

**Wire-wound Ferrite Power Inductors LBXH series
for Telecommunications Infrastructure and Industrial Equipment**
**Wire-wound Ferrite Power Inductors LMXH series
for Medical Devices classified as GHTF Class C (Japan Class III)**

■ RELIABILITY DATA

1. Operating Temperature Range

Specified Value −40~ +125°C (Including self-generated heat)

Test Methods and Remarks Including self-generated heat

2. Storage Temperature Range

Specified Value −40~ +125°C

Test Methods and Remarks −5 to 40°C for the product with taping.

3. Rated current

Specified Value Within the specified tolerance

4. Inductance

Specified Value Within the specified tolerance

Test Methods and Remarks Measuring equipment : LCR Meter (HP 4285A or equivalent)
 Measuring frequency : 100kHz, 1V

5. DC Resistance

Specified Value Within the specified tolerance

Test Methods and Remarks Measuring equipment : DC ohmmeter (HIOKI 3227 or equivalent)

6. Temperature characteristic

Specified Value Inductance change : Within ±20%

Test Methods and Remarks Measurement of inductance shall be taken at temperature range within −40°C~ +125°C.
 With reference to inductance value at +20°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
5	20

▶ This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our specification.
 For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our Web site (<http://www.ty-top.com/>).

12. Thermal shock																			
Specified Value	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.																		
Test Methods and Remarks	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. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="3">Conditions of 1 cycle</th> </tr> <tr> <th>段階</th> <th>Temperature ($^{\circ}\text{C}$)</th> <th>Duration (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40 ± 3</td> <td>30 ± 3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>$+105 \pm 3$</td> <td>30 ± 3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>Within 3</td> </tr> </tbody> </table>	Conditions of 1 cycle			段階	Temperature ($^{\circ}\text{C}$)	Duration (min)	1	-40 ± 3	30 ± 3	2	Room temperature	Within 3	3	$+105 \pm 3$	30 ± 3	4	Room temperature	Within 3
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段階	Temperature ($^{\circ}\text{C}$)	Duration (min)																	
1	-40 ± 3	30 ± 3																	
2	Room temperature	Within 3																	
3	$+105 \pm 3$	30 ± 3																	
4	Room temperature	Within 3																	

13. Damp heat							
Specified Value	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.						
Test Methods and Remarks	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 as shown in below table. <table border="1" style="margin-left: 20px;"> <tbody> <tr> <td>Temperature</td> <td>$85 \pm 2^{\circ}\text{C}$</td> </tr> <tr> <td>Humidity</td> <td>85%RH</td> </tr> <tr> <td>Time</td> <td>1000 + 24 / - 0 hour</td> </tr> </tbody> </table>	Temperature	$85 \pm 2^{\circ}\text{C}$	Humidity	85%RH	Time	1000 + 24 / - 0 hour
Temperature	$85 \pm 2^{\circ}\text{C}$						
Humidity	85%RH						
Time	1000 + 24 / - 0 hour						

14. Low temperature life test					
Specified Value	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.				
Test Methods and Remarks	The test samples shall be soldered to the test board by the reflow. After that, the test samples shall be placed at test conditions as shown in below table. <table border="1" style="margin-left: 20px;"> <tbody> <tr> <td>Temperature</td> <td>$-40 \pm 2^{\circ}\text{C}$</td> </tr> <tr> <td>Time</td> <td>1000 + 24 / - 0 hour</td> </tr> </tbody> </table>	Temperature	$-40 \pm 2^{\circ}\text{C}$	Time	1000 + 24 / - 0 hour
Temperature	$-40 \pm 2^{\circ}\text{C}$				
Time	1000 + 24 / - 0 hour				

15. High temperature life test					
Specified Value	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.				
Test Methods and Remarks	The test samples shall be soldered to the test board by the reflow. After that, the test samples shall be placed at test conditions as shown in below table. <table border="1" style="margin-left: 20px;"> <tbody> <tr> <td>Temperature</td> <td>$125 \pm 3^{\circ}\text{C}$</td> </tr> <tr> <td>Time</td> <td>1000 hour</td> </tr> </tbody> </table>	Temperature	$125 \pm 3^{\circ}\text{C}$	Time	1000 hour
Temperature	$125 \pm 3^{\circ}\text{C}$				
Time	1000 hour				

16. Loading at high temperature life test							
Specified Value	Inductance change : Within $\pm 10\%$ No significant abnormality in appearance.						
Test Methods and Remarks	The test samples shall be soldered to the test board by the reflow soldering. <table border="1" style="margin-left: 20px;"> <tbody> <tr> <td>Temperature</td> <td>1) $85 \pm 2^{\circ}\text{C}$ 2) $105 \pm 3^{\circ}\text{C}$</td> </tr> <tr> <td>Applied current</td> <td>1) Rated current ($+40^{\circ}\text{C}$) 2) Rated current ($+20^{\circ}\text{C}$)</td> </tr> <tr> <td>Time</td> <td>1000 + 24 / - 0 hour</td> </tr> </tbody> </table>	Temperature	1) $85 \pm 2^{\circ}\text{C}$ 2) $105 \pm 3^{\circ}\text{C}$	Applied current	1) Rated current ($+40^{\circ}\text{C}$) 2) Rated current ($+20^{\circ}\text{C}$)	Time	1000 + 24 / - 0 hour
Temperature	1) $85 \pm 2^{\circ}\text{C}$ 2) $105 \pm 3^{\circ}\text{C}$						
Applied current	1) Rated current ($+40^{\circ}\text{C}$) 2) Rated current ($+20^{\circ}\text{C}$)						
Time	1000 + 24 / - 0 hour						

17. Standard condition	
Specified Value	Standard test condition : Unless otherwise specified, temperature is $20 \pm 15^{\circ}\text{C}$ and $65 \pm 20\%$ of relative humidity. When there is any question concerning measurement result: In order to provide correlation data, the test shall be condition of $20 \pm 2^{\circ}\text{C}$ of temperature, $65 \pm 5\%$ relative humidity. Inductance is in accordance with our measured value.

■ Derating of Rated Current

● LBXH/LMXH series

Derating of current is necessary for LBXH/LMXH series depending on ambient temperature.
Please refer to the chart shown below for appropriate derating of current.

