

Product Change Notice (PCN)

Subject: Add Frond-End, Back-End factories for RX130 LFQFP package products

Publication Date: 5/13/2024

Effective Date: 11/1/2024

Revision Description:

Initial release.

Description of Change:

1)Add Front-End factory

Current: Renesas Semiconductor Manufacturing Co., Ltd (Kawashiri Factory)

Addition: Renesas Semiconductor Manufacturing Co., Ltd (Naka Factory)

2)Add Back-End factories

2.1 Add the assembly factory

Current: Renesas Semiconductor (Beijing) Co., Ltd (Beijing factory)

Addition: Greatek Electronics Inc. (Greatek)

2.2 Add the final test factory

Current: Renesas Semiconductor (Beijing) Co., Ltd

Addition: King Yuan Electronics Co., Ltd. (KYECC)

3)Description of change due to the addition of Back-End factories

When comparing with Beijing factory products, there are some differences in Greatek and KYECC products as described below because of using the standard material and manufacturing equipment which are currently using in Greatek and KYECC.

3.1 Material:

Lead frame, die mount, mold resin

*Using materials which meet the Greatek standard mass production specification.

We confirmed that there is no impact on reliability and mass production results.

3.2 Package dimension:

Some package dimensions *There is no change in footprint for Greatek products.

3.3 Marking:

Marking font

3.4 Packing material:

Tray, Desiccant and bundling band color (Black)

*These packing material changes has been conducted as the same as other RX products which have already launched mass production at Greatek and KYECC.

Affected Product List :

Group	Affected Part number list	Package
RX130	R5F51306BDFL#10	7mm x 7mm 48pin
RX130	R5F51306BDFL#50	7mm x 7mm 48pin
RX130	R5F51306BDFM#10	10mm x 10mm 64pin
RX130	R5F51306BDFM#50	10mm x 10mm 64pin

Reason for Change:

For Stable supply, we add Front-End and Back-End factories.

Impact on Fit, Form, Function, Quality & Reliability:

Fit, Form: There are some changes in dimensions, so please check them.

Function, Quality and reliability: There are no impact.

Product Identification:

Possible to confirm the production history data from the packing label or trace code.

Qualification Status: Completed. Please contact Renesas sales, distributor, or agency.

Sample Availability Date: 11/1/2024

Device Material Declaration: Contact Renesas sales, distributor, or agency.

- Note:
1. Acknowledgement must be received by Renesas within 30 days or Renesas will consider the change as approved.
 2. If timely acknowledgement is provided by Customer, then Customer shall have 90 days from the date of receipt of this PCN to make any objections to this PCN. If Customer fails to make objections to this PCN within 90 days of the receipt of the PCN then Renesas will consider the PCN changes as approved.
 3. If customer cannot accept the PCN then customer must provide Renesas with a last time buy demand and purchase order.

For additional information regarding this notice, please contact your Renesas sales representative.

ADD FRONT-END BACK-END FACTORIES FOR RX130 LFQFP PRODUCTS DIFFERENCE DOCUMENT

Front-End factory : Naka
Assembly/Final test factory : Greatek / KYEC

MAY 13, 2024

EMBEDDED PROCESSING 1ST BUSINESS DIVISION
EMBEDDED PROCESSING PRODUCT GROUP
RENESAS ELECTRONICS CORPORATION

EP10P-AB-24-0006-1

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(Rev. 5.0-1 October 2020)

Content

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 - 1 . Difference of specification's outline
 - 2 . Difference of specification's detail
 - 3 . 4M changing points

Overview (1)

Thank you for continuously using our products.

For RX microcomputer products, we continuously add manufacturing factories and assembly materials for stable supply.

Therefore, we would like to ask for your kind understanding and cooperation in order to make the procedure smoothly completed.

Yours sincerely,

Overview (2) Affected products & Actual production

Affected products :

Group	Package	Part number
RX130	7mm x 7mm 48pin	R5F51306BDFL#10
		R5F51306BDFL#50
	10mm x 10mm 64pin	R5F51306BDFM#10
		R5F51306BDFM#50

Change points are reported in the following pages.

1. DIFFERENCE OF SPECIFICATION'S OUTLINE (1)

Item		Current	Addition	Note
Front-End factory		Renesas Semiconductor Manufacturing Co., Ltd. (Kawashiri)	Renesas Semiconductor Manufacturing Co., Ltd. (Naka)	—
Assembly factory		Renesas Semiconductor (Beijing) Co., Ltd	Greatek Electronics Inc.	—
Sorting factory			King Yuan Electronics Co., Ltd	
Parts	Lead frame	—	Change to standard material used in new factory. The structure not changed.	Refer to page 8
	Die mount	—	Change to standard material used in new factory. The structure not changed.	
	Mold resin	—	Change to standard material used in new factory. The structure not changed.	
Package	Outline	—	There are changes in some of dimensions	Refer to page 9 to 14
Marking	Font	—	Font changed	Refer to page 15 to 17

※ These changes are to meet the Greatek standard mass production specification. There is no impact on reliability and specification.

1. DIFFERENCE OF SPECIFICATION'S OUTLINE (2)

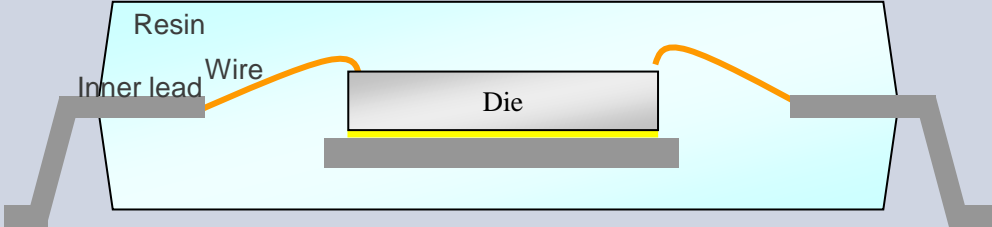

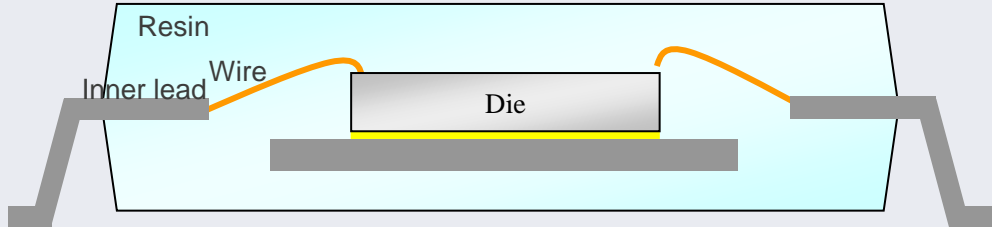
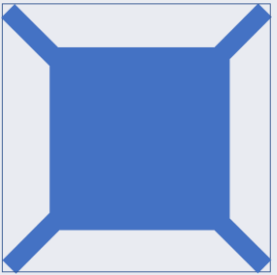
Item		Current	Addition	Note
Packing	Bundling band color	—	Add black	—
	Tray	—	Add types of tray	—
	Outline	—	No difference	—
	Material	—	No difference	—
	Heatproof Temperature	—	No difference	—
	End tab	—	There is difference	Refer to page 18 to 19
	Desiccant	—	Add a type of desiccant	Refer to page 20

※ These changes are to meet the Greatek standard mass production specification.

2. DIFFERENCE OF SPECIFICATION'S DETAIL (1)

PACKAGE STRUCTURE(IMAGE)

※PKG cross section and die pad shape are reference examples

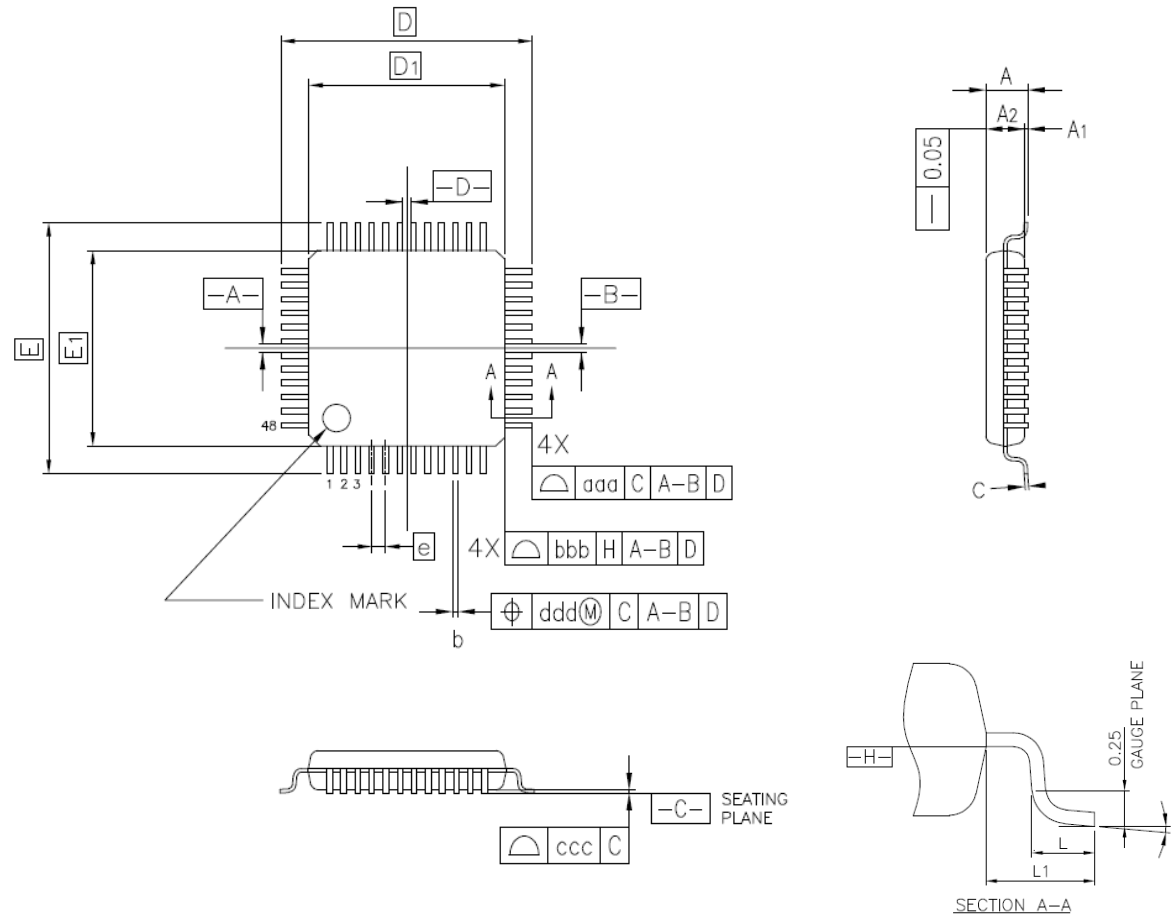
Assembly Line	PKG cross section	Die pad shape
Current		
Addition		

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

2. DIFFERENCE OF SPECIFICATION'S DETAIL (2)

7x7mm 48pin LQFP package drawing (Addition)

RENESAS Code : PLQP0048KL-A

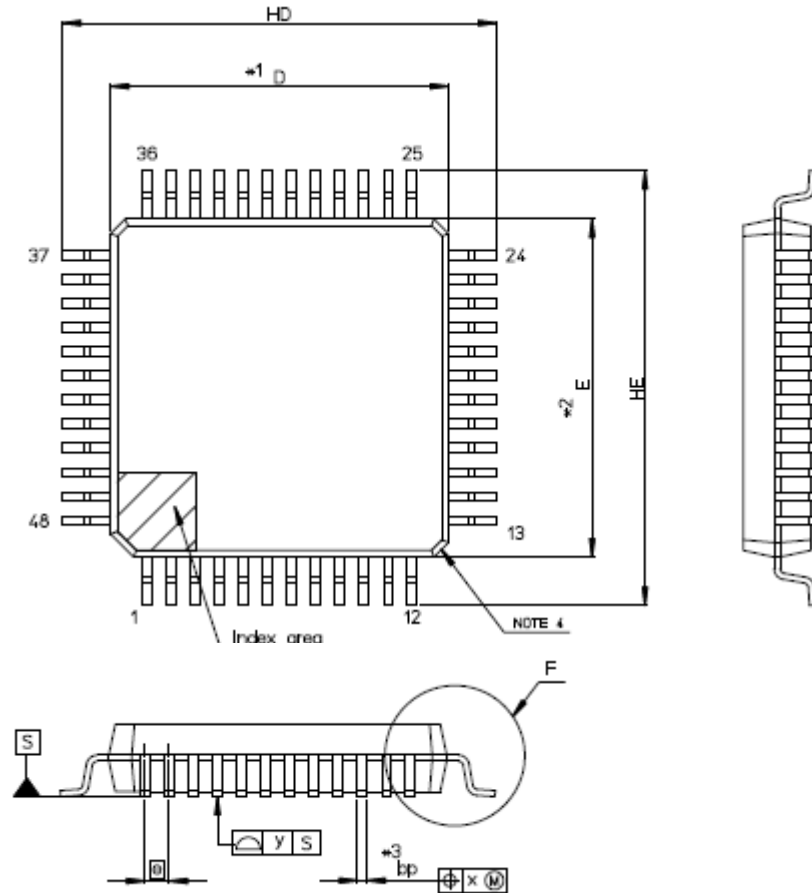


Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	1.60
A ₁	0.05	—	0.15
A ₂	1.35	1.40	1.45
D	—	9.00	—
D ₁	—	7.00	—
E	—	9.00	—
E ₁	—	7.00	—
N	—	48	—
e	—	0.50	—
b	0.17	0.22	0.27
c	0.09	—	0.20
θ	0°	3.5°	7°
L	0.45	0.60	0.75
L ₁	—	1.00	—
aaa	—	—	0.20
bbb	—	—	0.20
ccc	—	—	0.08
ddd	—	—	0.08

2. DIFFERENCE OF SPECIFICATION'S DETAIL (3)

7x7mm 48pin LQFP package drawing (Current)

RENESAS Code : PLQP0048KB-B



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	6.9	7.0	7.1
E	6.9	7.0	7.1
A2	—	1.4	—
HD	8.8	9.0	9.2
HE	8.8	9.0	9.2
A	—	—	1.7
A1	0.05	—	0.15
bp	0.17	0.20	0.27
c	0.09	—	0.20
e	0 [□]	3.5 [□]	8 [□]
e	—	0.5	—
x	—	—	0.08
y	—	—	0.08
Lp	0.45	0.6	0.75
L1	—	1.0	—

2. DIFFERENCE OF SPECIFICATION'S DETAIL (4)

Dimension comparison: 7x7mm 48pin LQFP package

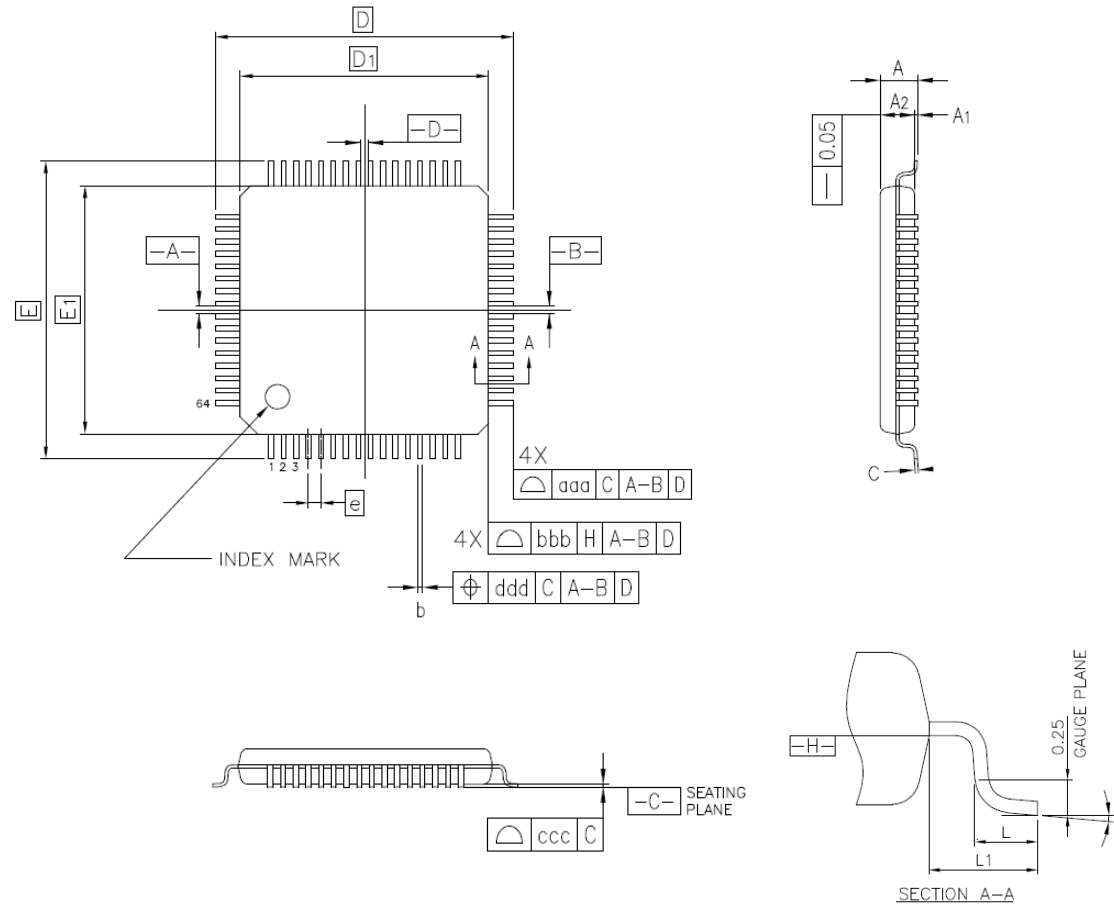
Greatek symbol is the same as the JEDEC standard.

Addition Greatek Symbol	7x7mm 48pin LQFP PLQP0048KL-A			Current RSB Symbol	7x7mm 48pin LQFP PLQP0048KB-B		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	1.60	A	-	-	1.70
A1	0.05	-	0.15	A1	0.05	-	0.15
A2	1.35	1.40	1.45	A2	-	1.40	-
D	-	9.00	-	HD	8.80	9.00	9.20
D1	-	7.00	-	D	6.90	7.00	7.10
E	-	9.00	-	HE	8.80	9.00	9.20
E1	-	7.00	-	E	6.90	7.00	7.10
N	-	48	-	-	-	-	-
e	-	0.50	-	e	-	0.50	-
b	0.17	0.22	0.27	bp	0.17	0.20	0.27
c	0.09	-	0.20	c	0.09	-	0.20
θ	0°	3.5°	7°	θ	0°	3.5°	8°
L	0.45	0.60	0.75	Lp	0.45	0.60	0.75
L1	-	1.00	-	L1	-	1.00	-
aaa	-	-	0.20	-	-	-	-
bbb	-	-	0.20	-	-	-	-
ccc	-	-	0.08	y	-	-	0.08
ddd	-	-	0.08	x	-	-	0.08

2. DIFFERENCE OF SPECIFICATION'S DETAIL (5)

10x10mm 64pin LQFP package drawing (Addition)

RENESAS Code : PLQP0064KL-A

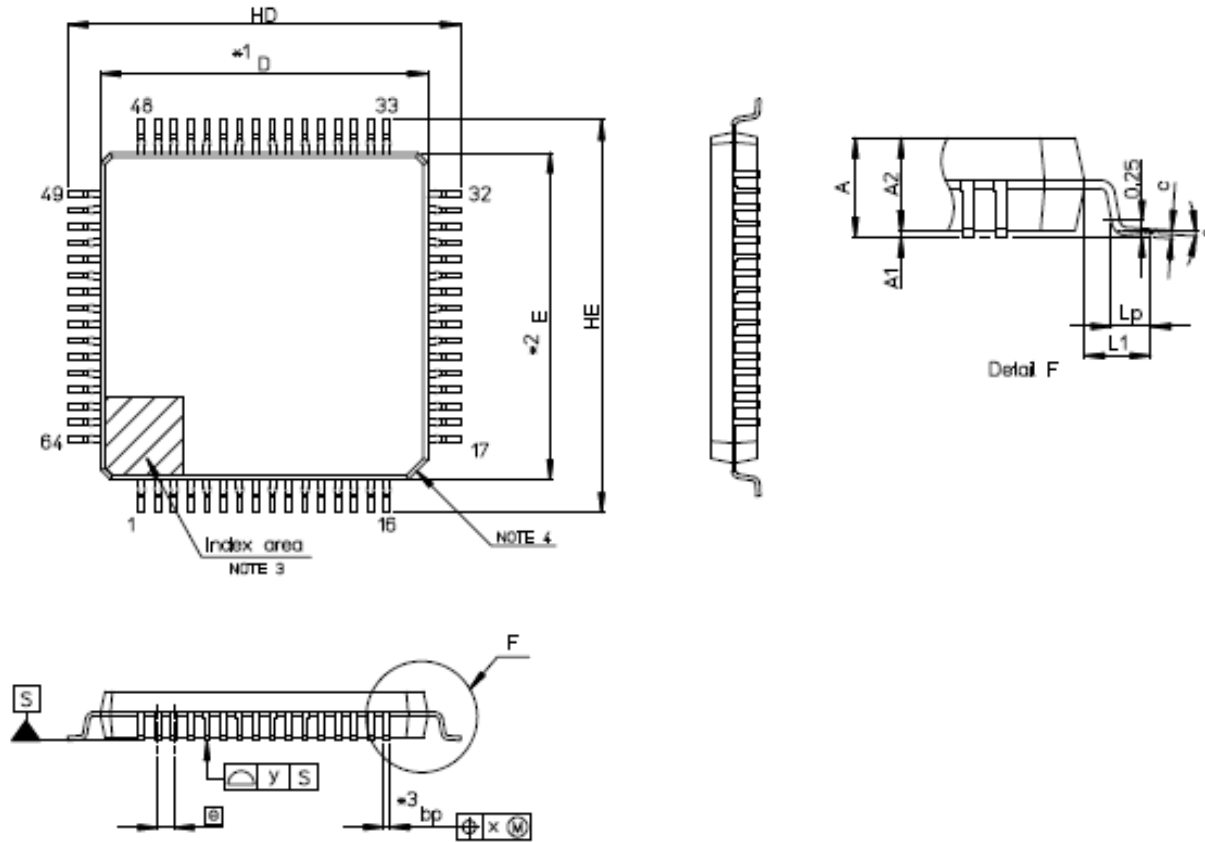


Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	1.60
A ₁	0.05	—	0.15
A ₂	1.35	1.40	1.45
D	—	12.00	—
D ₁	—	10.00	—
E	—	12.00	—
E ₁	—	10.00	—
N	—	64	—
e	—	0.50	—
b	0.17	0.22	0.27
c	0.09	—	0.20
θ	0°	3.5°	7°
L	0.45	0.60	0.75
L ₁	—	1.00	—
aaa	—	—	0.20
bbb	—	—	0.20
ccc	—	—	0.08
ddd	—	—	0.08

2. DIFFERENCE OF SPECIFICATION'S DETAIL (6)

10x10mm 64pin LQFP package drawing (Current)

RENESAS Code : PLQP0064KB-C



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	9.9	10.0	10.1
E	9.9	10.0	10.1
A2	—	1.4	—
HD	11.8	12.0	12.2
HE	11.8	12.0	12.2
A	—	—	1.7
A1	0.05	—	0.15
bp	0.15	0.20	0.27
c	0.09	—	0.20
e	0 [□]	3.5 [□]	8 [□]
e	—	0.5	—
x	—	—	0.08
y	—	—	0.08
Lp	0.45	0.6	0.75
L1	—	1.0	—

2. DIFFERENCE OF SPECIFICATION'S DETAIL (7)

Dimension comparison: 10x10mm 64pin LQFP package

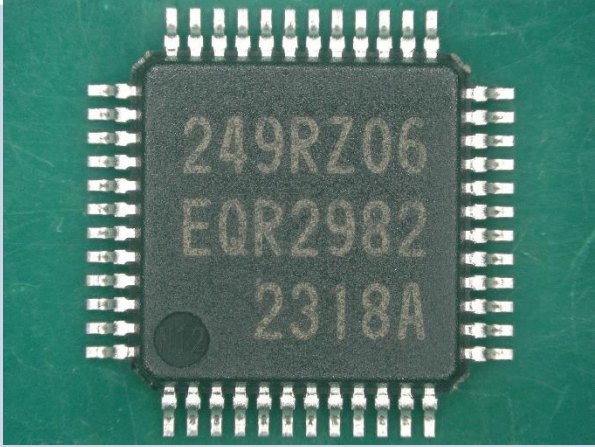
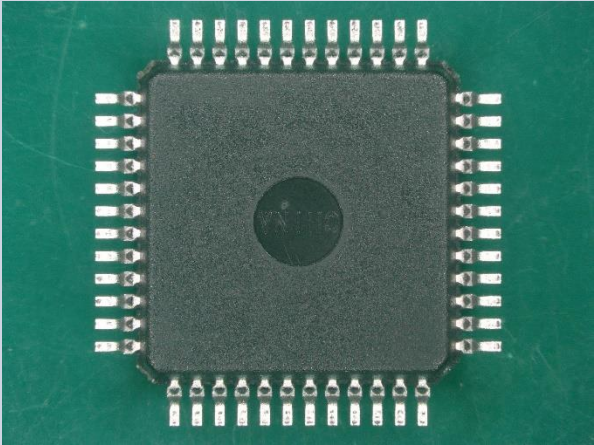
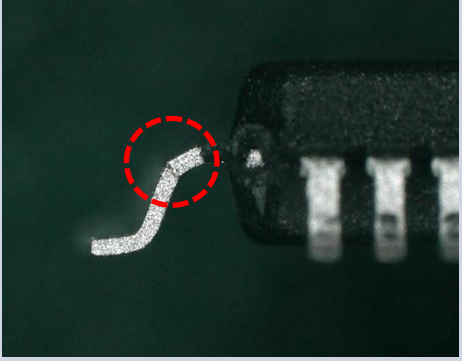

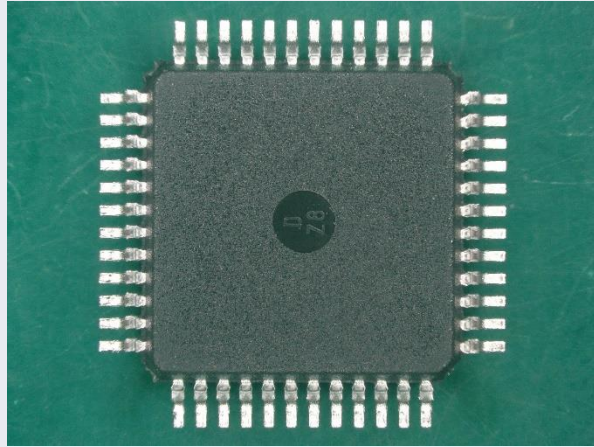
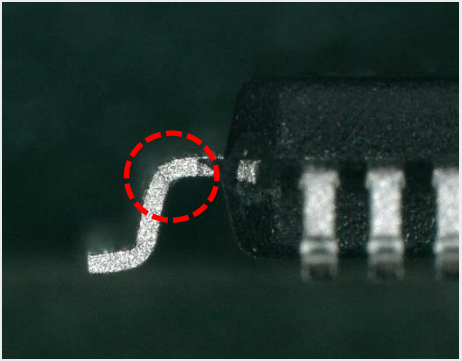
Greatek symbol is the same as the JEDEC standard.

Addition Greatek Symbol	10x10mm 64pin LQFP PLQP0064KL-A			Current RSB Symbol	10x10mm 64pin LQFP PLQP0064KB-C		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	1.60	A	-	-	1.70
A1	0.05	-	0.15	A1	0.05	-	0.15
A2	1.35	1.40	1.45	A2	-	1.40	-
D	-	12.00	-	HD	11.80	12.00	12.20
D1	-	10.00	-	D	9.90	10.00	10.10
E	-	12.00	-	HE	11.80	12.00	12.20
E1	-	10.00	-	E	9.90	10.00	10.10
N	-	64	-	-	-	-	-
e	-	0.50	-	e	-	0.50	-
b	0.17	0.22	0.27	bp	0.15	0.20	0.27
c	0.09	-	0.20	c	0.09	-	0.20
θ	0°	3.5°	7°	θ	0°	3.5°	8°
L	0.45	0.60	0.75	Lp	0.45	0.60	0.75
L1	-	1.00	-	L1	-	1.000	-
aaa	-	-	0.20	-	-	-	-
bbb	-	-	0.20	-	-	-	-
ccc	-	-	0.08	y	-	-	0.08
ddd	-	-	0.08	x	-	-	0.08

2. DIFFERENCE OF SPECIFICATION'S DETAIL (8)

Appearance: 7x7mm 48pin package

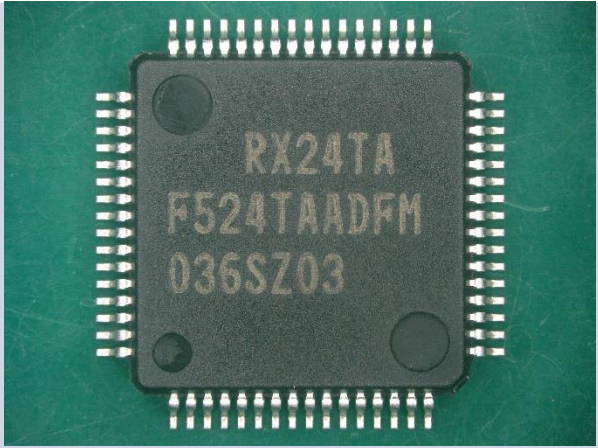
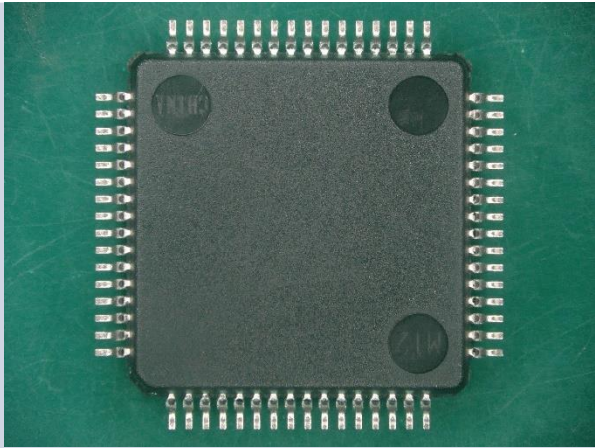
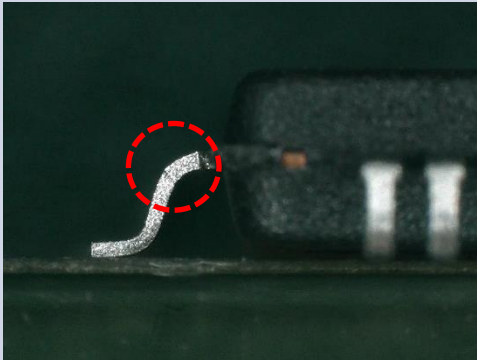

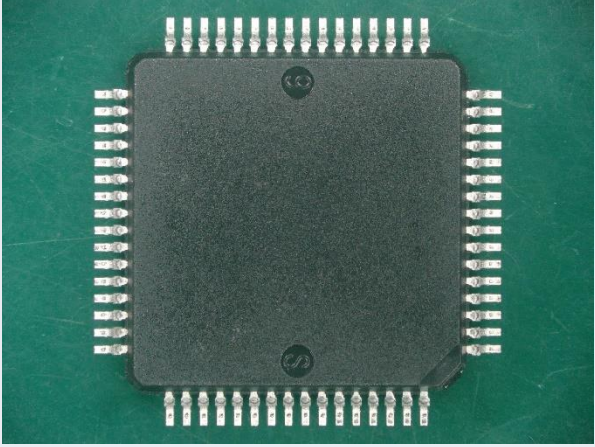
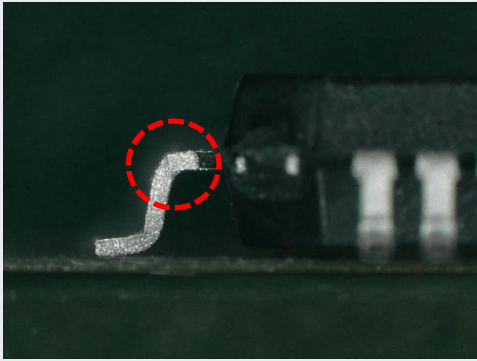
※Marked character is reference example

	パッケージ表面	パッケージ裏面	リード加工形状
現状			
追加			

2. DIFFERENCE OF SPECIFICATION'S DETAIL (9)

Appearance: 10x10mm 64pin LQFP package





※Marked character is reference example

	パッケージ表面	パッケージ裏面	リード加工形状
現状	 <p>RX24TA F524TAADF 036SZ03</p>		
追加	 <p>RX130 F51306BDF 317K901</p>		

2. DIFFERENCE OF SPECIFICATION'S DETAIL (10)

Marking Font

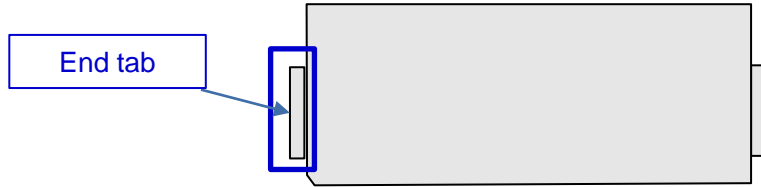
※Marked character is reference example

Assembly Line	Current	Addition
Whole Photo		
Detail Photo		

* There is no WS notation in the actual product

2. DIFFERENCE OF SPECIFICATION'S DETAIL (11)

Tray

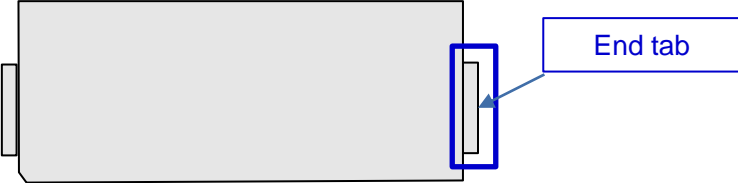


The notation of the end tab is different.

7x7mm		10x10mm	
<p>LQFP 7X7X1.4mm TJ-B06 REV.A SUNRISE</p>	<p>PPE LQFP7X7X1.4</p>	<p>LQFP 10X10X1.4mm TJ-B07 REV.A SUNRISE</p>	<p>RENESAS LQFP10X10X1.4 8X20=160</p>
Addition	Current	Addition	Current

2. DIFFERENCE OF SPECIFICATION'S DETAIL (12)

Tray



The notation of the end tab is different.

7x7mm		10x10mm	
<p>Diagram of a 7x7mm end tab with the following text: 135°C MAX, PPE, HEAT PROOF, and a circular symbol with a diagonal line.</p>	<p>Diagram of a 7x7mm end tab with the following text: 135°C MAX, RENESAS, and 10X25=250.</p>	<p>Diagram of a 10x10mm end tab with the following text: 135°C MAX, PPE, HEAT PROOF, and a circular symbol with a diagonal line.</p>	<p>Diagram of a 10x10mm end tab with the following text: 135°C MAX., PPE, HEAT PROOF, and a circular symbol with a diagonal line.</p>
Addition	Current	Addition	Current

2. DIFFERENCE OF SPECIFICATION'S DETAIL (13)

Desiccant

- Add a type of desiccant
There is no change in the storage conditions.

	Addition	Current
Desiccant		

3. 4M changing points (Add the front-end factory)

As shown in the following table, the check to 4M change was performed. The quality influence by these changes was verified and confirmed that Kawashiri and Naka don't have a difference.

Item	Check result	Judgement
Machine	In this development, Naka uses the equipment of factory (12 in). However, Naka uses the same level of equipment as Kawashiri (8 in), so there is no problem in manufacturing the product.	No risk
Method	The process is transferred from Kawashiri and the same flow as Kawashiri.	No risk
Man	Adopt operator certification system. Only certificated operator can work for the production.	No risk
Material	There is no change in the material. A 12-inch wafer with the same specifications as the one used at the Kawashiri Factory is used.	No risk

3. 4M changing points (Add the assembly/ final test factory and materials)

Item	Check result	Judgement
Machine	Changing at assembly. 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	Adopt operator certification system. Only certificated operator can work for the production.	No risk
Material	Only use certificated materials. The products has been certificated by reliability test same as present products and have no risk.	No risk

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