

RELIABILITY TEST DATA

Product name : S-78190Axx-HCT1

Package type : WLP-16A

No.	Test item	Test Condition	Test Time	r/n
1	High Temperature Operation	Ta=125 °C V _{DD} =Vopr max.	1000 h	0/22
2	High Temperature Bias	Ta=125 °C V _{DD} =Vabs max.×0.9	1000 h	0/22
3	# Temperature Humidity Bias	Ta=85 °C RH=85 % V _{DD} =Vabs max.×0.9	1000 h	0/22
4	# Un-saturated Pressure Cooker Bias	Ta=125 °C RH=85 % P=2×10 ⁵ Pa V _{DD} =Vabs max.×0.9	100 h	0/22
5	High Temperature Storage	Tstg max.=150 °C	1000 h	0/22
6	Low Temperature Storage	Tstg min.=−65 °C	1000 h	0/22
7	# Temperature Cycle (Gas phase)	Tstg max.=150 °C , Tstg min.=−65 °C (30 min each)	200 cycles	0/22
8	# Resistance to soldering heat (reflow)	T=260 °C ,10 s	3 times	0/22
9	Solder Joint Reliability (Temperature Cycle + shear test)	Tstg max.=125 °C , Tstg min.=−40 °C (30 min each) Solder material ; Sn-3.0Ag-0.5Cu criteria ;After temperature cycle test, keep strength for shear stress more than the 50 % of initial mean value.	500 cycles	0/5
10	ESD - 1 (Human Body Model)	V=±2000 V C=100 pF R=1.5 kΩ Ref. To V _{DD} / Vss (5units for each direction)	5 pulses	0/20
11	ESD - 2 (Machine Model)	V=±200 V C=200 pF R=0 Ω Ref. To V _{DD} / Vss (5units for each direction)	3 pulses	0/20
12	Latch Up	±100 mA (V _{CLAMP} = Vopr max.) 10 ms pulse V _{DD} =Vopr max.	1 pulse	0/5

Remark : Vabs max. = Absolute maximum voltage , Vopr max. =Maximum operation voltage

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