

## Reliability and Test Condition

Item	Performance	Test Condition
<b>Electrical Performance Test</b>		
Z(common mode)	Refer to standard electrical characteristics list.	Agilent-4291A+ Agilent -16197A
DCR		Agilent-4338B
I.R.		Agilent-4339
Operating Temperature	-40°C~+85°C (Including self - temperature rise)	
Storage Temperature	-40°C~+85°C (on board)	
Temperature Rise Test	Rated Current $\geq$ 1A $\Delta$ T 40°C Max	1.Applied the allowed DC current. 2.Temperature measured by digital surface thermometer
<b>Reliability Test</b>		
Life Test	Appearance : No damage Impedance : within $\pm$ 15% of initial value 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 : 85 $\pm$ 2°C Applied current : rated current Duration : 1000 $\pm$ 12hrs Measured at room temperature after placing for 24 $\pm$ 2 hrs
Load Humidity	Appearance : No damage Impedance : within $\pm$ 15% of initial value 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 : 85 $\pm$ 2% R.H Temperature : 85°C $\pm$ 2°C Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24 $\pm$ 2 hrs
Moisture Resistance	Appearance : No damage Impedance : within $\pm$ 15% of initial value 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) 1. Baked at50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65 $\pm$ 2°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°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	Appearance : No damage Impedance : within $\pm$ 15% of initial value 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) Condition for 1 cycle Step1 : -40 $\pm$ 2°C 30 $\pm$ 5min Step2 : 25 $\pm$ 2°C $\leq$ 0.5min Step3 : 85 $\pm$ 2°C 30 $\pm$ 5min Number of cycles : 500 Measured at room temperature after placing for 24 $\pm$ 2 hrs
Vibration	Appearance : No damage Impedance : within $\pm$ 15% of initial value 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	Oscillation Frequency: 10Hz~2KHz~10Hz for 20 minutes Equipment : Vibration checker Total Amplitude:10g Testing Time : 12 hours (20 minutes, 12 cycles each of 3 orientations)

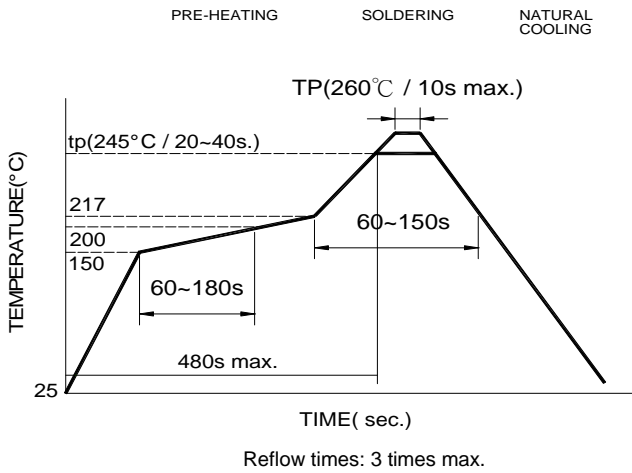
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<b>Reliability Test</b>																	
Bending	Appearance : No damage Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value RDC : within ±15% of initial value and shall not exceed the specification value	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.															
Shock	Appearance : No damage Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value RDC : within ±15% of initial value and shall not exceed the specification value	<table border="1"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity 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 (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
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SMD	50	11	Half-sine	11.3													
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Solder ability	More than 95% of the terminal electrode should be covered with solder	Preheat: 150°C,60sec. Solder: Sn96.5% Ag3% Cu0.5% Temperature: 245±5°C Flux for lead free: Rosin. 9.5% Dip time: 4±1sec Depth: completely cover the termination															
Resistance to Soldering Heat	Appearance : No damage Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value RDC : within ±15% of initial value and shall not exceed the specification value	Depth: completely cover the termination <table border="1"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 ±5 (solder temp)</td> <td>10 ±1</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1							
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Terminal Strength	Appearance : No damage Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value RDC : within ±15% of initial value and shall not exceed the specification value	<p>Preconditioning:Run through IR reflow for 2 times. ( IPC/JEDEC J-STD-020DClassification Reflow Profiles) With the component mounted on a PCB with the device to be tested, apply a force(&gt;0805:1kg , &lt;=0805:0.5kg)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.</p>															

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<b>Soldering and Mounting</b>		
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.	
Solder re-flow:	Recommended temperature profiles for re-flow soldering in Figure 1.	
Soldering Iron (Figure 2):	Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended. Note : <ul style="list-style-type: none"> <li>• Preheat circuit and products to 150°C</li> <li>• Never contact the ceramic with the iron tip</li> <li>• Use a 20 watt soldering iron with tip diameter of 1.0mm</li> <li>• 350°C tip temperature (max)</li> <li>• 1.0mm tip diameter (max)</li> <li>• Limit soldering time to 4~5 sec</li> </ul>	

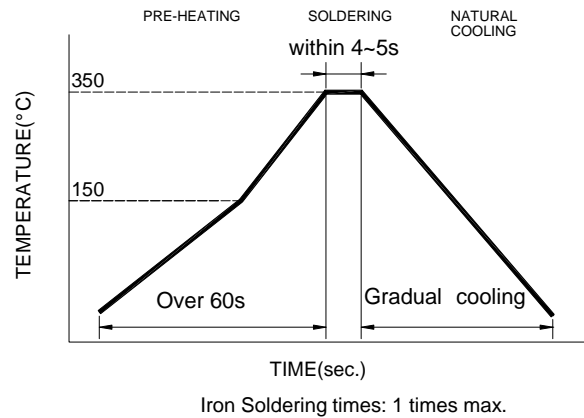
Reflow Soldering



Reflow times: 3 times max.

Fig.1

Iron Soldering



Iron Soldering times: 1 times max.

Fig.2