# Product Change Notification

(Notification - P1803014a-DIG)

(DOP001/ HMRL-AC-17-0016 / 2)

March 30, 2018

**To:** *Our Valued Digi-Key Customer*

**Overview:** The purpose of this notification is to communicate a product change of select Renesas Electronics America, Inc. (REA) devices.

This notification announces one or more of the following changes to select RL78 L12/L13 devices (see Appendix 2 for details of the specific change).

1. Addition of Saijyo as a wafer fabrication site
2. Addition of ASEKH as an assembly site
3. Addition of RSB & KYEC as final test sites
4. Package Dimensional Tolerance specification change
5. Lead Frame Die Pad shape change
6. Die Mount material change
7. Mold Resin material change
8. Top Mark visibility change

There is no part number change. There is no change in product specifications and/or characteristics. There is no impact to quality and/or reliability.

**Affected Products:** A review of our records indicates the attached list (see Appendix 1) of products may affected your company.

Part numbers given in this list are for active part numbers in REA database at the time of this notification.

**Key Dates:**

| | |
|---|---|
| Shipments from REA of replacement products begins. | **Aug. 1st, 2018** |

**Response:** No response is required. REA will consider this notification approved 30 days after its issue. If you anticipate volumes beyond your regular rate prior to the transition date, please contact your REA sales representative with a forecast of your requirements.

You are encouraged to sample the suggested replacement device and begin qualification as soon as possible. Please contact you REA sales representative to obtain samples.

If the customer provides a timely acknowledgement, the customer shall have 90 days (an additional 60 days) from the date of receipt of this notification in which to make any objections to the notification. If the customer does not make any objections to this notification within 90 days of the receipt of the notification, then Renesas will consider the notification as approved. If customer cannot accept the notification, then the customer must provide Renesas with a last time buy demand and purchase order.

Please contact your REA sales representative for any questions or comments.

Thank you for your attention.

Sincerely,

Renesas Electronics America, Inc.

**Appendix 1: Digi-Key Part Number List**

| Booking Part Number | PCN Notes for Customer Notification |
|---|---|
| R5F10RGAAFB#30 | 1. Addition of Saijyo as a wafer fabrication site;<br>2. Addition of ASEKH as an assembly site;<br>3. Addition of RSB & KYEC as final test sites;<br>4. Package Dimensional Tolerance specification change;<br>5. Lead Frame Die Pad shape change;<br>6. Die Mount material change;<br>7. Mold Resin material change;<br>8. Top Mark visibility change; |
| R5F10RGAAFB#50 | |
| R5F10RGCAFB#30 | |
| R5F10RLAAFB#30 | |
| R5F10RLAAFB#50 | |
| R5F10RLCAFB#30 | |

## Appendix 2: Change Details

# DIFFERENCE OF SPECIFICATION (RL78/L12,L13)

**WAFER FABRICATION : KAWASHIRI → KAWASHIRI/SAIJO,**
**ASSEMBLY: RSB → ASEKH, SORTING: RSB → RSB/KYEC,**
**BONDING WIRE : Cu**

MARCH.13, 2018

BROAD-BASED SOLUTION BUSINESS UNIT
RENESAS ELECTRONICS CO., LTD.

TECHNOLOGY DIVISION
RENESAS SEMICONDUCTOR PACKAGE & TEST SOLUTIONS CO., LTD.

HMRL-AB-17-0168



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(Note 2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.

(Rev. 4.0-1 November 2017)

**Appendix 2: Change Details (cont.)**

# Outline

- Addition of wafer fabrication factory:
  Current factory: Renesas Semiconductor Manufacturing Kawashiri 8 inch line
  Additional factory: Renesas Semiconductor Manufacturing Saijo 8 inch line
- Addition of assembly factory:
  Current factory: Renesas Semiconductor (Beijing) Co.,Ltd (RSB)
  Additional factory: ADVANCED SEMICONDUCTOR ENGINEERING, INC. (ASEKH)
- Addition of sorting factory:
  Current factory: Renesas Semiconductor (Beijing) Co.,Ltd (RSB)
  Additional factory: King Yuan Electronics Co., Ltd. （KYEC）
- Change of material: 1) Lead frame, 2) Die mount, 3) Resin
- Addition of package outline:
  Assembly factory is added, and the package outline form is also added.
  But there is no change for a footprint.
- Change of marking: Changes at assembly factory.
- Storage conditions after opening the moistureproof packaging of ASEKH products:
  Current: 30°C/70%RH/168hr
  New: 30°C/60%RH/168hr (Confirming to the JEDEC standard)
- Specification and characteristics of product: No change
- Quality and reliability: No change



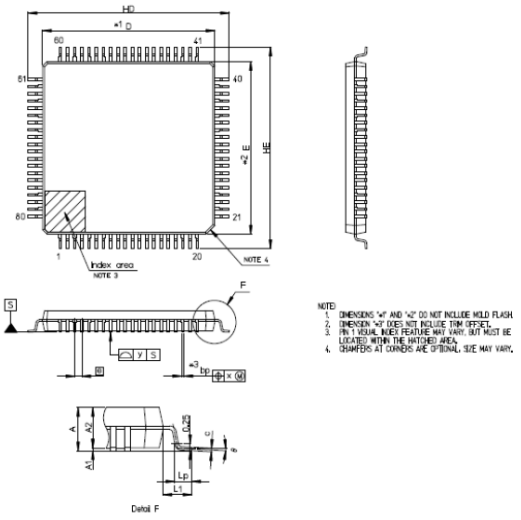

# Difference of specification

| Item | | Current | New |
|---|---|---|---|
| Wafer fabrication factory | | Kawashiri | Kawashiri / Saijo |
| Assembly factory | | RSB | ASEKH |
| Sorting factory | | RSB | RSB / KYEC |
| Package | Outline | Change (Refer to pages 5 to 10) | |
| Lead frame | Material | No change | |
| | Inner pattern | Change (Refer to page 11) | |
| Die mount | Material | Ag epoxy paste A | Ag epoxy paste C |
| Bonding wire | Material | Cu (Pd coating) | |
| Resin | Material | Resin A-2 (halogen-free ) | Resin C (halogen-free ) |
| Plating | Material | No change | |
| Marking | Font | Change (Refer to page 12) | |
| | Digit number | No change | |
| Packing | Tray / Emboss tape | No change | |

※ There is no impact on reliability and specification by material change.

**Appendix 2: Change Details (cont.)**

## Difference of Outline Dimension_12mm×12mm 80pin

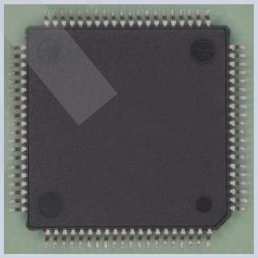
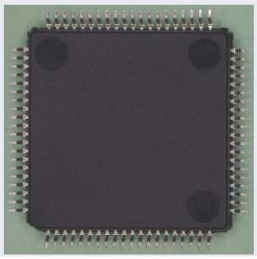
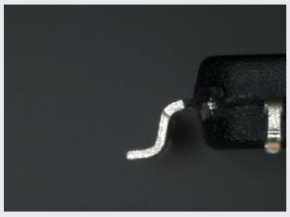



| Symbol | Terminology | New | Current |
|---|---|---|---|
| D | Package length | 12.0±0.1 | 12±0.1 |
| E | Package width | 12.0±0.1 | 12±0.1 |
| A2 | Package height | 1.4 | (1.4) |
| HD | Overall length | 14.0±0.2 | 14±0.2 |
| HE | Overall width | 14.0±0.2 | 14±0.2 |
| A | Seated height | 1.70max | 1.7max |
| A1 | 1st standoff height | 0.05 to 0.15 | 0.1±0.05 |
| bp | Terminal width | 0.20 +0.07/-0.05 | 0.2±0.05 |
| c | Terminal thickness | 0.09 to 0.20 | 0.145±0.055 |
| θ | Angle of terminal flat portions | 3.5° +4.5°/-3.5° | 0 to 8° |
| e | Terminal pitch | 0.5 | 0.5 |
| x | Tolerance value of terminal center position | 0.08max | 0.08max |
| y | Coplanarity | 0.08max | 0.08max |
| Lp | Length of soldered part | 0.60±0.15 | – |
| L1 | Terminal length | 1.0 | – |



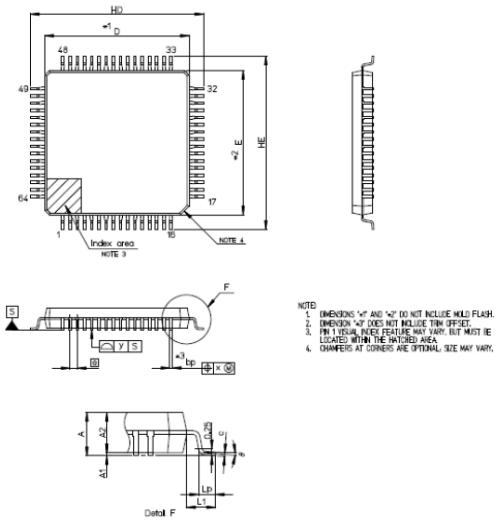

## Difference of Appearance_12mm×12mm 80pin

※Character is reference example

| | Package surface | Package back | Lead bending shape |
|---|---|---|---|
| New |  |  |  |
| Current |  |  |  |

**Appendix 2: Change Details (cont.)**

## Difference of Outline Dimension_10mm×10mm 64pin




NOTE
1. DIMENSIONS "x" AND "y" DO NOT INCLUDE MOLD FLASH.
2. DIMENSION "x" DOES NOT INCLUDE TRIM OFFSET.
3. PIN 1 VISUAL INDEX FEATURE MAY VARY, BUT MUST BE LOCATED WITHIN THE HATCHED AREA.
4. CHAMFERS AT CORNERS ARE OPTIONAL, SIZE MAY VARY.

| Symbol | Terminology | New | Current |
|---|---|---|---|
| D | Package length | 10.0±0.1 | 10±0.1 |
| E | Package width | 10.0±0.1 | 10±0.1 |
| A2 | Package height | 1.4 | (1.4) |
| HD | Overall length | 12.0±0.2 | 12±0.2 |
| HE | Overall width | 12.0±0.2 | 12±0.2 |
| A | Seated height | 1.70max | 1.7max |
| A1 | 1st standoff height | 0.05 to 0.15 | 0.1±0.05 |
| bp | Terminal width | 0.20 +0.07/-0.05 | 0.2±0.05 |
| c | Terminal thickness | 0.09 to 0.20 | 0.145±0.055 |
| θ | Angle of terminal flat portions | 3.5° +4.5°/-3.5° | 0 to 8° |
| e | Terminal pitch | 0.5 | 0.5 |
| x | Tolerance value of terminal center position | 0.08max | 0.08max |
| y | Coplanarity | 0.08max | 0.08max |
| Lp | Length of soldered part | 0.60±0.15 | – |
| L1 | Terminal length | 1.0 | – |



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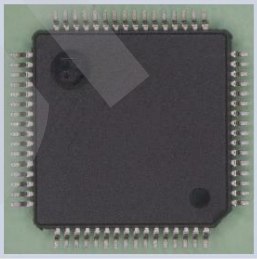
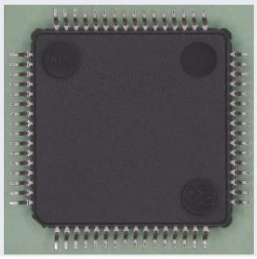
## Difference of Appearance_10mm×10mm 64pin

※Character is reference example

| | Package surface | Package back | Lead bending shape |
|---|---|---|---|
| New |  |  |  |
| Current |  |  |  |



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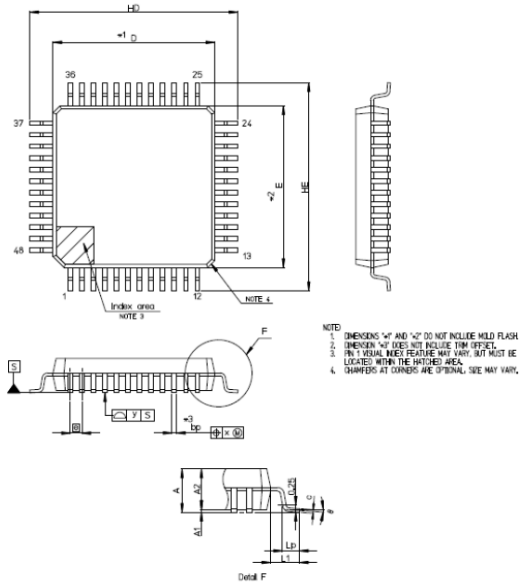
**Appendix 2: Change Details (cont.)**

## Difference of Outline Dimension_7mm×7mm 48pin

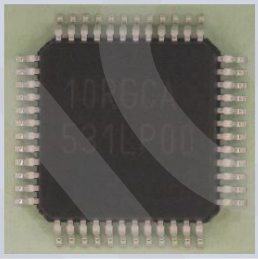
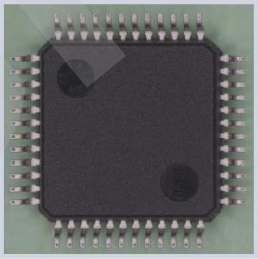
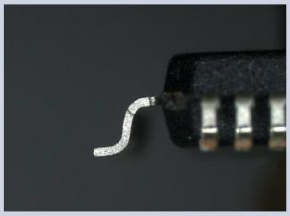
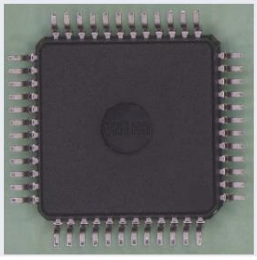
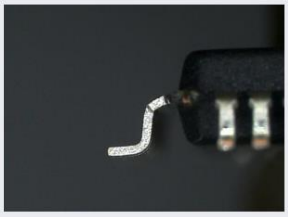



| Symbol | Terminology | New | Current |
|---|---|---|---|
| D | Package length | 7.0±0.1 | 7±0.1 |
| E | Package width | 7.0±0.1 | 7±0.1 |
| A2 | Package height | 1.4 | (1.4) |
| HD | Overall length | 9.0±0.2 | 9±0.2 |
| HE | Overall width | 9.0±0.2 | 9±0.2 |
| A | Seated height | 1.70max | 1.7max |
| A1 | 1st standoff height | 0.05 to 0.15 | 0.1±0.1 |
| bp | Terminal width | 0.20 +0.07/-0.03 | 0.22±0.05 |
| c | Terminal thickness | 0.09 to 0.20 | 0.125+0.02/-0.05 |
| θ | Angle of terminal flat portions | 3.5° +4.5°/-3.5° | 0 to 8° |
| e | Terminal pitch | 0.5 | 0.5 |
| x | Tolerance value of terminal center position | 0.08max | 0.08max |
| y | Coplanarity | 0.08max | 0.1max |
| Lp | Length of soldered part | 0.60±0.15 | – |
| L1 | Terminal length | 1.0 | – |




## Difference of Appearance_7mm×7mm 48pin

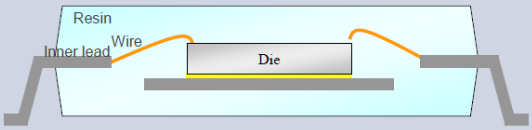
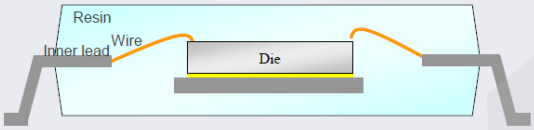
※Character is reference example

| | Package surface | Package back | Lead bending shape |
|---|---|---|---|
| New |  |  |  |
| Current |  |  |  |

**Appendix 2: Change Details (cont.)**

## PKG structure image

※PKG cross section and die pad shape are reference examples

| Assembly Line | PKG cross section | Die pad shape |
|---|---|---|
| New |  |  <br>7mm×7mm～14mm×14mm |
| Current |  |   <br>7mm×7mm　10mm×10mm～14mm×14mm |

※ There is no impact on the reliability by die pad shape




## Difference of Marking Visibility

※Character is reference example

| Assembly Line | New | Current |
|---|---|---|
| Whole Photo |  |  |
| Detail Photo |  |  |

**Appendix 2: Change Details (cont.)**

## 4M changing points

(Addition of wafer fabrication factory)

Process transfer will be performed without change of the basic chip design (chip size, chip patterns).

| Item | Check Result | judgement |
|---|---|---|
| **Machine** | The machines are equivalent to current machines. | **No risk** |
| **Method** | The same as current products. | **No risk** |
| **Man** | Using operator certification system. Only certificated operator can work for the production. | **No risk** |
| **Material** | The same material is used. | **No risk** |





## 4M changing points

(Addition of assembly and sorting factory , Change of material)

| Item | Check Result | judgement |
|---|---|---|
| **Machine** | Changing at assembly and sorting. The machines are equivalent to present machines.<br>There are production of similar copper wire products and we have already checked the additional products have no risk on the production. | **No risk** |
| **Method** | The same as current products. | **No risk** |
| **Man** | Using operator certification system. Only certificated operator can work for the production. | **No risk** |
| **Material** | Using only certificated copper wire. And furthermore certificated materials for the Cu wiring products are applied.<br>The products has been certificated by reliability test same as present products and have no risk. | **No risk** |

## Appendix 2: Change Details (cont.)