



MACRONIX INTERNATIONAL CO., LTD.

Product/Process Change Notice

PCN # P-1305-0003

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 TSOP48 products. This new assembly site is STS located in Korea.

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-1305-0003

Issue Date : 2013/06/26

Subject: Add new assembly site -- STS in Korea, for TSOP48 products

Change Category : Assembly Subcon./Material

Affected Products:

MX30LF1208AA-TI / MX30LF1G08AA-TI

Reason of Change:

To increase TSOP48 product assembly capacity in order to meet customer's demand.

Before Change :

Original approved assembly AVLs (for TSOP48):

SPIL

After Change :

New assembly AVLs (for TSOP48)

SPIL

STS

Product identification:

New vender code on the top marking for STS is "T"

(Other vender codes – SPIL "S")

Assessment:

1. No impact on Fit, Form, Function, Quality & Reliability.
2. STS has been one of Macronix' long term AVLs with good support and quality, the newly added TSOP48 package has passed Macronix's qualification based on JEDEC MSL level 3 standard, and meets the RoHS standards.
(refer to Qualification report "STS 48L TSOP (I) Package Qualification Report")
3. STS quality system certification: TS16949, ISO14001

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

1st shipping date: 2013/09/26



MACRONIX INTERNATIONAL CO., LTD.
旺 宏 電 子 股 份 有 限 公 司

STS 48L TSOP (I) Package Qualification Report

1. PURPOSE:

This qualification is to evaluate the STS 48L TSOP(I) package meets JEDEC MSL level-3 standards.

2. PACKAGE PROFILE:

ASSEMBLY HOUSE	STS
PACKAGE	48L TSOP (I) (12 x 20 mm)
DIE SIZE	8124 x 5909 μm^2
DIE ATTACH	INNOX WL0020-02DS
LEAD FRAME	Copper
WIRE BOND MATERIAL	Au
MOLD COMPOUND	CHEIL SG-8300ES
LEAD FINISH	Matte Sn

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

3-1. QUALIFICATION ITEMS:

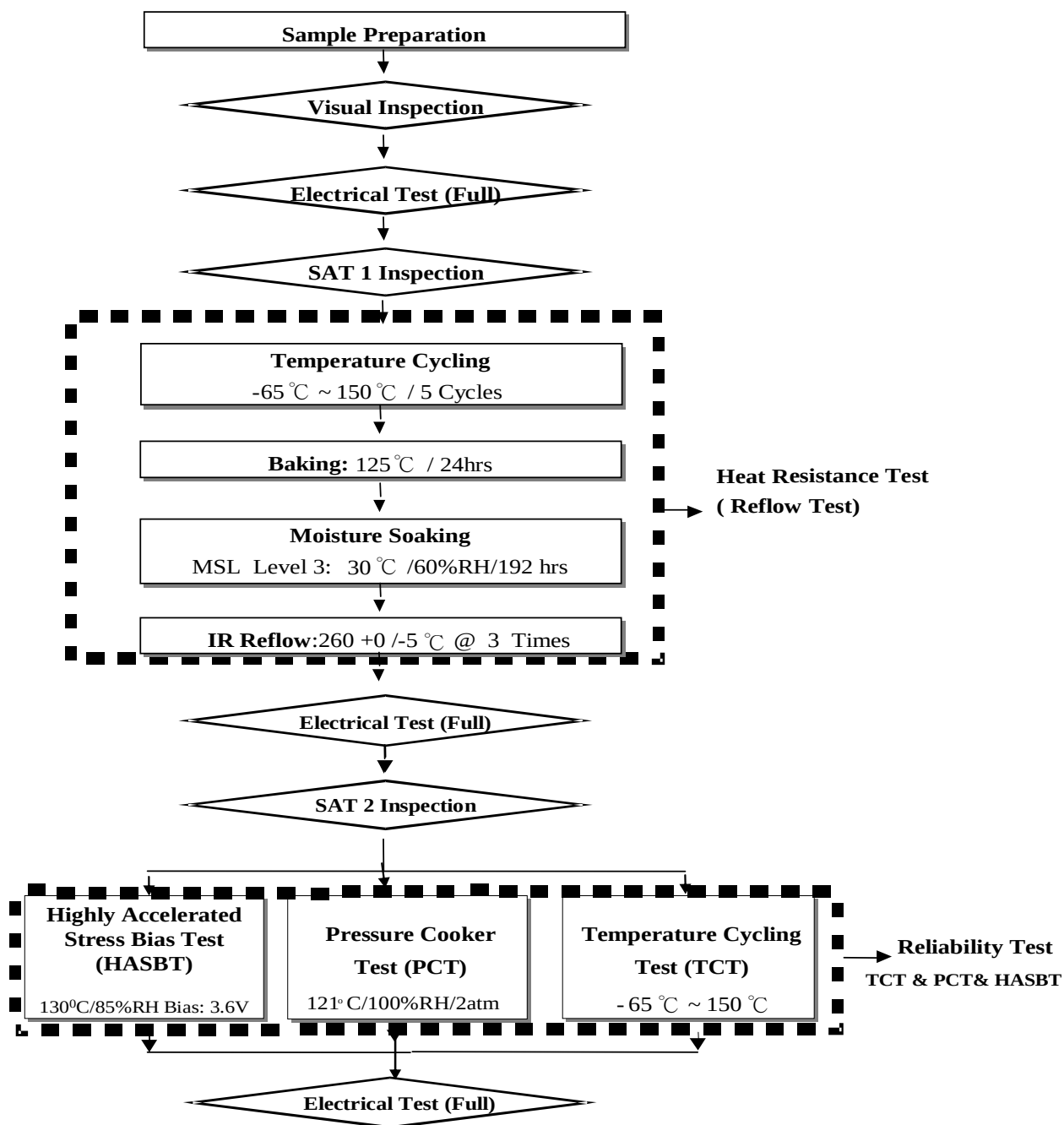
Test Item	Reference	Test Condition
1. Heat Resistance Test: Reflow Test	JEDEC J-STD-020	MSL: Follow JEDEC MSL Level 3 (30°C/60%RH, 192hrs)
2. Pressure Cooker Test	JESD22-A102	121°C/ 100%RH/2 atm
3. Temperature Cycling Test	JESD22-A104	-65°C ~ 150°C
4. Highly Accelerated Temperature and Humidity Stress 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.**



MACRONIX INTERNATIONAL Co., LTD.
旺 宏 電 子 股 份 有 限 公 司

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





MACRONIX INTERNATIONAL CO., LTD.
旺 宏 電 子 股 份 有 限 公 司

3-2-1 REFLOW PROFILE:

Ra Lab Reflow Test Data							
Equipment Name :				IR Reflow			
Equipment Model :				SIERRA THERM/3K16-63C42-7AN			
委託單號 :				R-2013041673			
Test Date :				2013/04/27			
	Ramp-up rate(1) :	Pre-heat time :	Ramp-up rate(2) :	Peak Temperature :	Soldering Zone	Ramp-down rate :	結果判定
Temp rang	50~150℃	150~200℃	220~255℃	260+0/-5℃	220~220℃	200~150℃	Pass
Spec	1.5~3℃/Sec	60~120Sec	1.5~3℃/Sec	30~40Sec	60~150Sec	< 6℃/Sec	
Data	1.61	85Sec	1.55	31Sec	86Sec	1.15	

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.

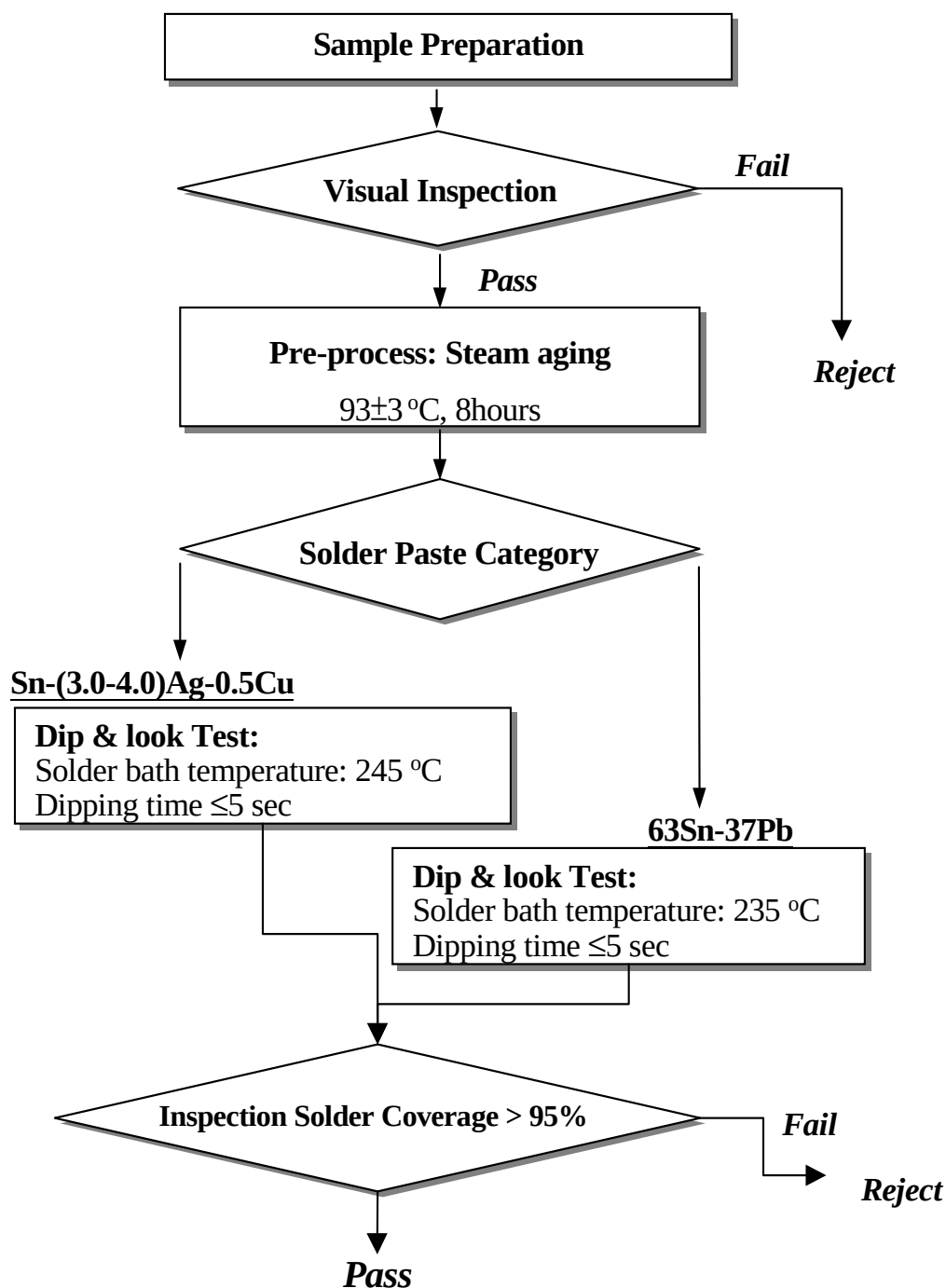
3-2-2. CRITERIA:

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



MACRONIX INTERNATIONAL CO., LTD.
旺 宏 電 子 股 份 有 限 公 司

3-3. SOLDERABILITY TEST FLOW





MACRONIX INTERNATIONAL Co., LTD.
旺 宏 電 子 股 份 有 限 公 司

4. RESULTS:

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

PRODUCT	6305F		
LOT#	3N107100AX-1	3N107100AX-2	3N107100AX-3
DATE CODE	T1311	T1311	T1312
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:

- STS 48L TSOP(I) package passed all the reliability tests listed above.
- Based on the reliability test results, STS 48L TSOP(I) package is qualified.