



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16947Generic Copy

Issue Date: 29-Jan-2013**TITLE:** Addition of Amkor P3, Philippines as qualified assembly site for Filter & Protection devices in DFN package**PROPOSED FIRST SHIP DATE:** 29-Apr-2013 or earlier with customer approval**AFFECTED CHANGE CATEGORY(S):** ON Semiconductor Assembly Site**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**

Contact your local ON Semiconductor Sales Office or Mike Begonia <ffy3bt@onsemi.com>

SAMPLES: Contact your local ON Semiconductor Sales Office**ADDITIONAL RELIABILITY DATA:** Available

Contact your local ON Semiconductor Sales Office or Francis Lualhati <ffxczy@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 the final notification announcing that ON Semiconductor has its Filter & Protection devices in DFN package (please refer to the list of affected general parts section for complete device list), assembled and qualified at Amkor, P3 factory located in the Philippines. Amkor, P3 is ISO/TS16949:2009 certified. It has already been qualified and utilized by ON Semiconductor.

One device has been identified as qualification vehicle, based on the package dimension, die size and volumes. Reliability testing and full electrical characterization over temperatures were performed to ensure device functionality and electrical specifications are met.

Upon expiration or approval of the FPCN, devices listed in this final PCN will have Amkor P3 as additional assembly site. Customer may receive devices assembled in our in-house Seremban, Malaysia assembly facilities; UTAC, Thailand and Amkor P3 Philippines after that. The location of the assembly sites can be identified by the marking of the date code and the lead finish materials.

Lead Finish Difference:

1. Seremban / UTAC: Tin Plated (e3 – on the device label)
2. Amkor: NiPdAu (e4 – on the device label)

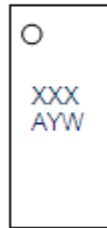


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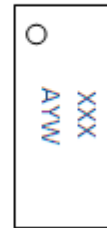
Marking Style Change (Only applicable to case outline 506AC):

To accommodate the assembly site code for Amkor, P3, the marking style for the devices in case outline 506AC will be updated. Upon expiration or approval of the FPCN, devices assembled in Seremban, UTAC and Amkor P3 will follow the new marking style per the diagram below,

Current Marking Style



New Marking Style



XXX – Specific Device Code
A – Assembly Location
Y – Year
W – Work Week



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RELIABILITY DATA SUMMARY:

Package: **UDFN16**

Qual Vehicles: **NUF8001MUT2G/ Amkor/ S13972/**

Qualification Results and Analysis:

Test:	Conditions:	Interval:	Results
HTRB	TA=85°C, 80% rated voltage	1008 hrs	0/240
HTSL	TA = 150°C	1008 hrs	0/240
TC-PC	Ta= -65 C to 150 C	1000 cyc	0/240
HAST-PC	Ta=130C RH=85%,	96 hrs	0/240
Autoclave-PC	Ta=121C RH=100% ~15 psig	96 hrs	0/240

Conclusion: All reliability requirements have been met.

Package: **WDFN6**

Qual Vehicles: **NIS1050MNTBG/Amkor/S13978/**

Test:	Conditions:	Interval:	Results
HTRB	TA=125°C, 80% rated voltage	1008 hrs	0/240
HTSL	TA = 150°C	1008 hrs	0/240
TC-PC	Ta= -65 C to 150 C	1000 cyc	0/240
HAST-PC	Ta=130C RH=85%,	96 hrs	0/240
Autoclave-PC	Ta=121C RH=100% ~15 psig	96 hrs	0/240

Conclusion: All reliability requirements have been met.



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Package: **DFN8**

Qual Vehicles: **NUS5530MNR2G/Amkor/S13959/:**

Test:	Conditions:	Interval:	Results
HTRB	TA=150°C, 80% rated voltage	1008 hrs	0/239
HTSL	TA = 150°C	1008 hrs	0/240
TC-PC	Ta= -65 C to 150 C	1000 cyc	0/239
IOL-PC	Ta= 25°C, ΔTj= 100°C, 2-min on/off	15 Kcycles	0/240
HAST-PC	Ta=130C RH=85%,	96 hrs	0/240
Autoclave-PC	Ta=121C RH=100% ~15 psig	96 hrs	0/240

Note: HTRB LotA 1 unit failure is non-assembly related. TC LotA 1 unit fail is non-assembly related. TC Lot B 1 unit fail did not have any FA done, it had same failure mode as Lot C. Lot C 3 units failure recovered and believed cause was due to degraded solder adhesion between unit and pcb pad.

Conclusion: All reliability requirements have been met.

Package: **DFN16**

Qual Vehicles: **NUF8402MNT4G/Amkor /S13974/**

Test:	Conditions:	Interval:	Results
HTRB	TA=85°C, 80% rated voltage	1008 hrs	0/240
HTSL	TA = 150°C	1008 hrs	0/240
TC-PC	Ta= -65 C to 150 C	1000 cyc	0/240
HAST-PC	Ta=130C RH=85%,	96 hrs	0/240
Autoclave-PC	Ta=121C RH=100% ~15 psig	96 hrs	0/240

Conclusion: All reliability requirements have been met.

ELECTRICAL CHARACTERISTIC SUMMARY:

No changes in electrical specifications; all product performance meets current datasheet specifications.



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CHANGED PART IDENTIFICATION:

1. Marking of the month date codes:

Seremban Malaysia assembled devices: M

UTAC Thailand assembled devices: \overline{M}

Amkor P3 assembled devices: \overline{W}

2. Lead Finish:

Seremban / UTAC: Tin Plated (e3 – on the device label)

Amkor: NiPdAu (e4 – on the device label)

List of affected General Parts:

CM1263-06DE	NUF4000MUT2G	NUF8001MUT2G
EMI5204MUTAG	NUF4001MUT2G	NUF8010MUT2G
EMI5206MUTAG	NUF4010MUT2G	NUF8152MUT2G
EMI5208MUTAG	NUF4211MNT1G	NUF8401MNT4G
EMI7204MUTAG	NUF4220MNT1G	NUF8402MNT4G
EMI7206MUTAG	NUF4310MNTAG	NUF8410MNT4G
EMI7208MUTAG	NUF4401MNT1G	NUF8600MNTXG
EMI9404MUTAG	NUF4402MNT1G	NUF8610MNTXG
EMI9406MUTAG	NUF4403MNT1G	NUP3112UPMUTAG
EMI9408MUTAG	NUF6001MUT2G	NUP3115UPMUTAG
NIS1050MNTBG	NUF6010MUT2G	NUP4012PMUTAG
NUF2114MNT1G	NUF6400MNTBG	NUP4212UPMUTAG
NUF2116MNT1G	NUF6401MNT1G	NUP5150MUTBG
NUF2450MUT2G	NUF6402MNT1G	NUP8011MUTAG
NUF3102MUTAG	NUF6406MNT1G	NUS5530MNR2G
	NUF6410MNT1G	