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# INITIAL PRODUCT/PROCESS CHANGE NOTIFICATION #16832

Generic Copy

**Issue Date:** 11-Apr-2012

**TITLE:** Leadframe/Mold Compound/Epoxy Changed 32mmx32mm PQFP Atp1

**PROPOSED FIRST SHIP DATE:** 11-Aug-2012

**AFFECTED CHANGE CATEGORY(S):** Die attach/Mold process – leadframe, epoxy & mold Compound material changed

**FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION:**
Contact your local ON Semiconductor Sales Office or <Henry.Hernandez@onsemi.com>

## NOTIFICATION TYPE:

Initial Product/Process Change Notification (IPCN)

First change notification sent to customers. IPCNs are issued at least 120 days prior to implementation of the change. An IPCN is advance notification about an upcoming change and contains general information regarding the change details and devices affected. It also contains the preliminary reliability qualification plan.

The completed qualification and characterization data will be included in the Final Product/Process Change Notification (FPCN).

This IPCN notification will be followed by a Final Product/Process Change Notification (FPCN) at least 90 days prior to implementation of the change.

## DESCRIPTION AND PURPOSE:

Changed in epoxy and mold compound for PQFP 32x32 mm. Purpose of this is eliminate wire-to-wire short caused by long wire span. Proposed G700Y have higher spiral flow and longer gel time as compared to existing mold compound.

In addition, this will qualify alternate leadframe (LGI) supplier in response to existing AQT supplier business issue.

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## QUALIFICATION PLAN:

Estimated Date for Qualification Completion: 23/07/2012
Samples should be available after completion of Qualification.

### ACCELERATED ENVIRONMENT STRESS TESTS

| Test # | Test | Reference | Test Conditions | Electrical Test Requirements | Sample Size per lot | Accept Criteria | # of Qual Lots | Total Parts Required for Qual Lots | # of Cntrl Lots | Total Parts Required for Control Lots | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | Moisture Preconditioning (PC) | J-STD-020 & JESD22-A113 | Moisture Soak (MSL = 3) Solder Reflow (3x @ 225°C) | Test @ room | 154 | 0 | 3 | 462 | 1 | 154 | Surface Mount Devices only. Preconditioning before tests A0 (SAT), A2 (HAST/THB), A3 (AC/UHST), A4 (TC), A5 (PTC). Test conditions are package dependent. |
| A0 | Delamination check (SAT) | J-STD-020 | Acoustic Microscopy | N.A. | 154 | 0 | 3 | 462 | 1 | 154 | Samples preconditioned per test A1 (PC) |
| A3 (alt) | HAST Unbiased (UHST) | JESD22-A110 | 130°C/ 85%RH for 96 hrs | Test @ room | 77 | 0 | 3 | 231 | 1 | 77 | Samples preconditioned per test A1 (PC) and Preconditioning TC. Stress upto 192 hrs for internal data. Extended stressing required. |
| A4 | Preconditioning Temperature Cycling (TC) | JESD22-A104 | -55°C to 125°C for 100 cycles | Test @ hot | 77 | 0 | 3 | 231 | 1 | 77 | Samples preconditioned per test A1 (PC). Test conditions are dependent on environment. |
| A4 | Temperature Cycling (TC) | JESD22-A104 | -65°C to 150°C for 500 cycles | Test @ hot | 77 | 0 | 3 | 231 | 1 | 77 | Samples preconditioned per test A1 (PC). Test conditions are dependent on environment. Extended stressing required. |
| | Wire Bond Pull Strength (WBP) | MIL- STD883 Method 2011 | Cond. C or D. Minimum pull strength after temperature cycle = 3 grams | N.A. | 30 bonds from 5 parts | Cpk > 1.33 Ppk > 1.66 or 0 Fails after test A4 (TC) | 3 | 15 | 1 | 5 | DPA after TC. |
| A6 | High Temperature Storage (HTS) | JESD22-A103 | 150°C for 1000 hrs | Test @ room Test @ hot | 77 | 0 | 1 | 77 | 1 | 77 | Extended stressing required. |

### PACKAGE ASSEMBLY INTEGRITY TESTS

| Test # | Test | Reference | Test Conditions | Electrical Test Requirements | Sample Size per lot | Accept Criteria | # of Qual Lots | Total Parts Required for Qual Lots | # of Cntrl Lots | Total Parts Required for Control Lots | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | X-ray | Mil STD 883 D meth 2012 & Mil STD 883 D meth 2030. | | N.A. | 15 | | 3 | 45 | 1 | 15 | |
| | Internal Visual | Mil-Std-883D method 2010. | | N.A. | 10 | | 1 | 10 | 1 | 5 | |
| | External Visual | Mil-Std-883D method 2009. | | N.A. | ALL | | ALL | ALL | ALL | ALL | **Performed on all Parts** |
| C1 | Wire Bond Shear (WBS) | AEC-Q100-001 | | N.A. | 30 bonds from 5 parts | Cpk > 1.33 Ppk > 1.66 | 3 | 15 | 1 | 5 | |
| C2 | Wire Bond Pull Strength (WBP) | MIL- STD883 Method 2011 | Cond. C or D. Minimum pull strength after temperature cycle = 3 grams | N.A. | 30 bonds from 5 parts | Cpk > 1.33 Ppk > 1.66 or 0 Fails after test A4 (TC) | 3 | 15 | 1 | 5 | |
| C3 | Solderability (SD) | JESD22-B102 | | N.A. | 15 | > 95% lead coverage | 3 | 45 | 1 | 15 | If burn-in screening is normally performed on the device before shipment, samples for SD must first undergo burn-in. Perform 8 hour steam aging prior to testing. (1 hour for AU-plated leads) |
| C4 | Physical Dimensions (PD) | JESD22-B102 JESD22-B108 | | N.A. | 10 | Cpk > 1.33 Ppk > 1.66 | 3 | 30 | 1 | 10 | See applicable JEDEC standard outline and individual device spec for significant dimensions and tolerances. |

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**List of affected Customer Specific Parts:**

06821-018-XTD
06825-806-XTD
0MORP-001-XTD
0MORP-004-XTD
13648-501-XTD
13845-501-XTD
14233-501-XTD
15022-504-XTD
19281-001-XTD
19626-003-XTD
20331-001-XTD
20685-001-XTD
20707-002-XTD
20870-001-XTD
61537-001-XTD
62228-001-XTD
62271-001-XTD
62283-001-XTD