

Product Change Notice (PCN)

Subject: Addition of factory for 40pin/48pin HWQFN products of RL78 family.

Publication Date: 5/18/2023

Effective Date: 10/1/2023

Revision Description: Initial release.

Description of Change:

- 1) Additional back-end factory: UTAC Thai Limited (Assembly, sorting and packing)
- 2) Additional wafer process: Renesas Semiconductor Manufacturing Saijo

Production Flow

Before change			After change			
Wafer	ASSY	Sorting/packing	Wafer	ASSY	Sorting/packing	Remarks
Kawashiri	Greatek	KYTEC	Kawashiri	Greatek	KYTEC	Existing
				UTAC	UTAC	Addition 1
			Kawashiri/Saijo	UTAC	UTAC	Addition 2

Note: “**Bold**: factory addition”

There is a combination of products that add only back-end factory or products that add wafer process and back-end factory.

- 3) Assembly material
Used materials which certified by additional factory.
- 4) Package outline
There is no change in foot pattern for additional factory products.
- 5) Marking
Change the marking font.
- 6) Packing
Used packing materials which certified by additional factory.
*A new packing form will be added.
This means that the new packing form and the existing packing form may be delivered in parallel.

Affected Product List:

Addition 1: “Products that add only a back-end factory.”

R5F100EAGNA#00	R5F100GHGNA#40	R5F104EFGNA#20	R5F104GLGNA#00
R5F100EAGNA#20	R5F100GJGNA#00	R5F104EFGNA#40	R5F104GLGNA#20
R5F100EAGNA#40	R5F100GJGNA#20	R5F104EGGNA#00	R5F104GLGNA#40
R5F100ECGNA#00	R5F100GJGNA#40	R5F104EGGNA#20	R5F10EGAANA#00
R5F100ECGNA#20	R5F100GKANA#00	R5F104EGGNA#40	R5F10EGAANA#20
R5F100ECGNA#40	R5F100GKANA#20	R5F104EHGNA#00	R5F10EGAANA#40
R5F100EDGNA#00	R5F100GKANA#40	R5F104EHGNA#20	R5F10EGAGNA#00
R5F100EDGNA#20	R5F100GKDNA#00	R5F104EHGNA#40	R5F10EGAGNA#20
R5F100EDGNA#40	R5F100GKDNA#20	R5F104GAGNA#00	R5F10EGAGNA#40
R5F100EEGNA#00	R5F100GKDNA#40	R5F104GAGNA#20	R5F10EGCANA#00
R5F100EEGNA#20	R5F100GLANA#00	R5F104GAGNA#40	R5F10EGCANA#20
R5F100EEGNA#40	R5F100GLANA#20	R5F104GCGNA#00	R5F10EGCANA#40
R5F100EFGNA#00	R5F100GLANA#40	R5F104GCGNA#20	R5F10EGCGNA#00
R5F100EFGNA#20	R5F100GLDNA#00	R5F104GCGNA#40	R5F10EGCGNA#20
R5F100EFGNA#40	R5F100GLDNA#20	R5F104GDGNA#00	R5F10EGCGNA#40
R5F100EGGNA#00	R5F100GLDNA#40	R5F104GDGNA#20	R5F10EGDANA#00
R5F100EGGNA#20	R5F101GKANA#00	R5F104GDGNA#40	R5F10EGDANA#20
R5F100EGGNA#40	R5F101GKANA#20	R5F104GEGNA#00	R5F10EGDANA#40

R5F100EHGNA#00	R5F101GKANA#40	R5F104GEGNA#20	R5F10EGDGNA#00
R5F100EHGNA#20	R5F101GKDNA#00	R5F104GEGNA#40	R5F10EGDGNA#20
R5F100EHGNA#40	R5F101GKDNA#20	R5F104GFGNA#00	R5F10EGDGNA#40
R5F100GAGNA#00	R5F101GKDNA#40	R5F104GFGNA#20	R5F10EGEANA#00
R5F100GAGNA#20	R5F101GLANA#00	R5F104GFGNA#40	R5F10EGEANA#20
R5F100GAGNA#40	R5F101GLANA#20	R5F104GGGNA#00	R5F10EGEANA#40
R5F100GCGNA#00	R5F101GLANA#40	R5F104GGGNA#20	R5F10EGEGNA#00
R5F100GCGNA#20	R5F101GLDNA#00	R5F104GGGNA#40	R5F10EGEGNA#20
R5F100GCGNA#40	R5F101GLDNA#20	R5F104GHGNA#00	R5F10EGEGNA#40
R5F100GDGNA#00	R5F101GLDNA#40	R5F104GHGNA#20	R5F10JGCANA#00
R5F100GDGNA#20	R5F104EAGNA#00	R5F104GHGNA#40	R5F10JGCANA#20
R5F100GDGNA#40	R5F104EAGNA#20	R5F104GJGNA#00	R5F10JGCANA#40
R5F100GEGNA#00	R5F104EAGNA#40	R5F104GJGNA#20	R5F10JGCGNA#00
R5F100GEGNA#20	R5F104ECGNA#00	R5F104GJGNA#40	R5F10JGCGNA#20
R5F100GEGNA#40	R5F104ECGNA#20	R5F104GKANA#00	R5F10JGCGNA#40
R5F100GFGNA#00	R5F104ECGNA#40	R5F104GKANA#20	R5F10KGCANA#00
R5F100GFGNA#20	R5F104EDGNA#00	R5F104GKANA#40	R5F10KGCANA#20
R5F100GFGNA#40	R5F104EDGNA#20	R5F104GKGNA#00	R5F10KGCANA#40
R5F100GGGNA#00	R5F104EDGNA#40	R5F104GKGNA#20	R5F10KGCGNA#00
R5F100GGGNA#20	R5F104EEGNA#00	R5F104GKGNA#40	R5F10KGCGNA#20
R5F100GGGNA#40	R5F104EEGNA#20	R5F104GLANA#00	R5F10KGCGNA#40
R5F100GHGNA#00	R5F104EEGNA#40	R5F104GLANA#20	
R5F100GHGNA#20	R5F104EFGNA#00	R5F104GLANA#40	

Addition 2: "Products that add wafer process and back-end factory."

R5F100EAANA#00	R5F100GFANA#20	R5F101GAANA#20	R5F104EEANA#40
R5F100EAANA#20	R5F100GFANA#40	R5F101GAANA#40	R5F104EFANA#00
R5F100EAANA#40	R5F100GGANA#00	R5F101GCANA#00	R5F104EFANA#20
R5F100ECANA#00	R5F100GGANA#20	R5F101GCANA#20	R5F104EFANA#40
R5F100ECANA#20	R5F100GGANA#40	R5F101GCANA#40	R5F104EGANA#00
R5F100ECANA#40	R5F100GHANA#00	R5F101GDANA#00	R5F104EGANA#20
R5F100EDANA#00	R5F100GHANA#20	R5F101GDANA#20	R5F104EGANA#40
R5F100EDANA#20	R5F100GHANA#40	R5F101GDANA#40	R5F104EHANA#00
R5F100EDANA#40	R5F100GJANA#00	R5F101GEANA#00	R5F104EHANA#20
R5F100EEANA#00	R5F100GJANA#20	R5F101GEANA#20	R5F104EHANA#40
R5F100EEANA#20	R5F100GJANA#40	R5F101GEANA#40	R5F104GAANA#00
R5F100EEANA#40	R5F101EAANA#00	R5F101GFANA#00	R5F104GAANA#20
R5F100EFANA#00	R5F101EAANA#20	R5F101GFANA#20	R5F104GAANA#40
R5F100EFANA#20	R5F101EAANA#40	R5F101GFANA#40	R5F104GCANA#00
R5F100EFANA#40	R5F101ECAA02NA#20	R5F101GGANA#00	R5F104GCANA#20
R5F100EGANA#00	R5F101ECANA#00	R5F101GGANA#20	R5F104GCANA#40
R5F100EGANA#20	R5F101ECANA#20	R5F101GGANA#40	R5F104GDANA#00
R5F100EGANA#40	R5F101ECANA#40	R5F101GHANA#00	R5F104GDANA#20
R5F100EHANA#00	R5F101EDANA#00	R5F101GHANA#20	R5F104GDANA#40
R5F100EHANA#20	R5F101EDANA#20	R5F101GHANA#40	R5F104GEANA#00
R5F100EHANA#40	R5F101EDANA#40	R5F101GJANA#00	R5F104GEANA#20
R5F100GAANA#00	R5F101EEANA#00	R5F101GJANA#20	R5F104GEANA#40
R5F100GAANA#20	R5F101EEANA#20	R5F101GJANA#40	R5F104GFANA#00
R5F100GAANA#40	R5F101EEANA#40	R5F104EAANA#00	R5F104GFANA#20
R5F100GCANA#00	R5F101EFANA#00	R5F104EAANA#20	R5F104GFANA#40
R5F100GCANA#20	R5F101EFANA#20	R5F104EAANA#40	R5F104GGANA#00
R5F100GCANA#40	R5F101EFANA#40	R5F104ECANA#00	R5F104GGANA#20
R5F100GDANA#00	R5F101EGANA#00	R5F104ECANA#20	R5F104GGANA#40
R5F100GDANA#20	R5F101EGANA#20	R5F104ECANA#40	R5F104GHANA#00
R5F100GDANA#40	R5F101EGANA#40	R5F104EDANA#00	R5F104GHANA#20
R5F100GEANA#00	R5F101EHANA#00	R5F104EDANA#20	R5F104GHANA#40
R5F100GEANA#20	R5F101EHANA#20	R5F104EDANA#40	R5F104GJANA#00
R5F100GEANA#40	R5F101EHANA#40	R5F104EEANA#00	R5F104GJANA#20
R5F100GFANA#00	R5F101GAANA#00	R5F104EEANA#20	R5F104GJANA#40

Reason for Change:

Stable supply for RL78 series QFN package products.

Impact on Fit, Form, Function, Quality & Reliability:

Impact on Fit : No Impact

Form : Please refer to “MC0-AB-23-0043_RL78_QFN_Difference specification UTAC” for detail.

Function : No Impact

Quality : No Impact

Reliability : No Impact

Product Identification:

Possible to confirm the production history data from the packing label or trace code.

Qualification Status: We will prepare by 9/1/2023.

Sample Availability Date: 8/1/2023

PCN sample is a representative ES sample.

The ES sample has the same functionality as the mass-produced product and its sample is the representative (ROM/RAM capacity, Fields of application and Wafer process).

Differences from MP products: The sorting place is different (the test program is the same).

Device Material Declaration: 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.

**Difference of specification
(RL78 family HWQFN products)
6x6mm 0.5mm pitch 40pin
7x7mm 0.5mm pitch 48pin**

**Assembly factory: UTAC Sorting & packing factory : UTAC
Wafer process : Saijo**

MAY 18. 2023

MCU PRODUCT MARKETING DEPARTMENT
MCU DEVICE SOLUTION BUSINESS DIVISION
IOT AND INFRASTRUCTURE BUSINESS UNIT
RENESAS ELECTRONICS CORPORATION

Rev. 1.0

Do not provide this document to others without our permission.

MCO-AB-23-0043

Notice

1. Descriptions of circuits, software and other related information in this document are provided only to illustrate the operation of semiconductor products and application examples. You are fully responsible for the incorporation or any other use of the circuits, software, and information in the design of your product or system. Renesas Electronics disclaims any and all liability for any losses and damages incurred by you or third parties arising from the use of these circuits, software, or information.
2. Renesas Electronics hereby expressly disclaims any warranties against and liability for infringement or any other claims involving patents, copyrights, or other intellectual property rights of third parties, by or arising from the use of Renesas Electronics products or technical information described in this document, including but not limited to, the product data, drawings, charts, programs, algorithms, and application examples.
3. No license, express, implied or otherwise, is granted hereby under any patents, copyrights or other intellectual property rights of Renesas Electronics or others.
4. You shall be responsible for determining what licenses are required from any third parties, and obtaining such licenses for the lawful import, export, manufacture, sales, utilization, distribution or other disposal of any products incorporating Renesas Electronics products, if required.
5. You shall not alter, modify, copy, or reverse engineer any Renesas Electronics product, whether in whole or in part. Renesas Electronics disclaims any and all liability for any losses or damages incurred by you or third parties arising from such alteration, modification, copying or reverse engineering.
6. Renesas Electronics products are classified according to the following two quality grades: "Standard" and "High Quality". The intended applications for each Renesas Electronics product depends on the product's quality grade, as indicated below.
 - "Standard": Computers; office equipment; communications equipment; test and measurement equipment; audio and visual equipment; home electronic appliances; machine tools; personal electronic equipment; industrial robots; etc.
 - "High Quality": Transportation equipment (automobiles, trains, ships, etc.); traffic control (traffic lights); large-scale communication equipment; key financial terminal systems; safety control equipment; etc.Unless expressly designated as a high reliability product or a product for harsh environments in a Renesas Electronics data sheet or other Renesas Electronics document, Renesas Electronics products are not intended or authorized for use in products or systems that may pose a direct threat to human life or bodily injury (artificial life support devices or systems; surgical implantations; etc.), or may cause serious property damage (space system; undersea repeaters; nuclear power control systems; aircraft control systems; key plant systems; military equipment; etc.). Renesas Electronics disclaims any and all liability for any damages or losses incurred by you or any third parties arising from the use of any Renesas Electronics product that is inconsistent with any Renesas Electronics data sheet, user's manual or other Renesas Electronics document.
7. No semiconductor product is absolutely secure. Notwithstanding any security measures or features that may be implemented in Renesas Electronics hardware or software products, Renesas Electronics shall have absolutely no liability arising out of any vulnerability or security breach, including but not limited to any unauthorized access to or use of a Renesas Electronics product or a system that uses a Renesas Electronics product. RENESAS ELECTRONICS DOES NOT WARRANT OR GUARANTEE THAT RENESAS ELECTRONICS PRODUCTS, OR ANY SYSTEMS CREATED USING RENESAS ELECTRONICS PRODUCTS WILL BE INVULNERABLE OR FREE FROM CORRUPTION, ATTACK, VIRUSES, INTERFERENCE, HACKING, DATA LOSS OR THEFT, OR OTHER SECURITY INTRUSION ("Vulnerability Issues"). RENESAS ELECTRONICS DISCLAIMS ANY AND ALL RESPONSIBILITY OR LIABILITY ARISING FROM OR RELATED TO ANY VULNERABILITY ISSUES. FURTHERMORE, TO THE EXTENT PERMITTED BY APPLICABLE LAW, RENESAS ELECTRONICS DISCLAIMS ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THIS DOCUMENT AND ANY RELATED OR ACCOMPANYING SOFTWARE OR HARDWARE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.
8. When using Renesas Electronics products, refer to the latest product information (data sheets, user's manuals, application notes, "General Notes for Handling and Using Semiconductor Devices" in the reliability handbook, etc.), and ensure that usage conditions are within the ranges specified by Renesas Electronics with respect to maximum ratings, operating power supply voltage range, heat dissipation characteristics, installation, etc. Renesas Electronics disclaims any and all liability for any malfunctions, failure or accident arising out of the use of Renesas Electronics products outside of such specified ranges.
9. Although Renesas Electronics endeavors to improve the quality and reliability of Renesas Electronics products, semiconductor products have specific characteristics, such as the occurrence of failure at a certain rate and malfunctions under certain use conditions. Unless designated as a high reliability product or a product for harsh environments in a Renesas Electronics data sheet or other Renesas Electronics document, Renesas Electronics products are not subject to radiation resistance design. You are responsible for implementing safety measures to guard against the possibility of bodily injury, injury or damage caused by fire, and/or danger to the public in the event of a failure or malfunction of Renesas Electronics products, such as safety design for hardware and software, including but not limited to redundancy, fire control and malfunction prevention, appropriate treatment for aging degradation or any other appropriate measures. Because the evaluation of microcomputer software alone is very difficult and impractical, you are responsible for evaluating the safety of the final products or systems manufactured by you.
10. Please contact a Renesas Electronics sales office for details as to environmental matters such as the environmental compatibility of each Renesas Electronics product. You are responsible for carefully and sufficiently investigating applicable laws and regulations that regulate the inclusion or use of controlled substances, including without limitation, the EU RoHS Directive, and using Renesas Electronics products in compliance with all these applicable laws and regulations. Renesas Electronics disclaims any and all liability for damages or losses occurring as a result of your noncompliance with applicable laws and regulations.
11. Renesas Electronics products and technologies shall not be used for or incorporated into any products or systems whose manufacture, use, or sale is prohibited under any applicable domestic or foreign laws or regulations. You shall comply with any applicable export control laws and regulations promulgated and administered by the governments of any countries asserting jurisdiction over the parties or transactions.
12. It is the responsibility of the buyer or distributor of Renesas Electronics products, or any other party who distributes, disposes of, or otherwise sells or transfers the product to a third party, to notify such third party in advance of the contents and conditions set forth in this document.
13. This document shall not be reprinted, reproduced or duplicated in any form, in whole or in part, without prior written consent of Renesas Electronics.
14. Please contact a Renesas Electronics sales office if you have any questions regarding the information contained in this document or Renesas Electronics products.
(Note 1) "Renesas Electronics" as used in this document means Renesas Electronics Corporation and also includes its directly or indirectly controlled subsidiaries.
(Note 2) "Renesas Electronics product(s)" means any product developed or manufactured by or for Renesas Electronics.

(Rev. 5.0-1 October 2020)

DIFFERENCE OUTLINE

- Target package:
 - 6x6mm 0.5mm pitch 40pin HWQFN
 - 7x7mm 0.5mm pitch 48pin HWQFN

- Difference points
 1. Assembly factory
 - Existing factory: Greatek Electronics Inc. (Greatek)
 - Additional factory: UTAC Thai Limited (UTAC)
 2. Sorting & packing factory
 - Existing factory: King Yuan Electronics Co., Ltd (KYEC)
 - Additional factory: UTAC Thai Limited (UTAC)
 3. Wafer process
 - Existing factory: Renesas Semiconductor Manufacturing Kawashiri
 - Additional factory: Renesas Semiconductor Manufacturing Saijo

DIFFERENCE OUTLINE

4. Assembly material

Used materials which certified by additional factory.

5. Package outline

There is no change in foot pattern for additional factory products.

Please refer to the package outline drawing and dimension comparison for the external dimensions.

6. Marking

Change the marking font.

7. Packing

Used packing materials which certified by additional factory.

*A new packing form will be added.

This means that the new packing form and the existing packing form may be delivered in parallel.

DIFFERENCE OUTLINE

8. Storage condition after opening:

There is no change.

: Within 30°C/ 60%RH/ 168h (JEDEC compliant)

9. Specification and characteristics of product:

No impact

10. Quality and reliability:

No impact

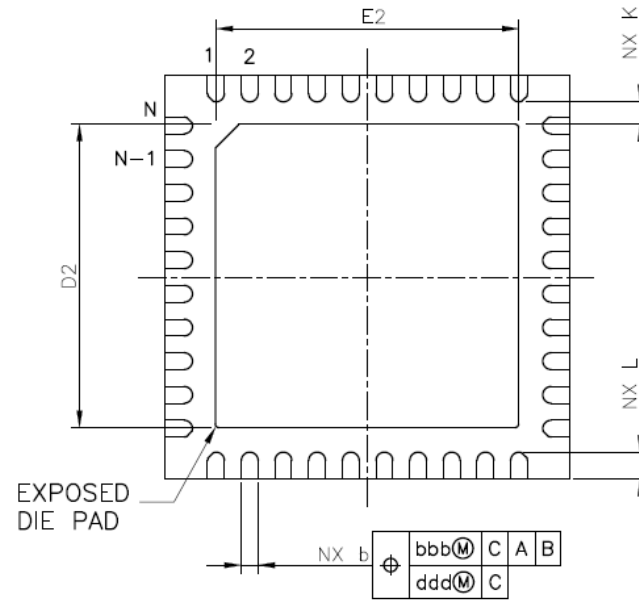
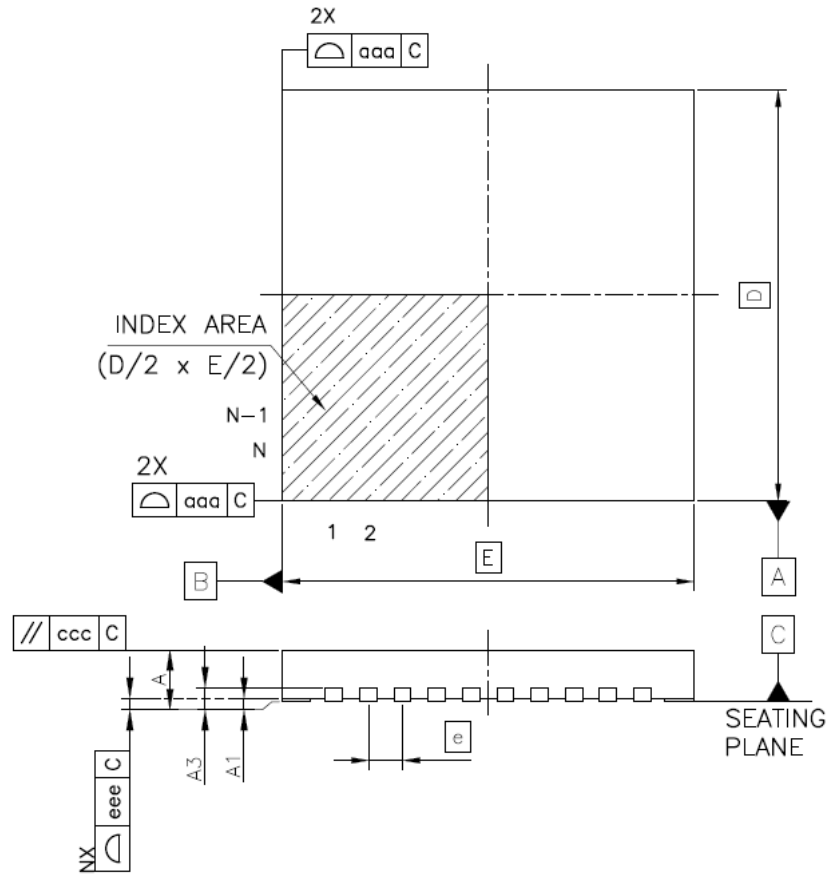
Difference of specification

Item		Additional factory	Existing factory
Wafer process		Saijo	Kawashiri
Assembly factory		UTAC	Greatek
Sorting factory		UTAC	KYEC
Package	Outline	There are differences (Refer to pages 7 to 13)	
Lead frame	Material	Cu	
	Inner pattern	Refer to outline drawing (pages 7 to 12)	
Die mount	Material	Ag epoxy paste B	Ag epoxy paste A
Bonding wire	Material	Cu (Pd coating)	
Resin	Material	Epoxy resin B (halogen-free)	Epoxy resin A (halogen-free)
Plating	Material	Pure Sn	
Marking	Font	There are differences (Refer to pages 14)	
Packing		There are additions (Refer to pages 15 to 24)	
Storage conditions	after opening	Within 30°C/ 60%RH/ 168h (JEDEC compliant)	

There are differences in materials, but there is no impact in reliability or characteristics.

6x6mm 40pin 0.5mm pitch HWQFN package outline (UTAC)

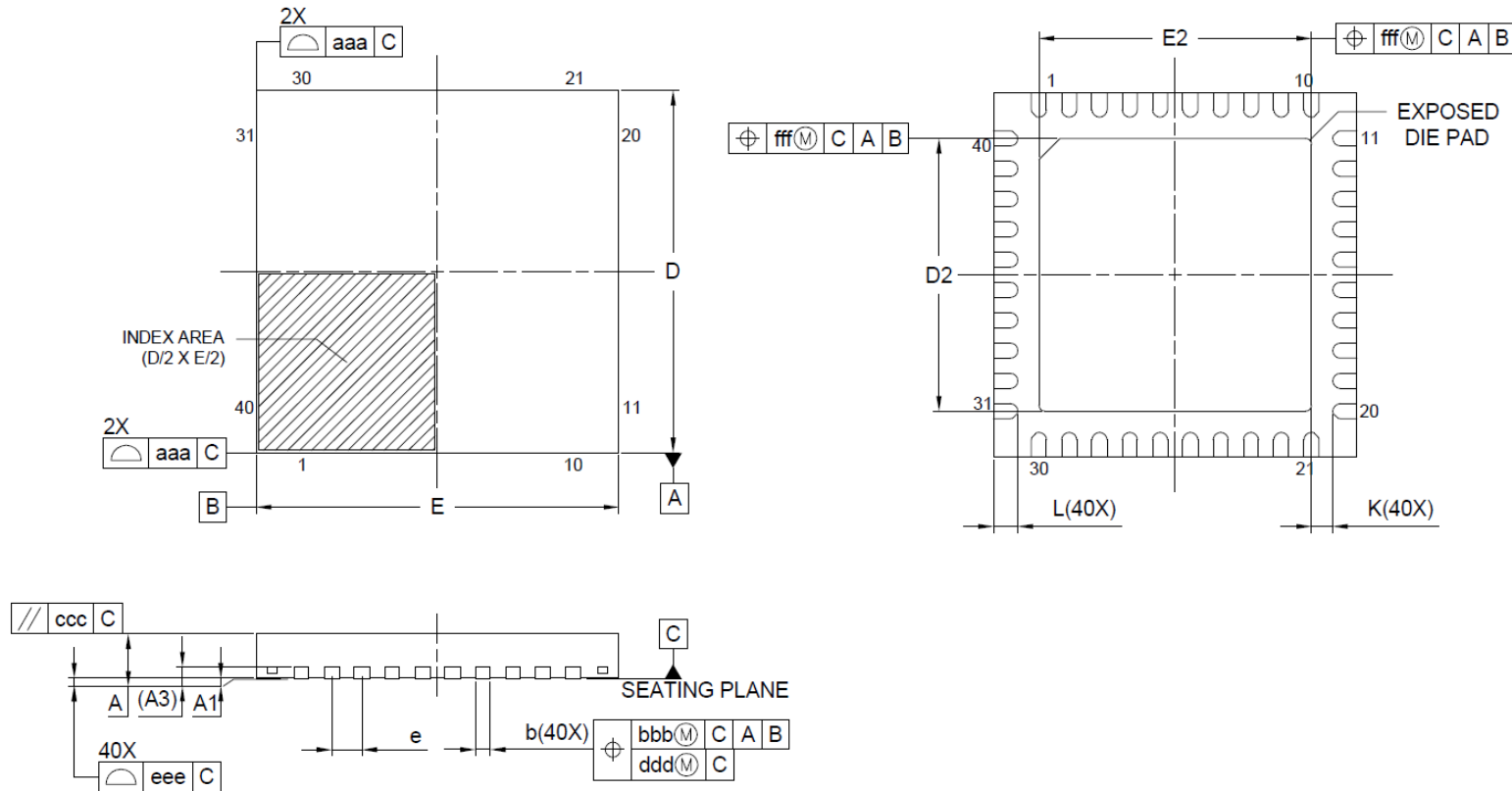
RENESAS Code : PWQN0040KE-A



Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	0.80
A ₁	0.00	—	0.05
A ₃	0.20 REF.		
b	0.20	0.25	0.30
D	—	6.00	—
E	—	6.00	—
e	—	0.50	—
N	40		
L	0.30	0.40	0.50
K	0.20	—	—
D ₂	4.40	4.50	4.60
E ₂	4.40	4.50	4.60
aaa	—	—	0.15
bbb	—	—	0.10
ccc	—	—	0.10
ddd	—	—	0.05
eee	—	—	0.08

6x6mm 40pin 0.5mm pitch HWQFN package outline (Greatek)

RENESAS Code : PWQN0040KD-A



Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	0.80
A ₁	0.00	0.02	0.05
A ₃	0.203 REF.		
b	0.18	0.25	0.30
D	6.00 BSC		
E	6.00 BSC		
e	0.50 BSC		
L	0.30	0.40	0.50
K	0.20	—	—
D ₂	4.45	4.50	4.55
E ₂	4.45	4.50	4.55
aaa	0.15		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		
fff	0.10		

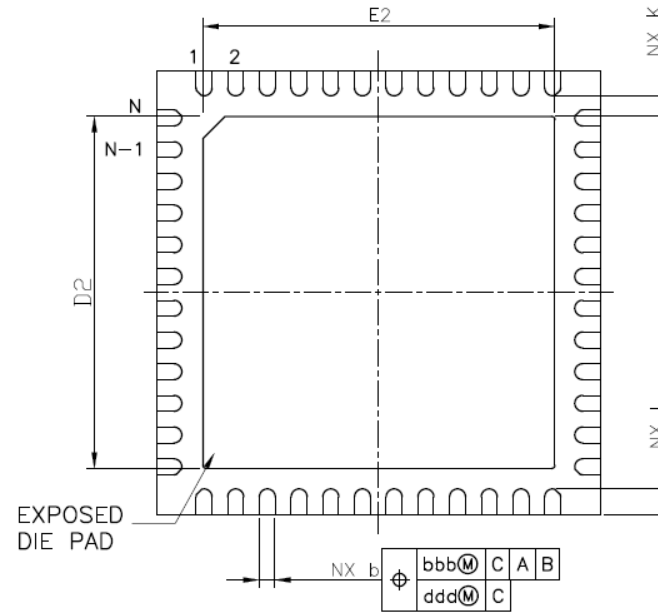
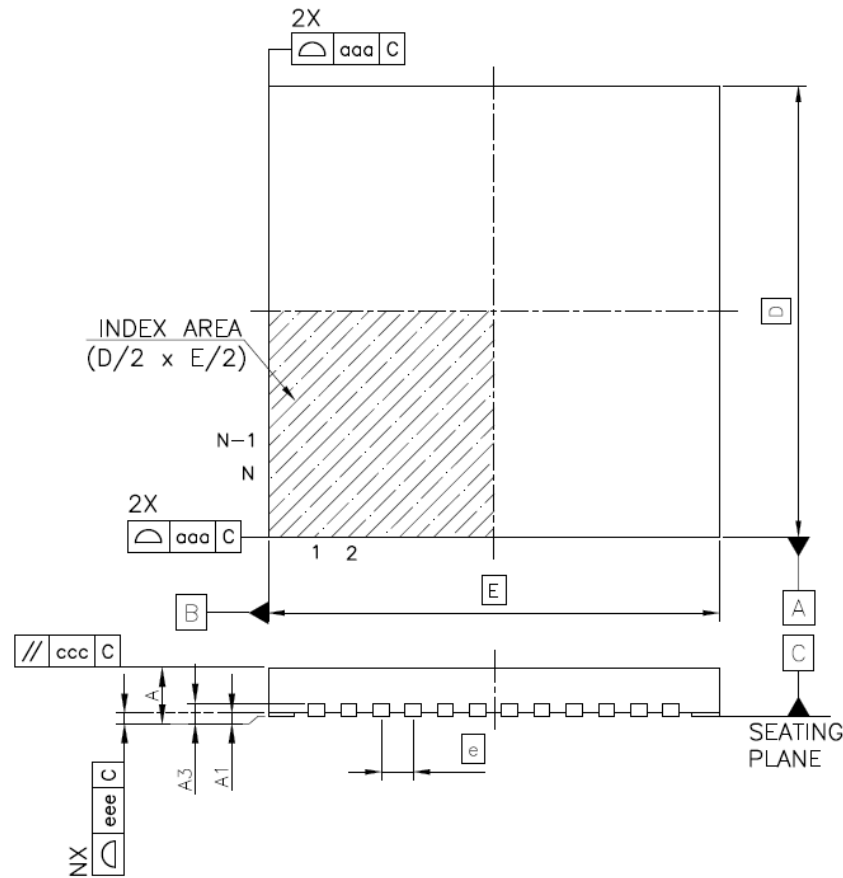
Dimension comparison: 6x6mm 0.5mm pitch 40pin HWQFN

Symbols complied
JEDEC standard.

UTAC Symbol	6x6mm 40pin HWQFN PWQN0040KE-A			Greatek Symbol	6x6mm 40pin HWQFN PWQN0040KD-A		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	0.80	A	-	-	0.80
A1	0.00	-	0.05	A1	0.00	0.02	0.05
A3	0.20 REF.			A3	0.203 REF.		
b	0.20	0.25	0.30	b	0.18	0.25	0.30
D	-	6.00	-	D	6.00 BSC		
E	-	6.00	-	E	6.00 BSC		
e	-	0.50	-	e	0.50 BSC		
N	40			-	-		
L	0.30	0.40	0.50	L	0.30	0.40	0.50
K	0.20	-	-	K	0.20	-	-
D2	4.40	4.50	4.60	D2	4.45	4.50	4.55
E2	4.40	4.50	4.60	E2	4.45	4.50	4.55
aaa			0.15	aaa	0.15		
bbb			0/10	bbb	0.10		
ccc			0.10	ccc	0.10		
ddd			0.05	ddd	0.05		
eee			0.08	eee	0.08		
-	-	-	-	fff	0.10		

7x7mm 48pin 0.5mm pitch HWQFN package outline (UTAC)

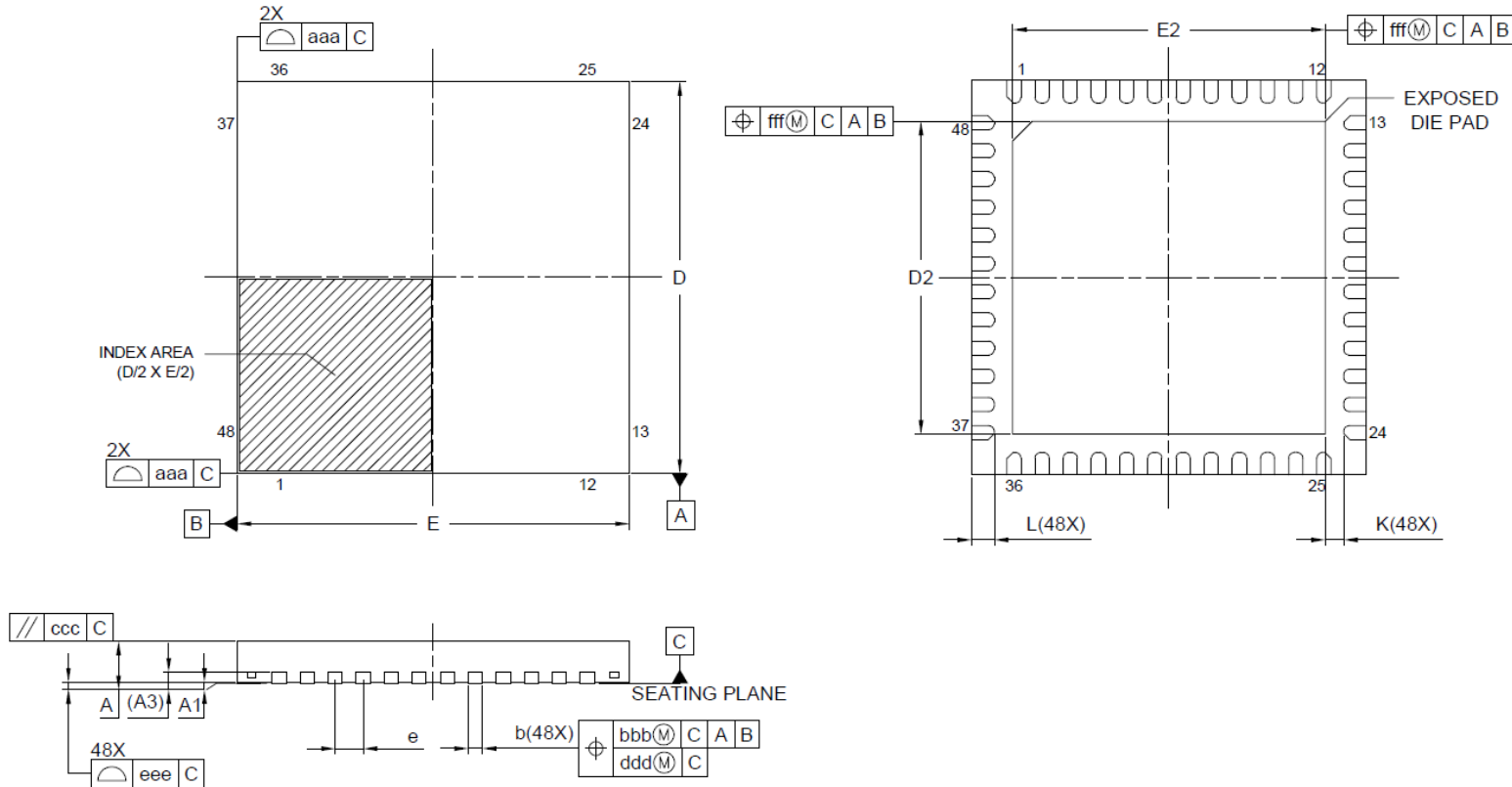
RENESAS Code : PWQN0048KG-A



Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	0.80
A ₁	0.00	—	0.05
A ₃	0.20 REF.		
b	0.20	0.25	0.30
D	—	7.00	—
E	—	7.00	—
e	—	0.50	—
N	48		
L	0.30	0.40	0.50
K	0.20	—	—
D ₂	5.50	5.55	5.60
E ₂	5.50	5.55	5.60
aaa	—	—	0.15
bbb	—	—	0.10
ccc	—	—	0.10
ddd	—	—	0.05
eee	—	—	0.08

7x7mm 48pin 0.5mm pitch HWQFN package outline (Greatek)

RENESAS Code : PWQN0048KE-A



Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	0.80
A ₁	0.00	0.02	0.05
A ₃	0.203 REF.		
b	0.20	0.25	0.30
D	7.00 BSC		
E	7.00 BSC		
e	0.50 BSC		
L	0.30	0.40	0.50
K	0.20	—	—
D ₂	5.50	5.55	5.60
E ₂	5.50	5.55	5.60
aaa	0.15		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		
fff	0.10		

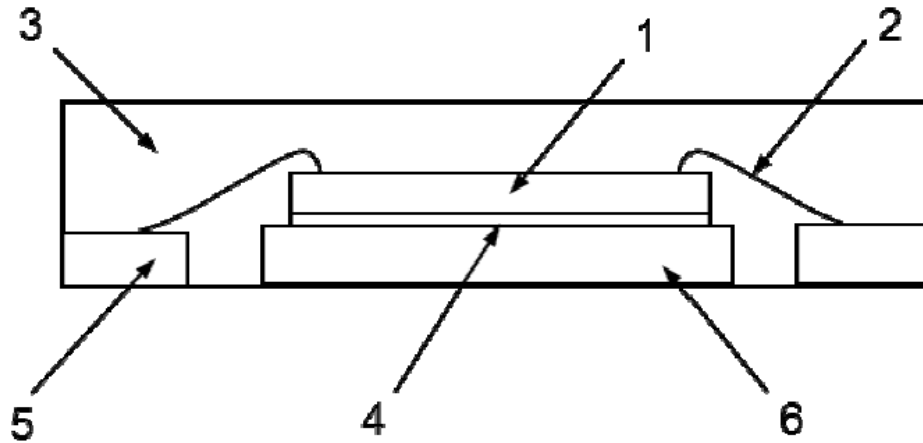
Dimension comparison: 7x7mm 0.5 pitch 48pin HWQFN

Symbols complied JEDEC standard.

UTAC Symbol	7x7mm 48pin HWQFN PWQN0048KG-A			Greatek Symbol	7x7mm 48pin HWQFN PWQN0048KE-A		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	0.80	A	-	-	0.80
A1	0.00	-	0.05	A1	0.00	0.02	0.05
A3	0.20 REF.			A3	0.203 REF.		
b	0.20	0.25	0.30	b	0.20	0.25	0.30
D	-	7.00	-	D	7.00 BSC		
E	-	7.00	-	E	7.00 BSC		
e	-	0.50	-	e	0.50 BSC		
N	40			-	-		
L	0.30	0.40	0.50	L	0.30	0.40	0.50
K	0.20	-	-	K	0.20	-	-
D2	5.50	5.55	5.60	D2	5.50	5.55	5.60
E2	5.50	5.55	5.60	E2	5.50	5.55	5.60
aaa			0.15	aaa	0.15		
bbb			0/10	bbb	0.10		
ccc			0.10	ccc	0.10		
ddd			0.05	ddd	0.05		
eee			0.08	eee	0.08		
-	-	-	-	fff	0.10		

Package structure image

Package Section and die pad shape is a reference example.



No.	部材 Part
1	チップ Die
2	ワイヤ Wire
3	封止材 Molding material
4	ダイアタッチ材 Die attach material
5	Cu リード: Ni/Pd/Au めっき Cu lead: Ni/Pd/Au plating
6	ダイパッド Die pad

The materials are different because they use materials certified at the site, but the structure is equivalent.

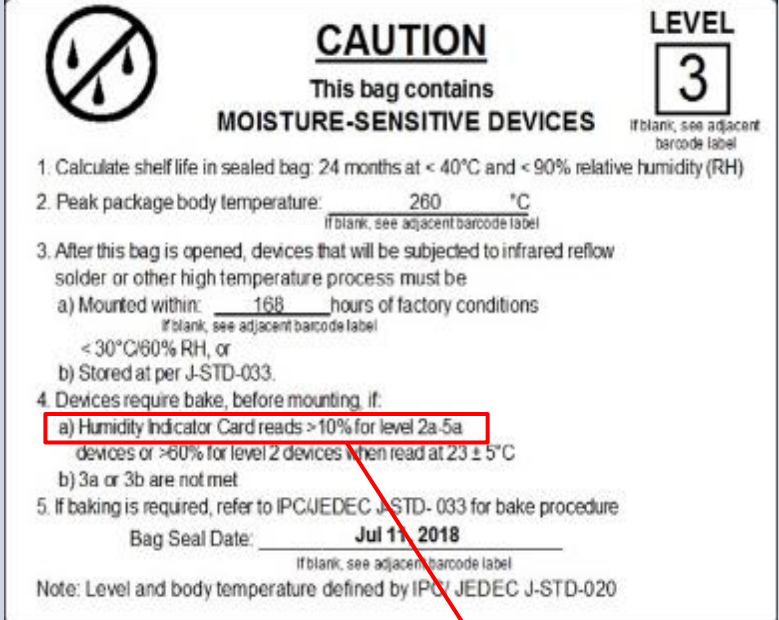
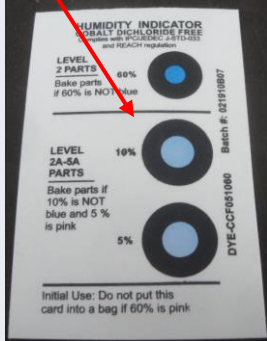

Laser visibility

Character is reference example



Assembly	UTAC (Additional factory)	Greatek (Existing Factory)
Whole Photo		
Detail Photo		

Actual colors may be different from ones in the photo.

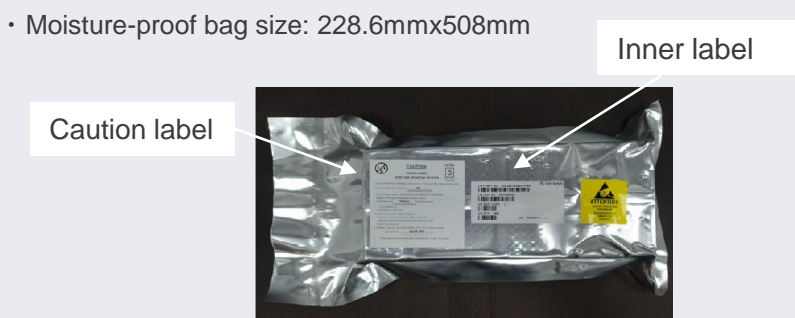
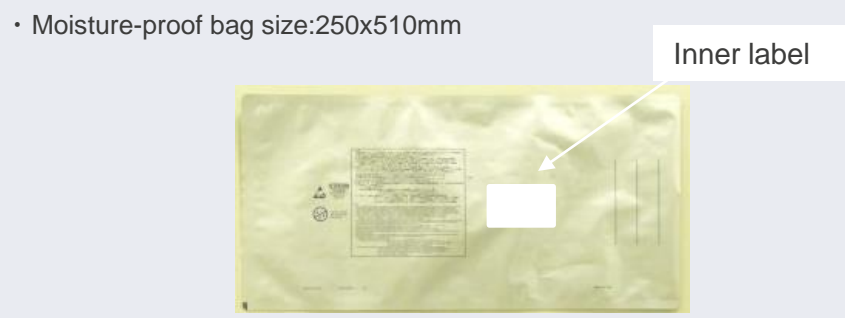


Moisture-proof bag printing / humidity indicator card (Tray / T&R common)

Assembly	Additional packing specification	Existing packing specification
<p>Moisture-proof bag printing</p>	<p>• Caution label</p> 	<p>• Printed on a moisture-proof bag</p> <p>1. After opening the moisture-resistant bag, store the devices at a temperature of 5°C to 30°C and a relative humidity (RH) of 70% or below. Ensure that the devices are mounted within the maximum storage life (MSL) period indicated on the label of the inner package. If there is no MSL indication on the label, mount the devices within 168 hours. Notation example 1) MSL3→2:1 year, 2a:4 weeks, 3:168 hours, 4:72 hours, 5:48 hours, 5a:24 hours Notation example 2) MSL12H→H: hour, D: day, W: week, M: month, Y: year</p> <p>2. If a humidity indicator card (HIC) is packed together with the devices and the 30% indication has changed to lavender (pink), or if the devices have been stored longer than the limit specified in item 1 above, perform baking at 125°C for 24 hours. Note that any special instructions on the inner label should be followed.</p> <p>REL standard moisture-proof bag [RBG01AA-2350, RBG05AB-3949] Precautionary statement excerpt</p>
<p>Humidity indicator card</p>	<p>• 3-point type (5%, 10%, 60%) JEDEC specifications</p> 	<p>• 4-point type (10%, 20%, 30%, 40%) REL standard specifications</p> 

Shipping packing (Tray shipping)

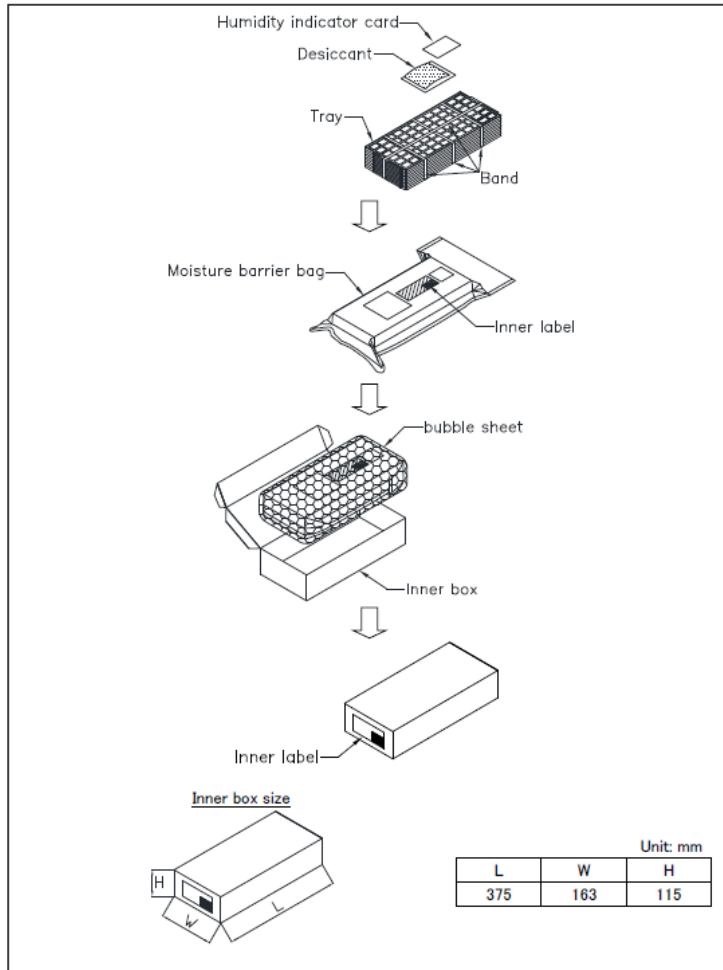
Packing material	Tray packing materials		
	Additional packing specification	Existing packing specification	
Number of storages in the inner box	<ul style="list-style-type: none"> Number of storage: 8 trays + 1 cover tray Binding bands: 3 short sides + 1 long side 	<ul style="list-style-type: none"> Number of storage: 8 trays + 1 cover tray Binding bands: 3 short sides 	
Binding bands			
Desiccant	<ul style="list-style-type: none"> •33g 	<ul style="list-style-type: none"> •25g+25g 	<ul style="list-style-type: none"> •33g+33g 

Shipping packing (Tray shipping)

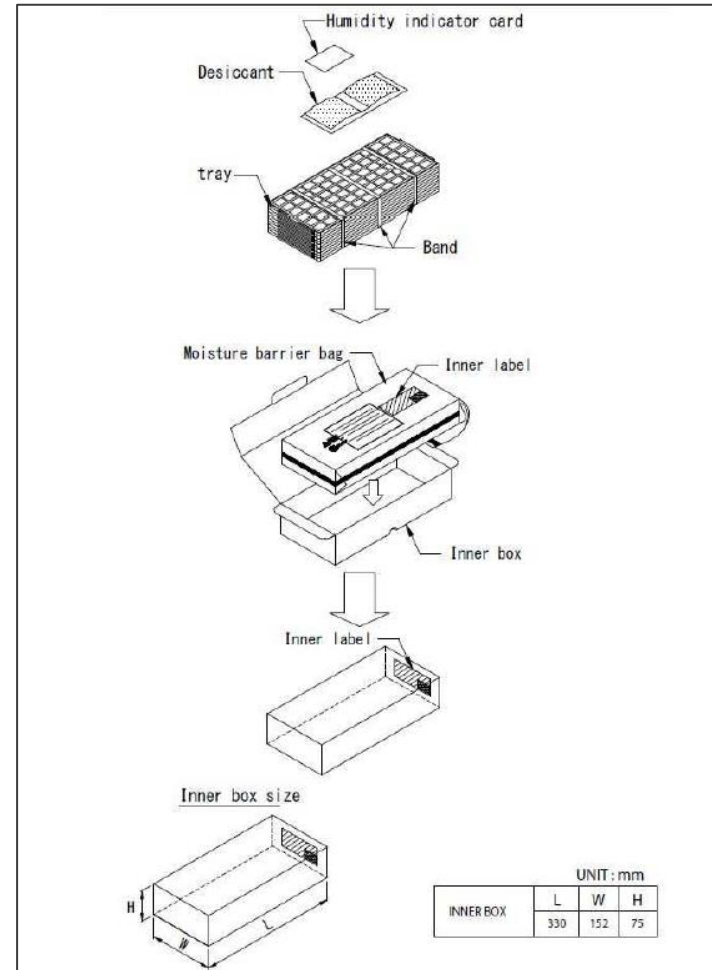
Packing material	Tray packing materials	
	Additional packing specification	Existing packing specification
Moisture-proof bag * Refer to page 15 for printed contents.	<ul style="list-style-type: none"> Moisture-proof bag size: 228.6mmx508mm 	<ul style="list-style-type: none"> Moisture-proof bag size: 250x510mm 
Inner box	<ul style="list-style-type: none"> Inner box size: 163x375x115mm 	<ul style="list-style-type: none"> Inner box size: 152x330x75mm 

SHIPPING PACKING DIAGRAM (TRAY SHIPPING)

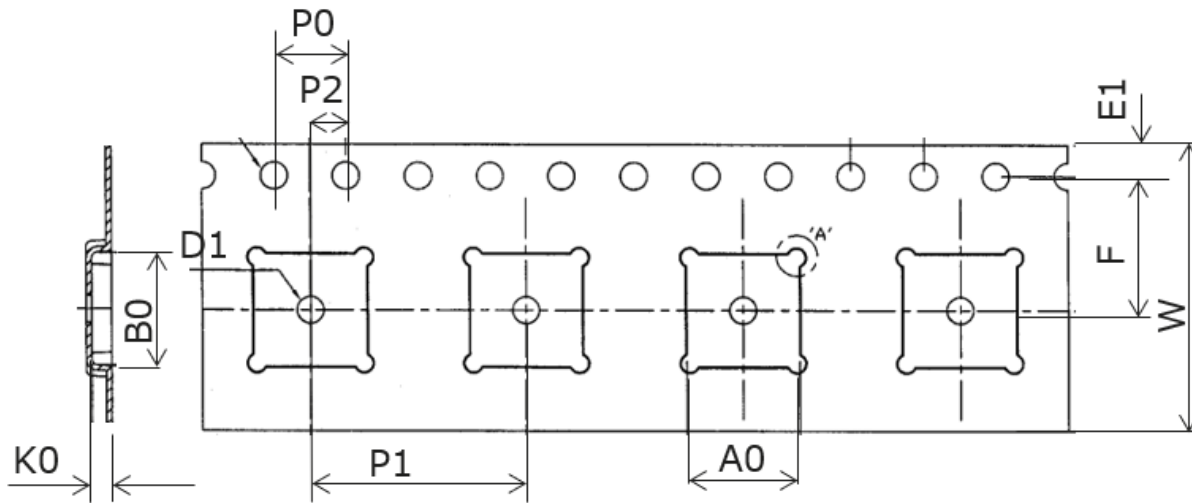
Additional packing specification



Existing packing specification



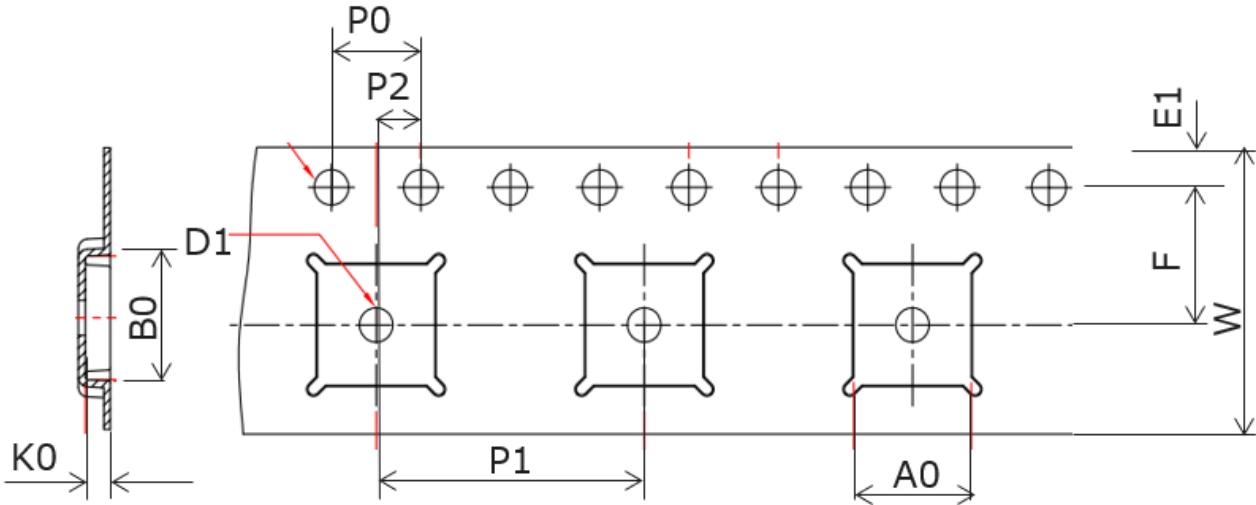
6x6mm 40pin HWQFN Embossed tape comparison



Unit: mm

Symbol	UTC (Additional factory)	KYEC (Existing factory)
A0	7.25	7.25
B0	7.25	7.25
K0	1.10	1.10
P1	12.00	12.00
W	16.00	16.00
E1	1.75	1.75
P0	4.00	4.00
F	7.50	7.50
P2	2.00	2.00
D1	Φ1.50	Φ1.50

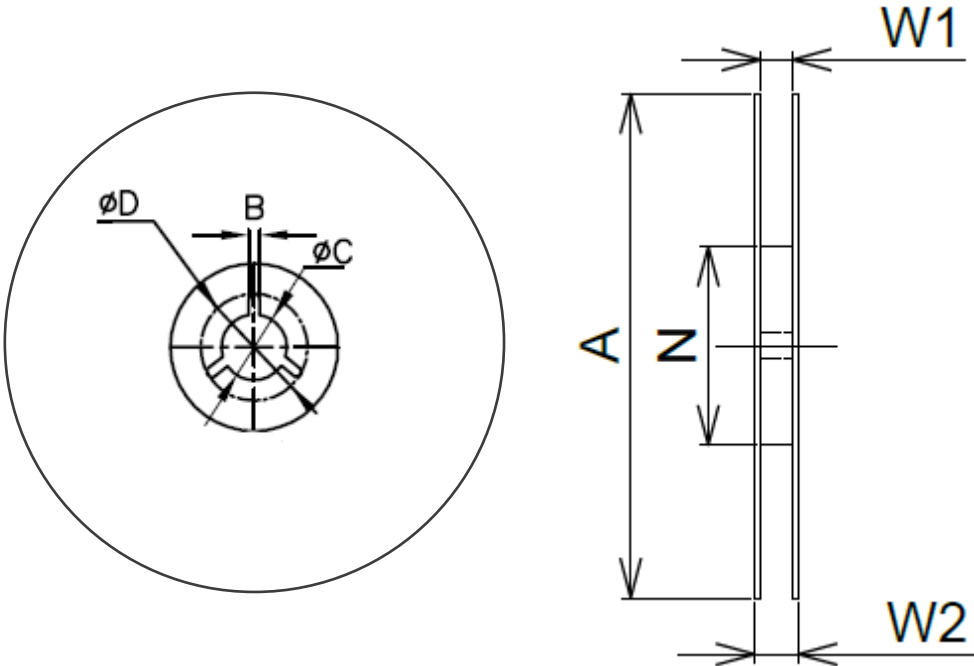
7x7mm 48pin HWQFN Embossed tape comparison



Unit: mm

Symbol	UTAC (Additional)	KYEC (Existing)
A0	7.25	7.25
B0	7.25	7.25
K0	1.10	1.10
P1	12.00	12.00
W	16.00	16.00
E1	1.75	1.75
P0	4.00	4.00
F	7.50	7.50
P2	2.00	2.00
D1	Φ1.50	Φ1.50

Reel comparison (Common to 6x6 40pin and 7x7 48pin HWQFN)



Unit: mm

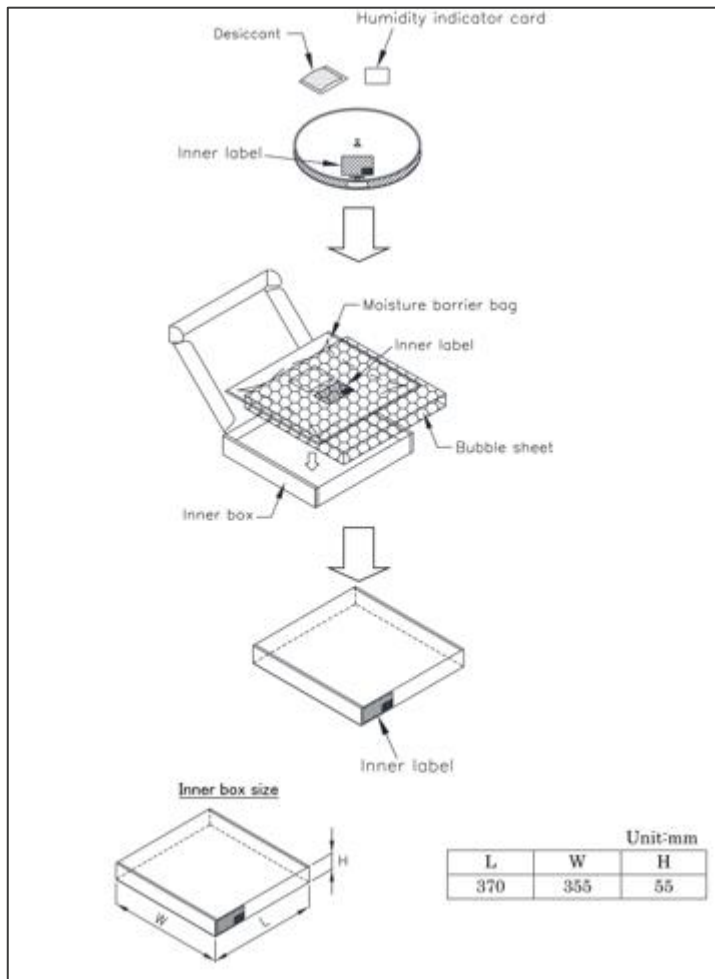
Symbol	UTAC (Additional)	KYEC (Existing)
B	1.5	2.0
ϕC	13.0	13.0
ϕD	20.2	21.0
A	330	330
N	100	102
W1	16.4	16.8
W2	22.4	22.4

Shipping packing (T&R shipping)

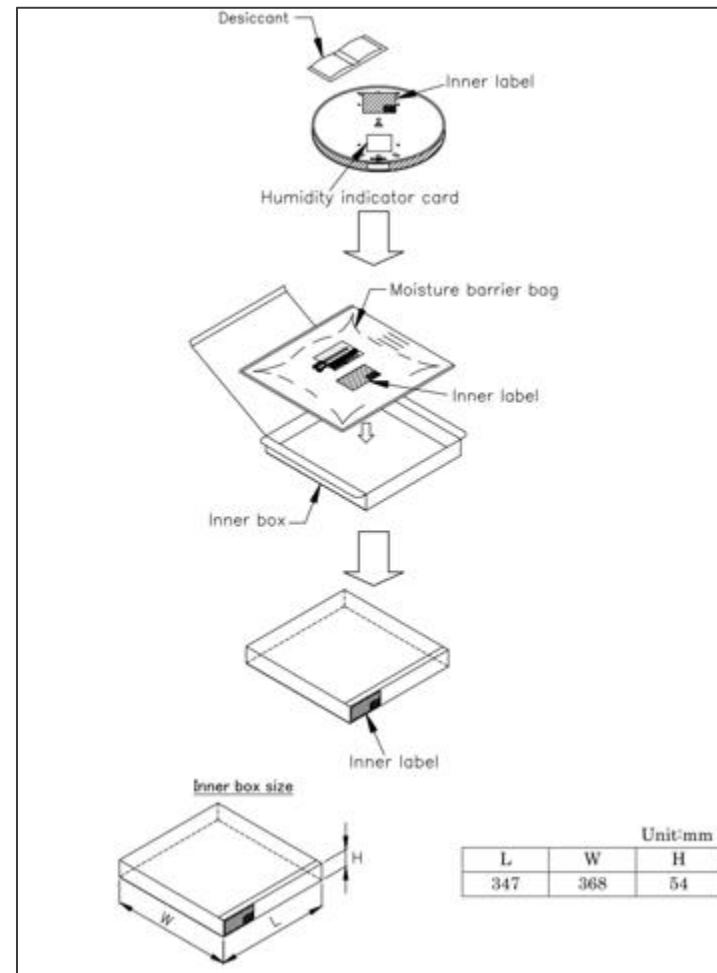
Packing material	T&R packing materials	
	Additional packing specification	Existing packing specification
Moisture-proof bag * Refer to page 15 for printed contents.	<ul style="list-style-type: none"> Moisture-proof bag size: 406.4x457.2mm 	<ul style="list-style-type: none"> Moisture-proof bag size: 415x500mm 
Inner box	<ul style="list-style-type: none"> Inner box size: 370x355x55mm 	<ul style="list-style-type: none"> Inner box size: 347x368x54mm 
Desiccant	<ul style="list-style-type: none"> •33g 	<ul style="list-style-type: none"> •25g+25g 

SHIPPING PACKING DIAGRAM (T&R SHIPPING)

Additional packing specification



Existing packing specification



4M changing points

(Addition of assembly and sorting factory , Change of material)

Item	Check Result	Judgement
Machine	<p>Changing at assembly and sorting. The machines are equivalent to present machines.</p> <p>There are production of similar products and we have already checked the additional products have no risk on the production.</p>	No risk
Method	The same as current products.	No risk
Man	Using operator certification system. Only certificated operator can work for the production.	No risk
Material	<p>Only use certificated materials.</p> <p>The products has been certificated by reliability test same as existing products and have no risk.</p>	No risk

4M changing points (Wafer process addition)

Process transfer will be performed without change of the basic chip design (chip size, chip patterns).

Item	Check Result	Judgement
Machine	The machines are equivalent to current machines.	No risk
Method	The same as current products.	No risk
Man	Using operator certification system. Only certificated operator can work for the production.	No risk
Material	The same material is used.	No risk

[Renesas.com](https://www.renesas.com)