ON Semiconductor

FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #16565

Generic Copy

Issue Date: 12-Oct-2011

TITLE: LQFP/TQFP Mold Compound and Epoxy Change in ATP1

PROPOSED FIRST SHIP DATE: 12-Jan-2012

AFFECTED CHANGE CATEGORY(S): Mold Operation – New Mold Compound

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 Sarah Sanico<ffxxxh@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:

Sumitomo (Mold Compound Manufacturer) due to business decision will discontinue supplying EME 7320C Type R. ON Semiconductor and its supplier recommends using existing qualified mold compound.

Propose Change	Package Affected	From	To
D/A Material	LQFP/ TQFP	Ablestik 84-1 LMIS-4	Ablestik 3230
Mold compound		EME7320CR	Sumitomo G700L

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RELIABILITY DATA SUMMARY:

The assembly qualification tests have concluded with passing results. Qualification was run according to ON Semiconductor Global Specification 1000019, ON Semiconductor Assembly Reliability Qualification. 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

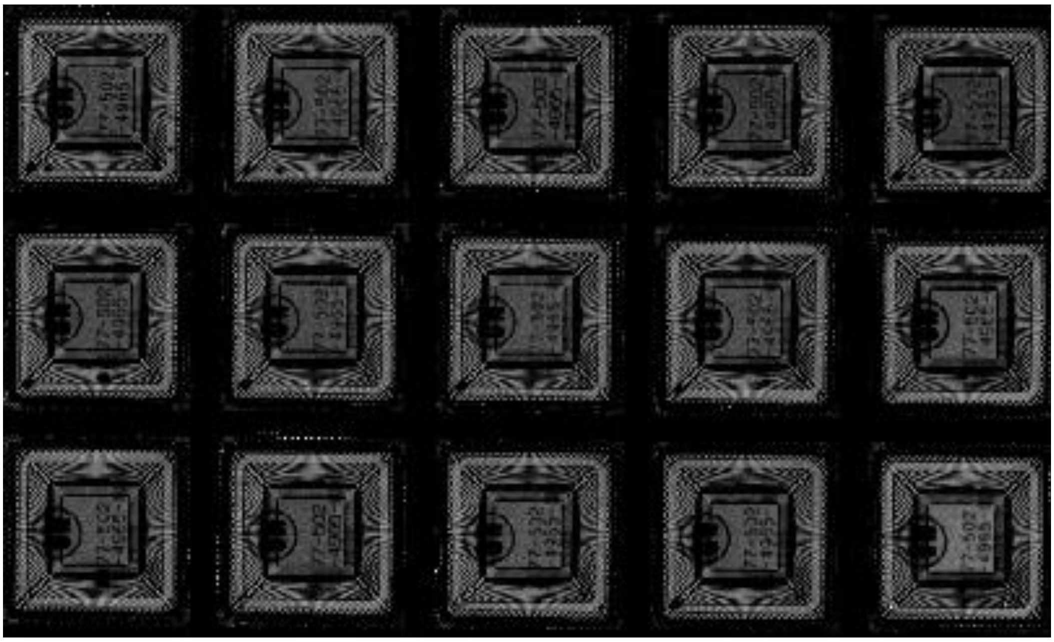

Figure 1. Acoustic Microscopy Image prior Moisture Resistance test.

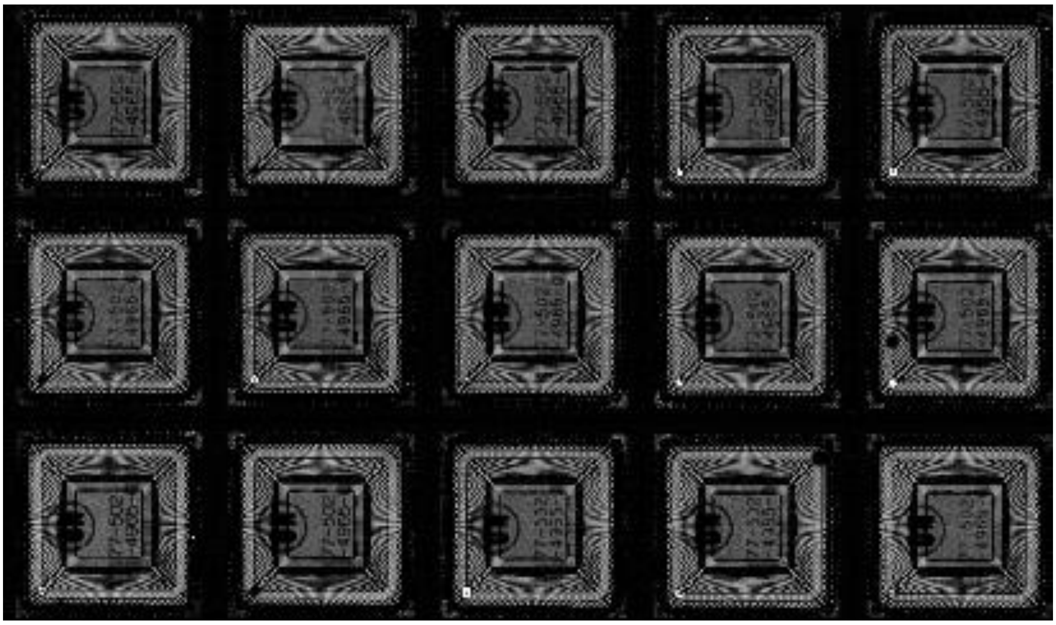

Figure 2. Acoustic Microscopy Image after Moisture Resistance Test.

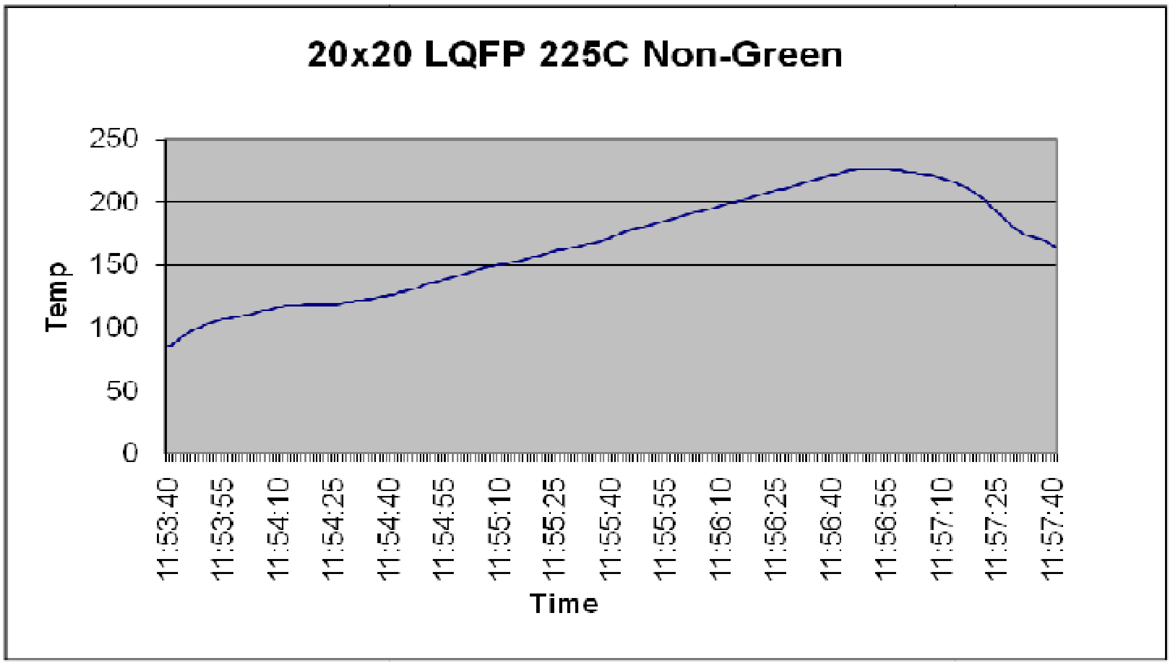

Figure 3. Reflow oven profile for LQFP package at 225 deg C

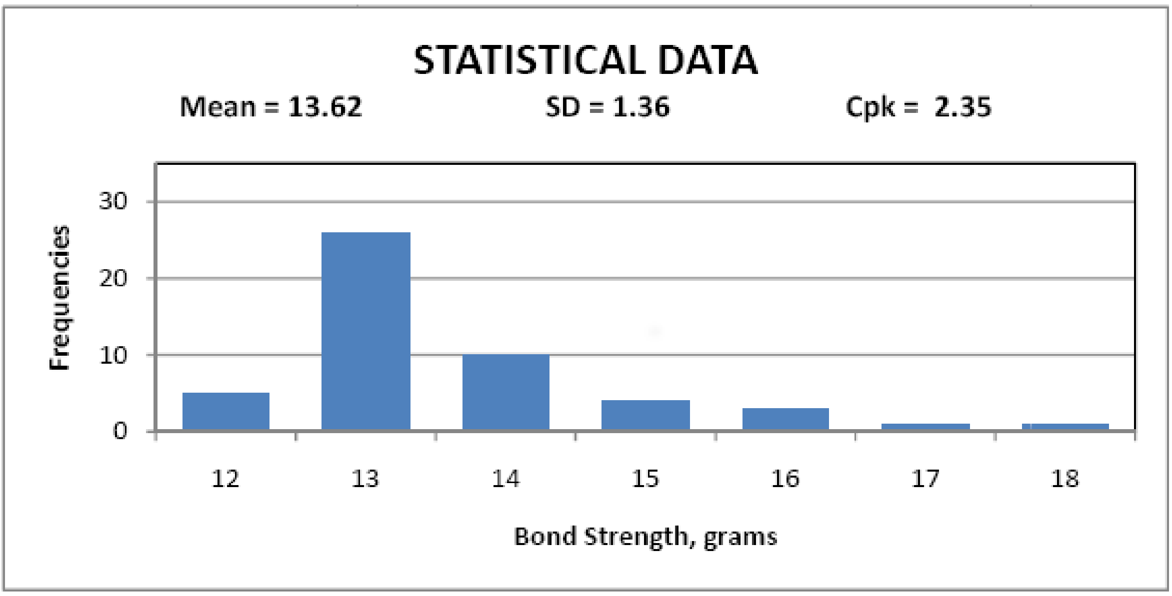

Figure 4. Histogram of Bond Pull Test result.

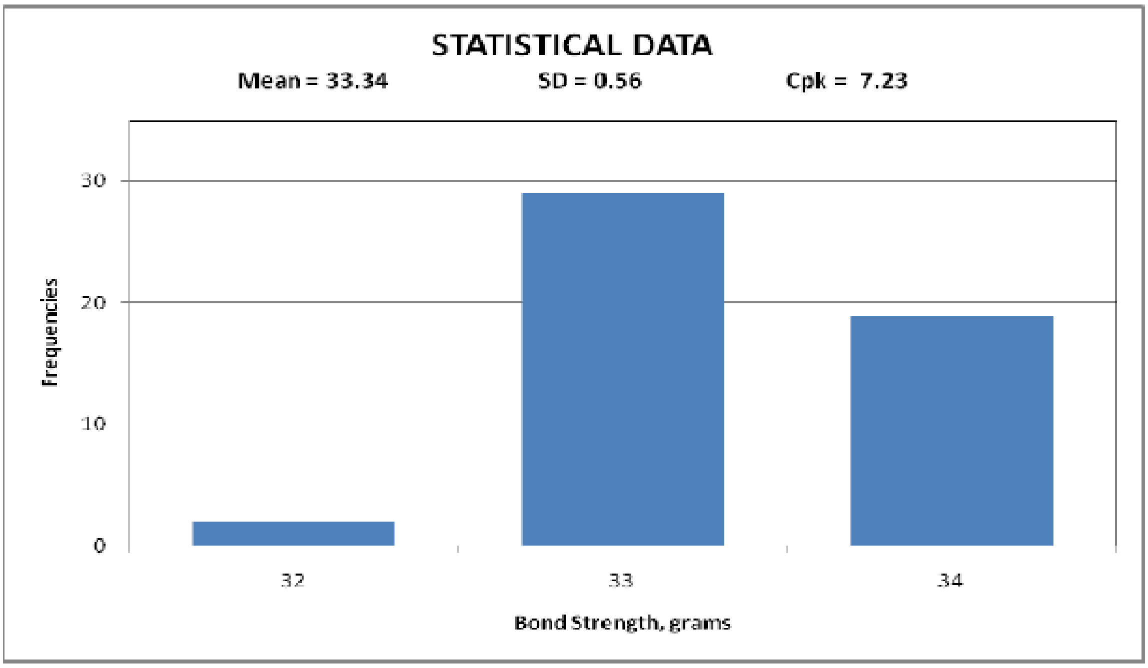

Figure 5. Histogram of Bond Shear Test result.

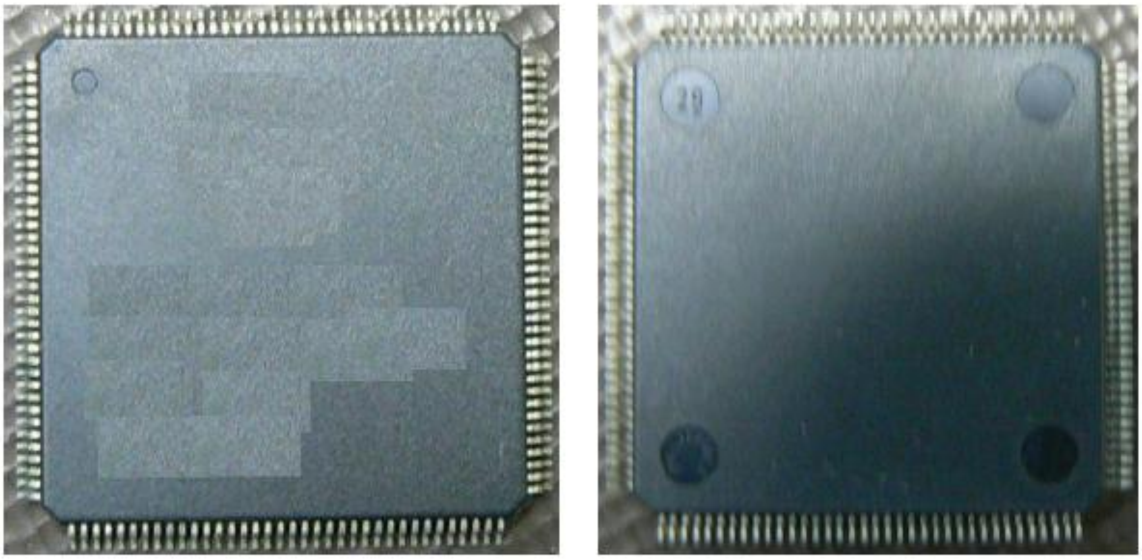

Figure 6. Top (left-side) and bottom (right-side) view of the LQFP package.

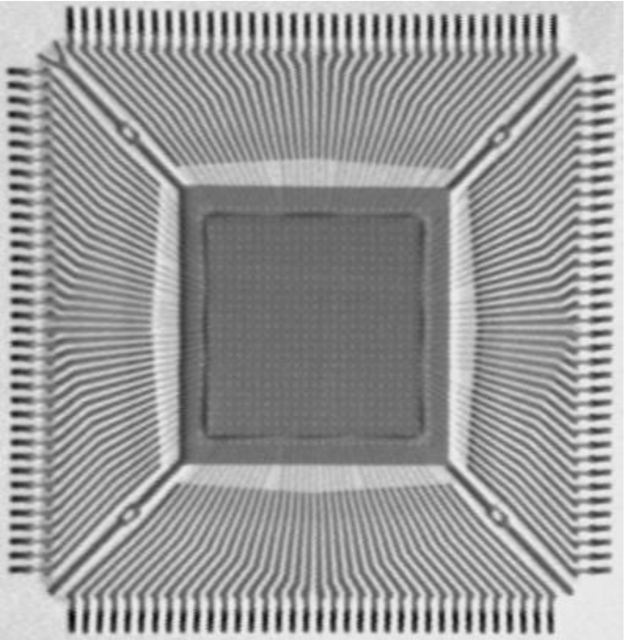

Figure 7. X-ray image of the LQFP package.

CHANGED PART IDENTIFICATION:

No change in ONSEMI part number.

List of affected General Parts:

PART
12197-503-XTP
20490-003-XTD

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List of affected Customer Specific Parts:

PART
05761-033-XTD
06562-036-XTD
06562-048-XTD
06578-002-XTP
06706-002-XTD
06713-075-XTD
06715-508-XTD
06805-010-XTD
06805-023-XTD
06805-522-XTD
06805-526-XTD
06809-511-XTD
06809-513-XTD
06809-515-XTD
06817-019-XTD
06817-020-XTD
06817-807-XTD
06817-808-XTD
0KM01-006-XTD
0KM07-001-XTD
11636-501-XTD
11717-003-XTD
12120-501-XUD
12177-501-XTD
12197-501-XTP
13775-505-XTD
14219-502-XTD
14263-001-XTD
14918-501-XTD
15080-001-XTD
15134-501-XTD
15507-510-XTD
19007-001-XTD
20468-001-XTD
61887-001-XTD
62057-001-XTD