

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)

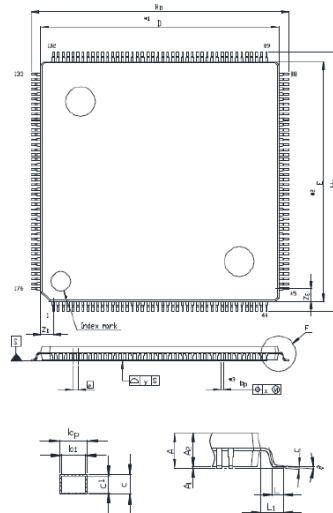
1 . DIFFERENCE OF SPECIFICATION'S OUTLINE

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)

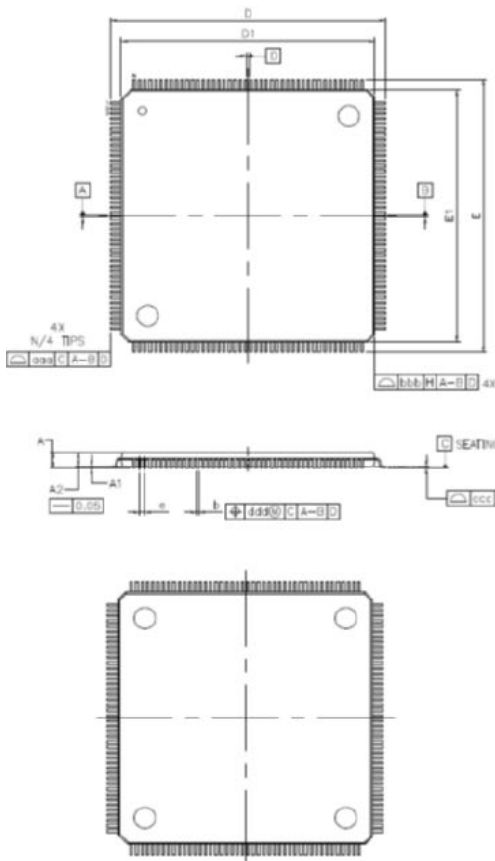


Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	23.9	24.0	24.1
E	23.9	24.0	24.1
A ₂	—	1.4	—
H ₂	25.8	26.0	26.2
H ₁	25.8	26.0	26.2
A	—	—	1.7
A ₁	0.05	0.1	0.15
b ₂	0.15	0.20	0.25
b ₁	—	0.18	—
c	0.09	0.145	0.20
c ₁	—	0.125	—
θ	0°	—	8°
□	—	0.5	—
x	—	—	0.08
y	—	—	0.08
Z ₁	—	1.25	—
Z ₂	—	1.25	—
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
A ₁	0.05	—	0.15
A ₂	1.35	1.40	1.45
D	—	26.00 BSC	—
D1	—	24.00 BSC	—
E	—	26.00 BSC	—
E ₁	—	24.00 BSC	—
N	—	176	—
e	—	0.50 BSC	—
b	0.17	0.22	0.27
b ₁	0.17	0.20	0.23
c	0.09	—	0.20
c ₁	0.09	—	0.16
θ	0°	3.5°	7°
L	0.40	0.60	0.75
L ₁	—	1.00 REF	—
□	—	0.20	—
□	—	0.20	—
□	—	0.08	—
□	—	0.08	—

2. DIFFERENCE OF SPECIFICATION'S DETAIL (3)

Dimension comparison : 24x24mm 176pin LQFP package

Gretek symbol is the same as the JEDEC standard.

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

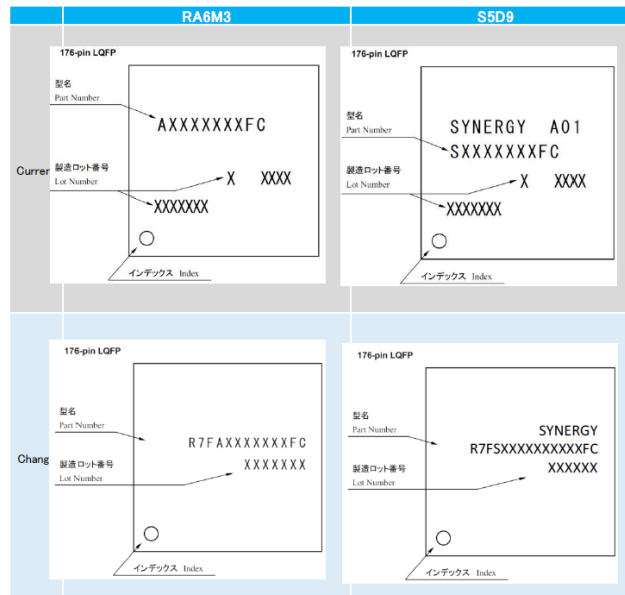
※Marked character is reference example



*There is no WS notation in the actual product

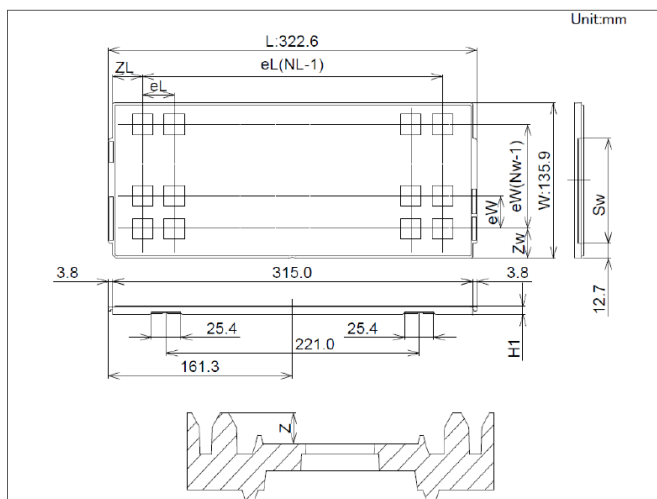
2. DIFFERENCE OF SPECIFICATION'S DETAIL (5)

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	
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)

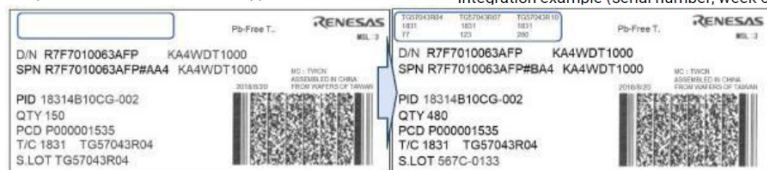
We will change the model name of the target product, which is packaged in a tray, to a full carton model.
In full-carton packaging, in which the tray and the inner box are filled, if the inner box cannot be filled with one production lot, a maximum of three lots will be combined to form a shipping lot.

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



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