

# R1501S (-FE) Series Reliability Test Report

301501SFE-Ver.A

FUNCTION : Voltage Regulator ICs

PACKAGE : HSOP-6J ... 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                             | Non              | 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  | Non              | 1000h              | 0/22 |
| 4   | Low Temp. Storage                          | Ta=-55°C  | Non              | 1000h              | 0/22 |
| 5   | Temp. Humidity                             | Ta=85°C RH=85%  | (1)+(2)          | 1000h              | 0/22 |
| 6   | Temp. Cycle                                | Ta=-55 to 125°C (30-5-30min)                              | (1)+(2)          | 100cycles          | 0/11 |
| 7   | Thermal Shock                              | Ta=-55 to 125°C (5min-10s-5min)                           | (1)+(2)          | 100cycles          | 0/11 |
| 8   | USPCBT                                     | Ta=125°C RH=85% 2X10 <sup>5</sup> Pa VDD=Vopt max. Static | (1)+(2)          | 100h               | 0/11 |
| 9   | USPCT                                      | Ta=125°C RH=85% 2X10 <sup>5</sup> Pa                      | (1)+(2)          | 100h               | 0/11 |
| 10  | Resistance To Soldering Heat(1)            | IR Reflow (See Fig.1)                                     | (1)              | 3times             | 0/88 |
| 11  | Resistance To Soldering Heat(2)            | Ta=350°C (Soldering iron)                                 | (1)              | 5s                 | 0/11 |
| 12  | Solderability by Solder Dip Method(1)      | Ta=235°C (Solder: Sn-37Pb)                                | (3)              | 5s                 | 0/11 |
| 13  | Solderability by Solder Dip Method(2)      | Ta=245°C (Solder: Sn-3.0Ag-0.5Cu)                         | (3)              | 5s                 | 0/11 |
| 14  | Solderability by Wetting Balance Method(1) | Ta=235°C (Solder: Sn-37Pb)                                | (3)              | Zero cross Time 3s | 0/5  |
| 15  | Solderability by Wetting Balance Method(2) | Ta=245°C (Solder: Sn-3.0Ag-0.5Cu)                         | (3)              | Zero cross Time 3s | 0/5  |
| 16  | ESD(1)                                     | MM C=200pF R=0 ohm ±200V                                  | Non              | 5times             | 0/11 |
| 17  | ESD(2)                                     | HBM C=100pF R=1.5k ohm ±2.0kV                             | Non              | 3times             | 0/11 |
| 18  | ESD(3)                                     | CDM ±1.0kV  | Non              | Once               | 0/11 |
| 19  | Latch-up                                   | Pulse Current Injecting Method ±100mA                     | Non              | 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%, T=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.