RELIABILITY TEST RESULT

Product name : S-19117xxxS-S8TxU7
Package type : HTMSOP-8

No.	Test item	Test Condition	Test Time	r/n	Criterion
1	High-temperature operation	Ta=150 °C, V=Vopr max.	2000 h	0/22	Satisfies the product standard
2	Temperature humidity bias #1	Ta=85 °C, RH=85 %, V=Vopr max.	2000 h	0/22	Satisfies the product standard
3	Pressure cooker bias #1	Ta=130 °C, RH=85 %, P=2.3×10^5 Pa V=Vopr max.	96 h	0/22	Satisfies the product standard
4	Storage in high temperature	Ta=150 °C	2000 h	0/22	Satisfies the product standard
5	Storage in low temperature	Ta=−65 °C	2000 h	0/22	Satisfies the product standard
6	Temperature Cycle (Gas phase) #1	Ta=150 °C ⇔ −65 °C 15 minutes for each	1000 cycles	0/22	Satisfies the product standard
7	Resistance to soldering heat-1 (reflow soldering) #2	T=260 °C ,10 s	3 times	0/22	Satisfies the product standard No abnormality by appearances
8	Resistance to soldering heat-2 (Soldering Iron) #2	T=380 °C , 5 s (Soldering iron tip temperature) Object : terminal parts	2 times	0/22	Satisfies the product standard No abnormality by appearances
9	Resistance to soldering heat - 3 (Flow soldering) #2	T=260 °C ,10 s	1 time	0/22	Satisfies the product standard No abnormality by appearances
10	Solderability #3	T=245 °C Solder material : Sn-3.0Ag-0.5Cu	5 s	0/11	Zero cross time should be less than 3 seconds. Solder should be applied at 95% or more of solderability judgment area.
11	Whisker - 1 (Temperature / Humidity Storage)	Ta=30 °C, RH=60%	4000 h	0/6	Whisker should be less than 40µm
12	Whisker - 2 (Temperature Cycling)	Ta=85 °C ⇔ −40 °C	1500 cycles	0/6	Whisker should be less than 45µm
13	Whisker - 3 (High Temperature / Humidity Storage)	Ta=55 °C, RH=85 %	4000 h	0/6	Whisker should be less than 40µm
14	Solder Joint Reliability (shear test) #3	Ta=125 °C ⇔ −40 °C Solder material : Sn-3.0Ag-0.5Cu	2000 cycles	0/22	After temperature cycle test, keep strength for shear stress more than the 50 % of initial mean value.
15	Terminal Strength (Pull test)	Pull force : 0.5 N	30 s	0/11	Terminal is not taken off
16	Terminal Strength (Bending test)	Load : 0.25 N, 45 degree Bend a lead	2 times	0/11	Terminal is not taken off
17	ESD - 1 (Human Body Model)	V=±2000 V, C=100 pF, R=1.5 kΩ Ground : V_{DD} / V_{SS}	5 pulses	0/5	Satisfies the product standard
18	ESD - 2 (Charged Device Model)	V=±500V charged, discharged	1 pulse	0/5	Satisfies the product standard
19	Latch up 1 (Pulsed current injection test)	±100 mA, V =Vopr max.	1 pulse	0/5	No latch up
20	Latch up 2 (Vsupply overvoltage test)	The overvoltage specified when V = Vopr max.	1 pulse	0/5	No latch up

Remark : Vopr max. =Maximum operation voltage
#1,2,3 : Each test designated # is performed after Pre-Treatment finished.
Pre-Treatment consists of High Temperature Storage ,Temperature Humidity Storage and Soldering Heat. (See the table below.)

Pre Treatment (#1)		
High Temp. Storage	Temperature Humidity Storage	Soldering Heat
Ta=125 °C t=24 h	Ta=85 °C RH=85 % t=168 h	Reflow 3 times T=260 °C t=10 s

Pre Treatment (#2)		
High Temp. Storage	Temperature Humidity Storage	Soldering Heat
Ta=125 °C t=24 h	Ta=85 °C RH=85 % t=168 h	—

Pre Treatment (#3)		
High Temp. Storage	Temperature Humidity Storage	Soldering Heat
—	Ta=105 °C RH=100 % t=8 h	—