PCN# : [IMO-AB-23-0062-1]

Product Change Notice (PCN)

Subject: Add Back-End factories and materials for RX LFQFP package products
Publication Date: 8/4/2023
Effective Date: 12/18/2023

Revision Description:
Initial release.

Description of Change:

1)Add Back-End factories

1.1 Add the assembly factory

Current: Renesas Semiconductor (Beijing) Co., Ltd (RSB)
Addition: Greatek Electronics Inc., (Greatek)

1.2 Add the final test factory

Current: Renesas Semiconductor (Beijing) Co., Ltd (RSB)
Addition: King Yuan Electronics Co., Ltd. (KYEC)

2)Add materials

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

2.1 Material:

Lead frame, die mount, mold resin
RX651 group's chip thickness has been changed to meet the Greatek standard mass production specification.
*These changes are to meet the Greatek standard mass production specification.
We confirmed that there is no impact on reliability and mass production results.

2.2 Package outline and marking on package:

Some differences for external dimensions. *There is no change in footprint for Greatek products.
Marking font.

2.3 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 the Greatek and KYEC factories.

3) Storage condition after opening

The storage conditions after opening the moisture proof bag of the Greatek product comply with JEDEC standards.

Current : 30° C /70%RH/within 168hr
Change : 30° C /60%RH/within 168hr(JEDEC compliant)

*This change has been applied for some products, please refer to the Part number list.

Affected Product List：
RX LFQFP package products. For the Part number details, please refer to page 3.

Reason for Change:
For Stable supply, we add 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: 12/18/2023
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.

Part number list

Group	Affected Part number list	Package	Storage condition after opening
RX13T	R5F513T3ADFL#10	7mm x 7mm 48pin	Not affected (JEDEC compliant)
RX13T	R5F513T3ADFL#50	7mm x 7mm 48pin	Not affected (JEDEC compliant)
RX13T	R5F513T5ADFL#10	7mm x 7mm 48pin	Not affected (JEDEC compliant)
RX13T	R5F513T5ADFL#50	7mm x 7mm 48pin	Not affected (JEDEC compliant)
RX13T	R5F513T3AGFL#10	7mm x 7mm 48pin	Affected
RX13T	R5F513T3AGFL#50	7mm x 7mm 48pin	Affected
RX13T	R5F513T5AGFL#10	7mm x 7mm 48pin	Affected
RX13T	R5F513T5AGFL#50	7mm x 7mm 48pin	Affected
RX23T	R5F523T3ADFL#10	7mm x 7mm 48pin	Not affected (JEDEC compliant)
RX23T	R5F523T3ADFL#50	7mm x 7mm 48pin	Not affected (JEDEC compliant)
RX23T	R5F523T5ADFL#10	7mm x 7mm 48pin	Not affected (JEDEC compliant)
RX23T	R5F523T5ADFL#50	7mm x 7mm 48pin	Not affected (JEDEC compliant)
RX651	R5F5651CDDFP#10	14mm x 14mm 100pin	Affected
RX651	R5F5651CHDFP#10	14mm x 14mm 100pin	Affected
RX651	R5F5651EDDFP#10	14mm x 14mm 100pin	Affected
RX651	R5F5651EHDFP#10	14mm x 14mm 100pin	Affected
RX651	R5F5651CDGFP#10	14mm x 14mm 100pin	Affected
RX651	R5F5651CHGFP#10	14mm x 14mm 100pin	Affected
RX651	R5F5651EDGFP#10	14mm x 14mm 100pin	Affected
RX651	R5F5651EHGFP#10	14mm x 14mm 100pin	Affected

ADD BACK-END FACTORIES AND MATERIALS FOR RX LFQFP PRODUCTS DIFFERENCE DOCUMENT

Greatek Electronics Inc.,

King Yuan Electronics Co., Ltd

AUGUST 4, 2023

IOT PLATFORM BUSINESS DIVISION
EMBEDDED PROCESSING, DIGITAL POWER & SIGNAL CHAIN SOLUTIONS GROUP
RENESAS ELECTRONICS CORPORATION

IMO-AB-23-0064-1

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(Rev. 5.0-1 October 2020)

Content

- Overview

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2. Difference of specification’s detail
3. 4M changing points

Overview

Thank you for continuously using our products.

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

For LFQFP package products, manufacturing factories and assembly materials also are added this time.

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

Yours sincerely,

Change points are reported in the following pages.

1. DIFFERENCE OF SPECIFICATION'S OUTLINE (1)

Item		Current	Addition	Note
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 7
	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.	
	Chip thickness (only RX651 group)	280um	305um(12mil)	—
Package	Outline	—	There are changes in some of dimensions	Refer to page 8 to 13
Marking	Font	—	Font changed	Refer to page 14 to 15

※ 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)

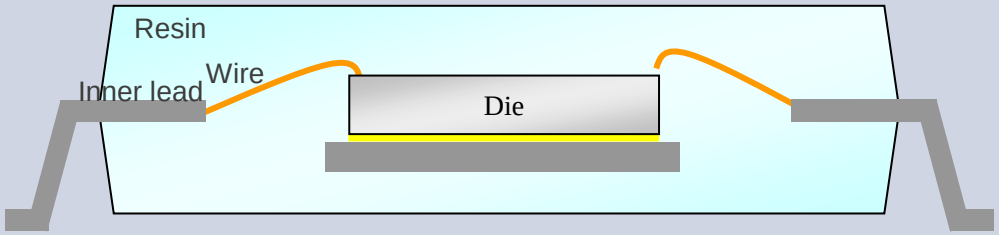
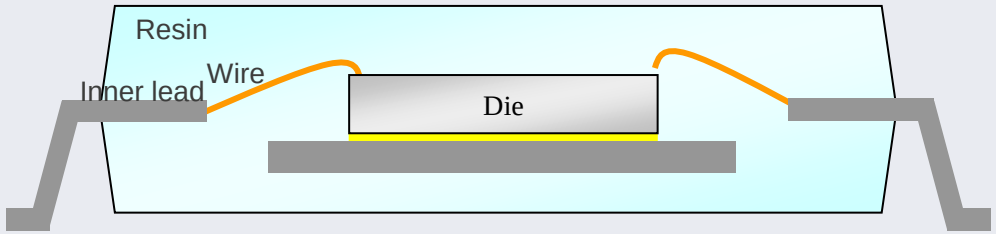
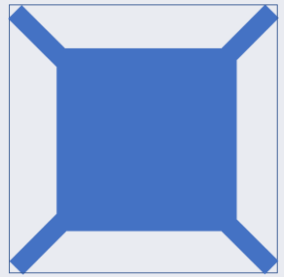
Item			Current	Addition	Note
Packing	Bundling band color		—	Add black	—
	Tray		—	Add types of tray	—
		Outline	—	No difference	—
		Material	—	No difference	—
		Heatproof Temperature	—	No difference	—
		End tab	—	There is difference	Refer to page 16 to 17
	Desiccant		—	Add a type of desiccant	Refer to page 18
Storage condition	After opening		Within 30°C/ 70%RH/ 168h	Within 30°C/ 60%RH/ 168h	Some part number is JEDEC compliant (Not affected to this change)

※ These changes are to meet the Greatek standard mass production specification.
Please check affected part number of changing the storage condition after opening at PCN#：[IMO-AB-23-0062-1].

2. DIFFERENCE OF SPECIFICATION'S DETAIL (1)

PACKAGE STRUCTURE(IMAGE)

※PKG cross section and die pad shape are reference examples

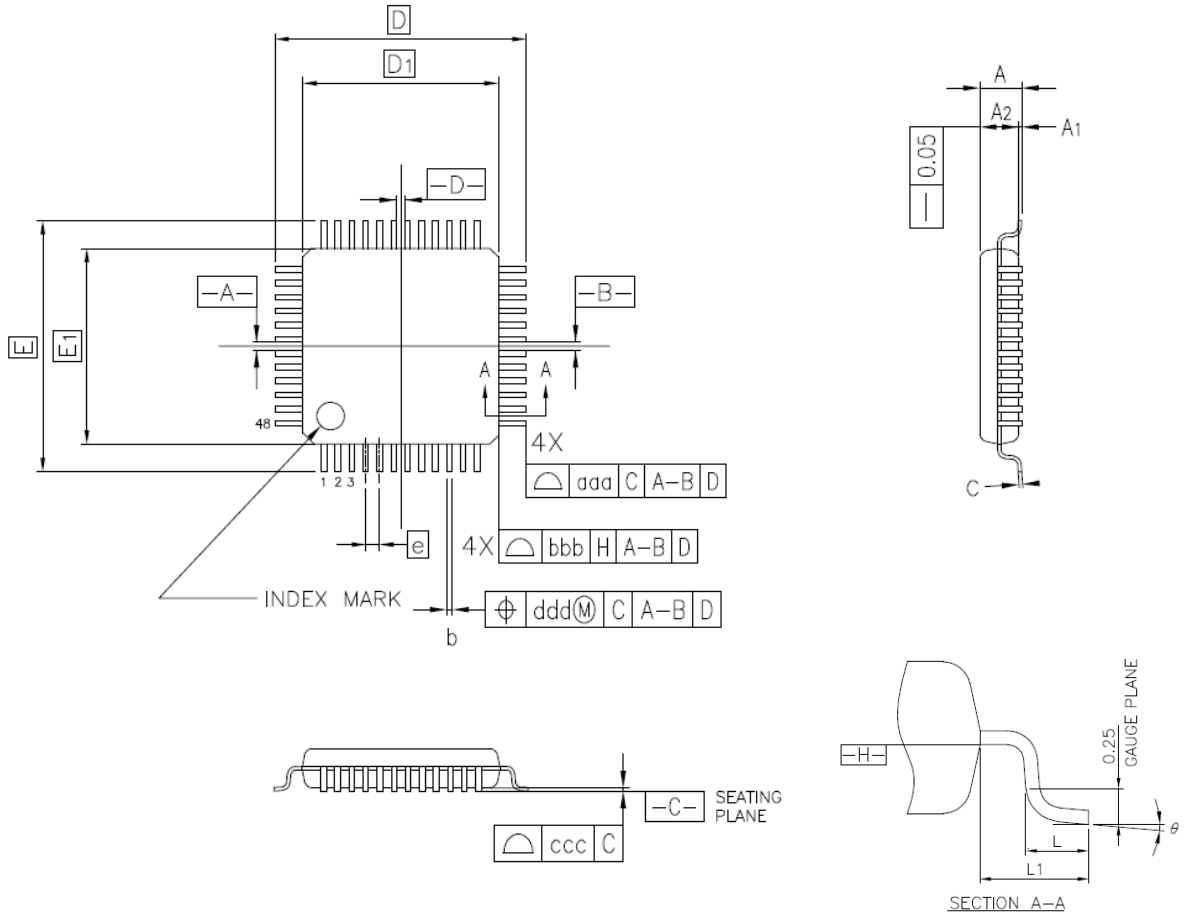
Assembly Line	PKG cross section	Die pad shape
Current		
Addition		

※ 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

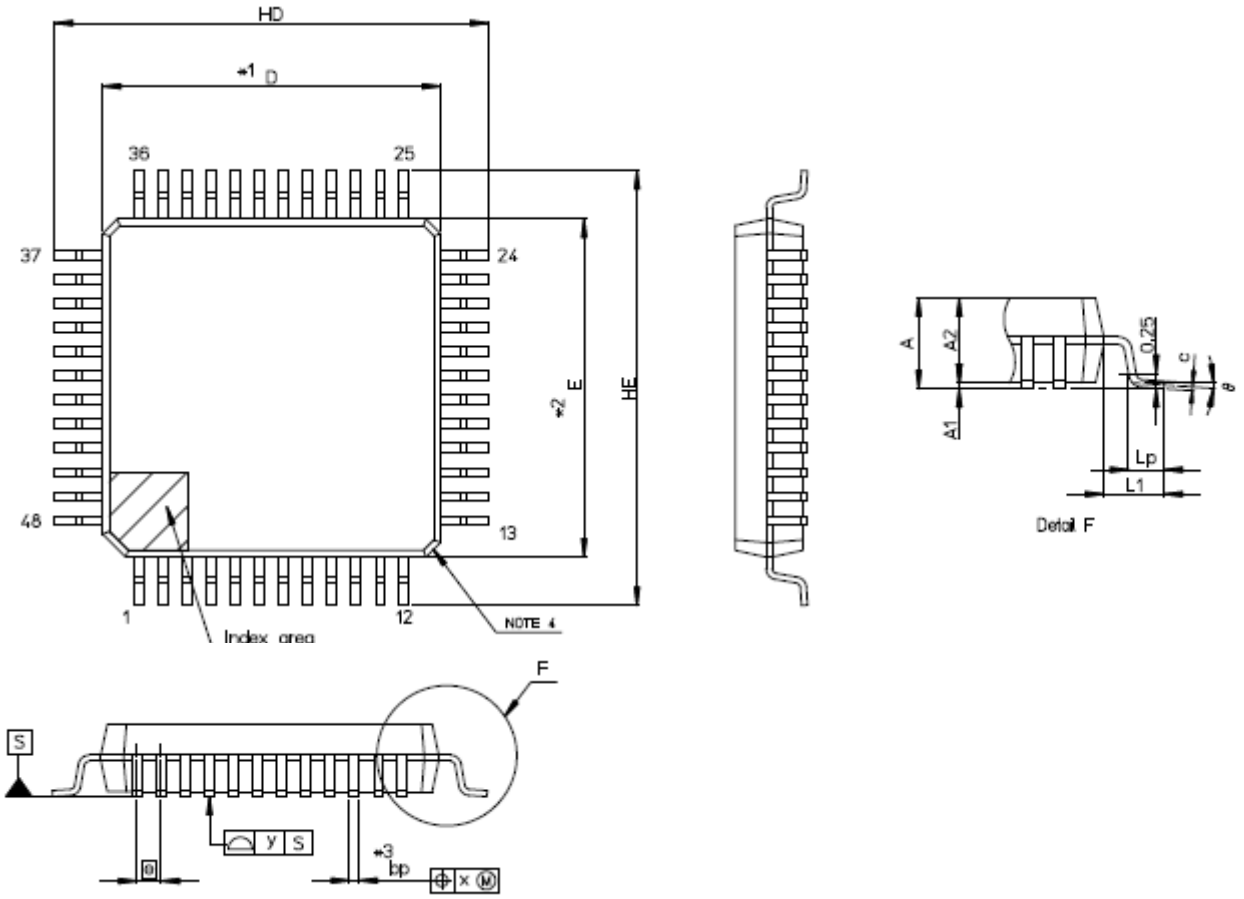


Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	–	–	1.60
A_1	0.05	–	0.15
A_2	1.35	1.40	1.45
D	–	9.00	–
D1	–	7.00	–
E	–	9.00	–
E_1	–	7.00	–
N	–	48	–
e	–	0.50	–
b	0.17	0.22	0.27
c	0.09	–	0.20
θ	0°	3.5°	7°
L	0.45	0.60	0.75
L_1	–	1.00	–
aaa	–	–	0.20
bbb	–	–	0.20
ccc	–	–	0.08
ddd	–	–	0.08

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
θ	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

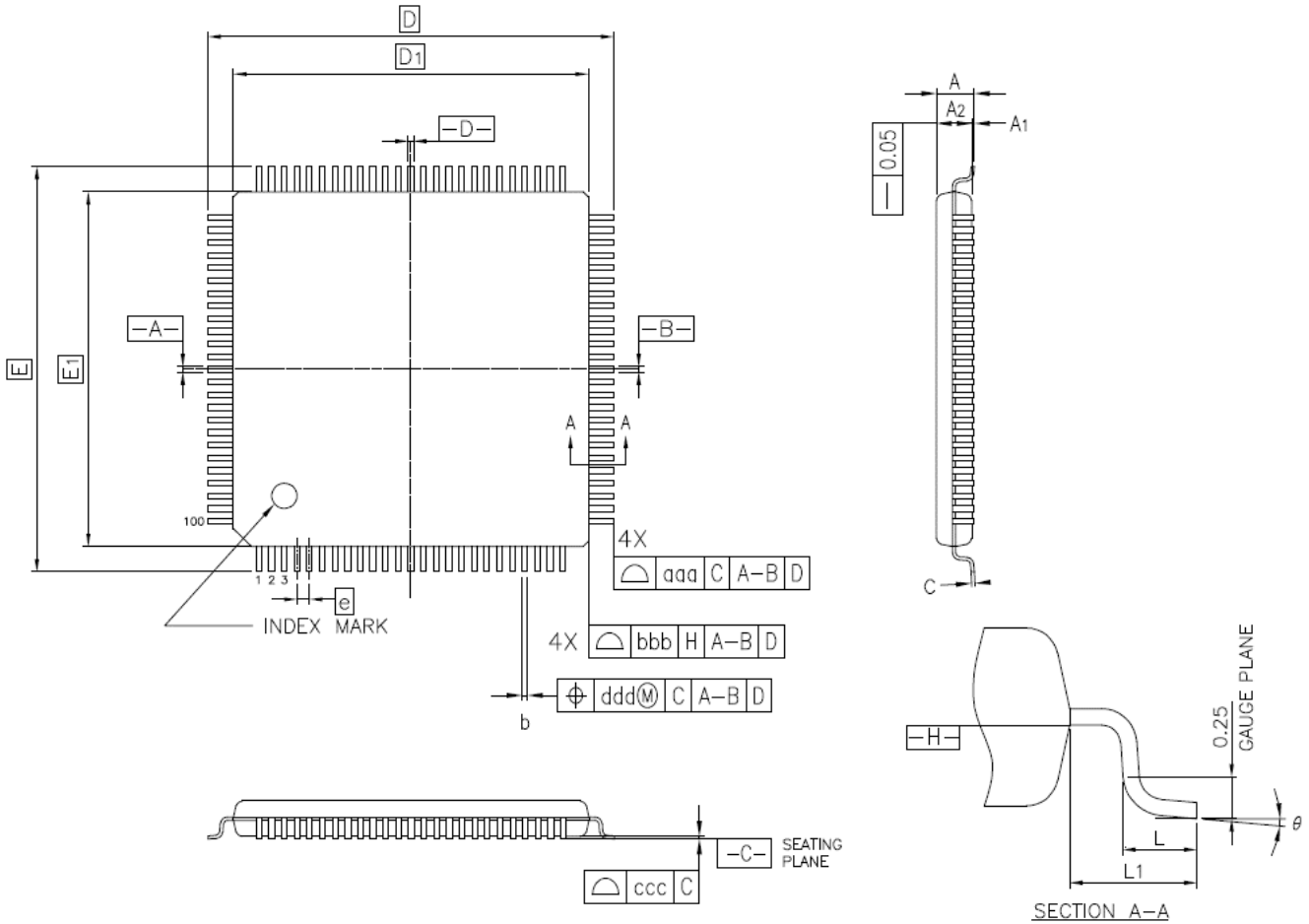
Greatek symbol is the same as the JEDEC standard.

Addition	7x7mm 48pin LQFP PLQP0048KL-A			Current	7x7mm 48pin LQFP PLQP0048KB-B		
Greatek	Dimension in Millimeters			RSB	Dimension in Millimeters		
Symbol	Min	Nom	Max	Symbol	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)

14x14mm 100pin LQFP package drawing (Addition)

RENESAS Code : PLQP0100KP-A

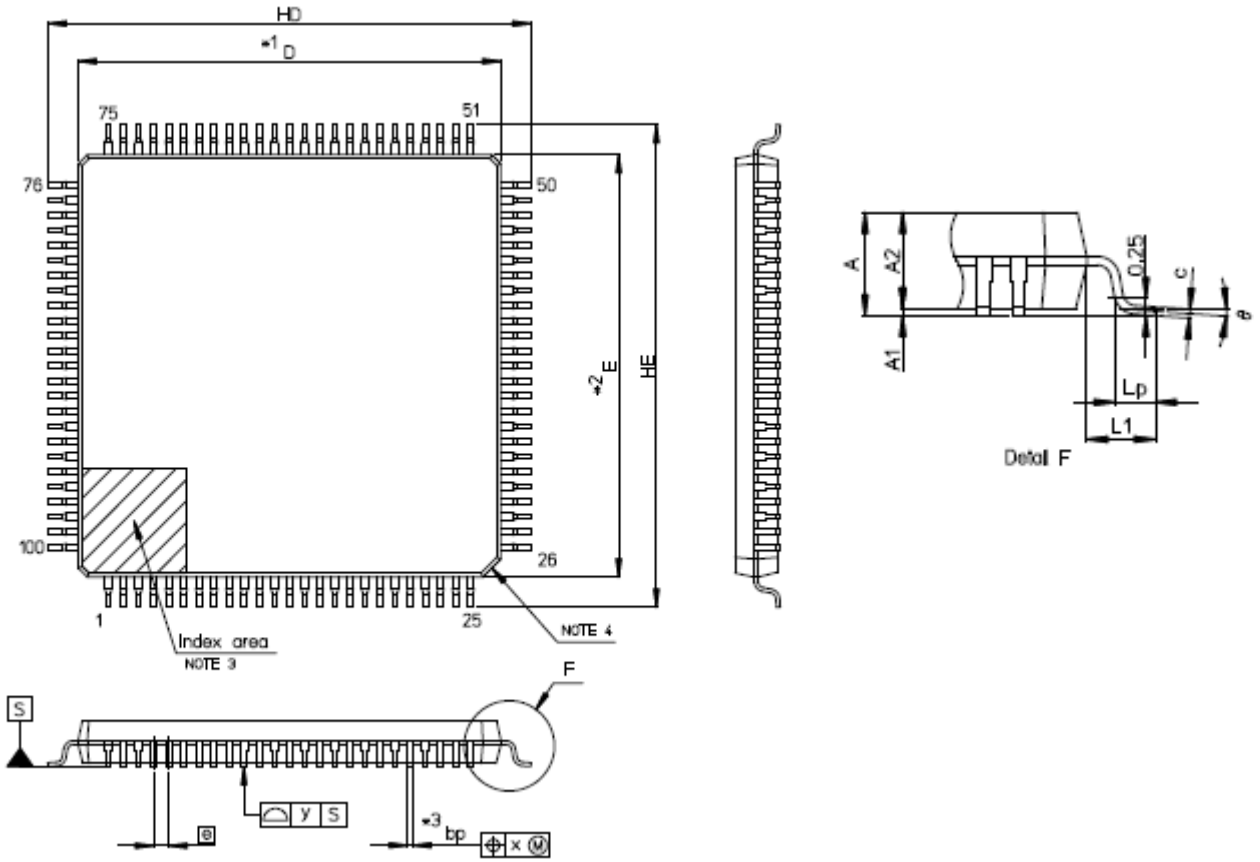


Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	–	–	1.60
A_1	0.05	–	0.15
A_2	1.35	1.40	1.45
D	–	16.00	–
D_1	–	14.00	–
E	–	16.00	–
E_1	–	14.00	–
N	–	100	–
e	–	0.50	–
b	0.17	0.22	0.27
c	0.09	–	0.20
θ	0°	3.5°	7°
L	0.45	0.60	0.75
L_1	–	1.00	–
aaa	–	–	0.20
bbb	–	–	0.20
ccc	–	–	0.08
ddd	–	–	0.08

2. DIFFERENCE OF SPECIFICATION'S DETAIL (6)

14x14mm 100pin LQFP package drawing (Current)

RENESAS Code : PLQP0100KB-B



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	13.9	14.0	14.1
E	13.9	14.0	14.1
A2	—	1.4	—
HD	15.8	16.0	16.2
HE	15.8	16.0	16.2
A	—	—	1.7
A1	0.05	—	0.15
bp	0.15	0.20	0.27
c	0.09	—	0.20
θ	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: 14x14mm 100pin LQFP package

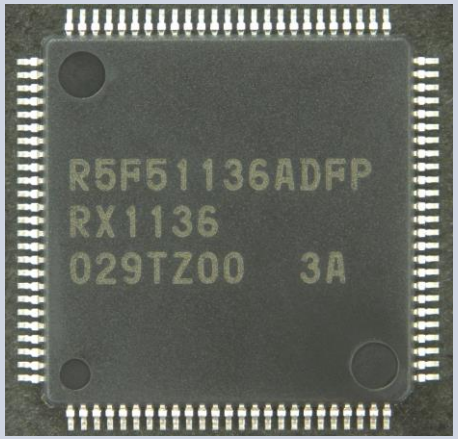
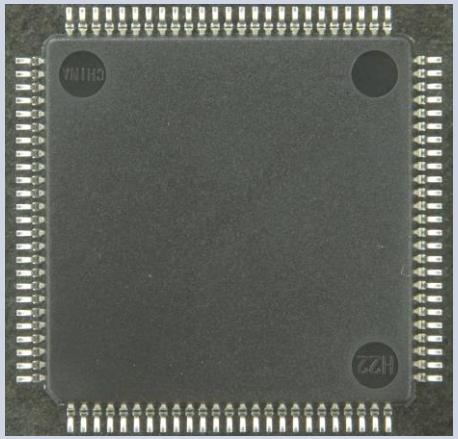
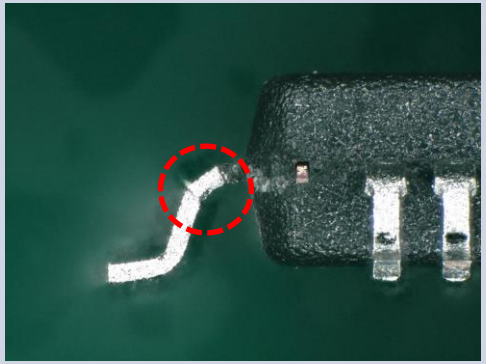
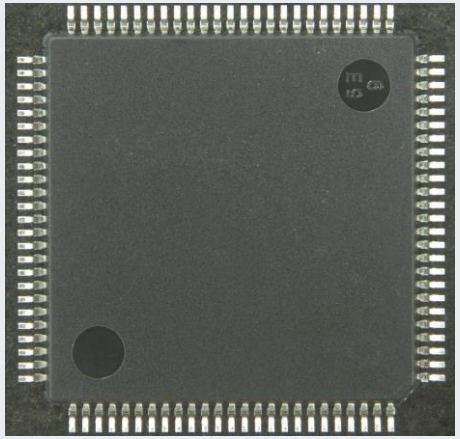
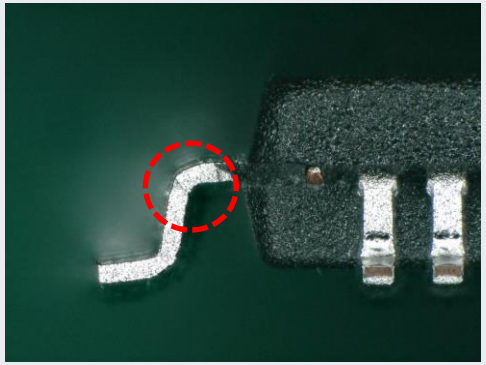
Greatek symbol is the same as the JEDEC standard.

Addition	14x14mm 100pin LQFP PLQP0100KP-A			Current	14x14mm 100pin LQFP PLQP0100KB-B		
Greatek	Dimension in Millimeters			RSB	Dimension in Millimeters		
Symbol	Min	Nom	Max	Symbol	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	-	16.00	-	HD	15.80	16.00	16.20
D1	-	14.00	-	D	13.90	14.00	14.10
E	-	16.00	-	HE	15.80	16.00	16.20
E1	-	14.00	-	E	13.90	14.00	14.10
N	-	100	-	-	-	-	-
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: 14x14mm 100pin LQFP package

※Marked character is reference example

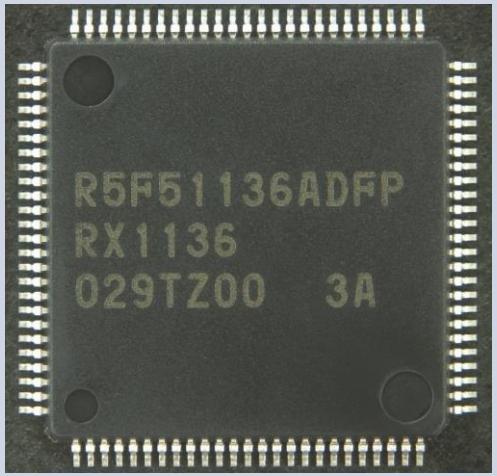
	Package surface	Package back	Worked Leads shape
Current			
Addition			

* There is no WS notation in the actual product

2. DIFFERENCE OF SPECIFICATION'S DETAIL (9)

Marking Font

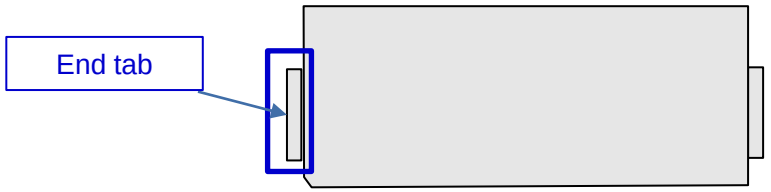
※Marked character is reference example

Assembly Line	Current	Addition
Whole Photo		
Detail Photo		

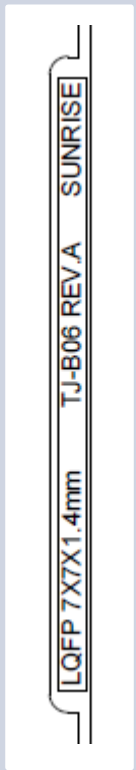
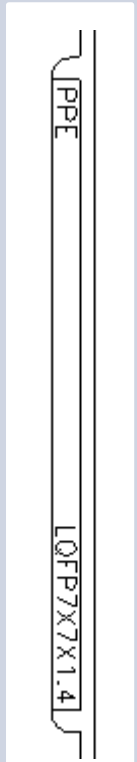
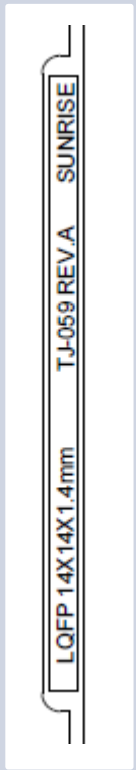
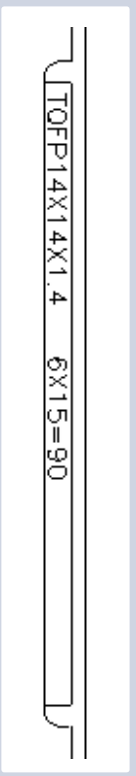
* There is no WS notation in the actual product

2. DIFFERENCE OF SPECIFICATION'S DETAIL (10)

Tray

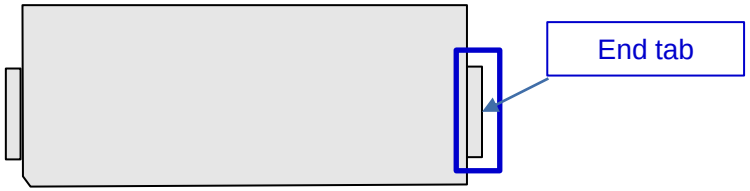


The notation of the end tab is different.

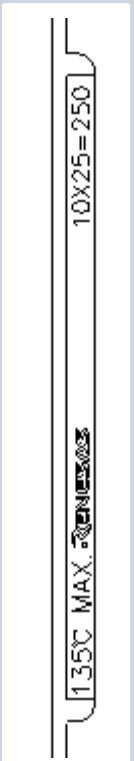
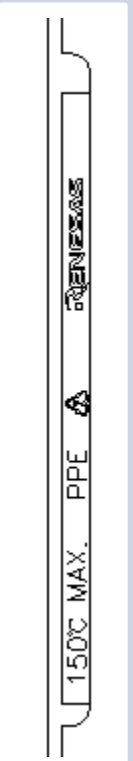
7x7mm		14x14mm	
			
Addition	Current	Addition	Current

2. DIFFERENCE OF SPECIFICATION'S DETAIL (11)

Tray



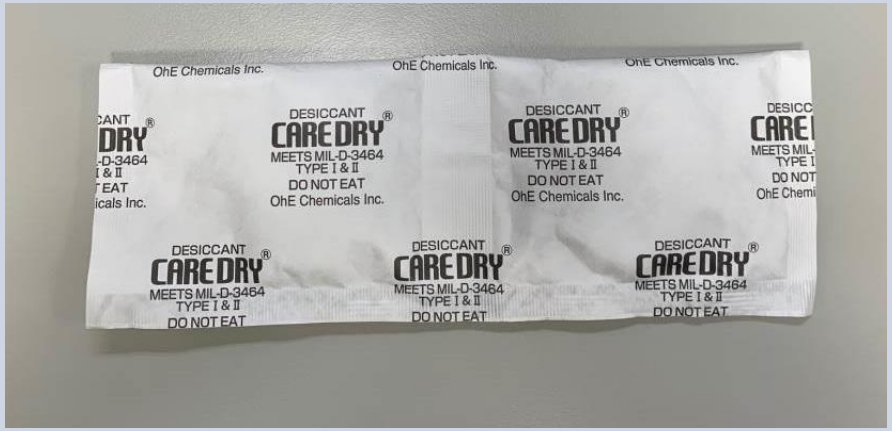
The notation of the end tab is different.

7x7mm		14x14mm	
			
Addition	Current	Addition	Current

2. DIFFERENCE OF SPECIFICATION'S DETAIL (12)

Desiccant

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

	Addition	Current
Desiccant		

3. 4M changing points (Add the assembly 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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