Product Change Notification

(Notification - P1903017-DIGI)

(MCP-AC-19-0012 / DPE005 / MCP-AB-19-0010 / 3)

March 18, 2019

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 various changes to changes select RL78 G13 devices. See Appendix 1a & 1b for a list of affected part numbers and changes. Appendix 2 provides additional change details.

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 list of products in Appendix 1 may affect 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, 2019**

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.

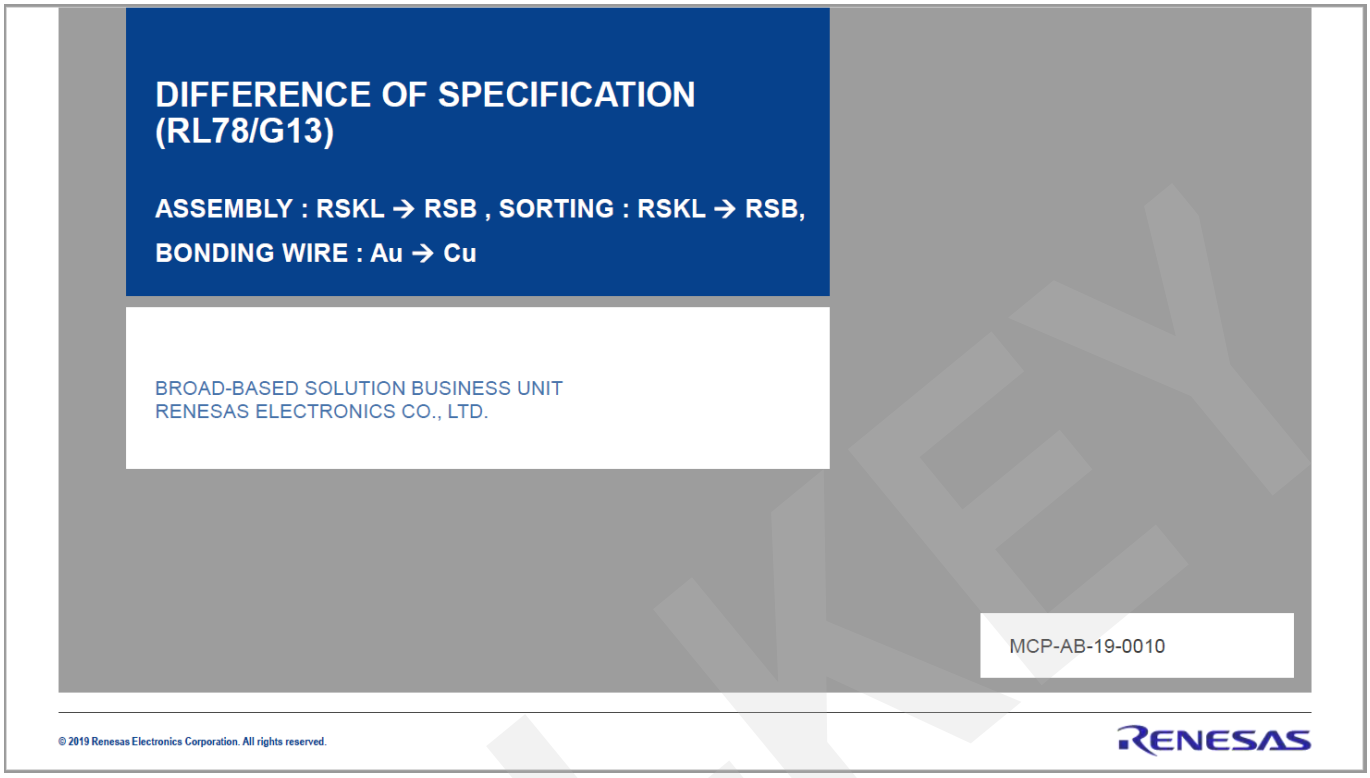
Appendix 1a: Digi-Key Affected Part Number List

Booking PN	Replacement PN	Change
R5F100GKAFB#V0	R5F100GKAFB#30	1. Die Mount Material Change 2. Mold Resin Material Change 3. Bonding Wire Change from Au to Cu 4. Addition of ASEKH & RSB as Assembly Sites 5. Addition of RSB & KYEC as FT Sites 6. Package Dimension Change 7. Leadframe Material Change 8. Top Mark Change 9. Packing Desiccant Change
R5F100GKAFB#X0	R5F100GKAFB#50	
R5F100GKDFB#V0	R5F100GKDFB#30	
R5F100GKDFB#X0	R5F100GKDFB#50	
R5F100GLAFB#V0	R5F100GLAFB#30	
R5F100GLAFB#X0	R5F100GLAFB#50	
R5F100GLDFB#V0	R5F100GLDFB#30	
R5F100GLDFB#X0	R5F100GLDFB#50	
R5F100LKAFB#V0	R5F100LKAFB#30	
R5F100LKDFB#V0	R5F100LKDFB#30	
R5F100LLAFB#V0	R5F100LLAFB#30	
R5F100LLDFB#V0	R5F100LLDFB#30	
R5F100MKAFB#V0	R5F100MKAFB#30	
R5F100MLAFB#V0	R5F100MLAFB#30	
R5F100MLAFB#X0	R5F100MLAFB#50	
R5F100PKAFB#V0	R5F100PKAFB#30	
R5F100PKAFB#X0	R5F100PKAFB#50	
R5F100PKDFB#V0	R5F100PKDFB#30	
R5F100PKDFB#X0	R5F100PKDFB#50	
R5F100PLAFB#V0	R5F100PLAFB#30	
R5F100PLAFB#X0	R5F100PLAFB#50	
R5F100PLDFB#V0	R5F100PLDFB#30	
R5F100PLDFB#X0	R5F100PLDFB#50	
R5F101GKAFB#V0	R5F101GKAFB#30	
R5F101GKAFB#X0	R5F101GKAFB#50	
R5F101GKDFB#V0	R5F101GKDFB#30	
R5F101GKDFB#X0	R5F101GKDFB#50	
R5F101GLAFB#V0	R5F101GLAFB#30	
R5F101GLAFB#X0	R5F101GLAFB#50	
R5F101GLDFB#V0	R5F101GLDFB#30	
R5F101GLDFB#X0	R5F101GLDFB#50	
R5F101LKAFB#V0	R5F101LKAFB#30	
R5F101LKDFB#V0	R5F101LKDFB#30	
R5F101LLAFB#V0	R5F101LLAFB#30	
R5F101LLDFB#V0	R5F101LLDFB#30	
R5F101MKAFB#V0	R5F101MKAFB#30	
R5F101MLAFB#V0	R5F101MLAFB#30	
R5F101MLAFB#X0	R5F101MLAFB#50	
R5F101PKAFB#V0	R5F101PKAFB#30	
R5F101PKDFB#V0	R5F101PKDFB#30	
R5F101PLAFB#V0	R5F101PLAFB#30	
R5F101PLDFB#V0	R5F101PLDFB#30	

Appendix 1b: Digi-Key Affected Part Number List

Booking PN	Replacement PN	Change
R5F100LKAFB#X0	R5F100LKAFB#50	1. Die Mount Material Change 2. Mold Resin Material Change 3. Bonding Wire Change from Au to Cu 4. Addition of ASEKH & RSB as Assembly Sites 5. Addition of RSB & KYEC as FT Sites 6. Package Dimension Change 7. Leadframe Material Change 8. Top Mark Change 9. Packing Desiccant Change 10. Tape & Reel Quantity Change
R5F100LKDFB#X0	R5F100LKDFB#50	
R5F100LLAFB#X0	R5F100LLAFB#50	
R5F100LLDFB#X0	R5F100LLDFB#50	
R5F101LKAFB#X0	R5F101LKAFB#50	
R5F101LKDFB#X0	R5F101LKDFB#50	
R5F101LLAFB#X0	R5F101LLAFB#50	
R5F101LLDFB#X0	R5F101LLDFB#50	

Appendix 2: Change Details



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

(Rev.4.0-2 November 2017)

Appendix 2: Change Details (cont.)

Outline

- Addition of assembly factory:
  Current factory: Renesas Semiconductor KL Sdn. Bhd., (RSKL)
  Additional factory: Renesas Semiconductor (Beijing) Co., Ltd. (RSB)
- Addition of sorting factory:
  Current factory: Renesas Semiconductor KL Sdn. Bhd., (RSKL)
  Additional factory: Renesas Semiconductor (Beijing) Co., Ltd. (RSB)
- Change of material: 1) Bonding wire, 2) Resin, 3) Lead frame, 4) Die mount
- Addition of package outline:
  Assembly factory is added, and the package outline form is also added.
- 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
- Change of marking: Changes at assembly factory
- Packing specification: A part of packing material is changed
- Specification and characteristics of product:
  No change
- Quality and reliability:
  No change

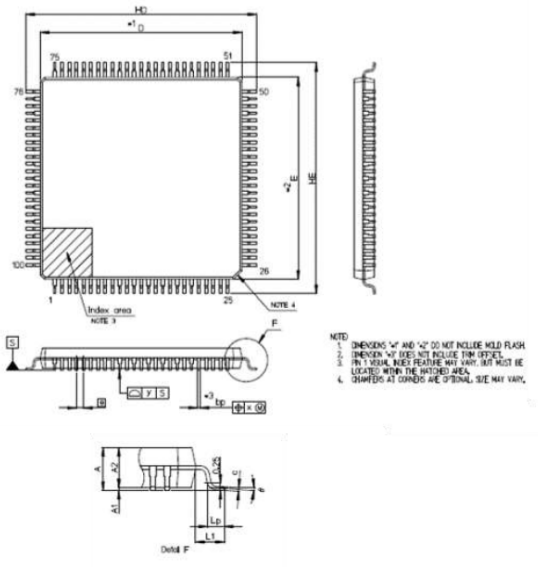
Difference of specification

Item		Current	New
Assembly factory		RSKL	RSB
Sorting factory		RSKL	RSB
Package	Outline	No change	Change (Refer to pages 5 to 12)
Lead frame	Material	No change	
	Inner pattern	No change	Change (Refer to page 13)
Die mount	Material	No change (Ag epoxy paste)	Change (Ag epoxy paste)
Bonding wire	Material	No change (Au)	Change Cu (Pd coating)
Resin	Material	No change (halogen-free)	Change (halogen-free)
Plating	Material	No change	
Marking	Font	No change	Change (Refer to page 14)
	Digit number	No change	Change (Refer to pages 15,16)
Packing	Tray/ Emboss tape	No change	Change (Refer to page 17)

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

Appendix 2: Change Details (cont.)

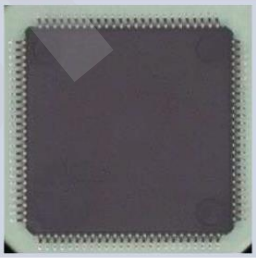
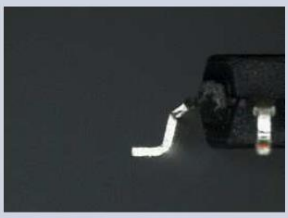
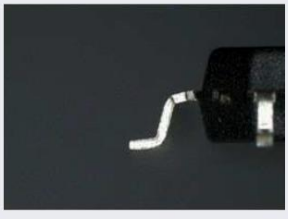
Difference of Outline Dimension_14mm×14mm 100pin



Symbol	Terminology	New	Current
D	Package length	14.0±0.1	14.00±0.20
E	Package width	14.0±0.1	14.00±0.20
A2	Package height	1.4	1.40±0.05
HD	Overall length	16.0±0.2	16.00±0.20
HE	Overall width	16.0±0.2	16.00±0.20
A	Seated height	1.70max	1.60max
A1	1st standoff height	0.05 to 0.15	0.10±0.05
bp	Terminal width	0.20 +0.07/-0.05	0.22±0.05
c	Terminal thickness	0.09 to 0.20	0.145 +0.055/-0.045
θ	Angle of terminal flat portions	3.5° +4.5°/-3.5°	3° +5°/-3°
e	Terminal pitch	0.5	0.50
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	0.60±0.15
L1	Terminal length	1.0	1.00±0.20

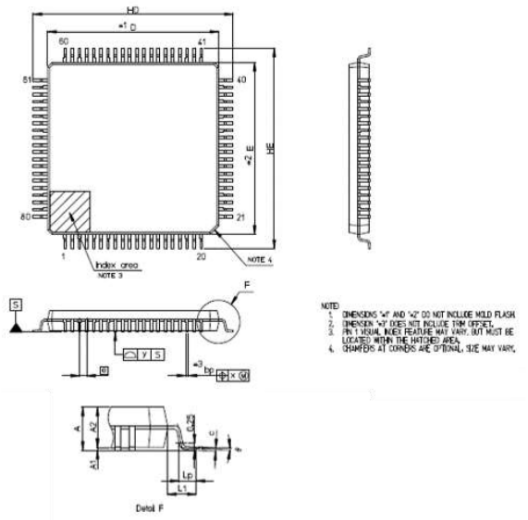
Difference of Appearance_14mm×14mm 100pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 2: Change Details (cont.)

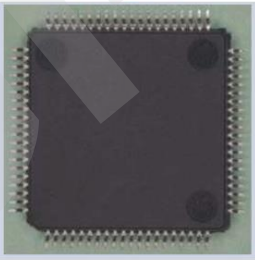
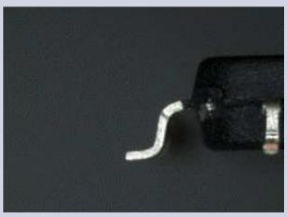
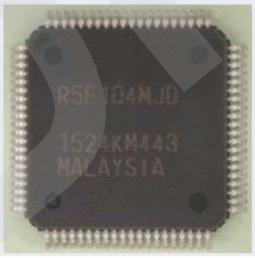
Difference of Outline Dimension_12mm×12mm 80pin



Symbol	Terminology	New	Current
D	Package length	12.0±0.1	12.00±0.20
E	Package width	12.0±0.1	12.00±0.20
A2	Package height	1.4	1.40±0.05
HD	Overall length	14.0±0.2	14.00±0.20
HE	Overall width	14.0±0.2	14.00±0.20
A	Seated height	1.70max	1.60max
A1	1st standoff height	0.05 to 0.15	0.10±0.05
bp	Terminal width	0.20 +0.07/-0.05	0.22±0.05
c	Terminal thickness	0.09 to 0.20	0.145 +0.055/-0.045
θ	Angle of terminal flat portions	3.5° +4.5°/-3.5°	3° +5°/-3°
e	Terminal pitch	0.5	0.50
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	0.60±0.15
L1	Terminal length	1.0	1.00±0.20

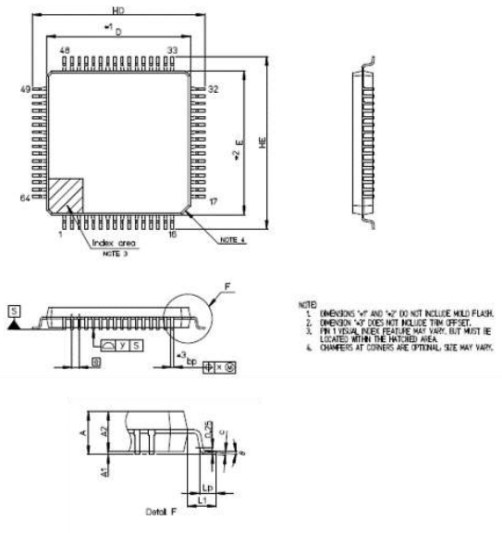
Difference of Appearance_12mm×12mm 80pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 2: Change Details (cont.)

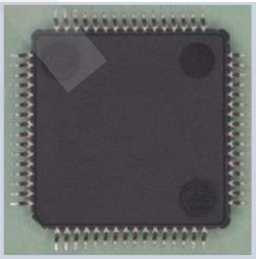
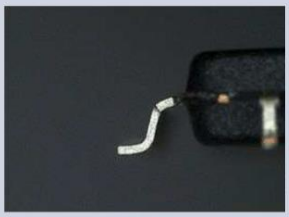
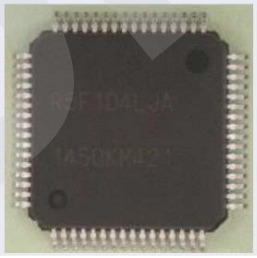
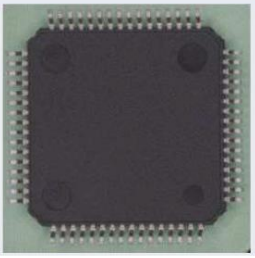
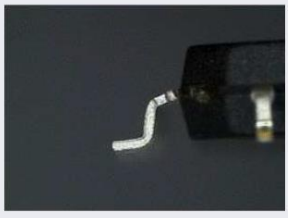
Difference of Outline Dimension_10mm×10mm 64pin



Symbol	Terminology	New	Current
D	Package length	10.0±0.1	10.00±0.20
E	Package width	10.0±0.1	10.00±0.20
A2	Package height	1.4	1.40±0.05
HD	Overall length	12.0±0.2	12.00±0.20
HE	Overall width	12.0±0.2	12.00±0.20
A	Seated height	1.70max	1.60max
A1	1st standoff height	0.05 to 0.15	0.10±0.05
bp	Terminal width	0.20 +0.07/-0.05	0.22±0.05
c	Terminal thickness	0.09 to 0.20	0.145 +0.055/-0.045
θ	Angle of terminal flat portions	3.5° +4.5°/-3.5°	3° +5°/-3°
e	Terminal pitch	0.5	0.50
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	0.60±0.15
L1	Terminal length	1.0	1.00±0.20

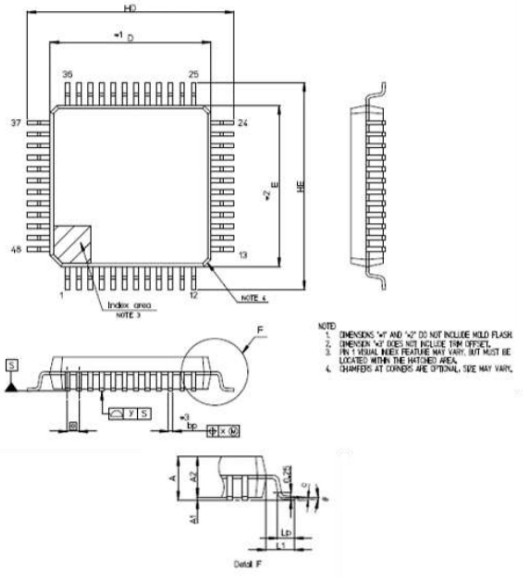
Difference of Appearance_10mm×10mm 64pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 2: Change Details (cont.)

Difference of Outline Dimension_7mm×7mm 48pin



Symbol	Terminology	New	Current
D	Package length	7.0±0.1	7.00±0.20
E	Package width	7.0±0.1	7.00±0.20
A2	Package height	1.4	1.40±0.05
HD	Overall length	9.0±0.2	9.00±0.20
HE	Overall width	9.0±0.2	9.00±0.20
A	Seated height	1.70max	1.60max
A1	1st standoff height	0.05 to 0.15	0.10±0.05
bp	Terminal width	0.20 +0.07/-0.03	0.22±0.05
c	Terminal thickness	0.09 to 0.20	0.145 +0.055/-0.045
θ	Angle of terminal flat portions	3.5° +4.5°/-3.5°	3° +5°/-3°
e	Terminal pitch	0.5	0.50
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	0.60±0.15
L1	Terminal length	1.0	1.00±0.20

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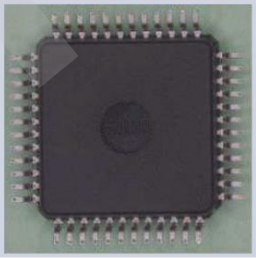
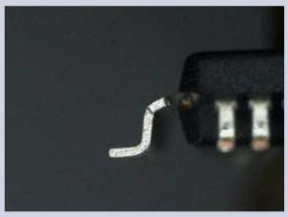
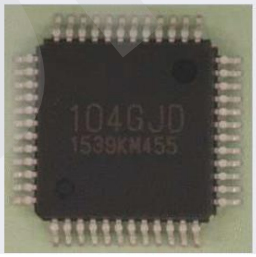
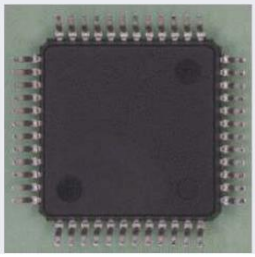
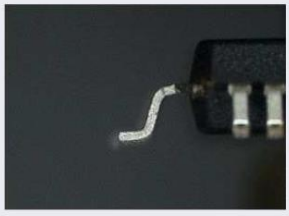
Difference of Appearance_7mm×7mm 48pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

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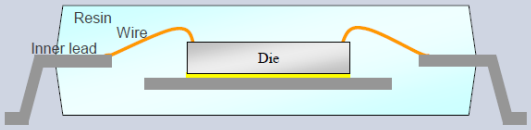
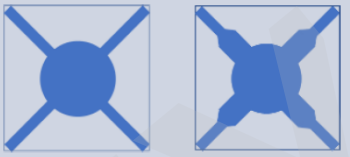
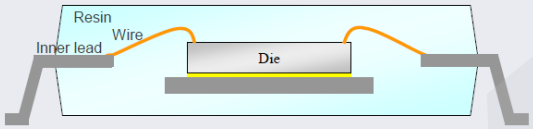
Appendix 2: Change Details (cont.)

PKG structure image

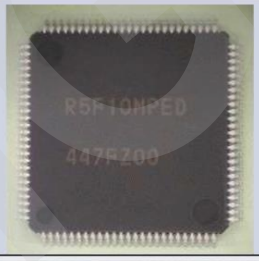
※ PKG cross section and die pad shape are reference examples

Assembly Line	PKG cross section	Die pad shape
New		
Current		

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

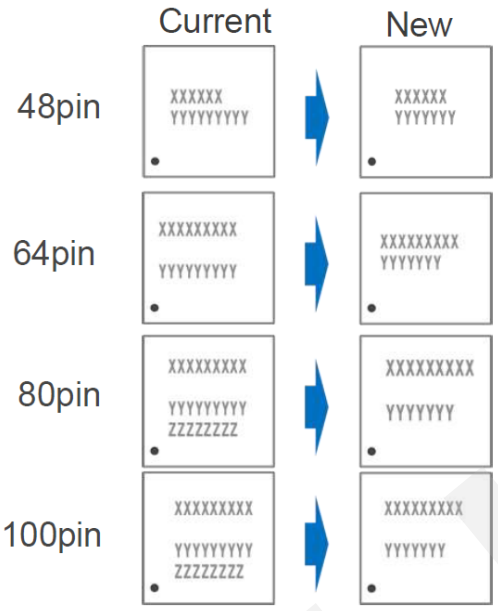
Difference of Marking Visibility

※Character is reference example

Assembly Line	New	Current
Whole Photo		
Detail Photo		

Appendix 2: Change Details (cont.)

Difference of marking



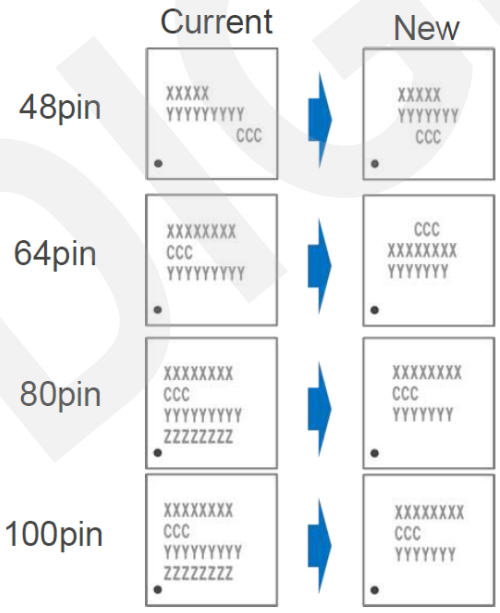
X : Part number : No change (6-digit)
Y : Lot number : Change (9 → 7-digit)

X : Part number : No change (9-digit)
Y : Lot number : Change (9 → 7-digit)

X : Part number : No change (9-digit)
Y : Lot number : Change (9 → 7-digit)
Z : Country of origin : Change (8-digit → Non)

X : Part number : No change (9-digit)
Y : Lot number : Change (9 → 7-digit)
Z : Country of origin : Change (8-digit → Non)

Difference of marking



X : Part number : No change (5-digit)
Y : Lot number : Change (9 → 7-digit)
C : ROM code : No change (3-digit)

X : Part number : Change (Line change) Digit isn't change
C : ROM code : Change (Line change) Digit isn't change
Y : Lot number : Change (9 → 7-digit)

X : Part number : No change (8-digit)
C : ROM code : No change (3-digit)
Y : Lot number : Change (9 → 7-digit)
Z : Country of origin : Change (8-digit → Non)

X : Part number : No change (8-digit)
C : ROM code : No change (3-digit)
Y : Lot number : Change (9 → 7-digit)
Z : Country of origin : Change (8-digit → Non)

Appendix 2: Change Details (cont.)

PACKING SPECIFICATION (Embossed tape)

Storage number:
Only 10mm x 10mm 64pin LQFP embossed tape will be changed. Other packages are unchanged.

	RSKL	RSB
Ordering Part Number	R5F1*RL**FB#X0	R5F1*RL**FB#50
Embossed tape code	E2416Q10RA	←
Storage number	1000 pcs/reel	1500 pcs/reel

Change of desiccant:
Desiccant of embossed tape packing is different with RSKL and RSB.
However, there is no change in the storage term.

	RSKL	RSB
Desiccant		

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. 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	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 gold wire products and have no risk.	**No risk**

Appendix 2: Change Details (cont.)