



Report No. APR-22-H0186-B  
Date: Nov. 15, 2023

# RENESAS SEMICONDUCTOR RELIABILITY REPORT

SERIES: UPC177G2

DEVICE: UPC177G2-A  
UPC177G2-E1-A  
UPC177G2-E2-A  
UPC177G2-AP  
UPC177G2-E1-AP  
UPC177G2-E2-AP

For both products manufactured by Naito Densai Sado Factory (NDK) and UTAC THAI Limited (UTL)

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, Apply rated voltage, 1,000h   | 0/22                   |
| Temperature Humidity Bias (HAST)     | JESD22-A110            | Ta=85 °C, 85%RH, Apply rated voltage, 1,000h   | 0/22                   |
| Temperature Cycling                  | JESD22-A104            | Ta=-65 ~ 150 °C, 200 cycles  | 0/22                   |
| High Temperature Storage Life        | JESD22-A103            | Ta=150 °C, 1,000h  | 0/22                   |
| Resistance to Soldering Heat         | JESD22-A113, J-STD-020 | Bake: 125°C, 24h<br>Moisture Soak:85°C85%RH, 168h(MSL=1)<br>Reflow:260°Cmax, 255°Cx30s, 3 times) | 0/22                   |
| Solderability                        | J-STD-002              | 245°C, 5s (Solder wetting area 95% or more)  | 0/22                   |
| Electrostatic discharge (HBM Method) | JS-001                 | C=100pF, R=1.5k ohm, ±1,000V   | 0/3                    |
| Electrostatic discharge (CDM Method) | JESD22-C101            | ±500V  | 0/3                    |
| Estimated Failure Rate               | -                      | Estimated failure rate: 15Fit<br>Ta= 55°C, Ea=0.7eV, 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.

<Judgement criteria>

Electrical characteristics described in the delivery specification.

(Solderability test is excluded.)

<Preconditioning Details>

125°C, 24h + 85°C85%RH 168h(JEDEC MSL1) -> Reflow(260°Cmax, 255°Cx30s, 3 times)