PRODUCT/PROCESS CHANGE NOTICE (PCN)

PCN #: A1711-02 DATE: 13-Nov-2017
MEANS OF DISTINGUISHING CHANGED DEVICES:
- Product Mark
- Back Mark
- Date Code
- Other
Lot # will have: "GR" prefix for Greatek, Taiwan

Date Effective: 13-Feb-2018
Contact: IDT PCN DESK
E-mail: pcndesk@idt.com
Attachment: Yes No
Samples: Please contact your local sales representative for sample request.

DESCRIPTION AND PURPOSE OF CHANGE:

- Die Technology
- Wafer Fabrication Process
- Assembly Process
- Equipment
- Material
- Testing
- Manufacturing Site
- Data Sheet
- Other

This notification is to advise our customers that IDT is adding Greatek, Taiwan as an alternate assembly facility for parts that are currently assembled at Amkor Philippines.

There is no change to the moisture performance.

Attachment I details the qualification results and Attachment II shows the affected list of part numbers.

RELIABILITY/QUALIFICATION SUMMARY:
Refer to qualification data shown in Attachment I.

CUSTOMER ACKNOWLEDGMENT OF RECEIPT:
IDT records indicate that you require written notification of this change. Please use the acknowledgement below or E-Mail to grant approval or request additional information. If IDT does not receive acknowledgement within 30 days of this notice it will be assumed that this change is acceptable.

IDT reserves the right to ship either version manufactured after the process change effective date until the inventory on the earlier version has been depleted.

Customer: ____________________________
Name/Date: __________________________ E-Mail Address: __________________________
Title: ________________________________ Phone# /Fax#: __________________________

CUSTOMER COMMENTS: __________________________

IDT ACKNOWLEDGMENT OF RECEIPT:
RECD. BY: ____________________________ DATE: ____________________________
ATTACHMENT I - PCN # : A1711-02

PCN Type: Manufacturing Site - Alternate Assembly Location
Data Sheet Change: None
No change in moisture sensitivity level (MSL)

Detail Of Change:
This notification is to advise our customers that IDT is adding Greatek, Taiwan as an alternate assembly facility for parts that are currently assembled at Amkor Philippines.

The material set details of the current and the alternate assembly location is as shown in Table 1.

There is no change to the moisture performance.

Table 1: Assembly Material Sets for The Existing and Alternate Assembly Location

<table>
<thead>
<tr>
<th>Material Set</th>
<th>Existing Assembly (Amkor, Philippines)</th>
<th>Alternate Assembly (Greatek, Taiwan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Die Attach</td>
<td>3230</td>
<td>CRM1076</td>
</tr>
<tr>
<td>Bond Wire</td>
<td>Gold wire</td>
<td>Gold wire</td>
</tr>
<tr>
<td>Mold Compound</td>
<td>G700Y</td>
<td>G700H</td>
</tr>
</tbody>
</table>
**ATTACHMENT I - PCN #: A1711-02**

**Qualification Information and Qualification Data:**

**Affected Packages:** TQFP-128

**Assembly Material:** Shown on page 2 of this attachment.

**Qual Plan & Results:** Tests are in accordance with JEDEC47 recommended tests.

**Qualification Vehicle:** TQFP-128

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Test Method</th>
<th>Test Results (Rej / SS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Temperature Cycling (-55°C to 125°C, 700 cycles)</td>
<td>JESD22-A104</td>
<td>Lot 1 0/25 Lot 2 0/25 Lot 3 0/25</td>
</tr>
<tr>
<td>* HAST - biased (Vccmax, 130 °C/85% RH, 96 Hrs)</td>
<td>JESD22-A110</td>
<td>Lot 1 0/25 Lot 2 0/25 Lot 3 0/25</td>
</tr>
<tr>
<td>High Temperature Storage Bake (150°C, 1000 Hrs)</td>
<td>JESD22-A103</td>
<td>Lot 1 0/25 Lot 2 0/25 Lot 3 0/25</td>
</tr>
<tr>
<td>Ball Shear Test</td>
<td>JESD22-B116</td>
<td>Lot 1 0/5 Lot 2 0/5 Lot 3 0/5</td>
</tr>
<tr>
<td>Bond Pull Test</td>
<td>MIL-STD-883 (Method 2011)</td>
<td>Lot 1 0/5 Lot 2 0/5 Lot 3 0/5</td>
</tr>
<tr>
<td>X Ray</td>
<td>IDT Spec. MAC-3012</td>
<td>Lot 1 0/45 Lot 2 0/45 Lot 3 0/45</td>
</tr>
<tr>
<td>Moisture Sensitivity Level, MSL</td>
<td>J-STD-20 / MSL 3, 260 °C</td>
<td>Lot 1 0/25 Lot 2 0/25 Lot 3 -</td>
</tr>
</tbody>
</table>

* Tests were subjected to Preconditioning per JESD22-A113 prior to stress test
## ATTACHMENT II - PCN # : A1711-02

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Number</th>
<th>Part Number</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>89HMPEB383ZAEMG</td>
<td>89HMPEB383ZBEMG</td>
<td>89HPEB383ZAEMG</td>
<td>89HPEB383ZBEMG</td>
</tr>
<tr>
<td>89HMPEB383ZAEMG8</td>
<td>89HMPEB383ZBEMG8</td>
<td>89HPEB383ZAEMG8</td>
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