

# R1511J (-FE) Series Reliability Test Report

301511JFE-Ver. Aa

FUNCTION : Voltage Regulator ICs

PACKAGE : TO-252-5-P2 ... Tin plate (Sn (Matte-Tin)), Halogen free resin

| No. | TEST ITEM                                   | TEST CONDITION  | (*)PRE-CONDITION | TIME               | r/n  |
|-----|---|---|------------------|--------------------|------|
| 1   | High Temp. Operating Life                   | Ta=125°C VDD=Vopt max. Static                             | No               | 1000h              | 0/32 |
| 2   | Temp. Humidity Bias                         | Ta=85°C RH=85% VDD=Vopt max. Static                       | (1)+(2)          | 1000h              | 0/22 |
| 3   | High Temp. Storage                          | Ta=125°C  | No               | 1000h              | 0/22 |
| 4   | Low Temp. Storage                           | Ta=-55°C  | No               | 1000h              | 0/22 |
| 5   | Temp. Humidity                              | Ta=85°C RH=85%  | (1)+(2)          | 1000h              | 0/22 |
| 6   | Temp. Cycle                                 | Ta=-55 to 125°C (30-30min)                                | (1)+(2)          | 100cycles          | 0/11 |
| 7   | USPCBT                                      | Ta=125°C RH=85% 2X10 <sup>5</sup> Pa VDD=Vopt max. Static | (1)+(2)          | 100h               | 0/11 |
| 8   | USPCT                                       | Ta=125°C RH=85% 2X10 <sup>5</sup> Pa                      | (1)+(2)          | 100h               | 0/11 |
| 9   | Resistance To Soldering Heat(1)             | IR Reflow (See Fig.1)                                     | (1)              | 3times             | 0/88 |
| 10  | Resistance To Soldering Heat(2)             | Ta=350°C (Soldering iron)                                 | (1)              | 5s                 | 0/11 |
| 11  | Solderability by Solder Dip Method(1)       | Ta=235°C (Solder: Sn-37Pb)                                | (3)              | 5s                 | 0/11 |
| 12  | Solderability by Solder Dip Method(2)       | Ta=245°C (Solder: Sn-3.0Ag-0.5Cu)                         | (3)              | 5s                 | 0/11 |
| 13  | Solderability by Wettting Balance Method(1) | Ta=235°C (Solder: Sn-37Pb)                                | (3)              | Zero cross Time 3s | 0/5  |
| 14  | Solderability by Wettting Balance Method(2) | Ta=245°C (Solder: Sn-3.0Ag-0.5Cu)                         | (3)              | Zero cross Time 3s | 0/5  |
| 15  | ESD(1)                                      | MM C=200pF R=0 ohm ±200V                                  | No               | 5times             | 0/11 |
| 16  | ESD(2)                                      | HBM C=100pF R=1.5k ohm ±2.0kV                             | No               | 3times             | 0/11 |
| 17  | ESD(3)                                      | CDM ±1.0kV  | No               | Once               | 0/11 |
| 18  | Latch-up                                    | Pulse Current Injecting Method ±100mA                     | No               | Once               | 0/11 |

Criteria : The electrical characteristics prescribed in the individual specifications shall be satisfied.

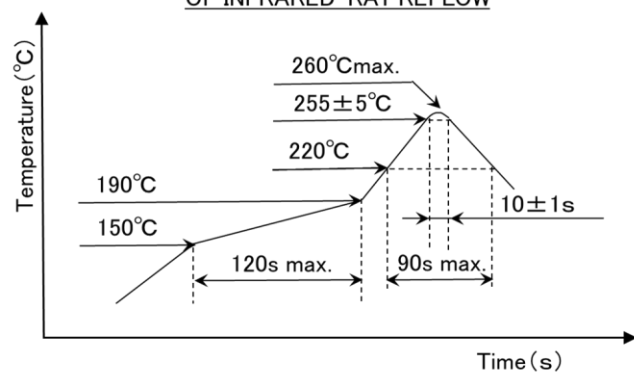
**\*) Pre-Condition**

The test shall be performed this pre-condition before testing.

- (1) Ta=85°C, RH=85%, storage=168h
- (2) IR Reflow soldering heat stress (3times)
- (3) In steam, storage=4h

[Moisture Sensitivity Level]  
MSL Level = 1 (J-STD-020)

HEATING TREATMENT CONDITION OF INFRARED-RAY REFLOW



Conclusion : The reliability result was good.