Product Change Notice (PCN)

Subject: Supplier addition of Cu wire for LQFP RL78/F23, F24 Series

Publication Date: 4/8/2025
Effective Date: 9/1/2025
Revision Description: Initial Release

Description of Change:

Renesas will add Cu wire supplier for LQFP Package Products in RL78/F23,F24 Series as follows:

Item	Before Change	After Change
Cu wire	Supplier C	Supplier C and Supplier D

Applicable Assembly Factory : Renesas Semiconductor KL Sdn. Bhd.
Cu Wire from Supplier D is an automotive proven material.

Affected Product List:

Refer to “Product List” in “Appendix”.

Reason for Change:

For stable product supply by adding Cu wire supplier.

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

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

Product Identification:

Our production history data can be queried by using the trace code of the product.

Qualification Status:

Refer to “Q100 Qualification Test Results” in “Appendix”.

Sample Availability Date:

N/A

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.

RL78/F23 series: Automotive Grade Level Grade2, Grade1, Grade0

48pin, Grade2	64pin, Grade2	80pin, Grade2
R7F123FGG3AFB-C#AA0	R7F123FLG3AFB-C#AA0	R7F123FMG3AFB-C#AA0
R7F123FGG3AFB-C#BA0	R7F123FLG3AFB-C#BA0	R7F123FMG3AFB-C#BA0
R7F123FGG3AFB-C#BAQ	R7F123FLG3AFB-C#BAQ	R7F123FMG3AFB-C#BAQ
R7F123FGG3AFB-C#HA0	R7F123FLG3AFB-C#HA0	R7F123FMG3AFB-C#HA0
R7F123FGG3AFB-C#HAQ	R7F123FLG3AFB-C#HAQ	R7F123FMG3AFB-C#HAQ
48pin, Grade1	64pin, Grade1	80pin, Grade1
R7F123FGG4AFB-C#AA0	R7F123FLG4AFB-C#AA0	R7F123FMG4AFB-C#AA0
R7F123FGG4AFB-C#BA0	R7F123FLG4AFB-C#BA0	R7F123FMG4AFB-C#BA0
R7F123FGG4AFB-C#BAQ	R7F123FLG4AFB-C#BAQ	R7F123FMG4AFB-C#BAQ
R7F123FGG4AFB-C#HA0	R7F123FLG4AFB-C#HA0	R7F123FMG4AFB-C#HA0
R7F123FGG4AFB-C#HAQ	R7F123FLG4AFB-C#HAQ	R7F123FMG4AFB-C#HAQ
48pin, Grade0	64pin, Grade0	80pin, Grade0
R7F123FGG5AFB-C#AA0	R7F123FLG5AFB-C#AA0	R7F123FMG5AFB-C#AA0
R7F123FGG5AFB-C#BA0	R7F123FLG5AFB-C#BA0	R7F123FMG5AFB-C#BA0
R7F123FGG5AFB-C#BAQ	R7F123FLG5AFB-C#BAQ	R7F123FMG5AFB-C#BAQ
R7F123FGG5AFB-C#HA0	R7F123FLG5AFB-C#HA0	R7F123FMG5AFB-C#HA0
R7F123FGG5AFB-C#HAQ	R7F123FLG5AFB-C#HAQ	R7F123FMG5AFB-C#HAQ

RL78/F24 series: Automotive Grade Level Grade2, Grade1, Grade0

48pin, Grade2	64pin, Grade2	80pin, Grade2	100pin, Grade2
R7F124FGJ3AFB-C#AA0	R7F124FLJ3AFB-C#AA0	R7F124FMJ3AFB-C#AA0	R7F124FPJ3AFB-C#AA0
R7F124FGJ3AFB-C#BA0	R7F124FLJ3AFB-C#BA0	R7F124FMJ3AFB-C#BA0	R7F124FPJ3AFB-C#BA0
R7F124FGJ3AFB-C#BAQ	R7F124FLJ3AFB-C#BAQ	R7F124FMJ3AFB-C#BAQ	R7F124FPJ3AFB-C#BAQ
R7F124FGJ3AFB-C#HA0	R7F124FLJ3AFB-C#HA0	R7F124FMJ3AFB-C#HA0	R7F124FPJ3AFB-C#HA0
R7F124FGJ3AFB-C#HAQ	R7F124FLJ3AFB-C#HAQ	R7F124FMJ3AFB-C#HAQ	R7F124FPJ3AFB-C#HAQ
48pin, Grade1	64pin, Grade1	80pin, Grade1	100pin, Grade1
R7F124FGJ4AFB-C#AA0	R7F124FLJ4AFB-C#AA0	R7F124FMJ4AFB-C#AA0	R7F124FPJ4AFB-C#AA0
R7F124FGJ4AFB-C#BA0	R7F124FLJ4AFB-C#BA0	R7F124FMJ4AFB-C#BA0	R7F124FPJ4AFB-C#BA0
R7F124FGJ4AFB-C#BAQ	R7F124FLJ4AFB-C#BAQ	R7F124FMJ4AFB-C#BAQ	R7F124FPJ4AFB-C#BAQ
R7F124FGJ4AFB-C#HA0	R7F124FLJ4AFB-C#HA0	R7F124FMJ4AFB-C#HA0	R7F124FPJ4AFB-C#HA0
R7F124FGJ4AFB-C#HAQ	R7F124FLJ4AFB-C#HAQ	R7F124FMJ4AFB-C#HAQ	R7F124FPJ4AFB-C#HAQ
48pin, Grade0	64pin, Grade0	80pin, Grade0	100pin, Grade0
R7F124FGJ5AFB-C#AA0	R7F124FLJ5AFB-C#AA0	R7F124FMJ5AFB-C#AA0	R7F124FPJ5AFB-C#AA0
R7F124FGJ5AFB-C#BA0	R7F124FLJ5AFB-C#BA0	R7F124FMJ5AFB-C#BA0	R7F124FPJ5AFB-C#BA0
R7F124FGJ5AFB-C#BAQ	R7F124FLJ5AFB-C#BAQ	R7F124FMJ5AFB-C#BAQ	R7F124FPJ5AFB-C#BAQ
R7F124FGJ5AFB-C#HA0	R7F124FLJ5AFB-C#HA0	R7F124FMJ5AFB-C#HA0	R7F124FPJ5AFB-C#HA0
R7F124FGJ5AFB-C#HAQ	R7F124FLJ5AFB-C#HAQ	R7F124FMJ5AFB-C#HAQ	R7F124FPJ5AFB-C#HAQ

Q100 Qualification Test Results

AEC-Q100-REV-H

[Note : Qualification tests were performed using a representative product with the same wafer process and the same package structure, and also using generic data.]

Test	#	Reference	Test Conditions		Lots	S.S.	Total	Results (Fail of Total)	Comments: (N/A =Not Applicable)
TEST GROUP A – ACCELERATED ENVIRONMENT STRESS TESTS									
PC	A1	JESD22 A113 J-STD-020	Preconditioning: (Test @ Rm) SMD only; Moisture Preconditioning for THB/HAST, AC/UHST, TC, &PTC ; Peak Reflow Temp=260°C		Min.MSL=3			MSL=3	-
THB ~~or HAST~~	A2	JESD22 A101	Temperature Humidity Bias: (Test @ Rm/Hot) Ta=85°C, RH=85%, 1000hrs		3	77	231	0 of 231	-
~~AC or~~ UHST ~~or TH~~	A3	JESD22 A118	Unbiased Highly Accelerated Stree Test: (Test @ Rm) Ta=110°C, 85% RH, 264h		3	77	231	0 of 231	-
TC	A4	JESD22 A104	Temperature Cycle: (Test @ Hot) Ta=-65°C to 150°C, 500cyc or Ta=-55°C to 150°C, 1000cyc (Grade1) Ta=-55°C to 150°C, 2000cyc (Grade0)		3	77	231	0 of 231 0 Fails after TC (WBP)	-
PTC	A5	JESD22 A105	Power Temperature Cycle: (Test @ Rm/Hot) Ta=-40°C to 125°C, 1000cyc		-	-	-	-	N/A
HTSL	A6	JESD22 A103	High Temperature Storage Life: (Test @ Rm/Hot) Ta=150°C, 1000hrs or Ta=175°C, 500hrs (Grade 1) Ta=175°C, 1000hrs (Grade 0)		1	45	45	0 of 45	-
TEST GROUP B – ACCELERATED LIFETIME SIMULATION TESTS									
HTOL	B1	JESD22 A108	High Temp Operating Life: (Test @ Rm/Cold/Hot) Ta=150°C, 1000hrs		3	77	231	0 of 231	-
ELFR	B2	AEC-Q100-008	Early Life Failure Rate: (Test @ Rm/Hot) Ta=125°C, 48hrs (Grade1) Ta=150°C, 48hrs (Grade0)		3	800	2400	0 of 2400	-
EDR	B3	AEC-Q100-005	NVM Endurance & Data Retention Test: (Test @ Rm/Hot)	For HTOL	3	77	231	0 of 231	-
				For HTSL	1	45	45	0 of 45	-
TEST GROUP C – PACKAGE ASSEMBLY INTEGRITY TESTS									
WBS	C1	AEC-Q100-001 AEC-Q003	Wire Bond Shear Test: (Cpk > 1.67)		30 bonds	5 parts Min.	30 bonds	0 of 30bonds	Cpk>1.67
WBP	C2	Mil-STD-883 Method 2011 AEC-Q003	Wire Bond Pull: (Cpk > 1.67); Each bonder used		30 bonds	5 parts Min.	30 bonds	0 of 30bonds	Cpk>1.67
SD	C3	JESD22 B102 JSTD-002D	Solderability: (>95% coverage) 8 hr steam aging prior to testing		1	15	15	0 of 15	-
PD	C4	JESD22 B100, JESD22 B108 AEC-Q003	Physical Dimensions: (Cpk > 1.67)		3	10	30	0 of 30	Cpk>1.67
SBS	C5	AEC-Q100-010 AEC-Q003	Solder Ball Shear: (Cpk > 1.67); 5 balls from min. of 10 devices		-	-	-	-	N/A
LI	C6	JESD22 B105	Lead Integrity: (No lead cracking or breaking); Through-hole only; 10 leads from each of 5 devices		-	-	-	-	N/A

TEST GROUP D – DIE FABRICATION RELIABILITY TESTS

EM	D1	JESD61	Electromigration:	-	-	-	Pass	Confirmed by process TEG
TDDB	D2	JESD35	Time Dependant Dielectric Breakdown:	-	-	-	Pass	Confirmed by process TEG
HCI	D3	JESD60 & 28	Hot Carrier Injection:	-	-	-	Pass	Confirmed by process TEG
NBTI	D4	JESD90	Negative Bias Temperature Instability:	-	-	-	Pass	Confirmed by process TEG
SM	D5	JESD61,87 & 202	Stress Migration:	-	-	-	Pass	Confirmed by process TEG

TEST GROUP E- ELECTRICAL VERIFICATION

TEST	E1	User/Supplier Specification	Pre and Post Stress Electrical Test:	All	All	All	0 of All	-
HBM	E2	AEC-Q100-002	Electrostatic Discharge, Human Body Model: (Test @ Rm/Hot); (2KV HBM / Class 2 or better)	1	3	3	0 of 3 ESD Level= HBM:2	HBM>2KV
CDM	E3	AEC-Q100-011	Electrostatic Discharge, Charged Device Model: (Test @ Rm/Hot); (750V corner leads, 500V all other leads / Class C4B or better)	1	3	3	0 of 3 ESD Level= CDM:C4B	Corner leads: 750V Pass All other leads:500V Pass
LU	E4	AEC-Q100-004	Latch-Up: (Test @ Rm/Hot)	1	6	6	0 of 6	-
ED	E5	AEC-Q100-009 AEC-Q003	Electrical Distributions: (Test @ Rm/Hot/Cold) (where applicable, Cpk>1.67)	3	30	90	Cpk>1.67	-
FG	E6	AEC-Q100-007	Fault Grading:	-	-	-	>98%	-
CHAR	E7	AEC-Q003	Characterization: (Test @ Rm/Hot/Cold)	-	-	-	Pass	According to Renesas standard procedure
EMC	E9	SAE J1752/3	Electromagnetic Compatibility (Radiated Emissions)	1	1	1	0 of 1	-
SC	E10	AEC Q100-012	Short Circuit Characterization	-	-	-	-	N/A
SER	E11	JESD89-1 JESD89-2 JESD89-3	Soft Error Rate	1	3	3	Pass	* Applicable product only
LF	E12	AEC-Q005	Lead (Pb) Free: (see AEC-Q005)	-	-	-	Pass	Solderability: See SD (C3) result. Solder heat resistance: N/A (Wave Solder is Not recommended.) Whisker: Performed on product TEG with test method based on JESD201.

TEST GROUP F – DEFECT SCREENING TESTS

PAT	F1	AEC-Q001	Process Average Testing: (see AEC-Q001)	All	All	All	Reject units outside PAT limits	Apply to mass production according to Renesas standard procedure
SBA	F2	AEC-Q002	Statistical Bin/Yield Analysis: (see AEC-Q002)	All	All	All	Reject units outside criteria	Apply to mass production according to Renesas standard procedure

TEST GROUP G – CAVITY PACKAGE INTEGRITY TESTS (for Ceramic Package testing only)

MS	G1	JESD22 B104	Mechanical Shock: (Test @ Rm)	-	-	-	-	N/A
VFV	G2	JESD22 B103	Variable Frequency Vibration: (Test @ Rm)	-	-	-	-	N/A
CA	G3	MIL-STD-883 Method 2001	Constant Acceleration: (Test @ Rm)	-	-	-	-	N/A
GFL	G4	MIL-STD-883 Method 1014	Gross and Fine Leak:	-	-	-	-	N/A
DROP	G5	----------	Drop Test: (Test @ Rm) MEMS cavity parts only. Drop part on each of 6 axes once from a height of 1.2m onto a concrete surface.	-	-	-	-	N/A
LT	G6	MIL-STD-883 Method 2004	Lid Torque:	-	-	-	-	N/A
DS	G7	MIL-STD-883 Method 2019	Die Shear:	-	-	-	-	N/A
IWV	G8	MIL-STD-883 Method 1018	Internal Water Vapor:	-	-	-	-	N/A