

Product Change Notice

(PCN Tracking Number: EE-QR-200702-01)

Version: 2

Customer:	ALL Customers
Renesas Product Type:	RL78 MCU products. The list of all affected products along with the new part number on p. 3-26. Current P/N (part no.) will be gradually discontinued after release of new P/N.
Description of Change:	New assembly and test factories. Further details stated on page 2 and within a supplementary document: <i>"MCP-AB-20-0061_ RL78 QFN Cu wire site change_difference"</i>
Reason for Change:	For RL78 MCU products, Renesas continuously adds manufacturing factories and changes assembly materials for stable supply. For HWQFN package products, manufacturing factories and assembly materials are changed this time.
Identification:	From the packing label or trace code, the production history data can be inquired.
Schedules:	Sample shipment & QT data: from July 2020 sequentially Requested approval: Sept. 2020 or 3 months after sample delivery Change Implementation: from Sept. 2020 onwards sequentially Last order for current P/N: e/o June 2021
Anticipated Impact:	Fit & Function: None Quality & Reliability: None El. Character. & QC Flow: None
Doc. No.:	EEQC-PCN-CR-20-0047
Internal Reference:	MCP-AC-20-0006

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, 14.07.2020

Customer Response:

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

☐ acknowledge Company: _____
☐ acceptable
☐ unacceptable (pls. comment) Name & Position: _____
☐ not applicable
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:

Details of Change:

1) Factory

1-1) Assembly factory:

Current: Amkor Technology Japan Kumamoto/Hakodate (ATJ Kumamoto/Hakodate)

New: Powertech Technology Inc., Group_Gretek Electronics Inc., (PTI_Gretek)

1-2) Sorting factory:

Current: Amkor Technology Japan Kumamoto (ATJ Kumamoto)

New: King Yuan Electronics Co., Ltd (KYEC)

2) Material: Standard materials are used in new factory

2-1) Bonding wire change to Copper (Cu)

2-2) Lead frame, Die mount material and mold resin material change

2-3) Material Declaration Sheet may be provided upon request

3) Package outline:

There are some changes in dimensions.

The package surface becomes matte but does not affect the reliability.

4) Marking on package

4-1) Font change

4-2) Manufacturing lot number change (from 9 digit to 7 digit)

4-3) Delete country of origin indication

5) Packaging material:

5-1) Tray and the order of devices change

5-2) Addition of bundling band color (Black)

5-3) Emboss tape change

5-4) Reel for emboss taping change

6) Storage condition after opening:

Current product: Amkor Technology Japan: Within 30°C/ 70%RH/ 168h

New product: Powertech Technology Inc., Group: Within 30°C/ 60%RH/ 168h (JEDEC compliant)

Product List:

P/N before change	P/N after change
R5F1007AANA#U0	R5F1007AANA#20
R5F1007AANA#W0	R5F1007AANA#40
R5F1007AAXXXNA#U0	R5F1007AAXXXNA#20
R5F1007AAXXXNA#W0	R5F1007AAXXXNA#40
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R5F1007ADNA#W0	R5F1007AGNA#40
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R5F1007ADXXXNA#W0	R5F1007AGXXXNA#40
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R5F10JBCANA#W0	R5F10JBCANA#40
R5F10JBCAXXXNA#U0	R5F10JBCAXXXNA#20
R5F10JBCAXXXNA#W0	R5F10JBCAXXXNA#40
R5F10JBCGNA#U0	R5F10JBCGNA#20
R5F10JBCGNA#W0	R5F10JBCGNA#40
R5F10JBCGXXXNA#U0	R5F10JBCGXXXNA#20
R5F10JBCGXXXNA#W0	R5F10JBCGXXXNA#40
R5F10JGCANA#U0	R5F10JGCANA#20
R5F10JGCANA#W0	R5F10JGCANA#40
R5F10JGCAXXXNA#U0	R5F10JGCAXXXNA#20
R5F10JGCAXXXNA#W0	R5F10JGCAXXXNA#40
R5F10JGCGNA#U0	R5F10JGCGNA#20
R5F10JGCGNA#W0	R5F10JGCGNA#40
R5F10JGCGXXXNA#U0	R5F10JGCGXXXNA#20
R5F10JGCGXXXNA#W0	R5F10JGCGXXXNA#40
R5F10KBCANA#U0	R5F10KBCANA#20
R5F10KBCANA#W0	R5F10KBCANA#40
R5F10KBCAXXXNA#U0	R5F10KBCAXXXNA#20
R5F10KBCAXXXNA#W0	R5F10KBCAXXXNA#40
R5F10KBCGNA#U0	R5F10KBCGNA#20
R5F10KBCGNA#W0	R5F10KBCGNA#40
R5F10KBCGXXXNA#U0	R5F10KBCGXXXNA#20
R5F10KBCGXXXNA#W0	R5F10KBCGXXXNA#40
R5F10KGCANA#U0	R5F10KGCANA#20
R5F10KGCANA#W0	R5F10KGCANA#40
R5F10KGCAXXXNA#U0	R5F10KGCAXXXNA#20
R5F10KGCAXXXNA#W0	R5F10KGCAXXXNA#40

R5F10KGCNA#U0	R5F10KGCNA#20
R5F10KGCNA#W0	R5F10KGCNA#40
R5F10KGCXXXNA#U0	R5F10KGCXXXNA#20
R5F10KGCXXXNA#W0	R5F10KGCXXXNA#40
R5F10RLAANB#U0	R5F10RLAANB#20
R5F10RLAANB#W0	R5F10RLAANB#40
R5F10RLAAXXNB#U0	R5F10RLAAXXNB#20
R5F10RLAAXXNB#W0	R5F10RLAAXXNB#40
R5F10RLAGNB#U0	R5F10RLAGNB#20
R5F10RLAGNB#W0	R5F10RLAGNB#40
R5F10RLAGXXNB#U0	R5F10RLAGXXNB#20
R5F10RLAGXXNB#W0	R5F10RLAGXXNB#40
R5F10RLCANB#U0	R5F10RLCANB#20
R5F10RLCANB#W0	R5F10RLCANB#40
R5F10RLCAXXNB#U0	R5F10RLCAXXNB#20
R5F10RLCAXXNB#W0	R5F10RLCAXXNB#40
R5F10RLCGNB#U0	R5F10RLCGNB#20
R5F10RLCGNB#W0	R5F10RLCGNB#40
R5F10RLCGXXNB#U0	R5F10RLCGXXNB#20
R5F10RLCGXXNB#W0	R5F10RLCGXXNB#40
R5F11778GNA#U0	R5F11778GNA#20
R5F11778GNA#W0	R5F11778GNA#40
R5F11778GXXXNA#U0	R5F11778GXXXNA#20
R5F11778GXXXNA#W0	R5F11778GXXXNA#40
R5F1177AGNA#U0	R5F1177AGNA#20
R5F1177AGNA#W0	R5F1177AGNA#40
R5F1177AGXXXNA#U0	R5F1177AGXXXNA#20
R5F1177AGXXXNA#W0	R5F1177AGXXXNA#40
R5F11B7CANA#U0	R5F11B7CANA#20
R5F11B7CANA#W0	R5F11B7CANA#40
R5F11B7CAXXNA#U0	R5F11B7CAXXNA#20
R5F11B7CAXXNA#W0	R5F11B7CAXXNA#40
R5F11B7CGNA#U0	R5F11B7CGNA#20
R5F11B7CGNA#W0	R5F11B7CGNA#40
R5F11B7CGXXXNA#U0	R5F11B7CGXXXNA#20
R5F11B7CGXXXNA#W0	R5F11B7CGXXXNA#40
R5F11B7EANA#U0	R5F11B7EANA#20
R5F11B7EANA#W0	R5F11B7EANA#40

R5F11B7EAXXXNA#U0	R5F11B7EAXXXNA#20
R5F11B7EAXXXNA#W0	R5F11B7EAXXXNA#40
R5F11B7EGNA#U0	R5F11B7EGNA#20
R5F11B7EGNA#W0	R5F11B7EGNA#40
R5F11B7EGXXXNA#U0	R5F11B7EGXXXNA#20
R5F11B7EGXXXNA#W0	R5F11B7EGXXXNA#40
R5F11BBCANA#40	R5F11BBCANA#40 (No change)
R5F11BBEANA#40	R5F11BBEANA#40 (No change)

CU WIRE AND FACTORY CHANGE DIFFERENCE OF RL78_HWQFN PRODUCTS

Powertech Technology Inc., Group/ Greatek Electronics Inc.,
King Yuan Electronics Co., Ltd

JUNE. 23. 2020

PRODUCTION AND TECHNOLOGY UNIT
IOT AND INFRASTRUCTURE BUSINESS UNIT
RENESAS ELECTRONICS CORPORATION

MCP-AB-20-0061

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(Rev. 4.0-1 November 2017)

Overview

For RL78 microcomputer products, we continuously add manufacturing factories and change assembly materials for stable supply.

For HWQFN package products, manufacturing factories and assembly materials also are changed this time.

Change points are reported in the following pages.

Outline

1) Material: Standard materials are used in new factory

1-1) Bonding wire change to Copper (Cu)

1-2) Lead frame, Die mount material and Mold resin material change

2) Factory

2-1) Assembly factory

Current factory: Amkor Technology Japan Kumamoto/Hakodate (ATJ Kumamoto/ ATJ Hakodate)

New factory: Powertech Technology Inc., Group_Greatek Electronics Inc. (PTI_Greatek)

2-2) Sorting factory:

Current factory: Amkor Technology Japan Kumamoto (ATJ Kumamoto)

New factory: King Yuan Electronics Co., Ltd (KYEC)

3) Package outline:

There are changes in some of dimensions.

The package surface becomes matte but does not affect the reliability.

4) Marking on package

4-1) Font change

4-2) Manufacturing lot number change (from 9 digit to 7 digit)

4-3) Delete country of origin indication

5) Packaging material:

5-1) Tray and the order of devices change

5-2) Addition of bundling band color (Black)

5-3) Emboss tape change

5-4) Reel for emboss taping change

6) Storage condition after opening:

Current product: Amkor Technology Japan: Within 30°C/ 70%RH/ 168h

New product: Powertech Technology Inc., Group: Within 30°C/ 60%RH/ 168h (JEDEC compliant)

- QC flow, fit, electrical characteristics, function, quality and reliability: There is no change.
- Ordering P/N: There are changes. There are changes. For details, please refer to the following pages and the attached difference document.

7) Target P/N: RL78 HWQFN package products. (Some products are not applicable)

Please refer to attached list about the ordering part number.

Due to the change to Cu wire, #U* changes to #2* for tray packed P/N and #W* changes to #4* for embossed taping P/N.

G12 group are integrated into revised P/N that we are guiding in PCN MEPM-AC-15-0009 [*Information about the revised RL78/G12, without restriction on LS (low-speed main) mode*] in February 2016, Technical Update document No.: TN-RL*-A012C/E.

At the same time as this change, we will integrate the P/N for industrial applications.

Examples of the P/N are shown below. Please see the P/N reference table for details.

G12 “Example: 16kB Flash ROM Tray packed P/N”

Current		New
R5F1027AANA#U0/ #U5	→	R5F1027AANA#25
R5F1027ADNA#U0/ #U5	→	R5F1027AGNA#25
R5F1027AGNA#U0/ #U5	→	
R5F1037AANA#U0/ #U5	→	R5F1037AANA#25
R5F1037ADNA#U0/ #U5	→	

G12:

- Integrate into revised P/N
- D-ver. Integrated into G-ver.
- #U0/#U5 → #25: Try packing
- #W0/#W5 → #45: Emboss taping

Expect for G12 “Example: G13 32pin 128kB Flash ROM Emboss taping P/N”

Current		New
R5F100BGANA#W0	→	R5F100BGANA#40
R5F100BGDNA#W0	→	R5F100BGGNA#40
R5F100BGGNA#W0	→	
R5F101BGANA#W0	→	R5F101BGANA#40
R5F101BGDNA#W0	→	

Expect for G12:

- D-ver. Integrated into G-ver.
- #U0 → #20: Try packing
- #W0 → #40: Emboss taping

HWQFN Lineup

The package lineup of the target products is shown below.

Outlie	Pin count	Pitch	G11	G12	G13	G14	G1A	G1C	G1F	G1P	I1D	L12
4x4	24	0.5	√	√	√				√	√ *	√	
5x5	32	0.5			√	√	√	√	√			
6x6	40	0.5			√	√						
7x7	48	0.5			√	√	√	√				
8x8	64	0.4										√

*: Is new release

The sample and mass production timing varies depending on the P/N, so please contact Renesas sales office, distributor or agency.

PLP will be switched to new P/N sequentially. The current P/N will be gradually discontinued after the new model name is released.

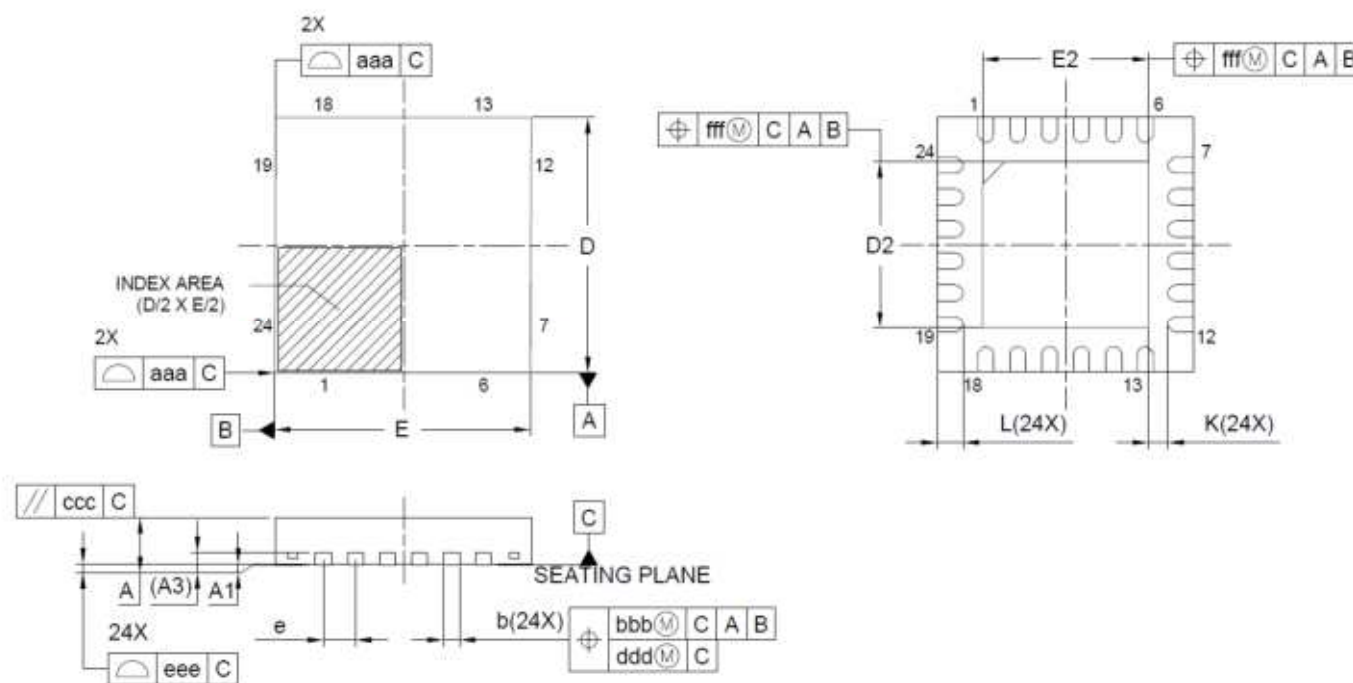
Difference of specification

Item		New	Current	
Assembly factory		PTI_Greatek	ATJ Kumamoto	ATJ Hakodate
Sorting factory		KYEC	ATJ Kumamoto	ATJ Kumamoto
Package	Outline	Refer to page 9 to 26	No change (Refer to page 9 to 24)	No change (Refer to page 12 to 15)
Parts	Lead frame	Refer to page 27	No change (Refer to page 27)	No change (Refer to page 27)
	Die mount	Ag epoxy paste C	Ag epoxy paste A	Ag epoxy paste B
	Bonding wire	Cu (Pd coating)	Au	Cu (Pd coating)
	Mold resin	Mold resin C	Epoxy resin A	Epoxy resin B
Marking	Font	Refer to page 28 to 29	No change (Refer to page 28)	No change (Refer to page 29)
	Manufacturing lot number	7 digits	9 digits	9 digits
	Country of origin indication	No indication	Indicated	No Indication
Packing	Tray	Refer to page 31 to 35	No change (Refer to page 31 to 35)	-
	bundling band color	Add Black	There are multiple colors	-
	Emboss tape	Refer to page 36 to 40	No change (Refer to page 36 to 40)	No change (Refer to page 37)
Storage condition	After opening	Within 30°C/ 60%RH/ 168h	Within 30°C/ 70%RH/ 168h	Within 30°C/ 70%RH/ 168h
Ordering P/N		R5F10*NA#2* / #4*	R5F10*NA#U* / #W*	R5F11BB*ANA#40

*: is indicate a unique character.

4x4mm 24pin HWQFN package drawing (New)

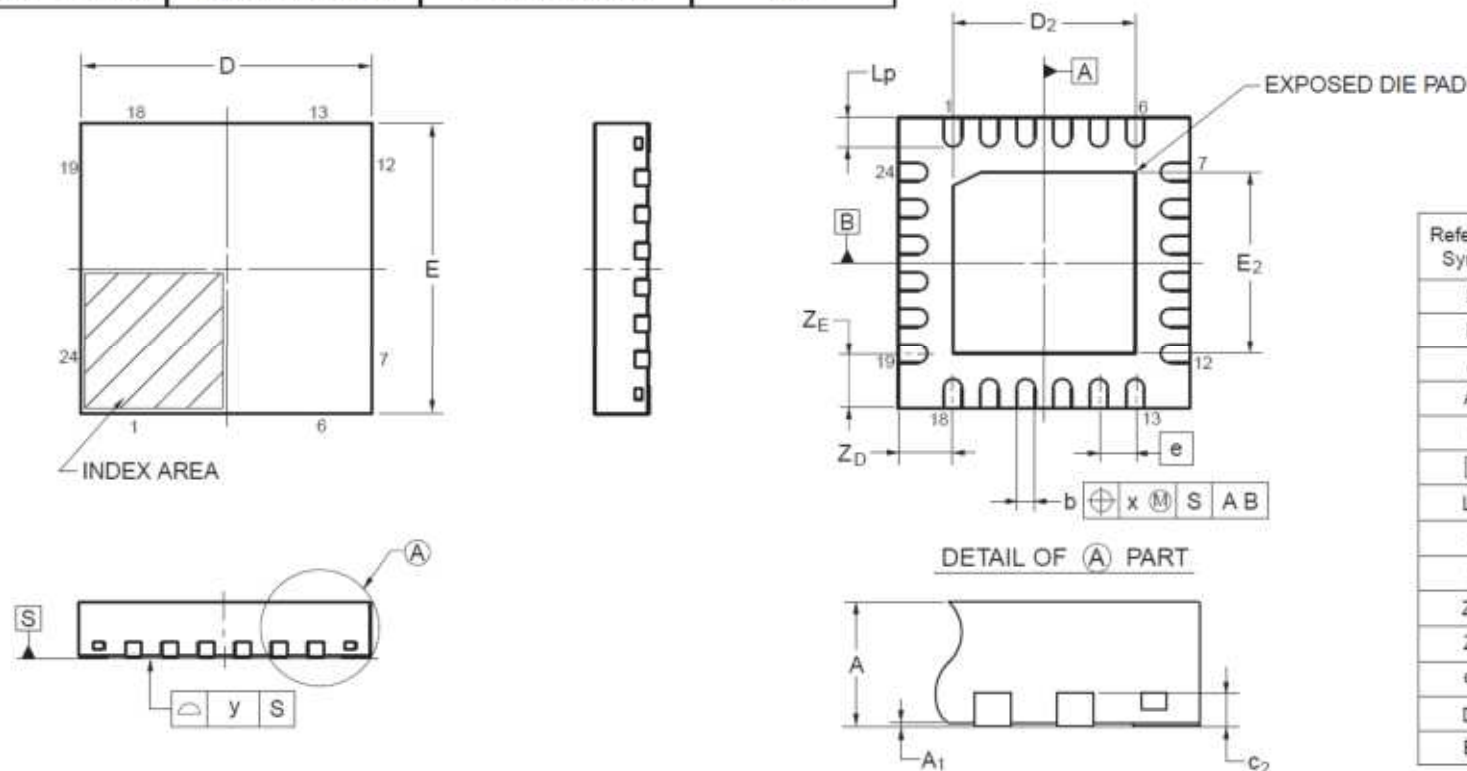
JEITA Package code	RENESAS code	MASS(TYP.)[g]
P-HWQFN024-4x4-0.50	PWQN0024KF-A	0.04



Reference Symbol	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		

4x4mm 24pin HWQFN package drawing (Current)

JEITA Package code	RENESAS code	Previous code	MASS(TYP.)[g]
P-HWQFN24-4x4-0.50	PWQN0024KE-A	P24KB-50-CAB-3	0.04



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	3.95	4.00	4.05
E	3.95	4.00	4.05
A	—	—	0.80
A ₁	0.00	—	—
b	0.18	0.25	0.30
e	—	0.50	—
Lp	0.30	0.40	0.50
x	—	—	0.05
y	—	—	0.05
Z ₀	—	0.75	—
Z _E	—	0.75	—
c ₂	0.15	0.20	0.25
D ₂	—	2.50	—
E ₂	—	2.50	—

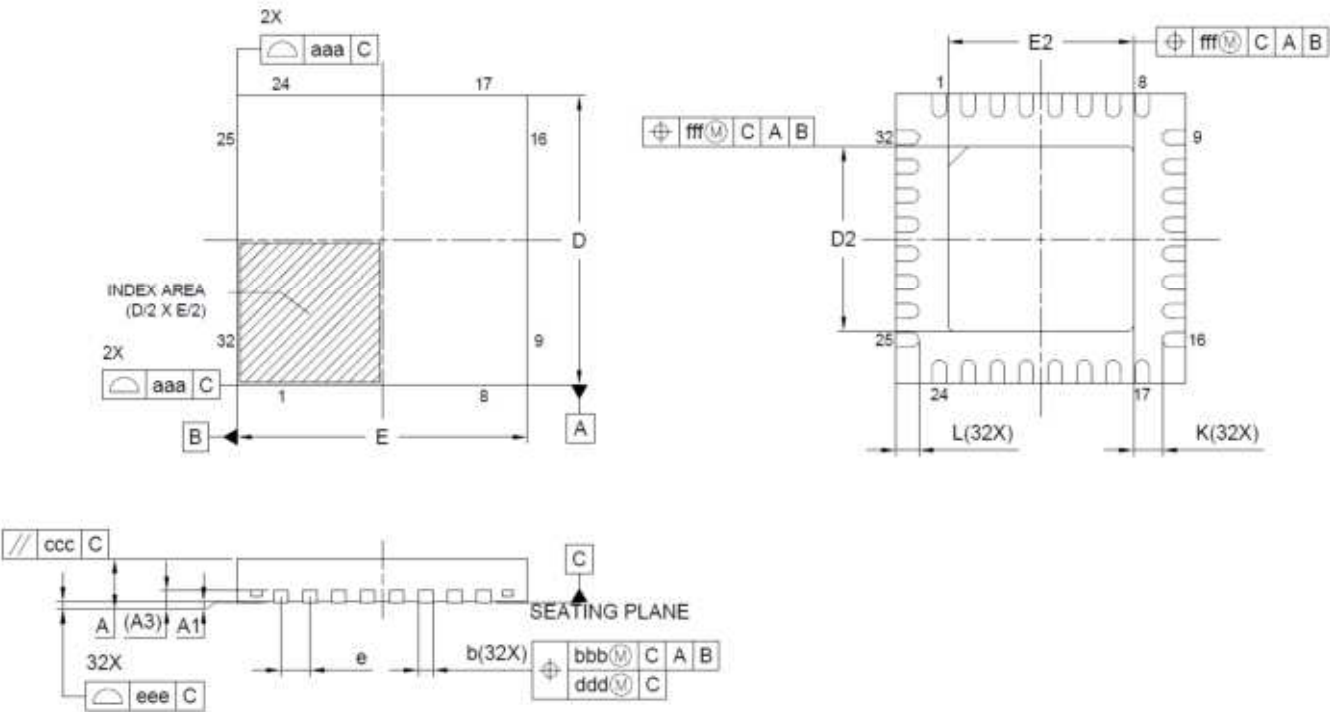
Dimension comparison: 4x4mm 24pin HWQFN package

JEDEC notation will be used instead of the conventional notation.

New Symbol	6x6mm 40pin HWQFN			Current Symbol	6x6mm 40pin HWQFN		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	0.80	A	-	-	0.80
A1	0.00	0.02	0.05	A1	0.00	-	-
A3	0.203 REF.			C2	0.15	0.20	0.25
b	0.18	0.25	0.30	b	0.18	0.25	0.30
D	4.00 BSC			E	3.95	4.00	4.05
E	4.00 BSC			D	3.95	4.00	4.05
e	0.50 BSC			e	-	0.50	-
L	0.35	0.40	0.45	Lp	0.30	0.40	0.50
K	0.20	-	-	-	-	-	-
D2	2.55	2.60	2.65	E2	-	2.50	-
E2	2.55	2.60	2.65	D2	-	2.50	-
-	-	-	-	ZD	-	0.75	-
-	-	-	-	ZE	-	0.75	-
aaa	0.15			-	-	-	-
bbb	0.10			x	-	-	0.05
ccc	0.10			-	-	-	-
ddd	0.05			-	-	-	-
eee	0.08			y	-	-	0.05
fff	0.10			-	-	-	-

5x5mm 32pin HWQFN package drawing (New)

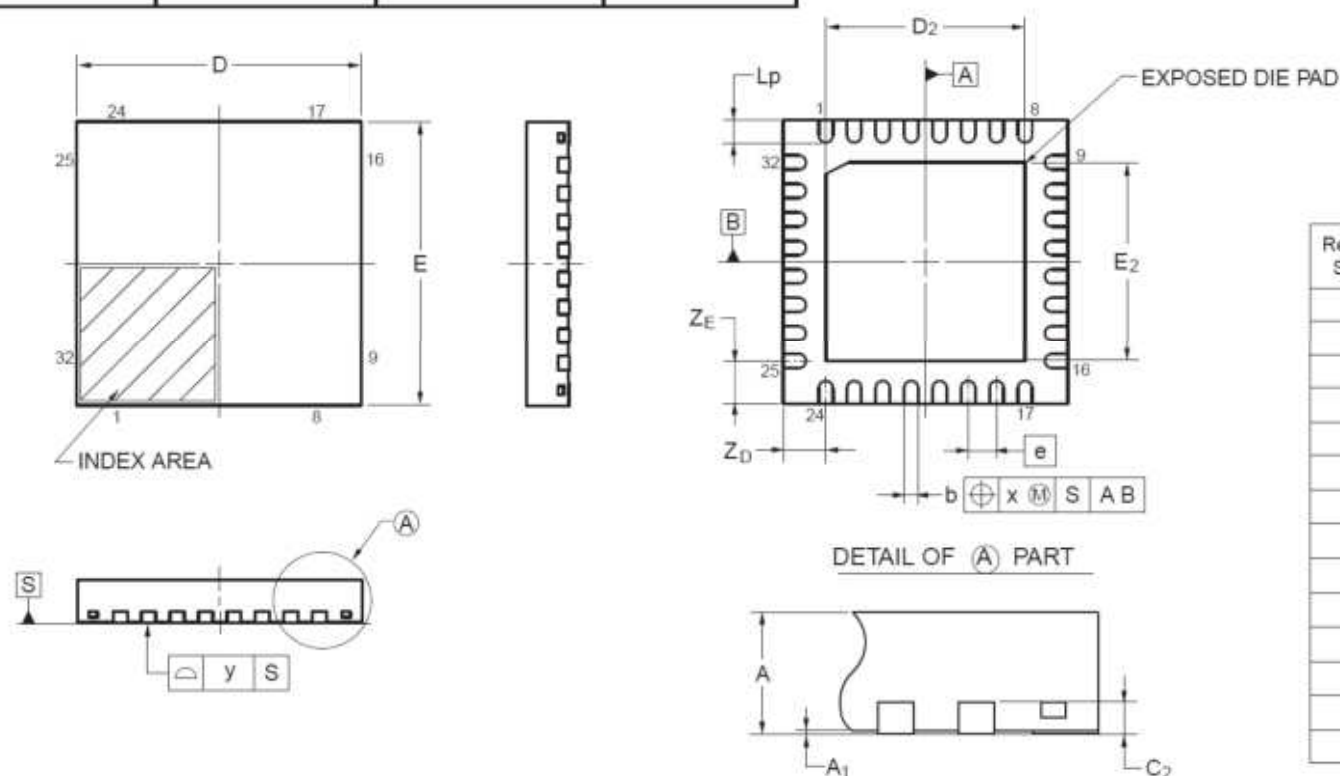
JEITA Package code	RENESAS code	MASS(TYP.)[g]
P-HWQFN032-5x5-0.50	PWQN0032KE-A	0.06



Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	0.80
A ₁	0.00	0.02	0.05
A ₂	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	—	—
D ₂	3.15	3.20	3.25
E ₂	3.15	3.20	3.25
aaa	0.15		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		
fff	0.10		

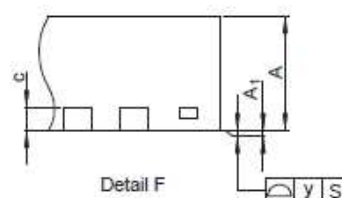
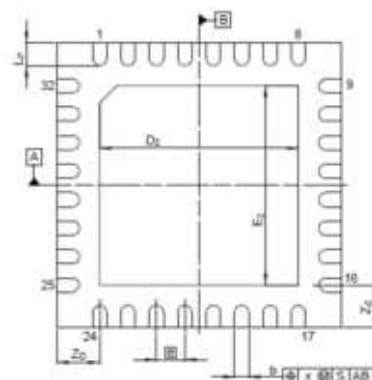
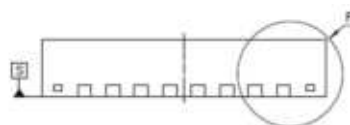
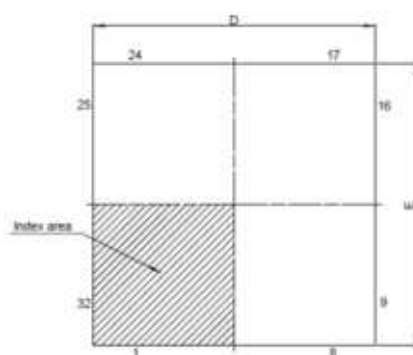
5x5mm 32pin HWQFN package drawing (Current: ATJ Kumamoto)

JEITA Package code	RENESAS code	Previous code	MASS (TYP.)[g]
P-HWQFN32-5x5-0.50	PWQN0032KB-A	P32K8-50-3B4-5	0.06



5x5mm 32pin HVQFN package drawing (Current: ATJ Hakodate)

JEITA Package Code	RENESAS Code	Previous Code	MASS (Typ) [g]
P-HVQFN32-5x5-0.50	PVQN0032KF-A	—	0.05



Reference Symbol	Dimensions in millimeters		
	Min	Nom	Max
D	4.90	5.00	5.10
E	4.90	5.00	5.10
A	—	—	1.00
A ₁	0.00	—	—
b	0.20	0.25	0.30
e	—	0.50	—
L _P	0.30	0.40	0.50
x	—	—	0.05
y	—	—	0.05
Z _D	—	0.75	—
Z _E	—	0.75	—
c	—	0.20	—
D ₂	—	3.50	—
E ₂	—	3.50	—

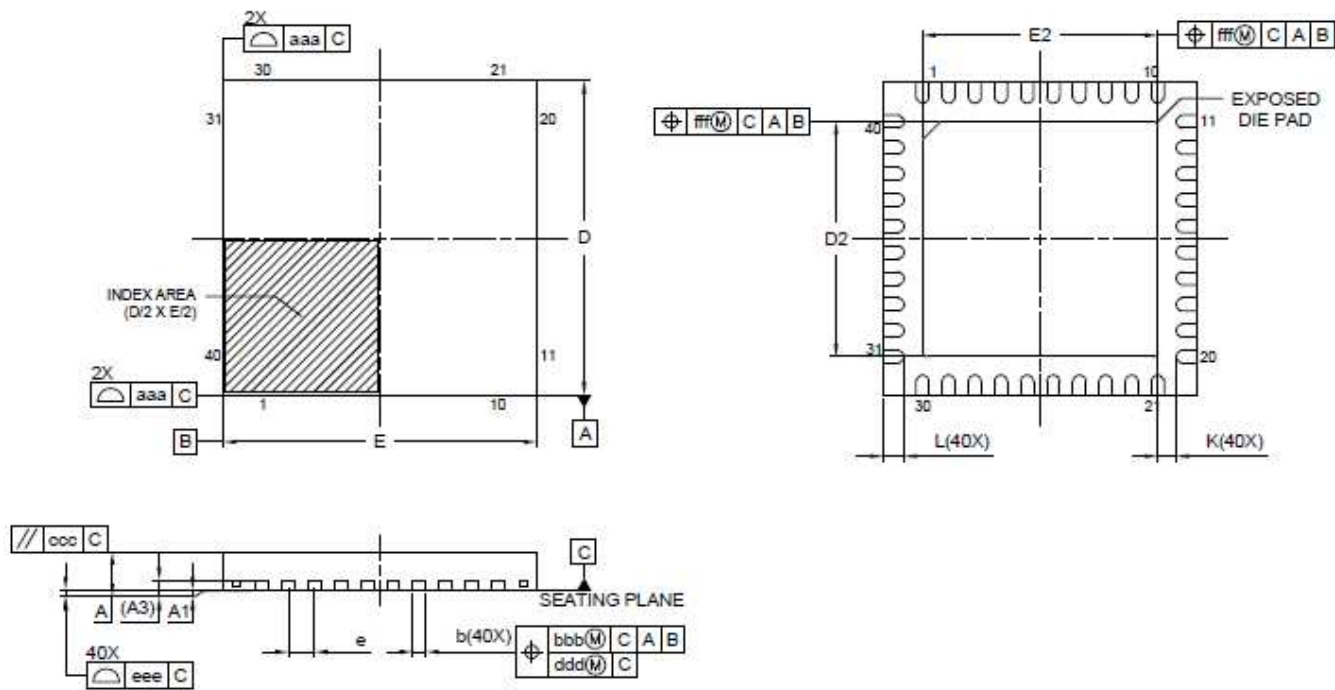
Dimension comparison: 5x5mm 32pin HWQFN package

JEDEC notation will be used instead of the conventional notation.

New Symbol	5x5mm 32pin HWQFN PWQN0032KE-A			Current Symbol	Kumamoto : 5x5mm 32pin HWQFN PWQN0032KB-A			Hakodate : 5x5mm 32pin HVQFN PVQN0032KF-A		
	Dimension in Millimeters				Dimension in Millimeters			Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max	Min	Nom	Max
A	-	-	0.80	A	-	-	0.80	-	-	1.00
A1	0.00	0.02	0.05	A1	0.00	-	-	0.00	-	-
A3	0.203 REF.			C2	0.15	0.20	0.25	-	0.20	-
b	0.18	0.25	0.30	b	0.18	0.25	0.30	0.20	0.25	0.30
D	5.00 BSC			E	4.95	5.00	5.05	4.90	5.00	5.10
E	5.00 BSC			D	4.95	5.00	5.05	4.90	5.00	5.10
e	0.50 BSC			e	-	0.50	-	-	0.50	-
L	0.35	0.40	0.45	Lp	0.30	0.40	0.50	0.30	0.40	0.50
K	0.20	-	-	-	-	-	-	-	-	-
D2	3.15	3.20	3.25	E2	-	3.50	-	-	3.50	-
E2	3.15	3.20	3.25	D2	-	3.50	-	-	3.50	-
-	-	-	-	ZD	-	0.75	-	-	0.75	-
-	-	-	-	ZE	-	0.75	-	-	0.75	-
aaa	0.15			-	-	-	-	-	-	-
bbb	0.10			x	-	-	0.05	-	-	0.05
ccc	0.10			-	-	-	-	-	-	-
ddd	0.05			-	-	-	-	-	-	-
eee	0.08			y	-	-	0.05	-	-	0.05
fff	0.10			-	-	-	-	-	-	-

6x6mm 40pin HWQFN package drawing (New)

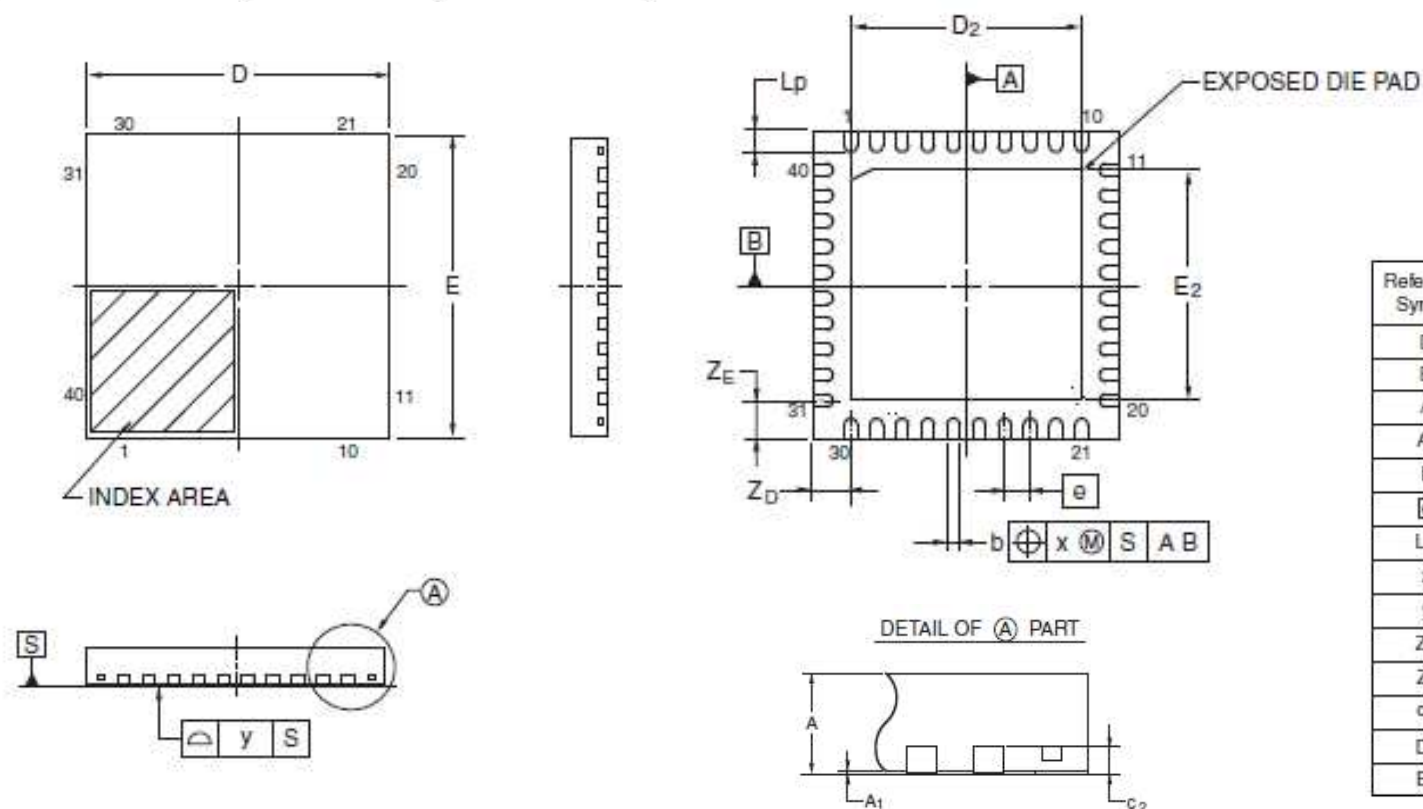
JEITA Package code	RENESAS code	MASS(TYP.)[g]
P-HWQFN040-6x6-0.50	PWQN0040KD-A	0.08



Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	0.80
A ₁	0.00	0.02	0.05
A ₂	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		

6x6mm 40pin HWQFN package drawing (Current)

JEITA Package code	RENESAS code	Previous code	MASS(TYP.)(g)
P-HWQFN40-6x6-0.50	PWQN0040KC-A	P40K8-50-4B4-5	0.09



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	5.95	6.00	6.05
E	5.95	6.00	6.05
A	—	—	0.80
A ₁	0.00	—	—
b	0.18	0.25	0.30
e	—	0.50	—
Lp	0.30	0.40	0.50
x	—	—	0.05
y	—	—	0.05
Z _D	—	0.75	—
Z _E	—	0.75	—
c ₂	0.15	0.20	0.25
D ₂	—	4.50	—
E ₂	—	4.50	—

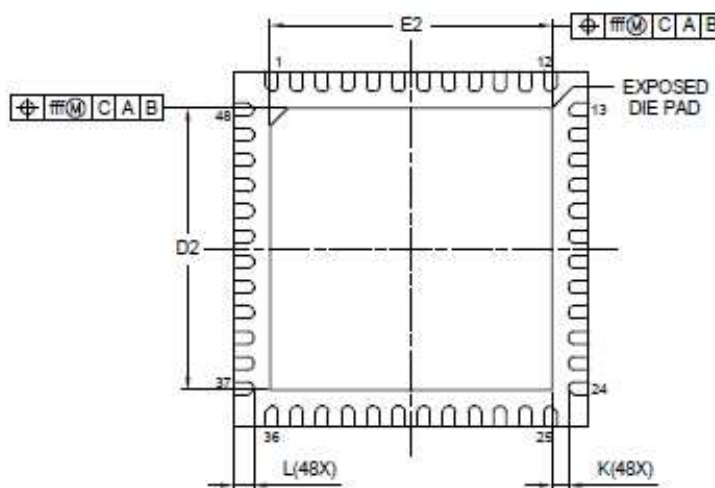
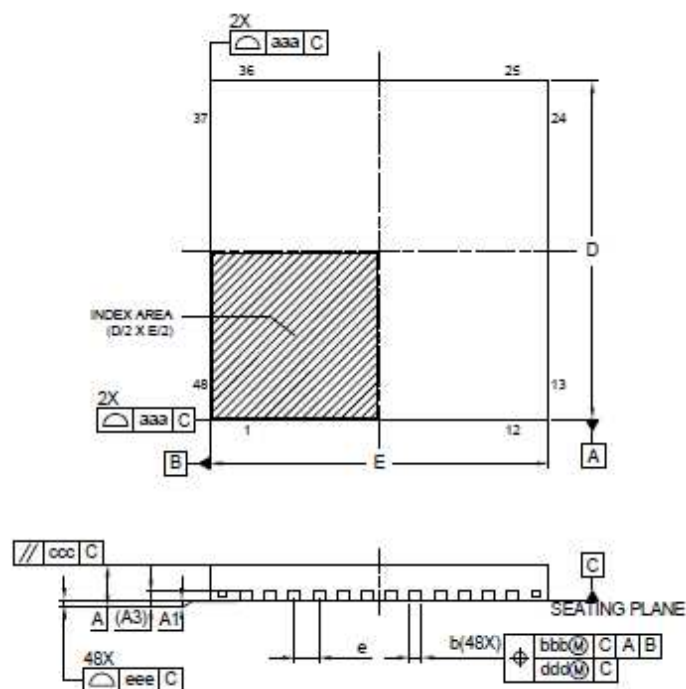
Dimension comparison: 6x6mm 40pin HWQFN package

JEDEC notation will be used instead of the conventional notation.

New Symbol	6x6mm 40pin HWQFN			Current Symbol	6x6mm 40pin HWQFN		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	0.80	A	-	-	0.80
A1	0.00	0.02	0.05	A1	0.00	-	-
A3	0.203 REF.			C2	0.15	0.20	0.25
b	0.18	0.25	0.30	b	0.18	0.25	0.30
D	6.00 BSC			E	5.95	6.00	6.05
E	6.00 BSC			D	5.95	6.00	6.05
e	0.50 BSC			e	-	0.50	-
L	0.30	0.40	0.50	Lp	0.30	0.40	0.50
K	0.20	-	-	-	-	-	-
D2	4.45	4.50	4.55	E2	-	4.50	-
E2	4.45	4.50	4.55	D2	-	4.50	-
-	-	-	-	ZD	-	0.75	-
-	-	-	-	ZE	-	0.75	-
aaa	0.15			-	-	-	-
bbb	0.10			x	-	-	0.05
ccc	0.10			-	-	-	-
ddd	0.05			-	-	-	-
eee	0.08			y	-	-	0.05
fff	0.10			-	-	-	-

7x7mm 48pin HWQFN package drawing (New)

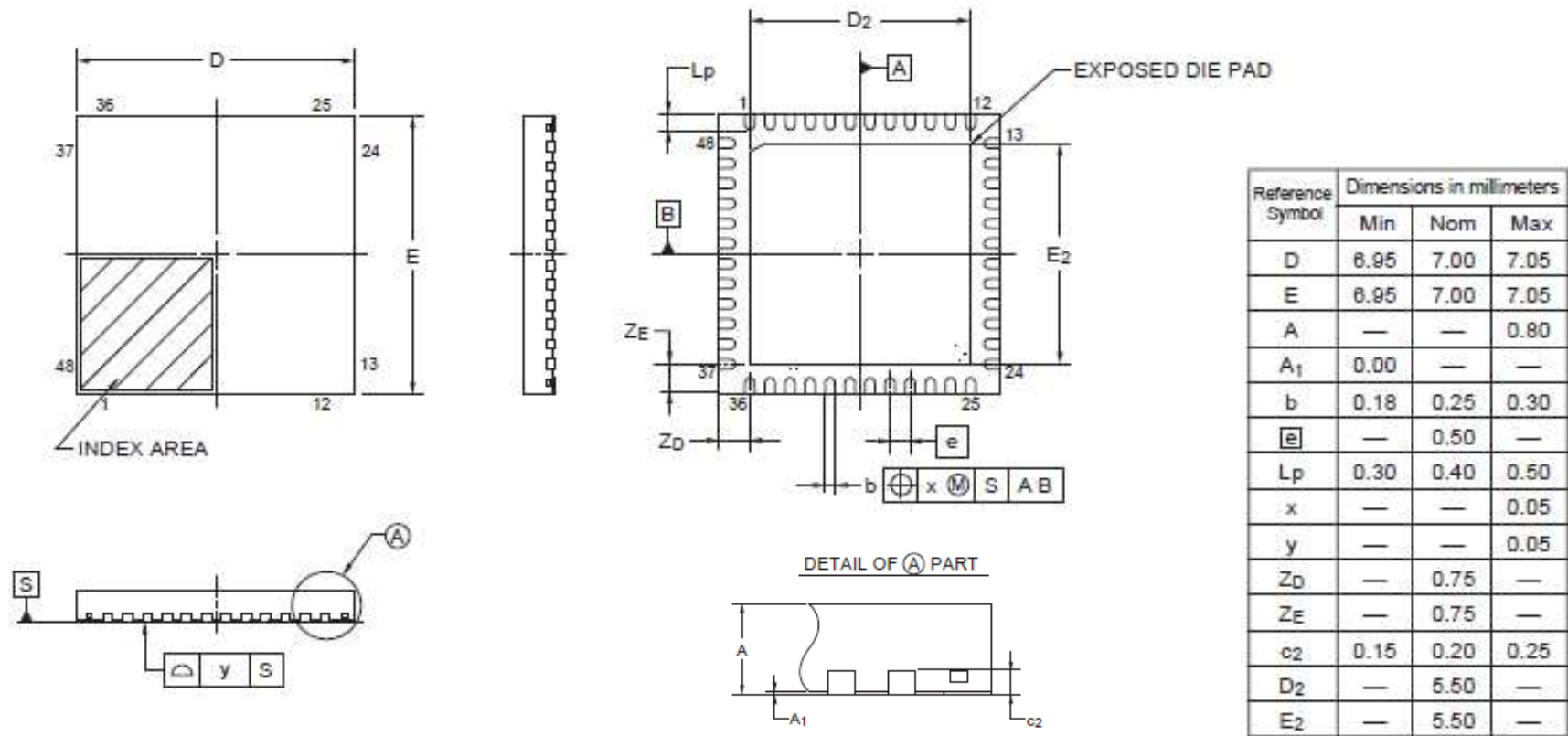
JEITA Package code	RENESAS code	MASS(TYP.)[g]
P-HWQFN048-7x7-0.50	PWQN0048KE-A	0.13



Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
A	—	—	0.80
A ₁	0.00	0.02	0.05
A ₂	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 ₁	5.50	5.55	5.60
E ₁	5.50	5.55	5.60
aaa	0.15		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		
fff	0.10		

7x7mm 48pin HWQFN package drawing (Current)

JEITA Package Code	RENESAS Code	Previous Code	MASS (Typ) [g]
P-HWQFN48-7x7-0.50	PWQN0048KB-A	48PJN-A P48K8-50-5B4-7	0.13



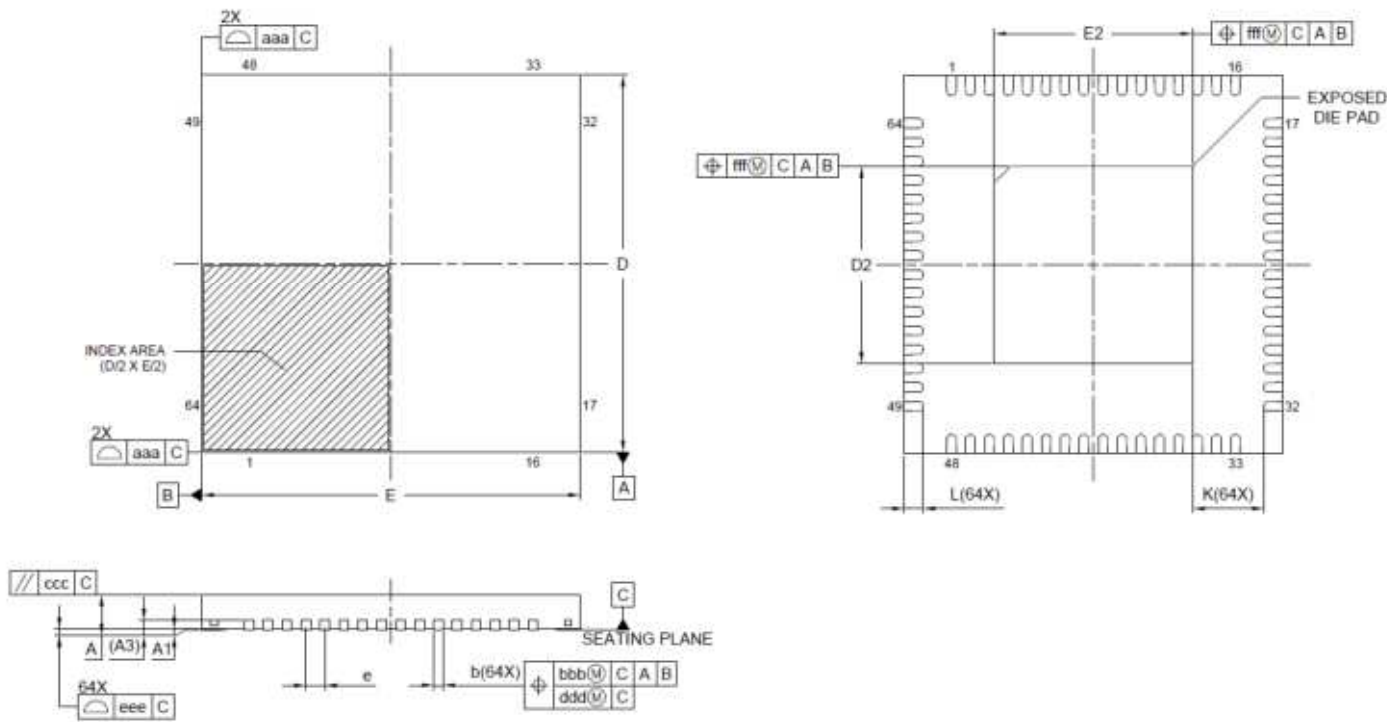
Dimension comparison: 7x7mm 48pin HWQFN package

JEDEC notation will be used instead of the conventional notation.

New Symbol	7x7mm 48pin HWQFN			Current Symbol	7x7mm 48pin HWQFN		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	0.80	A	-	-	0.80
A1	0.00	0.02	0.05	A1	0.00	-	-
A3	0.203 REF.			C2	0.15	0.20	0.25
b	0.20	0.25	0.30	b	0.18	0.25	0.30
D	7.00 BSC			E	6.95	7.00	7.05
E	7.00 BSC			D	6.95	7.00	7.05
e	0.50 BSC			e	-	0.50	-
L	0.30	0.40	0.50	Lp	0.30	0.40	0.50
K	0.20	-	-	-	-	-	-
D2	5.50	5.55	5.60	E2	-	5.50	-
E2	5.50	5.55	5.60	D2	-	5.50	-
-	-	-	-	ZD	-	0.75	-
-	-	-	-	ZE	-	0.75	-
aaa	0.15			-	-	-	-
bbb	0.10			x	-	-	0.05
ccc	0.10			-	-	-	-
ddd	0.05			-	-	-	-
eee	0.08			y	-	-	0.05
fff	0.10			-	-	-	-

8x8mm 64pin HWQFN package drawing (New)

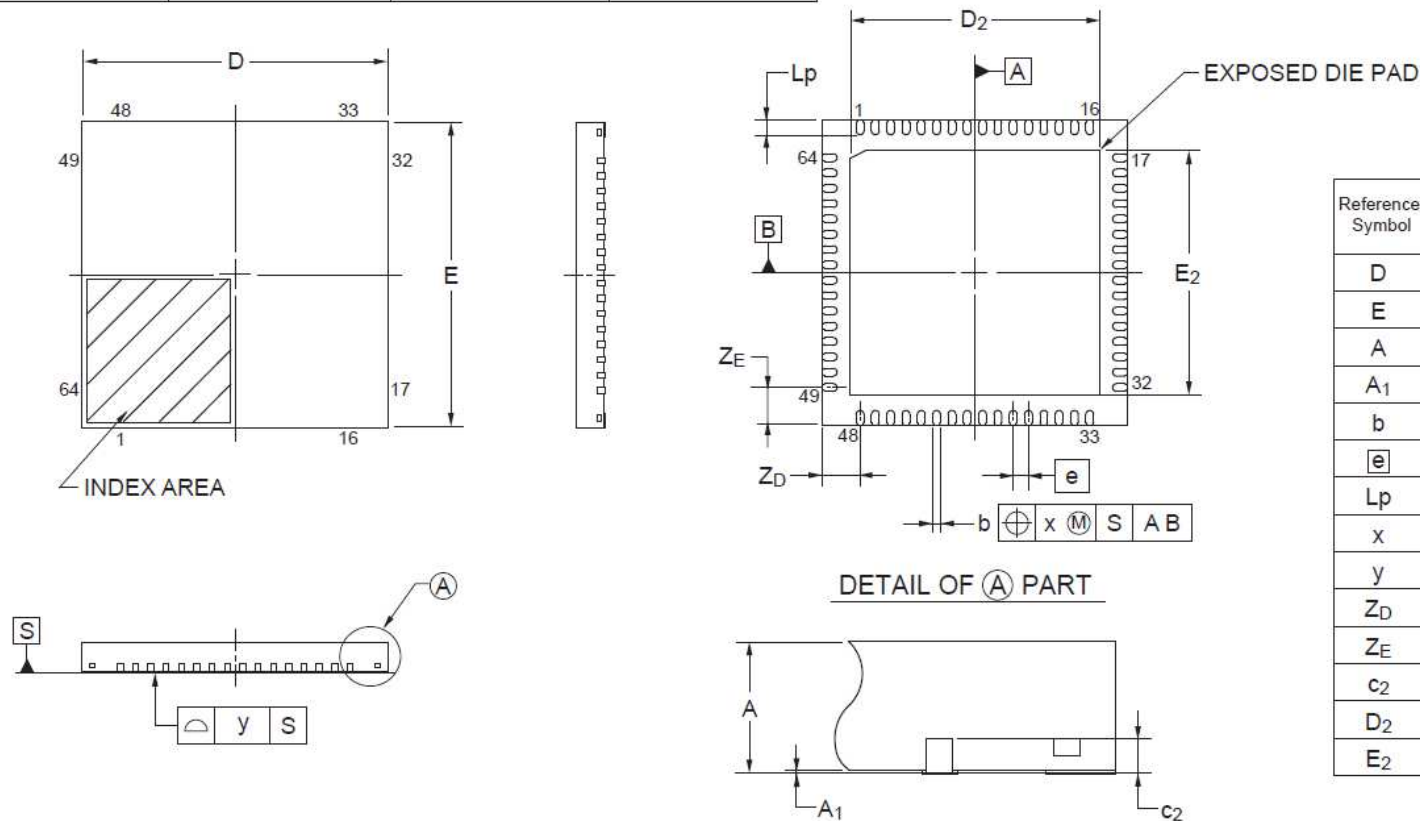
JEITA Package code	RENESAS code	MASS(TYP.)[g]
P-HWQFN064-8x8-0.40	PWQN0064LB-A	0.18



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	0.15	0.20	0.25
D	8.00 BSC		
E	8.00 BSC		
e	0.40 BSC		
L	0.35	0.40	0.45
K	0.20	—	—
D ₂	4.15	4.20	4.25
E ₂	4.15	4.20	4.25
aaa	0.10		
bbb	0.07		
ccc	0.10		
ddd	0.05		
eee	0.08		
fff	0.10		

8x8mm 64pin HWQFN package drawing (Current)

JEITA Package Code	RENESAS Code	Previous Code	MASS (Typ) [g]
P-HWQFN64-8x8-0.40	PWQN0064LA-A	P64K8-40-9B5-4	0.16



Dimension comparison: 8x8mm 64pin HWQFN package

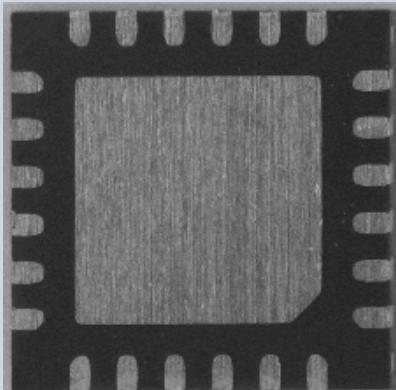
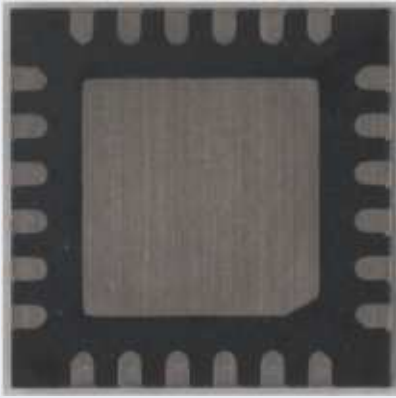
JEDEC notation will be used instead of the conventional notation.

New Symbol	8x8mm 64pin HWQFN PWQN0064??-A			Current Symbol	8x8mm 64pin HWQFN PWQN0064LA-A		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	0.80	A	-	-	0.80
A1	0.00	0.02	0.05	A1	0.00	-	-
A3	0.203 REF.			C2	0.15	0.20	0.25
b	0.20	0.25	0.30	b	0.18	0.25	0.30
D	8.00 BSC			E	7.95	8.00	8.05
E	8.00 BSC			D	7.95	8.00	8.05
e	0.40 BSC			e	-	0.40	-
L	0.30	0.40	0.50	Lp	0.30	0.40	0.50
K	0.20	-	-	-	-	-	-
D2	4.15	4.20	4.25	E2	-	6.50	-
E2	4.15	4.20	4.25	D2	-	6.50	-
-	-	-	-	ZD	-	1.00	-
-	-	-	-	ZE	-	1.00	-
aaa	0.10			-	-	-	-
bbb	0.07			x	-	-	0.05
ccc	0.10			-	-	-	-
ddd	0.05			-	-	-	-
eee	0.08			y	-	-	0.05
fff	0.10			-	-	-	-

Appearance

Comparison with ATJ Kumamoto

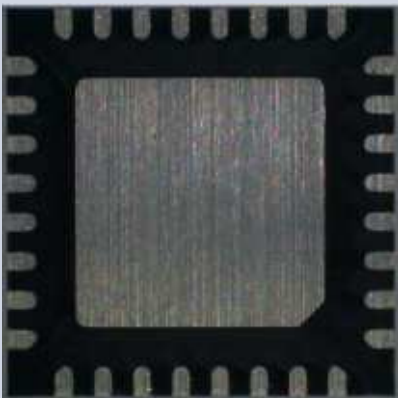
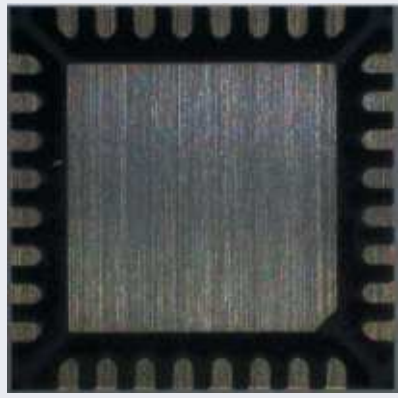
※Example of 4x4mm 24pin
Character is reference example

	Package surface	Package back	Package side
New			
Current			

Appearance

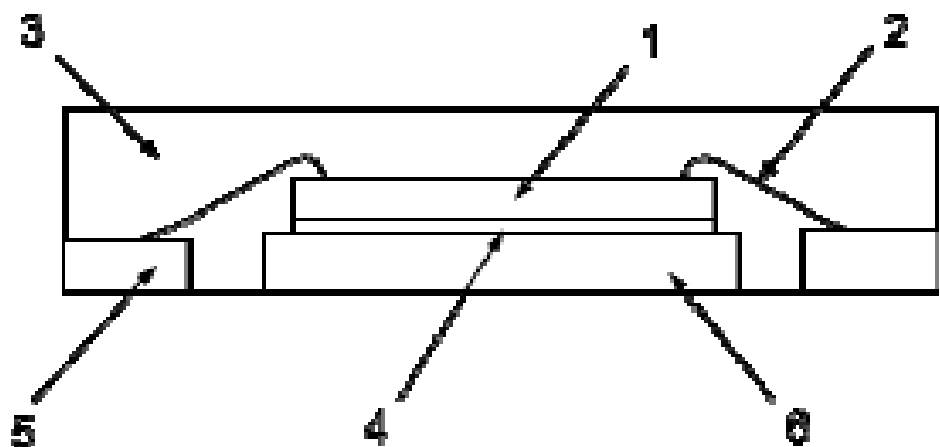
Comparison with ATJ Hakodate

※Example of 5x5mm 32pin
Character is reference example

	Package surface	Package back	Package side
New			
Current			

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

Comparison with ATJ Kumamoto

※Character is reference example

Assembly site	New	Current
Whole Photo		
Detail Photo		

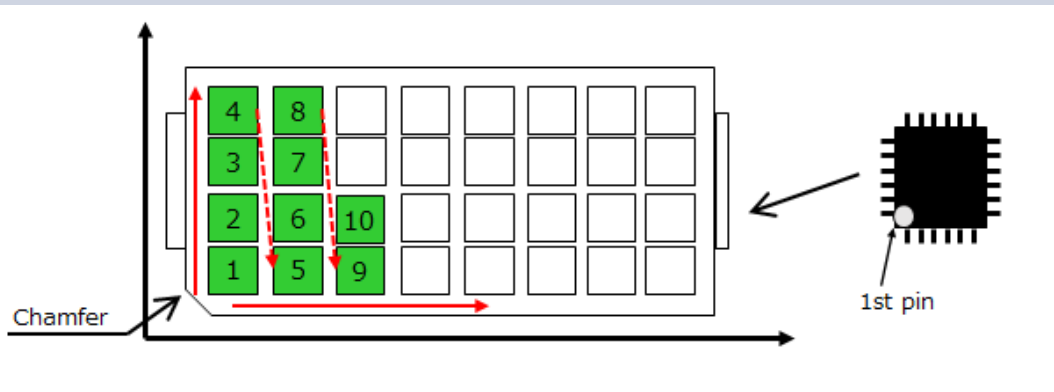
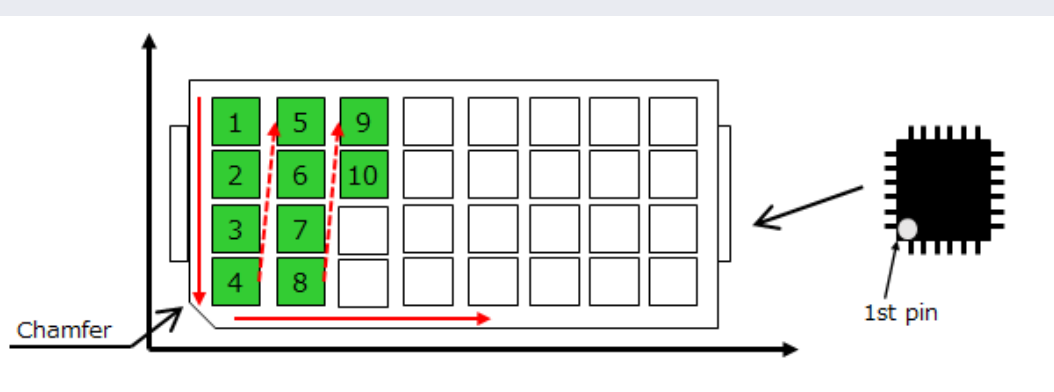
LASER VISIBILITY

Comparison with ATJ Hakodate

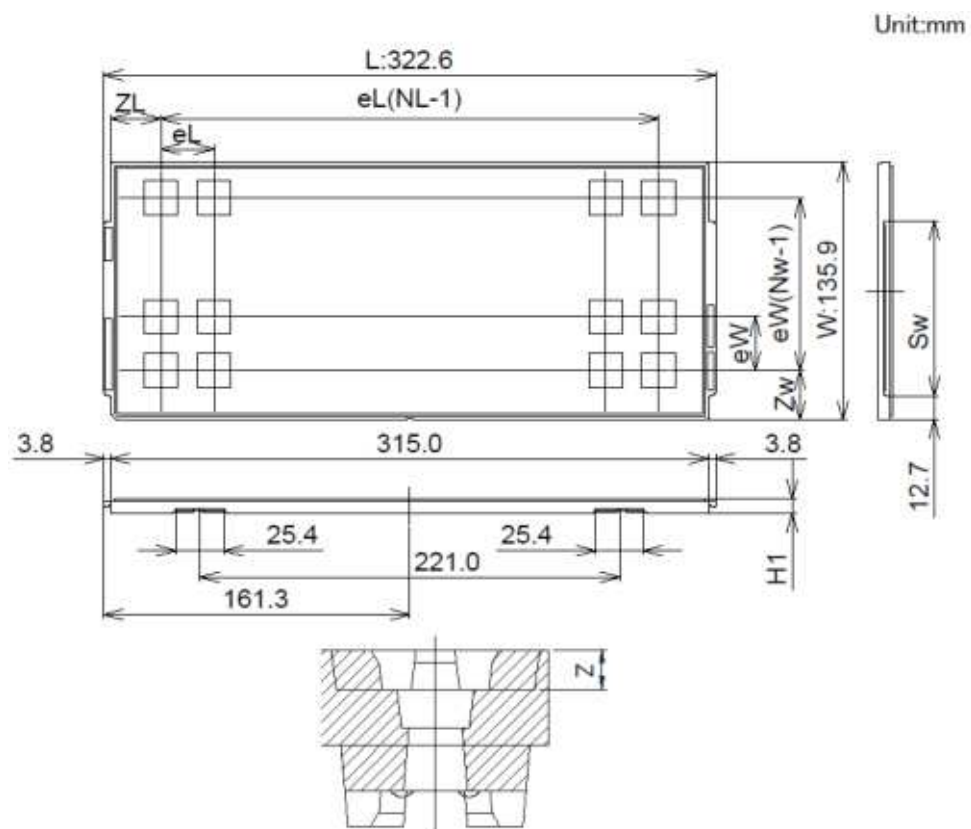
※Character is reference example

Assembly site	New	Current
Whole Photo		
Detail Photo		

Packing specifications (tray)_Tray order

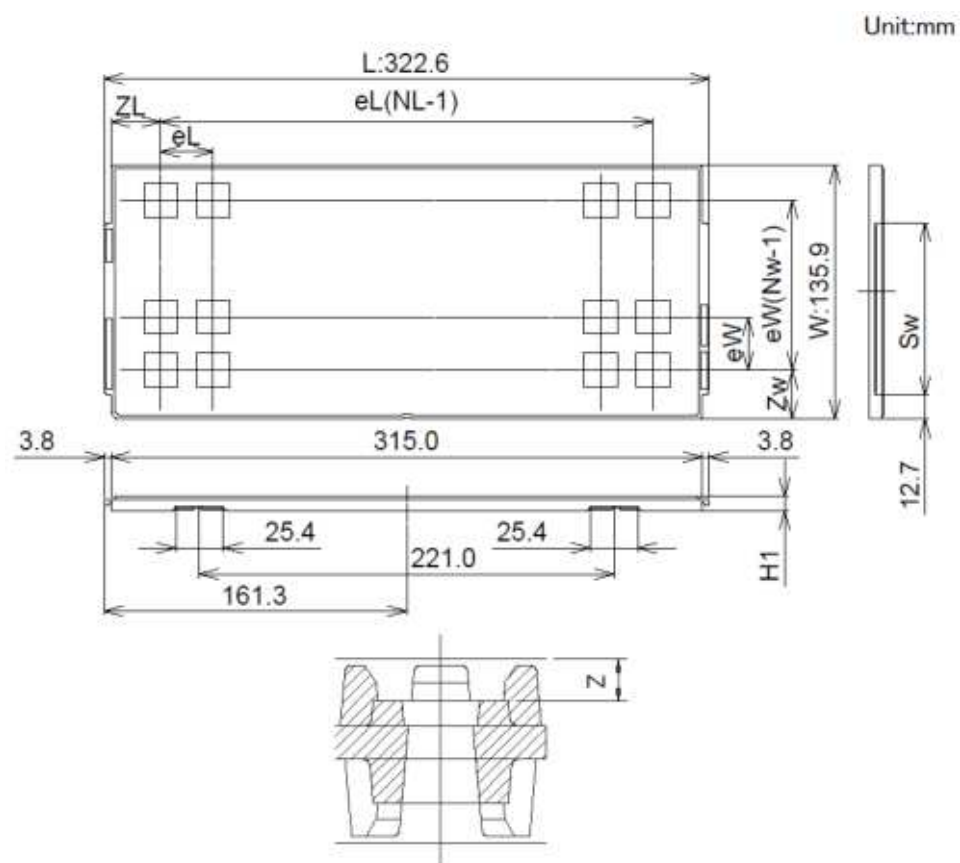
Assembly site	Order of Devices
New	
Current	

PACKING SPECIFICATION (TRAY)_4mm×4mm 24pin HWQFN



Tray Code		New	Current
		EAM040401-10	QJ-041 Rev.A
Position dimension of cells	Z	1.55	1.425
	Zw	8.15	8.15
	ZL	7.90	7.90
	eW	9.20	9.20
	eL	8.80	8.80
	Sw	92.10	92.10
Thickness (mm)	H1	7.62	7.62
Number of cells	Nw	14	14
	NL	35	35
Maximum storage pcs IC/Tray		490	490
Maximum storage pcs IC/Inner box		3920	3920
Material		Carbon PPE	Carbon PPE
Heat resistant temperature		135°C MAX	135°C MAX
JEDEC or Custom		JEDEC	JEDEC
Surface resistance		Less than $1 \times 10^{11} \Omega/\square$	Less than $1 \times 10^{11} \Omega/\square$

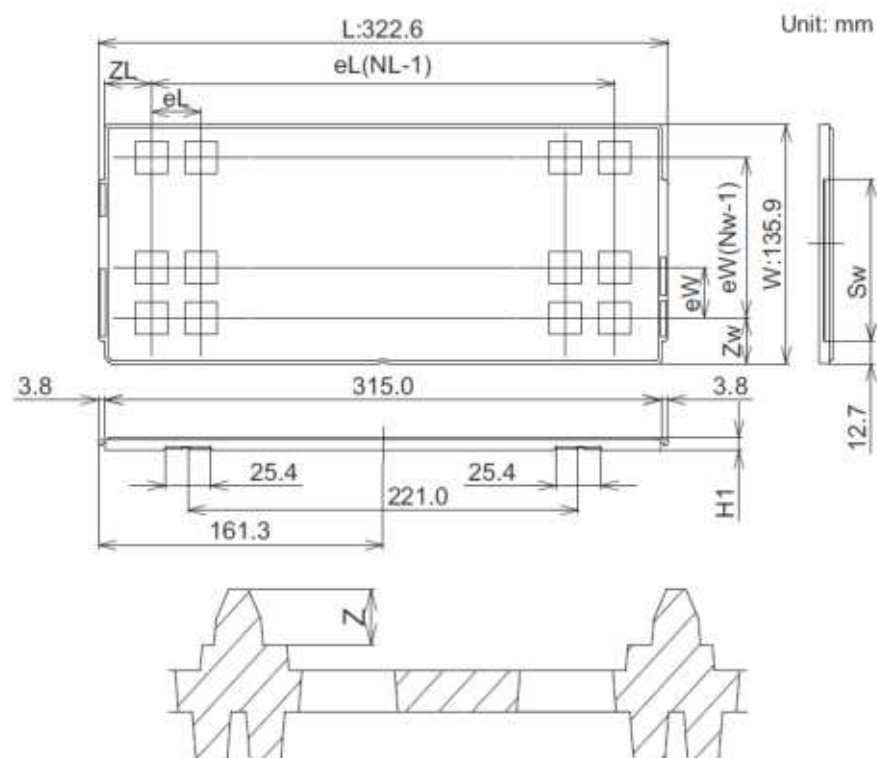
PACKING SPECIFICATION (TRAY)_5mm×5mm 32pin HWQFN



Tray Code		New	Current
		EAM050501-10	Rev.B EAM050503-10
Position dimension of cells	Z	1.75	1.50
	Zw	8.15	8.15
	ZL	7.90	7.90
	eW	9.20	9.20
	eL	8.80	8.80
	Sw	92.10	92.10
Thickness (mm)	H1	7.62	7.62
Number of cells	Nw	14	14
	NL	35	35
Maximum storage pcs IC/Tray		490	490
Maximum storage pcs IC/Inner box		3920	3920
Material		Carbon PPE	Carbon PPE
Heat resistant temperature		135°C MAX	135°C MAX
JEDEC or Custom		JEDEC	JEDEC
Surface resistance		Less than $1 \times 10^{11} \Omega/\square$	Less than $1 \times 10^{11} \Omega/\square$

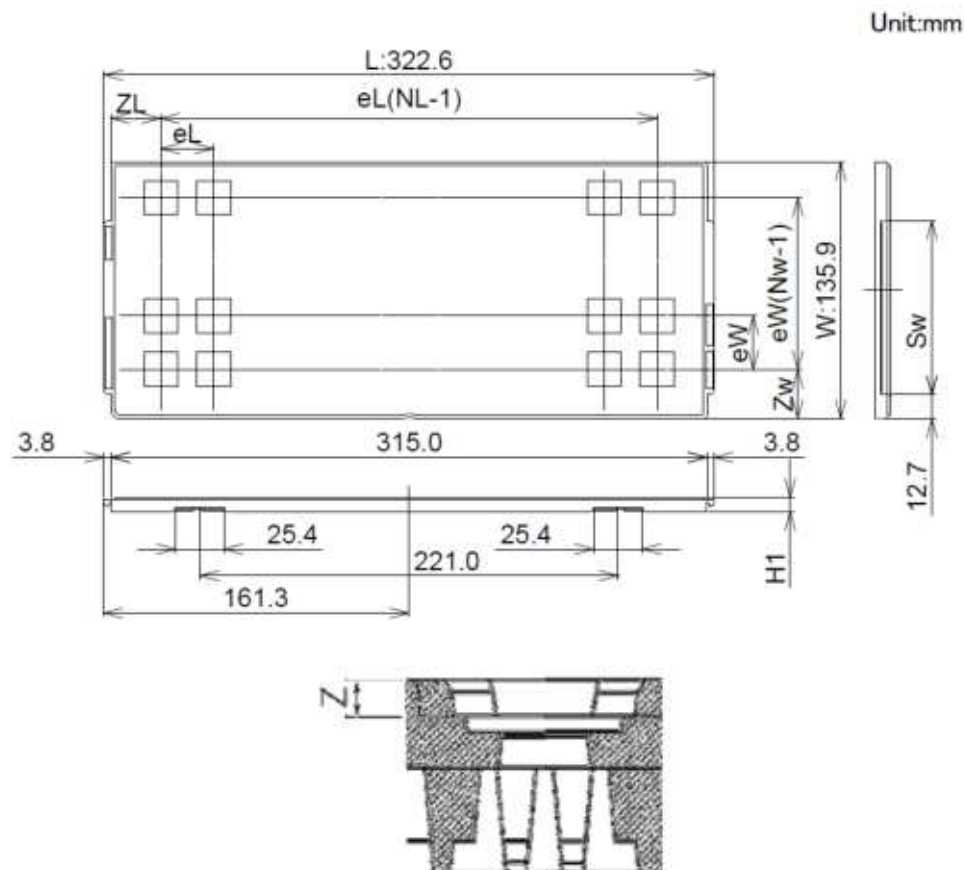
PACKING SPECIFICATION (TRAY)_6mm×6mm 40pin HWQFN

No change from current product



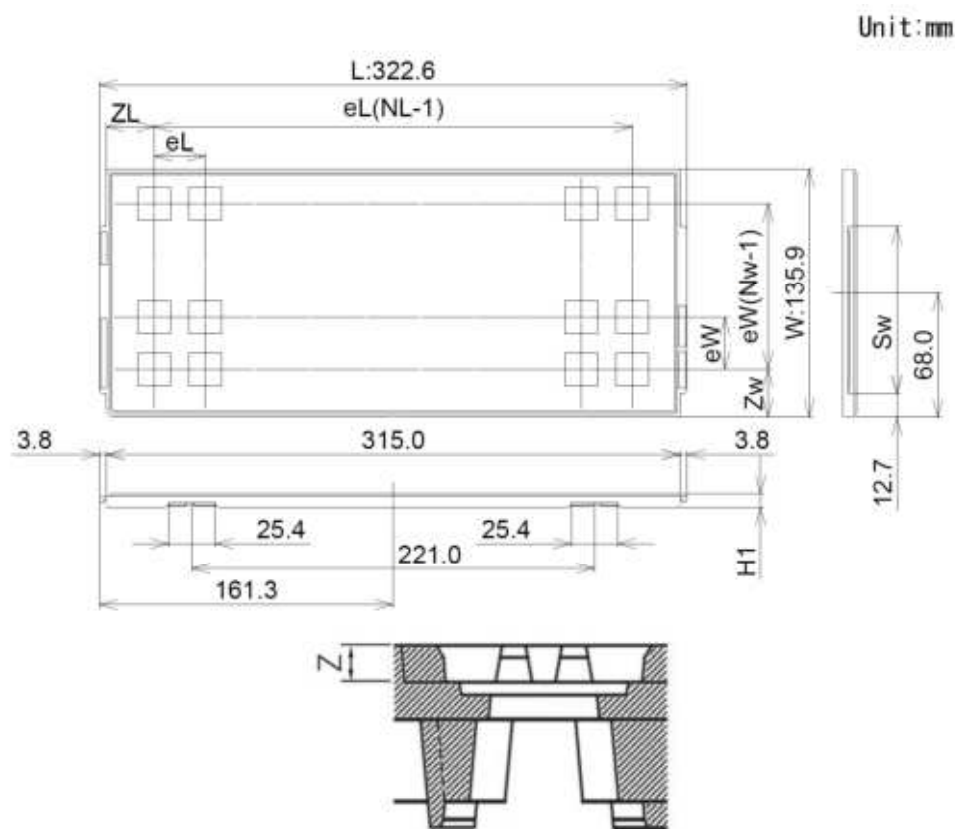
Tray Code		Current / New
		EAM0606-10 Rev.C
Position dimension of cells	Z	1.35
	Zw	8.15
	ZL	7.90
	eW	9.20
	eL	8.80
	Sw	92.10
Thickness (mm)	H1	7.62
Number of cells	Nw	14
	NL	35
Maximum storage pcs IC/Tray		490
Maximum storage pcs IC/Inner box		3920
Material		Carbon PPE
Heat resistant temperature		135°C MAX
JEDECorCustom		JEDEC
Surface resistance		Less than $1 \times 10^{11} \Omega/\square$

PACKING SPECIFICATION (TRAY)_7mm×7mm 48pin HWQFN



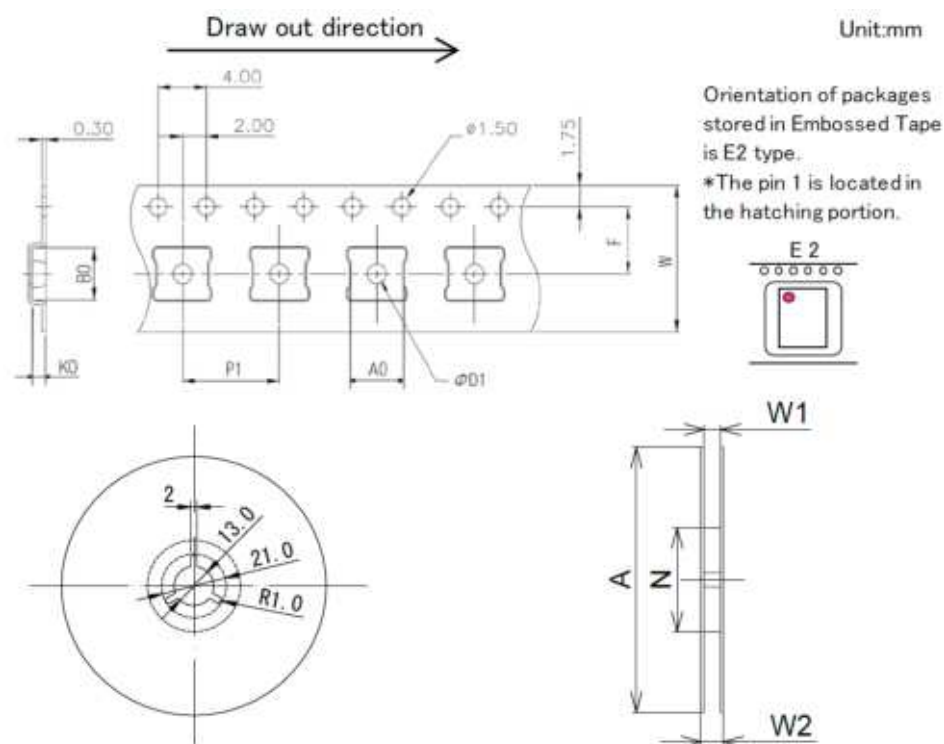
Tray Code		New	Current
		REV.C EAG0707-10	Rev.A EAM0707-10
Position dimension of cells	Z	1.40	1.55
	Zw	11.55	10.35
	ZL	11.80	10.00
	eW	9.40	12.80
	eL	9.40	11.80
	Sw	92.10	92.10
Thickness (mm)	H1	7.62	7.62
Number of cells	Nw	13	10
	NL	32	26
Maximum storage pcs IC/Tray		416	260
Maximum storage pcs IC/Inner box		3328	2080
Material		Carbon PPE	Carbon PPE
Heat resistant temperature		135°C MAX	135°C MAX
JEDEC or Custom		JEDEC	JEDEC
Surface resistance		Less than $1 \times 10^{11} \Omega/\square$	Less than $1 \times 10^{11} \Omega/\square$

PACKING SPECIFICATION (TRAY)_8mm×8mm 64pin HWQFN



Tray Code		New	Current
		REV. E EA70808-10	EAM0808-10 Rev. A
Position dimension of cells	Z	1.50	1.45
	Zw	10.75	10.35
	ZL	11.90	10.00
	eW	10.40	12.80
	eL	10.40	11.80
	Sw	92.10	92.10
Thickness (mm)	H1	7.62	7.62
Number of cells	Nw	12	10
	NL	29	26
Maximum storage pcs IC/Tray		348	260
Maximum storage pcs IC/Inner box		2784	2080
Material		Carbon PPE	Carbon PPE
Heat resistant temperature		135°C MAX	135°C MAX
JEDEC or Custom		JEDEC	JEDEC
Surface resistance		Less than 1x10 ¹¹ Ω/□	Less than 1x10 ¹¹ Ω/□

PACKING SPECIFICATIONS (EMBOSS TAPING)_4mm×4mm 24pin HWQFN



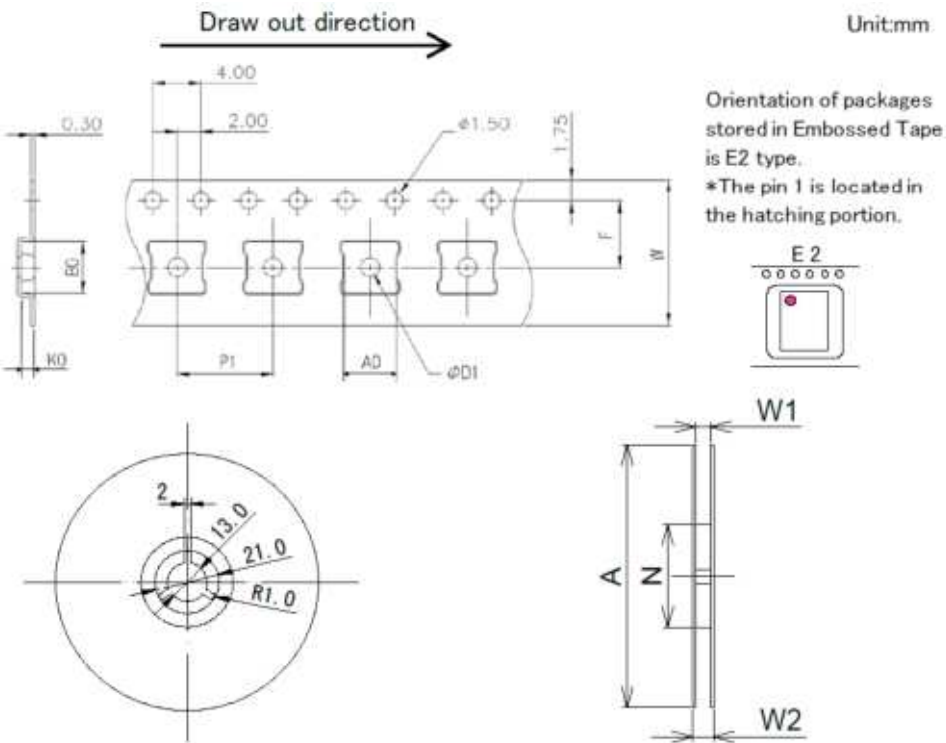
* Desiccant change

Desiccant is changed, but there is no change in the storage period.
Shape or the like might be changed.

Tape Code		New	Current
		ECQFN0404-A20	E12*08-C2CA
Tape Dimensions (mm)	W	12.0	12.0
	P1	8.0	8.0
	A0	4.25	4.3
	B0	4.25	4.3
	K0	1.1	1.0
	F	5.5	5.5
	D1	1.6	1.5
Reel Dimensions (mm)	A	330	330
	N	96.5	100
	W1	12.8	13.5
	W2	18.2	17.5
Maximum storage Pcs. IC/ Reel		2500	2500
Material		Carbon PS	Carbon PS
Surface resistance		Less than 1x10 ¹¹ Ω/□	Less than 1x10 ¹¹ Ω/□

	New	Current
Desiccant		

PACKING SPECIFICATIONS (EMBOSS TAPING)_5mm×5mm 32pin HWQFN

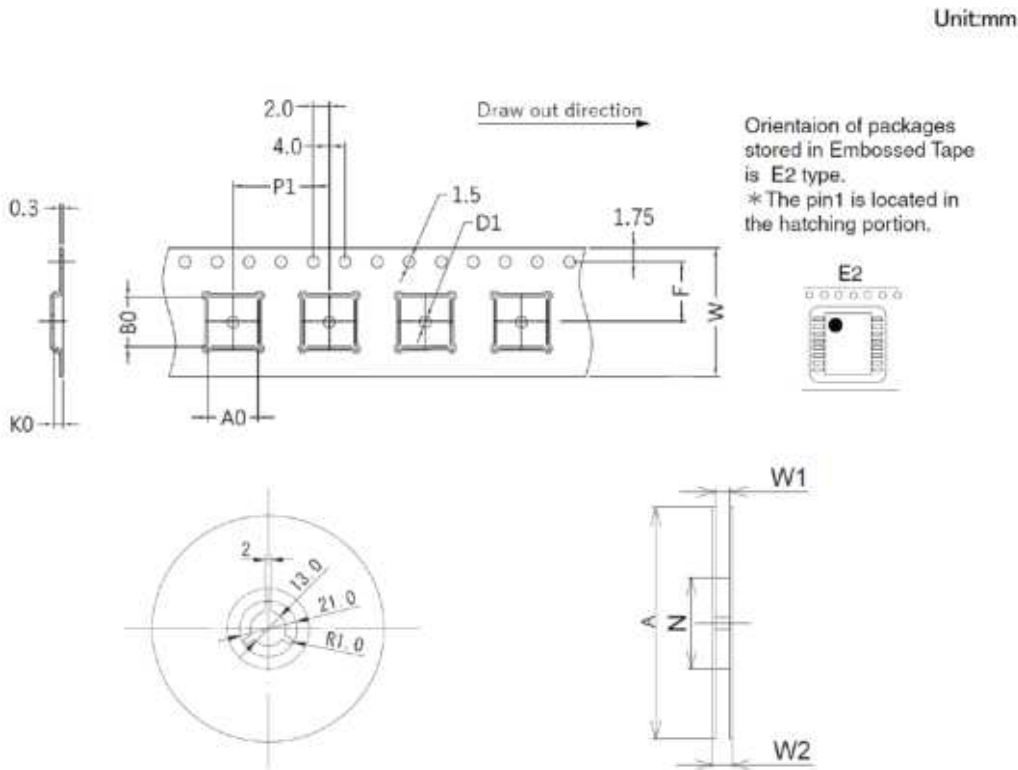


* Desiccant change
Desiccant is changed, but there is no change in the storage period.
Shape or the like might be changed.

Tape Code		New	Current: Kumamoto	Current: Hakodate
		ECPKG0505-151	E12*08-B8CA	2J-506-2401
Tape Dimensions (mm)	W	12.0	12.0	12.0
	P1	8.0	8.0	8.0
	A0	5.3	5.3	5.25
	B0	5.3	5.3	5.25
	K0	1.1	1.0	1.1
	F	5.5	5.5	5.5
	D1	1.6	1.5	1.5
Reel Dimensions (mm)	A	330	330	330
	N	96.5	100	100
	W1	12.8	13.5	13.4
	W2	18.2	17.5	17.4
Maximum storage Pcs. IC/ Reel		2500	2500	5000
Material		Carbon PS	Carbon PS	Carbon PS
Surface resistance		Less than $1 \times 10^{11} \Omega/\square$	Less than $1 \times 10^{11} \Omega/\square$	Less than $1 \times 10^{11} \Omega/\square$

	New	Current
Desiccant		

PACKING SPECIFICATIONS (EMBOSS TAPING)_6mm×6mm 40pin HWQFN

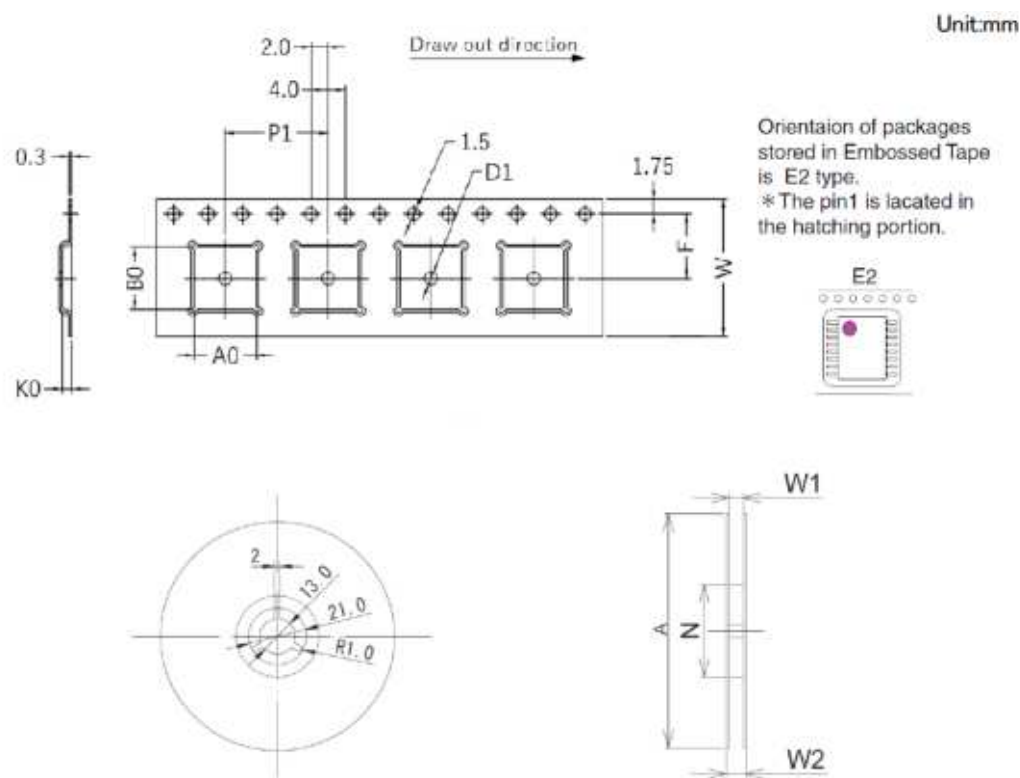


* Desiccant change
Desiccant is changed, but there is no change in the storage period.
Shape or the like might be changed.

Tape Code		New	Current
		ATC-QFN0606-A410.PB	E16* 12-C3CA
Tape Dimensions (mm)	W	16.0	16.0
	P1	12.0	12.0
	A0	6.3	6.3
	B0	6.3	6.3
	K0	1.1	1.0
	F	7.5	7.5
	D1	1.5	1.5
Reel Dimensions (mm)	A	330	330
	N	96.5	100
	W1	16.8	17.5
	W2	22.2	21.5
Maximum storage Pcs. IC/ Reel		2500	2500
Material		Carbon PS	Carbon PS
Surface resistance		Less than 1x10 ¹¹ Ω/□	Less than 1x10 ¹¹ Ω/□

	New	Current
Desiccant		

PACKING SPECIFICATIONS (EMBOSS TAPING)_7mm×7mm 48pin HWQFN



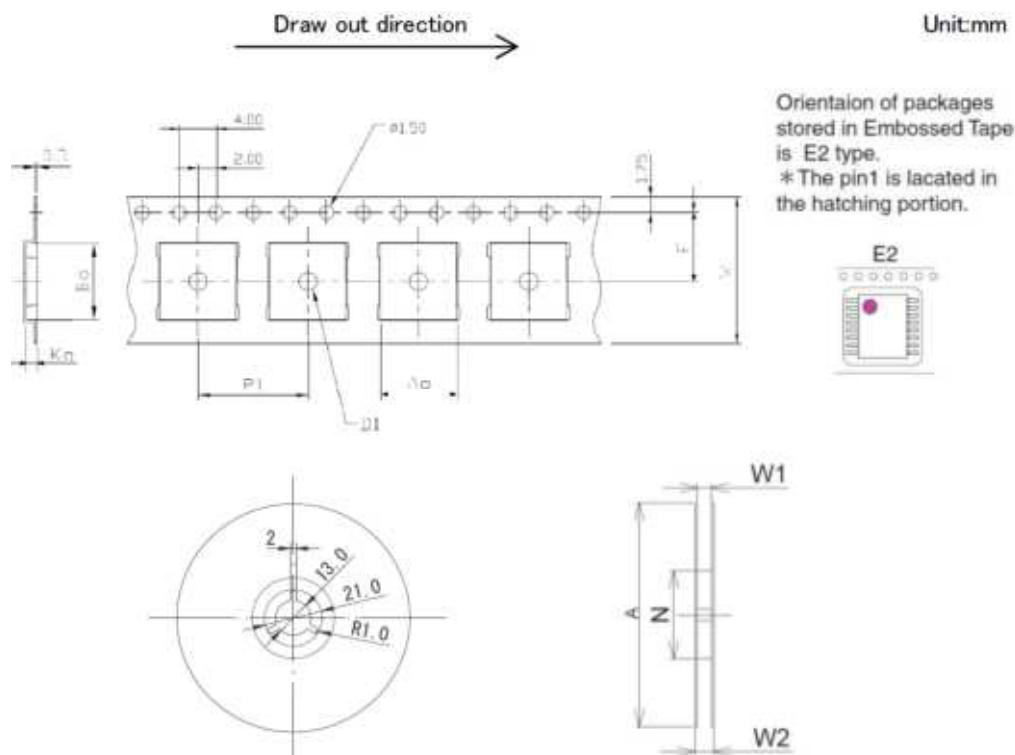
Tape Code		New	Current
		ACT-QFN0707-A410.PB	E16* 12-B9CA
Tape Dimensions (mm)	W	16.0	16.0
	P1	12.0	12.0
	A0	7.25	7.3
	B0	7.25	7.3
	K0	1.1	1.0
	F	7.5	7.5
	D1	1.5	1.55
Reel Dimensions (mm)	A	330	330
	N	96.5	100
	W1	16.8	17.5
	W2	22.2	21.5
Maximum storage Pcs. IC/ Reel		2500	2500
Material		Carbon PS	Carbon PS
Surface resistance		Less than $1 \times 10^{11} \Omega/\square$	Less than $1 \times 10^{11} \Omega/\square$

	New	Current
Desiccant		

* Desiccant change

Desiccant is changed, but there is no change in the storage period.
Shape or the like might be changed.

PACKING SPECIFICATIONS (EMBOSS TAPING)_8mm×8mm 64pin HWQFN



* Desiccant change

Desiccant is changed, but there is no change in the storage period.
Shape or the like might be changed.

Tape Code		New	Current
		EC70800801-112	E16*12-C0CA
Tape Dimensions (mm)	W	16.0	16.0
	P1	12.0	12.0
	A0	8.3	8.3
	B0	8.3	8.3
	K0	1.2	1.0
	F	7.5	7.5
	D1	2.0	1.5
Reel Dimensions (mm)	A	330	330
	N	96.5	100
	W1	16.8	17.5
	W2	22.2	21.5
Maximum storage Pcs. IC/ Reel		2500	2500
Material		Carbon PS	Carbon PS
Surface resistance		Less than $1 \times 10^{11} \Omega/\square$	Less than $1 \times 10^{11} \Omega/\square$

	New	Current
Desiccant		

4M changing points

Change of material (Au to Cu) assembly and sorting factory

Item	Check result	Judgement
Machine	Changing at assembly and sorting. The machines are equivalent to present machines. To prevent copper wire oxidization, inert gas is used to wire bonding process. There are production results of copper wire products in new site and we have already checked there is no risk at the start of this product's production.	No risk
Method	Bonding method (thermosonic bonding) and process flow for the Cu wiring are same as the Au wiring.	No risk
Man	Using operator certification system. Only certificated operator can work for the production.	No risk
Material	Using only certificated copper wire. And applying certificated lead frame, die attach epoxy and mold compound for copper wire products. The products has been certificated by reliability test same as gold wire products and have no risk.	No risk

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