

**Customer:** 

Product Change Notice
(PCN Tracking Number: EE-QR-230213-01)

**ALL Customers** 

Version: 1

Renesas Product Typ	enesas Product Type: RA(RA6M3)/SYNERGY(S5D9) 176pin-LQFP products. (full list on p.7)				
Description of Chang	Change of a	Change of back-end factories (assembly & test) Change of assembly materials Please refer to p. 2 for more details			
Reason for Change:	To ensure s	table supply			
Identification:	Identifiable t	thru productio	n history data via trace code	e or product label	
Schedules:  Sample order Sample availa Reliability repo Requested ap Change Imple		ilability: port: approval:	e/o Mar. 2023 b/o Jun. 2023 (upon request) available (upon request) e/o May 2023 b/o Jul. 2023 onwards		
Anticipated Impact:	Fit & Form: Function: Quality & Re Part Numbe		Some changes in dimension No change No impact Change	on (refer to p. 2 -6)	
Doc. No.:	EE-QC-PCN	N-CR-23-0018	}		
Internal Reference:	IMO-AB-23-	0009			
In case of any question,	please contact:				
INITIATOR TITLE Email DHONE N					
INITIATOR	TITLE	E-mail		PHONE No.	
	TITLE Staff Engineer		ihashemi@renesas.com	<b>PHONE No.</b> +49-211-6503-1844	
Farhad Banihashemi  Düsseldorf, 10.02.2023  Customer Resp (please fill in and retuinment)  acknowledge	Staff Engineer  Onse: rn by e-mail, fax or i	farhad.ban	ihashemi@renesas.com		
Farhad Banihashemi  Düsseldorf, 10.02.2023  Customer Resp (please fill in and return  acknowledge acceptable inacceptable (pls. co	Staff Engineer  Onse: rn by e-mail, fax or r	farhad.ban	ihashemi@renesas.com		
Farhad Banihashemi  Düsseldorf, 10.02.2023  Customer Resp (please fill in and return  acknowledge acceptable	Onse: rn by e-mail, fax or r  omment) Name 8	farhad.ban mail) Company: _	ihashemi@renesas.com		
Farhad Banihashemi  Düsseldorf, 10.02.2023  Customer Resperence (please fill in and return acknowledge acceptable inacceptable inacceptable not applicable  Note: Acknowledgement approved. If timely acknowledge accept of this PCN in PCN within 90 days of the second acceptable acceptable approved.	onse:  on by e-mail, fax or in the province of the receipt of the PCN	farhad.ban  mail)  Company:  Position:  Fax No.:  Renesas with ided by Custo objections to the properties of th	thin 30 days or Renesas will omer, then Customer shall have PCN. If Customer fails to as will consider the PCN charses with a last time buy den	+49-211-6503-1844  consider the change as ave 90 days from the date make objections to this anges as approved. If	
Farhad Banihashemi  Düsseldorf, 10.02.2023  Customer Resperence (please fill in and return)  acknowledge acceptable inacceptable (pls. control of the control of the property	onse:  on by e-mail, fax or in the province of the receipt of the PCN	farhad.ban  mail)  Company:  Position:  Fax No.:  Renesas with ided by Custo objections to the properties of th	thin 30 days or Renesas will omer, then Customer shall ha he PCN. If Customer fails to as will consider the PCN cha	+49-211-6503-1844  consider the change as ave 90 days from the date make objections to this anges as approved. If	



#### **Details 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 (KYEC)

#### 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)

### 1. DIFFERENCE OF SPECIFICATION'S OUTLINE

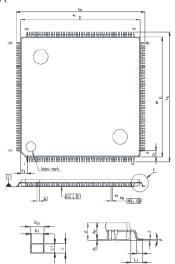
ltem		Current	Change	
Assembly factory		Renesas Semiconductor (Suzhou) Co., Ltd	Greatek Electronics Inc.	
Sorting	g factory	Renesas Semiconductor (Suzhou) Co., Ltd King Yuan Electronics Co., L		
	Lead frame	-	Change to standard material used in new factory. The structure not changed.	
Parts	Die mount	_	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	
Marking	Mark	_	Mark changed	
Marking	Font	_	Font changed	
	Tray	_	Certified tray	
Packing 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	
Storage condition	After opening	Within 30°C/ 70%RH/ 168h	Within 30°C/ 60%RH/ 168h	



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

RENESAS Code: PLQP0176KB-A

24x24mm 176pin LQFP package drawing (Current)

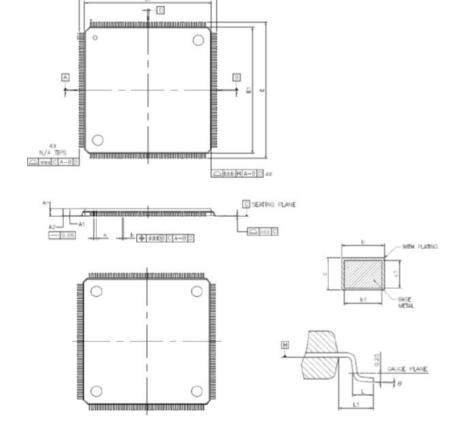


Reference	Dimensio	Dimension in Millimeters		
Reference Symbol	Min	Nom	Max	
D	23.9	24.0	241	
Ε	23,9	24,0	241	
Αz	—	1.4	<b>—</b>	
Ηз	25.8	26.0	262	
Hε	25.8	26.0	26.2	
Α			1.7	
A <sub>1</sub>	0,05	0.1	0.15	
bр	0.15	0.20	0.25	
b <sub>1</sub>	I —	0.18	_	
С	0,09	0.145	0.20	
C1	_	0.125	_	
θ	0*	I —	8.	
ρ		0.5		
×			0.08	
У	-	_	0.08	
Ζı		125		
Zε		125		
L	0,35	0.5	0,65	
Lı		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
0	- 2	6.00 BSC	5
D1		4.00 BSC	
E	1 2	6.00 BSC	
El	- 1	4.00 BSC	
- N		176	
e	-	0.50 BSC	
b	0.17	0.22	0.27
Б1	0.17 0.20 0.2		0.23
C	0.09	-	0.20
c1	0.09	- 1	0.16
θ	0,	3.5	7.
L	0.45	0.60	0.75
LI	1.00 REF		
000	0.20		
bbb	0.20		
000	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	24×24	mm 176pin	LQFP
	PLQP0176KJ-A				PLQP0176KJ-A		
RSC	Dimens	ion in Milli	meters	Greatek	Dimension in Millimeters		imeters
Symbol	Min	Nom	Max	Symbol	Min	Nom	Max
Α	-	-	1.70	Α	-	-	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	-
е	-	0.50	-	е	-	0.50	-
bp	0.15	0.20	0.25	b	0.17	0.22	0.27
-	-	-	-	b1	0.17	0.20	0.23
С	0.09	0.145	0.20	С	0.09	-	0.20
-	-	-	-	c1	0.09	-	0.16
θ	0°	-	8°	θ	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	-
У	_	_	0.08	ccc	_	0.08	_
X	-	_	0.08	ddd	-	0.08	-

<sup>\*</sup>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

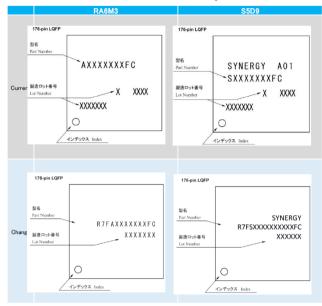


\*There is no WS notation in the actual product



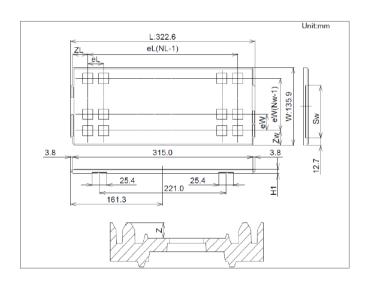
### 2. DIFFERENCE OF SPECIFICATION'S DETAIL (5)

Mark specification: 24x24mm 176pin LQFP package



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

Packing specification (Tray)



Tray Code		Current	Change	
		LQFP24x24x1.4 EAC242401-10		
	Z	1.	50	
Position	Zw	20	.70	
dimension of	ZL	20.70		
cells	eW	31.50		
	eL	30		
	Sw	92		
Thickness (mm)	H1	7.	_	
Number of cells	Nw		1	
	NL	1	0	
Maximum storage pcs IC/Tray		4	0	
Maximum storage pcs IC/Inner box		320	240	
Material		Carbo	n PPE	
Heat resistant temperature		135°C MAX		
JEDECorCustom		JEDEC		
Surface resistance		Less than $1x10^{11}\Omega/\Box$		



### 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
	R7FA6M3AF3CFC#AA0	1pcs	R7FA6M3AF3CFC#BA1	240pcs
	R7FA6M3AH3CFC#AA0	1pcs	R7FA6M3AH3CFC#BA1	240pcs
Tuov	R7FS5D97C3A01CFC#AA0	1pcs	R7FS5D97C3A01CFC#BA1	240pcs
Tray	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	All items are stored in the tray, and the number of trays stacked in
		the inner box is less than the specified number.	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
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

#### **Product List:**

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