

Product Change Notification

(Notification - P1803018-DIGI)

(DPE002/ HMRL-AC-17-0014 / 1)

March 30, 2018

To: *Our Valued Digi-Key Electronics 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 change to select RL78 G13/G14 devices (see Appendix 2 for details of the specific change).

1. Die Mount material change
2. Bonding Wire change from Gold (Au) to Copper (Cu)
3. Mold Resin material change

There is a 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 | Replacement PN | PCN Notes for Customer Notification |
|---------------------|----------------|---|
| R5F104BAAFP#V0 | R5F104BAAFP#30 | 1. Bonding Wire change from Gold (Au) to Copper (Cu); 2. Mold Resin material change; |
| R5F104BAAFP#X0 | R5F104BAAFP#50 | |
| R5F104BADFP#V0 | R5F104BADFP#30 | |
| R5F104BADFP#X0 | R5F104BADFP#50 | |
| R5F104BAGFP#V0 | R5F104BAGFP#30 | |
| R5F104BCAFP#V0 | R5F104BCAFP#30 | |
| R5F104BCAFP#X0 | R5F104BCAFP#50 | |
| R5F104BCDFP#V0 | R5F104BCDFP#30 | |
| R5F104BCDFP#X0 | R5F104BCDFP#50 | |
| R5F104BCGFP#V0 | R5F104BCGFP#30 | |
| R5F104BCGFP#X0 | R5F104BCGFP#50 | |
| R5F104BDAFP#V0 | R5F104BDAFP#30 | |
| R5F104BDAFP#X0 | R5F104BDAFP#50 | |
| R5F104BDDFP#V0 | R5F104BDDFP#30 | |
| R5F104BDDFP#X0 | R5F104BDDFP#50 | |
| R5F104BDGFP#V0 | R5F104BDGFP#30 | |
| R5F104BEAFP#V0 | R5F104BEAFP#30 | |
| R5F104BEAFP#X0 | R5F104BEAFP#50 | |
| R5F104BEDFP#V0 | R5F104BEDFP#30 | |
| R5F104BEDFP#X0 | R5F104BEDFP#50 | |
| R5F104BEGFP#V0 | R5F104BEGFP#30 | |
| R5F104BFAFP#V0 | R5F104BFAFP#30 | |
| R5F104BFAFP#X0 | R5F104BFAFP#50 | |
| R5F104BFDFP#V0 | R5F104BFDFP#30 | |
| R5F104BFGFP#V0 | R5F104BFGFP#30 | |
| R5F104BGAFP#V0 | R5F104BGAFP#30 | |
| R5F104BGAFP#X0 | R5F104BGAFP#50 | |
| R5F104BGDFP#V0 | R5F104BGDFP#30 | |
| R5F104BGDFP#X0 | R5F104BGDFP#50 | |
| R5F104BGGFP#V0 | R5F104BGGFP#30 | |

Appendix 1: Digi-Key Part Number List (cont.)

| Booking Part Number | Replacement PN | PCN Notes for Customer Notification |
|---------------------|-----------------|---|
| R5F100JCAFA#V0 | R5F100JCAFA#30 | <p>1. Die Mount material change; 2. Bonding Wire change from Gold (Au) to Copper (Cu); 3. Mold Resin material change;</p> |
| R5F100JCAFA#X0 | R5F100JCAFA#50 | |
| R5F100JCDAFA#V0 | R5F100JCDAFA#30 | |
| R5F100JCDAFA#X0 | R5F100JCDAFA#50 | |
| R5F100JDAFA#V0 | R5F100JDAFA#30 | |
| R5F100JDAFA#X0 | R5F100JDAFA#50 | |
| R5F100JDDFA#V0 | R5F100JDDFA#30 | |
| R5F100JDDFA#X0 | R5F100JDDFA#50 | |
| R5F100JEAFA#V0 | R5F100JEAFA#30 | |
| R5F100JEAFA#X0 | R5F100JEAFA#50 | |
| R5F100JEDFA#V0 | R5F100JEDFA#30 | |
| R5F100JEDFA#X0 | R5F100JEDFA#50 | |
| R5F100JFAFA#V0 | R5F100JFAFA#30 | |
| R5F100JFAFA#X0 | R5F100JFAFA#50 | |
| R5F100JFDFA#V0 | R5F100JFDFA#30 | |
| R5F100JFDFA#X0 | R5F100JFDFA#50 | |
| R5F100JGAFA#V0 | R5F100JGAFA#30 | |
| R5F100JGAFA#X0 | R5F100JGAFA#50 | |
| R5F100JGDAFA#V0 | R5F100JGDAFA#30 | |
| R5F100JGDAFA#X0 | R5F100JGDAFA#50 | |
| R5F100JGGFA#V0 | R5F100JGGFA#30 | |
| R5F100JGGFA#X0 | R5F100JGGFA#50 | |
| R5F100JHAFA#V0 | R5F100JHAFA#30 | |
| R5F100JHAFA#X0 | R5F100JHAFA#50 | |
| R5F100JHDAFA#V0 | R5F100JHDAFA#30 | |
| R5F100JHDAFA#X0 | R5F100JHDAFA#50 | |
| R5F100JJAFA#V0 | R5F100JJAFA#30 | |
| R5F100JJAFA#X0 | R5F100JJAFA#50 | |
| R5F100JJDFA#V0 | R5F100JJDFA#30 | |
| R5F100JJDFA#X0 | R5F100JJDFA#50 | |
| R5F100JJGFA#V0 | R5F100JJGFA#30 | |
| R5F100JJGFA#X0 | R5F100JJGFA#50 | |
| R5F101JCAFA#V0 | R5F101JCAFA#30 | |
| R5F101JCAFA#X0 | R5F101JCAFA#50 | |
| R5F101JDAFA#V0 | R5F101JDAFA#30 | |
| R5F101JDAFA#X0 | R5F101JDAFA#50 | |
| R5F101JEAFA#V0 | R5F101JEAFA#30 | |
| R5F101JEAFA#X0 | R5F101JEAFA#50 | |
| R5F101JEDFA#V0 | R5F101JEDFA#30 | |
| R5F101JEDFA#X0 | R5F101JEDFA#50 | |
| R5F101JFAFA#V0 | R5F101JFAFA#30 | |
| R5F101JFAFA#X0 | R5F101JFAFA#50 | |
| R5F101JGAFA#V0 | R5F101JGAFA#30 | |
| R5F101JGAFA#X0 | R5F101JGAFA#50 | |
| R5F101JHAFA#V0 | R5F101JHAFA#30 | |

Appendix 1: Digi-Key Part Number List (cont.)

| Booking Part Number | Replacement PN | PCN Notes for Customer Notification |
|---------------------|----------------|---|
| R5F101JHAFAX0 | R5F101JHAFAX50 | <p>1. Die Mount material change; 2. Bonding Wire change from Gold (Au) to Copper (Cu); 3. Mold Resin material change;</p> |
| R5F101JJAFAX0 | R5F101JJAFAX30 | |
| R5F101JJAFAX0 | R5F101JJAFAX50 | |
| R5F104JCAFAX0 | R5F104JCAFAX30 | |
| R5F104JCAFAX0 | R5F104JCAFAX50 | |
| R5F104JCDFA#V0 | R5F104JCDFA#30 | |
| R5F104JCGFA#V0 | R5F104JCGFA#30 | |
| R5F104JDAFA#V0 | R5F104JDAFA#30 | |
| R5F104JDAFA#X0 | R5F104JDAFA#50 | |
| R5F104JDDFA#V0 | R5F104JDDFA#30 | |
| R5F104JDGFA#V0 | R5F104JDGFA#30 | |
| R5F104JEAFA#V0 | R5F104JEAFA#30 | |
| R5F104JEAFA#X0 | R5F104JEAFA#50 | |
| R5F104JEDFA#V0 | R5F104JEDFA#30 | |
| R5F104JEGFA#V0 | R5F104JEGFA#30 | |
| R5F104JFAFA#V0 | R5F104JFAFA#30 | |
| R5F104JFDFA#V0 | R5F104JFDFA#30 | |
| R5F104JFGFA#V0 | R5F104JFGFA#30 | |
| R5F104JGAFAX0 | R5F104JGAFAX30 | |
| R5F104JGDFA#V0 | R5F104JGDFA#30 | |
| R5F104JGGFA#V0 | R5F104JGGFA#30 | |
| R5F104JHAFAX0 | R5F104JHAFAX30 | |
| R5F104JHDFA#V0 | R5F104JHDFA#30 | |
| R5F104JHGFA#V0 | R5F104JHGFA#30 | |
| R5F104JJAFAX0 | R5F104JJAFAX30 | |
| R5F104JJAFAX0 | R5F104JJAFAX50 | |
| R5F104JJDFA#V0 | R5F104JJDFA#30 | |
| R5F104JJGFA#V0 | R5F104JJGFA#30 | |
| R5F104JJGFA#X0 | R5F104JJGFA#50 | |
| R5F104LCAFP#V0 | R5F104LCAFP#30 | |
| R5F104LCAFP#X0 | R5F104LCAFP#50 | |
| R5F104LCDFP#V0 | R5F104LCDFP#30 | |
| R5F104LCGFP#V0 | R5F104LCGFP#30 | |
| R5F104LDAFP#V0 | R5F104LDAFP#30 | |
| R5F104LDAFP#X0 | R5F104LDAFP#50 | |
| R5F104LDDFP#V0 | R5F104LDDFP#30 | |
| R5F104LDGFP#V0 | R5F104LDGFP#30 | |
| R5F104LEAFP#V0 | R5F104LEAFP#30 | |
| R5F104LEAFP#X0 | R5F104LEAFP#50 | |
| R5F104LFAFP#V0 | R5F104LFAFP#30 | |
| R5F104LFAFP#X0 | R5F104LFAFP#50 | |
| R5F104LGAFP#V0 | R5F104LGAFP#30 | |
| R5F104LHAFP#V0 | R5F104LHAFP#30 | |
| R5F104LJAFP#V0 | R5F104LJAFP#30 | |
| R5F104LJAFP#X0 | R5F104LJAFP#50 | |

Appendix 2: Change Details

DIFFERENCE OF SPECIFICATION (RL78/G13,G14)

ASSEMBLY : RSB , SORTING : RSB

BONDING WIRE : Au → Cu

MARCH.13, 2018

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

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

HMRL-AB-17-0156

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(Rev. 4.0-1 November 2017)

Appendix 2: Change Details (cont.)

Outline

- Assembly factory: No change
Renesas Semiconductor (Beijing) Co., Ltd. (RSB)
- Sorting factory: No change
Renesas Semiconductor (Beijing) Co., Ltd. (RSB)
- Change of material:
 - 1) Bonding wire, 2) Resin, 3) Die mount material *1
 - *1: Ag epoxy paste is unified.
 - 1-1. Ag epoxy paste A → Ag epoxy paste A
R5F104BxxFP
 - 1-2. Ag epoxy paste A-1 → Ag epoxy paste A
R5F100JxxFA, R5F101JxxFA, R5F104JxxFA, R5F104LxxFP
- Change of ordering Part Number:
 - The products which are changed the bonding wire from Gold (Au) to Copper (Cu) are changed the ordering Part Number as follows.
 - Current part number: R5F1*****#V0, R5F1*****#X0
 - New part number: R5F1*****#30, R5F1*****#50
- Specification and characteristics of product:
 - No change
- Quality and reliability:
 - No change

Difference of specification

| Item | | Current | New |
|--------------------|-----------------------|--|---------------------------|
| Assembly factory | | RSB | |
| Sorting factory | | RSB | |
| Package | Outline | No change | |
| Lead frame | Material | No change | |
| | Inner pattern | No change | |
| Die mount material | Material | Ag epoxy paste A Ag epoxy paste A-1 | Ag epoxy paste A *1 |
| Bonding wire | Material | Au | Cu (Pd coating) |
| Resin | Material | Resin A (halogen-free) Resin A-1 (halogen-free) | Resin A-2 (halogen-free) |
| Plating | Material | No change | |
| Marking | Font | No change | |
| | Digit number | No change | |
| Packing | Tray / Emboss tape | No change | |

*1: Ag epoxy paste is unified.
 1-1. Ag epoxy paste A → Ag epoxy paste A
 R5F104BxxFP
 1-2. Ag epoxy paste A-1 → Ag epoxy paste A
 R5F100JxxFA, R5F101JxxFA, R5F104JxxFA, R5F104LxxFP

Appendix 2: Change Details (cont.)

4M changing points

(Change of material)

| Item | Check Result | Judgement |
|-----------------|--|----------------|
| Machine | Copper wire products are produced by same wire-bonding machine applied gold wire. To prevent copper wire oxidization, inert gas is used to wire-bonding process. 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 | Bonding method (thermosonic bonding) and process flow for the Cu wiring are same as the Au wiring. | No risk |
| Man | No change. | No risk |
| Material | Using only certificated copper wire. And furthermore certificated materials for the Cu wiring products are applied. The products has been certificated by reliability test same as gold wire products and have no risk. | No risk |