



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16815Generic Copy

Issue Date: 08-Jun-2012**TITLE:** Power Switching Products (PQ) Large Body QFN Qualification at ASE-SH and AMKOR-K**PROPOSED FIRST SHIP DATE:** 08-Sep-2012 or earlier upon customer approval**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:** Available

Contact your local ON Semiconductor Sales Office

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 to IPCN 16815 available at www.onsemi.com notifying ON Semiconductor customers that Power Switching devices built on Large Body QFN packages (QFN 4x4, QFN 5x5, QFN 6x6 and QFN 7x7) are now qualified at ASE Assembly & Test(Shanghai, China) Limited and Amkor Technology Korea, Inc.

The affected devices listed on this FPCN are assembled at the UTAC Thailand and Seremban, Malaysia assembly facility. At the expiration of this Final 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

- NCP6132AMNR2G – QFN 7x7
- NCP6151S52MNR2G – QFN 6x6

RELIABILITY TESTING REQUIREMENTS

Test #	Test	Ref	Test Conditions	End Point Requirements	Sample Size	# of Lots	Total Units	Comments	Qual Site
1	Electrical Test	ON Data Sheet	ON Product Specification	See Below	All Devices	N/A	N/A	NCP6132A – 7x7 QFN-60 NCP6151 – 6x6 QFN-52 BOAC device – Wire bond process characterization is required before qual lot build.	OSPI
2	HTOL	JA108	Ta = 125°C for 504hrs	Test @ Room	80	1	80	NCP6132A	OSPI
3	HTSL	JA103	150°C for 1008hrs	Test @ Room	80	3+1	320	NCP6132A CDPA after HTSL 1008hrs – 2 units/lot. Extended readpoint – 2016hrs	OSPI
4	SAT	12MSB17722C	SAT	Per 12MSB17722C	5	3+1	20	NCP6132A With downbond on flag – Flag delam is not allowed.	OSPI
5	PC	J-Std-020 JA113	Moisture Pre-conditioning for AC, TC & HAST	SMD Only, Test @ Room	All prior to AC, TC & HAST	All	All	MSL-1 @260°C	OSPI
6	PC-UHAST	JA118	131°C/85%RH/ 18.8 psig, No bias for 96 hrs	Test @ Room	80	3+1	320	NCP6132A CDPA after UHAST 96hrs – 2 units/lot Extended readpoint – 192hrs	OSPI
7	PC-TC	JA104	-65°C to +150°C for 500 cycles	Test @ Room	80	3+1	320	NCP6132A CDPA after TC500cycs – 2 units/lot Extended readpoint – 4000cycs	OSPI
8	PC-HAST	JA110	131°C/85%RH/ 18.8 psig, bias for 96 hrs	Test @ Room	80	3+1	320	NCP6151 CDPA after HAST 96hrs – 2 units/lot Extended readpoint – 192hrs	OSPI
9	RSH	JESD22 B106	Resistance to Solder Heat	Test @ Room Unless temp meas. required.	30	3+1	120	NCP6132A	OSPI
10	BPS	M883 Method 2011	Wire Bond Pull Strength, Condition C or D	3gm Pull Force Min Cpk ≥ 1.67	30 bonds from 5 units	3	15	NCP6132A	AMKOR/ ASE
11	BS	AEC-Q100-001	Bond Shear Test	Cpk ≥ 1.67	30 bonds from 5 units	3	15	NCP6132A	AMKOR/ ASE
12	PD	JB100	Per case outline	Ppk>1.66 Cpk>1.33	30	3	90	4x4 to 7x7 QFN	AMKOR/ ASE
13	ED	ON Data Sheet	Electrical Distributions	Room, Hot and Cold Cpk ≥ 1.67	30	1+1	60	NCP6132A	OSPI

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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
Seremban Assembly Code: R
AMKOR assembly code: A
ASE assembly code: AS

List of affected General Parts:

NCP5228MNTWG
NCP6121S52MNR2G
NCP61310091MNR2G
NCP6131NS52MNR2G
NCP6131S52MNR2G
NCP6132ADMNR2G
NCP6132AMNR2G
NCP6132BDMNR2G
NCP6132BMNR2G
NCP6132MNR2G
NCP6133MNTWG
NCP6151S52MNR2G
NCP6153MNTWG
NCP81001MNTWG
NCP81005MNTWG
NCP81007MNTWG
NCP81012AMNR2G
NCP81012BMNR2G
NCP81018AMNR2G
NCP81018BMNR2G
NCP81038MNTWG
FXS01