

<h1 style="margin: 0;">Product Change Notice</h1> <p style="margin: 0;">(PCN Tracking Number: EE-QR-230213-01)</p> <p style="margin: 0;">Version: 1</p>

Customer:	ALL Customers		
Renesas Product Type:	RA(RA6M3)/SYNERGY(S5D9) 176pin-LQFP products. (full list on p.7)		
Description of Change:	Change of back-end factories (assembly & test) Change of assembly materials Please refer to p. 2 for more details		
Reason for Change:	To ensure stable supply		
Identification:	Identifiable thru production history data via trace code or product label		
Schedules:	Sample order deadline:	e/o Mar. 2023	
	Sample availability:	b/o Jun. 2023 (upon request)	
	Reliability report:	available (upon request)	
	Requested approval:	e/o May 2023	
	Change Implementation:	b/o Jul. 2023 onwards	
Anticipated Impact:	Fit & Form:	Some changes in dimension (refer to p. 2 -6)	
	Function:	No change	
	Quality & Reliability:	No impact	
	Part Number:	Change	
Doc. No.:	EE-QC-PCN-CR-23-0018		
Internal Reference:	IMO-AB-23-0009		

In case of any question, please contact:

INITIATOR	TITLE	E-mail	PHONE No.
Farhad Banihashemi	Staff Engineer	farhad.banihashemi@renesas.com	+49-211-6503-1844

Düsseldorf, 10.02.2023

Customer Response:

(please fill in and return by e-mail, fax or mail)

- | | |
|--|--|
| <input type="checkbox"/> acknowledge
<input type="checkbox"/> acceptable
<input type="checkbox"/> unacceptable (pls. comment)
<input type="checkbox"/> not applicable | Company: _____

Name & Position: _____

Phone / Fax No.: _____ |
|--|--|

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

Comments:

_____ (Signature)

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 (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)

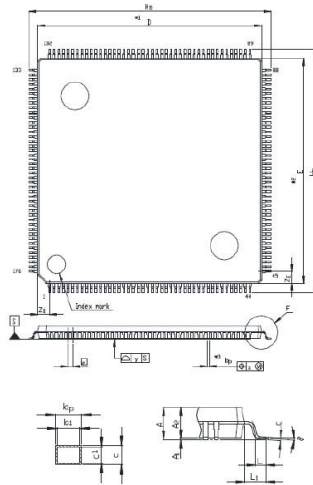
1. DIFFERENCE OF SPECIFICATION'S OUTLINE

Item		Current	Change
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
Marking	Mark	—	Mark changed
	Font	—	Font changed
Packing	Tray	—	Certified tray
	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)

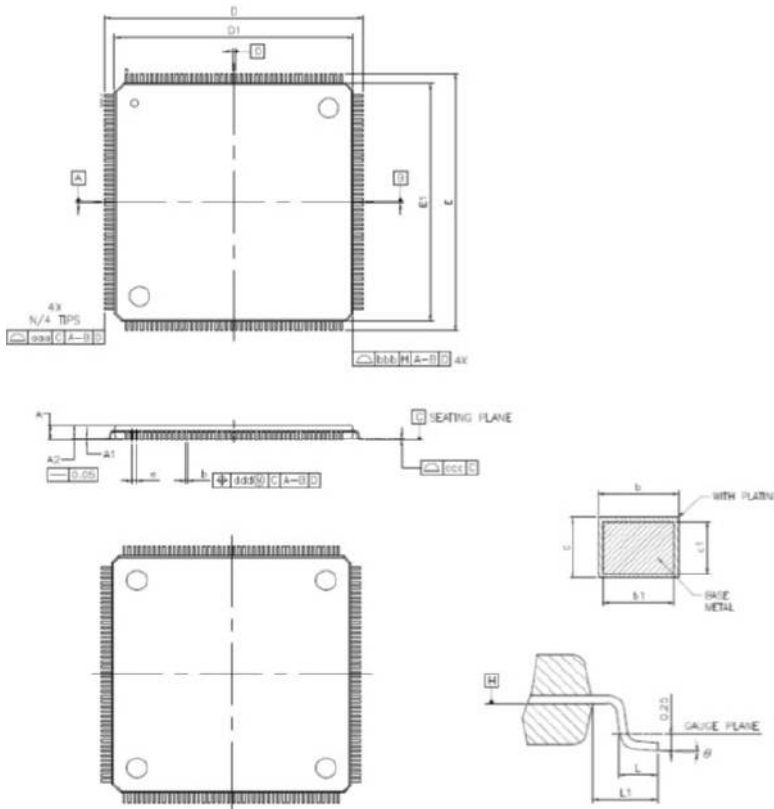


Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	23.9	24.0	24.1
E	23.9	24.0	24.1
A ₂	—	1.4	—
H _g	25.8	26.0	26.2
H _f	25.8	26.0	26.2
A	—	—	1.7
A ₁	0.05	0.1	0.15
b _P	0.15	0.20	0.25
b ₁	—	0.18	—
c	0.09	0.145	0.20
c ₁	—	0.125	—
θ	0°	—	8°
g	—	0.5	—
x	—	—	0.08
y	—	—	0.08
Z _g	—	1.25	—
Z _f	—	1.25	—
L	0.35	0.5	0.65
L ₁	—	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	—	0.13
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	0.40	0.60	0.75
L1	1.00 REF		
H1	0.20		
H2	0.20		
H3	0.08		
H4	0.08		

2. DIFFERENCE OF SPECIFICATION'S DETAIL (3)

Dimension comparison : 24x24mm 176pin LQFP package

Greatesk symbol is the same as the JEDEC standard.

Current	24x24mm 176pin LQFP PLQP0176KJ-A			Change	24x24mm 176pin LQFP PLQP0176KJ-A		
RSC	Dimension in Millimeters			Greatesk	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
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	-
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

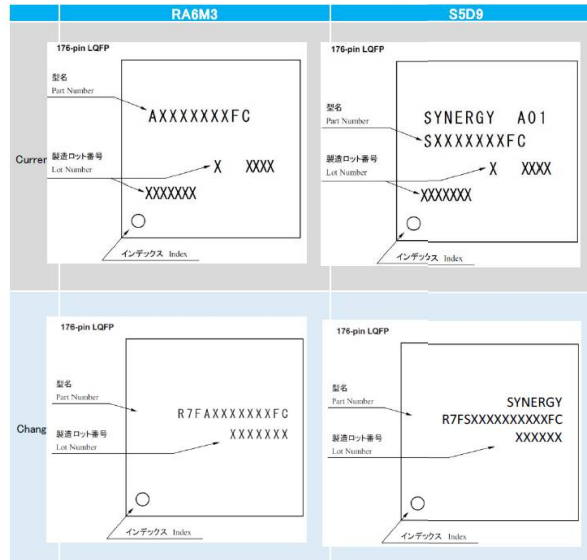
※Marked character is reference example



*There is no WS notation in the actual product

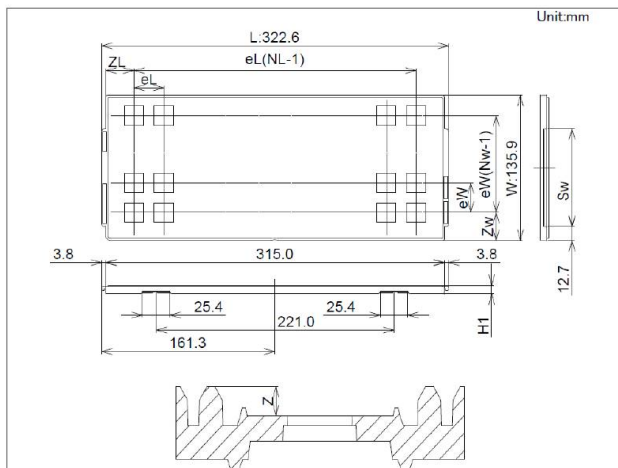
2. DIFFERENCE OF SPECIFICATION'S DETAIL (5)

Mark specification : 24x24mm 176pin LQFP package



2. DIFFERENCE OF SPECIFICATION'S DETAIL (6)

Packing specification (Tray)



Tray Code	Current		Change	
	LQFP24x24x1.4		EAC242401-10	
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			
JEDEC/Custom	JEDEC			
Surface resistance	Less than $1 \times 10^{11} \Omega/\square$			

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

<p>D/N R7F7010063AFP KA4WDT1000 SPN R7F7010063AFP#AA4 KA4WDT1000 PID 18314B10CG-002 QTY 150 PCD P000001535 T/C 1831 TG57043R04 S.LOT TG57043R04</p>	<p>D/N R7F7010063AFP KA4WDT1000 SPN R7F7010063AFP#BA4 KA4WDT1000 PID 18314B10CG-002 QTY 480 PCD P000001535 T/C 1831 TG57043R04 S.LOT 567C-0133</p>
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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