PCN# : [MCP-AC-22-0040]

Product Change Notice (PCN)

Subject: Addition of production sites for RL78/G11(16pin), G1P, I1D, G1A.

Publication Date: 11/4/2022
Effective Date: 10/31/2023
Revision Description: Initial release.

Description of Change:

1) Addition of QFN Assembly, Final test, Packing site : UTAC Thai Limited (UTAC)
2) Addition of Wafer fabrication site : Renesas Semiconductor Manufacturing Saijo

Production Flow

Before change			After change		
Wafer fab	ASSY	FT & PACKING	Wafer fab	ASSY	FT & PACKING
Kawashiri	Greatek	KYEC	Kawashiri	Greatek	KYEC
				UTAC	**UTAC**
			Saijo	**UTAC**	**UTAC**

Note: "**Bold**: Site addition"

3) Assembly material
   Lead frame, Die mount paste and Mold resin use materials certified by the additional site.
4) Package Outline
   There is no change in the footprint pattern of additional site products.
5) Marking
   Change the marking font.
6) Packing
   Packing use materials certified by the additional site.
   *A new packing form will be added.
   This means that the existing and new packing forms may be used concurrently.

Affected Product List:

R5F1054AANA#00	R5F1054AANA#20	R5F1054AANA#40	R5F1054AGNA#00
R5F1054AGNA#20	R5F1054AGNA#40	R5F11Z7AANA#00	R5F11Z7AANA#20
R5F11Z7AANA#40	R5F11778GNA#00	R5F11778GNA#20	R5F11778GNA#40
R5F1177AGNA#00	R5F1177AGNA#20	R5F1177AGNA#40	R5F10EBAANA#00
R5F10EBAANA#20	R5F10EBAANA#40	R5F10EBAGNA#00	R5F10EBAGNA#20
R5F10EBAGNA#40	R5F10EBCANA#00	R5F10EBCANA#20	R5F10EBCANA#40
R5F10EBCGNA#00	R5F10EBCGNA#20	R5F10EBCGNA#40	R5F10EBDANA#00
R5F10EBDANA#20	R5F10EBDANA#40	R5F10EBDGNA#00	R5F10EBDGNA#20
R5F10EBDGNA#40	R5F10EBEANA#00	R5F10EBEANA#20	R5F10EBEANA#40
R5F10EBEGNA#00	R5F10EBEGNA#20	R5F10EBEGNA#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 "MCP-AB-22-0089_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 11/30/2022.

Sample Availability Date: 1/31/2023
PCN sample is an ES sample of representative part number.
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 fab).
It is tested using the same final test program as for MP products but it is tested in the different test site.

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) 3mm×3mm 0.5mm pitch 16pin 4mm×4mm 0.5mm pitch 24pin 5mm×5mm 0.5mm pitch 32pin

Additional Assembly & Final test & Packing site: UTAC
Additional Wafer fabrication: Saijo

October 27. 2022

MCU Product Marketing Department
MCU Device Solution Business Division
IoT and Infrastructure Business Unit
Renesas Electronics Corporation

Rev. 1.0

MCP-AB-22-0089

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(Rev. 5.0-1 October 2020)

Difference outline

■ Target packages

3mm×3mm 0.5mm pitch 16pin HWQFN
4mm×4mm 0.5mm pitch 24pin HWQFN
5mm×5mm 0.5mm pitch 32pin HWQFN

■ Difference points

1) Assembly site

Existing site: Greatek Electronics Inc. (Greatek)
Additional site: UTAC Thai Limited (UTAC)

2) Final test & Packing site

Existing site: King Yuan Electronics Co., Ltd (KYEC)
Additional site: UTAC Thai Limited (UTAC)

Difference outline

3) Wafer fabrication

Existing site: Renesas Semiconductor Manufacturing Kawashiri

Additional site: Renesas Semiconductor Manufacturing Saijo

*At the same time as the addition of UTAC, the Saijo factory will be added to the wafer fabrication.

4) Assembly material

Lead frame, Die mount paste and Mold resin use materials certified by the additional site.

5) Package outline

There is no change in the footprint pattern of additional site products.

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

6) Marking

Change the marking font.

Difference outline

7) Packing

Packing will be added. Packing use materials certified by the additional site.

*A new packing form will be added.

This means that the existing and new packing forms may be used concurrently.

8) Storage conditions after opening the moisture barrier bag

No change

Less than 30℃/60%RH/168hr（JEDEC standard）

9) Specification and characteristics of product

No change

10) Quality and reliability

No change

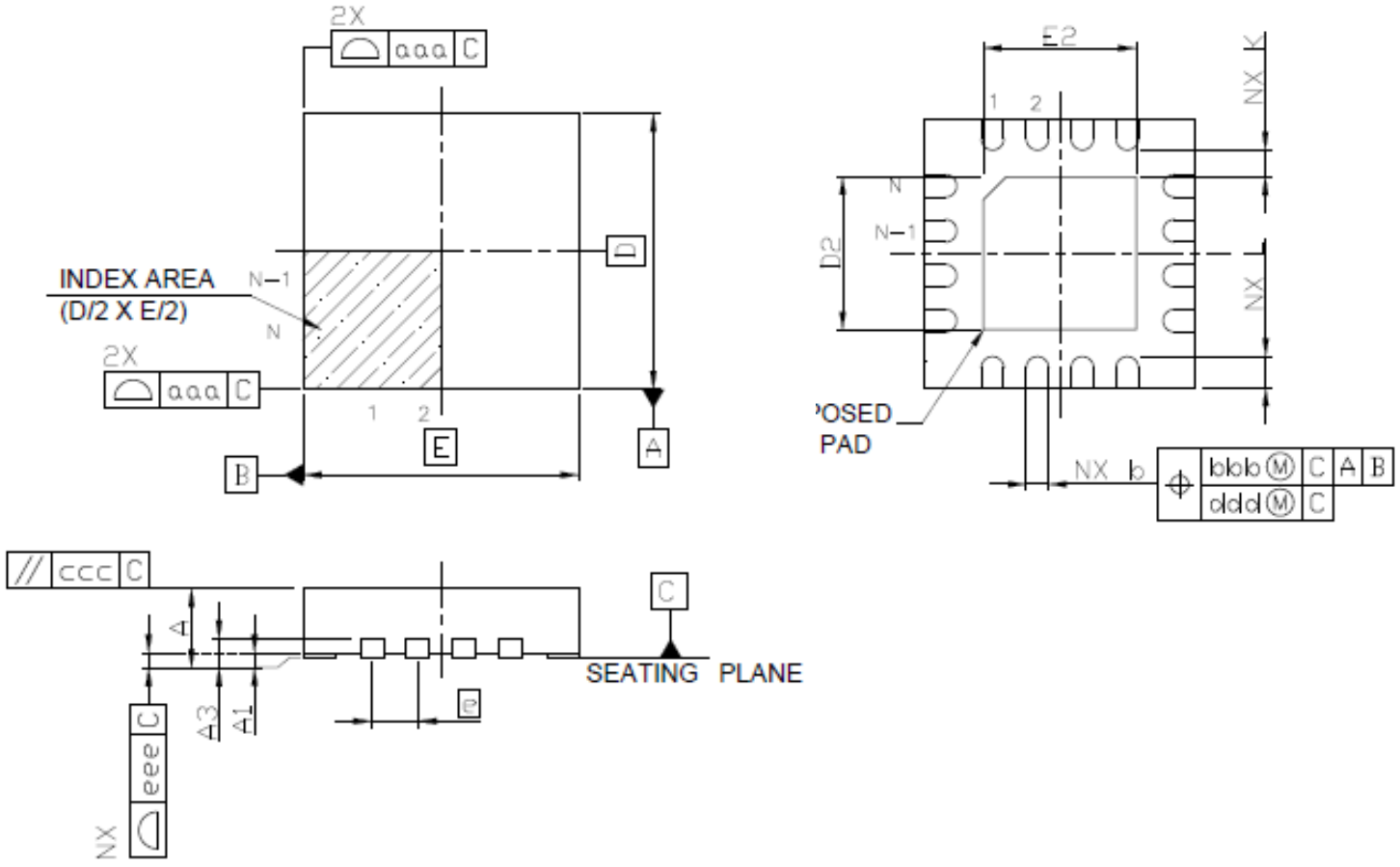
Difference of specification

Item		Additional site	Existing site
Wafer fabrication		Saijo	Kawashiri
Assembly site		UTAC	Greatek
Final test & Packing site		UTAC	KYEC
Package	Outline	There are differences (Refer to pages 7 to 16)	
Lead frame	Material	No change	
	Inner pattern	No change	
Die mount	Material	Ag epoxy paste B *	Ag epoxy paste A *
Bonding wire	Material	No change; Cu (Pd coating)	
Resin	Material	Epoxy resin B * (halogen-free)	Epoxy resin A * (halogen-free)
Plating	Material	No change	
Marking	Font	There are differences (Refer to page 17)	
	Digit number	No change	
Packing	Tray/ Emboss tape	There are differences (Refer to pages 18 to 27)	
Storage conditions	after opening	No change	

* Site certified materials.
There are differences in materials, but there is no change in reliability or characteristics.

3mm×3mm 0.5mm pitch 16pin HWQFN Package outline (UTAC)

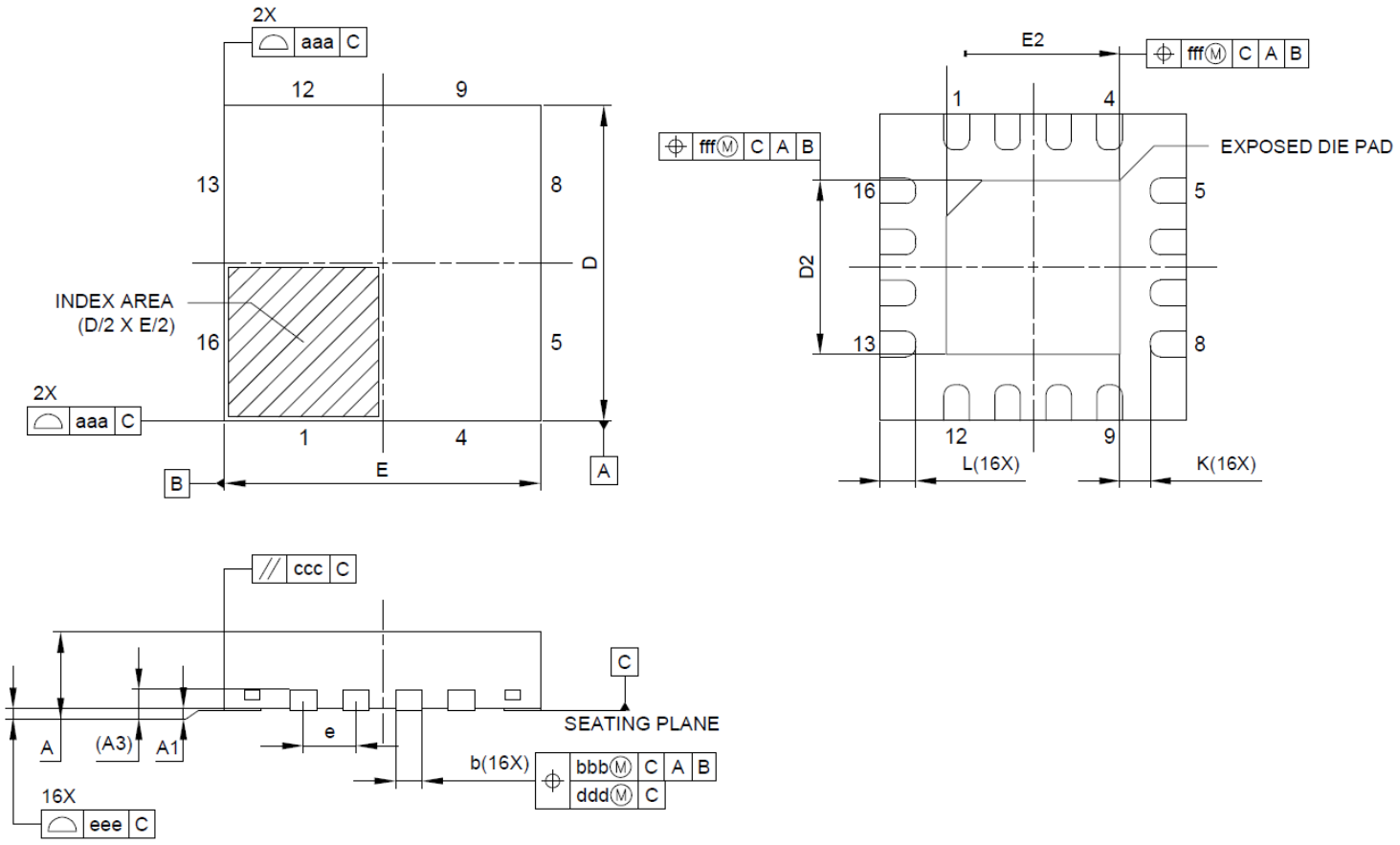
RENESAS Code : PWQN0016KE-A



UTAC Symbol	3x3mm 16pin HWQFN PWQN0016KE-A		
	Dimension in Millimeters		
	Min	Nom	Max
A	-	-	0.80
A1	0.00	-	0.05
A3	0.20 REF.		
b	0.20	0.25	0.30
D	-	3.00	-
E	-	3.00	-
e	-	0.50	-
N	16		
L	0.25	0.35	0.45
K	0.20	-	-
D2	1.60	1.70	1.80
E2	1.60	1.70	1.80
aaa	-	-	0.15
bbb	-	-	0.10
ccc	-	-	0.10
ddd	-	-	0.05
eee	-	-	0.08

3mm×3mm 0.5mm pitch 16pin HWQFN Package outline (Greatek)

RENESAS Code : PWQN0016KD-A



Greatek Symbol	3x3mm 16pin HWQFN PWQN0016KD-A		
	Dimension in Millimeters		
	Min	Nom	Max
A	-	-	0.80
A1	0.00	0.02	0.05
A3	0.203 REF.		
b	0.20	0.25	0.30
D	3.00 BSC		
E	3.00 BSC		
e	0.50 BSC		
L	0.30	0.35	0.40
K	0.20	-	-
D2	1.65	1.70	1.75
E2	1.65	1.70	1.75
aaa	0.15		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		
fff	0.10		

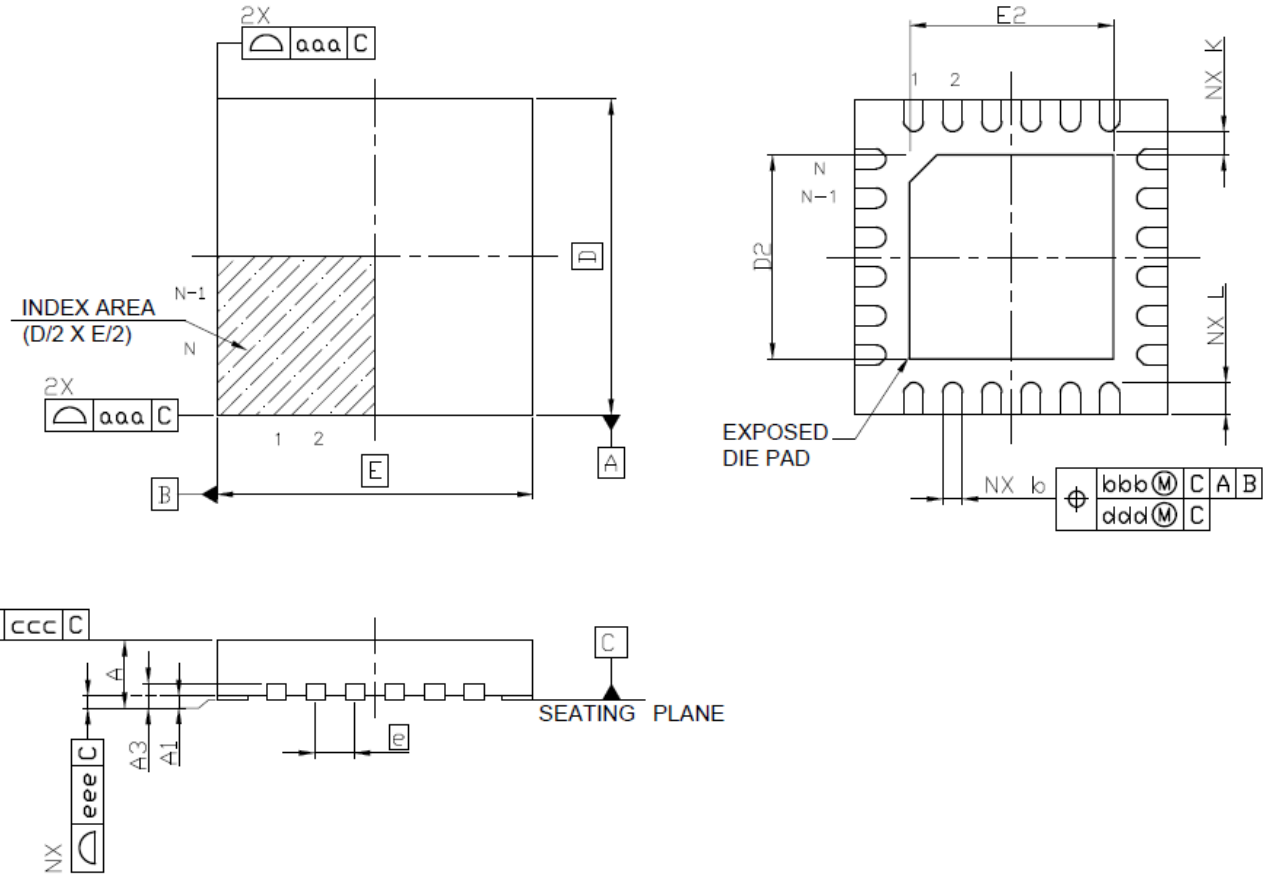
Dimension comparison: 3mm×3mm 0.5mm pitch 16pin HWQFN

Package symbols complied JEDEC standard.

UTAC Symbol	3x3mm 16pin HWQFN PWQN0016KE-A			Greatek Symbol	3x3mm 16pin HWQFN PWQN0016KD-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	-	3.00	-	D	3.00 BSC		
E	-	3.00	-	E	3.00 BSC		
e	-	0.50	-	e	0.50 BSC		
N	16			-	-	-	-
L	0.25	0.35	0.45	L	0.30	0.35	0.40
K	0.20	-	-	K	0.20	-	-
D2	1.60	1.70	1.80	D2	1.65	1.70	1.75
E2	1.60	1.70	1.80	E2	1.65	1.70	1.75
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		

4mm×4mm 0.5mm pitch 24pin HWQFN Package outline (UTAC)

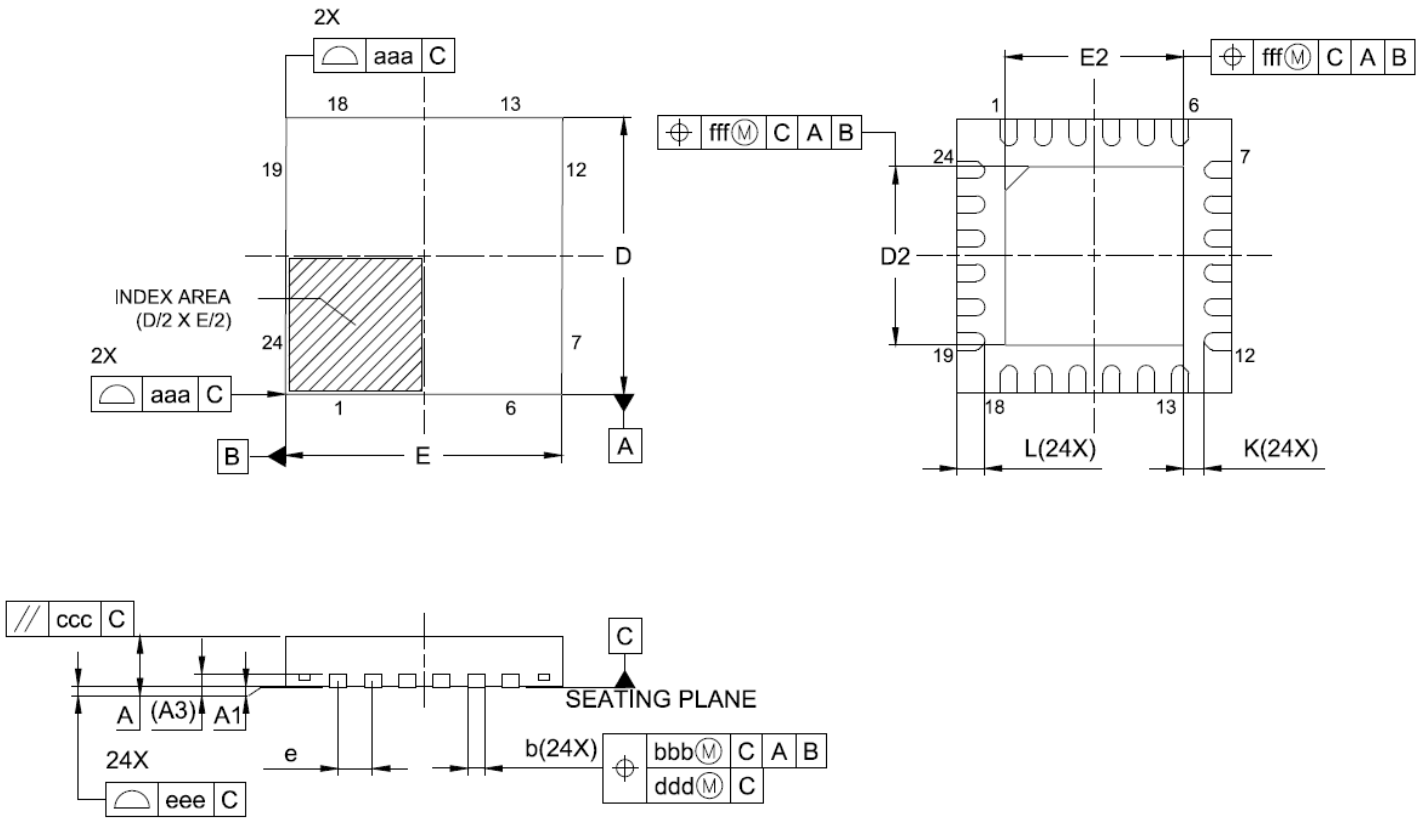
RENESAS Code : PWQN0024KH-A



UTAC Symbol	4x4mm 24pin HWQFN PWQN0024KH-A		
	Dimension in Millimeters		
	Min	Nom	Max
	-	-	0.80
A1	0.00	-	0.05
A3	0.20 REF.		
b	0.20	0.25	0.30
D	-	4.00	-
E	-	4.00	-
e	-	0.50	-
N	24		
L	0.30	0.40	0.50
K	0.20	-	-
D2	2.50	2.60	2.70
E2	2.50	2.60	2.70
aaa	-	-	0.15
bbb	-	-	0.10
ccc	-	-	0.10
ddd	-	-	0.05
eee	-	-	0.08

4mm×4mm 0.5mm pitch 24pin HWQFN Package outline (Greatek)

RENESAS Code : PWQN0024KF-A



Greatek Symbol	4x4mm 24pin HWQFN PWQN0024KF-A		
	Dimension in Millimeters		
	Min	Nom	Max
A	-	-	0.80
A1	0.00	0.02	0.05
A3	0.203 REF.		
b	0.18	0.25	0.30
D	4.00 BSC		
E	4.00 BSC		
e	0.50 BSC		
L	0.35	0.40	0.45
K	0.20	-	-
D2	2.55	2.60	2.65
E2	2.55	2.60	2.65
aaa	0.15		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		
fff	0.10		

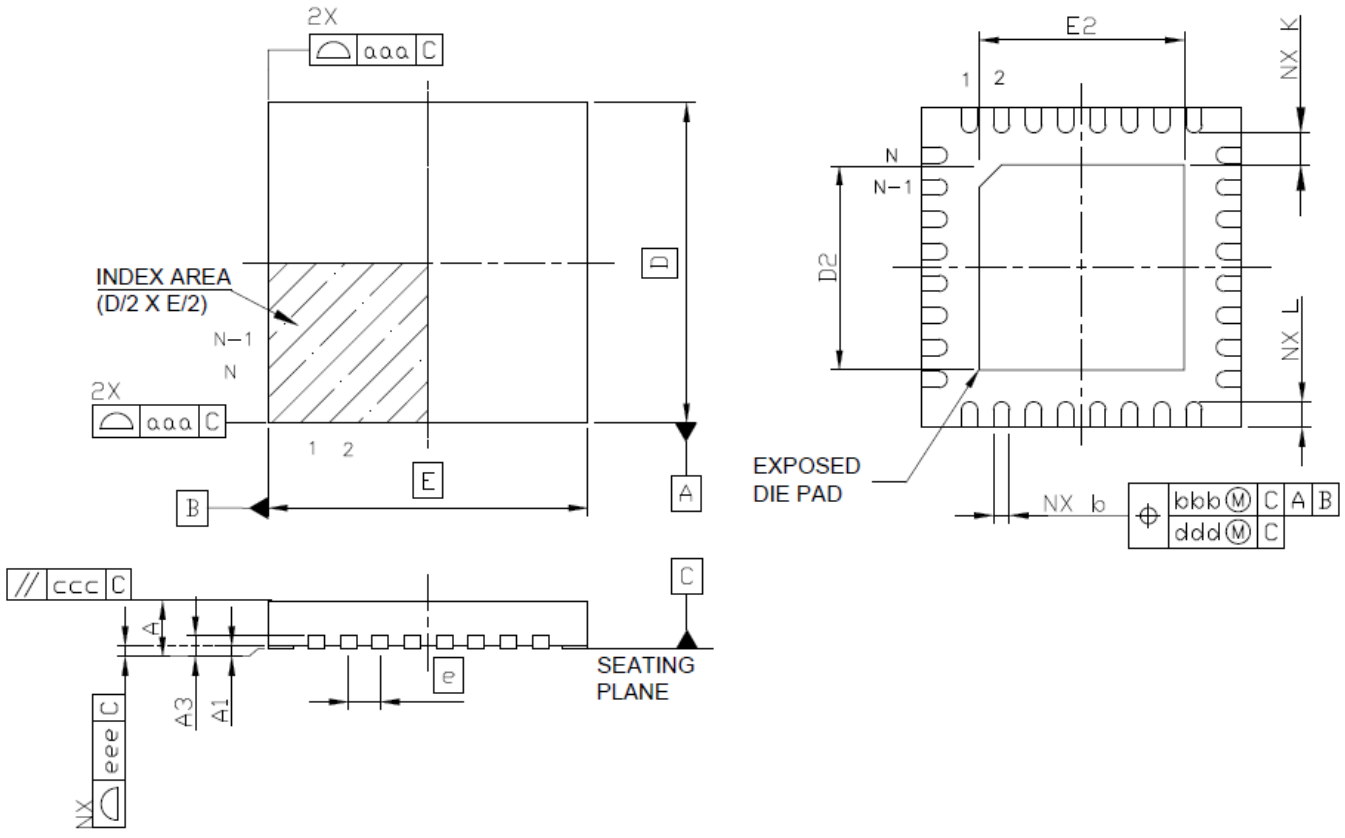
Dimension comparison: 4mm×4mm 0.5mm pitch 24pin HWQFN

Package symbols complied JEDEC standard.

UTAC Symbol	4x4mm 24pin HWQFN PWQN0024KH-A			Greatek Symbol	4x4mm 24pin HWQFN PWQN0024KF-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	-	4.00	-	D	4.00 BSC		
E	-	4.00	-	E	4.00 BSC		
e	-	0.50	-	e	0.50 BSC		
N	24			-	-	-	-
L	0.30	0.40	0.50	L	0.35	0.40	0.45
K	0.20	-	-	K	0.20	-	-
D2	2.50	2.60	2.70	D2	2.55	2.60	2.65
E2	2.50	2.60	2.70	E2	2.55	2.60	2.65
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		

5mm×5mm 0.5mm pitch 32pin HWQFN Package outline (UTAC)

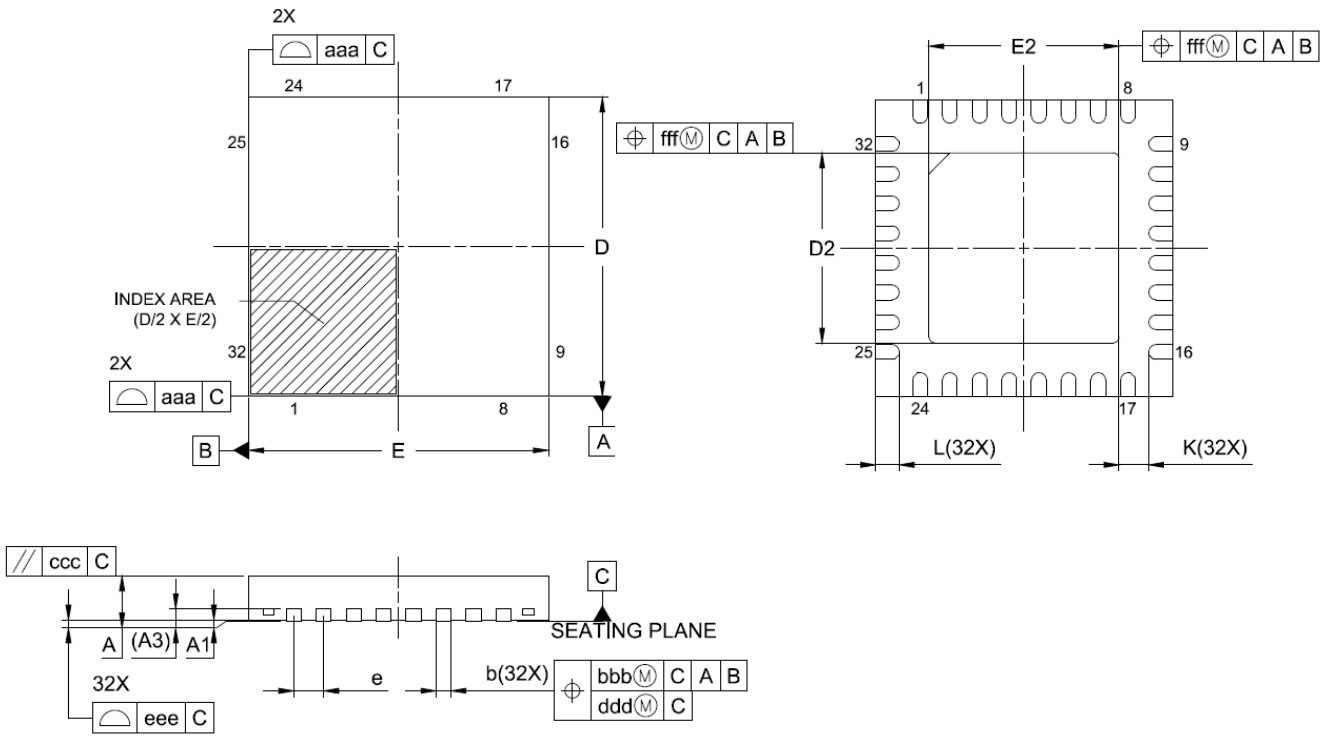
RENESAS Code : PWQN0032KG-A



UTAC Symbol	5x5mm 32pin HWQFN PWQN0032KG-A		
	Dimension in Millimeters		
	Min	Nom	Max
A	-	-	0.80
A1	0.00	-	0.05
A3	0.20 REF.		
B	0.20	0.25	0.30
D	-	5.00	-
E	-	5.00	-
e	-	0.50	-
N	32		
L	0.30	0.40	0.50
K	0.20	-	-
D2	3.10	3.20	3.30
E2	3.10	3.20	3.30
aaa	-	-	0.15
bbb	-	-	0.10
ccc	-	-	0.10
ddd	-	-	0.05
eee	-	-	0.08

5mm×5mm 0.5mm pitch 32pin HWQFN Package outline (Greatek)

RENESAS Code : PWQN0032KE-A



Greatek Symbol	5x5mm 32pin HWQFN PWQN0032KE-A		
	Dimension in Millimeters		
	Min	Nom	Max
A	-	-	0.80
A1	0.00	0.02	0.05
A3	0.203 REF.		
b	0.18	0.25	0.30
D	5.00 BSC		
E	5.00 BSC		
e	0.50 BSC		
L	0.35	0.40	0.45
K	0.20	-	-
D2	3.15	3.20	3.25
E2	3.15	3.20	3.25
aaa	0.15		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		
fff	0.10		

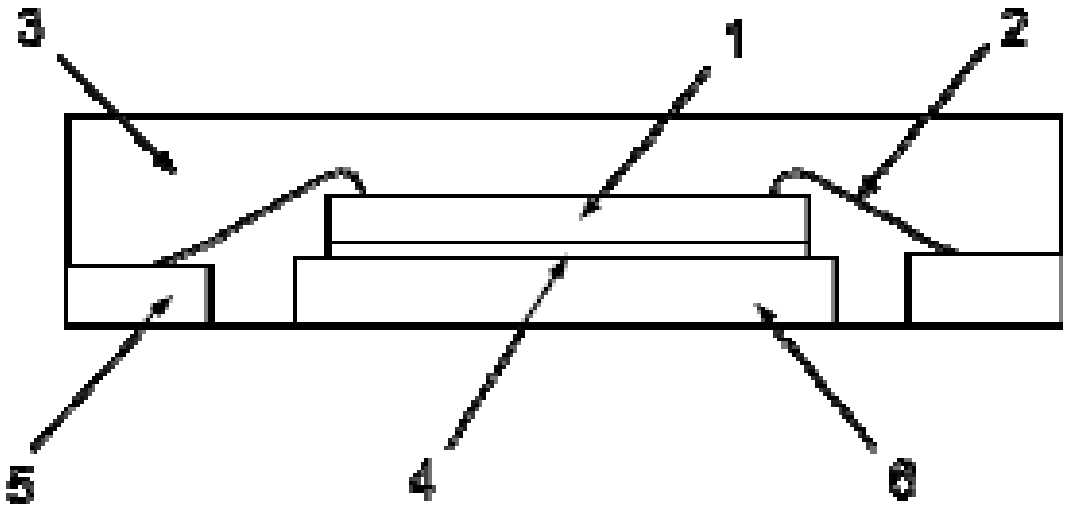
Dimension comparison: 5mm×5mm 0.5mm pitch 32pin HWQFN

Package symbols complied JEDEC standard.

UTAC Symbol	5x5mm 32pin HWQFN PWQN0032KG-A			Greatek Symbol	5x5mm 32pin HWQFN PWQN0032KE-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	-	5.00	-	D	5.00 BSC		
E	-	5.00	-	E	5.00 BSC		
e	-	0.50	-	e	0.50 BSC		
N	32			N	-	-	-
L	0.30	0.40	0.50	L	0.35	0.40	0.45
K	0.20	-	-	K	0.20	-	-
D2	3.10	3.20	3.30	D2	3.15	3.20	3.25
E2	3.10	3.20	3.30	E2	3.15	3.20	3.25
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

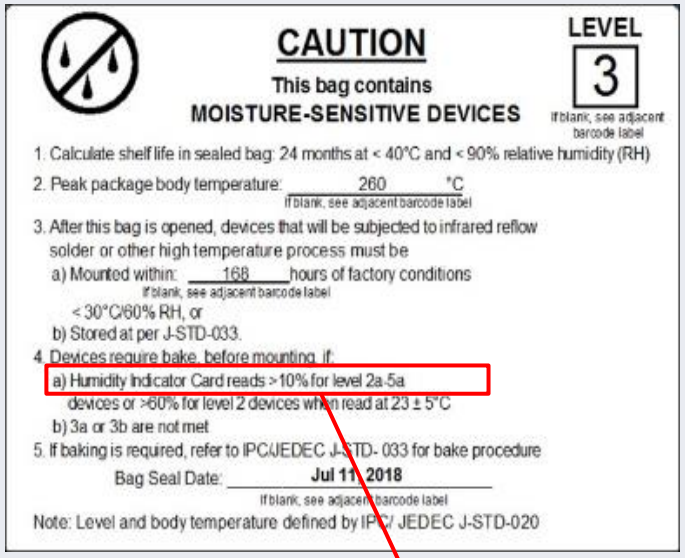
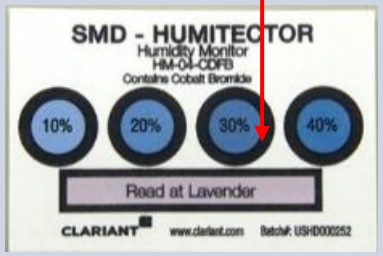
* Different materials will be used at UTAC but their structure is same as those conventionally used.

Marking visibility

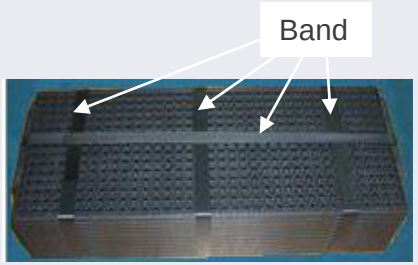
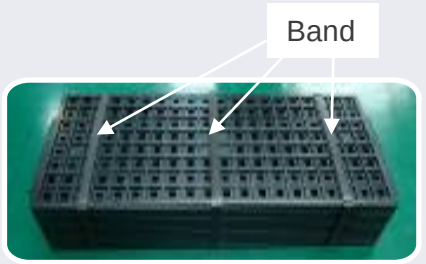
*Character is reference example

Assembly site	Additional (UTAC)	Existing (Greatek)
Overall photo		
Enlarged photo		

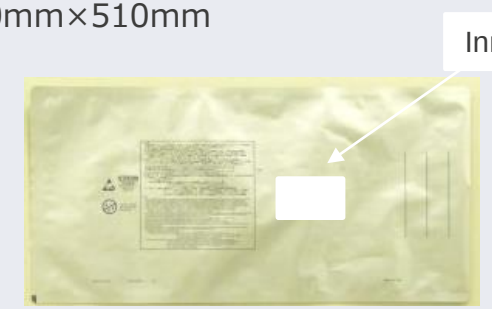
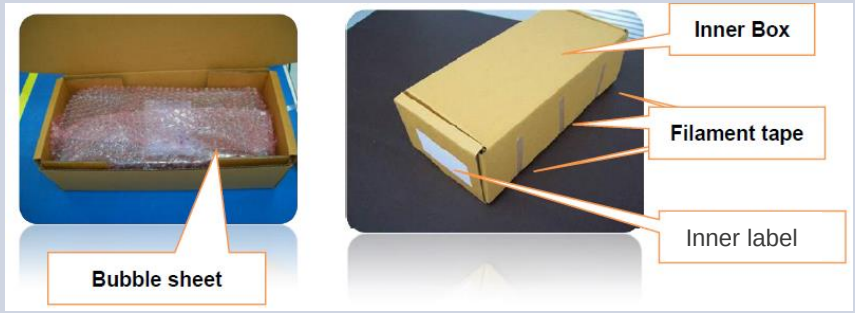
Printing on moisture barrier bag / Humidity indicator card (Tray/Tape & Reel common)

Packing material	Tray / Tape & Reel	
	Additional (UTAC)	Existing (KYEC)
Printing on moisture barrier bag	・Caution label  CAUTION This bag contains MOISTURE-SENSITIVE DEVICES LEVEL 3 If blank, see adjacent barcode label 1. Calculate shelf life in sealed bag: 24 months at < 40°C and < 90% relative humidity (RH) 2. Peak package body temperature: 260 °C If blank, see adjacent barcode label 3. After this bag is opened, devices that will be subjected to infrared reflow solder or other high temperature process must be a) Mounted within: 168 hours of factory conditions If blank, see adjacent barcode label < 30°C/60% RH, or b) Stored at per J-STD-033. 4. Devices require bake, before mounting, if: a) Humidity Indicator Card reads >10% for level 2a-5a devices or >60% for level 2 devices when read at 23 ± 5°C b) 3a or 3b are not met 5. If baking is required, refer to IPC/JEDEC J-STD- 033 for bake procedure Bag Seal Date: Jul 11, 2018 If blank, see adjacent barcode label Note: Level and body temperature defined by IPC/ JEDEC J-STD-020	・Printed on moisture barrier bag 1.After opening the moisture-resistant bag, store the devices at a temperature of 5℃ to 30℃ 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 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℃ for 24 hours. Note that any special instructions on the inner label should be followed. e.g. Notes on Renesas standard moisture barrier bag (excerpt)
Humidity indicator card	・JEDEC Specifications 3 levels (5%, 10%, 60%)  HUMIDITY INDICATOR COBALT DICHLORIDE FREE LEVEL 2 PARTS 60% Bake parts if 60% is NOT blue LEVEL 2A-5A PARTS 10% 5% Bake parts if 10% is NOT blue and 5 % is pink Initial Use: Do not put this card into a bag if 60% is pink	・Renesas Standard Specifications 4 levels (10%, 20%, 30%, 40%)  SMD - HUMITECTOR Humidity Monitor 10% 20% 30% 40% Read at Lavender CLARIANT

Packing specification for Tray

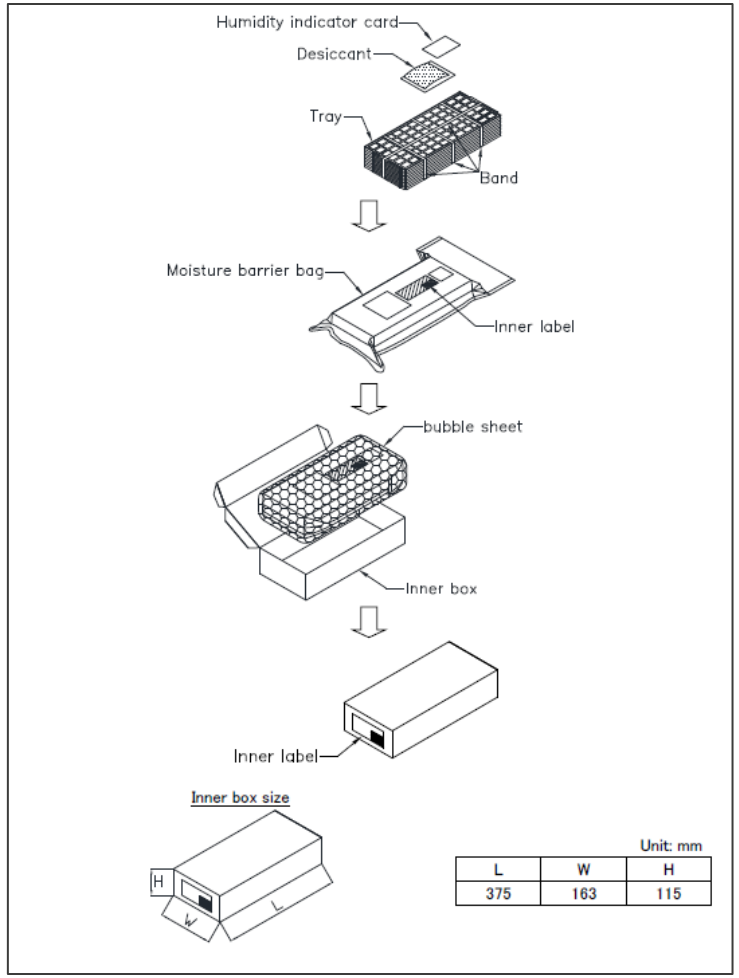
Packing material	Tray	
	Additional (UTAC)	Existing (KYEC)
Number of trays contained in the inner box	・Tray : 8 trays＋ 1 cover 	・Tray : 8 trays＋ 1 cover 
Band	・Band : 4 (3 on the short side + 1 on the long side)	・Band : 3 (3 on the short side)
Desiccant	・Weight : 33g 	・Weight : 25g+25g 

Packing specification for Tray

Packing material	Tray	
	Additional (UTAC)	Existing (KYEC)
Moisture barrier bag *Refer to page 18 for printed characters.	・Size : 228.6mm×508mm 	・Size : 250mm×510mm 
Inner box	・Size : 163mm×375mm×115mm 	・Size : 152mm×330mm×75mm 

Packing specification for Tray

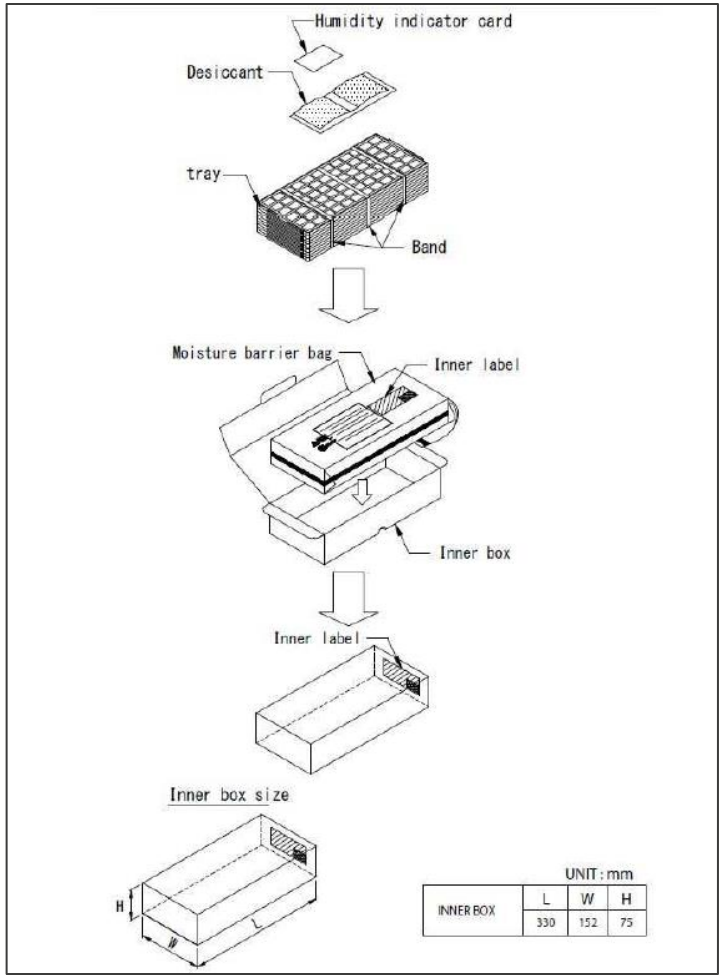
Additional (UTAC)



Unit: mm

L	W	H
375	163	115

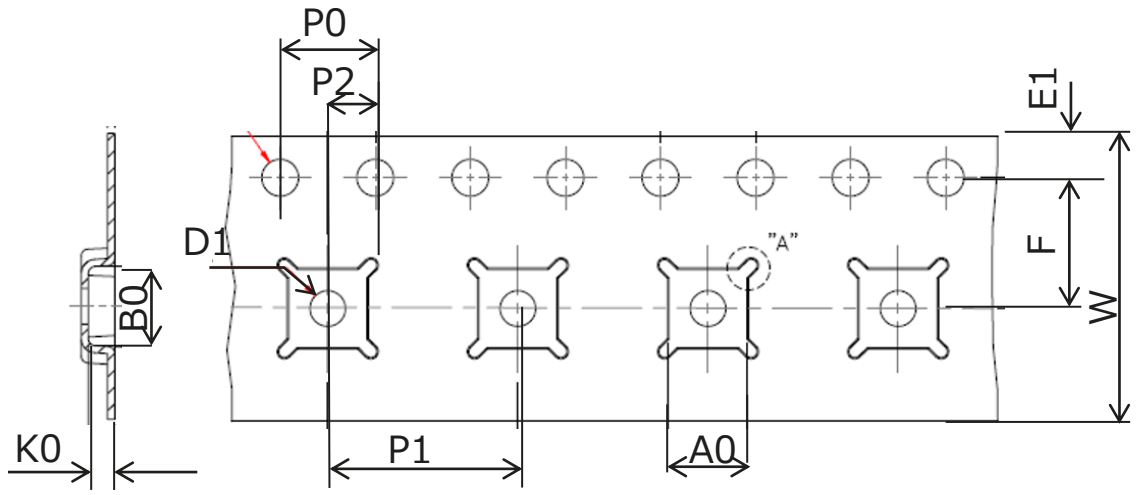
Existing (KYEC)



UNIT : mm

INNER BOX	L	W	H
	330	152	75

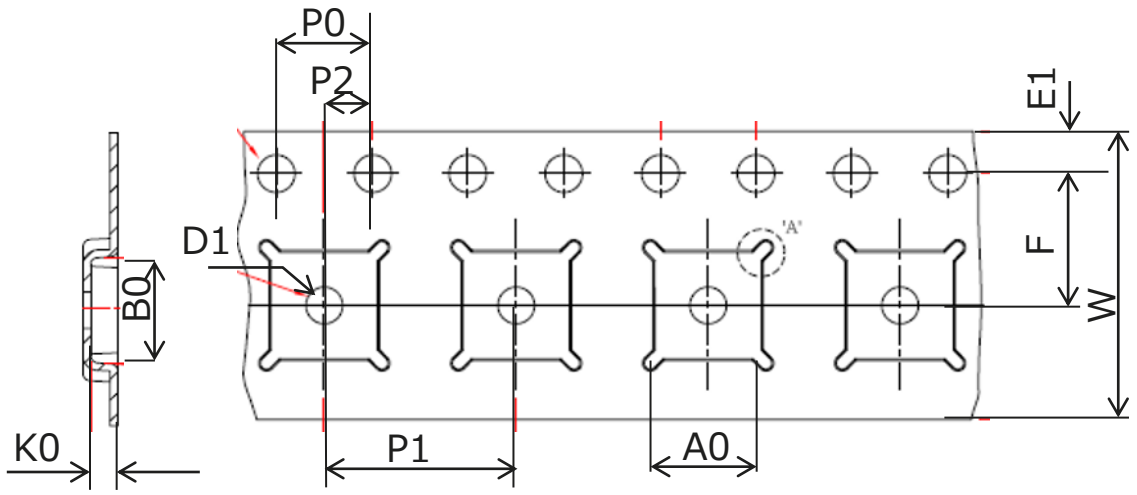
Dimension comparison: 3mm×3mm 16pin HWQFN Emboss tape



Unit: mm

Symbol	Additional (UTAC)	Existing (KYEC)
A0	3.30	3.30
B0	3.30	3.30
K0	1.10	1.10
P1	8.00	8.00
W	12.00	12.00
E1	1.75	1.75
P0	4.00	4.00
F	5.50	5.50
P2	2.00	2.00
D1	Φ1.50MIN	Φ1.60

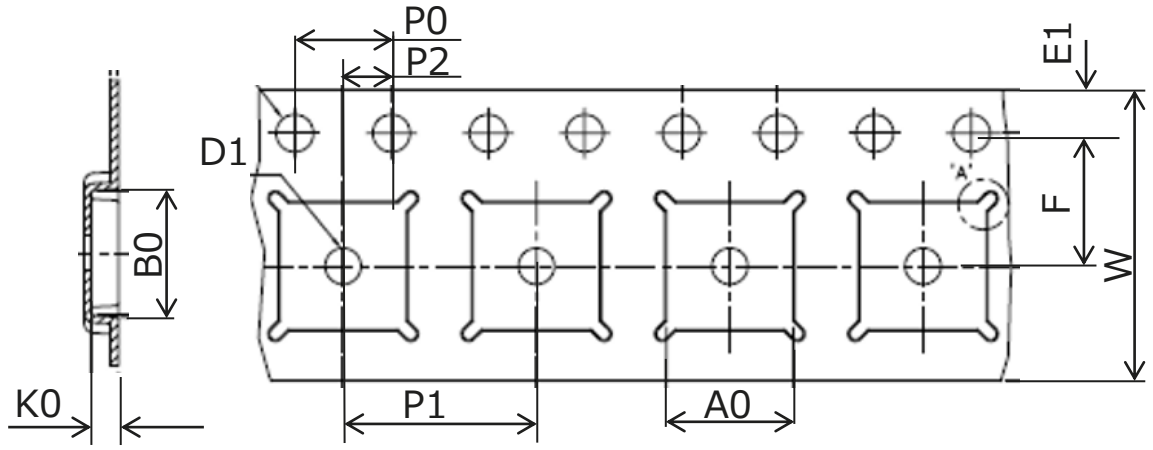
Dimension comparison: 4mm×4mm 24pin HWQFN Emboss tape



Unit: mm

Symbol	Additional (UTAC)	Existing (KYEC)
A0	4.30	4.25
B0	4.30	4.25
K0	1.10	1.10
P1	8.00	8.00
W	12.00	12.00
E1	1.75	1.75
P0	4.00	4.00
F	5.50	5.50
P2	2.00	2.00
D1	Φ1.50MIN	Φ1.60

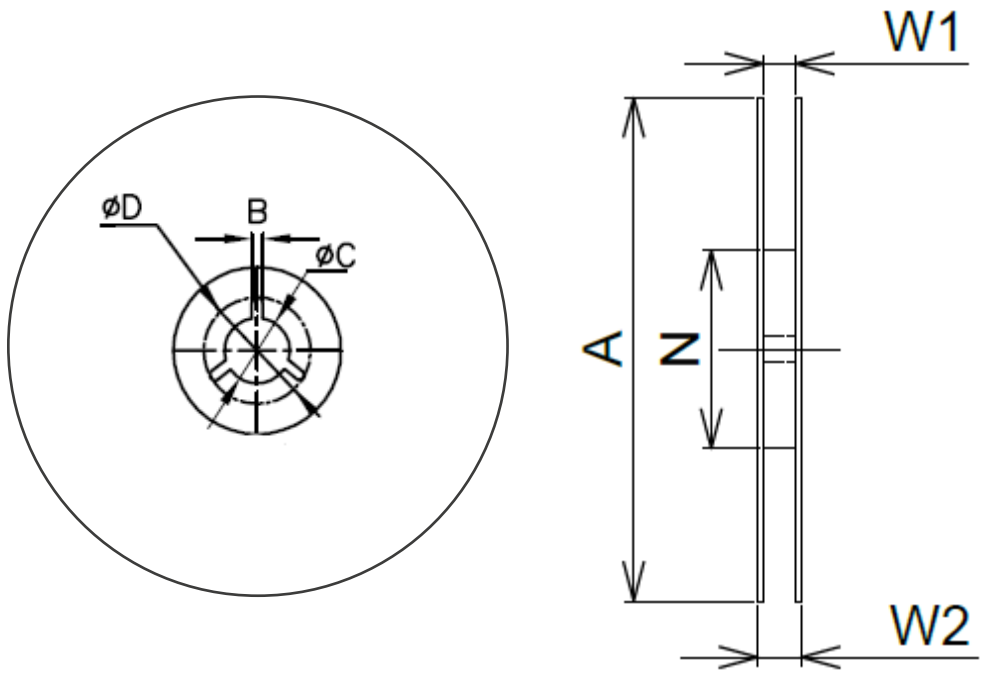
Dimension comparison: 5mm×5mm 32pin HWQFN Emboss tape



Unit: mm

Symbol	Additional (UTAC)	Existing (KYEC)
A0	5.25	5.30
B0	5.25	5.30
K0	1.10	1.10
P1	8.00	8.00
W	12.00	12.00
E1	1.75	1.75
P0	4.00	4.00
F	5.50	5.50
P2	2.00	2.00
D1	Φ1.50MIN	Φ1.60

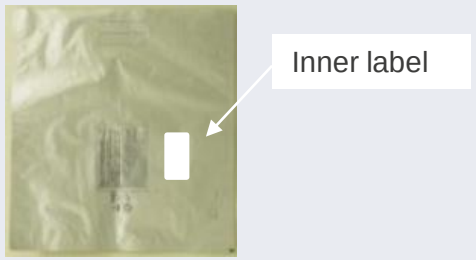
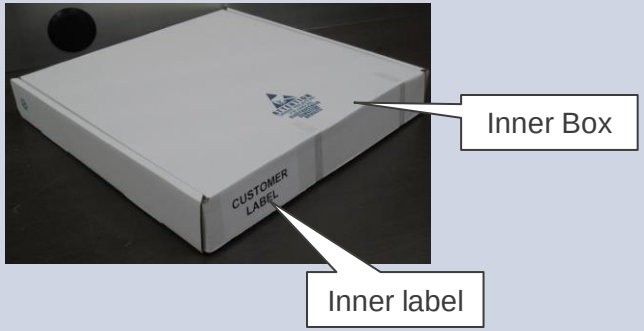
Dimension comparison: Reel (HWQFN common)



Unit: mm

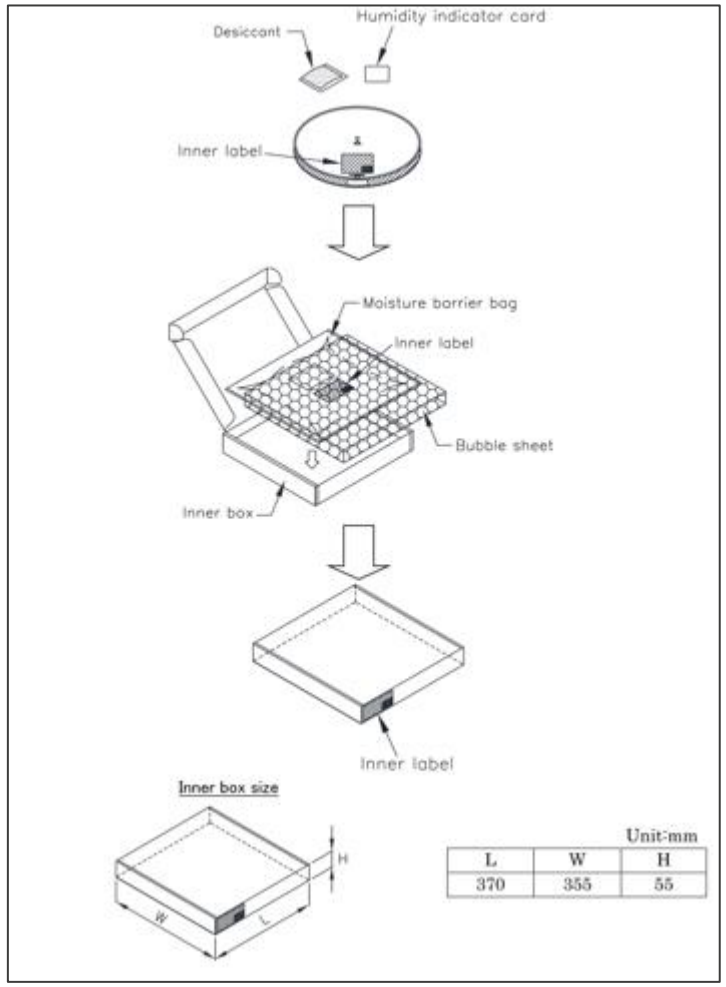
Symbol	Additional (UTAC)	Existing (KYEC)
B	1.5	2.0
ΦC	13.0	13.0
ΦD	20.2	21.0
A	330	330
N	100	102
W1	12.4	12.8
W2	18.4	18.4

Packing specification for Tape & Reel

Packing material	Tape & Reel	
	Additional (UTAC)	Existing (KYEC)
Moisture barrier bag *Refer to page 18 for printed characters.	・Size : 406.4mm×457.2mm 	・Size : 415mm×500mm 
Inner box	・Size : 370mm×355mm×55mm 	・Size : 347mm×368mm×54mm 
Desiccant	・Weight : 33g 	・Weight : 25g+25g 

Packing specification for Tape & Reel

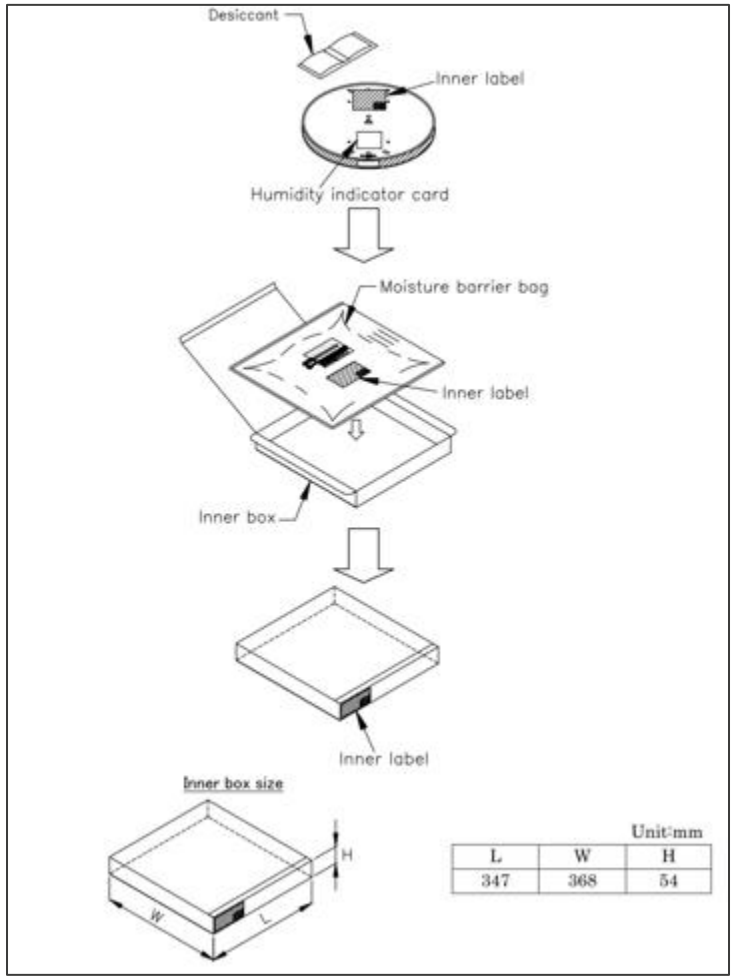
Additional (UTAC)



Unit:mm

L	W	H
370	355	55

Existing (KYEC)



Unit:mm

L	W	H
347	368	54

4M changing points
(Addition of assembly and final test site , Change of material)

Item	Check Result	Judgement
Machine	Changing at assembly and final test. 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	Using 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 existing products and have no risk.	**No risk**

4M changing points (Wafer fabrication 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**

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