

## Reliability Performance

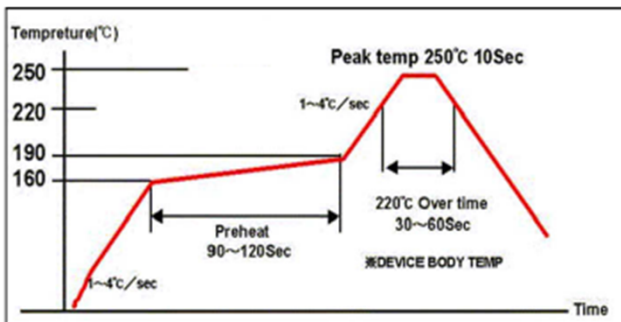
### Operating Temperature Range

Temp. Range : Ceramic Material : - 40°C to + 125°C

### Temperature profile

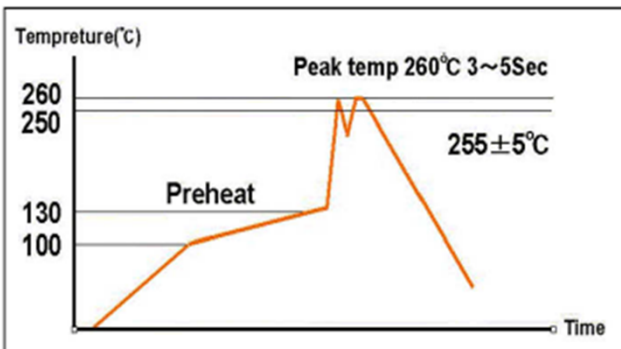
#### a. Reflow temperature profile

(Temperature of the mounted parts surface on the printed circuit board)



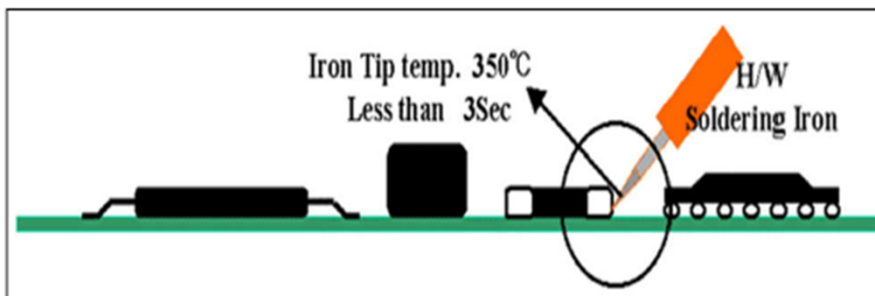
Reflow : 250°C Max  
 50°C up /within 10secs  
 Gradient of temperature rise : av 1-4°C/sec  
 Preheat : 160-190°C/within 90-120secs  
 220°C up /within 30-60secs  
 Composition of solder Sn-3Ag-0.5Cu

#### b. Dip temperature



Solder bathtub temperature: 260°C max within 5secs.  
 Preheating temperature: 100~130°C deposit solder temperature.  
 Composition of solder Sn-3Ag-0.5Cu

#### c. Soldering iron tip temperature : 350OC max / within 3 seconds.



## Reliability Performance

	ITEM	CONDITION	SPECIFICATION
<b>Mechanical Characteristics</b>	Inductance and Tolerance	Measuring Frequency : As shown in Product Table	Within Specified Tolerance
	Quality Factor	Measuring Temperature : + 25 °C	
	Insulation Resistance	Measured at 100V DC between inductor terminals and center of case.	1000 mega ohms minimum
	Dielectric Withstanding Voltage	Measured at 500V AC between inductor terminals and center of case for a maximum of 1 minute.	No damage occurs when the test voltage is applied.
	Temperature Coefficient of Inductance (TCL)	Over - 40 °C to + 85°C at frequency specified in Product Table.	+ 25 to 125 ppm / °C $TCL = \frac{L_1 - L_2}{L_1} \times 10^6$ (ppm / °C) L1(T1-T2)
	<b>Electrical Characteristics</b>	Component Adhesion (Push Test)	The component shall be reflow soldered onto a P. C. Board ( 240 °C ± 5°C for 20 seconds ) Then a dynamometer force gauge shall be applied to any side of the component.
Drop Test		The inductor shall be dropped two times on the concrete floor or the vinyl tile from 1M naturally	Change In Inductance: No more than 5%
Thermal Shock Test		each cycle shall consist of 30 minutes at -40 °C followed by 30 minutes at +85 °C with a 20-second maximum transition time between temperature extremes. Test duration is 10 cycles.	Change In Q: No more than 10%  Change In Appearance: Without distinct damage

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	ITEM	CONDITION	SPECIFICATION
<b>Endurance Characteristics</b>	Solderability	Dip pads in flux and dip in solder pot containing lead free solder at 240 °C ± 5°C for 5 seconds.	A minimum of 80% of the metalized area must be covered with solder.
	Resistance to Soldering Heat	Dip the components into flux and dip into solder pot containing lead free solder at 260 °C ± 5 °C for 5 ± 2 seconds.	Change In Inductance: No more than 5%
	Vibration (Random)	Inductors shall be randomly vibrated at amplitude of 1.5mm and frequency of 10 - 55 Hz: 0.04 G / Hz for a minimum of 15 minutes per axis for each of the three axes.	Change In Q: No more than 10%
	Cold Temperature Storage	Inductors shall be stored at temperature of -40 °C ± 2 °C for 1000hrs (+ 48 -0 hrs.) Then inductors shall be subjected to standard atmospheric conditions for 1 hour. After that, measurement shall be made.	Change In Appearance: Without distinct damage
	High Temperature Storage	Inductors shall be stored at temperature of 85 °C ± 2 °C for 1000hrs (+48 - 0hrs.) Then inductors shall be subjected to standard atmospheric conditions for 1 hour. After that, measurement shall be made.	
	Moisture Resistance	Inductors shall be stored in the chamber at 45 °C at 90 - 95 R. H. for 1000 hours. Then inductors are to be tested after 2 hours at room temperature.	Inductors shall not have a shorted or open winding.
	High Temperature with Loaded	Inductors shall be stored in the chamber at +85 °C for 1000 hours with rated current applied. Inductors shall be tested at the beginning of test at 500 hours and 1000 hours. Then inductors are to be tested after 1 hour at room temperature.	