBQ	0.01	S
	C422	ECUE1A104KBQ	0.1	S
	C431	ECUV1C104KBV	0.1	S
	C501	ECUE1H181JCQ	180p	S
	C602	ECUE1H181JCQ	180p	S
	C614	ECUV1A105KBV	1	S
	C615	ECUV1A105KBV	1	S
	C616	PQCUV1A225KB	2.2	S
	C617	ECUV1A105KBV	1	S
	C625	ECUV1A105KBV	1	S
	C701	ECUV1C104KBV	0.1	S
	C704	ECUV1C104KBV	0.1	S
	C802	F1G1H1R8A765	1.8p	
	C803	F1G1H1R5A765	1.5p	
	C804	F1G1H1R8A765	1.8p	
	C805	F1G1H2R4A765	2.4p	
	C806	F1G1H2R4A765	2.4p	
	C808	ECUE1H100DCQ	10p	S
	C809	ECUE1H100DCQ	10p	S
	C810	F1G1H1R0A765	1	
	C811	ECUE1H100DCQ	10p	S
	C812	ECUE1H100DCQ	10p	S
	C813	F1G1H1R0A765	1	
	C820	F1G1HR70A765	CERAMIC CAPACITOR	
	C822	ECUE1H100DCQ	10p	S
	C823	ECUE1H101JCQ	100p	S
	C825	ECUE1H100DCQ	10p	S
	C826	ECUE1H100DCQ	10p	S
	C837	F1G1HR90A765	CERAMIC CAPACITOR	
	C851	F1G1H7R0A765	7	
	C853	F1G1H7R0A765	7	
	C855	ECUE1H100DCQ	10p	S
	C856	ECUE1H101JCQ	100p	S
	C857	ECUE1H100DCQ	10p	S
	C858	ECUE1H101JCQ	100p	S
	C863	F1G1H7R0A765	7	
	C864	F1G1H7R0A765	7	
			(OTHERS)	
	E1	PNMC1033Z	CASE,MAGNETIC SHIELD (*2)	
	X1	H0J103500037	CRYSTAL OSCILLATOR (*1)	
	P1	D4DAY220A022	THERMISTOR	
⚠	F1	K5H302Y00003	FUSE	

15.5.2. Handset

15.5.2.1. Cabinet and Electrical Parts

15.5.2.1.1. KX-PRXA10W

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	106	M02100000027	TOUCHPANELASS'Y,LCD	
	109	M01102007400	PUSH BUTTON,VOLUME	
	111	M01102007390	PUSH BUTTON,POWER	
	112	M81109001850	RECEIVER	
	116	M01111007610	TAPE, SPEAKER INSULATION	
	117	M01109001840	SPEAKER,BACK	

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	118	M01111091300	SPACER, SPEAKER FRONT BOX	
	119	M81101016730	CABINET COVER	PC-V0
	120	M01111091400	SPACER, TP	
	122	M01114000010	WATER LABEL	
	123	M02100000028	CABINET COVER ASS'Y	PC-V0
	124	M02300000013	ANTENNA, DECT	
	126	M02300000017	ANTENNA, GPS	
	127	M02300000015	ANTENNA, WIFI	
	128	M01112007580	LABEL, BATTERY	
	130	M01101016740	DOOR-LID	PC-V0
	131	M81111009170	Sponge	

15.5.2.2. Main P.C.Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB100	--------	MAIN P.C.BOARD ASS'Y	
	E101	M01111091530	TAPE, PLATE GROUND	
	E102	M01012000020	CONNECTOR, USB	
	E103	M01013000130	PUSH BUTTON, POWER	
	E104	------	PC BOARD W/COMPONENT (RTL)	
	E105	M01106001390	FRONT CAMERA	
	E106	M01012004050	CONNECTOR, EARPHONE	
	E107	M01102007260	PUSH BUTTON, HOME	
	E108	M01109001740	MICROPHONE	
	E109	M01110000490	CHARGE TERMINAL	
	E112	M01111091100	SPACER, SPEAKER SUPPORT	
	E113	M01111091200	SPACER, SPEAKER BOX	

15.5.3. Charger Unit

15.5.3.1. Cabinet and Electrical Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	200	PNLC1049ZW	CHARGER UNIT ASS'Y without NAME PLATE (RTL)	
	200-1	PNKM1495Z1	CABINET BODY	ABS-HB
	200-2	PNKE1300Z1	CASE, CHARGE TERMINAL	PS-HB
	200-3	PNJT1166Z	CHARGE TERMINAL (R)	
	200-4	PNJT1167Z	CHARGE TERMINAL (L)	
	200-5	PNKF1289Z1	CABINET COVER	PS-HB
	200-6	PQHA10023Z	RUBBER PARTS, FOOT CUSHION	
	200-7	PNHR1855Z	GUIDE, CONNECTOR	PS-HB
	200-8	PNJJ041007Z	JACK/SOCKET	

15.5.3.2. Main P.C.Board Parts

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	PCB200	PNWPLC1049Z	MAIN P.C.BOARD ASS'Y (RTL)	
⚠	F1	K5H302Y00003	FUSE	
	R1	ERJ12RQJ1R0U	1	

15.5.4. Accessories

Note:

You can download and refer to the Operating Instructions (Instruction book) on TSN Server.

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
⚠	A1	PNLV226Z	AC ADAPTOR (for Base Unit)	
⚠	A2	PNLV226KZ	AC ADAPTOR (for Charger Unit)	
	A3	PQJA10075Z	CORD, TELEPHONE	

15.5.5. Screws

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
	A	XTB26+8GFJ	TAPPING SCREW	
	B	M01110000500	TAPPING SCREW	
	C	XTB2+8GFJ	TAPPING SCREW	

15.5.6. Fixtures and Tools

Note:

(*1) See **Equipment Required** (P.46).

Safety	Ref. No.	Part No.	Part Name & Description	Remarks
		PQZZ1CD300E	JIG CABLE (*1)	
		PNZZPRX150	BATCH FILE CD-ROM (*1)	