

Product Change Notification

(Notification - P1803013-DIG)

(DOP001/ HMRL-AC-17-0016 / 1-2)

March 30, 2018

To: *Our Valued Digi-Key Inc. 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 & 3 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 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
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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: Affected Part Number List for Digi-Key

Booking Part Number	PCN Notes for Customer Notification
R5F10WLAAAFB#30	<ol style="list-style-type: none"> 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;
R5F10WLAAAFB#50	
R5F10WLCAFB#30	
R5F10WLCAFB#50	
R5F10WLDAFB#30	
R5F10WLDAFB#50	
R5F10WLEAFB#30	
R5F10WLEAFB#50	
R5F10WLFafb#30	
R5F10WLFafb#50	
R5F10WLGafb#30	
R5F10WLGafb#50	
R5F10WMAAFB#30	
R5F10WMAAFB#50	
R5F10WMCAFB#30	
R5F10WMCAFB#50	
R5F10WMDAFB#30	
R5F10WMDAFB#50	
R5F10WMEAFB#30	
R5F10WMEAFB#50	
R5F10WMFAFB#30	
R5F10WMFAFB#50	
R5F10WMGafb#30	
R5F10WMGafb#50	
R5F10WMGAXXFB#50	

Appendix 2: Change Details

DIFFERENCE OF SPECIFICATION (RL78/L12,L13)

WAFER FABRICATION: KAWASHIRI → KAWASHIRI/SAIJO ,
ASSEMBLY: RSB , SORTING: RSB ,
BONDING WIRE : Cu, 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-17-0166

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(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
- 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
On the other hand, there is no change in material of the product which does not change the wire type.
- 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 (No change of wire)

Item		Current	New
Wafer fabrication factory		Kawashiri	Kawashiri / Saijo
Assembly factory		RSB	
Sorting factory		RSB	
Package	Outline	No change	
Lead frame	Material	No change	
	Inner pattern	No change	
Die mount material	Material	No change	
Bonding wire	Material	No change	
Resin	Material	No change	
Plating	Material	No change	
Marking	Font	No change	
	Digit number	No change	
Packing	Tray / Emboss tape	No change	

Appendix 2: Change Details (cont.)

Difference of specification (Change of wire)

Item		Current	New
Wafer fabrication factory		Kawashiri	Kawashiri / Saijo
Assembly factory		RSB	
Sorting factory		RSB	
Package	Outline	No change	
Lead frame	Material	No change	
	Inner pattern	No change	
Die mount material	Material	No change	
Bonding wire	Material	Au	Cu (Pd coating)
Resin	Material	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	

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

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

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

Appendix 3: 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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(Rev. 4.0-1 November 2017)

Appendix 3: 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

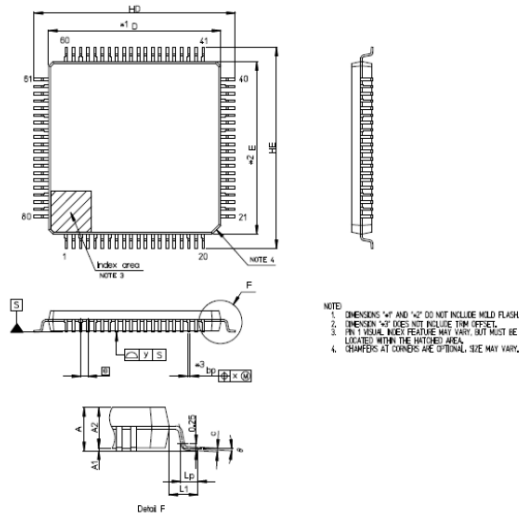
Difference of specification

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 3: 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	—

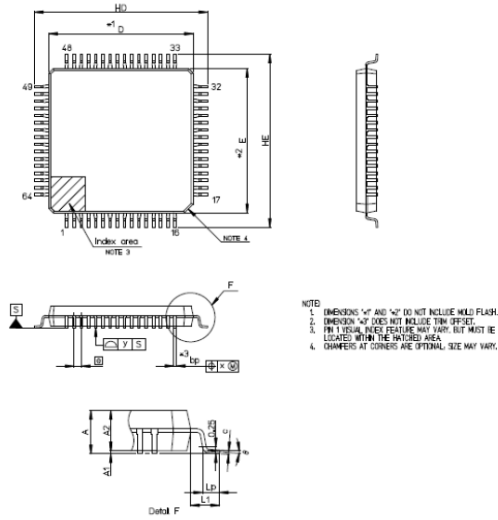
Difference of Appearance_12mm×12mm 80pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 3: Change Details (cont.)

Difference of Outline Dimension_10mm×10mm 64pin



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	—

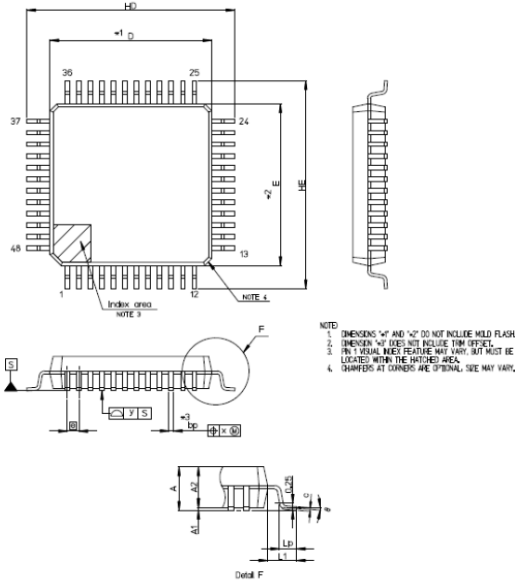
Difference of Appearance_10mm×10mm 64pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 3: 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

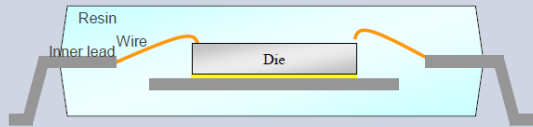

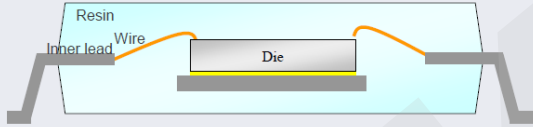

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 3: 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		 7mm×7mm~14mm×14mm
Current		 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 3: 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. 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. The products has been certificated by reliability test same as present products and have no risk.	No risk

Appendix 3: Change Details (cont.)



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