



Working Instruction, Electrical

Applicable for K810 and K818

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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

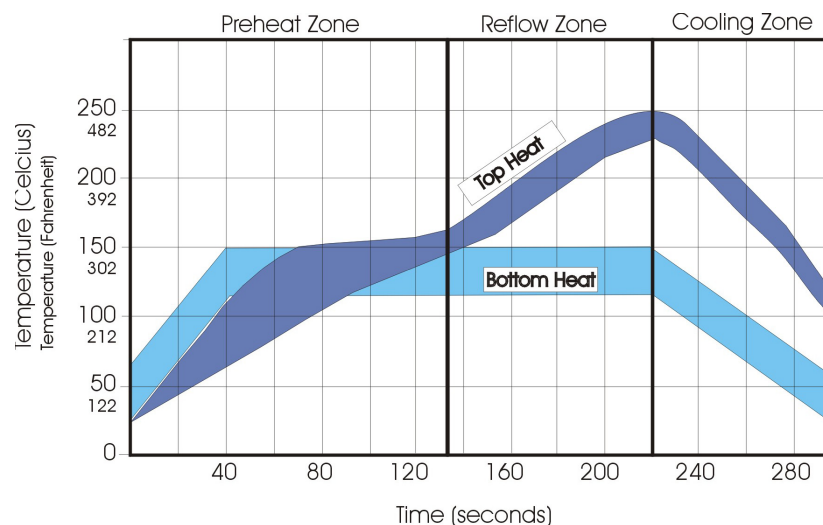
The general reflow profile for lead-free components is different than that of leaded components because lead-free solder has a higher melting point. The maximum temperature for any component must not exceed 250°C. The table below is a comparison borrowed from IPC/JEDEC J-STD-020B July 2002 (www.jedec.org).

Table 5-2 Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly		Pb-Free Assembly	
	Large Body	Small Body	Large Body	Small Body
Average ramp-up rate (T _L to T _p)	3°C/second max.		3°C/second max.	
Preheat				
– Temperature Min (T _{smin})	100°C		150°C	
– Temperature Max (T _{smax})	150°C		200°C	
– Time (min to max) (ts)	60-120 seconds		60-180 seconds	
T _{smax} to T _L				
– Ramp-up Rate			3°C/second max	
Time maintained above:				
– Temperature (T _L)	183°C		217°C	
– Time (t _L)	60-150 seconds		60-150 seconds	
Peak Temperature (T _p)	225 +0/-5°C	240 +0/-5°C	245 +0/-5°C	250 +0/-5°C
Time within 5°C of actual Peak Temperature (tp)	10-30 seconds	10-30 seconds	10-30 seconds	20-40 seconds
Ramp-down Rate	6°C/second max.		6°C/second max.	
Time 25°C to Peak Temperature	6 minutes max.		8 minutes max.	

Note: All temperatures refer to topside of the package, measured on the package body surface.

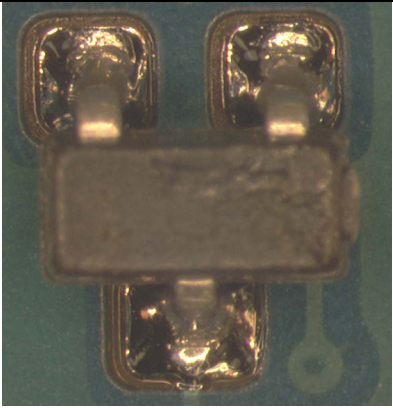
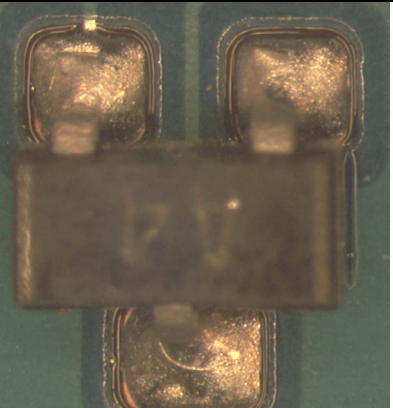
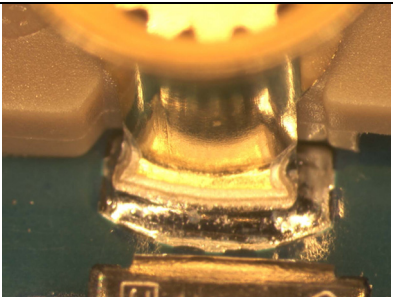
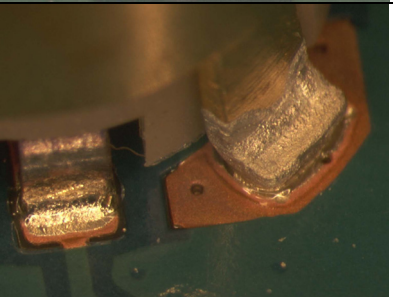
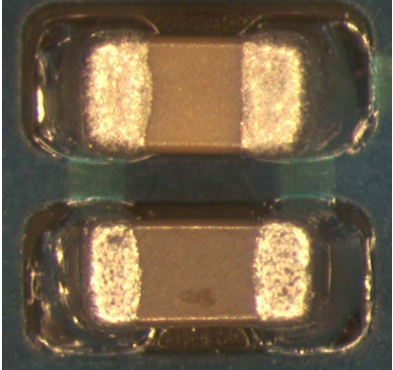
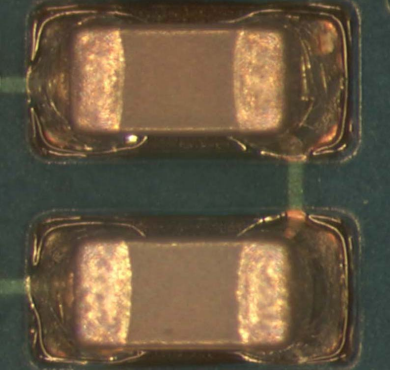
The following graph shows an example of a lead-free profile including bottom heat and top heat. The profile for specific parts and specific equipment will vary, but the maximum temperature must not be exceeded.





2.4 Inspection

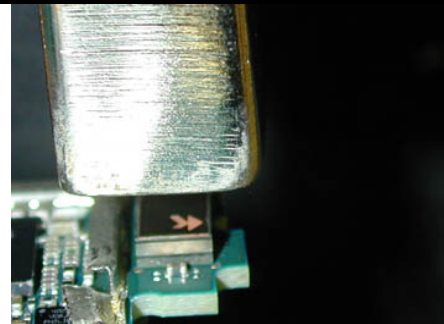
Lead-free solder joints are more difficult to inspect because they do not have shiny surfaces like leaded solder joints. Also, lead-free solder does not flow as well as leaded solder, so some of the solder pad area may remain exposed.

Good Leaded Solder Joints		Good Lead-free Solder Joints	
			
			
			



3 B4100

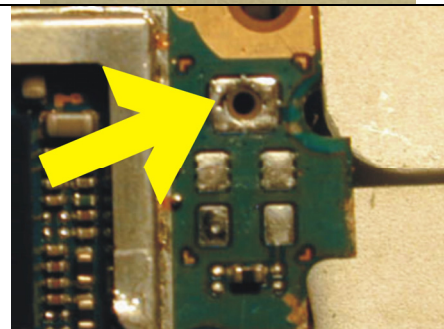
Use a hot air device to remove the old part.



Apply a small piece of heat resistant tape to the top of the new part.

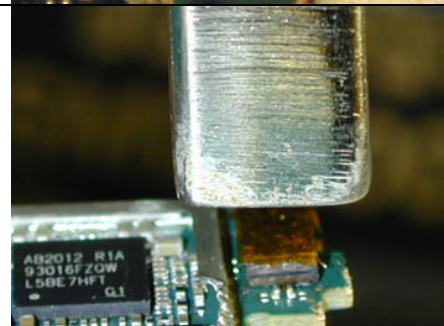


Make sure the sound hole is clean.



Use a hot air device to place the new part.

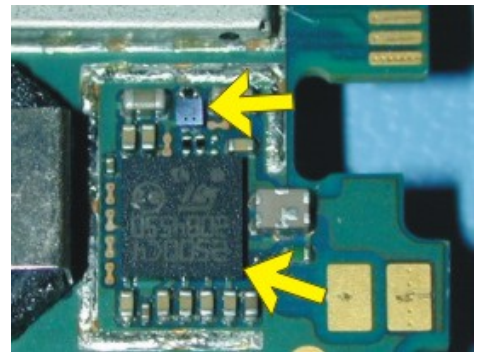
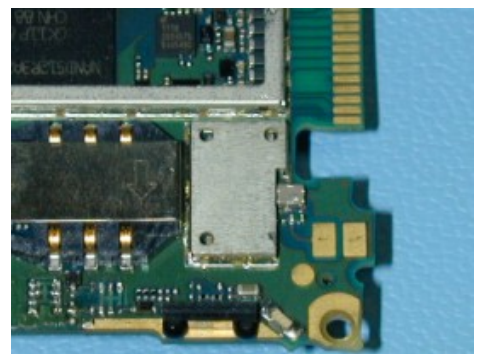
NOTE: Use as little flux as possible to place the new part. Make sure flux does not get into the sound hole.





4 D1400, N2204

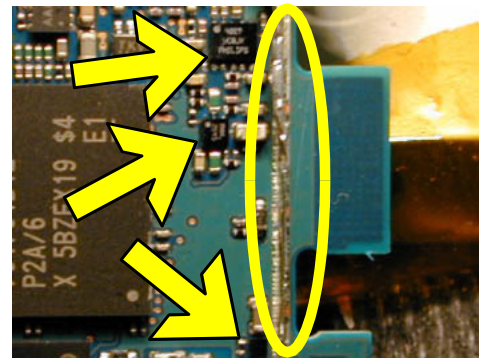
Use large hot air device to remove the shield and gain access to the parts.





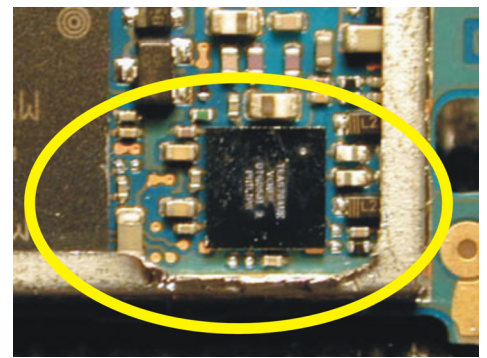
5 N2203, N4100, N4202

Cut the edge of the fence to gain access to the part.



6 N2600

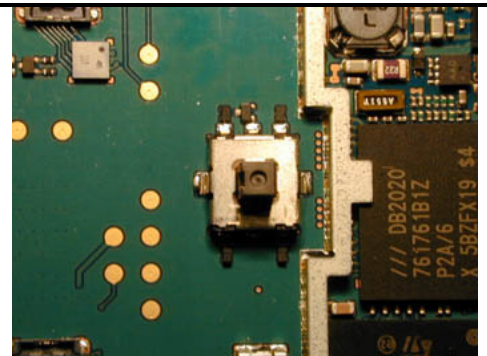
Cut the edge of the fence to gain access to the part.



7 S2504

NOTE: When mount a new joystick you are not allowed to use any additional flux.

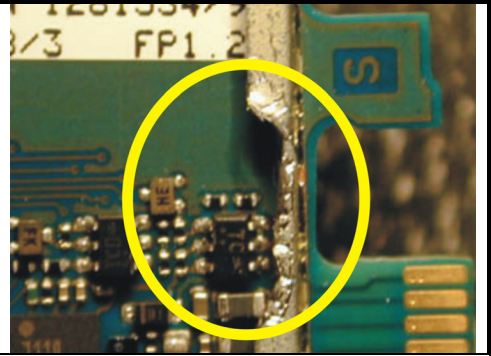
For more information look at Joystick Switch Movie General in CSPN under Standard K810.





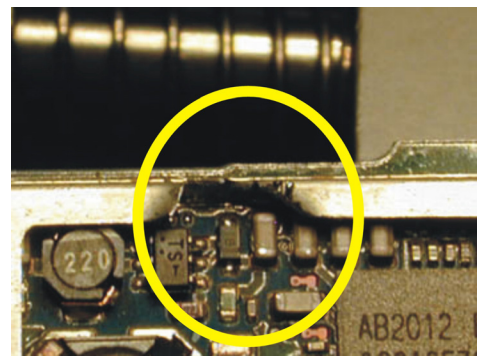
8 V2220

Cut the edge of the fence to gain access to the part.



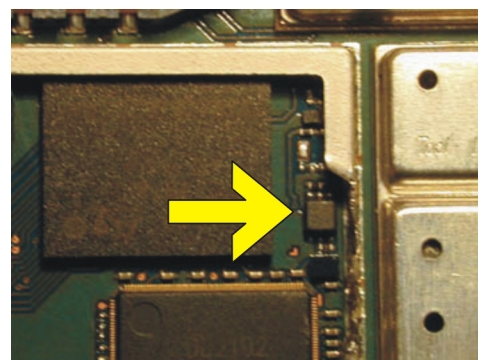
9 V3102

Cut the edge of the fence to gain access to the part.



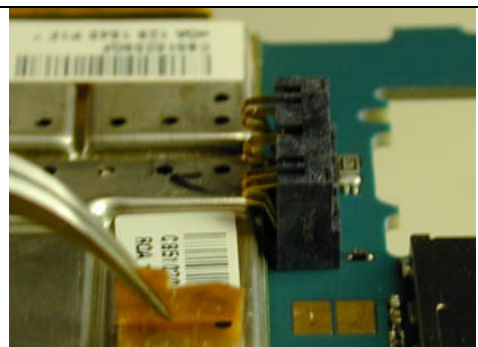
10 V3103

Cut the edge of the fence to gain access to the part.

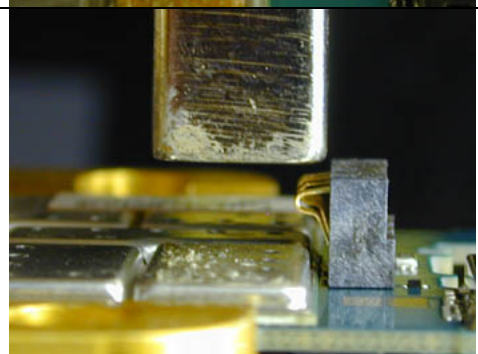


11 X2200

Remove the label from the part in from of X2200.



Position the hot air nozzle in front of the part instead of over it.





12 Revision History

Rev.	Date	Changes / Comments
A	2007-04-20	Initial Release
B	2007-05-10	New information in Chapter 7 (S2504)
C	2007-06-19	Added support for K818