



MACRONIX INTERNATIONAL CO., LTD.

Product/Process Change Notice

PCN # P-1305-0005

Date: 2013/06/26

Dear Customer:

Please be informed that Macronix is going to implement a process change; adding a new assembly site in order to fulfill the increasing demand for the 8SOP(209mil) products. This new assembly site is ASEKS located in China.

The detailed information about this change is described in the following pages. This process change has passed Macronix's qualification based on JEDEC standard, and the qualification report is attached below.

If you have any questions, concerns, or requests about this change, please contact your local Macronix Sales Representatives within 30 days. According to JEDEC standard "JESD46-D", no response to the PCN within 30 days constitutes acceptance of this change, and the change will be implemented accordingly.

Thank you.

Macronix International Co., Ltd.

旺宏電子股份有限公司

PCN No.: P-1305-0005

Issue Date : 2013/06/26

Subject: Add new assembly site -- ASEKS in China, for 8SOP(209mil) products

Change Category : Assembly Subcon./Material

Affected Products:

MX25L6406EM2I-12G / MX25L6406EM2I-12GF / MX25L6408EM2I-12G / MX25L6435EM2I-10G
MX25L6436EM2I-10G / MX25L6445EM2I-10G / MX25L6465EM2I-10G / MX25L6473EM2I-10G /
MX25L6475EM2I-10G / MX25U6435FM2I-10G / KH25L6406EM2I-12G / KH25L6473EM2I-10G

Reason of Change:

To increase 8SOP(209mil) product assembly capacity in order to meet customer's demand.

Before Change :

Original approved assembly AVLs (for 8SOP(209mil)):
Lingsen

After Change :

New assembly AVLs (for 8SOP(209mil))
Lingsen
ASEKS

Product identification:

New vender code on the top marking for ASEKS is "K"
(Other vender codes –LINGSEN "L")

Assessment:

1. No impact on Fit, Form, Function, Quality & Reliability.
2. ASEKS has been one of Macronix' long term AVLs with good support and quality, the newly added 8SOP(209mil) package has passed Macronix's qualification based on JEDEC MSL level 3 standard, and meets the RoHS standards.
(refer to Qualification report "ASEKS 8L SOP (209 mil) Package Qualification Report")
3. ASEKS quality system certification: TS16949, ISO14001, ISO9001

Implementation Schedule: Sample available date: 2013/06/30

1st shipping date: 2013/09/26



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ASEKS 8L SOP (209 mil) Package Qualification Report

1. PURPOSE:

This qualification is to evaluate the ASEKS 8L SOP(209mil) package meets JEDEC MSL level-3 standards.

2. PACKAGE PROFILE:

ASSEMBLY HOUSE	ASEKS
PACKAGE	8L SOP (209 mil)
DIE SIZE	3713 x 2919 μm^2
DIE ATTACH	Hitachi EN-4900G
LEAD FRAME	Copper
WIRE BOND MATERIAL	Au
MOLD COMPOUND	Hitachi CEL-9240HF10AK
LEAD FINISH	Matte Sn

3. QUALIFICATION ITEMS, TEST CONDITIONS, AND TEST FLOW:

3-1. QUALIFICATION ITEMS:

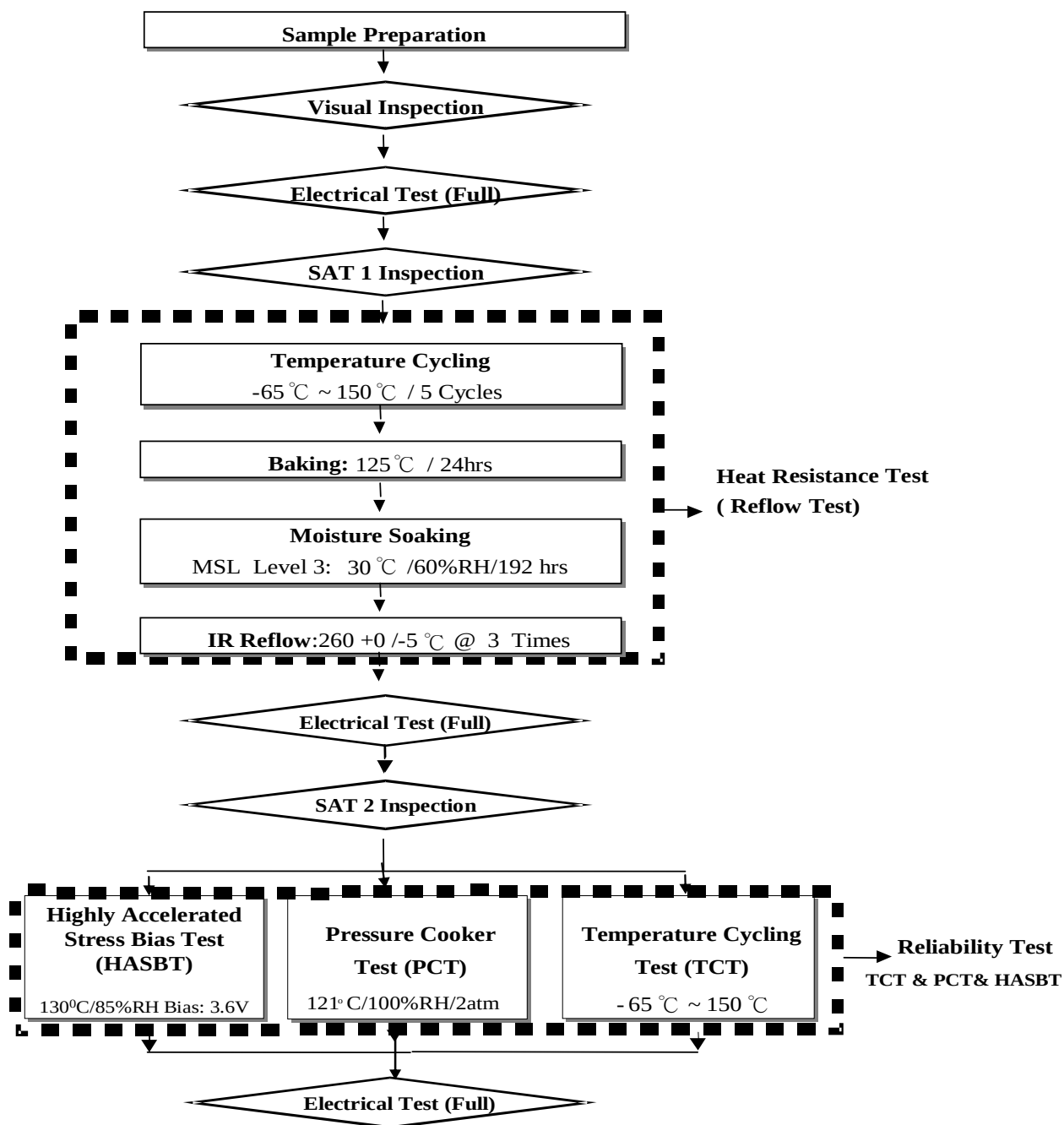
Test Item	Reference	Test Condition
1. Heat Resistance Test: Reflow Test	JEDEC J-STD-020	MSL: Follow JEDEC MSL Level 3 (30°C/60%RH, 192hrs)
2. Pressure Cooker Test	JESD22-A102	121°C/ 100%RH/2 atm
3. Temperature Cycling Test	JESD22-A104	-65°C ~ 150°C
4. Highly Accelerated Temperature and Humidity Stress Test	JESD22-A110	130°C/ 85% RH, Bias: 3.6V
5. Solderability Test	JESD22-B102	■ Steam aging 8hrs & Dipping Time $\leq$ 5sec ■ Sn-Ag-Cu solder paste: 245°C ■ Sn-Pb solder paste: 235°C

***Perform SAT examination before and after Pre-conditioning per JESD22-A112.**



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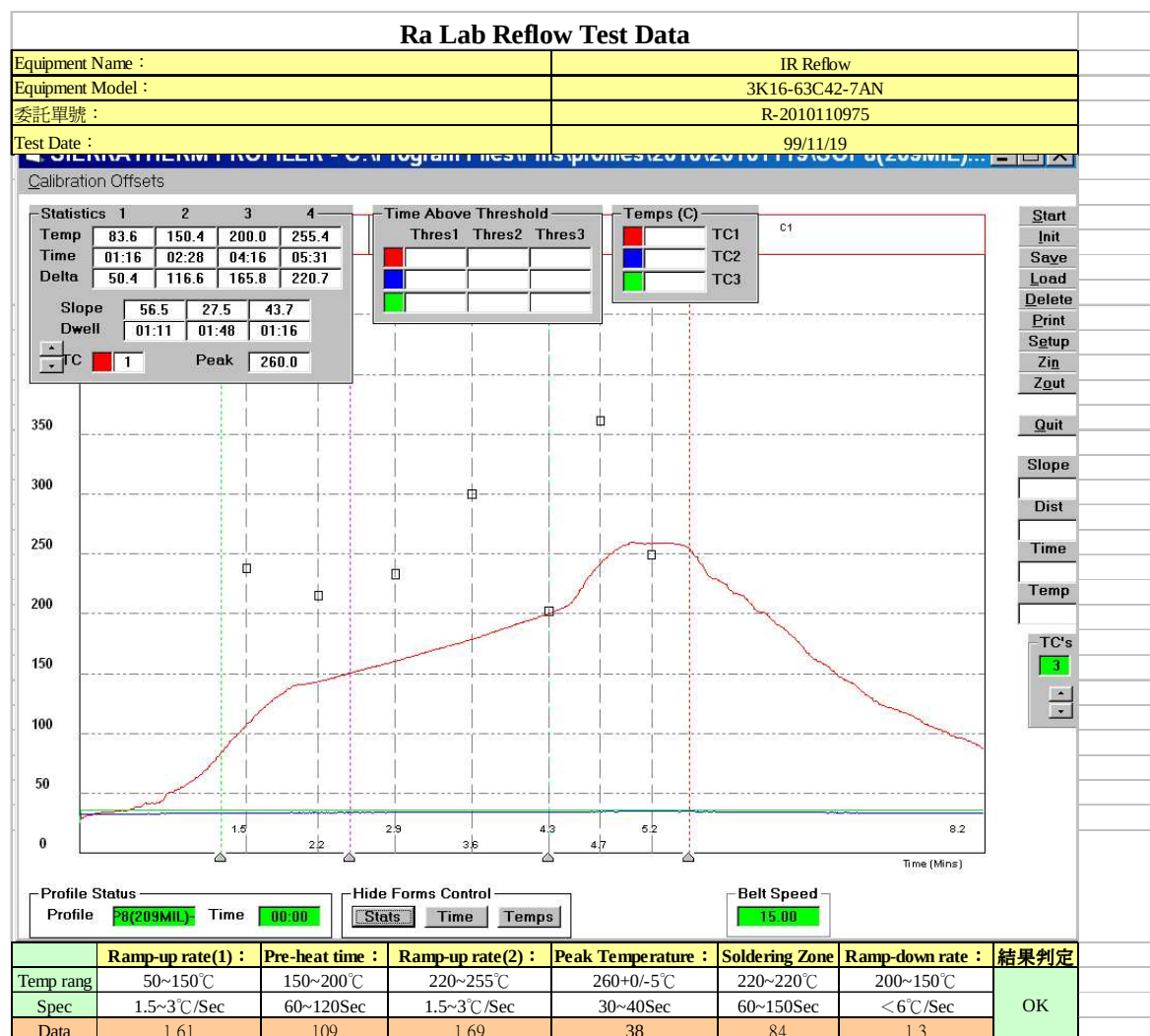
3-2. HEAT RESISTANT TEST (REFLOW TEST) AND RELIABILITY TEST FLOW





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3-2-1 REFLOW PROFILE:



Note 1: Subject the samples to 3 cycles of the above defined reflow conditions

Note 2: Time 25°C to peak temperature: 8 minutes max.

Note 3: The time between reflows shall be 5 minutes minimum and 40 minutes maximum.

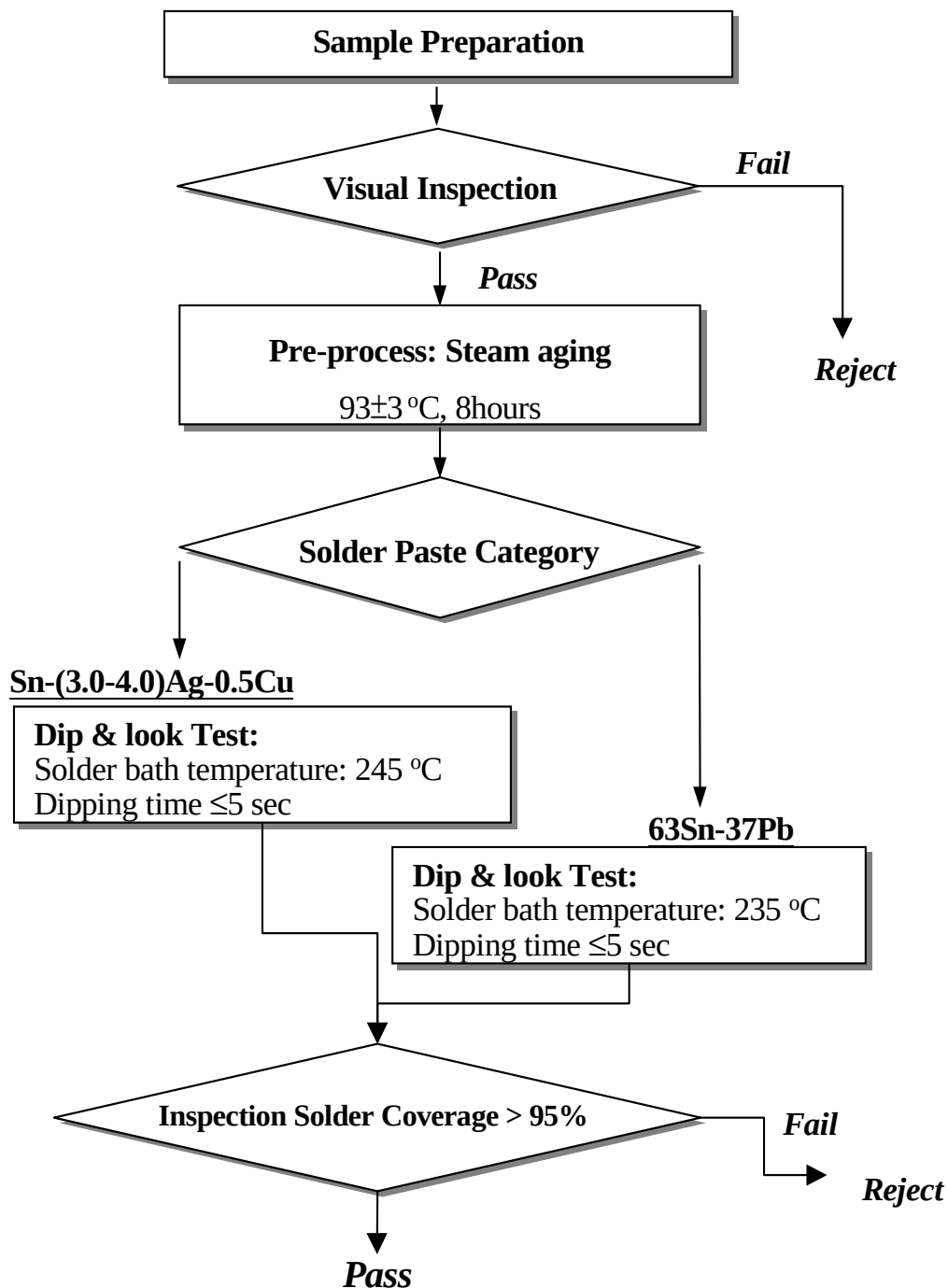
3-2-2. CRITERIA:

LTPD= 3%, PCT 96 hours and TCT 500 cycles & HASBT 96 hours.



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3-3. SOLDERABILITY TEST FLOW





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4. RESULTS:

4-1. HEAT RESISTANCE TEST and RELIABILITY TEST RESULTS:

PRODUCT	6647L		
LOT#	3E271200AA	3E271200AB	3E271200AC
DATE CODE	K1037	K1037	K1038
QV	0/250	0/250	0/250
SAT 1	0/22	0/22	0/22
PRECON	0/250	0/250	0/250
SAT 2	0/22	0/22	0/22
PCT 96 HRS	0/77	0/77	0/77
TCT 500 CYC	0/77	0/77	0/77
HASBT 96 HRS	0/77	0/77	0/77

FAIL / SAMPLE SIZE

4-2. SOLDERABILITY TEST RESULTS:

Matte Sn Plating

Plating Material	Matte Sn		
Solder Paste Material	Sn-(3.0-4.0)Ag-0.5Cu		
INSPECTION	0/5	0/5	0/5

FAIL / SAMPLE SIZE

Plating Material	Matte Sn		
Solder Paste Material	63Sn-37Pb		
INSPECTION	0/5	0/5	0/5

FAIL / SAMPLE SIZE

4-3. CONCLUSION:

- ASEKS 8L SOP(209mil) package passed all the reliability tests listed above.
- Based on the reliability test results, ASEKS 8L SOP(209mil) package is qualified.