

## Product Change Notice (PCN)

**Subject:** Add Back-End factories, materials for RX/RA LQFP package products

**Publication Date:** 12/9/2022

**Effective Date:** 4/1/2023

**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)

Additional: Greatek Electronics Inc., (Greatek)

1.2 Add the final test factory

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

Additional: King Yuan Electronics Co., Ltd. (KYEK)

2) Add materials of Back-end factories

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 and chip thickness.

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:

Addition of bundling band color (Black)

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

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

**Affected Product List :**

RX/RA LQFP package products. For the P/N details, please refer to page 3.

Product group	Package
RX651	14x14mm 100pin
RX66T	14x14mm 100pin
RA4M2	14x14mm 100pin
RA4M2	10x10mm 64pin
RA4E1	10x10mm 64pin

**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.

Function, Quality and reliability: There are no impact.

**Product Identification:**

Our production history data can be queried by using the packing label or trace code of the product.

**Qualification Status:** Available from 2/1/2023. Please contact Renesas sales, distributor, or agency.

**Sample Availability Date:** 4/1/2023

**Device Material Declaration:** Please 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.**

## P/N list

Affected P/N list	Package	Group
R5F56514ADFP#10	14mm x 14mm 100pin	RX651
R5F56514BDFP#10	14mm x 14mm 100pin	RX651
R5F56514EDFP#10	14mm x 14mm 100pin	RX651
R5F56514FDFP#10	14mm x 14mm 100pin	RX651
R5F56517ADFP#10	14mm x 14mm 100pin	RX651
R5F56517BDFP#10	14mm x 14mm 100pin	RX651
R5F56517EDFP#10	14mm x 14mm 100pin	RX651
R5F56517FDFP#10	14mm x 14mm 100pin	RX651
R5F56519ADFP#10	14mm x 14mm 100pin	RX651
R5F56519BDFP#10	14mm x 14mm 100pin	RX651
R5F56519EDFP#10	14mm x 14mm 100pin	RX651
R5F56519FDFP#10	14mm x 14mm 100pin	RX651
R5F56514AGFP#10	14mm x 14mm 100pin	RX651
R5F56514BGFP#10	14mm x 14mm 100pin	RX651
R5F56514EGFP#10	14mm x 14mm 100pin	RX651
R5F56514FGFP#10	14mm x 14mm 100pin	RX651
R5F56517AGFP#10	14mm x 14mm 100pin	RX651
R5F56517BGFP#10	14mm x 14mm 100pin	RX651
R5F56517EGFP#10	14mm x 14mm 100pin	RX651
R5F56517FGFP#10	14mm x 14mm 100pin	RX651
R5F56519AGFP#10	14mm x 14mm 100pin	RX651
R5F56519BGFP#10	14mm x 14mm 100pin	RX651
R5F56519EGFP#10	14mm x 14mm 100pin	RX651
R5F56519FGFP#10	14mm x 14mm 100pin	RX651
R5F566TAADFP#10	14mm x 14mm 100pin	RX66T
R5F566TABDFP#10	14mm x 14mm 100pin	RX66T
R5F566TAEDFP#10	14mm x 14mm 100pin	RX66T
R5F566TAFDFP#10	14mm x 14mm 100pin	RX66T
R5F566TEADFP#10	14mm x 14mm 100pin	RX66T

R5F566TEBDFP#10	14mm x 14mm 100pin	RX66T
R5F566TEEDFP#10	14mm x 14mm 100pin	RX66T
R5F566TEFDFP#10	14mm x 14mm 100pin	RX66T
R5F566TAAGFP#10	14mm x 14mm 100pin	RX66T
R5F566TABGFP#10	14mm x 14mm 100pin	RX66T
R5F566TAEGFP#10	14mm x 14mm 100pin	RX66T
R5F566TAFGFP#10	14mm x 14mm 100pin	RX66T
R5F566TEAGFP#10	14mm x 14mm 100pin	RX66T
R5F566TEBGFP#10	14mm x 14mm 100pin	RX66T
R5F566TEEGFP#10	14mm x 14mm 100pin	RX66T
R5F566TEFGFP#10	14mm x 14mm 100pin	RX66T
R7FA4E10B2CFM#AAO	10mm x 10mm 64pin	RA4E1
R7FA4E10D2CFM#AAO	10mm x 10mm 64pin	RA4E1
R7FA4M2AB3CFM#AAO	10mm x 10mm 64pin	RA4M2
R7FA4M2AC3CFM#AAO	10mm x 10mm 64pin	RA4M2
R7FA4M2AD3CFM#AAO	10mm x 10mm 64pin	RA4M2
R7FA4E10B2CFM#HAO	10mm x 10mm 64pin	RA4E1
R7FA4M2AD3CFM#HAO	10mm x 10mm 64pin	RA4M2
R7FA4M2AB3CFP#AAO	14mm x 14mm 100pin	RA4M2
R7FA4M2AC3CFP#AAO	14mm x 14mm 100pin	RA4M2
R7FA4M2AD3CFP#AAO	14mm x 14mm 100pin	RA4M2
R7FA4M2AB3CFM#BAO	10mm x 10mm 64pin	RA4M2
R7FA4M2AD3CFM#BAO	10mm x 10mm 64pin	RA4M2
R7FA4E10B2CFM#BAO	10mm x 10mm 64pin	RA4E1
R7FA4E10D2CFM#BAO	10mm x 10mm 64pin	RA4E1
R7FA4M2AC3CFM#BAO	10mm x 10mm 64pin	RA4M2
R7FA4M2AB3CFP#BAO	14mm x 14mm 100pin	RA4M2
R7FA4M2AC3CFP#BAO	14mm x 14mm 100pin	RA4M2
R7FA4M2AD3CFP#BAO	14mm x 14mm 100pin	RA4M2

# ADD BACK-END FACTORIES, MATERIALS FOR RX/RA LQFP PRODUCTS DIFFERENCE DOCUMENT

Greatek Electronics Inc.,

King Yuan Electronics Co., Ltd

DECEMBER 6, 2022

IOT PLATFORM BUSINESS DIVISION  
IOT AND INFRASTRUCTURE BUSINESS UNIT  
RENESAS ELECTRONICS CORPORATION

IMO-AB-22-0141

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(Rev. 5.0-1 October 2020)

# Content

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

# Overview

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Thank you for continuously using our products.

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

For LQFP package products, manufacturing factories and assembly materials are also 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

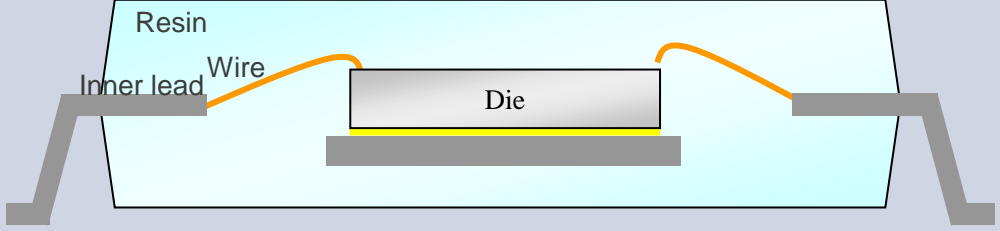
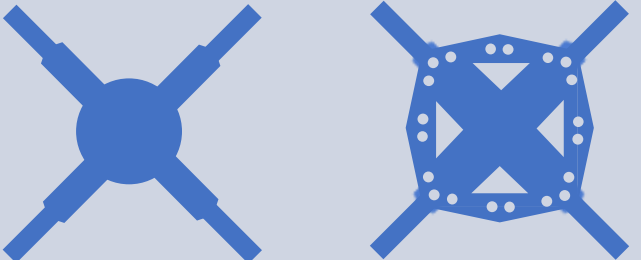
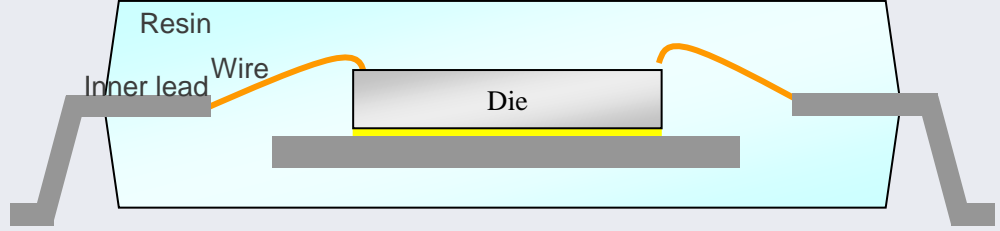
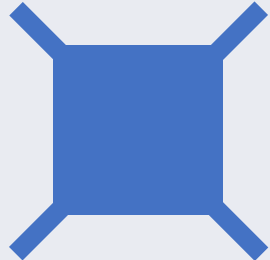
Item		Current	Addition	Note
Assembly factory		Renesas Semiconductor (Beijing) Co., Ltd	Greatek Electronics Inc.	-
Sorting factory			King Yuan Electronics Co., Ltd	
Parts	Lead frame	-	Change to standard material used in new factory. The structure not changed.	Refer to page 6
	Die mount	-	Change to standard material used in new factory. The structure not changed.	
	Mould resin	-	Change to standard material used in new factory. The structure not changed.	
	Chip thickness	280μm	305μm (12mil)	-
Package	Outline	-	There are changes in some of dimensions	Refer to page 7 to 13
Marking	Font	-	Font changed	Refer to page 14
Packing	Bundling band color	-	Add black	-
Storage condition	After opening	Within 30°C/ 70%RH/ 168h	Within 30°C/ 60%RH/ 168h	-

※ There is no impact on reliability and specification

# 2. DIFFERENCE OF SPECIFICATION'S DETAIL (1)

## PACKAGE STRUCTURE(IMAGE)

※PKG cross section and die pad shape are reference examples

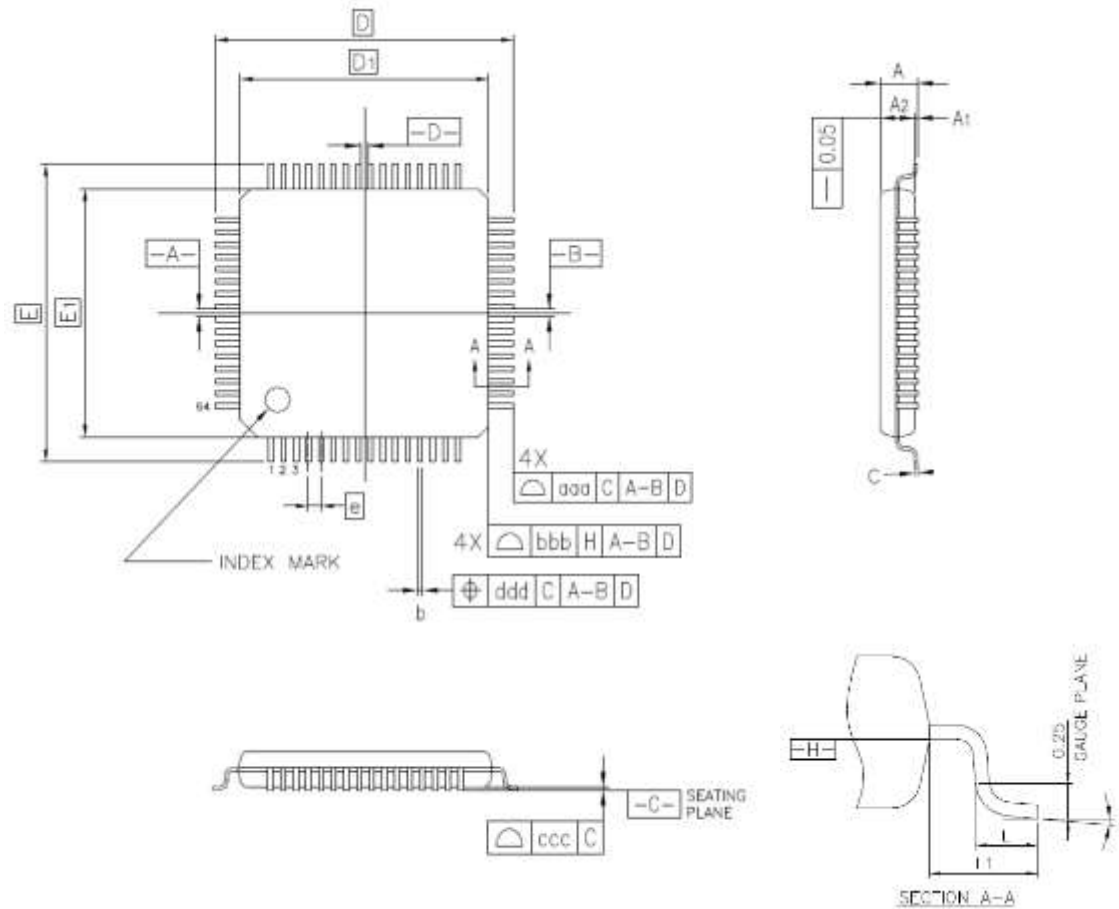
Assembly Line	PKG cross section	Die pad shape
Current		 <p data-bbox="1656 763 1885 828">excluding R5F566TxxxFP</p> <p data-bbox="2025 778 2254 806">R5F566TxxxFP</p>
Addition		

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

# 2. DIFFERENCE OF SPECIFICATION'S DETAIL (2)

## 10x10mm 64pin LQFP package drawing (Addition)

RENESAS Code : PLQP0064KL-A

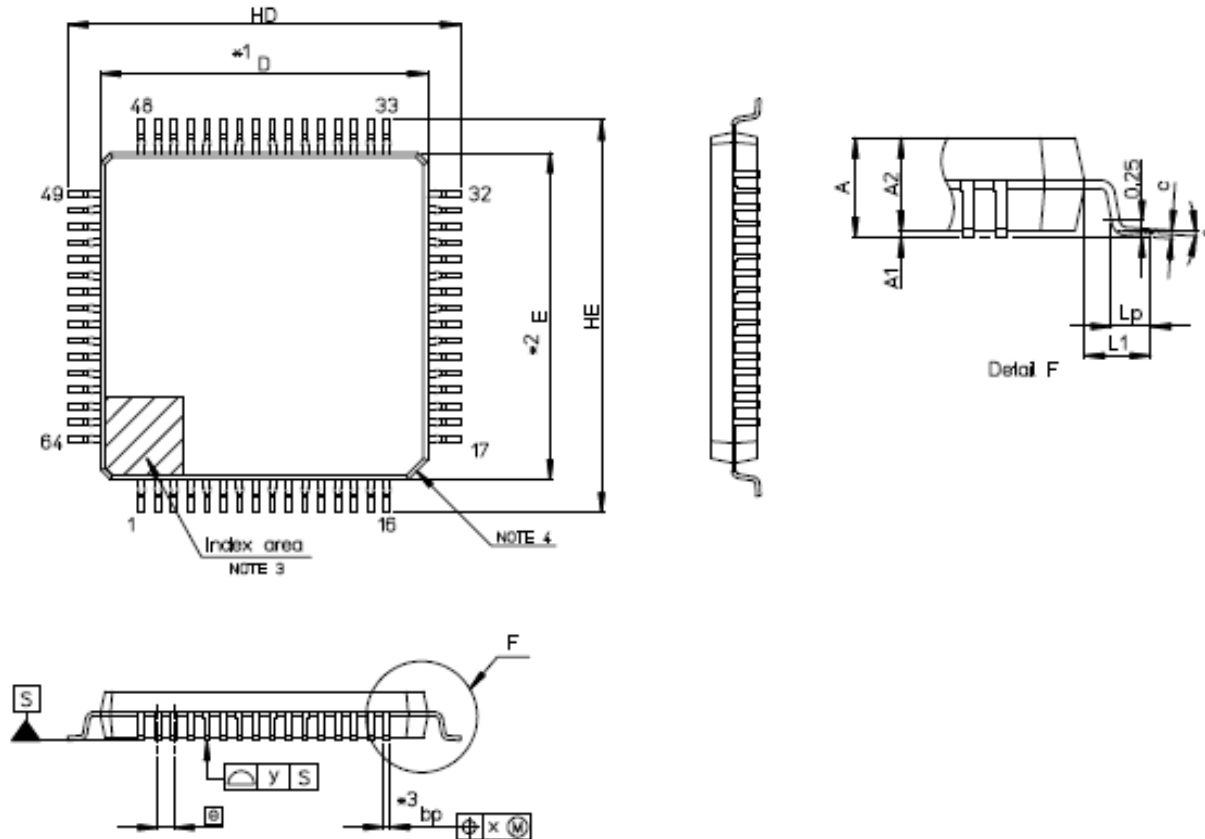


Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	-	-	1.60
A <sub>1</sub>	0.05	-	0.15
A <sub>2</sub>	1.35	1.40	1.45
D	-	12.00	-
D1	-	10.00	-
E	-	12.00	-
E <sub>1</sub>	-	10.00	-
N	-	64	-
e	-	0.50	-
b	0.17	0.22	0.27
c	0.09	-	0.20
e	0°	3.5°	7°
L	0.45	0.60	0.75
L <sub>1</sub>	-	1.00	-
aaa	-	-	0.20
bbb	-	-	0.20
ccc	-	-	0.08
ddd	-	-	0.08

# 2. DIFFERENCE OF SPECIFICATION'S DETAIL (3)

## 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 <sup>□</sup>	3.5 <sup>□</sup>	8 <sup>□</sup>
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: 10x10mm 64pin LQFP package

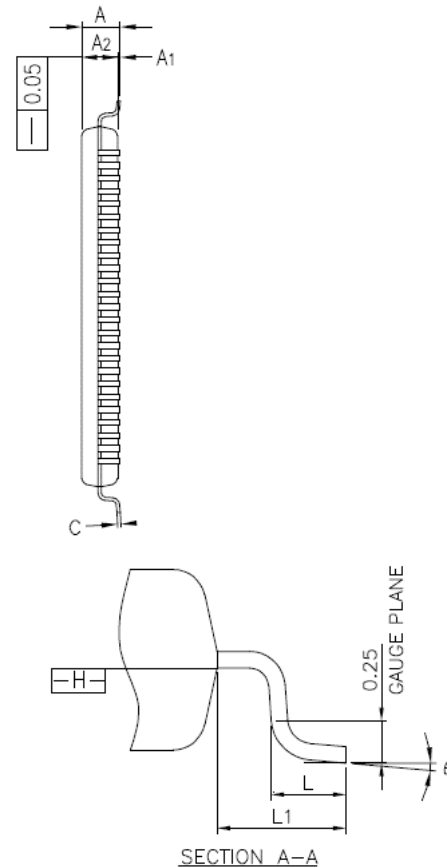
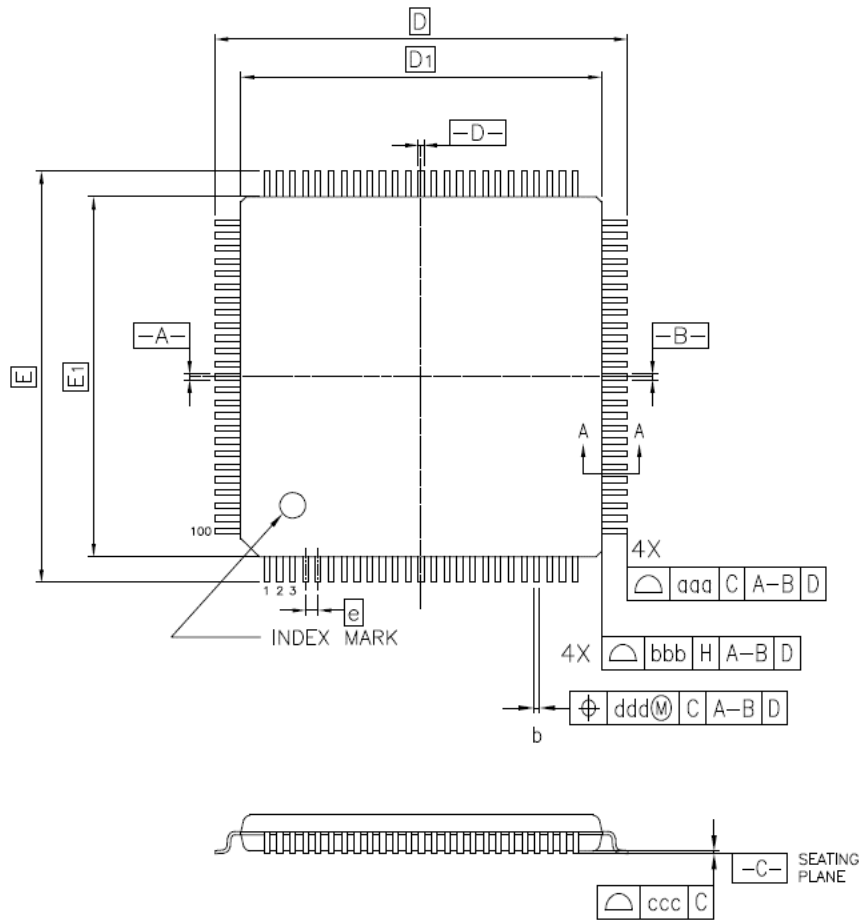
Greatek symbol is the same as the JEDEC standard.

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 (5)

## 14x14mm 100pin LQFP package drawing (Addition)

RENESAS Code : PLQP0100KP-A

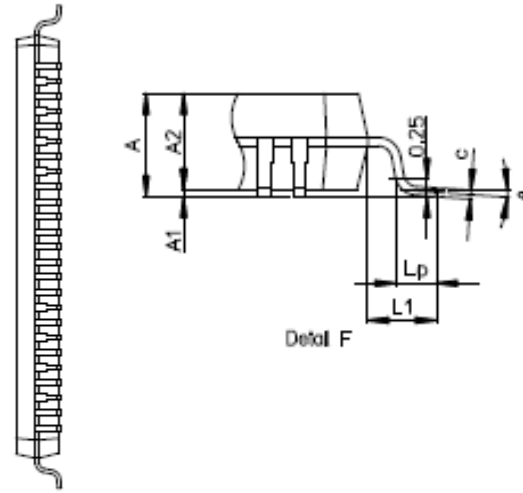
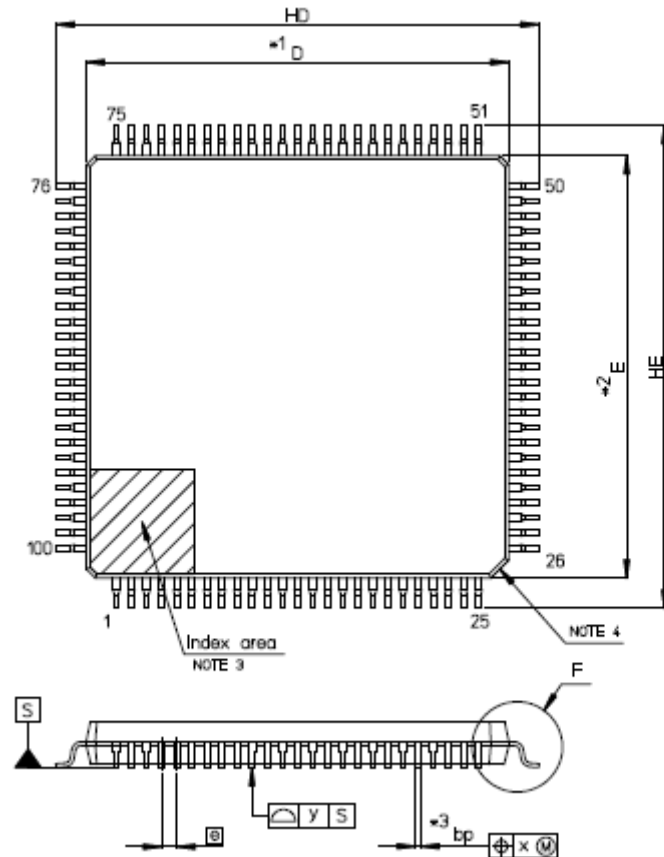


Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	1.60
A <sub>1</sub>	0.05	—	0.15
A <sub>2</sub>	1.35	1.40	1.45
D	—	16.00	—
D <sub>1</sub>	—	14.00	—
E	—	16.00	—
E <sub>1</sub>	—	14.00	—
N	—	100	—
e	—	0.50	—
b	0.17	0.22	0.27
c	0.09	—	0.20
θ	0°	3.5°	7°
L	0.45	0.60	0.75
L <sub>1</sub>	—	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
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: 14x14mm 100pin LQFP package

Greatek symbol is the same as the JEDEC standard.


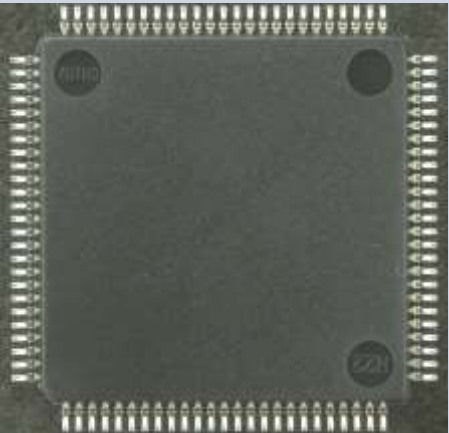


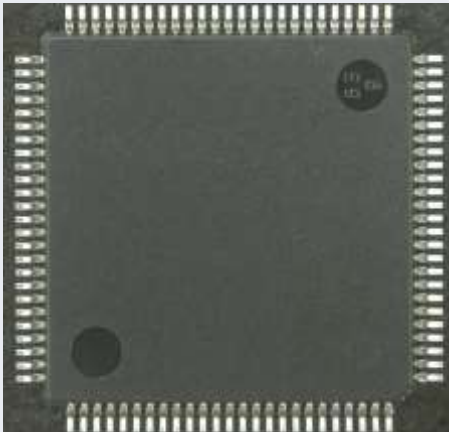
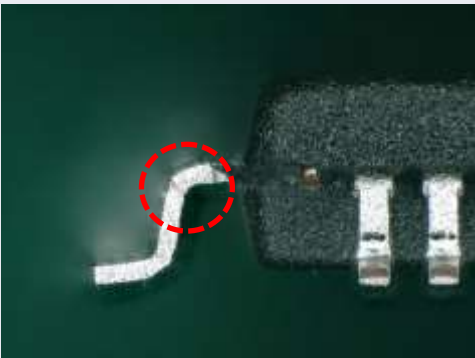
Addition Greatek Symbol	14x14mm 100pin LQFP PLQP0100KP-A			Current RSB Symbol	14x14mm 100pin LQFP PLQP0100KB-B		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	1.60	A	-	-	1.70
A1	0.05	-	0.15	A1	0.05	-	0.15
A2	1.35	1.40	1.45	A2	-	1.40	-
D	-	16.00	-	HD	15.80	16.00	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

### 3. 4M changing points (Add the assembly factory and materials)

Item	Check result	Judgement
<b>Machine</b>	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.	<b>No risk</b>
<b>Method</b>	The same as current products.	<b>No risk</b>
<b>Man</b>	Adopt operator certification system. Only certificated operator can work for the production.	<b>No risk</b>
<b>Material</b>	Only use certificated materials. The products has been certificated by reliability test same as present products and have no risk.	<b>No risk</b>

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