



Working Instruction, Electrical

Applicable for Z770i

CONTENTS

1	Moisture Sensitivity and Component Baking	3
2	Lead-free Rework	4
2.1	Lead-free Symbol	4
2.2	Bottom Heat	4
2.3	Reflow Profile for BGA Rework Station	5
2.4	Inspection	6
3	Replacement of components	7
3.1	X1200: Conn Antenna	8
3.2	X1201: Coax Connector	8
3.3	X1202:ANT GND Connector Leaf Spring 1p	9
3.4	X2200:Battery Connector	9
3.5	X2400:System connector	10
3.6	X3100: Con X Keyboard connector	10
3.7	X4200:LCM Connector	11
3.8	N1400:Module Bluetooth + FM STLC2592	11
3.9	B4200: SMD Vibrator	12
3.10	X2403:SIM Card Connector	12
3.11	X2405: MS-Micro Pico holder	13
3.12	N3101:ASIC Tjatte3 CSP20	13
3.13	D2105:IC Single bus buffer gate	14
3.14	D2400:IC IF ISP1508 ES3 (3.5*3.5*0.8)	14
3.15	L2401-L2404:Filter 0.0 Hz 0402	15
3.16	N2203: 2ch-LDO, Vout1=2.8V, Vout2=1.8V, WL-CSP6	15
3.17	N2400: IC	16
3.18	N2402:IC ESD Prot UDFN 6 2x2 mm	16
3.19	Ear speaker:Ear Speaker 1107.0 Rectangular	17
3.20	Loudspeaker:Loudspeaker 1318.0 Oval	18
3.21	V2420-V2422, V4209: Diode Zener 15, V SOD523	18
3.22	E1000:Shield Can Closed small shielding	19
3.23	E1001:Shield Can Fence	20
3.24	N2202:IC Vreg SON-6	20
3.25	B4410:IC Lin,MR sensor	21
3.26	N2204: LDO1.2 V, 200mA, low noise, CS 5	21
3.27	B2102:Crystal 32,768 kHz	22
3.28	N1200: RF-Module Thor Pre-bumped	22
3.29	N1210: RF-Module Squid Pre -bumped	23
3.30	C3137,C3141: Capacitor Ceramic 220,0 nF +/-10% 6,3 V	23
3.31	L2200: Ind WW 4.7 uH K3012	24
3.32	V2202: TRANS V;DUAL_P MOSFET;BYX101603_A;REQ318	24
3.33	V2431: Diode Protection 0.7 V SOD-882	25

3.34	Z4200,Z4201,Z4202: LC Filter Array 0805 22pF	25
3.35	N2205: DC/DC Converter.....	26
3.36	N3100: IC Amp 9-Pin Flip-Chip	26
3.37	V4205, V4206: Trans Array	27
3.38	Z2400: Filter 100, MHz K1210	27
4	Revision history	28



1 Moisture Sensitivity and Component Baking

Some components in this product are moisture sensitive and must be baked prior to use if they have been exposed to air. These components and their moisture sensitivity levels are specified in the Electrical Component Placing document. Below is a brief description of moisture sensitivity levels, but repair centers should visit the JEDEC website for more details before reworking moisture sensitive components. Search for the most recent version of the IPC/JEDEC J-STD-033A standard online at <http://www.jedec.org/>

Level 1 unlimited floor life; does not require dry pack or re-baking.

Level 2 1 year floor life; $\leq 30^{\circ}\text{C}$; 60% relative humidity (rh); shipped in dry pack; must be re-baked after being opened if floor life is exceeded.

Level 2A 4 weeks floor life; $\leq 30^{\circ}\text{C}$; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.

Level 3 168 hours floor life; $\leq 30^{\circ}\text{C}$; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.

Level 4 72 hours floor life; $\leq 30^{\circ}\text{C}$; 60% rh; shipped in dry pack; must be re-baked after being opened if floor life is exceeded.

Parts shipped from the Sony Ericsson Parts Warehouse are most likely NOT shipped in dry pack. This means the time elapsed between placing the order and receiving the parts must be considered as time exposed to the environment.

Different moisture sensitivity levels and exposure times create the need for different baking temperatures and times. More detailed information may be found in the most recent version of the IPC/JEDEC J-STD-033A standard. The standard is available online at <http://www.jedec.org/>.



2 Lead-free Rework

2.1 Lead-free Symbol

NOTE!

- This is a lead-free product!
- All solder wire or paste used with this product must be lead-free.
- All rework tools that directly contact the solder must remain lead-free. They must only be used for lead-free repairs.



2.2 Bottom Heat

Because of the higher temperatures required for lead-free solder, bottom heat is strongly recommended for rework of all ASICs. This does not include small transistors or chips, but it does include fine pitch components and BGA type components.

2.3 Reflow Profile for BGA Rework Station

The profile shall be according to SEMC profiling specification below.
Profile parameters are illustrated in table 2.3.

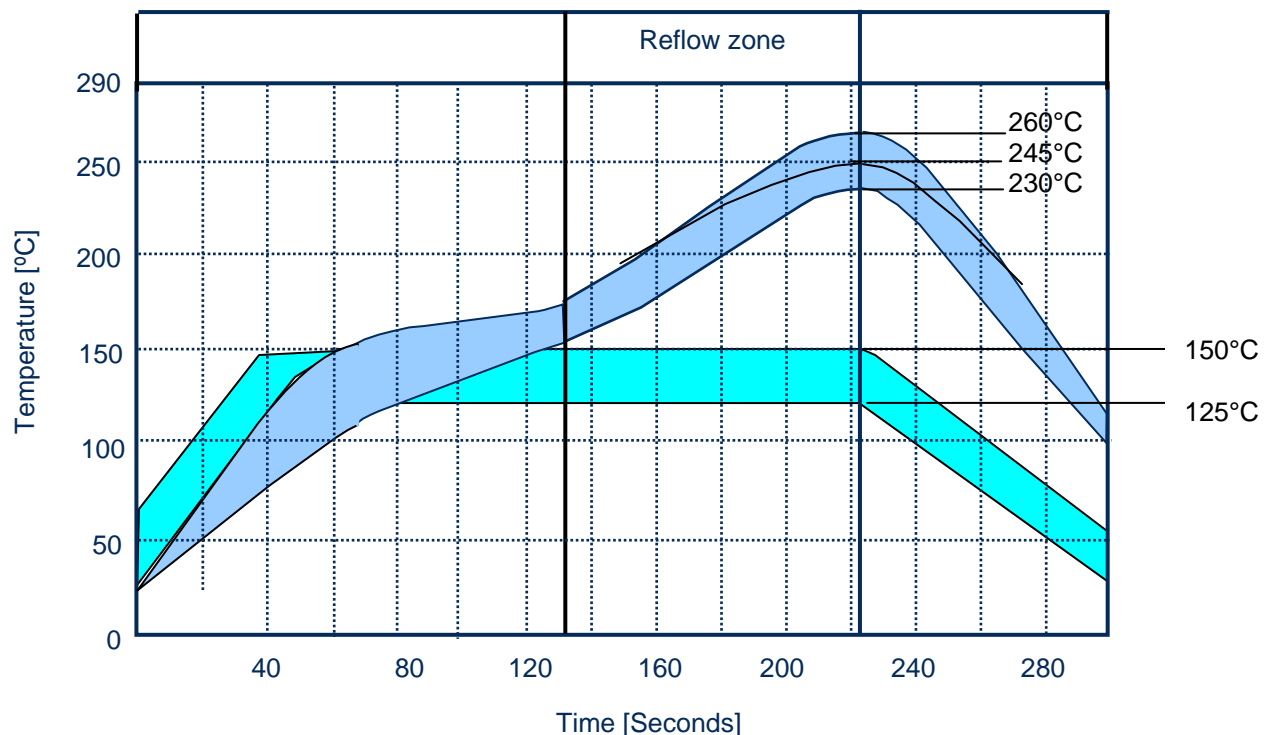
Reflow profile in this document always refers to the reflow profile which is measured on the board/component with thermocouples and do not refer to the BGA Rework Stations setting which can vary depending on the machine type and individual machine. Verification of reflow profile shall be done on each set of equipment.

Table 2.3.1

Ramp rate	< 3°C/sec
Ramp rate cooling	< 6°C/sec
Time above liquidus	40-70 sec
Minimum temperature	235°C
Maximum component temperature	260 °C
Time above 235°C	10-40 sec
Recommended Total time	Approx. 3-5min

The following graph, in table 2.3.2, shows an example of a lead-free profile including bottom heat and top heat. The profile for specific parts and specific equipment will vary, but the maximum temperature must not be exceeded.

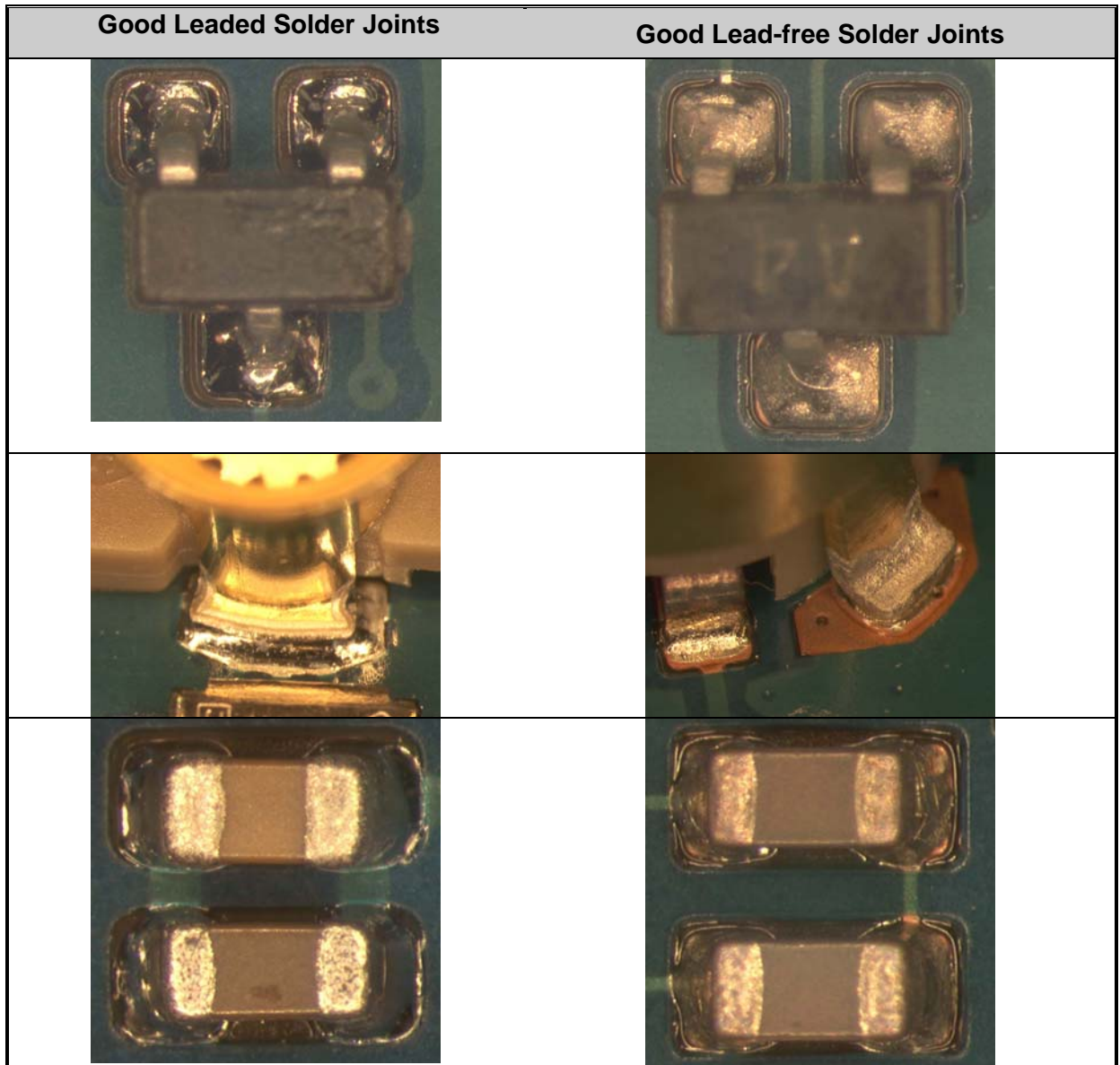
Table 2.3.2





2.4 Inspection

Lead-free solder joints are more difficult to inspect because they do not have shiny surfaces like leaded solder joints. Also, lead-free solder does not flow as well as leaded solder, so some of the solder pad area may remain exposed.



3 Replacement of components

EQUIPMENT

- Dentist hook
- ESD-gloves (cotton gloves)
- ESD-wristband
- Soldering tools
- Hot Air Station
- Bottom Heat
- BGA Rework Station
- Pair of tweezers
- Solder wick
- Solder paste lead-free (SN 96% Ag 3.5% Cu 0.5%)
- Flux, RMA no-clean flux

CAUTION

- ***Keep all contact surfaces clean of dirt and hand-grease!***
- ***Remove Film and Labels on PCBA, BB shielding can, and Liquid intrusion indicators in advance if necessary before repairing PCBA.***

MECHANICAL INSTRUCTIONS

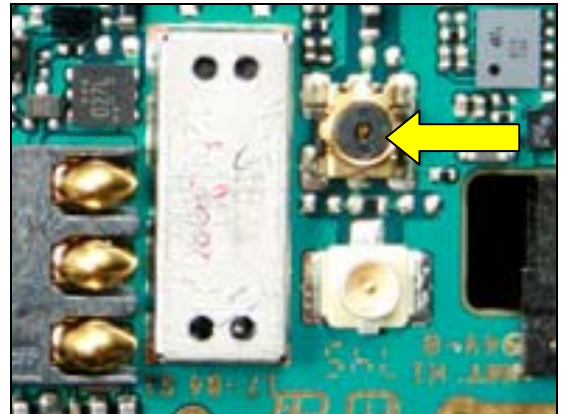
For all the following part replacements, disassemble and assemble the phone as described in *Working Instruction 1208-3142*.

3.1 X1200: Conn Antenna

REMOVE FILM AND LIQUID INTRUSION INDICATORS IN ADVANCE!

PROTECT THE SYSTEM CONNECTOR AND SIM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the Conn Antenna.



3.2 X1201: Coax Connector

REMOVE FILM AND LIQUID INTRUSION INDICATORS IN ADVANCE!

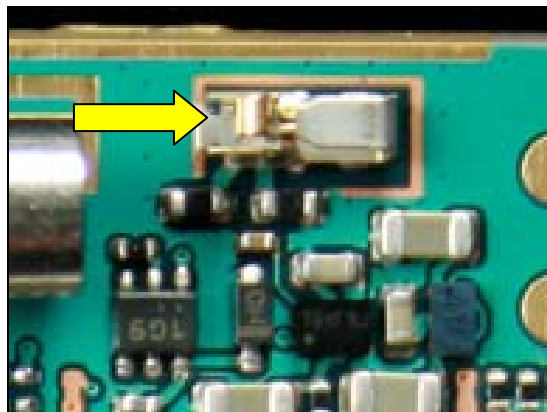
PROTECT THE SYSTEM CONNECTOR AND SIM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the Coax Connector.



3.3 X1202: ANT GND Connector Leaf Spring 1p

Use Hot Air Station to replace the ANT GND Connector Leaf Spring 1p

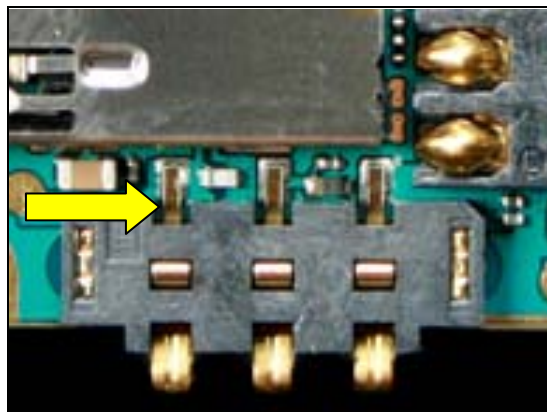


3.4 X2200: Battery Connector

REMOVE FILM AND LIQUID INTRUSION INDICATORS IN ADVANCE!

PROTECT THE M2 CARD CONNECTOR AND SIM CONNECTOR WITH HEAT RESISTANT TAPE!

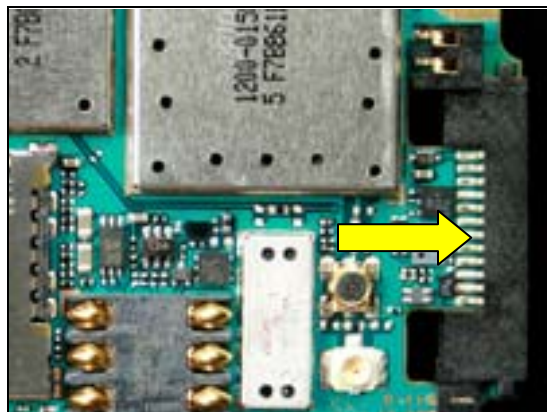
Use BGA Station to replace the Battery Connector.



3.5 X2400: System connector

REMOVE FILM AND PCBA LABELS IN ADVANCE!
PROTECT RF CONNECTOR WITH HEAT RESISTANT TAPE!

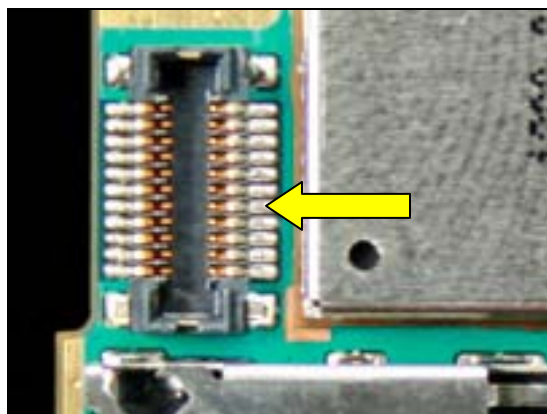
Use BGA Station to replace the System connector.



3.6 X3100: Con X Keyboard connector

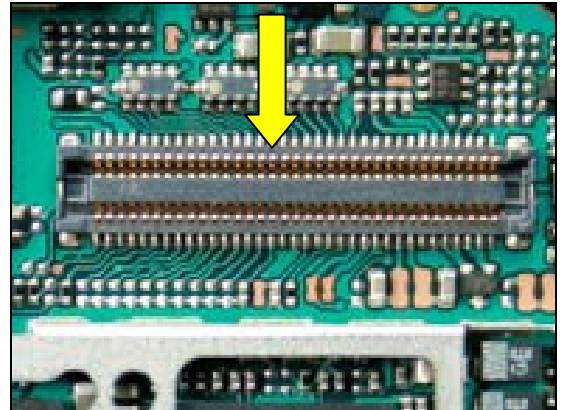
REMOVE FILM IN ADVANCE!
PROTECT M2 CARD CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the Con X Keyboard connector.



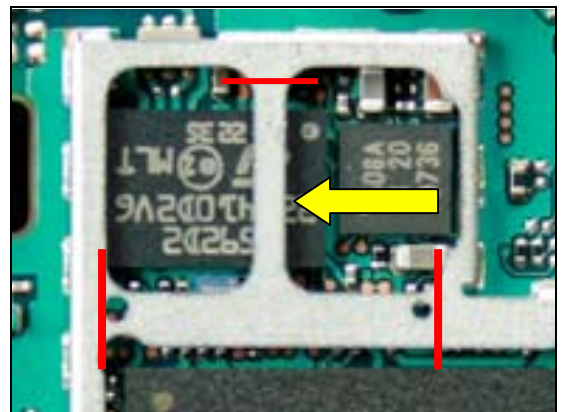
3.7 X4200: LCM Connector

Use BGA Station to replace the LCM Connector.



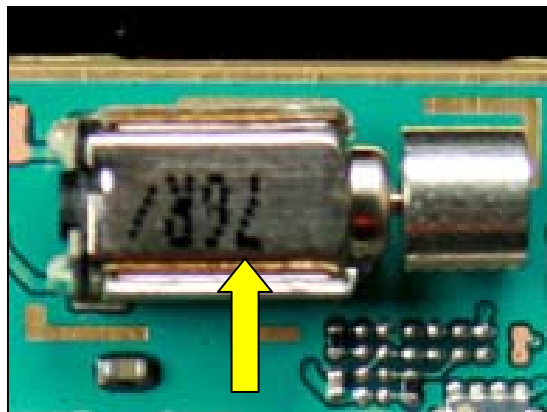
3.8 N1400: Module Bluetooth + FM STLC2592

Cut the pickup area firstly.
Use BGA Station to replace the BT/FM Module.



3.9 B4200: SMD Vibrator

Use Hot Air Station to replace the SMD Vibrator.

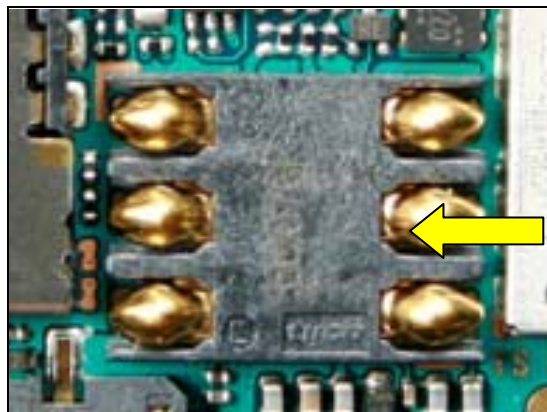


3.10 X2403: SIM Card Connector

REMOVE FILM IN ADVANCE!

PROTECT THE M2 CARD CONNECTOR AND BATTERY CONNECTOR WITH HEAT RESISTANT TAPE!

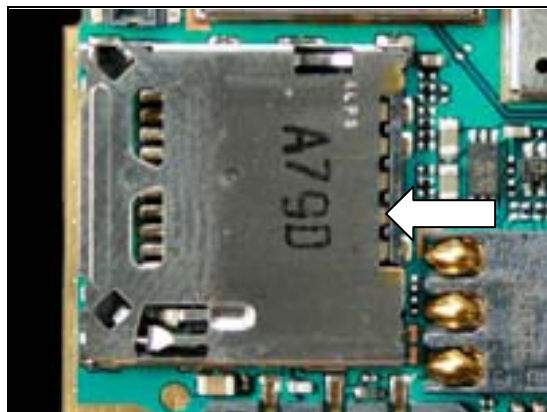
Use BGA Station to replace the SIM Card Connector.



3.11 X2405: MS-Micro Pico holder

**PROTECT THE SIM CONNECTOR, KEYBOARD CONNECTOR,
BATTERY CONNECTOR WITH HEAT RESISTANT TAPE!**

Use BGA Station to replace the MS-Micro Pico holder.

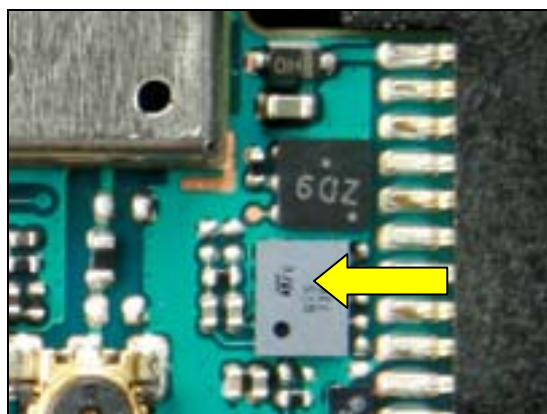


3.12 N3101: ASIC Tjatte3 CSP20

REMOVE PCBA LABELS AND FILM IN ADVANCE!

**PROTECT THE RF CONNECTOR AND SYSTEM CONNECTOR WITH
HEAT RESISTANT TAPE!**

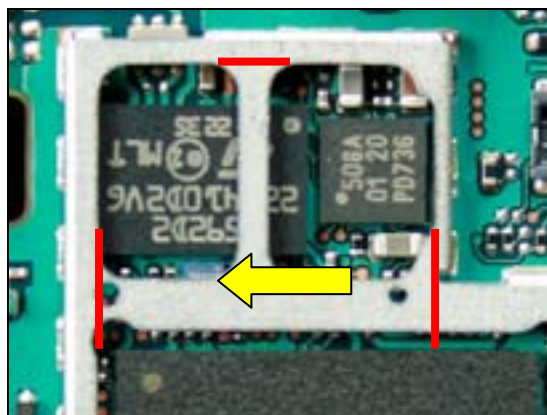
Use BGA Station to replace the ASIC Tjatte3 CSP20.



3.13 D2105: IC Single bus buffer gate

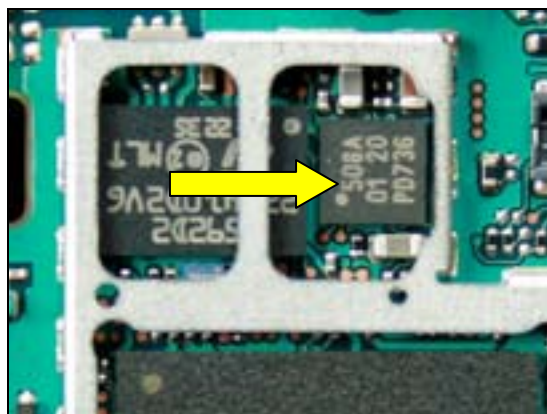
Cut the pickup area firstly.

Use BGA Station to replace the IC Single bus buffer gate.



3.14 D2400: IC IF ISP1508 ES3 (3.5*3.5*0.8)

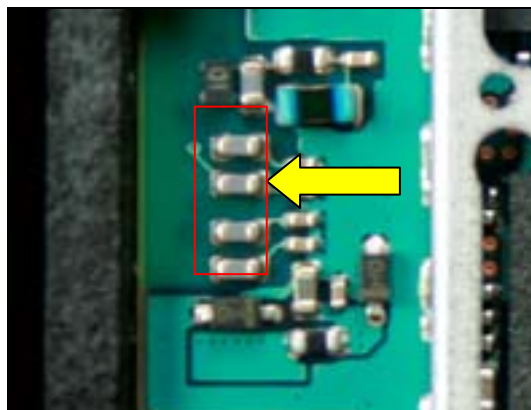
Use BGA Station to replace the IC IF ISP1508 ES3 (3.5*3.5*0.8)



3.15 L2401-L2404: Filter 0.0 Hz 0402

PROTECT THE SYSTEM CONNECTOR WITH HEAT RESISTANT TAPE!

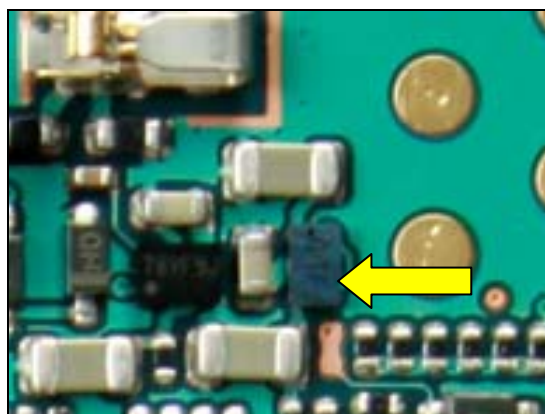
Use Hot Air Station to replace the Filter 0.0 Hz 0402.



3.16 N2203: 2ch-LDO, Vout1=2.8V, Vout2=1.8V, WL-CSP6

PROTECT THE LCM CONNECTOR WITH HEAT RESISTANT TAPE!

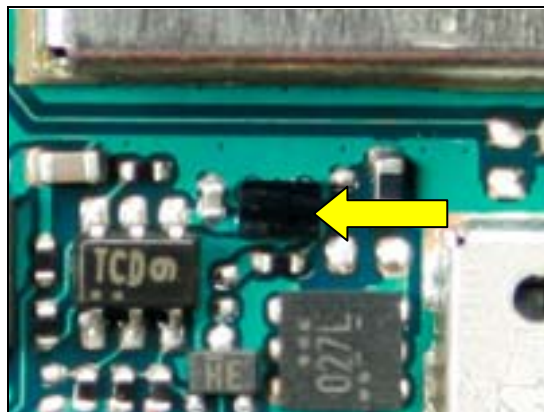
Use BGA Repair Station to replace the 2ch-LDO,
Vout1=2.8V, Vout2=1.8V, WL-CSP6.



3.17 N2400: IC

REMOVE PCBA LABELS AND FILM IN ADVANCE!
PROTECT THE SIM CONNECTOR AND M2 CONNECTOR WITH HEAT RESISTANT TAPE!

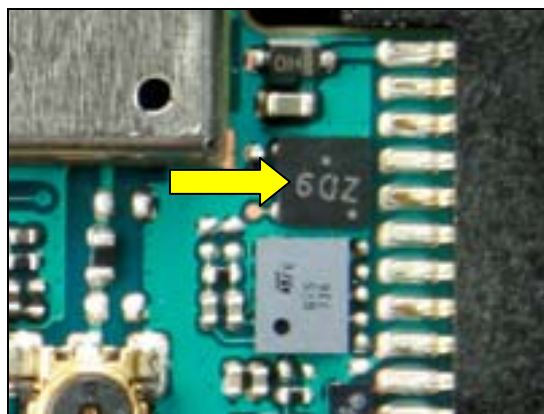
Use BGA Repair Station to replace IC.



3.18 N2402:IC ESD Prot UDFN 6 2x2 mm

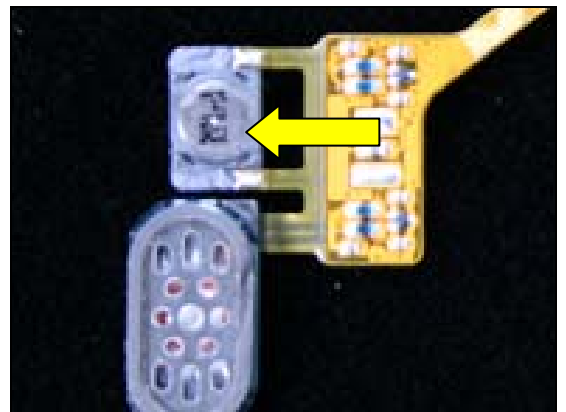
REMOVE PCBA LABELS IN ADVANCE!
PROTECT THE SYSTEM CONNECTOR AND RF CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the IC ESD Prot UDFN 6 2x2 mm.



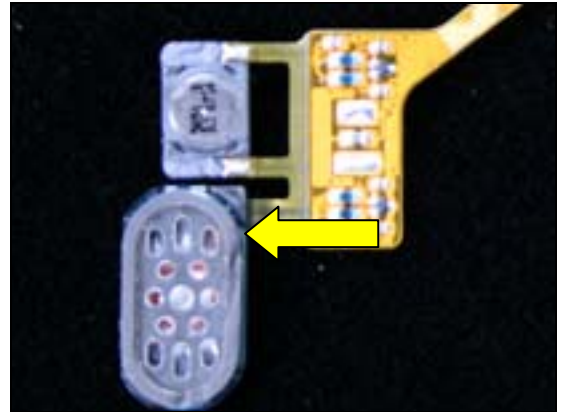
3.19 Ear speaker: Ear Speaker 1107.0 Rectangular

Use Hot Iron to replace the Ear Speaker 1107.0 Rectangular.



3.20 Loudspeaker: Loudspeaker 1318.0 Oval

Use Hot Iron to replace the Loudspeaker 1318.0 Oval



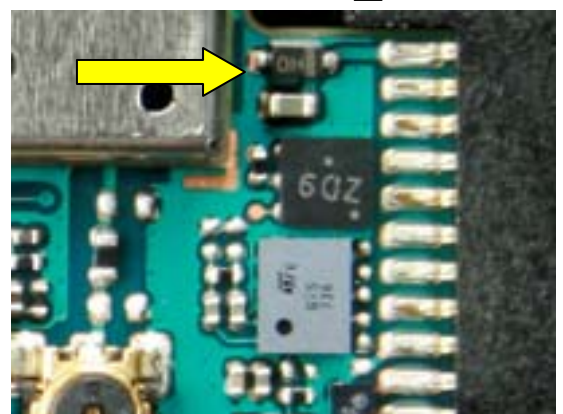
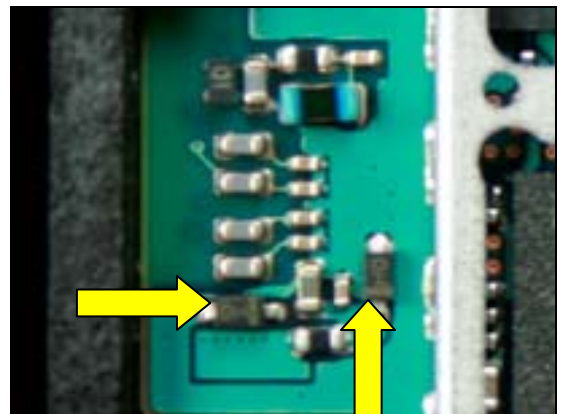
3.21 V2420-V2422, V4209: Diode Zener 15, V SOD523

PROTECT THE SYSTEM CONNECTOR WITH HEAT RESISTANT TAPE!

PAY MORE ATTENTION ABOUT THE PART DIRECTION!

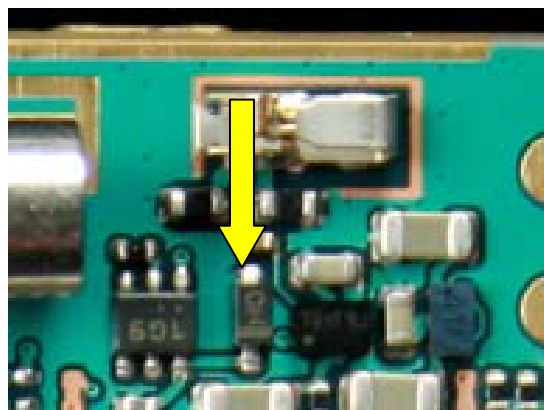
Use Hot Air Station to replace the Diode Zener 15, V SOD523

V2420—Left, V2421--Right



V2422:

V4209:

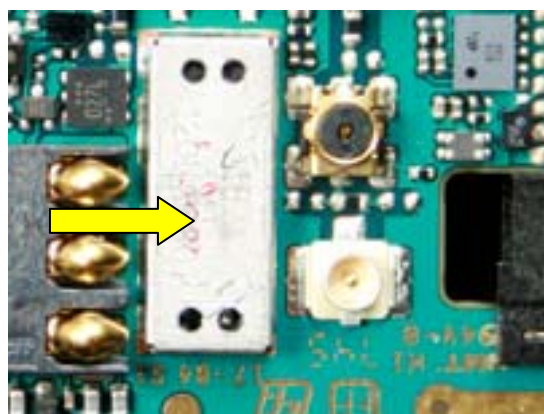


3.22 E1000: Shield Can Closed small shielding

REMOVE FILM AND PCBA LABELS IN ADVANCE!

PROTECT THE SIM CONNECTOR AND RF CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Repair Station to remove the Shield Can Closed small shielding.

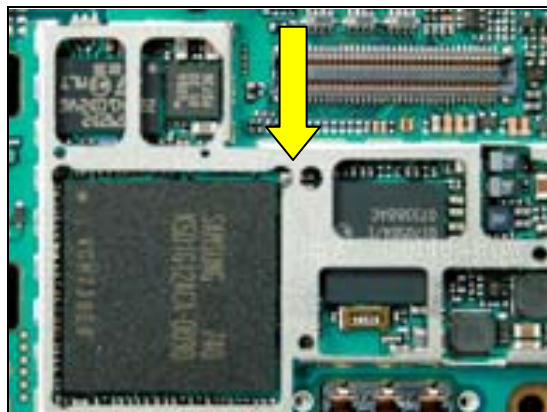


3.23 E1001: Shield Can Fence

REMOVE BB SHEILDING CAN IN ADVANCE!

**PROTECT THE BATTERY CONNECTOR AND LCM CONNECTOR,
SYSTEM CONNECTOR WITH HEAT RESISTANT TAPE!**

Use BGA Station to replace the Shield Can Fence.

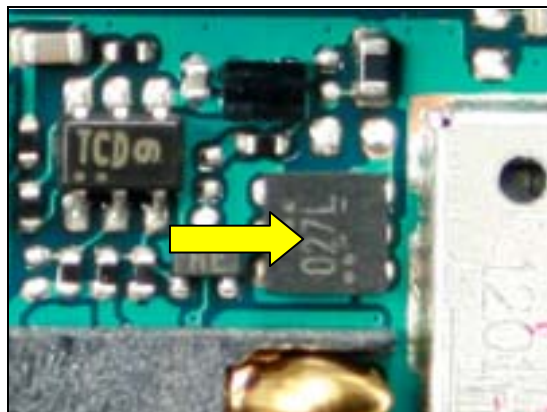


3.24 N2202: IC Vreg SON-6

REMOVE FILM IN ADVANCE!

PROTECT SIM CONNECTOR WITH HEAT RESISTANT TAPE!

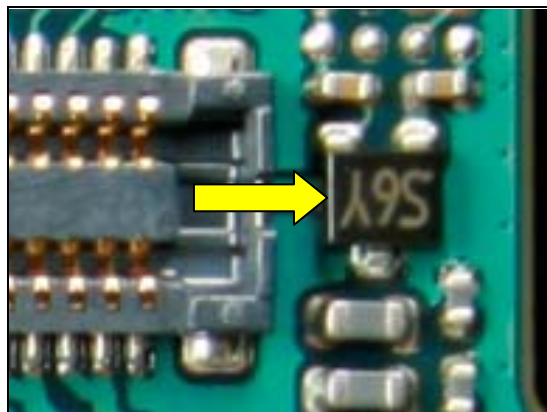
Use BGA Station to replace the IC Vreg SON-6.



3.25 B4410: IC Lin, MR sensor

PROTECT THE LCM CONNECTOR WITH HEAT RESISTANT TAPE!

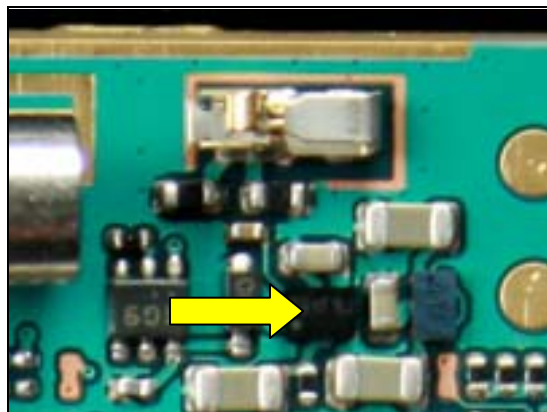
Use BGA Station to replace the IC Lin, MR sensor.



3.26 N2204: LDO1.2 V, 200mA, low noise, CS 5

PROTECT THE LCM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the LDO1.2 V, 200mA, low noise, CS 5.



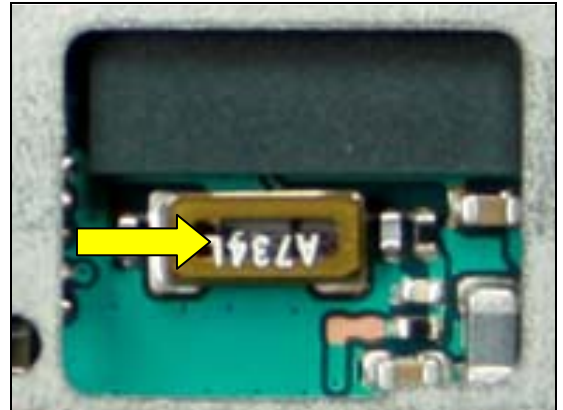


3.27 B2102: Crystal 32,768 kHz

REMOVE BB SHEILDING CAN IN ADVANCE!

PROTECT BATTERY CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the Crystal 32,768 kHz.

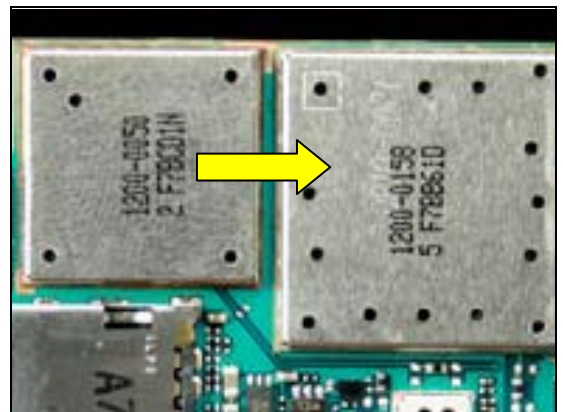


3.28 N1200: RF-Module Thor Pre-bumped

REMOVE PCBA LABELS IN ADVANCE!

PROTECT SYSTEM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the pre-bumped Mod Radio Thor GSM/EDGE.

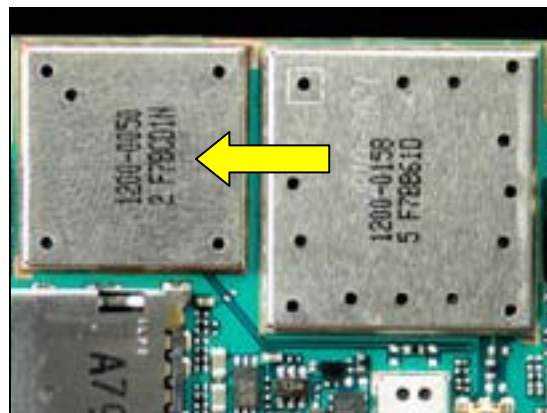


3.29 N1210: RF-Module Squid Pre -bumped

REMOVE PCBA LABELS IN ADVANCE!

PROTECT M2 CONNECTOR AND KEYBOARD CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the pre-bumped Mod Radio WCDMA Squid.

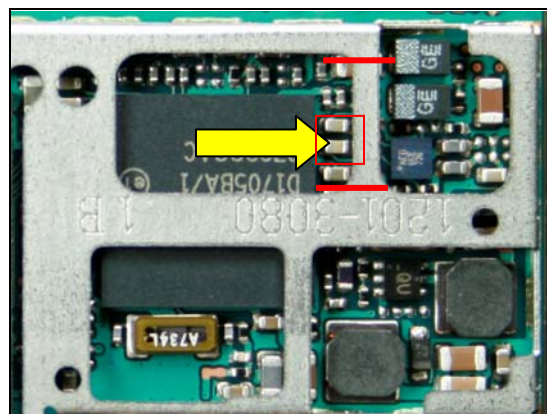


3.30 C3137, C3141: Capacitor Ceramic 220,0 nF +/-10% 6,3 V

REMOVE BB SHEILDING CAN LID IN ADVANCE!

Cut the pickup area firstly.

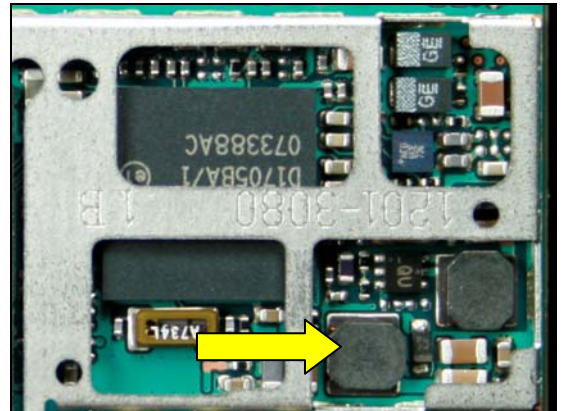
Use Hot Air Station to replace the Capacitor Ceramic 220,0 nF +/-10% 6,3 V



3.31 L2200: Ind WW 4.7 uH K3012

REMOVE BB SHEILDING CAN LID IN ADVANCE!

Use Hot Air Station to replace the Ind WW 4.7 uH K3012.

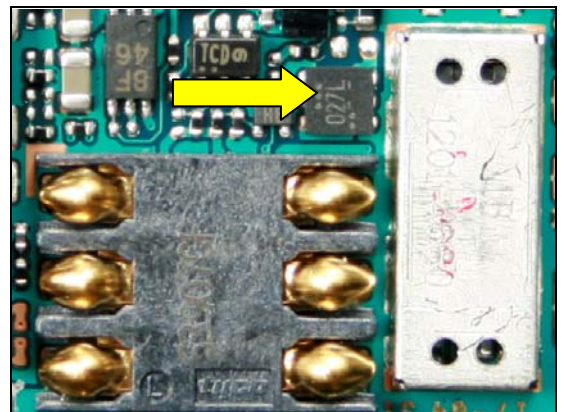


3.32 V2202: TRANS V;DUAL_PMOSFET;BYX101603_A;REQ318

REMOVE SHEILDING FILM IN ADVANCE!

PROTECT SIM CARD CONNECTOR WITH HEAT RESISTANT TAPE!

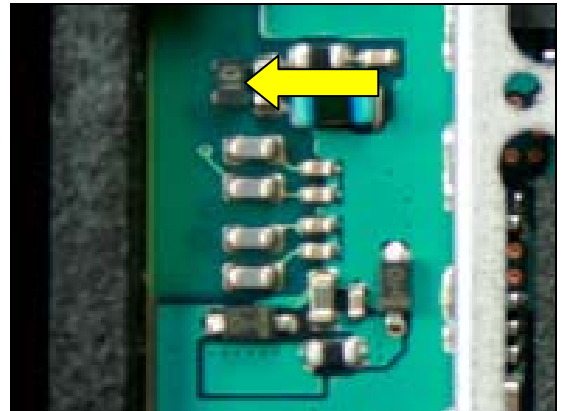
Use BGA Station to replace the TRANS V;DUAL_PMOSFET;BYX101603_A;REQ318.



3.33 V2431: Diode Protection 0.7 V SOD-882

PROTECT SYSTEM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the Diode Protection 0.7 V SOD-882.

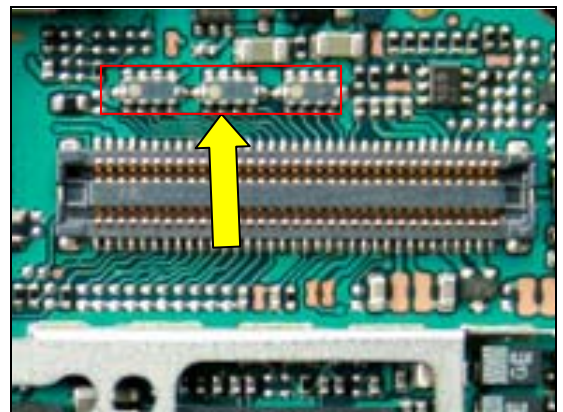


3.34 Z4200, Z4201, Z4202: LC Filter Array 0805 22pF

PROTECT LCM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the LC Filter Array 0805 22pF.

Note: From left to right, their positions are Z4200, Z4201, and Z4202.



3.35 N2205: DC/DC Converter

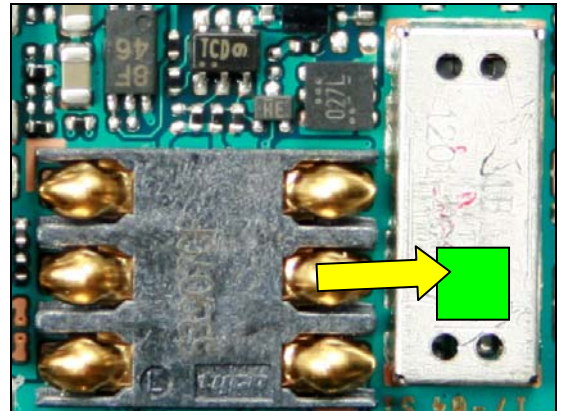
REMOVE SHEILDING FILM IN ADVANCE!

PROTECT SIM CARD CONNECTOR AND RF CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to remove the small shielding firstly.

Use BGA Station to replace the DC/DC Converter.

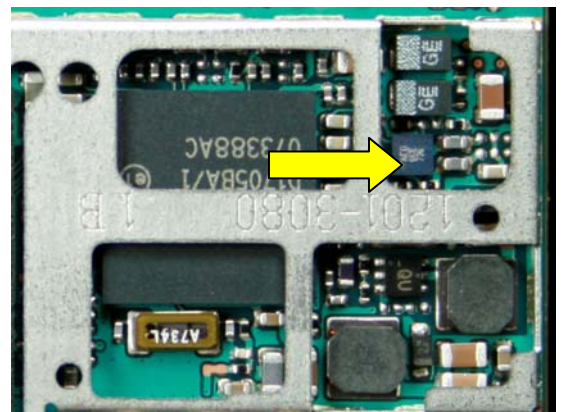
Use BGA Station to re-solder the small shielding.



3.36 N3100: IC Amp 9-Pin Flip-Chip

REMOVE BB SHEILDING CAN LID IN ADVANCE!

Use BGA Station to replace the IC Amp 9-Pin Flip-Chip .

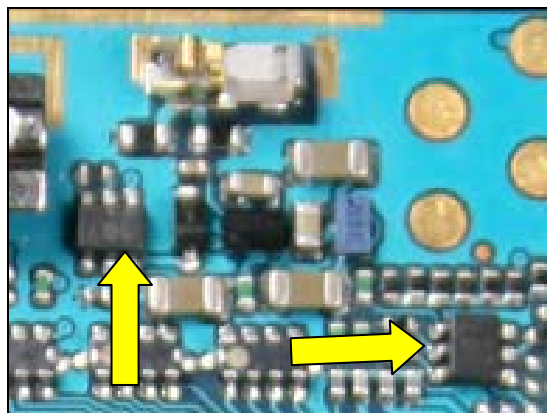


3.37 V4205,V4206: Trans Array

PROTECT LCM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the Trans Array.

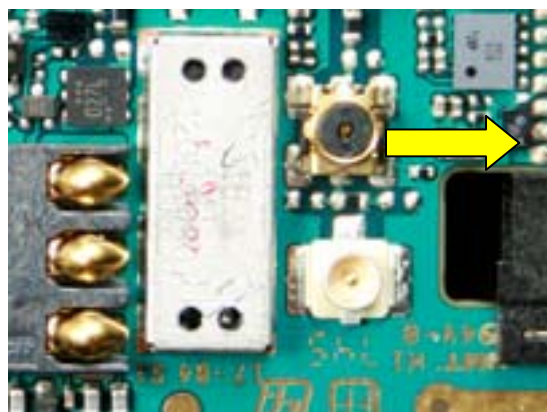
Left: V4206 Right: V4205



3.38 Z2400: Filter 100, MHz K1210

PROTECT LCM CONNECTOR AND RF CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the Filter 100, MHz K1210.



4 Revision history

Rev.	Date	Changes / Comments
1	2008-03-17	First release
2	2008-04-01	Delete N3100
3	2008-04-03	Add C3137, C3141, L2200, V2202, V2431, Z4200, Z4201, Z4202, N2205
4	2008-04-07	Add N3100, V4205, V4206, Z2400