

Report No. APR-22-H0198-B  
Date: Nov. 15, 2023

# RENESAS SEMICONDUCTOR RELIABILITY REPORT

SERIES: UPC451G2

DEVICE: UPC451G2-A  
UPC451G2-E1-A  
UPC451G2-E2-A  
UPC451G2(5)-A  
UPC451G2(5)-E1-A  
UPC451G2(5)-E2-A  
UPC451G2-AP  
UPC451G2-E1-AP  
UPC451G2-E2-AP  
UPC451G2(5)-AP  
UPC451G2(5)-E1-AP  
UPC451G2(5)-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 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 Moisture Soak: 85°C85%RH, 168h(MSL=1) 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 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.

## &lt;Judgement criteria&gt;

Electrical characteristics described in the delivery specification.

(Solderability test is excluded.)

## &lt;Preconditioning Details&gt;

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