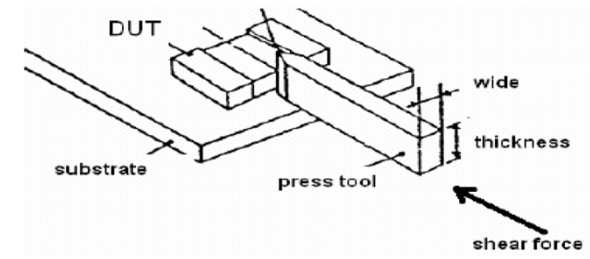


Reliability and Test Condition

Item	Performance	Test Condition
Electrical Performance Test		
Inductance	Refer to standard electrical characteristics list	HP4284A,CH11025,CH3302,CH1320,CH1320S LCR Meter
RDC		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 $\Delta T40^{\circ}\text{C}$	Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^{\circ}\text{C})$ without core loss. 1.Applied the allowed DC current (keep 1 min.). 2.Temperature measured by digital surface thermometer
Operating Temperature	-40 $^{\circ}\text{C}$ ~+125 $^{\circ}\text{C}$ (Including self - temperature rise)	
Storage Temperature	1.-10~+40 $^{\circ}\text{C}$,50~60%RH (Product with taping) 2.-40~+125 $^{\circ}\text{C}$ (on board)	
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-020D Classification 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-020D Classification Reflow Profiles) Humidity : 85 $\pm 2\%$ 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-020D Classification Reflow Profiles) 1. Baked at50 $^{\circ}\text{C}$ 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 $^{\circ}\text{C}$ 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 $^{\circ}\text{C}$ in 2.5hrs, keep at 25 $^{\circ}\text{C}$ for 2 hrs then keep at -10 $^{\circ}\text{C}$ for 3 hrs 4. Keep at 25 $^{\circ}\text{C}$ 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-020D Classification Reflow Profiles) Condition for 1 cycle Step1 : -40 $\pm 2^{\circ}\text{C}$ 30 ± 5 min Step2 : 25 $\pm 2^{\circ}\text{C}$ ≤ 0.5 min Step3 : 125 $\pm 2^{\circ}\text{C}$ 30 ± 5 min 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)

Reliability and Test Condition

Item	Performance	Test Condition																		
Reliability Test																				
Shock	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	<table border="1"> <thead> <tr> <th rowspan="2">Type</th> <th>Peak value</th> <th>Normal</th> <th rowspan="2">Wave form</th> <th>Velocity</th> </tr> <tr> <th>(g's)</th> <th>duration (D) (ms)</th> <th>change (Vi)ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> <tr> <td>Lead</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> </tbody> </table>	Type	Peak value	Normal	Wave form	Velocity	(g's)	duration (D) (ms)	change (Vi)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
Type		Peak value		Normal	Wave form		Velocity													
	(g's)	duration (D) (ms)	change (Vi)ft/sec																	
SMD	50	11	Half-sine	11.3																
Lead	50	11	Half-sine	11.3																
Bending		Shall be mounted on a FR4 substrate of the following dimensions: ≥ 0805 inch(2012mm):40x100x1.2mm < 0805 inch(2012mm):40x100x0.8mm Bending depth: ≥ 0805 inch(2012mm):1.2mm < 0805 inch(2012mm):0.8mm duration of 10 sec.																		
Soderability	More than 95% of the terminal electrode should be covered with solder	Preheat: 150°C, 60sec Solder: Sn96.5% Ag3% Cu0.5% Temperature: 245 \pm 5°C Flux for lead free: Rosin. 9.5% Dip time: 4 \pm 1sec Depth: completely cover the termination																		
Resistance to Soldering Heat		Depth: completely cover the termination Number of heat cycles: 1 <table border="1"> <thead> <tr> <th>Temperature (°C)</th> <th>Time (s)</th> <th>Temperature ramp/immersion and emersion rate</th> </tr> </thead> <tbody> <tr> <td>260 \pm5 (solder temp)</td> <td>10 \pm1</td> <td>25mm/s \pm6 mm/s</td> </tr> </tbody> </table>	Temperature (°C)	Time (s)	Temperature ramp/immersion and emersion rate	260 \pm 5 (solder temp)	10 \pm 1	25mm/s \pm 6 mm/s												
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260 \pm 5 (solder temp)	10 \pm 1	25mm/s \pm 6 mm/s																		
Terminal Strength	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-020D Classification Reflow Profiles) With the component mounted on a PCB with the device to be tested, apply a force (> 0805 inch(2012mm):1kg , ≤ 0805 inch(2012mm):0.5kg) to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested. 																		

Reliability and Test Condition

Item	Performance	Test Condition
Reliability Test		
Soldering	Mildly activated rosin fluxes are preferred. JANTEK terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.	
Lead Free Solder re-flow:	Recommended temperature profiles for re-flow soldering in Figure 1.	
Soldering Iron:	<p>Products attachment with a soldering iron is discouraged due to the inherent process control limitations. If a soldering iron must be employed the following precautions are recommended. for Iron Soldering in Figure 2.</p> <p>Note :</p> <ul style="list-style-type: none"> • Preheat circuit and products to 150°C • Never contact the ceramic with the iron tip • Use a 20 watt soldering iron with tip diameter of 1.0mm • 355°C tip temperature (max) • 1.0mm tip diameter (max) • Limit soldering time to 4~5 sec 	

Reflow Soldering

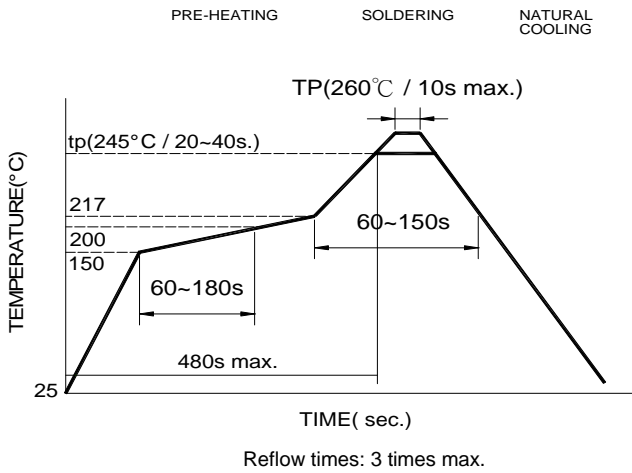


Fig.1

Iron Soldering

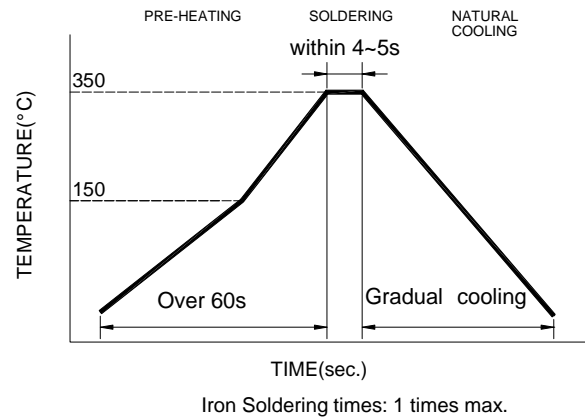


Fig.2