



Working Instruction, Electrical

Applicable for Z780a,Z780i,TM506

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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/>.

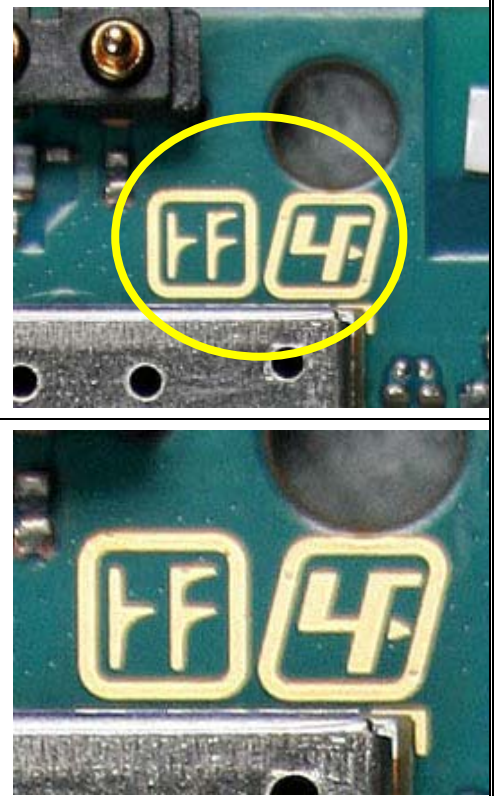


2 Lead-free Rework

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.

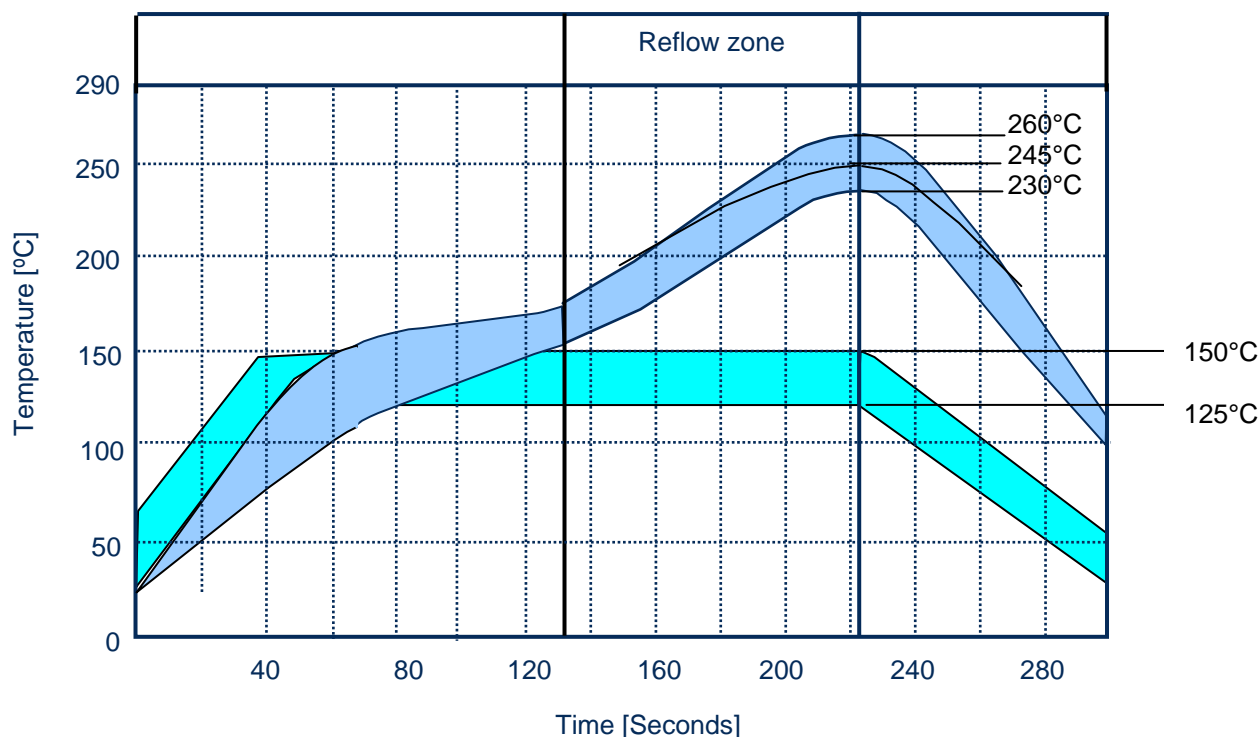
Reflow profile in this document always refers to the reflow profile which is measured on the board/component with thermocouples and do not refer to the BGA Rework Stations setting which can vary depending on the machine type and individual machine. Verification of reflow profile shall be done on each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


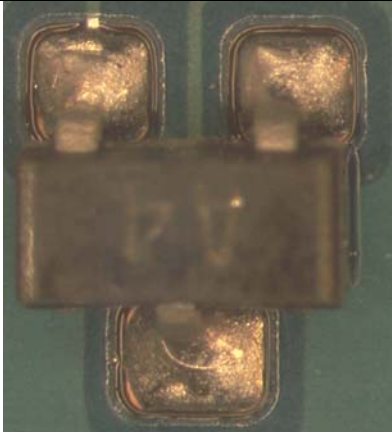
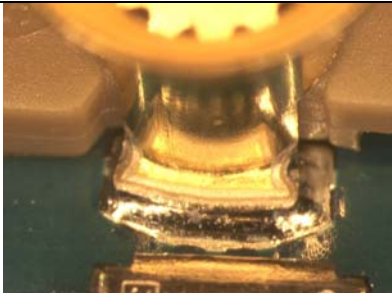
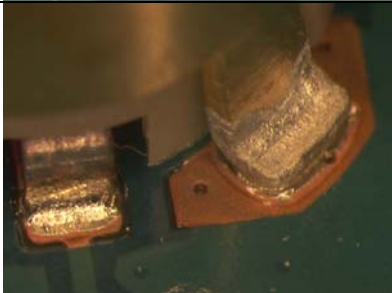
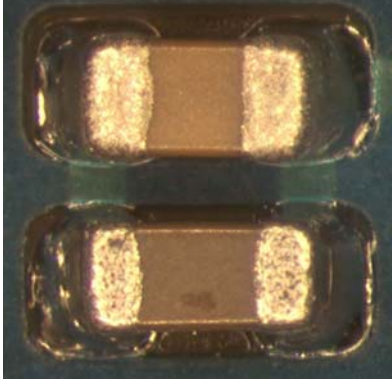
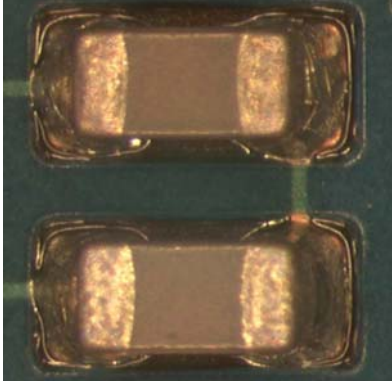
Table 2.3.2





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.

Good Leaded Solder Joints		Good Lead-free Solder Joints	
			
			
			

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

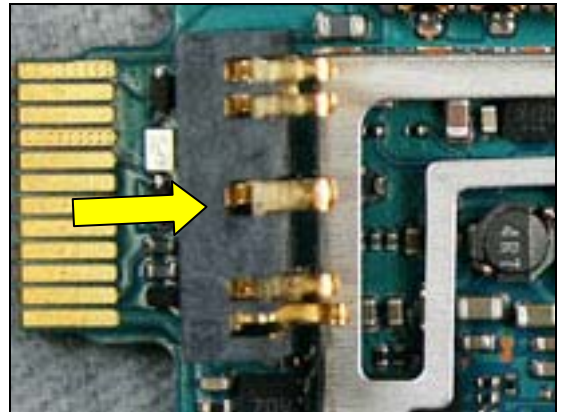
- ***Keep all contact surfaces clean of dirt and hand-grease!***
- ***Remove Film and Labels on PCBA, BB shielding can, and Liquid intrusion indicators in advance if necessary before repairing PCBA.***

MECHANICAL INSTRUCTIONS

For all the following part replacements, disassemble and assemble the phone as described in *Working Instruction 1211-8069*.

3.1 X2200: Battery Connector

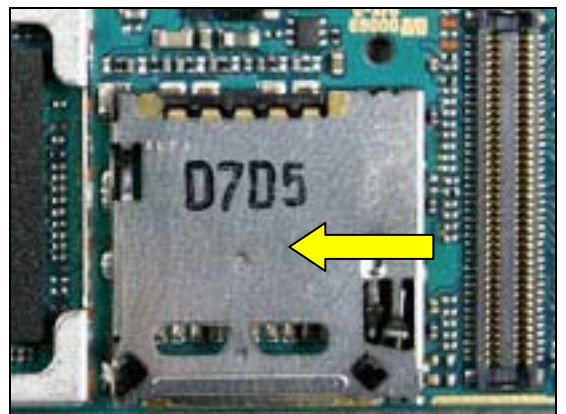
Use BGA Station to replace the Battery Connector.



3.2 X2405: MS-Micro Pico holder

PROTECT THE LCM CONNECTOR WITH HEAT RESISTANT TAPE!

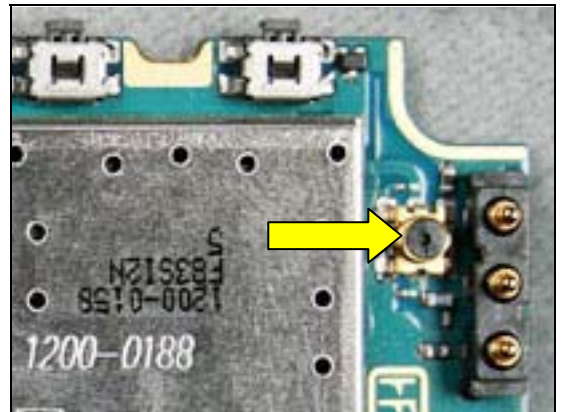
Use BGA Station to replace the MS-Micro Pico holder.



3.3 X1200: Conn Antenna

PROTECT THE ANTENNA POGO PIN WITH HEAT RESISTANT TAPE!

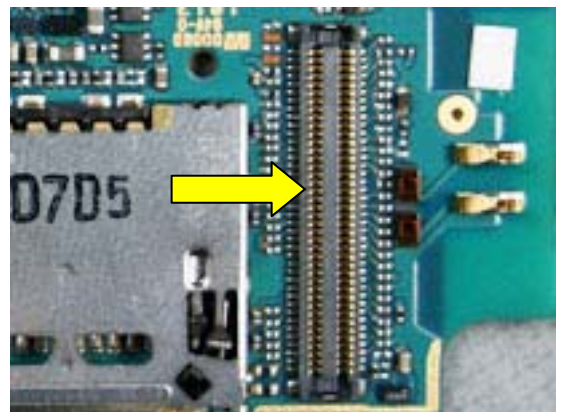
Use BGA Station to replace the Conn Antenna.



3.4 X4200: Conn BtB

PROTECT THE M2 CARD CONNECTOR WITH HEAT RESISTANT TAPE!

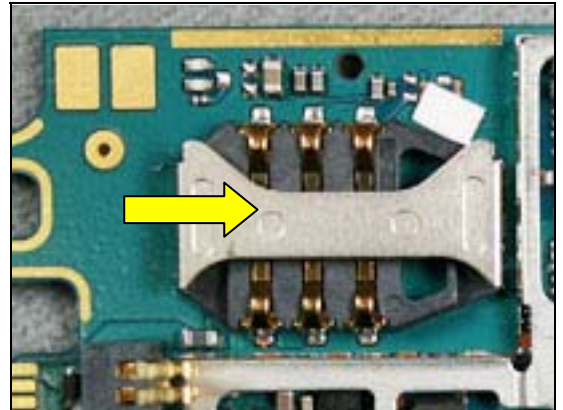
Use BGA Station to replace the Conn BtB



3.5 X2410: SIM Card Connector

REMOVE LIQUID INTRUSION INDICATOR IN ADVANCE!
PROTECT BATTERY CONNECTOR WITH HEAT RESISTANT TAPE!

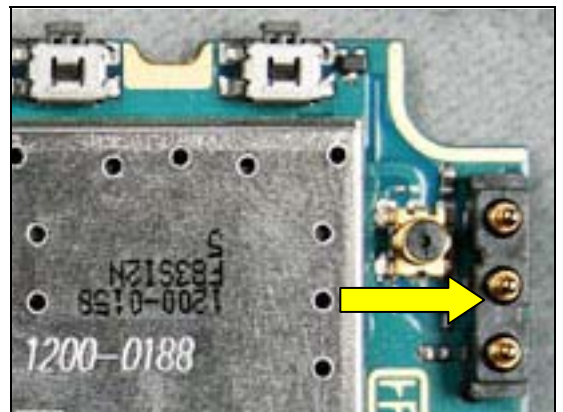
Use BGA Station to replace the SIM Card Connector.



3.6 X1201: Antenna Pogo pin 3p Connector

PROTECT RF CONNECTOR WITH HEAT RESISTANT TAPE!

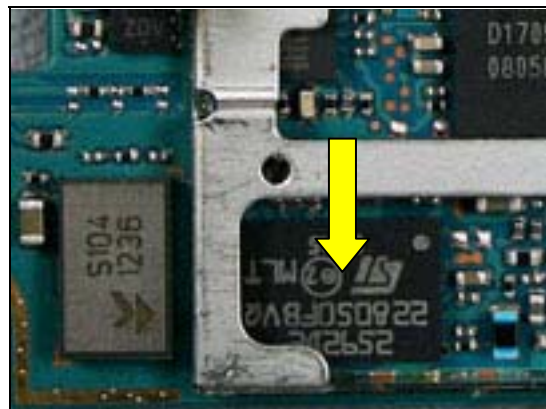
Use BGA Station to replace the Antenna Pogo pin 3p Connector.



3.7 N1400: Module Bluetooth + FM STLC2592

PROTECT MIC WITH HEAT RESISTANT TAPE!

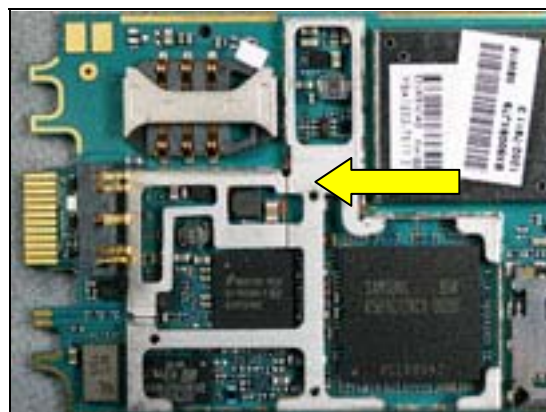
Use BGA Station to replace the Module Bluetooth + FM STLC2592.



3.8 E1000: Shield Can Fence

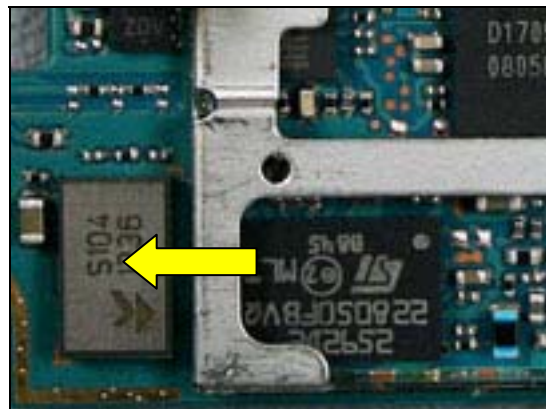
PROTECT BATTERY CONNECTOR, SIM CONNECTOR, M2 CONNECTOR, MIC WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the Shield Can Fence.



3.9 B3100: Microphone

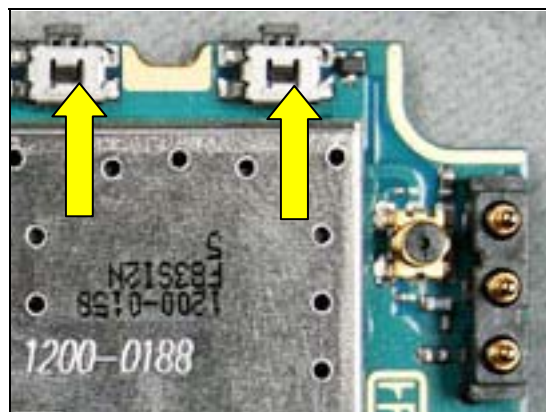
Use BGA Station to replace the Microphone.



3.10 S2431, S2432: Input Switch side push

Use BGA Station to replace the Input Switch side push.

Note: Left—S2432
Right—S2431

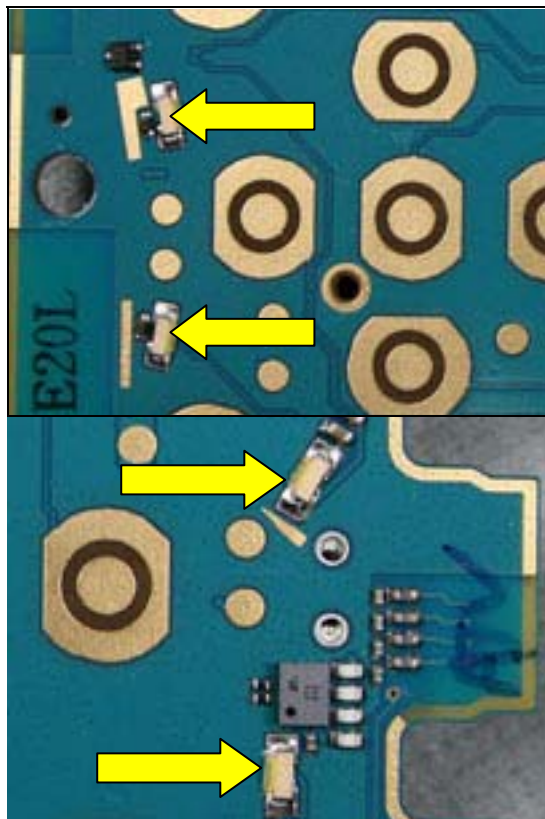


3.11 V2422-V2425: LED White 1,8x1x0,3

Use Hot air Station to replace the LED White 1,8x1x0,3.

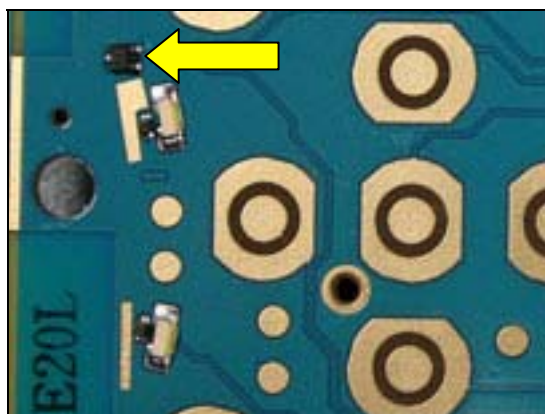
Note; Up-----V2423
Down—V2422

Note; Up-----V2425
Down—V2424



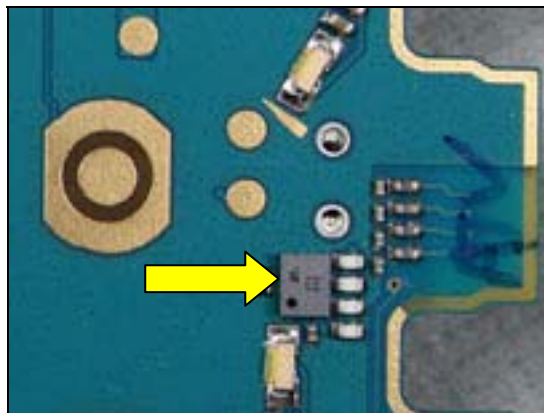
3.12 B2400: MR Sensor

Use Hot air Station to replace the MR Sensor.



3.13 N3101: ASIC TjAT&Te3 CSP20

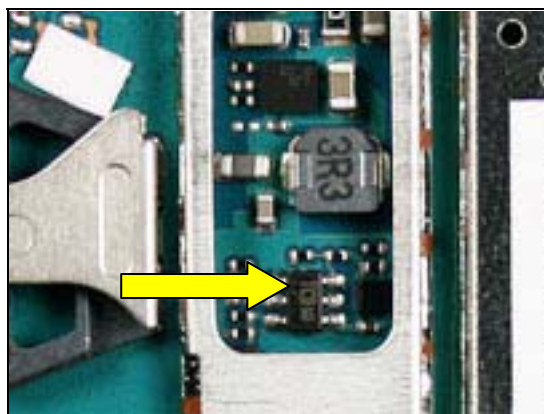
Use BGA Station to replace the ASIC TjAT&Te3 CSP20.



3.14 V2405: Trans

PROTECT SIM CONNECTOR WITH HEAT RESISTANT TAPE!

Use Hot air Station to replace the Trans.

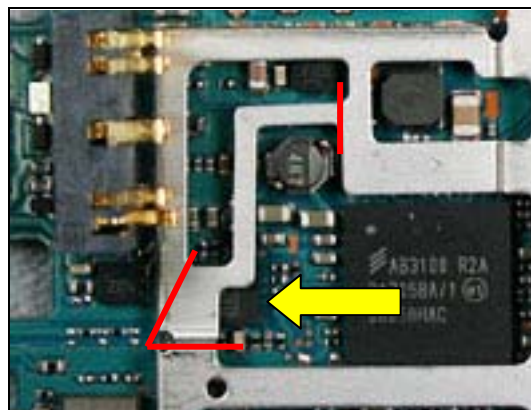


3.15 D2404: MICROCIRCUIT/USB transceiver and UART MU

PROTECT THE BATTERY CONNECTOR WITH HEAT RESISTANT TAPE!

Cut the pickup area firstly.

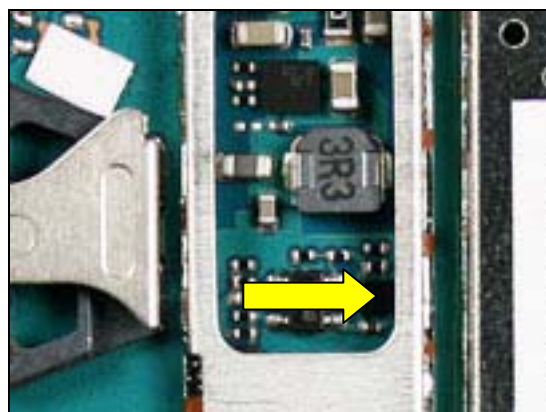
Use BGA Station to replace the MICROCIRCUIT/USB transceiver and UART MU.



3.16 N2400: IC

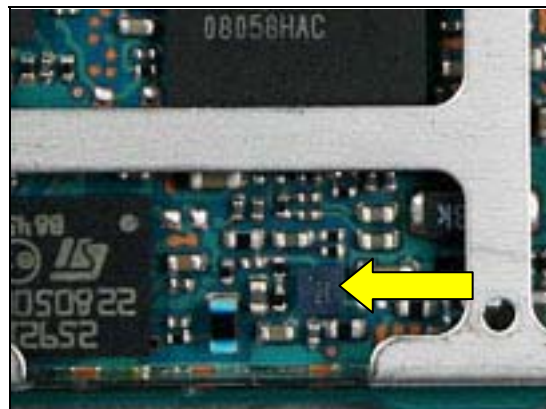
PROTECT THE SIM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Repair Station to replace the IC.



3.17 N3100: IC Amp 9-Pin Flip-Chip

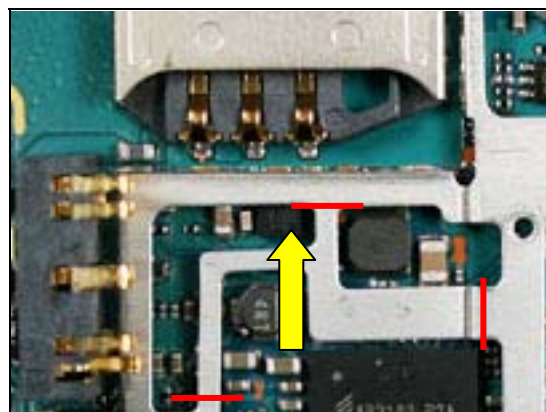
Use BGA Repair Station to replace the IC Amp 9-Pin Flip-Chip.



3.18 V2202: TRANS V;DUAL_PMOSFET;BYX101603_A;REQ318

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

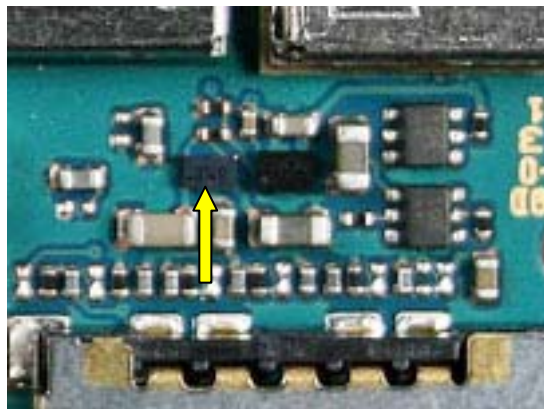
Cut the pickup area firstly.
Use BGA Station to replace the TRANS V;DUAL_PMOSFET;BYX101603_A;REQ318.



3.19 N2302: 2ch-LDO, Vout1=2.8V, Vout2=1.8V, WL-CSP6

PROTECT THE M2 CONNECTOR WITH HEAT RESISTANT TAPE!

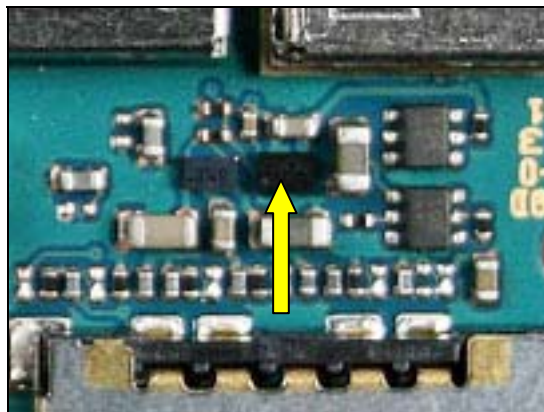
Use BGA Station to replace the 2ch-LDO, Vout1=2.8V, Vout2=1.8V, WL-CSP6.



3.20 N2301: LDO1.2 V, 200mA, low noise, CS 5

PROTECT THE M2 CONNECTOR WITH HEAT RESISTANT TAPE!

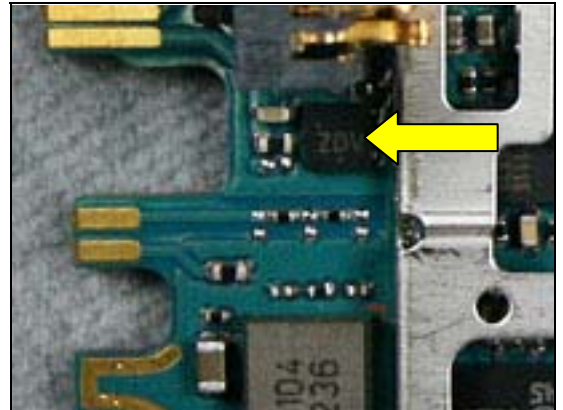
Use BGA Station to replace the LDO1.2 V, 200mA, low noise, CS 5.



3.21 N2402: IC ESD Prot UDFN 6 2x2 mm

PROTECT THE BATTERY CONNECTOR, MIC WITH HEAT RESISTANT TAPE!

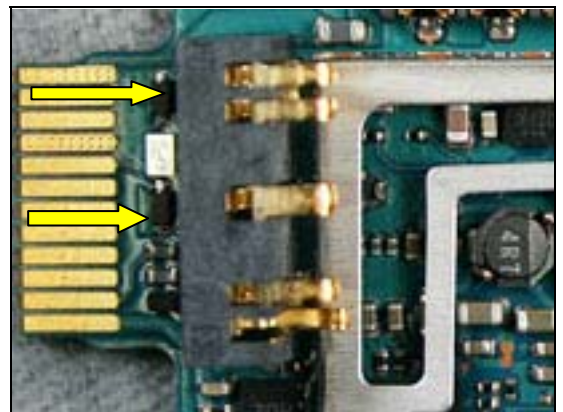
Use BGA Station to replace the IC ESD Prot UDFN 6 2x2 mm.



3.22 V2420,V2421: Diode Zener 15, V SOD523

PROTECT THE BATTERY CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the Diode Zener 15, V SOD523
Note: Up- V2421, Down- V2420

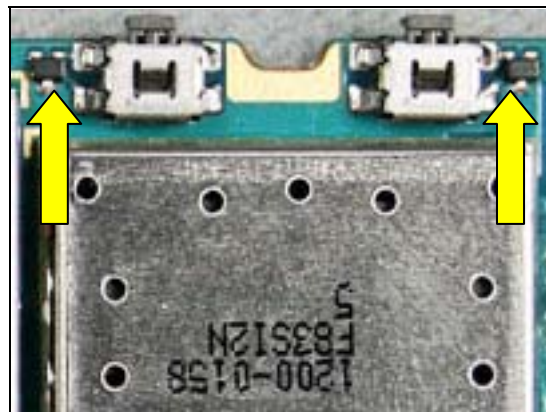


3.23 V2427,V2428: Dual ESD protection diode

PROTECT THE INPUT SWITCH SIDE PUSH WITH HEAT RESISTANT TAPE!

Use Hot air Station to replace the Dual ESD protection diode

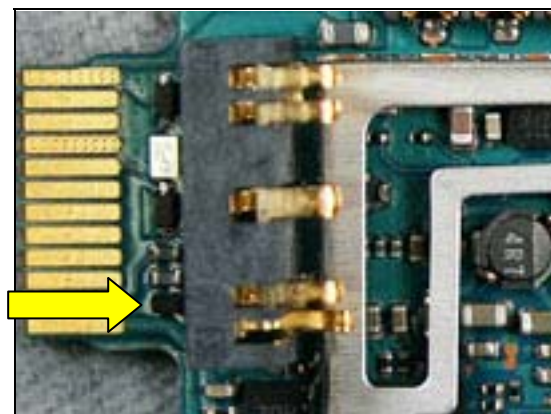
Note: Left-V2428, Right-V2427.



3.24 V2429: Diode Protection 0.7 V SOD-882

PROTECT BATTERY CONNECTOR WITH HEAT RESISTANT TAPE!

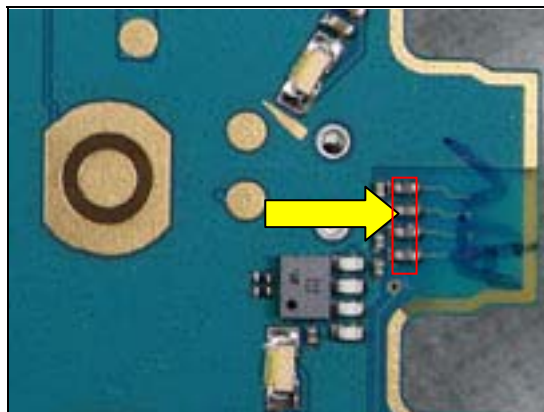
Use BGA Station to replace the Diode Protection 0.7 V SOD-882.



3.25 L2401-L2404: Filter 0.0 Hz 0402

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

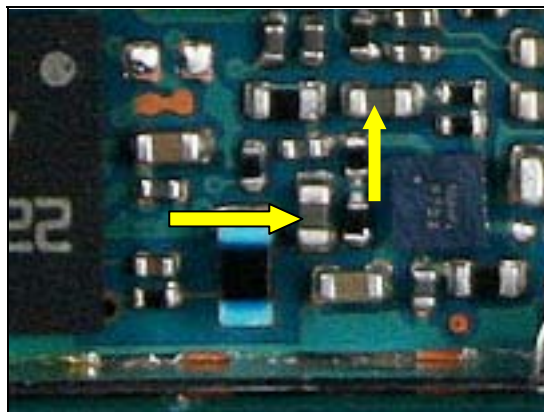
Note: From up to down, they are L2404-L2401.



3.26 C3123, C3137: Capacitor Ceramic 220,0 nF +/-10% 6,3 V

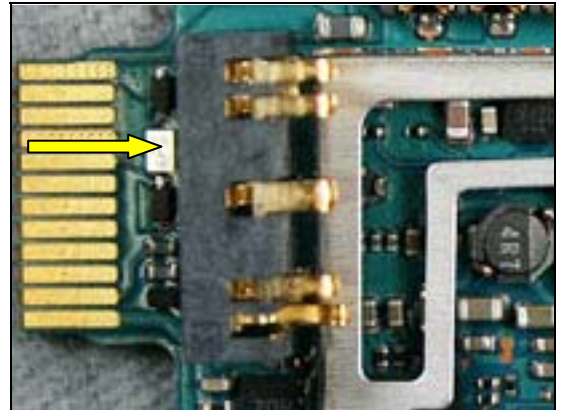
Use BGA Station to replace the Capacitor Ceramic 220,0 nF +/-10% 6,3 V.

Note: Left-C3137, Right-C3123



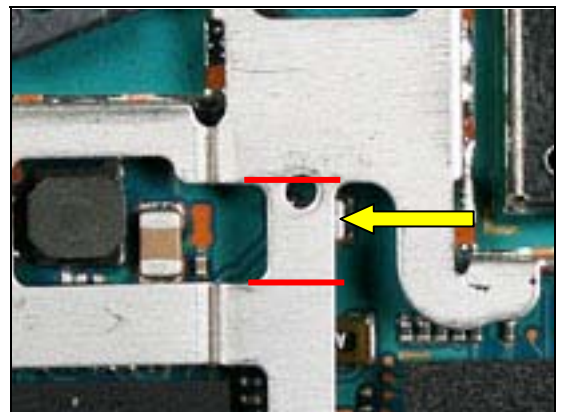
3.27 D2405: IC

PROTECT BATTERY CONNECTOR WITH HEAT RESISTANT TAPE!
Use BGA Station to replace the IC.



3.28 C2203: Capacitor 22uF

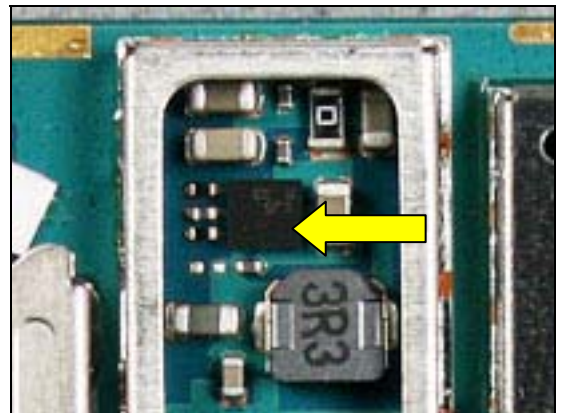
Cut the pickup area firstly.
Use Hot air Station to replace the Capacitor 22uF.



3.29 N2205: DC/DC Converter

PROTECTSIM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the DC/DC Converter.

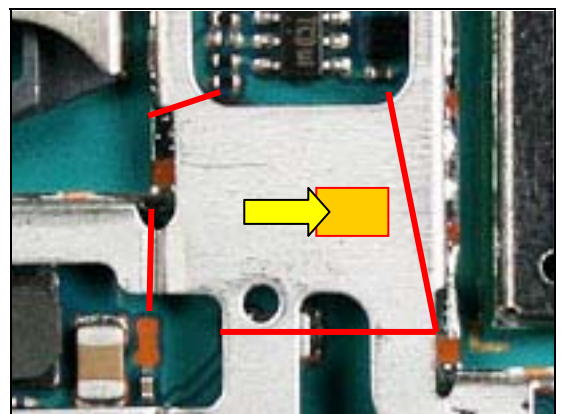


3.30 N2202: IC Vreg SON-6

REMOVE BB SHEILDING CAN LID IN ADVANCE!

Cut the pickup area firstly.

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

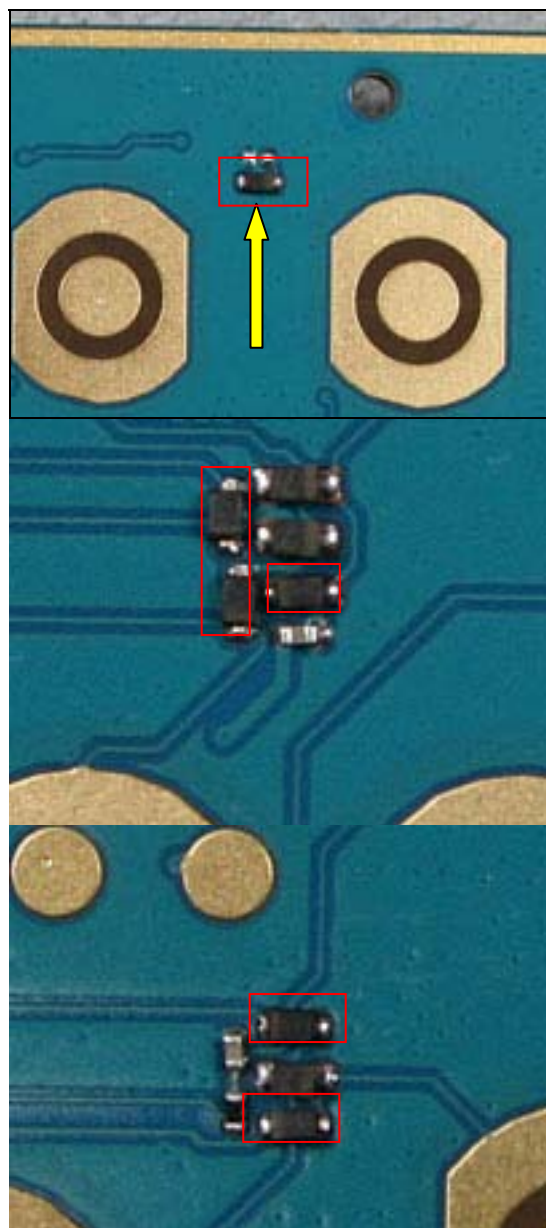


3.31 V2402,V2411,V2407-V2410: Diode Schottky 0,28 V

Use Hot Air Station to replace the Diode Schottky 0,28 V.
V2402

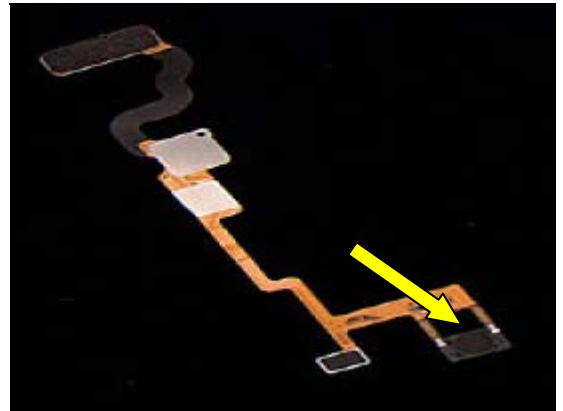
.Up-V2411, Down-V2410, Right-V2407

.Up-V2408, Down-V2409



3.32 Receiver(on FPC): Ear Speaker 1107.0 Rectangular

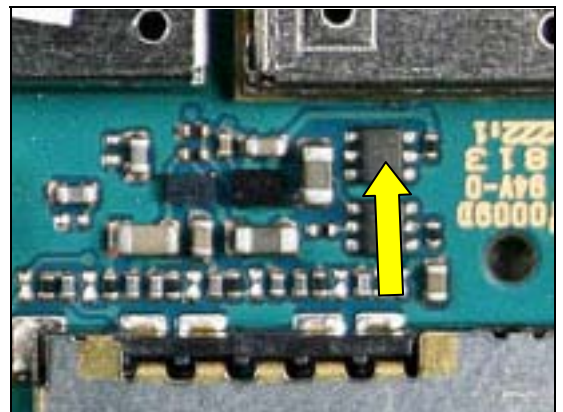
Use Hot iron to replace the Ear Speaker 1107.0 Rectangular.



3.33 V4207: Trans Array

PROTECT M2 CONNECTOR WITH HEAT RESISTANT TAPE!

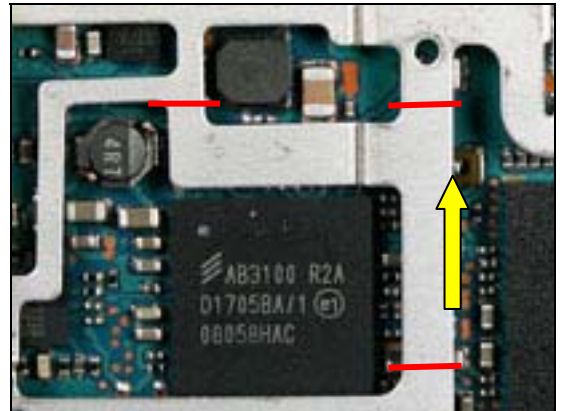
Use Hot air Station to replace the Trans Array .



3.34 B2100: Crystal 32,768 kHz

Cut the pickup area firstly.

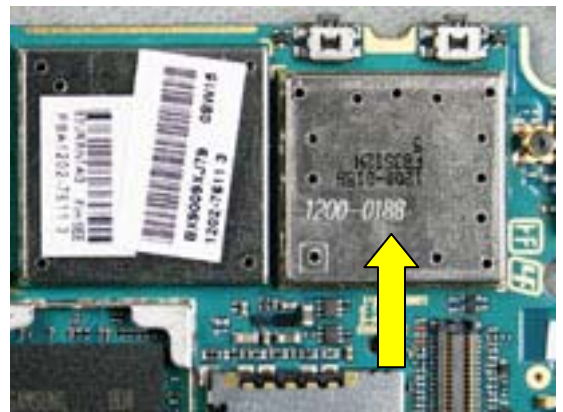
Use Hot air Station to replace the Crystal 32,768 kHz.



3.35 N1200: RF-Module Thor Pre-bumped

PROTECT RF CONNECTOR, VOLUMN KEY, AND LCM CONNECTOR WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the RF-Module Thor Pre-bumped.

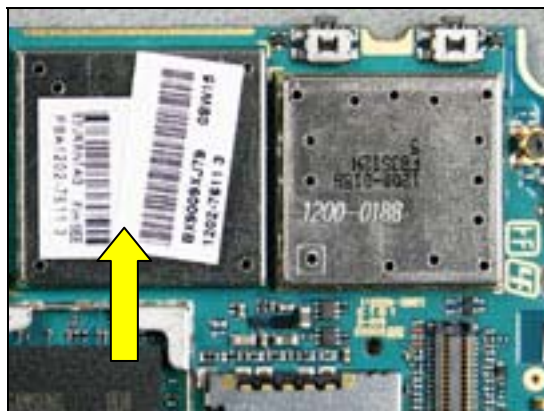


3.36 N1210: RF-Module Mammoth Pre-bumped

REMOVE PCBA LABEL IN ADVANCE!

PROTECT VOLUMD KEY WITH HEAT RESISTANT TAPE!

Use BGA Station to replace the RF-Module Mammoth Pre-bumped.



4 Revision history

Rev.	Date	Changes / Comments
1	2008-06-3	First release
2	2008-06-13	Adding TM506 project