Product Change Notification

(Notification - P1803022-DIGI)

(DPE002/ HMRL-AC-17-0014 / 4)

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. Addition of ASEKH as an assembly site
2. Addition of RSB & KYEC as final test sites
3. Package Dimensional Tolerance specification change
4. Lead Frame Die Pad shape change
5. Die Mount material change
6. Bonding Wire change from Gold (Au) to Copper (Cu)
7. Mold Resin material change
8. Top Mark visibility change
9. Desiccant change

There may be a part number change (see Appendix 1 for the specific part number). 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 List

Booking Part Number	Replacement PN	PCN Notes for Customer Notification
R5F100FJDFP#V0	R5F100FJDFP#30	1. Addition of ASEKH as an assembly site; 2. Addition of RSB & KYEC as final test sites; 3. Package Dimensional Tolerance specification change; 4. Lead Frame Die Pad shape change; 5. Die Mount material change; 6. Bonding Wire change from Gold (Au) to Copper (Cu); 7. Mold Resin material change; 8. Top Mark visibility change;
R5F101FAA100FP#V0	R5F101FAA100FP#30	
R5F101FAAFP#V0	R5F101FAAFP#30	
R5F101FADFP#V0	R5F101FADFP#30	
R5F101FCAFP#V0	R5F101FCAFP#30	
R5F101FCDFP#V0	R5F101FCDFP#30	
R5F101FDAFP#V0	R5F101FDAFP#30	
R5F101FDDFP#V0	R5F101FDDFP#30	
R5F101FEAFP#V0	R5F101FEAFP#30	
R5F101FEDFP#V0	R5F101FEDFP#30	
R5F101FFAFP#V0	R5F101FFAFP#30	
R5F101FFDFP#V0	R5F101FFDFP#30	
R5F101FGAFP#V0	R5F101FGAFP#30	
R5F101FGDFP#V0	R5F101FGDFP#30	
R5F101FHAFP#V0	R5F101FHAFP#30	
R5F101FHDFP#V0	R5F101FHDFP#30	
R5F101FJAFP#V0	R5F101FJAFP#30	
R5F101FJDFP#V0	R5F101FJDFP#30	
R5F104FAAFP#V0	R5F104FAAFP#30	
R5F104FADFP#V0	R5F104FADFP#30	
R5F104FCAFP#V0	R5F104FCAFP#30	
R5F104FCDFP#V0	R5F104FCDFP#30	
R5F104FDAFP#V0	R5F104FDAFP#30	
R5F104FDDFP#V0	R5F104FDDFP#30	
R5F104FEAFP#V0	R5F104FEAFP#30	
R5F104FEDFP#V0	R5F104FEDFP#30	
R5F104FFAFP#V0	R5F104FFAFP#30	
R5F104FGAFP#V0	R5F104FGAFP#30	
R5F104FHAFP#V0	R5F104FHAFP#30	
R5F104FJAFP#V0	R5F104FJAFP#30	
R5F104FJDFP#V0	R5F104FJDFP#30	

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

Booking Part Number	Replacement PN	PCN Notes for Customer Notification
R5F100FAAFP#X0	R5F100FAAFP#50	1. Addition of ASEKH as an assembly site; 2. Addition of RSB & KYEC as final test sites; 3. Package Dimensional Tolerance specification change; 4. Lead Frame Die Pad shape change; 5. Die Mount material change; 6. Bonding Wire change from Gold (Au) to Copper (Cu); 7. Mold Resin material change; 8. Top Mark visibility change; 9. Desiccant change;
R5F100FADFP#X0	R5F100FADFP#50	
R5F100FCAFP#X0	R5F100FCAFP#50	
R5F100FCDFP#X0	R5F100FCDFP#50	
R5F100FDAFP#X0	R5F100FDAFP#50	
R5F100FDDFP#X0	R5F100FDDFP#50	
R5F100FEAFP#X0	R5F100FEAFP#50	
R5F100FEDFP#X0	R5F100FEDFP#50	
R5F100FFAFP#X0	R5F100FFAFP#50	
R5F100FFDFP#X0	R5F100FFDFP#50	
R5F100FGAFP#X0	R5F100FGAFP#50	
R5F100FGDFP#X0	R5F100FGDFP#50	
R5F100FHAFP#X0	R5F100FHAFP#50	
R5F100FHDFP#X0	R5F100FHDFP#50	
R5F100FJAFP#X0	R5F100FJAFP#50	
R5F100FJDFP#X0	R5F100FJDFP#50	
R5F101FAAFP#X0	R5F101FAAFP#50	
R5F101FADFP#X0	R5F101FADFP#50	
R5F101FCAFP#X0	R5F101FCAFP#50	
R5F101FCDFP#X0	R5F101FCDFP#50	
R5F101FDAFP#X0	R5F101FDAFP#50	
R5F101FDDFP#X0	R5F101FDDFP#50	
R5F101FEAFP#X0	R5F101FEAFP#50	
R5F101FEDFP#X0	R5F101FEDFP#50	
R5F101FGAFP#X0	R5F101FGAFP#50	
R5F101FGDFP#X0	R5F101FGDFP#50	
R5F101FHAFP#X0	R5F101FHAFP#50	
R5F101FHDFP#X0	R5F101FHDFP#50	
R5F101FJAFP#X0	R5F101FJAFP#50	
R5F101FJDFP#X0	R5F101FJDFP#50	
R5F104FAAFP#X0	R5F104FAAFP#50	
R5F104FADFP#X0	R5F104FADFP#50	
R5F104FCAFP#X0	R5F104FCAFP#50	
R5F104FCDFP#X0	R5F104FCDFP#50	
R5F104FDAFP#X0	R5F104FDAFP#50	
R5F104FDDFP#X0	R5F104FDDFP#50	
R5F104FEAFP#X0	R5F104FEAFP#50	
R5F104FEDFP#X0	R5F104FEDFP#50	
R5F104FFAFP#X0	R5F104FFAFP#50	
R5F104FGAFP#X0	R5F104FGAFP#50	
R5F104FHAFP#X0	R5F104FHAFP#50	
R5F104FJAFP#X0	R5F104FJAFP#50	
R5F104FJDFP#X0	R5F104FJDFP#50	

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

Booking Part Number	Replacement PN	PCN Notes for Customer Notification
R5F100FAAFP#30	No Part Number Change	1. Addition of ASEKH as an assembly site; 2. Addition of RSB & KYEC as final test sites; 3. Package Dimensional Tolerance specification change; 4. Lead Frame Die Pad shape change; 5. Die Mount material change; 6. Mold Resin material change; 7. Top Mark visibility change;
R5F100FCAFP#30		
R5F100FDAFP#30		
R5F100FEAFP#30		
R5F100FFAFP#30		
R5F100FGAFP#30		
R5F100FGDFP#30		
R5F100FJAFP#30		
R5F101FAAFP#30		
R5F101FDAFP#30		
R5F101FEAFP#30		
R5F101FFAFP#30		
R5F101FHAFP#30		
R5F104FAAFP#30		
R5F104FCAFP#30		
R5F104FEAFP#30		
R5F104FFAFP#30		
R5F104FGAFP#30		
R5F104FJAFP#30		
R5F100FCAFP#50	No Part Number Change	1. Addition of ASEKH as an assembly site; 2. Addition of RSB & KYEC as final test sites; 3. Package Dimensional Tolerance specification change; 4. Lead Frame Die Pad shape change; 5. Die Mount material change; 6. Mold Resin material change; 7. Top Mark visibility change; 8. Desiccant change;
R5F101FAAFP#50		
R5F104FJAFP#50		

Appendix 2: Change Details

DIFFERENCE OF SPECIFICATION (RL78/G13,G14)

ASSEMBLY: RSKL → ASEKH, SORTING: RSKL → RSB/KYEC

BONDING WIRE: Au/Cu → Cu

MARCH.13, 2018

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

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

HMRL-AB-17-0162

Appendix 2: Change Details (cont.)

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(Rev. 4.0-1 November 2017)

Outline

- Addition of assembly factory:
  Current factory: Renesas Semiconductor KL Sdn. Bhd., (RSKL)
  Additional factory: ADVANCED SEMICONDUCTOR ENGINEERING, INC. (ASEKH)
- Addition of sorting factory:
  Current factory: Renesas Semiconductor KL Sdn. Bhd., (RSKL)
  Additional factory: Renesas Semiconductor (Beijing) Co., Ltd. (RSB)
  King Yuan Electronics Co., Ltd. (KYEC)
- 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.
  But there is no change for a footprint.
- 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
- 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

Appendix 2: Change Details (cont.)

Difference of specification (Wire material change)

Item		Current	New
Assembly factory		RSKL	ASEKH
Sorting factory		RSKL	RSB / KYEC
Package	Outline	Change (Refer to pages 6 to 15)	
Lead frame	Material	No change	
	Inner pattern	Change (Refer to page 16)	
Die mount	Material	Ag epoxy paste B	Ag epoxy paste C
Bonding wire	Material	Au	Cu (Pd coating)
Resin	Material	Resin B-1 (halogen-free)	Resin C (halogen-free)
Plating	Material	No change	
Marking	Font	Change (Refer to page 17)	
	Digit number	Change (Refer to pages 18,19)	
Packing	Tray/ Emboss tape	Change (Refer to page 20)	

※ There is no impact on reliability and specification by material change.
※ The contents of PC-WRP-A001C are not included in the difference.

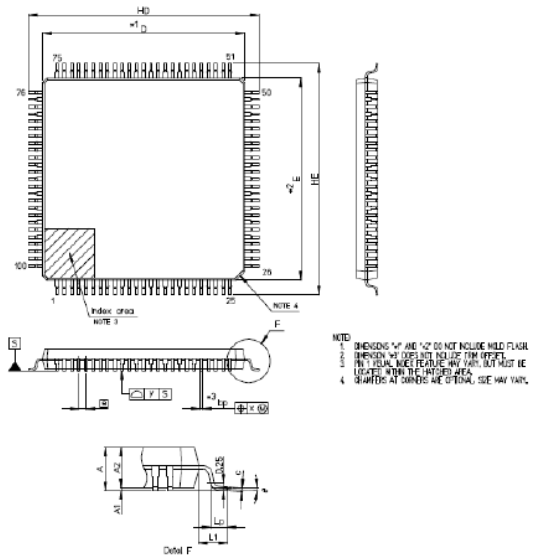
Difference of specification (No wire material change)

Item		Current	New
Assembly factory		RSKL	ASEKH
Sorting factory		RSKL	RSB / KYEC
Package	Outline	Change (Refer to pages 6 to 15)	
Lead frame	Material	No change	
	Inner pattern	Change (Refer to page 16)	
Die mount	Material	Ag epoxy paste B	Ag epoxy paste C
Bonding wire	Material	No change	
Resin	Material	Resin B-2 (halogen-free)	Resin C (halogen-free)
Plating	Material	No change	
Marking	Font	Change (Refer to page 17)	
	Digit number	Change (Refer to pages 18,19)	
Packing	Tray/ Emboss tape	Change (Refer to page 20)	

※ There is no impact on reliability and specification by material change.
※ The contents of PC-WRP-A001C are not included in the difference.

Appendix 2: Change Details (cont.)

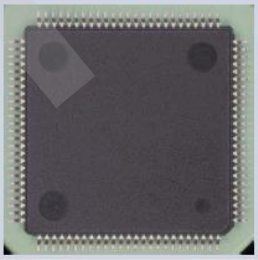
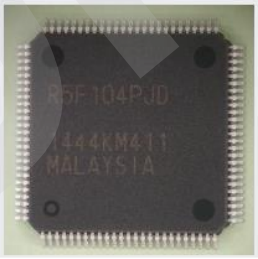
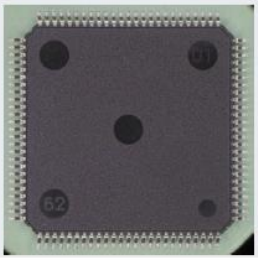
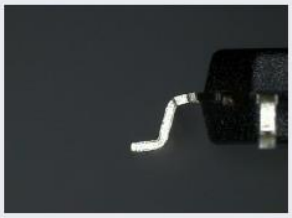
Difference of Outline Dimension_14mm×14mm 100pin



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

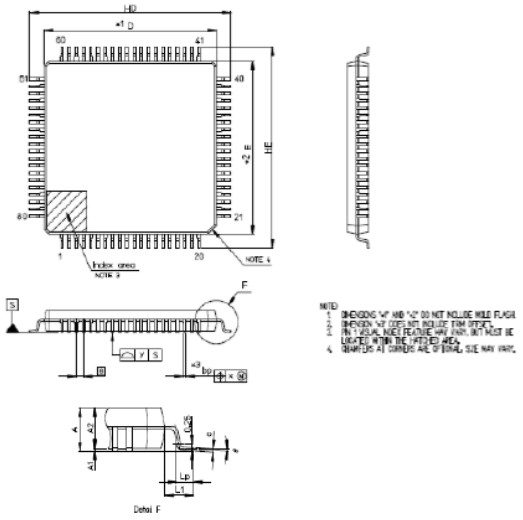
Difference of Appearance_14mm×14mm 100pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 2: Change Details (cont.)

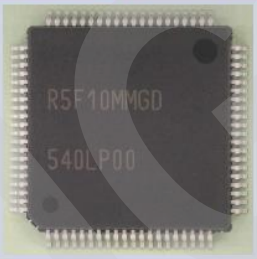
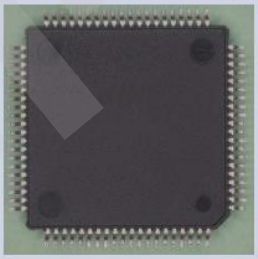
Difference of Outline Dimension_12mm×12mm 80pin



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°/-3°	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

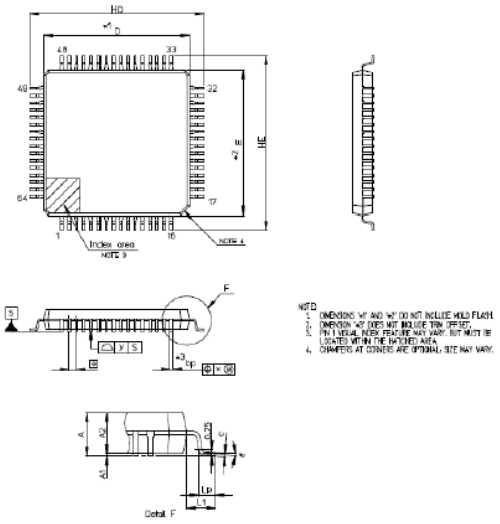
Difference of Appearance_12mm×12mm 80pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 2: Change Details (cont.)

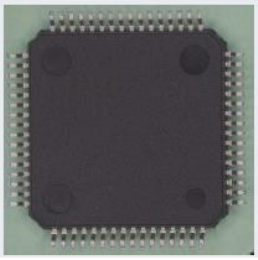
Difference of Outline Dimension_10mm×10mm 64pin



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°/-3°	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

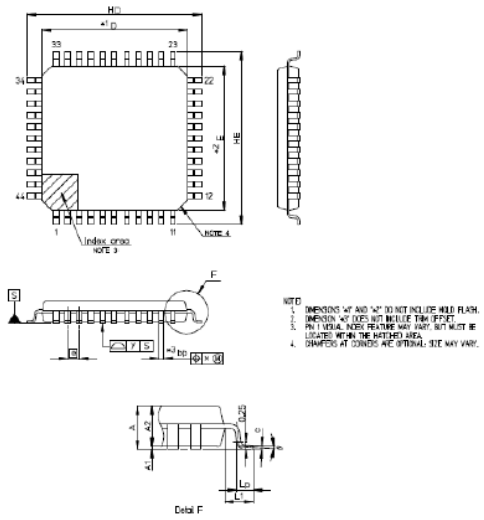
Difference of Appearance_10mm×10mm 64pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 2: Change Details (cont.)

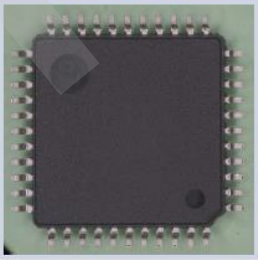
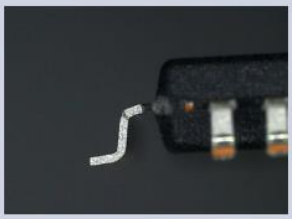
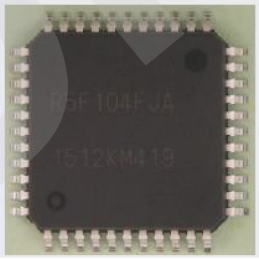
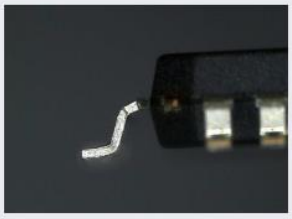
Difference of Outline Dimension_10mm×10mm 44pin



Symbol	Terminology	New	Current
D	Package length	10.0±0.2	10.00±0.20
E	Package width	10.0±0.2	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	0.37 +0.08/-0.15	0.37 +0.08/-0.07
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	0.8	0.80
x	Tolerance value of terminal center position	0.20max	0.20max
y	Coplanarity	0.10max	0.10max
Lp	Length of soldered part	0.60±0.15	0.60±0.15
L1	Terminal length	1.0	1.00±0.20

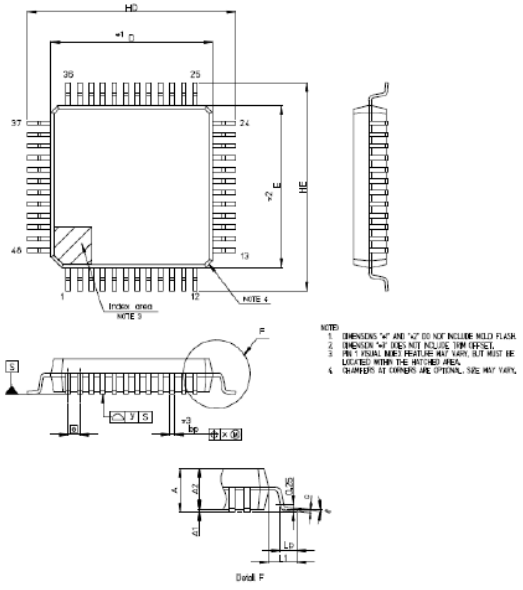
Difference of Appearance_10mm×10mm 44pin

※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 2: Change Details (cont.)

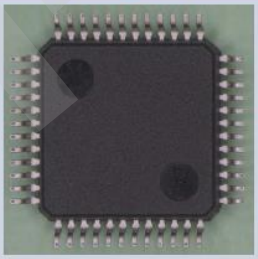
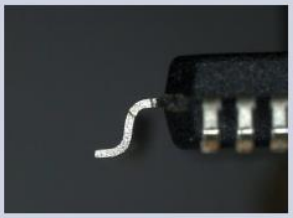
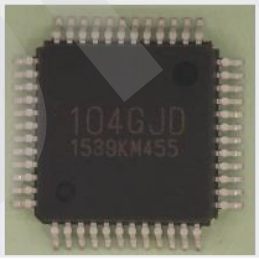
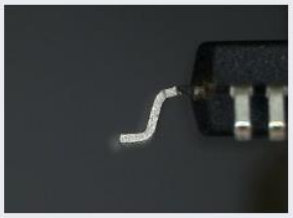
Difference of Outline Dimension_7mm×7mm 48pin



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° +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_7mm×7mm 48pin

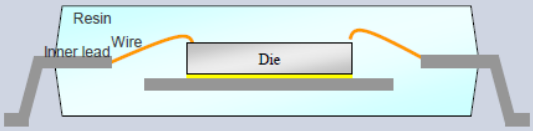
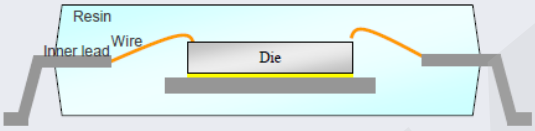
※Character is reference example

	Package surface	Package back	Lead bending shape
New			
Current			

Appendix 2: Change Details (cont.)

PKG structure image

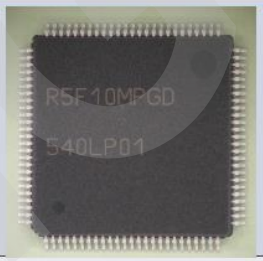
※ PKG cross section and die pad shape are reference examples

Assembly Line	PKG cross section	Die pad shape
New		 7mm×7mm～14mm×14mm
Current		 7mm×7mm～14mm×14mm

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

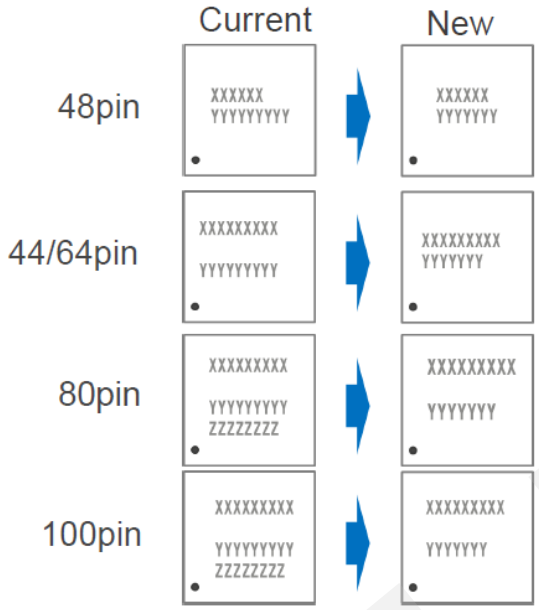
Difference of Marking Visibility

※Character is reference example

Assembly Line	New	Current
Whole Photo		
Detail Photo		

Appendix 2: Change Details (cont.)

Difference of marking



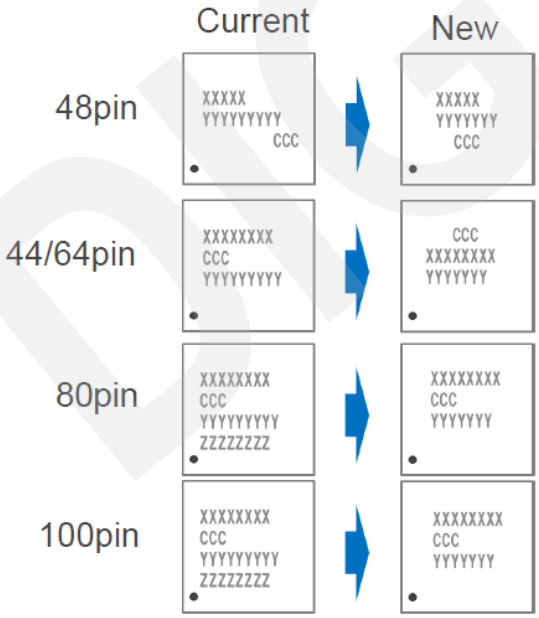
X : Part number : No change (6-digit)
Y : Lot number : Change (9 → 7-digit)

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/KYEC.
However, there is no change in the storage term.

	RSKL	RSB/KYEC
Desiccant		

4M changing points

(Addition of assembly and sorting factory , Change of material)
(Wire material change; Au->Cu)

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.)

4M changing points

(Addition of assembly and sorting factory , Change of material)
(No wire material change; Cu)

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

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