ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20246

Generic Copy

Issue Date: 10-Dec-2013

TITLE: Logic Products (PK) with DFN and QFN Qualification at AMKOR-Philippines and ASE – Shanghai, China

PROPOSED FIRST SHIP DATE: 10-Mar-2014

AFFECTED CHANGE CATEGORY(S): Assembly

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:
Contact your local ON Semiconductor Sales Office or <adette.rotoni@onsemi.com>

SAMPLES: Contact your local ON Semiconductor Sales Office

ADDITIONAL RELIABILITY DATA: Available
Contact your local ON Semiconductor Sales Office or <jose.aguilar@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 a Final Process Change Notice informing ON Semiconductor customers that Logic Devices with DFN and QFN packages are now qualified for assembly at Amkor Philippines, Inc and ASE – Shanghai, China. These two ex-manufacturing companies are ISO/TS16949:2009 certified. They have already been qualified and utilized by ON Semiconductor as an external manufacturing facility for other device packages.

The affected devices listed on this FPCN are currently assembled at UTAC Thailand and ON Seremban Malaysia assembly facilities. Upon expiration of this notice, the affected devices will also be processed at Amkor Philippines or ASE – Shanghai, China. The package outline and electrical performance of the parts from the new assembly site met the datasheet requirements. The full electrical characterization over temperature was performed on the qualification vehicles which confirmed conformance to the device functionality and electrical specifications.

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RELIABILITY DATA SUMMARY:

Reliability Test Results:

Test **Conditions** **Results**

#	Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)	(rej/ ss)	(rej/ ss)
					Read Point	Lot A	Lot B	Lot C	Lot 2
1	Prep	Sample preparation and initial part testing	various	---	Initial Electrical	Done	Done	Done	Done
2	HTOL	High Temp Op Life	TA = 125°C for 1008 hours	c = 0, Room	504 Hrs	0/84	NA	NA	0/84
					1008 Hrs	**0/84**	**NA**	**NA**	**0/84**
3	PC	MSL1 Preconditioning	3 IR @ 260 deg C	c = 0, Room		MSL 1	MSL 1	MSL 1	MSL 1
4	TC-PC	Precond. Temp Cycle	-65/+150 C	c = 0, Room	**500 cyc**	**0/93**	**0/93**	**0/93**	**0/93**
					750 cyc	0/84	0/84	0/84	0/84
5	UHAST-PC	Precond. Unbiased HAST	TA = 121 C, RH = 100%,PSIG = 15	c = 0, Room	**96 hrs**	**0/84**	**0/84**	**0/84**	**0/84**
6	HAST-PC	Precond. HAST	TA= +130C, RH = 85%, PSIG= 18.8, bias	c=0, Room	**96 Hrs**	**0/84**	**0/84**	**0/84**	**0/84**
7	HTSL	High Temperature Storage Life	TA=150C for 1008 Hrs	c = 0, Room	504 Hrs	0/84	0/84	0/84	0/84
					1008 Hrs	**0/84**	**0/84**	**0/84**	**0/84**
8	SAT	Scanning Acoustic Tomography	Compare for Delamination before and after PC at MSL 1 260	Compare to existing data	Results	**Pass**	**Pass**	**Pass**	**Pass**
9	RSH	Resistance to Solder Heat	TA= 260 C	n/a	**Results**	**0/30**	**0/30**	**0/30**	**0/30**
10	SD	Solderability	>95% coverage	NA	**Results**	**0/15**	**NA**	**NA**	**0/15**

Table 1: Reliability Evaluation Results for Device NLSV4T244MUTAG
Qualification Points in BOLD

#	Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)	(rej/ ss)	(rej/ ss)
					Read Point	Lot A	Lot B	Lot C	Lot 2
1	Prep	Sample preparation and initial part testing	Various	---	Initial Electrical	Done	Done	Done	Done
2	HTOL	High Temp Op Life	TA = 125°C for 1008 hours	c = 0, Room	504 Hrs	0/84	NA	NA	0/84
					1008 Hrs	**0/84**	**NA**	**NA**	**0/84**
3	PC	MSL1 Preconditioning	3 IR @ 260 deg C	c = 0, Room		MSL 1	MSL 1	MSL 1	MSL 1
4	TC-PC	Precond. Temp Cycle	-65/+150 C	c = 0, Room	**500 cyc**	**0/93**	**0/93**	**0/92**	**0/93**
					750 cyc	0/84	0/84	**0/82**	0/84
5	UHAST-PC	Precond. Unbiased HAST	TA = 121 C, RH = 100%,PSIG = 15	c = 0, Room	**96 hrs**	**0/84**	**0/84**	**0/84**	**0/84**
6	HAST-PC	Precond. HAST	TA= +130C, RH = 85%, PSIG= 18.8, bias	c=0, Room	**96 Hrs**	**0/84**	**0/84**	**0/84**	**0/84**
7	HTSL	High Temperature Storage Life	TA=150C for 1008 Hrs	c = 0, Room	504 Hrs	0/84	0/84	0/84	0/84
					1008 Hrs	**0/84**	**0/84**	**0/84**	**0/84**
8	CDPA- post TC 500 cyc	Destructive Physical Analysis	PUD check and AEC Q 100 DPA, after TC-500 cyc	n/a	Compare to AEC criteria				
9	SAT	Scanning Acoustic Tomography	Compare for Delamination before and after PC at MSL 1 260	Compare to existing data	Results	**Pass**	**Pass**	**Pass**	**Pass**
10	RSH	Resistance to Solder Heat	TA= 260 C	n/a	**Results**	**0/30**	**0/30**	**0/30**	**0/30**
11	SD	Solderability	>95% coverage	NA	**Results**	**0/15**	**NA**	**NA**	**0/15**

Table 1: Reliability Evaluation Results for Device PCA9535ECMTTXG
Qualification Points in BOLD

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ELECTRICAL CHARACTERISTIC SUMMARY:

Electrical characteristic met or exceeded the device specification.

CHANGED PART IDENTIFICATION: N/A

At the expiration of this FPCN, Amkor and ASE-SH facilities will follow the ON Semiconductor standard marking for DFN/QFN packages.

List of affected General Parts:

74FST3257MNTWG	NLSV4T240MUTAG	NLU1GT125MUTCG
7SB3257MUTCG	NLSV4T244EMUTAG	NLU1GT126MUTCG
7SB385MUTCG	NLSV4T244MUTAG	NLU1GT14MUTCG
7WBD3125AMUTCG	NLSV8T244MUTAG	NLU1GT32MUTCG
7WBD3126AMUTCG	NLSX3012MUTAG	NLU1GT50MUTCG
7WBD3306AMUTCG	NLSX3014MUTAG	NLU1GT86MUTCG
MC74LCX244MNTWG	NLSX3018MUTAG	NLU1GU04MUTCG
MC74LCX245MNTWG	NLSX3373MUTAG	NLU2G04MUTCG
NL7SZ18MUR2G	NLSX4014MUTAG	NLU2G06MUTCG
NLSF1174MNR2G	NLSX4302EBMUTCG	NLU2G07MUTCG
NLSF302MNR2G	NLSX4373MUTAG	NLU2G14MUTCG
NLSF308MNR2G	NLSX5011MUTCG	NLU2G16MUTCG
NLSF3T125MNR2G	NLSX5012MUTAG	NLU2G17MUTCG
NLSF595MNR2G	NLSX5014MUTAG	NLU2GU04MUTCG
NLSV1T240MUTBG	NLU1G04MUTCG	NLX1G74MUTCG
NLSV1T244MUTBG	NLU1G08MUTCG	NLX2G08MUTCG
NLSV1T34MUTBG	NLU1G14MUTCG	PCA9306AMUTCG
NLSV2T244MUTAG	NLU1G32MUTCG	PCA9535ECMTTXG
NLSV4T240EMUTAG	NLU1G86MUTCG	PCA9535EMTTXG
	NLU1GT04MUTCG	PCA9655EMTTXG