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# RENESAS SEMICONDUCTOR RELIABILITY REPORT

DEVICE: R1EX25004ASA00I#S0  
R1EX25004ASA00I#U0

APPLICATION: Standard

Quality Assurance Div.  
Renesas Electronics Corporation

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## Reliability test result

| Test Items                           | Reference              | Test Conditions   | Results<br>Reject/Size |
|--------------------------------------|------------------------|---|------------------------|
| High Temperature Operating Life      | JESD22-A108            | Ta = 125 °C, Vcc max, 1000 h  | 0/450                  |
| Low Temperature Operating Life       | JESD22-A108            | Tj = -40 °C, Vcc max, 1000 h  | 0/45                   |
| High Temperature Storage Life        | JESD22-A103            | Ta = 150 °C, 1000 h   | 0/45                   |
| Temperature Humidity Bias (THB)      | JESD22-A101            | Ta = 85 °C, 85% RH, Vcc=5.5V, 1000 h  | 0/45                   |
| Temperature Cycling                  | JESD22-A104            | Ta = -55 °C to +150 °C, 500 cycles  | 0/45                   |
| Resistance to Soldering Heat         | JESD22-A113, J-STD-020 | Bake:125 °C, 24 h<br>Moisture Soak: 85 °C 85% RH, 168h (JEDEC-MSL1 Equivalent)<br>Reflow: 260 °C peak, 255 °C 30 s, 3 times | 0/22                   |
| Solderability                        | J-STD-002              | 245 °C, 5 s<br>95% solder coverage minimum  | 0/5                    |
| Electrostatic discharge (HBM Method) | JS-001                 | C = 100 pF, R = 1.5 kΩ, ±1000 V   | 0/3                    |
| Electrostatic discharge (CDM Method) | JESD22-C101            | ±500 V  | 0/3                    |
| Latch-up (I-Test)                    | JESD78                 | ±150 mA   | 0/3                    |
| NVM Cycling Endurance                | -                      | Ta = 85 °C, Vcc = 5.5V, 100k times  | 0/45                   |
| NVM Cycling Endurance                | -                      | Ta = 25 °C, Vcc = 5.5V, 1000k times   | 0/45                   |
| Data Retention                       | -                      | Ta = 125 °C, 1000h  | 0/45                   |
| Estimated Failure Rate               | -                      | 15 FIT or less<br>Prerequisites: Ta = 55 °C, Ea = 0.5 eV, C.L. = 60%  |                        |

Reliability test results may include data from family representative products. MSL Preconditioning was performed prior to Temperature Humidity Bias and Temperature Cycling.

The Criteria shall follow the electrical characteristics in Specifications, except for Solderability.

Preconditioning Details: Bake (125 °C, 24 h) -> Moisture Soak (85 °C 85% RH, 168 h) -> Reflow (260 °C peak, 255 °C 30s, 3 times)