ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16527B

Generic Copy

Issue Date: 04-Nov-2011

TITLE: Update of the FPCN#16527 - Amkor Korea Plant 1 (ATK1) Manufacturing move to Amkor Philippines

PROPOSED FIRST SHIP DATE: 14-Jan-2011

AFFECTED CHANGE CATEGORY(S): New Assembly Site

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

SAMPLES: Contact your local ON Semiconductor Sales Office

ADDITIONAL RELIABILITY DATA: Available
Contact your local ON Semiconductor Sales Office or Phine Guevarra<phine.guevarra@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:

Transfer product to Amkor Philippines. See table below for material changes.

Table 1: BOM information for move to Philippines manufacturing

Package	BOM	From (Amkor Korea)	To (Amkor Philippines)
LQFP / TQFP	*Plating*	SnPb	SnPb
	Epoxy	Ablebond 84-1 LMIS-4 Ablestik 3230	Ablestik 3230
	Mold compound	EME7320CR Sumitomo G700L	Sumitomo G700L
NQFP	*Plating*	SnPb	SnPb
	Epoxy	Ablebond 8290	CRM1085A
	Mold compound	G700	G700

Since this is an update of the previous release FPCN16527 series, implementation date will remain the same.

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PURPOSE / REASON:

To continuously support the SnPb Plating requirement from customer due to discontinuance in Amkor Korea.

RELIABILITY DATA SUMMARY:

The assembly qualification tests have concluded with passing results. ON Semiconductor releases the package and materials set under consideration for dry pack level 3 of IPC/JEDEC standard J-STD-020 (Moisture/Reflow Sensitivity Classification for Non-Hermetic Solid State Surface Mount Devices) with peak solder temperature of 225 deg C.

This qualification covers LQFP's with maximum die size area of 87.59 mm2 and maximum pin count of 208 assembled at Amkor Technology Philippines.

TEST	CONDITIONS	CHECKPOINTS	RESULT
Moisture Preconditioning • Bake • Humidity Soak • Reflow	125°C 30°C / 60% RH 225°C	21 hrs 192 hrs 3 cycles	PASSED
Scanning Acoustic Microscopy	Not Applicable	Pre and Post MSL	PASSED (see Figure 1 & 2)
Preconditioning Temperature Cycling	-55°C / 125°C	100 cycles	PASSED
Temperature Cycling	-65°C / 150°C	500 cycles	PASSED
Unbiased-HAST	130°C / 85% RH	96 hrs	PASSED
High Temperature Bake	150°	500 hrs. 1000 hrs	PASSED
Bond Pull Test	Not Applicable	Not Applicable	PASSED (see Figure 4)
Bond Shear Test	Not Applicable	Not Applicable	PASSED (see Figure 5)
Electrical Testing	SW2, 125°C	Not Applicable	PASSED
External Visual	Not Applicable	Not Applicable	PASSED (see Figure 6)
Physical Dimension Inspection	Not Applicable	Not Applicable	PASSED
X-ray Inspection	Not Applicable	Not Applicable	PASSED (see Figure 7)
Solderability test	Not Applicable	Not Applicable	PASSED

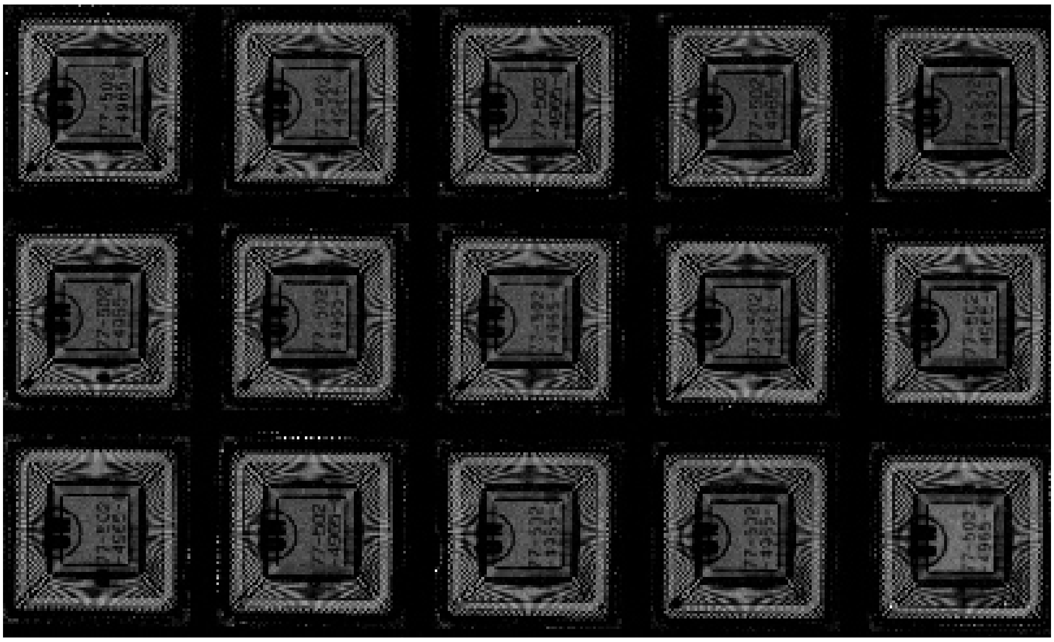

Figure 1. Acoustic Microscopy Image prior Moisture Resistance test.

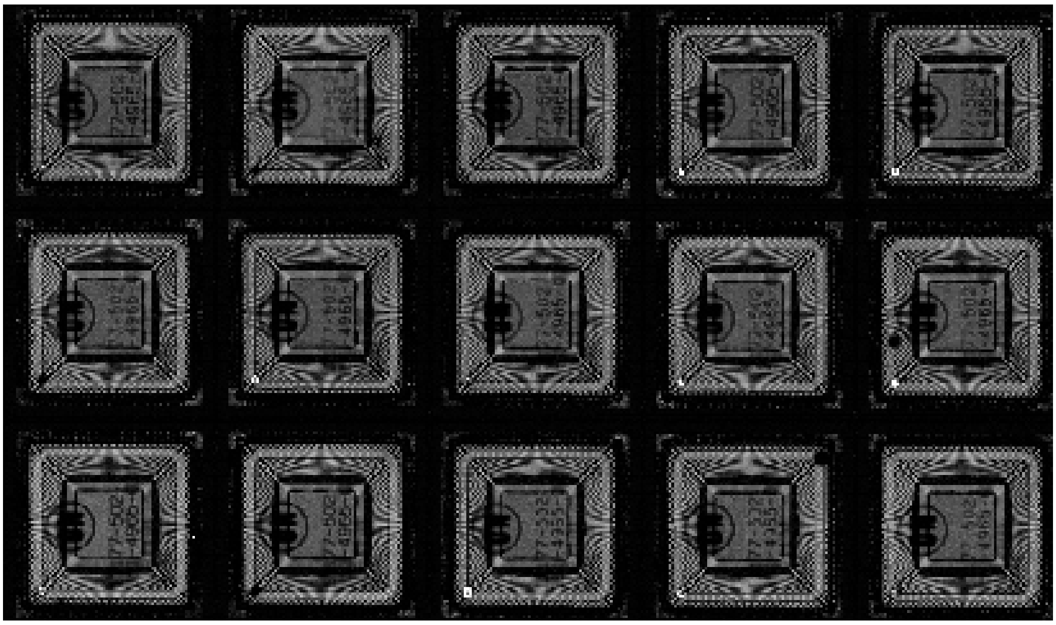

Figure 2. Acoustic Microscopy Image after Moisture Resistance Test.

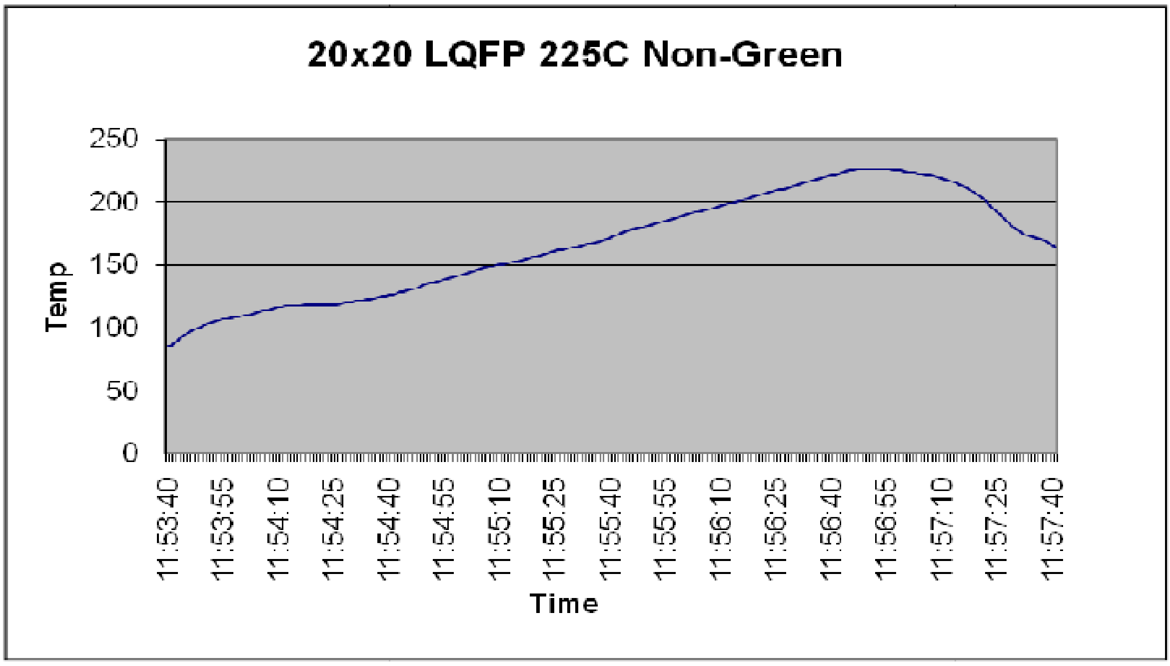

Figure 3. Reflow oven profile for LQFP package at 225 deg C

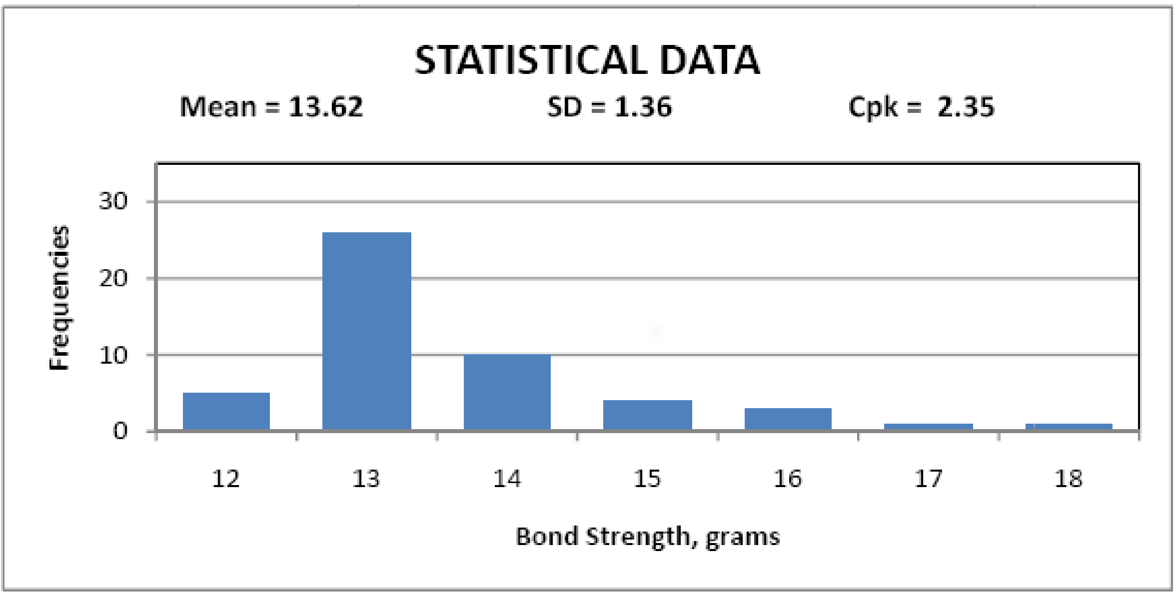

Figure 4. Histogram of Bond Pull Test result.

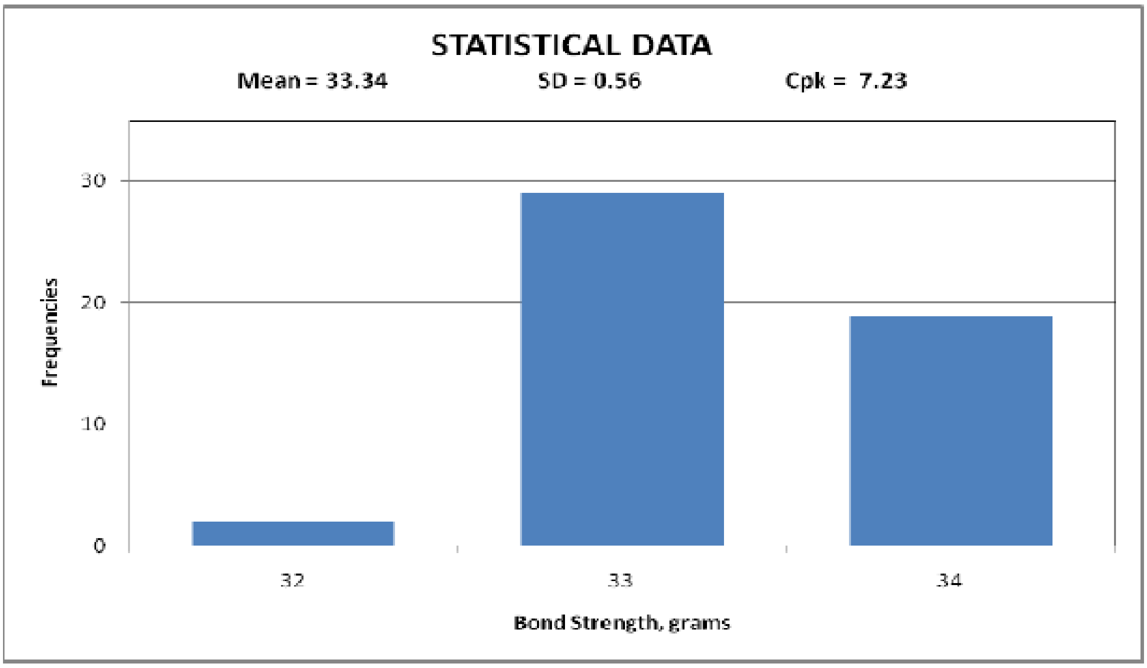

Figure 5. Histogram of Bond Shear Test result.

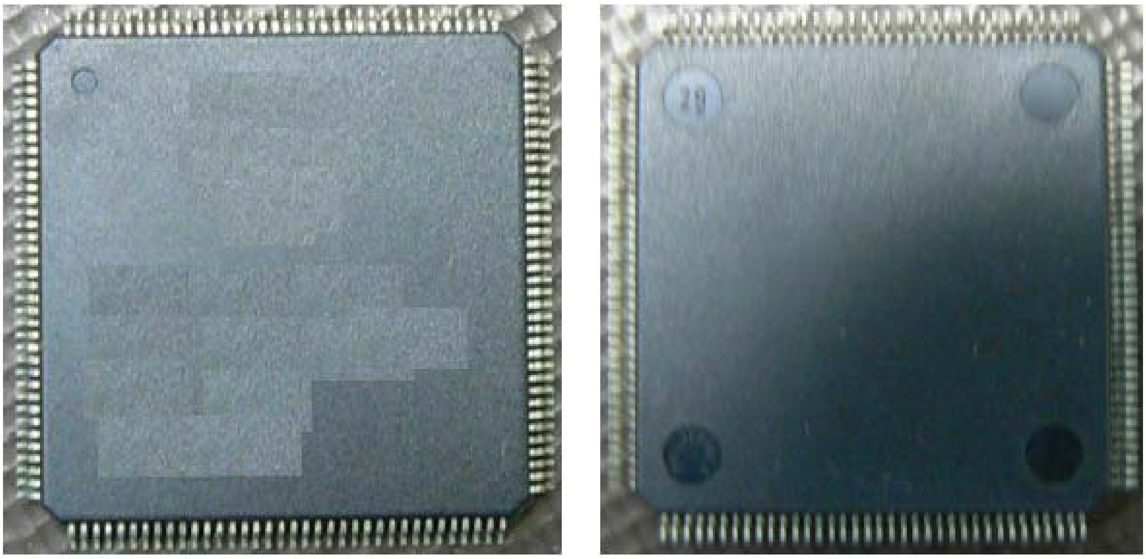

Figure 6. Top (left-side) and bottom (right-side) view of the LQFP package.

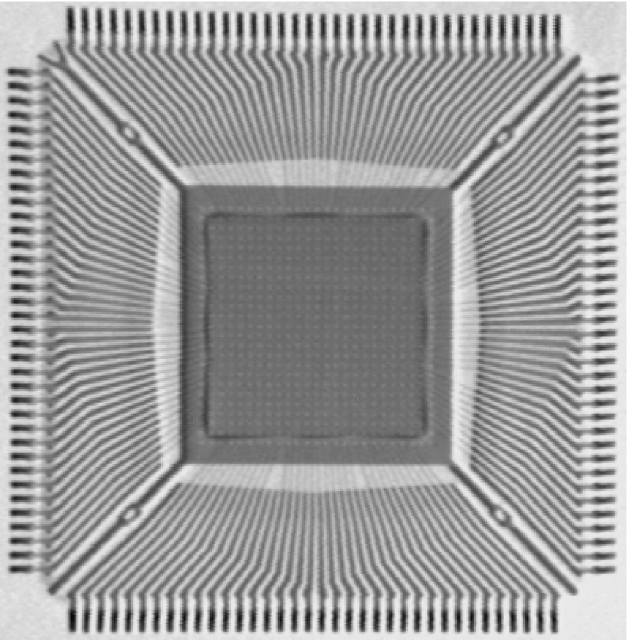

Figure 7. X-ray image of the LQFP package.

CHANGED PART IDENTIFICATION:

No change in ONSEMI part number. Only Assembly Plant code will change from ‘A’ (AMKOR Korea) to ‘L’ (AMKOR Philippines) in the device marking of datecode/tracecode.

List of affected Customer Specific Parts:

0ARGA-004-XTD
0ARGA-004-XTP
0ESWA-002-XTD
0FLMA-001-XTD
0GLIA-001-XTD
0HDSA-003-XTD
0HDSA-003-XTP
0IRIA-001-XTD
0OASA-003-XTD
0OASA-003-XTP
0PROA-002-XTD
0PROA-002-XTP
0SIFB-001-XTP
0TWFA-002-XTD
0TWGA-002-XTP
0TWHA-002-XTP
11556-502-XTD
13505-520-XTD
13505-521-XTD
13787-501-XTP
14974-501-XTD
15022-510-XTD
15022-514-XTD
15025-512-XTD
19112-001-XTD
19112-001-XTP
19349-001-XTD
19402-001-XTD
19699-001-XTD
19916-001-XTD
20483-001-XTD
61792-001-XTD