RENESAS

PCN#:[HPLM-2024-0030]
PC-MCU-A034A/J

Product Change Notice (PCN)

件名: RH850/F1K シリーズの生産拠点の追加および材料変更
発行日: 12/9/2024
出荷開始予定日: 7/1/2025
改版履歴: 初版
変更内容の説明:

RH850/F1K の生産拠点を追加致します。

1. ウェハプロセス(WP)、ウェハテスト(WT) ：那珂工場
   ウェハプロセス那珂工場品は蘇州工場、錦工場ともにφ20umCu ワイヤ、φ20umCu ワイヤ用モールド樹脂を使用します。
2. バックグラインド(BG)、ダイシング(DC) ：大分工場
3. 組立、ファイナルテスト(FT)拠点 ：錦工場
   大分、錦工場展開は LQFP144pin, 100pin のみであり、LQFP176pin の製品については蘇州工場のみの展開となります。

生産拠点及び材料変更点を下記に示します。

項目	現状	拠点追加			
WP拠点	TSMC	那珂	那珂	那珂	那珂
WT拠点	TeraPower	那珂	TeraPower	那珂	TeraPower
BG/DC拠点	蘇州	蘇州	蘇州	大分	大分
組立/FT拠点	蘇州	蘇州	蘇州	錦	錦
ワイヤ	Φ23um Cuワイヤ	Φ20um Cuワイヤ			
モールド樹脂	Φ23um Cuワイヤ用 樹脂	Φ20um Cuワイヤ用 樹脂			
対象PKG	176, 144, 100pin	176, 144, 100pin		144, 100pin	

尚、生産拠点につきましては、生産能力を考慮の上、弊社にて判断させていただきます。

対象製品リスト:

付録欄“対象製品リスト”をご参照ください。

変更の理由:

製品の安定供給のため。

外形、実装、機能、品質、信頼性への影響:

本変更による外形、実装、機能、品質、信頼性への影響はありません。

製品の識別方法:

マーク、ラベルにて識別可能です。詳細は、付録欄をご参照下さい。

信頼性データについて:

付録欄“Q100 Qualification Test Results”をご参照ください。

サンプル出荷予定日:

3/1/2025

製品/材料の化学物質データ:

弊社営業へお問合せください。

ご注意:

1. PCN をお客様にお渡しした後 30 日以内に受理の御連絡を頂けない場合は、変更内容を御承認頂いたものとみなして変更を実施させて頂きます。

2. お客様が PCN を受理されて承認手続きのための条件が有る場合は、PCN をお客様にお渡しした後 90 日以内に御連絡をお願い致します。90 日以内に何の御連絡もない場合も御承認頂いたものとみなして変更を実施させて頂きます。

3. 変更内容について御承認頂けない場合、最終注文数の御提示と御発注をお願い致します。

この通知に関するお問い合わせは、弊社営業、特約店までお願い致します。

付録

製品リスト

RH850/F1K シリーズ（LQFP144, 100pin）

R7F7015423AFP-C#AA3	R7F7015633AFP-C#KA3	R7F7016023AFP-C#BA3	R7F7016133AFP-C#AA3
R7F7015423AFP-C#KA3	R7F7015633AFP-C#BA3	R7F7016024AFP-C#AA3	R7F7016133AFP-C#KA3
R7F7015423AFP-C#BA3	R7F7015634AFP-C#AA3	R7F7016024AFP-C#KA3	R7F7016133AFP-C#BA3
R7F7015424AFP-C#AA3	R7F7015634AFP-C#KA3	R7F7016024AFP-C#BA3	R7F7016134AFP-C#AA3
R7F7015424AFP-C#KA3	R7F7015634AFP-C#BA3	R7F7016033AFP-C#AA3	R7F7016134AFP-C#KA3
R7F7015424AFP-C#BA3	R7F7015803AFP-C#AA3	R7F7016033AFP-C#KA3	R7F7016134AFP-C#BA3
R7F7015433AFP-C#AA3	R7F7015803AFP-C#KA3	R7F7016033AFP-C#BA3	R7F7016203AFP-C#AA3
R7F7015433AFP-C#KA3	R7F7015803AFP-C#BA3	R7F7016034AFP-C#AA3	R7F7016203AFP-C#KA3
R7F7015433AFP-C#BA3	R7F7015804AFP-C#AA3	R7F7016034AFP-C#KA3	R7F7016203AFP-C#BA3
R7F7015434AFP-C#AA3	R7F7015804AFP-C#KA3	R7F7016034AFP-C#BA3	R7F7016204AFP-C#AA3
R7F7015434AFP-C#KA3	R7F7015804AFP-C#BA3	R7F7016103AFP-C#AA3	R7F7016204AFP-C#KA3
R7F7015434AFP-C#BA3	R7F7015813AFP-C#AA3	R7F7016103AFP-C#KA3	R7F7016204AFP-C#BA3
R7F7015603AFP-C#AA3	R7F7015813AFP-C#KA3	R7F7016103AFP-C#BA3	R7F7016213AFP-C#AA3
R7F7015603AFP-C#KA3	R7F7015813AFP-C#BA3	R7F7016104AFP-C#AA3	R7F7016213AFP-C#KA3
R7F7015603AFP-C#BA3	R7F7015814AFP-C#AA3	R7F7016104AFP-C#KA3	R7F7016213AFP-C#BA3
R7F7015604AFP-C#AA3	R7F7015814AFP-C#KA3	R7F7016104AFP-C#BA3	R7F7016214AFP-C#AA3
R7F7015604AFP-C#KA3	R7F7015814AFP-C#BA3	R7F7016113AFP-C#AA3	R7F7016214AFP-C#KA3
R7F7015604AFP-C#BA3	R7F7015823AFP-C#AA3	R7F7016113AFP-C#KA3	R7F7016214AFP-C#BA3
R7F7015613AFP-C#AA3	R7F7015823AFP-C#KA3	R7F7016113AFP-C#BA3	R7F7016223AFP-C#AA3
R7F7015613AFP-C#KA3	R7F7015823AFP-C#BA3	R7F7016114AFP-C#AA3	R7F7016223AFP-C#KA3
R7F7015613AFP-C#BA3	R7F7015824AFP-C#AA3	R7F7016114AFP-C#KA3	R7F7016223AFP-C#BA3
R7F7015614AFP-C#AA3	R7F7015824AFP-C#KA3	R7F7016114AFP-C#AAT	R7F7016224AFP-C#AA3
R7F7015614AFP-C#KA3	R7F7015824AFP-C#BA3	R7F7016114AFP-C#KAT	R7F7016224AFP-C#KA3
R7F7015614AFP-C#BA3	R7F7015833AFP-C#AA3	R7F7016114AFP-C#BA3	R7F7016224AFP-C#BA3
R7F7015623AFP-C#AA3	R7F7015833AFP-C#KA3	R7F7016114AFP-C#BAT	R7F7016233AFP-C#AA3
R7F7015623AFP-C#KA3	R7F7015833AFP-C#BA3	R7F7016123AFP-C#AA3	R7F7016233AFP-C#KA3
R7F7015623AFP-C#BA3	R7F7015834AFP-C#AA3	R7F7016123AFP-C#KA3	R7F7016233AFP-C#BA3
R7F7015624AFP-C#AA3	R7F7015834AFP-C#KA3	R7F7016123AFP-C#BA3	R7F7016234AFP-C#AA3
R7F7015624AFP-C#KA3	R7F7015834AFP-C#BA3	R7F7016124AFP-C#AA3	R7F7016234AFP-C#KA3
R7F7015624AFP-C#BA3	R7F7016023AFP-C#AA3	R7F7016124AFP-C#KA3	R7F7016234AFP-C#BA3
R7F7015633AFP-C#AA3	R7F7016023AFP-C#KA3	R7F7016124AFP-C#BA3	

RH850/F1K シリーズ（LQFP 176pin ）

R7F7015463AFP-C#AA3	R7F7015573AFP-C#TA3	R7F7015674AFP-C#BA3	R7F7015873AFP-C#AA3
R7F7015463AFP-C#BA3	R7F7015574AFP-C#AA3	R7F7015674AFP-C#TA3	R7F7015873AFP-C#BA3
R7F7015463AFP-C#TA3	R7F7015574AFP-C#BA3	R7F7015773AFP-C#AA3	R7F7015873AFP-C#TA3

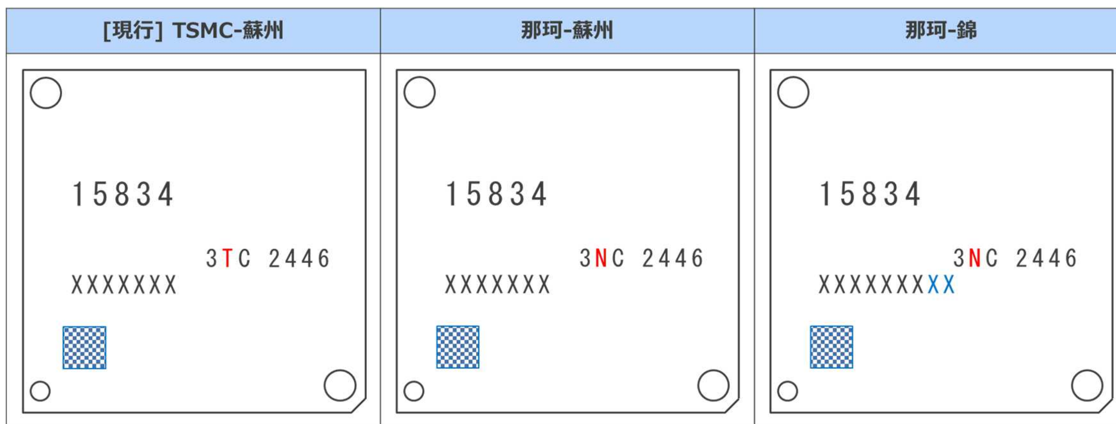
R7F7015464AFP-C#AA3	R7F7015574AFP-C#TA3	R7F7015773AFP-C#BA3	R7F7015874AFP-C#AA3
R7F7015464AFP-C#BA3	R7F7015663AFP-C#AA3	R7F7015773AFP-C#TA3	R7F7015874AFP-C#BA3
R7F7015464AFP-C#TA3	R7F7015663AFP-C#BA3	R7F7015774AFP-C#AA3	R7F7015874AFP-C#TA3
R7F7015473AFP-C#AA3	R7F7015663AFP-C#TA3	R7F7015774AFP-C#BA3	R7F7015973AFP-C#AA3
R7F7015473AFP-C#BA3	R7F7015664AFP-C#AA3	R7F7015774AFP-C#TA3	R7F7015973AFP-C#BA3
R7F7015473AFP-C#TA3	R7F7015664AFP-C#BA3	R7F7015863AFP-C#AA3	R7F7015973AFP-C#TA3
R7F7015474AFP-C#AA3	R7F7015664AFP-C#TA3	R7F7015863AFP-C#BA3	R7F7015974AFP-C#AA3
R7F7015474AFP-C#BA3	R7F7015673AFP-C#AA3	R7F7015863AFP-C#TA3	R7F7015974AFP-C#BA3
R7F7015474AFP-C#TA3	R7F7015673AFP-C#BA3	R7F7015864AFP-C#AA3	R7F7015974AFP-C#TA3
R7F7015573AFP-C#AA3	R7F7015673AFP-C#TA3	R7F7015864AFP-C#BA3	
R7F7015573AFP-C#BA3	R7F7015674AFP-C#AA3	R7F7015864AFP-C#TA3	

マーク仕様

マーク印字例：R7F7015834AFP-C#BA3 (F1K 144pin)

那珂品は赤文字部分が異なります。(TSMC 品：T, 那珂品：N)

また錦品はトレースコードの桁数(青文字部分)が異なります。(蘇州品：7 桁, 錦品：9 桁)



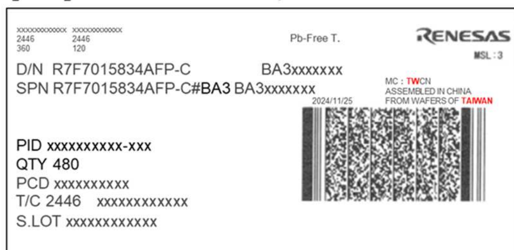
ラベル仕様

ラベル印字例：

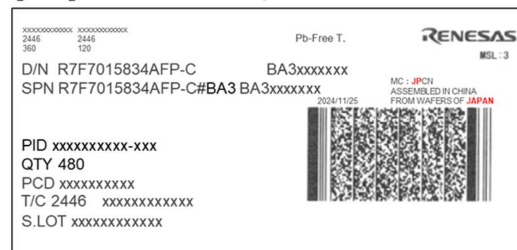
R7F7015834AFP-C#BA3 (F1K 144pin)

那珂品は赤文字部分が異なります。また錦品は青文字部分が異なります。

[現行] WP：TSMC、組立/FT：蘇州



[追加] WP：那珂、組立/FT：蘇州



[追加] WP：那珂、組立/FT：錦

那珂工場 ：Renesas Semiconductor Manufacturing Co., Ltd. (Naka Factory)
大分工場 ：Renesas Electronics Co., Ltd. (Oita Factory)
錦工場 ：Renesas Electronics Co., Ltd. (Nishiki Factory)
蘇州工場：Renesas Semiconductor (Suzhou) Co., Ltd.
TSMC ：Taiwan Semiconductor Manufacturing Company Limited
TeraPower：TeraPower Technology Inc.

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=-55°C to 150°C, 1000cyc	3	77	231	0 of 231 0 Fails after TC (WBP)	-
PTC	A5	JESD22 A105	Power Temperature Cycle: (Test @ Rm/Hot) -	-	-	-	-	N/A
HTSL	A6	JESD22 A103	High Temperature Storage Life: (Test @ Rm/Hot) Ta=175°C, 500hrs	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	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	#	Reference	Test Conditions	Lots	S.S.	Total	Results (Fail of Total)	Comments: (N/A =Not Applicable)
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	-
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