

Product Change Notice (PCN)

Subject: Supplier addition of Cu-wire for LQFP products in RH850/F1, R1 and D1 Series

Publication Date: 11/12/2024

Effective Date: 6/1/2025

Revision Description: Initial Release

Description of Change:

Renesas will add a Cu-wire supplier for LQFP products in RH850/F1, R1 and D1 Series as follows:

| Item | Before Change | After Change |
|----------------------------|---------------|---------------------------|
| Cu-wire: Supplier Addition | Supplier A | Supplier A and Supplier B |

Applicable Assembly Factory
 Renesas Electronics Corporation Nishiki Factory
 Renesas Semiconductor (Suzhou) Co., Ltd.

Affected Product List:

Refer to “Product List” in “Appendix”.

Reason for Change:

For stable product supply by adding Cu-wire suppliers.

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:

Please contact and request Renesas' sales to provide Device Material Declaration.

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

Product List

RH850/F1,R1 and D1 series :

| | | | |
|---------------------|---------------------|---------------------|---------------------|
| R7F7010063AFP-C#AA4 | R7F7010324AFP-C#BA4 | R7F7010513AFP-C#TA4 | R7F7010574AFP-C#BA4 |
| R7F7010063AFP-C#BA4 | R7F7010324AFP-C#TA4 | R7F7010514AFP-C#AA4 | R7F7010574AFP-C#TA4 |
| R7F7010063AFP-C#KA4 | R7F7010333AFP-C#AA4 | R7F7010514AFP-C#BA4 | R7F7010713AFP-C#AA4 |
| R7F7010064AFP-C#AA4 | R7F7010333AFP-C#BA4 | R7F7010514AFP-C#TA4 | R7F7010713AFP-C#BA4 |
| R7F7010064AFP-C#BA4 | R7F7010333AFP-C#TA4 | R7F7010523AFP-C#AA4 | R7F7010713AFP-C#KA4 |
| R7F7010064AFP-C#KA4 | R7F7010334AFP-C#AA4 | R7F7010523AFP-C#AA8 | R7F701A003AFP-C#AA4 |
| R7F7010073AFP-C#AA4 | R7F7010334AFP-C#BA4 | R7F7010523AFP-C#BA4 | R7F701A003AFP-C#BA4 |
| R7F7010073AFP-C#BA4 | R7F7010334AFP-C#TA4 | R7F7010523AFP-C#BA8 | R7F701A003AFP-C#KA4 |
| R7F7010073AFP-C#TA4 | R7F7010343AFP-C#AA4 | R7F7010523AFP-C#TA4 | R7F701A004AFP-C#AA4 |
| R7F7010074AFP-C#AA4 | R7F7010343AFP-C#BA4 | R7F7010523AFP-C#TA8 | R7F701A004AFP-C#BA4 |
| R7F7010074AFP-C#BA4 | R7F7010343AFP-C#TA4 | R7F7010524AFP-C#AA4 | R7F701A004AFP-C#KA4 |
| R7F7010074AFP-C#TA4 | R7F7010344AFP-C#AA4 | R7F7010524AFP-C#BA4 | R7F701A013AFP-C#AA4 |
| R7F7010263AFP-C#AA4 | R7F7010344AFP-C#BA4 | R7F7010524AFP-C#TA4 | R7F701A013AFP-C#BA4 |
| R7F7010263AFP-C#BA4 | R7F7010344AFP-C#TA4 | R7F7010533AFP-C#AA4 | R7F701A013AFP-C#TA4 |
| R7F7010263AFP-C#KA4 | R7F7010463AFP-C#AA4 | R7F7010533AFP-C#AA8 | R7F701A014AFP-C#AA4 |
| R7F7010264AFP-C#AA4 | R7F7010463AFP-C#BA4 | R7F7010533AFP-C#BA4 | R7F701A014AFP-C#BA4 |
| R7F7010264AFP-C#BA4 | R7F7010463AFP-C#KA4 | R7F7010533AFP-C#BA8 | R7F701A014AFP-C#TA4 |
| R7F7010264AFP-C#KA4 | R7F7010464AFP-C#AA4 | R7F7010533AFP-C#TA4 | R7F7010023AFP-C#AA4 |
| R7F7010273AFP-C#AA4 | R7F7010464AFP-C#BA4 | R7F7010533AFP-C#TA8 | R7F7010023AFP-C#BA4 |
| R7F7010273AFP-C#BA4 | R7F7010464AFP-C#KA4 | R7F7010534AFP-C#AA4 | R7F7010024AFP-C#AA4 |
| R7F7010273AFP-C#KA4 | R7F7010473AFP-C#AA4 | R7F7010534AFP-C#BA4 | R7F7010024AFP-C#BA4 |
| R7F7010274AFP-C#AA4 | R7F7010473AFP-C#BA4 | R7F7010534AFP-C#TA4 | R7F7010083AFP-C#AA4 |
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| R7F7010693AFP-C#AA2 | R7F7015484AFP-C#TA6 | R7F7015433AFP-C#BA3 | R7F7015664AFP-C#AA3 |
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|---------------------|---------------------|---------------------|---------------------|
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| R7F7015023AFP-C#TA2 | R7F7015644AFP-C#AA2 | R7F7015464AFP-C#TA3 | R7F7015773AFP-C#BA3 |
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| R7F7015303AFP-C#AA2 | R7F7015693AFP-C#BA2 | R7F7015604AFP-C#AA3 | R7F7015814AFP-C#KA3 |
| R7F7015303AFP-C#BA2 | R7F7015693AFP-C#TA2 | R7F7015604AFP-C#BA3 | R7F7015823AFP-C#AA3 |
| R7F7015313AFP-C#AA2 | R7F7015694AFP-C#AA2 | R7F7015604AFP-C#KA3 | R7F7015823AFP-C#BA3 |
| R7F7015313AFP-C#BA2 | R7F7015694AFP-C#BA2 | R7F7015613AFP-C#AA3 | R7F7015823AFP-C#KA3 |
| R7F7015443AFP-C#AA2 | R7F7015694AFP-C#TA2 | R7F7015613AFP-C#BA3 | R7F7015824AFP-C#AA3 |
| R7F7015443AFP-C#BA2 | R7F701A243AFP-C#AA2 | R7F7015613AFP-C#KA3 | R7F7015824AFP-C#BA3 |
| R7F7015443AFP-C#KA2 | R7F701A243AFP-C#BA2 | R7F7015614AFP-C#AA3 | R7F7015824AFP-C#KA3 |
| R7F7015444AFP-C#AA2 | R7F701A243AFP-C#TA2 | R7F7015614AFP-C#BA3 | R7F7015833AFP-C#AA3 |
| R7F7015444AFP-C#BA2 | R7F701A244AFP-C#AA2 | R7F7015614AFP-C#KA3 | R7F7015833AFP-C#BA3 |
| R7F7015444AFP-C#KA2 | R7F701A244AFP-C#BA2 | R7F7015623AFP-C#AA3 | R7F7015833AFP-C#KA3 |
| R7F7015453AFP-C#AA2 | R7F701A244AFP-C#TA2 | R7F7015623AFP-C#BA3 | R7F7015834AFP-C#AA3 |
| R7F7015453AFP-C#BA2 | R7F701A293AFP-C#AA2 | R7F7015623AFP-C#KA3 | R7F7015834AFP-C#BA3 |
| R7F7015453AFP-C#KA2 | R7F701A293AFP-C#BA2 | R7F7015624AFP-C#AA3 | R7F7015834AFP-C#KA3 |
| R7F7015454AFP-C#AA2 | R7F701A293AFP-C#TA2 | R7F7015624AFP-C#BA3 | R7F7015863AFP-C#AA3 |
| R7F7015454AFP-C#BA2 | R7F701A303AFP-C#AA2 | R7F7015624AFP-C#KA3 | R7F7015863AFP-C#BA3 |
| R7F7015454AFP-C#KA2 | R7F701A303AFP-C#BA2 | R7F7015633AFP-C#AA3 | R7F7015863AFP-C#TA3 |
| R7F7015483AFP-C#AA2 | R7F701A303AFP-C#TA2 | R7F7015633AFP-C#BA3 | R7F7015864AFP-C#AA3 |
| R7F7015483AFP-C#BA2 | R7F7015423AFP-C#AA3 | R7F7015633AFP-C#KA3 | R7F7015864AFP-C#BA3 |
| R7F7015483AFP-C#TA2 | R7F7015423AFP-C#BA3 | R7F7015634AFP-C#AA3 | R7F7015864AFP-C#TA3 |
| R7F7015484AFP-C#AA2 | R7F7015423AFP-C#KA3 | R7F7015634AFP-C#BA3 | R7F7015873AFP-C#AA3 |
| R7F7015873AFP-C#BA3 | R7F7016203AFP-C#AA3 | R7F701A554AFP-C#KA1 | R7F7016864AFP-C#AA9 |
| R7F7015873AFP-C#TA3 | R7F7016203AFP-C#BA3 | R7F701A564AFP-C#AA1 | R7F7016864AFP-C#BA1 |
| R7F7015874AFP-C#AA3 | R7F7016203AFP-C#KA3 | R7F701A564AFP-C#BA1 | R7F7016864AFP-C#BA9 |
| R7F7015874AFP-C#BA3 | R7F7016204AFP-C#AA3 | R7F701A564AFP-C#KA1 | R7F7016864AFP-C#KA1 |
| R7F7015874AFP-C#TA3 | R7F7016204AFP-C#BA3 | R7F701A574AFP-C#AA1 | R7F7016864AFP-C#KA9 |
| R7F7015973AFP-C#AA3 | R7F7016204AFP-C#KA3 | R7F701A574AFP-C#BA1 | R7F7016873AFP-C#AA1 |
| R7F7015973AFP-C#BA3 | R7F7016213AFP-C#AA3 | R7F701A574AFP-C#KA1 | R7F7016873AFP-C#BA1 |
| R7F7015973AFP-C#TA3 | R7F7016213AFP-C#BA3 | R7F701A584AFP-C#AA1 | R7F7016873AFP-C#TA1 |
| R7F7015974AFP-C#AA3 | R7F7016213AFP-C#KA3 | R7F701A584AFP-C#BA1 | R7F7016874AFP-C#AA1 |

| | | | |
|---------------------|---------------------|---------------------|---------------------|
| R7F7015974AFP-C#BA3 | R7F7016214AFP-C#AA3 | R7F701A584AFP-C#KA1 | R7F7016874AFP-C#BA1 |
| R7F7015974AFP-C#TA3 | R7F7016214AFP-C#BA3 | R7F701A594AFP-C#AA1 | R7F7016874AFP-C#TA1 |
| R7F7016023AFP-C#AA3 | R7F7016214AFP-C#KA3 | R7F701A594AFP-C#BA1 | R7F7016883AFP-C#AA1 |
| R7F7016023AFP-C#BA3 | R7F7016223AFP-C#AA3 | R7F701A594AFP-C#TA1 | R7F7016883AFP-C#BA1 |
| R7F7016023AFP-C#KA3 | R7F7016223AFP-C#BA3 | R7F701A604AFP-C#AA1 | R7F7016883AFP-C#TA1 |
| R7F7016024AFP-C#AA3 | R7F7016223AFP-C#KA3 | R7F701A604AFP-C#BA1 | R7F7016884AFP-C#AA1 |
| R7F7016024AFP-C#BA3 | R7F7016224AFP-C#AA3 | R7F701A604AFP-C#TA1 | R7F7016884AFP-C#BA1 |
| R7F7016024AFP-C#KA3 | R7F7016224AFP-C#BA3 | R7F701A793AFP-C#BA1 | R7F7016884AFP-C#TA1 |
| R7F7016033AFP-C#AA3 | R7F7016224AFP-C#KA3 | R7F701A793AFP-C#TA1 | R7F7016893AFP-C#AA1 |
| R7F7016033AFP-C#BA3 | R7F7016233AFP-C#AA3 | R7F701A803AFP-C#BA1 | R7F7016893AFP-C#BA1 |
| R7F7016033AFP-C#KA3 | R7F7016233AFP-C#BA3 | R7F701A803AFP-C#TA1 | R7F7016893AFP-C#TA1 |
| R7F7016034AFP-C#AA3 | R7F7016233AFP-C#KA3 | R7F701A813AFP-C#BA1 | R7F7016894AFP-C#AA1 |
| R7F7016034AFP-C#BA3 | R7F7016234AFP-C#AA3 | R7F701A813AFP-C#KA1 | R7F7016894AFP-C#AA9 |
| R7F7016034AFP-C#KA3 | R7F7016234AFP-C#BA3 | R7F701A823AFP-C#BA1 | R7F7016894AFP-C#BA1 |
| R7F7016103AFP-C#AA3 | R7F7016234AFP-C#KA3 | R7F701A823AFP-C#KA1 | R7F7016894AFP-C#BA9 |
| R7F7016103AFP-C#BA3 | R7F7016343AFP-C#AA1 | R7F701A833AFP-C#BA1 | R7F7016894AFP-C#TA1 |
| R7F7016103AFP-C#KA3 | R7F7016343AFP-C#BA1 | R7F701A833AFP-C#KA1 | R7F7016894AFP-C#TA9 |
| R7F7016104AFP-C#AA3 | R7F7016343AFP-C#KA1 | R7F701A843AFP-C#BA1 | R7F7016903AFP-C#AA1 |
| R7F7016104AFP-C#BA3 | R7F7016363AFP-C#AA1 | R7F701A843AFP-C#KA1 | R7F7016903AFP-C#BA1 |
| R7F7016104AFP-C#KA3 | R7F7016363AFP-C#BA1 | R7F7016843AFP-C#AA1 | R7F7016903AFP-C#TA1 |
| R7F7016113AFP-C#AA3 | R7F7016363AFP-C#KA1 | R7F7016843AFP-C#BA1 | R7F7016904AFP-C#AA1 |
| R7F7016113AFP-C#BA3 | R7F7016443AFP-C#AA1 | R7F7016843AFP-C#KA1 | R7F7016904AFP-C#AA9 |
| R7F7016113AFP-C#KA3 | R7F7016443AFP-C#BA1 | R7F7016844AFP-C#AA1 | R7F7016904AFP-C#BA1 |
| R7F7016114AFP-C#AA3 | R7F7016443AFP-C#KA1 | R7F7016844AFP-C#AA9 | R7F7016904AFP-C#BA9 |
| R7F7016114AFP-C#AAT | R7F7016453AFP-C#AA1 | R7F7016844AFP-C#BA1 | R7F7016904AFP-C#TA1 |
| R7F7016114AFP-C#BA3 | R7F7016453AFP-C#BA1 | R7F7016844AFP-C#BA9 | R7F7016904AFP-C#TA9 |
| R7F7016114AFP-C#BAT | R7F7016453AFP-C#KA1 | R7F7016844AFP-C#KA1 | R7F7016913AFP-C#AA1 |
| R7F7016114AFP-C#KA3 | R7F7016463AFP-C#AA1 | R7F7016844AFP-C#KA9 | R7F7016913AFP-C#BA1 |
| R7F7016114AFP-C#KAT | R7F7016463AFP-C#BA1 | R7F7016853AFP-C#AA1 | R7F7016913AFP-C#TA1 |
| R7F7016123AFP-C#AA3 | R7F7016463AFP-C#KA1 | R7F7016853AFP-C#BA1 | R7F7016914AFP-C#AA1 |
| R7F7016123AFP-C#BA3 | R7F7016473AFP-C#AA1 | R7F7016853AFP-C#KA1 | R7F7016914AFP-C#BA1 |
| R7F7016123AFP-C#KA3 | R7F7016473AFP-C#BA1 | R7F7016854AFP-C#AA1 | R7F7016914AFP-C#TA1 |
| R7F7016124AFP-C#AA3 | R7F7016473AFP-C#KA1 | R7F7016854AFP-C#BA1 | R7F7016923AFP-C#AA1 |
| R7F7016124AFP-C#BA3 | R7F7016483AFP-C#AA1 | R7F7016854AFP-C#KA1 | R7F7016923AFP-C#AA9 |
| R7F7016124AFP-C#KA3 | R7F7016483AFP-C#BA1 | R7F7016863AFP-C#AA1 | R7F7016923AFP-C#BA1 |
| R7F7016133AFP-C#AA3 | R7F7016483AFP-C#TA1 | R7F7016863AFP-C#AA9 | R7F7016923AFP-C#BA9 |
| R7F7016133AFP-C#BA3 | R7F7016493AFP-C#AA1 | R7F7016863AFP-C#BA1 | R7F7016923AFP-C#TA1 |
| R7F7016133AFP-C#KA3 | R7F7016493AFP-C#BA1 | R7F7016863AFP-C#BA9 | R7F7016923AFP-C#TA9 |
| R7F7016134AFP-C#AA3 | R7F7016493AFP-C#TA1 | R7F7016863AFP-C#KA1 | R7F7016924AFP-C#AA1 |
| R7F7016134AFP-C#BA3 | R7F701A554AFP-C#AA1 | R7F7016863AFP-C#KA9 | R7F7016924AFP-C#AA9 |
| R7F7016134AFP-C#KA3 | R7F701A554AFP-C#BA1 | R7F7016864AFP-C#AA1 | R7F7016924AFP-C#BA1 |
| R7F7016924AFP-C#BA9 | R7F7016953AFP-C#AA1 | R7F701A673AFP-C#BA1 | R7F7017083AFP-C#AA1 |
| R7F7016924AFP-C#TA1 | R7F7016953AFP-C#AA9 | R7F701A673AFP-C#TA1 | R7F7017083AFP-C#BA1 |
| R7F7016924AFP-C#TA9 | R7F7016953AFP-C#BA1 | R7F701A683AFP-C#BA1 | R7F7017083AFP-C#TA1 |
| R7F7016933AFP-C#AA1 | R7F7016953AFP-C#BA9 | R7F701A683AFP-C#TA1 | R7F7017093AFP-C#AA1 |
| R7F7016933AFP-C#AA9 | R7F7016953AFP-C#KA1 | R7F701A693AFP-C#BA1 | R7F7017093AFP-C#BA1 |
| R7F7016933AFP-C#BA1 | R7F7016953AFP-C#KA9 | R7F701A693AFP-C#TA1 | R7F7017093AFP-C#TA1 |
| R7F7016933AFP-C#BA9 | R7F7016954AFP-C#AA1 | R7F701A703AFP-C#BA1 | R7F7017603AFP-C#BA1 |
| R7F7016933AFP-C#KA1 | R7F7016954AFP-C#AA9 | R7F701A703AFP-C#TA1 | R7F7017603AFP-C#KA1 |
| R7F7016933AFP-C#KA9 | R7F7016954AFP-C#BA1 | R7F701A713AFP-C#BA1 | R7F7017623AFP-C#BA1 |
| R7F7016934AFP-C#AA1 | R7F7016954AFP-C#BA9 | R7F701A713AFP-C#TA1 | R7F7017623AFP-C#KA1 |
| R7F7016934AFP-C#BA1 | R7F7016954AFP-C#KA1 | R7F701A723AFP-C#BA1 | R7F7017643AFP-C#BA1 |
| R7F7016934AFP-C#KA1 | R7F7016954AFP-C#KA9 | R7F701A723AFP-C#TA1 | R7F7017643AFP-C#TA1 |

| | | | |
|------------------------|------------------------|------------------------|------------------------|
| R7F7016943AFP-C#AA1 | R7F701A643AFP-C#BA1 | R7F701A733AFP-C#BA1 | R7F701A763AFP-C#BA1 |
| R7F7016943AFP-C#BA1 | R7F701A643AFP-C#KA1 | R7F701A733AFP-C#KA1 | R7F701A763AFP-C#TA1 |
| R7F7016943AFP-C#KA1 | R7F701A653AFP-C#BA1 | R7F701A743AFP-C#BA1 | R7F701A773AFP-C#BA1 |
| R7F7016944AFP-C#AA1 | R7F701A653AFP-C#KA1 | R7F701A743AFP-C#KA1 | R7F701A773AFP-C#KA1 |
| R7F7016944AFP-C#BA1 | R7F701A663AFP-C#BA1 | R7F701A753AFP-C#BA1 | R7F701A783AFP-C#BA1 |
| R7F7016944AFP-C#KA1 | R7F701A663AFP-C#KA1 | R7F701A753AFP-C#KA1 | R7F701A783AFP-C#KA1 |
| R7F701400EA21AFB-C#KA1 | R7F701402EA12AFB-C#KA1 | R7F701414EAFB-C#KA1 | R7F701423EAFB-C#BA1 |
| R7F701400EA22AFB-C#KA1 | R7F701402EA14AFB-C#KA1 | R7F701414E***AFB-C#KA1 | R7F701423EAFB-C#TA1 |
| R7F701400EA23AFB-C#KA1 | R7F701402EA55AFB-C#KA1 | R7F701420EAFB-C#AA1 | R7F701423EAFB-C#TA9 |
| R7F701400EA29AFB-C#KA1 | R7F701402EA56AFB-C#KA1 | R7F701420EAFB-C#BA1 | R7F701423E***AFB-C#TA1 |
| R7F701400EA30AFB-C#KA1 | R7F701402EAFB-C#AA1 | R7F701420EAFB-C#KA1 | R7F701423E***AFB-C#TA9 |
| R7F701400EA49AFB-C#KA1 | R7F701402EAFB-C#BA1 | R7F701420EAFB-C#KA9 | R7F701434EAFB-C#AA1 |
| R7F701400EAFB-C#AA1 | R7F701402EAFB-C#KA1 | R7F701420E***AFB-C#KA1 | R7F701434EAFB-C#BA1 |
| R7F701400EAFB-C#BA1 | R7F701402E***AFB-C#KA1 | R7F701420E***AFB-C#KA9 | R7F701434EAFB-C#KA1 |
| R7F701400EAFB-C#KA1 | R7F701403EAFB-C#AA1 | R7F701421EAFB-C#AA1 | R7F701434E***AFB-C#KA1 |
| R7F701400E***AFB-C#KA1 | R7F701403EAFB-C#BA1 | R7F701421EAFB-C#BA1 | R7F701442EAFB-C#AA0 |
| R7F701401EA00AFB-C#KA1 | R7F701403EAFB-C#TA1 | R7F701421EAFB-C#KA1 | R7F701442EAFB-C#BA0 |
| R7F701401EA01AFB-C#KA1 | R7F701403E***AFB-C#TA1 | R7F701421EAFB-C#KA9 | R7F701442EAFB-C#TA0 |
| R7F701401EA10AFB-C#KA1 | R7F701414EA03AFB-C#KA1 | R7F701421E***AFB-C#KA1 | R7F701442E***AFB-C#TA0 |
| R7F701401EA24AFB-C#KA1 | R7F701414EA04AFB-C#KA1 | R7F701421E***AFB-C#KA9 | R7F701462EAFB-C#AA0 |
| R7F701401EA31AFB-C#KA1 | R7F701414EA05AFB-C#KA1 | R7F701422EAFB-C#AA1 | R7F701462EAFB-C#BA0 |
| R7F701401EA46AFB-C#KA1 | R7F701414EA13AFB-C#KA1 | R7F701422EAFB-C#BA1 | R7F701462EAFB-C#TA0 |
| R7F701401EAFB-C#AA1 | R7F701414EA15AFB-C#KA1 | R7F701422EAFB-C#KA1 | R7F701462EAFB-C#TA9 |
| R7F701401EAFB-C#BA1 | R7F701414EA16AFB-C#KA1 | R7F701422EAFB-C#KA9 | R7F701462E***AFB-C#TA0 |
| R7F701401EAFB-C#KA1 | R7F701414EA54AFB-C#KA1 | R7F701422E***AFB-C#KA1 | R7F701462E***AFB-C#TA9 |
| R7F701401E***AFB-C#KA1 | R7F701414EAFB-C#AA1 | R7F701422E***AFB-C#KA9 | |
| R7F701402EA02AFB-C#KA1 | R7F701414EAFB-C#BA1 | R7F701423EAFB-C#AA1 | |

*** means ROM code

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 | 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 | 1 | 45 | 45 | 0 of 45 | * Applicable products only |
| HTSL | A6 | JESD22 A103 | High Temperature Storage Life: (Test @ Rm/Hot) Ta=150°C, 1000hrs or 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 |
| TDDDB | 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 | * 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 |