Wire-wound Ferrite Power Inductors LBXN/LBXP series for Telecommunications Infrastructure and Industrial Equipment Wire-wound Ferrite Power Inductors LMXN/LMXP series for Medical Devices classified as GHTF Class C (Japan Class III)

RELIABILITY DATA

erature Range				
-40~+125°C (Including self-generated heat)				
Including self-generated heat				
ature Range				
-40~+85°C				
-5 to 40° C for the product with taping.				
Within the specified tolerance				
<u> </u>				
Within the specified tolerance				
Measuring equipment : LCR Meter (HP 4285A or equivalent) Measuring frequency : 100kHz, 1V				
Within the specified tolerance				
Measuring equipment : DC ohmmeter (HIOKI 3227 or equivalent)				
requency				
Within the specified tolerance (2020 type: -)				
Measuring equipment : Impedance analyzer/material analyzer(HP4291A or equivalent HP4191A, 4192A or equivalent)				
aracteristic				
Inductance change: Within ±20%				
Measurement of inductance shall be taken at temperature range within $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$. With reference to inductance value at $+20^{\circ}\text{C}$., change rate shall be calculated. Change of maximum inductance deviation in step 1 to 5 Step Temperature(°C) 1 20 2 Minimum operating temperature 3 20 (Standard temperature) 4 Maximum operating temperature				

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8. Resistance to flexure of substrate No damage Specified Value The test samples shall be soldered to the test board by the reflow. As illustrated below, apply force in the direction of the arrow indicating until deflection of the test board reaches to 2 mm. Test board size : 100 × 40 × 1.6 mm Force Rod 10 / Test board material : glass epoxy-resin R230 Solder cream thickness : 0.10mm (2020~3030 type) : 0.15mm (4040~8080 type) Board 45±2mm Test Methods and Remarks Land dimension Туре В С 0.65 2020 0.7 2.0 2424 0.7 0.75 2.0 3030 8.0 1.4 2.7 4040 1.2 1.6 3.7 5050 1.5 2.1 4.0 6060 1.6 5.7 3.1 8080 1.8 3.8 7.5 9. Insulation resistance : between wires Specified Value 10. Insulation resistance : between wire and core Specified Value 11. Withstanding voltage: between wire and core Specified Value 12. Adhesion of terminal electrode Specified Value Shall not come off PC board The test samples shall be soldered to the test board by the reflow. Applied force : 10N to X and Y directions. Duration : 0.10mm(2020~3030 type) Solder cream thickness : 0.15mm (4040~8080 type) Test Methods and Remarks 10 N , S s 13. Resistance to vibration Inductance change : Within $\pm 10\%$ Specified Value No significant abnormality in appearance. The test samples shall be soldered to the test board by the reflow. Then it shall be submitted to below test conditions. Frequency Range 10~55Hz Total Amplitude 1.5mm (May not exceed acceleration 196m/s²) Test Methods 10Hz to 55Hz to 10Hz for 1min. Sweeping Method and Remarks

Recovery : At least 2hrs of recovery under the standard condition after the test, followed by the measurement within 48hrs.

For 2 hours on each X, Y, and Z axis.

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Time

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14. Solderability			
Specified Value	At least 90% of surface of terminal electrode is covered by new solder.		
Test Methods and	The test samples shall be dipped in flux, and then immersed in molten solder as shown in below table. Flux: Ethanol solution containing rosin 25%.		
Remarks	Solder Temperature 245±5°C		
	Time 5±1.0 sec.		
	※Immersion depth : All sides of mounting terminal shall be immersed.		
Specified Value	Inductance change: Within ±10% No significant abnormality in appearance. The test sample shall be exposed to reflow oven at 230±5°C for 40 seconds, with peak temperature at 260±5°C for 5 seconds,		
Test Methods and Remarks	times. Test board material : glass epoxy-resin Test board thickness : 1.0mm		
16. Thermal shock			
Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.		
	The test samples shall be soldered to the test board by the reflow. The test samples shall be placed at specified temperature for specified time by step 1 to step 4 as shown in below table in sequence. The temperature cycle shall be repeated 1000 cycles.		

16. Thermal shock					
Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.				
Test Methods		•	elow table in sequence. The	The test samples shall be placed at specified temperature for specified temperature cycle shall be repeated 1000 cycles.	
and Remarks	1	-40±3	30±3		
	2	Room temperature	Within 3		
	3	+85±2	30±3		
	4	Room temperature	Within 3		

17. Damp heat			
Specified Value	Inductance change: Within ±10% No significant abnormality in appearance.		
The test samples shall be soldered to the test board by the reflow. Test Methods and Remarks Test Methods The test samples shall be placed in thermostatic oven set at specified temperature and humidity as shall be placed in thermostatic oven set at specified temperature and humidity as shall be soldered to the test board by the reflow. The test samples shall be placed in thermostatic oven set at specified temperature and humidity as shall be placed in thermostatic oven set at specified temperature and humidity as shall be placed in the reflow.		•	
		90~95%RH	
	Time	1000 + 24/-0 hour	

18. Loading under	damp heat		
Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.		
The test samples shall be soldered to the test board by the reflow. The test samples shall be placed in thermostatic oven set at specified temperature and humidity and applied the reflow. Test Methods as shown in below table.		•	
and Remarks	Temperature	60±2°C	
	Humidity	90∼95%RH	
	Applied current	Rated current	
	Time	1000+24/-0 hour	

19. Low temperatu	re life test		
Specified Value	Inductance change No significant abno	: Within ±10% ormality in appearance.	
Test Methods	The test samples s in below table.	hall be soldered to the test	board by the reflow. After that, the test samples shall be placed at test conditions as shown
and Remarks	Temperature	-40±2°C	
	Time	1000+24/-0 hour	

20. High temperatur	re life test
Specified Value	_

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21. Loading at high	temperature life test		
Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.		
	The test samples shall be soldered to the test board by the reflow soldering.		
Test Methods	Temperature	85±2°C	
and Remarks	Applied current	Rated current	
	Time	1000+24/-0 hour	

	Time	1000+24/-0 hour	
22. Standard condi	ition		
Specified Value	When there is ar temperature, 65	e specified, temperature is 20	\pm 15°C and 65 \pm 20% of relative humidity. ement result: In order to provide correlation data, the test shall be condition of 20 \pm 2°C of value.

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