



7. Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~+125°C (Including self - temperature rise)	
Storage temperature	1. -10~+40°C ,50~60%RH (Product without taping)	
	2. -40~+125°C(on board)	
Electrical Performance Test		
Inductance	Refer to standard electrical characteristics list.	HP4284A,CH11025,CH3302,CH1320,CH1320SLCR Meter
DCR		CH16502,Agilent33420A Micro-Ohm Meter
Saturation Current (Isat)	Approximately $\Delta L30\%$	Saturation DC Current (Isat) will cause L0 to drop $\Delta L(\%)$
Heat Rated Current (Irms)	Approximately $\Delta T20^{\circ}\text{C}\&\Delta T40^{\circ}\text{C}$	Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^{\circ}\text{C})$ without core loss.
		1.Applied the allowed DC current
		2.Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance : No damage. Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles) Temperature : $125\pm 2^{\circ}\text{C}$ (Inductor) Applied current : rated current Duration : 1000 ± 12 hrs Measured at room temperature after placing for 24 ± 2 hrs
Load Humidity		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles) Humidity : $85\pm 2 \times \text{R.H.}$, Temperature : $85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24 ± 2 hrs
Moisture Resistance		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles) 1. Baked at 50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to $65\pm 2^{\circ}\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3. Raise temperature to $65\pm 2^{\circ}\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs,keep at 25°C for 2 hrs then keep at -10°C for 3 hrs 4. Keep at 25°C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.
Thermal shock		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles) Condition for 1 cycle Step1 : $-40\pm 2^{\circ}\text{C}$ 30 \pm 5min Step2 : $25\pm 2^{\circ}\text{C}$ ≤ 0.5 min Step3 : $125\pm 2^{\circ}\text{C}$ 30 \pm 5min Number of cycles : 500 Measured at room temperature after placing for 24 ± 2 hrs
Vibration		Oscillation Frequency: 10~2K~10Hz for 20 minutes Equipment : Vibration checker Total Amplitude:1.52mm \pm 10% Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations) ◦