

## Product Change Notice (PCN)

### Subject:

Back-end factory and material change for RA(RA6M3)/SYNERGY(S5D9) 176pin-LQFP products.

**Publication Date:** 2/10/2023

**Effective Date:** 7/3/2023

### Revision Description:

Initial Release

### Description of Change:

#### 1)Change of Back-End factories

##### 1.1 Change the assembly factory

Current: Renesas Semiconductor (Suzhou) Co., Ltd (RSC)

Change: Greatek Electronics Inc., (Greatek)

##### 1.2 Change the final test factory

Current: Renesas Semiconductor (Suzhou) Co., Ltd (RSC)

Change: King Yuan Electronics Co., Ltd (KYTEC)

#### 2)Change of materials

When comparing with RSC products, there are some change 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 and mold resin.

##### 2.2 Package outline and Marking on package:

Some differences for external dimensions.

Mark content and font.

##### 2.3 Packing material:

tray change

Change of bundling band color (Black)

Change to full carton specification

#### 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)

**Affected Product List:****RA(RA6M3) and SYNERGY(S5D9) 176pin-LQFP products**

Current ordering model name	Order type name after change
R7FA6M3AF3CFC#AA0	R7FA6M3AF3CFC#BA1
R7FA6M3AH3CFC#AA0	R7FA6M3AH3CFC#BA1
R7FS5D97C3A01CFC#AA0	R7FS5D97C3A01CFC#BA1
R7FS5D97E3A01CFC#AA0	R7FS5D97E3A01CFC#BA1
R7FS5D97C3A01CFC#BA0	R7FS5D97C3A01CFC#BA1
R7FS5D97E3A01CFC#BA0	R7FS5D97E3A01CFC#BA1

**Reason for Change:**

For Stable supply, we change 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:**

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: 6/1/2023**

Sample request must be sent to Renesas by March 31, 2023.

**Device Material Declaration:**

Please contact sales representative or sales agent.

## 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.

# RA(RA6M3)\_SYNERGY(S5D9) 176PIN-LQFP PRODUCTS BACK-END FACTORY AND MATERIAL CHANGE DIFFERENCE DOCUMENT

Assembly factory: Greatek Electronics Inc.,

Sorting factory: King Yuan Electronics Co., Ltd

FEBRUARY 10, 2023

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

IMO-AB-23-0017-1

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(Rev. 5.0-1 October 2020)

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# Overview

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Thank you for continuously using our products.

In our microcomputer RA (RA6M3)/SYNERGY (S5D9) 176pin-LQFP products, we will change the manufacturing factory and materials for the purpose of stable supply.

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	Change	Noto
Assembly factory		Renesas Semiconductor (Suzhou) Co., Ltd	Greatek Electronics Inc.	
Sorting factory		Renesas Semiconductor (Suzhou) Co., Ltd	King Yuan Electronics Co., Ltd	
Parts	Lead frame	—	Change to standard material used in new factory. The structure not changed.	
	Die mount	—	Change to standard material used in new factory. The structure not changed.	
	Die mount	—	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 6 to 8
Marking	Mark	—	Mark changed	Refer to page 9 to 10
	Font	—	Font changed	
Packing	Tray	—	Certified tray	Refer to page 11
	Bundling band color	—	Bundling band color change (black)	
	Full carton	Quantity Fraction packing:1pcs Full carton packing:320pcs	Quantity Fraction packing:None Full carton packing:240pcs	Refer to page 12 to13
Storage condition	After opening	Within 30°C/ 70%RH/ 168h	Within 30°C/ 60%RH/ 168h	

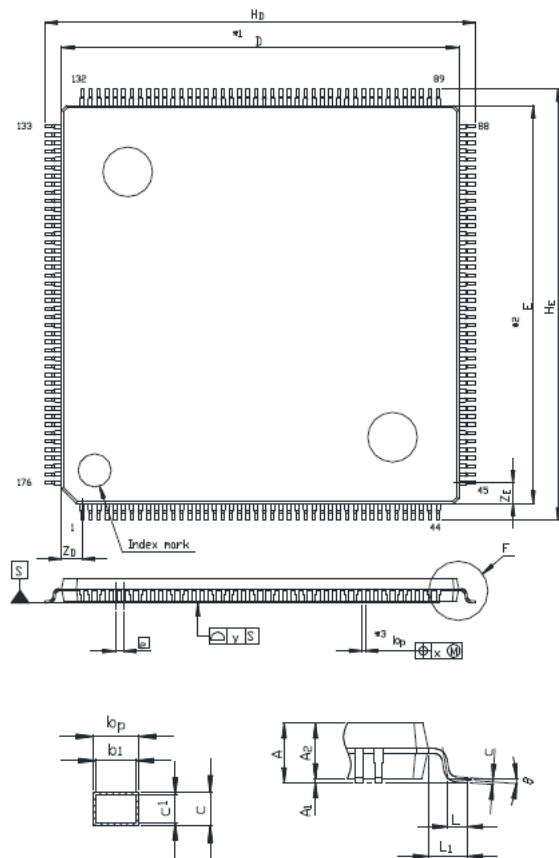
※There is no impact on reliability and specification



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

RENESAS Code : PLQP0176KB-A

24x24mm 176pin LQFP package drawing (Current)

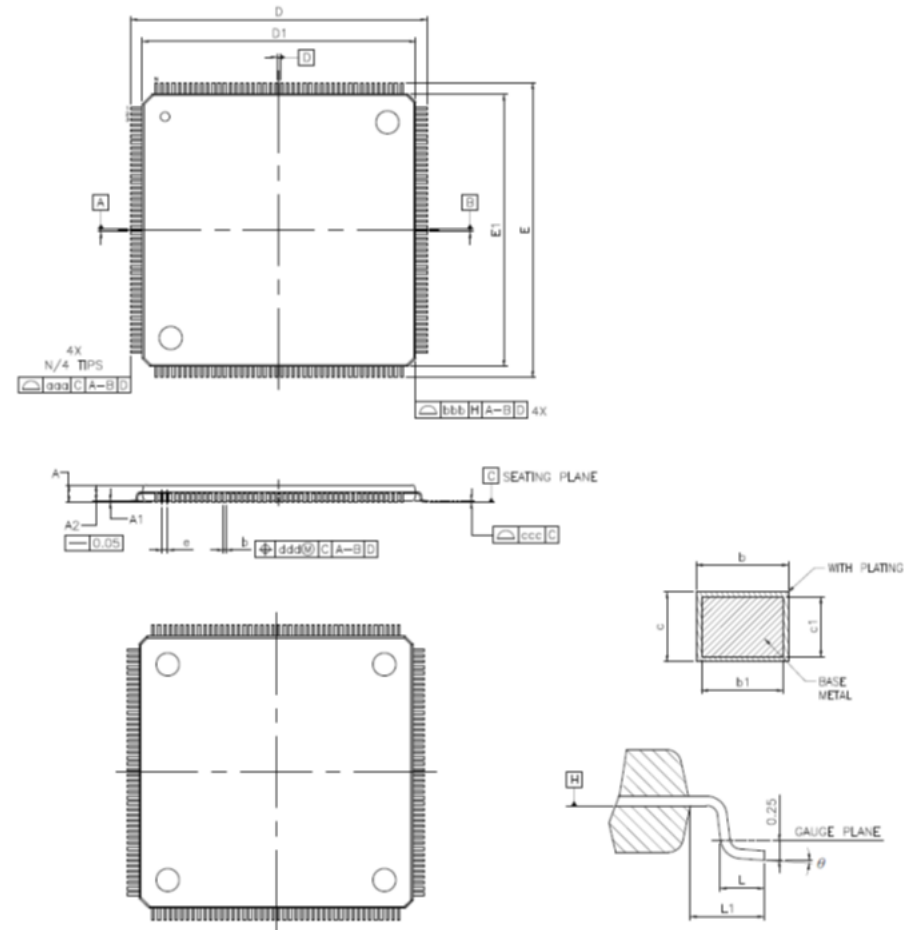


Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	23.9	24.0	24.1
E	23.9	24.0	24.1
A <sub>2</sub>	—	1.4	—
H <sub>B</sub>	25.8	26.0	26.2
H <sub>E</sub>	25.8	26.0	26.2
A	—	—	1.7
A <sub>1</sub>	0.05	0.1	0.15
b <sub>p</sub>	0.15	0.20	0.25
b <sub>1</sub>	—	0.18	—
c	0.09	0.145	0.20
c <sub>1</sub>	—	0.125	—
θ	0°	—	8°
e	—	0.5	—
x	—	—	0.08
y	—	—	0.08
Z <sub>B</sub>	—	1.25	—
Z <sub>E</sub>	—	1.25	—
L	0.35	0.5	0.65
L <sub>1</sub>	—	1.0	—

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

RENESAS Code : PLQP0176KJ-A

24x24mm 176pin LQFP package drawing (Change)



SYMBOLS	MIN.	NOM.	MAX.
A	—	—	1.60
A1	0.05	—	0.15
A2	1.35	1.40	1.45
D	26.00 BSC		
D1	24.00 BSC		
E	26.00 BSC		
E1	24.00 BSC		
N	176		
e	0.50 BSC		
b	0.17	0.22	0.27
b1	0.17	0.20	0.23
c	0.09	—	0.20
c1	0.09	—	0.16
θ	0°	3.5°	7°
L	0.45	0.60	0.75
L1	1.00 REF		
aaa	0.20		
bbb	0.20		
ccc	0.08		
ddd	0.08		

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

Dimension comparison : 24x24mm 176pin LQFP package

Greatek symbol is the same as the JEDEC standard.

Current	24x24mm 176pin LQFP			Change	24x24mm 176pin LQFP		
	PLQP0176KJ-A				PLQP0176KJ-A		
RSC	Dimension in Millimeters			Greatek	Dimension in Millimeters		
Symbol	Min	Nom	Max	Symbol	Min	Nom	Max
A	–	–	1.70	A	–	–	1.60
A1	0.05	0.10	0.15	A1	0.05	–	–
A2	–	1.40	–	A2	1.35	–	–
HD	25.80	26.00	26.20	D	–	26.00	–
D	23.90	24.00	24.10	D1	–	24.00	–
HE	25.80	26.00	26.20	E	–	26.00	–
E	23.90	24.00	24.10	E1	–	24.00	–
–	–	–	–	N	–	176	–
e	–	0.50	–	e	–	0.50	–
bp	0.15	0.20	0.25	b	0.17	0.22	0.27
–	–	–	–	b1	0.17	0.20	0.23
c	0.09	0.145	0.20	c	0.09	–	0.20
–	–	–	–	c1	0.09	–	0.16
$\theta$	0°	–	8°	$\theta$	0°	3.5°	7°
L	0.35	0.50	0.65	L	0.45	0.60	0.75
L1	–	1.00	–	L1	–	1.00	–
–	–	–	–	aaa	–	0.20	–
–	–	–	–	bbb	–	0.20	–
y	–	–	0.08	ccc	–	0.08	–
x	–	–	0.08	ddd	–	0.08	–

\*The dimensions are equivalent to the current ones.  
The difference in the numerical value is because the part specified as the dimension is different.

# 2 . DIFFERENCE OF SPECIFICATION'S DETAIL (4)

Appearance : 24x24mm 176pin LQFP package

※Marked character is reference example

	Package surface	Package back	Font
Current			
Change			

\*There is no WS notation in the actual product

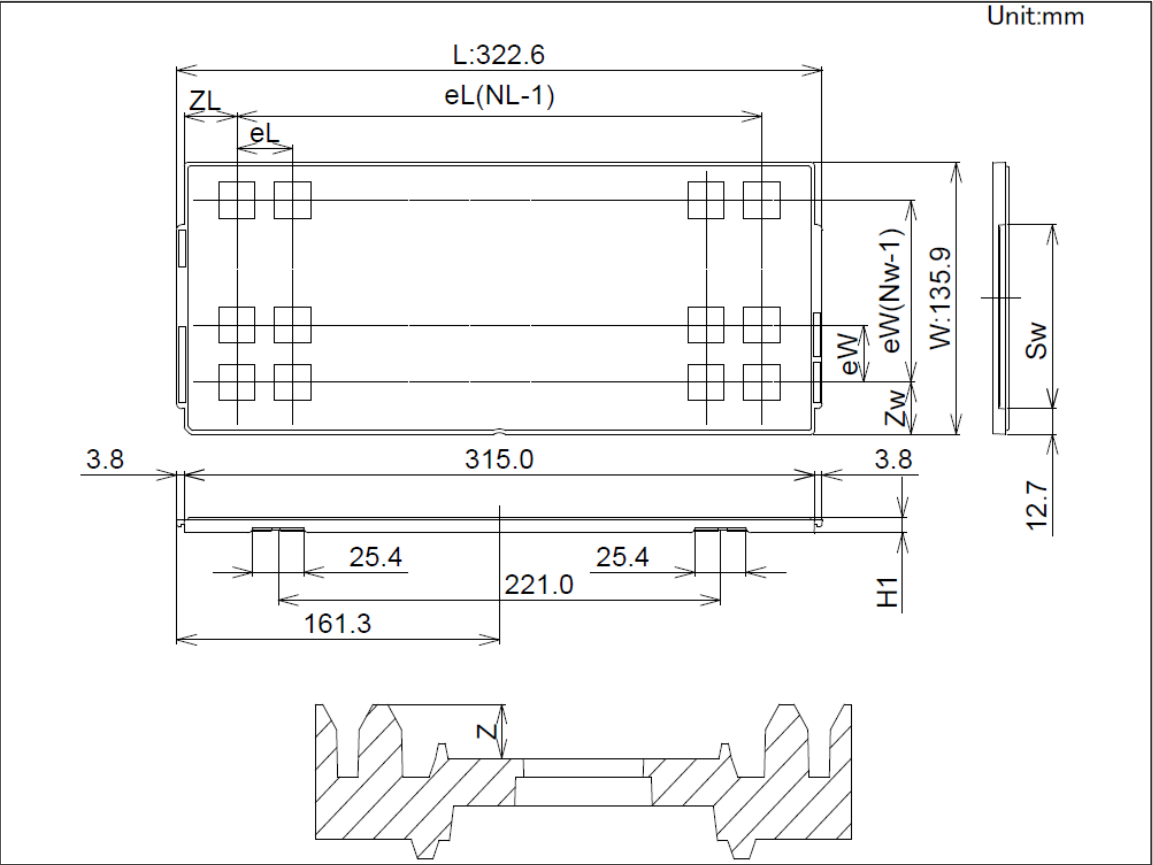
# 2 . DIFFERENCE OF SPECIFICATION'S DETAIL (5)

Mark specification : 24x24mm 176pin LQFP package

	RA6M3	S5D9
Current	<div><p>176-pin LQFP</p><p>型名 Part Number</p><p>製造ロット番号 Lot Number</p><p>インデックス Index</p><p>AXXXXXXXXXFC</p><p>X XXXX</p><p>XXXXXXX</p></div>	<div><p>176-pin LQFP</p><p>型名 Part Number</p><p>製造ロット番号 Lot Number</p><p>インデックス Index</p><p>SYNERGY A01</p><p>SXXXXXXXXFC</p><p>X XXXX</p><p>XXXXXXX</p></div>
Change	<div><p>176-pin LQFP</p><p>型名 Part Number</p><p>製造ロット番号 Lot Number</p><p>インデックス Index</p><p>R7FAXXXXXXXXXFC</p><p>XXXXXXX</p></div>	<div><p>176-pin LQFP</p><p>型名 Part Number</p><p>製造ロット番号 Lot Number</p><p>インデックス Index</p><p>SYNERGY</p><p>R7FSXXXXXXXXXXFC</p><p>XXXXXXX</p></div>

# 2 . DIFFERENCE OF SPECIFICATION'S DETAIL (6)

Packing specification (Tray)



Tray Code		Current	Change
		LQFP24x24x1.4	EAC242401-10
Position dimension of cells	Z	1.50	
	Zw	20.70	
	ZL	20.70	
	eW	31.50	
	eL	30.40	
	Sw	92.1	
Thickness (mm)	H1	7.62	
Number of cells	Nw	4	
	NL	10	
Maximum storage pcs IC/Tray		40	
Maximum storage pcs IC/Inner box		320	240
Material		Carbon PPE	
Heat resistant temperature		135°C MAX	
JEDECorCustom		JEDEC	
Surface resistance		Less than 1x10 <sup>11</sup> Ω/□	

# 2 . DIFFERENCE OF SPECIFICATION'S DETAIL (7)

Packing specification (Full Carton1)

We will unify the order form to full cartons of trays.  
Order quantity units are available from the following quantities.

Shipment form	Current ordering model name	Order unit of measure	Order type name after change	Order unit of measure
Tray	R7FA6M3AF3CFC#AA0	1pcs	R7FA6M3AF3CFC#BA1	240pcs
	R7FA6M3AH3CFC#AA0	1pcs	R7FA6M3AH3CFC#BA1	240pcs
	R7FS5D97C3A01CFC#AA0	1pcs	R7FS5D97C3A01CFC#BA1	240pcs
	R7FS5D97E3A01CFC#AA0	1pcs	R7FS5D97E3A01CFC#BA1	240pcs
	R7FS5D97C3A01CFC#BA0	320pcs	R7FS5D97C3A01CFC#BA1	240pcs
	R7FS5D97E3A01CFC#BA0	320pcs	R7FS5D97E3A01CFC#BA1	240pcs

# 2 . DIFFERENCE OF SPECIFICATION'S DETAIL (8)

Packing specification (Full Carton2)

We will change the model name of the target product, which is packaged in a tray, to a full carton model. In full-carton packaging, in which the tray and the inner box are filled, if the inner box cannot be filled with one production lot, a maximum of three lots will be combined to form a shipping lot.

Comparison table

	Item	Fraction packing	Full carton packing
①	Package presentation	There is an unstored part in the tray, and the number of trays in the inner box is less than the specified number.	All items are stored in the tray, and the number of trays stacked in the inner box is the specified upper limit, and the inner box is fully stored.
②	Product label	No lot number on the upper left corner of the label.	The integrated lot details are indicated on the upper left of the label.
③	Integration of assembly lots	No integration, one production lot.	Possibility to combine up to 3 production lots in one inner box.
④	Our order model name	1st digit after # in orderable model name: #A*	1st digit after # in orderable model name: #B*
⑤	Order quantity	1 unit	Multiple of full carton unit of measure

An example of the current label (fraction storage)  
There is no production lot notation on the upper left of the label



Example of label after full carton packaging change (integrated lot storage)  
Indicate the integrated production lot on the upper left of the label: 3 production lots  
Integration example (serial number, week code, quantity)



## 3. 4M CHANGING POINTS (Change 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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