



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16487Generic Copy

16-Jun-2010

TITLE: Final notification for the conversion to RoHS compliant assembly materials for ex-AMIS automotive products in Subcontract assembly

PROPOSED FIRST SHIP DATE: October 2010

AFFECTED CHANGE CATEGORY(S): APG- AA BU

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:

Contact your local ON Semiconductor Sales Office or Eddy Blansaer < Eddy.Blansaer@onsemi.com >

SAMPLES: Contact your local ON Semiconductor Sales Office

ADDITIONAL RELIABILITY DATA: Available

Contact your local ON Semiconductor Sales Office or Daniel Vanderstraeten

< Daniel.Vanderstraeten@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:

ON Semiconductor is notifying customers of its plan to convert the assembly materials for exAMIS automotive products to RoHS compliant materials. This as an effort to produce more environmental friendly products and to align with WEEE and ELV legislations

As a consequence, the bill of materials in assembly, will be converted to RoHS compliant plastics and Pb-free terminations

The subcontractors affected by this change are Amkor Technology Korea (ATK), Amkor Technology Philippines (ATP) and Unisem Batam.

The majority of ON Semiconductors products assembled with these subcontractors are using RoHS compliant materials already. Having still products using non-RoHS compliant assembly materials is a potential risk to face material delivery issues with these suppliers. Aligning to RoHS compliant die-attach and mold compound materials will be a preventive measure for materials shortage.

Qualification tests have been performed to demonstrate that the reliability of the RoHS compliant bill of materials will continue to meet or exceed ON Semiconductor standards and the customer requirements.

No expected impact to part form, fit and function.


FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16487
RELIABILITY DATA SUMMARY:
Package: LQFP; matte Sn finish
Subcontractor: Amkor Korea
Qual vehicle: 0SHIA-002

Test	Conditions	Results
External Visual	Mil-Std-883 Method 2009	0/529
Scanning Acoustic Microscopy Pre MSL	J-STD-020	0/462
Moisture Preconditioning	J-STD-020	
• Bake	125°C / 21 hrs	0/462
• Humidity Soak	30°C / 60% RH / 192 hrs	0/462
• Reflow	260°C / 3 cycles	0/462
Scanning Acoustic Microscopy Post MSL	J-STD-020	0/462
Temperature Cycling	-65 °C / 150°C / 504 cycles	0/231
UHAST	130 °C / 85% RH / 192 hrs	0/231
High Temperature Bake	150 °C / 1000 hrs	0/45
Electrical Testing	SW3, 125 °C	0/529
Physical dimensions	JEDEC JESD22-B100	0/30

Package: PQFP; matte Sn finish
Subcontractor: Amkor Philippines
Qual vehicle: 0CZAA-001

Test	Conditions	Results
External Visual	Mil-Std-883 Method 2009	0/529
Scanning Acoustic Microscopy Pre MSL	J-STD-020	0/462
Moisture Preconditioning	J-STD-020	
• Bake	125°C / 21 hrs	0/462
• Humidity Soak	30°C / 60% RH / 192 hrs	0/462
• Reflow	260°C / 3 cycles	0/462
Scanning Acoustic Microscopy Post MSL	J-STD-020	0/462
Temperature Cycling	-65 °C / 150°C / 504 cycles	0/231
Autoclave	121°C / 100% RH / 192hrs	0/231
High Temperature Bake	150 °C / 1000 hrs	0/45
Electrical Testing	SW3, 125 °C	0/529
Mark Permanency	MIL STD 883 Method 2015.13.	0/12
Wire pull strength	MIL STD 883 Method 2011.7	0/5.
Ball shear strength	AEC-Q100-001	0/5
Physical dimensions	JEDEC JESD22-B100	0/30


FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16487

Package: SSOP ; matte Sn finish
Subcontractor: Amkor Philippines
Qual vehicle: 0MPDC-001

Test	Conditions	Results
External Visual	Mil-Std-883 Method 2009	0/370
Scanning Acoustic Microscopy Pre MSL	J-STD-020	0/591
Moisture Preconditioning	J-STD-020	
• Bake	125°C / 21 hrs	0/591
• Humidity Soak	30°C / 60% RH / 192 hrs	0/591
• Reflow	260°C / 3 cycles	0/591
Scanning Acoustic Microscopy Post MSL	J-STD-020	0/591
Temperature Cycling	-65 °C / 150°C / 504 cycles	0/288
Autoclave	121°C / 100% RH / 192hrs	0/190
High Temperature Bake	150 °C / 1000 hrs	0/45
Electrical Testing	SW3, 125 °C	0/591
Solderability	245°C	0/45
Mark Permanency	MIL STD 883 Method 2015.13.	0/12
Wire pull strength	MIL STD 883 Method 2011.7	0/5.
Ball shear strength	AEC-Q100-001	0/5
Physical dimensions	JEDEC JESD22-B100	0/30

Package: SSOP; NiPdAu finish
Subcontractor: Amkor Philippines
Qual vehicle: 0APSP

Test	Conditions	Results
External Visual	Mil-Std-883 Method 2009	0/594
Scanning Acoustic Microscopy Pre MSL	J-STD-020	0/462
Moisture Preconditioning	J-STD-020	
• Bake	125°C / 21 hrs	0/462
• Humidity Soak	30°C / 60% RH / 192 hrs	0/462
• Reflow	260°C / 3 cycles	0/462
Scanning Acoustic Microscopy Post MSL	J-STD-020	0/462
Temperature Cycling	-65 °C / 150°C / 504 cycles	0/231
Autoclave	121°C / 100% RH / 192hrs	0/231
High Temperature Bake	150 °C / 1000 hrs	0/45
Electrical Testing	SW3, 125 °C	0/591
Solderability	245°C	0/45
Mark Permanency	MIL STD 883 Method 2015.13.	0/12
Wire pull strength	MIL STD 883 Method 2011.7	0/5.
Ball shear strength	AEC-Q100-001	0/5
Physical dimensions	JEDEC JESD22-B100	0/30

Package: SSOP; NiPdAu finish
Subcontractor: Amkor Philippines


FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16487
Qual vehicle: 0MPDC

Test	Conditions	Results
External Visual	Mil-Std-883 Method 2009	0/596
Scanning Acoustic Microscopy Pre MSL	J-STD-020	0/323
Moisture Preconditioning	J-STD-020	
• Bake	125°C / 21 hrs	0/323
• Humidity Soak	85°C / 60% RH / 168 hrs	0/323
• Reflow	260°C / 3 cycles	0/323
Scanning Acoustic Microscopy Post MSL	Sonoscan CSAM	0/323
Temperature Cycling	-65 °C / 150°C / 504 cycles	0/160
UHAST	130 °C / 85% RH /192 hrs	0/162

Package: SOIC; matte Sn finish
Subcontractor: Amkor Philippines
Qual vehicle: 0EICD-001

Test	Conditions	Results
External Visual	Mil-Std-883 Method 2009	0/1070
Scanning Acoustic Microscopy Pre MSL	J-STD-020	0/462
Moisture Preconditioning	J-STD-020	
• Bake	125°C / 21 hrs	0/462
• Humidity Soak	85°C / 60% RH / 168 hrs	0/462
• Reflow	260°C / 3 cycles	0/462
Scanning Acoustic Microscopy Post MSL	Sonoscan CSAM	0/462
Temperature Cycling	-65 °C / 150°C / 504 cycles	0/167
Autoclave	121°C / 100% RH / 192hrs	0/145
High Temperature Bake	150 °C / 1000 hrs	0/45
Electrical Testing	SW3, 125 °C	0/591
Solderability	245°C	0/45
Mark Permanency	MIL STD 883 Method 2015.13.	0/12
Wire pull strength	MIL STD 883 Method 2011.7	0/5.
Ball shear strength	AEC-Q100-001	0/5
Physical dimensions	JEDEC JESD22-B100	0/30

Package: PLCC; matte Sn finish
Subcontractor: Amkor Philippines
Qual vehicle: 0988-442

Test	Conditions	Results
------	------------	---------


FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16487

External Visual	Mil-Std-883 Method 2009	0/245
Scanning Acoustic Microscopy Pre MSL	J-STD-020	0/154
Moisture Preconditioning	J-STD-020	
• Bake	125°C / 21 hrs	0/154
• Humidity Soak	85°C / 60% RH / 168 hrs	0/154
• Reflow	260°C / 3 cycles	0/154
Scanning Acoustic Microscopy Post MSL	Sonoscan CSAM	0/154
Temperature Cycling	-65 °C / 150°C / 504 cycles	0/231
Autoclave	121°C / 100% RH / 192hrs	0/77
High Temperature Bake	175 °C / 500 hrs,	0/77
Electrical Testing	SW3, 125 °C	0/154
Solderability	245°C	0/15
Mark Permanency	MIL STD 883 Method 2015.13.	0/15
Wire pull strength	MIL STD 883 Method 2011.7	0/5.
Physical dimensions	JEDEC JESD22-B100	0/15

Package: PLCC; matte Sn finish
Subcontractor: Unisem Batam
Qual vehicle: 0988-442

Test	Conditions	Results
External Visual	Mil-Std-883 Method 2009	0/582
Scanning Acoustic Microscopy Pre MSL	J-STD-020	0/462
Moisture Preconditioning	J-STD-020	
• Bake	125°C / 21 hrs	0/462
• Humidity Soak	85°C / 60% RH / 168 hrs	0/462
• Reflow	260°C / 3 cycles	0/462
Scanning Acoustic Microscopy Post MSL	Sonoscan CSAM	0/462
Temperature Cycling	-65 °C / 150°C / 504 cycles	0/231
Autoclave	121°C / 100% RH / 192hrs	0/231
High Temperature Bake	175 °C / 500 hrs,	0/45
Electrical Testing	SW3, 125 °C	0/154
X-Ray	Mil-Std-883 Method 2012	0/45
Solderability	245°C	0/45
Mark Permanency	JEDEC JESD22-B107	0/12
Wire pull strength	MIL STD 883 Method 2011.7	0/5.
Ball shear strength	AEC-Q100-001	0/5
Physical dimensions	JEDEC JESD22-B100	0/30
Flammability	IEC-659-2-2	0/3

Package: PBGA; matte Sn/Ag/Cu finish
Subcontractor: Amkor Philippines
Qual vehicle: 14246-501

Test	Conditions	Results
External Visual	Mil-Std-883 Method 2009	0/859



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16487

Scanning Acoustic Microscopy Pre MSL	J-STD-020	0/462
Moisture Preconditioning	J-STD-020	
• Bake	125°C / 21 hrs	0/462
• Humidity Soak	30°C / 60% RH / 192 hrs	0/462
• Reflow	260°C / 3 cycles	0/462
Scanning Acoustic Microscopy Post MSL	Sonoscan CSAM	0/462
Temperature Cycling	-55 °C / 125°C / 1000 cycles	0/231
Unbiased THB	85°C / 85% RH / 1000 hrs	0/231
High Temperature Bake	125 °C / 1000 hrs	0/50
Electrical Testing	SW3, 125 °C	0/154
X-Ray	Mil-Std-883 Method 2012	0/15
Solderability	245°C	0/15
Mark Permanency	JEDEC JESD22-B107	0/12

ELECTRICAL CHARACTERISTIC SUMMARY:

Available upon request

CHANGED PART IDENTIFICATION:

Affected products will get a new internal part number to maintain full traceability between non-RoHS and RoHS compliant parts.

In cooperation with the customer it can be decided if:

- the sellable ON Semiconductor part number needs to be modified
- the part marking needs to be modified



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16487

List of affected Customer Specific Parts:

0SHIA-002-XTP
0SHIA-004-XTP
0APSA-003-XTP
0APSB-002-XTP
0APSC-001-XTP
0APSC-002-XTP
0APSC-003-XTP
0APSE-002-XTP
0APSF-002-XTP
0APSM-002-XTP
0APSP-002-XTP
0CPBD-002-XTP
0CPBE-003-XTP
0EICA-003-XTP
0GDLA-004-XTP
0GDLB-003-XTP
0HISB-004-XTP
0HISB-005-XTP
0HISD-006-XTP
0HISD-008-XTP
0HVPA-006-XTD
0IEBA-003-XTP
0ILIB-005-XTP
0MEPA-003-XTP
0NOSA-001-XTP
0PIZA-004-XTP
0SIFA-003-XTP
0SIFB-001-XTP
0WSCA-001-XTP
12013-001-XTP
12045-501-XTD
12045-501-XTP
14231-001-XTD
14231-001-XTP
15007-518-XTD
19413-001-XTD
60170-001-XTD
60170-001-XTP