



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20104Generic Copy

Issue Date: 12-Jun-2013**TITLE:** Power Switching Products (PQ) Large Body QFN (Gold BOM) Qualification at ASE-SH and AMKOR-K Assembly Facility**PROPOSED FIRST SHIP DATE:** 12-Sep-2013**AFFECTED CHANGE CATEGORY(S):** Assembly Site**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**Contact your local ON Semiconductor Sales Office or <wyler.montoya@onsemi.com>**SAMPLES:** Contact your local ON Semiconductor Sales Office**ADDITIONAL RELIABILITY DATA:** AvailableContact your local ON Semiconductor Sales Office or <nicky.siu@onsemi.com>**NOTIFICATION TYPE:**

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 90 days prior to implementation of the change.

ON Semiconductor will consider this change approved unless specific conditions of acceptance are provided in writing within 30 days of receipt of this notice. To do so, contact <quality@onsemi.com>.**DESCRIPTION AND PURPOSE:**

This is to notify customers ON Semiconductor's that Power Switching devices built on Large Body QFN packages (QFN 4x4, QFN 5x5, QFN 6x6 and QFN 7x7) in Gold BOM are now qualified at ASE Assembly & Test(Shanghai, China) Limited and Amkor Technology Korea, Inc.

The affected devices listed on this PCN are assembled at the UTAC Thailand Assembly facility. At the expiration of this PCN, these devices may be processed at either location.

The package outline and electrical performance of the part from the two new assembly sites still meet the requirements per datasheet. Also, two lead finishes are now qualified (Matte Sn and Ni/Pd/Au). The full electrical characterization over temperature will be performed on the qualification vehicle confirmed meeting the device functionality and electrical specifications.



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RELIABILITY DATA SUMMARY:

Reliability Test Results:

Based on Reliability test results, Large Body QFN packages (QFN 4x4, QFN 5x5, QFN 6x6 and QFN 7x7) at AMKOR Korea and ASE Shanghai are qualified and rated at MSL-1@260 degree Celsius.

Qual Vehicles

- NCP3218MNR2G – QFN 6x6

AMKOR Korea

#	Test	Name	Test Conditions	End Point Req's	Test Results	Lot A (rej/ ss)	Lot B (rej/ ss)	Lot C (rej/ ss)	Control (rej/ ss)	Remark
1	Prep	Sample preparation and initial part testing	various	---	Initial Electrical	Done	Done	Done	Done	Control Lot – UTL Cu wire
2	HTSL	High Temp Storage Life	TA = 150°C for 1008hrs	c = 0, Room	504 hrs	0/90	0/90	0/90	0/90	CDPA – 2 units/lot – Passed AEC-Q101-004 and IMC check.
					1008hrs	0/90	0/90	0/90	0/90	
3	PC	Moisture Preconditioning	MSL 1 @ 260°C	c = 0, Room	After PC	-	-	-	-	PC prior to TC, HAST and UHAST.
4	UHAST-PC	Precond. Autoclave	TA= +130°C, RH= 85%, PSIG= 18.8, No bias	c = 0, Room	Post PC	0/80	0/80	0/80	0/80	
					96 hrs	0/80	0/80	0/80	0/80	
5	TC-PC	Precond. Temp Cycle	-65/+150°C air to air	c = 0, Room	Post PC	0/100	0/100	0/100	0/100	CDPA – 2 units/lot – Passed AEC-Q101-004. No bond wire issue and under pad damage. WPT – 5 units/lot – Passed.
					250 cycs	0/100	0/100	0/100	0/100	
					500 cycs	0/100	0/100	0/100	0/100	
6	HAST-PC	Precond. HAST	TA= +130°C, RH= 85%, PSIG= 18.8, bias	c = 0, Room	Post PC	0/90	0/90	0/90	0/50	7x7x1mm QFN-48
					96 hrs	0/90	0/90	0/90	0/50	CDPA – 2 units/lot – Passed AEC-Q101-004. No bond wire issue. WPT – 5 units/lot – Passed.
7	RSH	Resistance to Solder Heat	JESD22 – B106 260°C Immersion	c = 0, Room	Results	0/30	0/30	0/30	0/30	
8	BPS	Bond Pull Strength	Cond C	30 bonds from 5 units Cpk ≥ 1.67	Results	0/30	0/30	0/30		
9	BS	Bond Shear Test	AEC-Q100-001	30 bonds from 5 units Cpk ≥ 1.67	Results	0/30	0/30	0/30		
10	PD	Physical Dimension	JB100	Per case outline Ppk>1.66, Cpk>1.33	Result	Pass	Pass	Pass		
11	ED	Electrical Distribution	Per ON Datasheet Critical Parameter	Room, Hot, Cold Cpk ≥ 1.67	Results	Pass				



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ASE Shanghai

#	Test	Name	Test Conditions	End Point Req's	Test Results	Lot A (rej/ ss)	Lot B (rej/ ss)	Lot C (rej/ ss)	Control (rej/ ss)	Remark
1	Prep	Sample preparation and initial part testing	various	---	Initial Electrical	Done	Done	Done	Done	Control Lot – UTL Cu wire
2	HTSL	High Temp Storage Life	TA = 150°C for 1008hrs	c = 0, Room	504 hrs	0/90	0/90	0/90	0/90	CDPA – 2 units/lot – Passed AEC-Q101-004 and IMC check.
					1008hrs	0/90	0/90	0/90	0/90	
3	PC	Moisture Preconditioning	MSL 1 @ 260°C	c = 0, Room	After PC	-	-	-	-	PC prior to TC, HAST and UHAST.
4	UHAST-PC	Precond. Autoclave	TA= +130°C, RH= 85%, PSIG= 18.8, No bias	c = 0, Room	Post PC	0/80	0/80	0/80	0/80	
					96 hrs	0/80	0/80	0/80	0/80	
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					250 cys	0/100	0/100	0/100	0/100	
					500 cys	0/100	0/100	0/100	0/100	
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ELECTRICAL CHARACTERISTIC SUMMARY:

Electrical characteristic meet or exceeds the device specification.

CHANGED PART IDENTIFICATION:

At the expiration of this FPCN, AMKOR and ASE facility will follow the ON Semiconductor standard marking for QFN packages. Assembly location can be identified by the assembly code seen on the top marking.

UTAC assembly code: G
AMKOR assembly code: A
ASE assembly code: AS



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List of affected General Parts:

ADP3212MNR2G
ADP32120091MNR2G
ADP3212AMNR2G
NCP3218GMNR2G
NCP3218MNTWG
NCP3218AMNR2G
NCP3218MNR2G