

Product Change Notice (PCN)

Subject: Bond wire material and factory change for RL78/F12 32pin QFN package products

Publication Date: 3/21/2025

Effective Date: 8/29/2025

Revision Description: Initial Release

Description of Change:

QFN products, RL78/F12 series factory & Cu wire change.

The Bonding wire material will be changed to copper. The following materials are also changed. See below for details.

Change factory: Renesas Semiconductor KL Sdn.Bhd. (RSKL)

Existing factory: Amkor Technology Japan, Inc. Kumamoto Plant (ATJ)

[Details of change]

No	Item	Alternate Cu wire HWQFN with Half-cut Wettable flank	Current Au wire HWQFN
1	Assembly / Sorting factory	RSKL	ATJ
2	Bonding wire material change	Cu, ϕ 23um	Au, ϕ 20um
3	Lead frame change	Common lead frame	individual lead frame
4	Die attach material change	Renesas standard material (Ag paste)	Existing material (Ag paste)
5	Mold resin material change	Resin for Cu wire	Resin for Au wire
6	Exterior plating material specification change	Pure Sn	PPF
7	Marking specification change	There are differences (Refer to the Marking)	
8	Package outline	There are differences (Refer to the Package outline)	
9	Packing change	Common Tray	individual Tray

Affected Product List:

Refer to "Product List" in "Appendix".

Reason for Change:

For stable supply of products

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

The change will have no impact on the fitness, function, quality and reliability of the devices.

Package Outline: Please refer to the "Appendix".

Product Identification:

The Part number is different before and after the change.

Refer to "Part number specification" and "Product List"

Qualification Status:

4/10/2025 It will be available to provide.

Sample Availability Date:

7/18/2025 (Deadline for sample request 6/6/2025)

Device Material Declaration:

Available upon request.

Note:

1. Acknowledgement must be received by Renesas within 30 days or Renesas will consider the changes as approved.
2. If timely acknowledgement is provided by customers, then customers shall have 90 days from the date of receipt of this PCN to make any objections to this PCN. If customers fail 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 customers must provide Renesas with the last order quantity and purchase order.

For additional information regarding this notice, please contact your Renesas sales representative.

Appendix 1

■Part number specification

The code "C" representing Cu wire is inserted in part number of Cu wire products for distinguishing from Au wire products wire products and Au wire products have different suffixes. See below for table.

		Body	Suffix(Packing type)		
			Tray (Full carton)	Tray	T/R
Current	Au wire	R5F1xxxx	G0	U0	W0
Alternative	Cu wire	R5F1xxxx C	10	30	50
Points to changes		9桁目に"C"追加 "C" is added to the 9th digit.	末尾から2桁目が変更(末尾"Q","G"の時は末尾から3桁目が変更) The second digit from the end of the Suffix change. (If "Q" and "G" at the end of Suffix, the third digit from the end change.)		

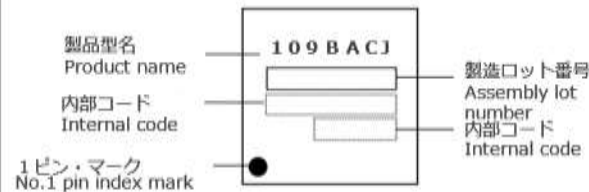
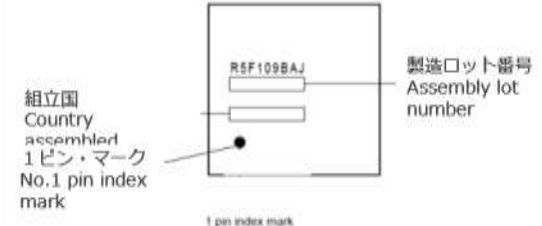
Ex) Cu wire: R5F109BACJNA#10Q

Au wire: R5F109BAJNA#G0Q

■Marking specification

Marking specifications will be changed as follows.

Marking Specification

Cu wire Alternate	Au wire Current
<p>RL78/F12 R5F109BACJNA#10</p>  <p>製品型名 Product name</p> <p>内部コード Internal code</p> <p>1ピン・マーク No.1 pin index mark</p> <p>製造ロット番号 Assembly lot number</p> <p>内部コード Internal code</p>	<p>RL78/F12 R5F109BAJNA#G0</p>  <p>組立国 Country assembled</p> <p>1ピン・マーク No.1 pin index mark</p> <p>製造ロット番号 Assembly lot number</p>

■Explanation of changes

No	Material change	Explanation of changes
2	Bonding wire material	It is a proven material for automotive Cu wire products.
3	Lead frame	It is a proven material for automotive Cu wire products.
4	Die attach material	It is a proven material for automotive Cu wire products.
5	Mold resin materia	It is a proven material for automotive Cu wire products.
6	Exterior plating material specification	It is a proven material for automotive Cu wire products.

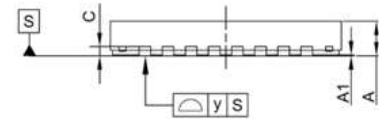
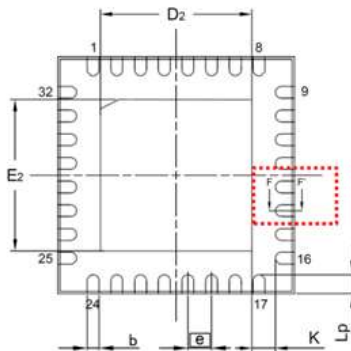
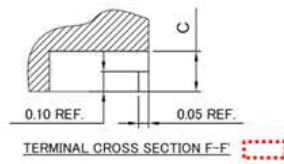
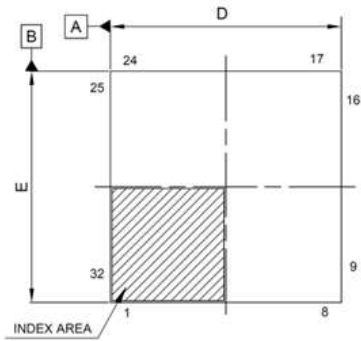
■Package Outline (1/2)

HWQFN with Half-cut Wettable flank

Alternate Cu wire

Package Drawing (Renesas Semiconductor KL Sdn.Bhd.)

Renesas コード PWQN0032KH-A



Reference Symbol	Dimension in Millimeters		
	Min.	Nom.	Max.
D	4.85	5.00	5.15
E	4.85	5.00	5.15
A	—	—	0.80
A ₁	0.00	—	0.05
b	0.18	0.25	0.30
e	0.50 BSC		
L _p	0.35	0.40	0.45
y	—	—	0.08
c	—	0.20	—
K	0.20	—	—
D ₂	—	3.20	—
E ₂	—	3.20	—

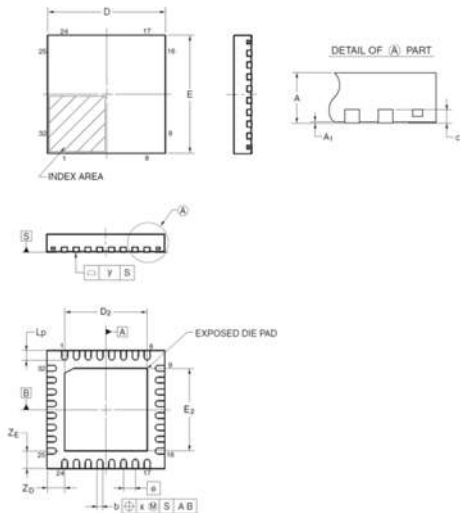
■ Package Outline (2/2)

HWQFN

Current Au wire

Package Drawing (Amkor Technology Japan, Inc. Kumamoto Plant)

Renesasコード PWQN0032KB-A



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	4.95	5.00	5.05
E	4.95	5.00	5.05
A	—	—	0.80
A ₁	0.00	—	—
b	0.18	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 ₂	0.15	0.20	0.25
D ₂	—	3.50	—
E ₂	—	3.50	—

Package Drawing (Dimension comparison)

RSKL, ATJ package symbols complied to JEITA
RSKL, ATJ Symbol は JEITA 基準に準拠

RSKL Symbol New Cu wire	5x5mm 32pin HWQFN PWQN0032KH-A			ATJ Symbol Current Au wire	5x5mm 32pin HWQFN PWQN0032KB-A		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
D	4.85	5.00	5.15	D	4.95	5.00	5.05
E	4.85	5.00	5.15	E	4.95	5.00	5.05
A	-	-	0.80	A	-	-	0.80
A ₁	0.00	-	0.05	A ₁	0.00	-	-
b	0.18	0.25	0.30	b	0.18	0.25	0.30
e	0.50 BSC			e	-	0.50	-
L _p	0.35	0.40	0.45	L _p	0.30	0.40	0.50
x	-	-	0.80	x	-	-	0.05
y	-	-	0.80	y	-	-	0.05
HD	-	-	-	HD	-	-	-
HE	-	-	-	HE	-	-	-
Z _D	-	-	-	Z _D	-	0.75	-
Z _E	-	-	-	Z _E	-	0.75	-
c	-	0.20	-	c ₂	0.15	0.20	0.25
K	0.20	-	-	-	-	-	-
D ₂	-	3.20	-	D ₂	-	3.50	-
E ₂	-	3.20	-	E ₂	-	3.50	-

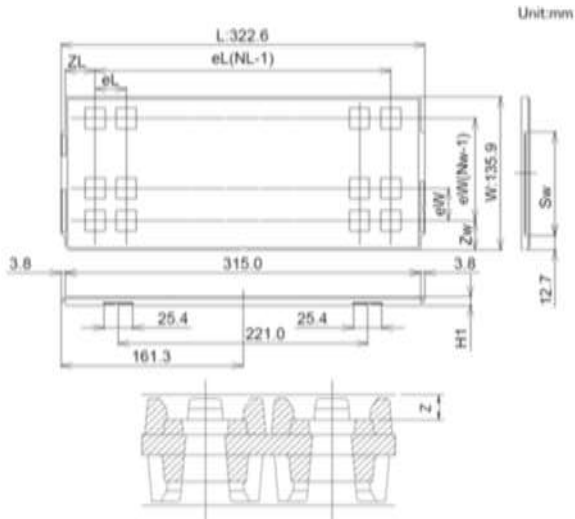
■ Packing change (1/2)

There are no tape & reel changes.

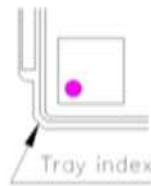
The tray will be changed as follows.

Alternate Cu wire

Tray Outline Drawing (Renesas Semiconductor KL Sdn.Bhd.)



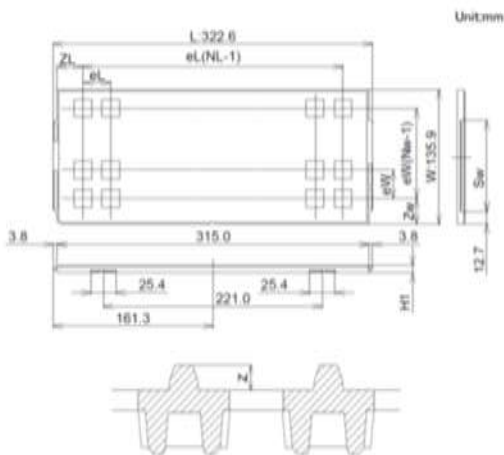
The pin1 is located in the hatching portion.



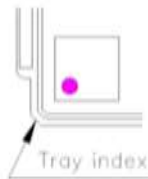
Tray Code	EAM050501-10	
Position dimension of cells	Z	1.75
	Zw	8.15
	ZL	7.90
	eW	9.20
	eL	8.80
Thickness (mm)	H1	7.62
	Nw	14
Number of cells	NL	35
	Maximum storage pcs IC/Tray	
		490
Maximum storage pcs IC/Inner box		3920
Material		Carbon PPE
Heat resistant temperature		135°C MAX
JEDEC or Custom		JEDEC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

Current Au wire

Tray Outline Drawing (Amkor Technology Japan, Inc. Kumamoto Plant)



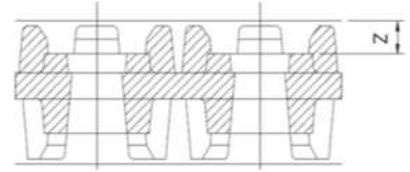
The pin1 is located in the hatching portion.



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

■ Packing change (2/2)

Tray Outline Drawing (Dimension comparison)



Alternate Cu wire RSKL RL78/F12			Current Au wire ATJ RL78/F12				
Tray Code		EAM050501-10	Tray Code		Rev.B EAM050503-10		
		Z	1.75	Z		1.50	
Position dimension of cells		Zw	8.15	Zw		8.15	
		ZL	7.90	ZL		7.90	
		eW	9.20	eW		9.20	
		eL	8.80	eL		8.80	
		Sw	92.1	Sw		92.1	
Thickness (mm)		H1	7.62	Thickness (mm)		H1	7.62
Number of cells		Nw	14	Number of cells		Nw	14
		NL	35			NL	
Maximum storage pcs IC/Tray		490		Maximum storage pcs IC/Tray		490	
Maximum storage pcs IC/Inner box		3920		Maximum storage pcs IC/Inner box		3920	
Material		Carbon PPE		Material		Carbon PPE	
Heat resistant temperature		135°C MAX		Heat resistant temperature		135°C MAX	
JEDEC/Custom		JEDEC		JEDEC/Custom		JEDEC	
Surface resistance		Less than $1 \times 10^{11} \Omega / \square$		Surface resistance		Less than $1 \times 10^{11} \Omega / \square$	
EAM050501-10			Rev.B EAM050503-10				

■ 4M changing points

Item	Check Result	Judgement
Machine	We use the same level of equipment as Au wire products to bond Cu wire products. With the switch to Cu wire products, we have applied an atmosphere that is resistant to oxidation as a countermeasure against the participation of Cu wire. In addition, we have a track record of Cu wire application products even for similar products, and we have confirmed that there are no problems when starting construction of this product.	○ No risk
Method	They are joined by the same bonding method as Au wire products.	○ No risk
Man	Authorized workers at the plant will be engaged.	○ No risk
Material	Only approved Cu wire materials are used. We apply certified materials that correspond to Cu wire products. In addition, we have also conducted reliability tests on finished products equivalent to those of current products (Au wire products) to confirm that there are no problems.	○ No risk

Appendix 2 Product List:

RL78/F12 series:

Before (Au wire)	After (Cu wire)	Packing
R5F109BAJNA#GO	R5F109BACJNA#10	Full Carton (Tray)
R5F109BAJNA#GOG	R5F109BACJNA#10G	Full Carton (Tray)
R5F109BAJNA#GOQ	R5F109BACJNA#10Q	Full Carton (Tray)
R5F109BAJNA#UO	R5F109BACJNA#30	Bulk (Tray)
R5F109BAJNA#UOG	R5F109BACJNA#30G	Bulk (Tray)
R5F109BAJNA#WO	R5F109BACJNA#50	Tape&Reel
R5F109BAJNA#WOG	R5F109BACJNA#50G	Tape&Reel
R5F109BAJNA#WOQ	R5F109BACJNA#50Q	Tape&Reel
R5F109BAKNA#GO	R5F109BACKNA#10	Full Carton (Tray)
R5F109BAKNA#GOG	R5F109BACKNA#10G	Full Carton (Tray)
R5F109BAKNA#GOQ	R5F109BACKNA#10Q	Full Carton (Tray)
R5F109BAKNA#UO	R5F109BACKNA#30	Bulk (Tray)
R5F109BAKNA#UOG	R5F109BACKNA#30G	Bulk (Tray)
R5F109BAKNA#WO	R5F109BACKNA#50	Tape&Reel
R5F109BAKNA#WOG	R5F109BACKNA#50G	Tape&Reel
R5F109BAKNA#WOQ	R5F109BACKNA#50Q	Tape&Reel
R5F109BBJNA#GO	R5F109BBCJNA#10	Full Carton (Tray)
R5F109BBJNA#GOG	R5F109BBCJNA#10G	Full Carton (Tray)
R5F109BBJNA#GOQ	R5F109BBCJNA#10Q	Full Carton (Tray)
R5F109BBJNA#UO	R5F109BBCJNA#30	Bulk (Tray)
R5F109BBJNA#UOG	R5F109BBCJNA#30G	Bulk (Tray)
R5F109BBJNA#WO	R5F109BBCJNA#50	Tape&Reel
R5F109BBJNA#WOG	R5F109BBCJNA#50G	Tape&Reel
R5F109BBJNA#WOQ	R5F109BBCJNA#50Q	Tape&Reel
R5F109BBKNA#GO	R5F109BBCKNA#10	Full Carton (Tray)
R5F109BBKNA#GOG	R5F109BBCKNA#10G	Full Carton (Tray)
R5F109BBKNA#GOQ	R5F109BBCKNA#10Q	Full Carton (Tray)
R5F109BBKNA#UO	R5F109BBCKNA#30	Bulk (Tray)
R5F109BBKNA#UOG	R5F109BBCKNA#30G	Bulk (Tray)
R5F109BBKNA#WO	R5F109BBCKNA#50	Tape&Reel
R5F109BBKNA#WOG	R5F109BBCKNA#50G	Tape&Reel
R5F109BBKNA#WOQ	R5F109BBCKNA#50Q	Tape&Reel
R5F109BCJNA#GO	R5F109BCCJNA#10	Full Carton (Tray)
R5F109BCJNA#GOG	R5F109BCCJNA#10G	Full Carton (Tray)

R5F109BCJNA#GOQ	R5F109BCCJNA#10Q	Full Carton (Tray)
R5F109BCJNA#UO	R5F109BCCJNA#30	Bulk (Tray)
R5F109BCJNA#UOG	R5F109BCCJNA#30G	Bulk (Tray)
R5F109BCJNA#W0	R5F109BCCJNA#50	Tape&Reel
R5F109BCJNA#W0G	R5F109BCCJNA#50G	Tape&Reel
R5F109BCJNA#W0Q	R5F109BCCJNA#50Q	Tape&Reel
R5F109BCKNA#G0	R5F109BCCKNA#10	Full Carton (Tray)
R5F109BCKNA#G0G	R5F109BCCKNA#10G	Full Carton (Tray)
R5F109BCKNA#G0Q	R5F109BCCKNA#10Q	Full Carton (Tray)
R5F109BCKNA#U0	R5F109BCCKNA#30	Bulk (Tray)
R5F109BCKNA#U0G	R5F109BCCKNA#30G	Bulk (Tray)
R5F109BCKNA#W0	R5F109BCCKNA#50	Tape&Reel
R5F109BCKNA#W0G	R5F109BCCKNA#50G	Tape&Reel
R5F109BCKNA#W0Q	R5F109BCCKNA#50Q	Tape&Reel
R5F109BDJNA#G0	R5F109BDCJNA#10	Full Carton (Tray)
R5F109BDJNA#G0G	R5F109BDCJNA#10G	Full Carton (Tray)
R5F109BDJNA#G0Q	R5F109BDCJNA#10Q	Full Carton (Tray)
R5F109BDJNA#U0	R5F109BDCJNA#30	Bulk (Tray)
R5F109BDJNA#U0G	R5F109BDCJNA#30G	Bulk (Tray)
R5F109BDJNA#W0	R5F109BDCJNA#50	Tape&Reel
R5F109BDJNA#W0G	R5F109BDCJNA#50G	Tape&Reel
R5F109BDJNA#W0Q	R5F109BDCJNA#50Q	Tape&Reel
R5F109BDKK02NA#W0Q	R5F109BDCKK02NA50Q	Tape&Reel
R5F109BDKK03NA#W0Q	R5F109BDCKK03NA50Q	Tape&Reel
R5F109BDKNA#G0	R5F109BDCKNA#10	Full Carton (Tray)
R5F109BDKNA#G0G	R5F109BDCKNA#10G	Full Carton (Tray)
R5F109BDKNA#G0Q	R5F109BDCKNA#10Q	Full Carton (Tray)
R5F109BDKNA#U0	R5F109BDCKNA#30	Bulk (Tray)
R5F109BDKNA#U0G	R5F109BDCKNA#30G	Bulk (Tray)
R5F109BDKNA#W0	R5F109BDCKNA#50	Tape&Reel
R5F109BDKNA#W0G	R5F109BDCKNA#50G	Tape&Reel

R5F109BDKNA#WOQ	R5F109BDCKNA#50Q	Tape&Reel
R5F109BDKXXXNA#GO	R5F109BDCKXXXNA10	Full Carton (Tray)
R5F109BDKXXXNA#GOG	R5F109BDCKXXXNA10G	Full Carton (Tray)
R5F109BDKXXXNA#GOQ	R5F109BDCKXXXNA10Q	Full Carton (Tray)
R5F109BDKXXXNA#UO	R5F109BDCKXXXNA30	Bulk (Tray)
R5F109BDKXXXNA#UOG	R5F109BDCKXXXNA30G	Bulk (Tray)
R5F109BDKXXXNA#WO	R5F109BDCKXXXNA50	Tape&Reel
R5F109BDKXXXNA#WOG	R5F109BDCKXXXNA50G	Tape&Reel
R5F109BDKXXXNA#WOQ	R5F109BDCKXXXNA50Q	Tape&Reel
R5F109BEJNA#GO	R5F109BECJNA#10	Full Carton (Tray)
R5F109BEJNA#GOG	R5F109BECJNA#10G	Full Carton (Tray)
R5F109BEJNA#GOQ	R5F109BECJNA#10Q	Full Carton (Tray)
R5F109BEJNA#UO	R5F109BECJNA#30	Bulk (Tray)
R5F109BEJNA#UOG	R5F109BECJNA#30G	Bulk (Tray)
R5F109BEJNA#WO	R5F109BECJNA#50	Tape&Reel
R5F109BEJNA#WOG	R5F109BECJNA#50G	Tape&Reel
R5F109BEJNA#WOQ	R5F109BECJNA#50Q	Tape&Reel
R5F109BEKNA#GO	R5F109BECKNA#10	Full Carton (Tray)
R5F109BEKNA#GOG	R5F109BECKNA#10G	Full Carton (Tray)
R5F109BEKNA#GOQ	R5F109BECKNA#10Q	Full Carton (Tray)
R5F109BEKNA#UO	R5F109BECKNA#30	Bulk (Tray)
R5F109BEKNA#UOG	R5F109BECKNA#30G	Bulk (Tray)
R5F109BEKNA#WO	R5F109BECKNA#50	Tape&Reel
R5F109BEKNA#WOG	R5F109BECKNA#50G	Tape&Reel
R5F109BEKNA#WOQ	R5F109BECKNA#50Q	Tape&Reel

XXX means ROM code