

Reliability and Test Condition

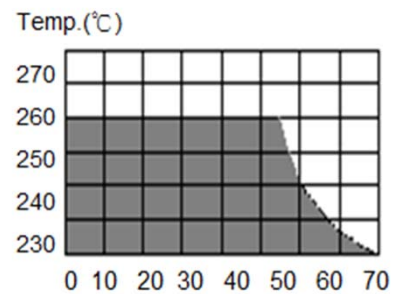
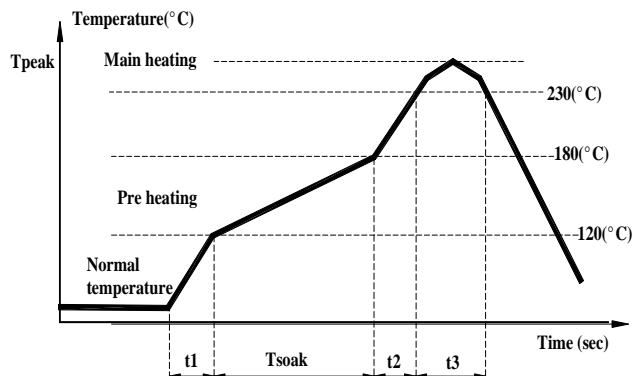
ITEM	SPECIFICATION	TEST CONDITIONS
Operating Temperature	- 55 °C ~ + 125 °C	
Storage Temperature	- 40 °C ~ + 85 °C	

Reflow soldering conditions

Temperature rise gradient	t1	1~5°C/sec
Heating time	Tsoak	50s ~ 150s
Heating temperature		120°C ~ 180°C
Time over 230°C	t3	90~120 sec
Slope of temp. rise	t2	1~5°C/sec
Peak temperature	Tpeak	255~260°C
Peak hold time		10sec (max)
		No. of mounting 3 times

- Pre-heating should be in such a way that the temperature difference between solder and ferrite surface is limited to 150°C max. Also cooling into solvent after soldering should be in such a way that the temperature difference is limited to 100°C max. Unenough pre-heating may cause cracks on the ferrite, resulting in the deterioration of product quality.
- Products should be soldered within the following allowable range indicated by the slanted line. The excessive soldering conditions may cause the corrosion of the electrode, When soldering is repeated, allowable time is the accumulated time.

Reflow soldering temperature profile



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ITEM	SPECIFICATION	TEST CONDITIONS
	<p>Reworking with soldering iron</p> <ul style="list-style-type: none"> Preheating : 150°C, 1 minute Tip temperature : 280°C max. Soldering time : 3 seconds max. Soldering iron output : 30w max. End of soldering iron : ϕ 3mm max. Reworking should be limited to only one time. <p>Note : Do not directly touch the products with the tip of the soldering iron in order to prevent the crack on the ferrite material due to the thermal shock.</p> <p>Solder Volume</p> <ul style="list-style-type: none"> Solder shall be used not to be exceed the upper limits as shown below. <div data-bbox="391 806 1173 940" style="text-align: center;"> </div> <ul style="list-style-type: none"> Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance. 	

MECHANICAL CHARACTERISTICS

ITEM	SPECIFICATION	TEST CONDITIONS
Terminal Strength	<ul style="list-style-type: none"> Terminal strength does not distort the case shall meet SPEC DC resistance specifications. 	<ul style="list-style-type: none"> Solder chip on PCB and applied 10N (1.02Kgf) for 10 sec. <div data-bbox="1069 1355 1316 1478" style="text-align: center;"> </div>
Substrate bending test	<ul style="list-style-type: none"> SPEC substrate bending test DC resistance shall meet specifications. 	<ul style="list-style-type: none"> After soldering a chip to a test substrate, bend the substrate by 3mm hold for 10s and then return. Soldering shall be done in accordance with the recommended PC board pattern and reflow soldering. <div data-bbox="1045 1792 1396 2049" style="text-align: center;"> </div>

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ITEM	SPECIFICATION	TEST CONDITIONS
Resistance to solder heat	<ul style="list-style-type: none"> No visible damage Electrical characteristics and mechanical characteristics shall be satisfied. <p>Consult standard MIL-STD-202 METHOD 210</p>	<ul style="list-style-type: none"> Solder Temp. : $265 \pm 3^\circ\text{C}$ Immersion time : 6 ± 1 sec Preheating : 100°C to 150°C, 1 minute. Measurement to be made after keeping keeping at room temp for 24 ± 2 hrs. Solder : Sn-3Ag-0.5Cu .
Solderability	<ul style="list-style-type: none"> 95% min. coverage of all metallized area <p>Consult standard J-STD-002</p>	<ul style="list-style-type: none"> Solder Temp. : $240 \pm 5^\circ\text{C}$ Immersion time : 3 ± 1 sec Solder : Sn-3Ag-0.5Cu .

Environmental Characteristics

ITEM	SPECIFICATION	TEST CONDITIONS
High Temperature Resistance	<ul style="list-style-type: none"> Appearance : no mechanical damage Inductance shall be with $\pm 20\%$ of the initial value 	<ul style="list-style-type: none"> Operate Temperature : $125^\circ\text{C} \pm 2^\circ\text{C}$ Time : 1000 ± 12Hrs Measurement : After placing at room ambient temperature for 24 hours minimum
Biased Humidity Resistance	<ul style="list-style-type: none"> Appearance : no mechanical damage Inductance shall be with $\pm 20\%$ of the initial value 	<ul style="list-style-type: none"> Humidity : $85 \pm 5\%$ RH Temperature : $85^\circ\text{C} \pm 2^\circ\text{C}$ Time : 1000 ± 12Hrs Measurement : After placing at room ambient temperature for 24 hours minimum
Temperature Cycle	<ul style="list-style-type: none"> Appearance : no mechanical damage Inductance shall be with $\pm 20\%$ of the initial value 	<ul style="list-style-type: none"> Low Temperature : $-55 \pm 5^\circ\text{C}$ kept stabilized for 30 minutes each High Temperature : $125 \pm 5^\circ\text{C}$ kept stabilized for 30 minutes each Cycle : 1000 cycles Measurement : After placing for 24 hours minimum at room ambient temperature step1. -55°C temp$\pm 5^\circ\text{C}$ 30 ± 3 minutes step2. Room temperature 2 to 5 minutes step3. $+125^\circ\text{C}$ temp$\pm 5^\circ\text{C}$ 30 ± 3 minutes step4. Room temperature 2 to 5 minutes
Vibration test	<ul style="list-style-type: none"> Appearance : no mechanical damage Inductance shall be with $\pm 20\%$ of the initial value 	<ul style="list-style-type: none"> Frequency and Amplitude : 10-2000-10Hz Direction : X, Y, Z. Test duration : 4 hours for each direction, 12 hours in total.



MULTILAYER CHIP INDUCTOR- JCI SERIES

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ITEM	SPECIFICATION	TEST CONDITIONS
Mechanical Shock Test	<ul style="list-style-type: none">Appearance : no mechanical damageInductance shall be with $\pm 20\%$ of the initial value	<ul style="list-style-type: none">peak acceleration : 100g'sDuration of pulse : 6 msWaveform : Half-sineVelocity change : 12.3 ft/secDirection : X , Y , Z (3 axes/3 times)
Operational Life	<ul style="list-style-type: none">Appearance : no mechanical damageInductance shall be with $\pm 20\%$ of the initial value	<ul style="list-style-type: none">Temperature : $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$Time : $1000 \pm 12\text{Hrs}$Measurement : After placing at room ambient temperature for 24 hours minimum
Electrostatic discharge test	<ul style="list-style-type: none">Appearance : no mechanical damageInductance shall be with $\pm 20\%$ of the initial value	<ul style="list-style-type: none">ESD voltage ; 15K VoltsMode 1 : 150 pF / 330 OhmMode 2 : 150 pF / 2000 Ohm