Product / Process Change Notice

PCN No.: Q000-PCN-PA201508-01 Date: 2015-08-31

Change Title: JCET site change from C3 factory to C8 factory.

Change Classification: ☑ Major ☐ Minor

Change item: ☐ Design ☐ Raw Material ☐ Wafer FAB ☑ Package Assembly ☐ Testing ☐ Others:_____.

Affected Product(s) :

The affected part no. list, please refer to the Table I for more information.

Description of Change(s) :

JCET's production line for SOP and TSSOP package types will be moved from C3 factory(No. 275 Binjiang Rd, Jiangyin,Jiangsu,China) to C8 factory(No.5 Putuoshan Road,Susu Industrial Park,Suqian,Jiangsu,China) . Nuvoton had done the qualification for C8 factory, the related qualification report was showed as appendix A.

Reason for Change(s) :

In order to have product structure optimization, Nuvoton's subcontractor JCET changed the production line for for SOP and TSSOP package types from C3 factory to C8 factory.

Impact of Change(s) : (positive & negative)

Form: No change.

Fit: No change.

Function: No concern.

Reliability: No concern(Passed Nuvoton package qualification.)

Qualification Plan/ Results :

The qualification had been done as per Nuvoton's standard qualification procedures, please refer to appendix A for the qualification report.

Implementation Plan :

☐ Date Code: _____ onward ☐ Lot No.: _____ onward ☑ Implemented date: Nov. 29, 2015(scheduled)

Originator:	***H.Y. Lai / Q100***	***Approval:(QRA Director)***	***K.L. Lin/ Q000***
Contact for Questions & Concerns	Name: HYLai TEL: 886-3-5770066 (ext. 1226) FAX: 886-3-5792673. Address: No.4, Creation Rd. III Science-Based Industrial Park Hsinchu, Taiwan, R.O.C. . E-mail: hylai0@nuvoton.com.		

Customer Comments:

*Note: Please sign this notice, and return to Nuvoton contact within **30** days. If no response is received within **30** days, this Change Request will be assumed to meet your approval.*

☐ Approval ☐ Disapproval ☐ Conditional Approval: _____.

Date: _____ Dept. name:_____ Person in charge:_____.

Follow-up and Tracing:

A. copies to

FAB : ☐ Integration _____☐_____☐_____☐_____☐_____.

Test / Product: ☐ _____☐_____☐_____☐_____☐_____.

Design/ Marketing: ☐ _____☐_____☐_____☐_____☐_____.

Production control/ Others: ☐ _____☐ _____☐_____☐_____☐_____.

B. Changes:

1. Document / Test program:

Document No/ test program	Document name/ test program name	version		responsibor	Completed date	Remark
		before	after			

Verifed by: _____.

Table I: Affected part lists

Part No.	Part No.	Part No.
CN1-S16	N79E814AS28	CN2-T28
N79E8132AS16	TC5567_2	MINI52FDE
CN2-S20	N79E815AS28	MINI54FDE
CN1221	NAU8220WG	N79E815AT20
CN3-S20	N79E815AT28	CN3-T20
N79E814AS20	N79E814AT28	N79E814AT20
N79E815AS20	CN3-T28	CN2-T20

PACKAGE QUALIFICATION REPORT

Company：JIANGSU Changjiang Electronics .
Package： SOP 28L Package
Package Material： Green
Wire Bonding Material： Cu wire

RA ENGINEER ：黃玠升

RA MANAGER ：馬家偉

Publication Release Date:July .2015

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SUMMARY

The SOP 28L packages product was passed the qualification tests. A summary of the test result was as follows:

- **Pre-condition Test : 0/558**
- **Pressure Cooker Test : 0/186**
- **Temperature Cycle Test : 0/186**
- **Highly Temp. Storage Life Test : 0/186**

Results of the life tests and environmental tests as well as the methods used on SOP 28L packages are described in details in the report.

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3. Temperature Cycle Test (TCT)

4. Highly Temp. Storage Life Test(HTSL)

II. ENVIRONMENTAL TESTS OF PROCEDURE

A. Introduction

1. Pre-condition Test

1.1 SCOPE

Pre-condition Test is to measure the resistance of SMD (Surface Mount Devices) to the storage environment at the customer site and to thermal stress created by IR reflow or Vapor Phase Reflow.

1.2 TEST CONDITION

Step 1 : TCT(-65°C/150°C, 5 cycles)

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Step 2 : Bake(125°C, 24 hours)

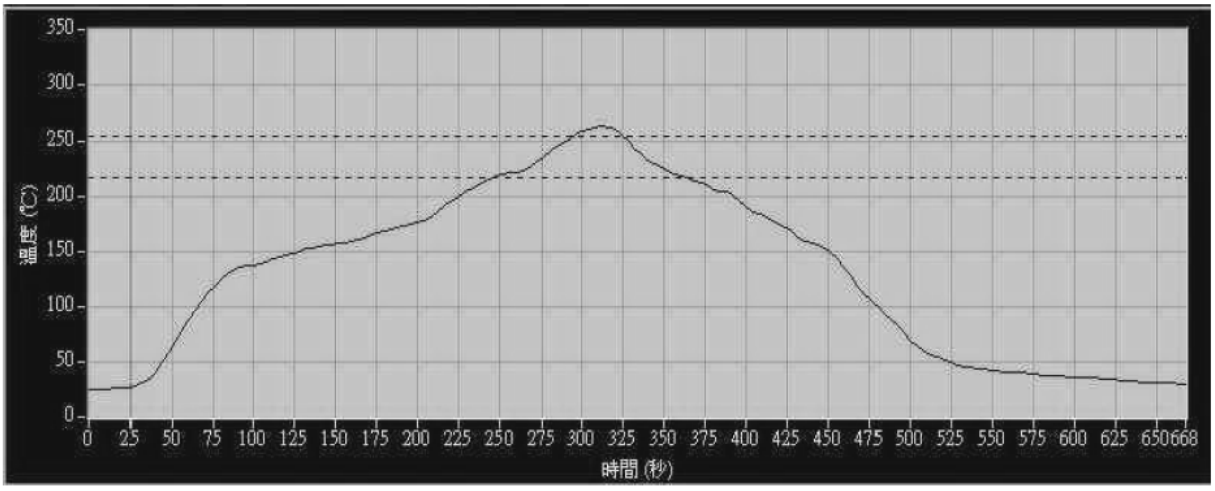
Step 3 : Soak(30°C/60%RH, 192 hours)

Step 4 : IR reflow (260 °C), 3 Passes.

1.3 SAT COFIRMATION: To confirm delamination, cracking, popcorn .

Criteria: IPC/JEDEC J-STD-020C

1.4 IR REFLOW PROFILE (FOR IPC/JEDEC J-STD-020C)



Temp.	Criteria
Preheat 150 ℃ to 200 ° C	60~180 sec
Time maintained above: Above 217 ℃	60~150 sec
Peak temp	260 ℃ +0 ℃/-5 ℃
Time within 5 ℃ of actual Peak Temperature of peak	20~40 sec

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2. Pressure Cooker Test (PCT)

2.1 SCOPE

PCT is to evaluate the device resistance to moisture penetration.

2.2 TEST CONDITION

Ta = 121°C, RH = 100%, Td = 168 Hrs. 2 ATM ,(JESD22-A102-A)

3. Temperature Cycle Test (TCT)

3.1 SCOPE

TCT is to evaluate the resistance of device to environmental temperature change.

3.2 TEST CONDITION

-65°C / 15min, transfer time 1min, +150 °C/15min, 1000 cycles.

MIL-STD-883E, Method 1010, Condition "C".

4. Highly Temp. Storage Life Test (HTSL)

4.1 SCOPE

The purpose of this test is to determine the effect on solid state electronic devices of storage at elevated temperature without electrical stress applied.

4.2 Test condition:

Temperature:150℃,Time: 500/1000hrs

B. Test Results

1. Pre-condition Test

1.1 Pre-condition Test Result

Run	Lot No	SAT before Precondition		SAT After Precondition		Electric result
		Topside	Backside	Topside	Backside	
#1	E506B003-01	0/186	0/186	0/186	0/186	0/186
#2	E506B003-02	0/186	0/186	0/186	0/186	0/186
#3	E506B003-03	0/186	0/186	0/186	0/186	0/186

*Criteria: Acc/Rej = 0/1.

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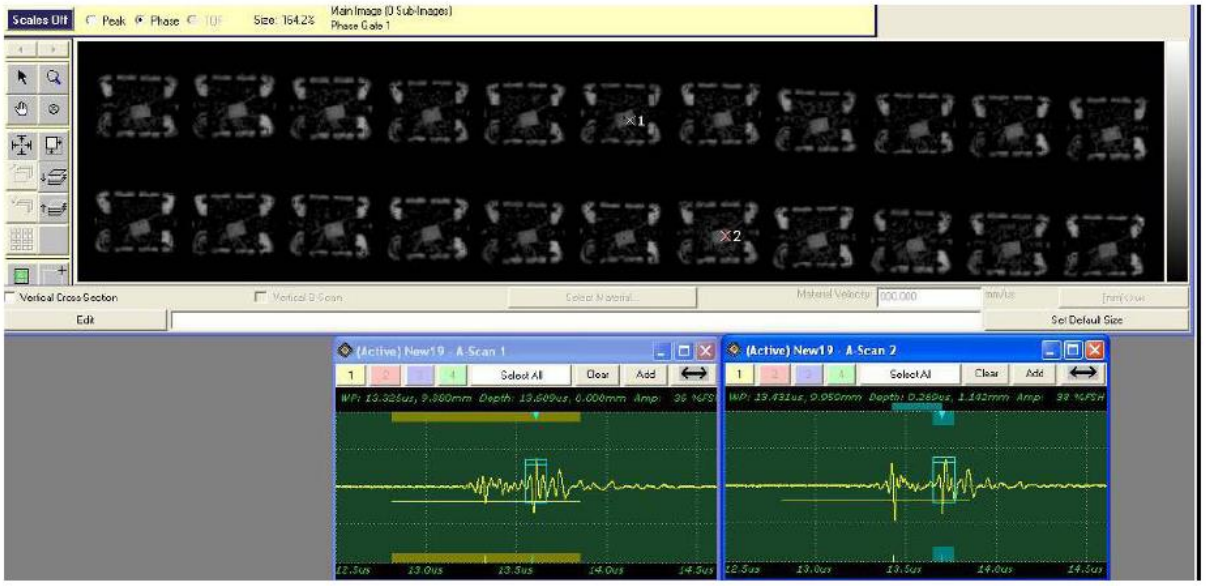
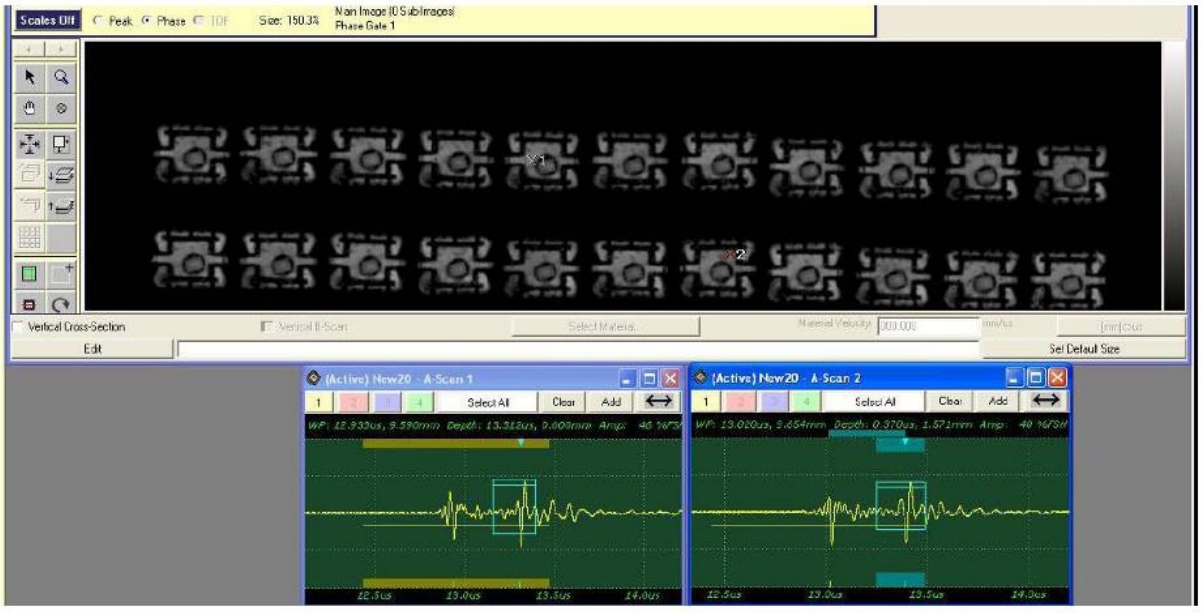
1.2 SAT confirmation

SAT before Precondition Top side



SAT before Precondition Back side



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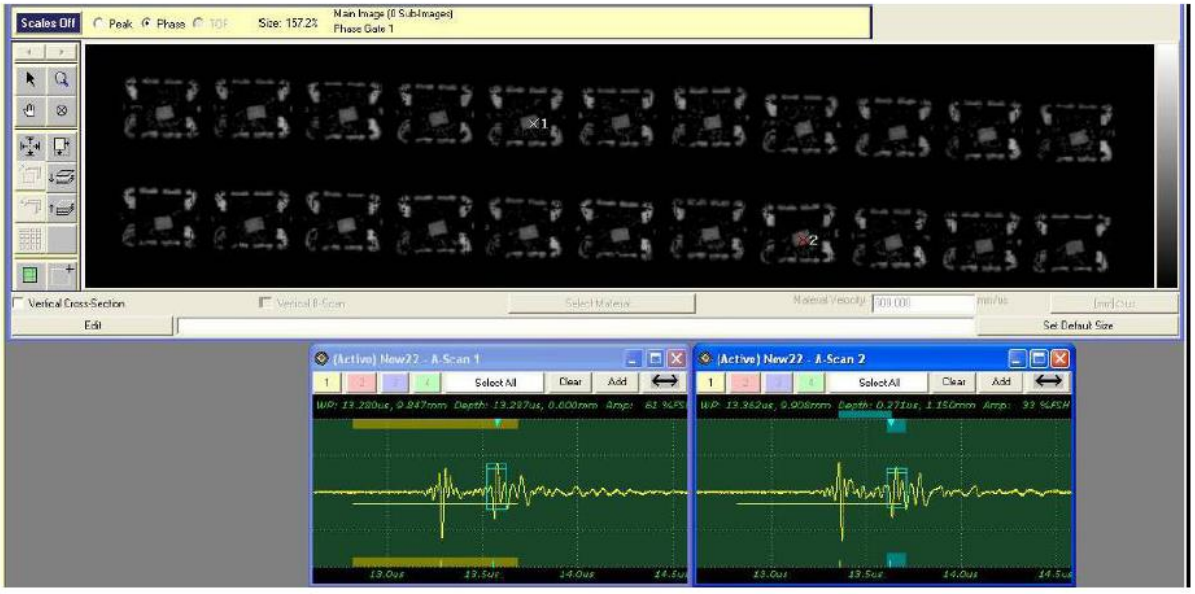
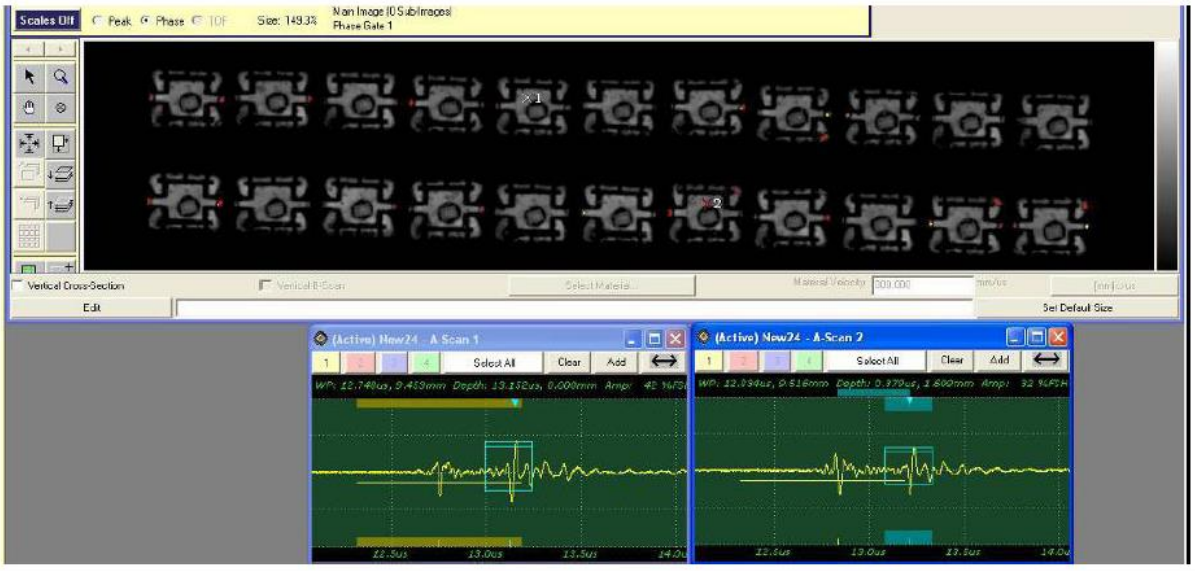
SAT after Precondition Topside



SAT after Precondition Backside



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2. Pressure Cooker Test (PCT)

Run	Lot No	168 Hrs	Remark
#1	E506B003-01	0/62	
#2	E506B003-02	0/62	
#3	E506B003-03	0/62	

*Criteria : Acc/Rej = 0/1.

3. Temperature Cycle Test (TCT)

Run	Lot No	500 Cycles	Remark
#1	E506B003-01	0/62	
#2	E506B003-02	0/62	
#3	E506B003-03	0/62	

*Criteria : Acc/Rej = 0/1.

4. Highly Temp. Storage Life Test (HTSL)

Run	Lot No	500 Hrs	Remark
#1	E506B003-01	0/62	
#2	E506B003-02	0/62	
#3	E506B003-03	0/62	

*Criteria : Acc/Rej = 0/1.

Run	Lot No	1000 Hrs	Remark
#1	E506B003-01	0/62	
#2	E506B003-02	0/62	
#3	E506B003-03	0/62	

*Criteria : Acc/Rej = 0/1.

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