Wire-wound Ferrite Power Inductors LSQPB series for General Electronic Equipment for Consumer
Wire-wound Ferrite Power Inductors LLQPB series
for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)

■RELIABILITY DATA

1. Operating Temperature Range	
Specified Value	−40～＋105℃
Test Methods and Remarks	Including self-generated heat

2. Storage Temperature Range(after soldering)	
Specified Value	−40～＋85℃
Test Methods and Remarks	Please refer the term of "7.Storage conditions" in Precautions.

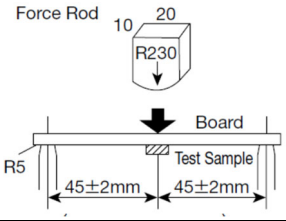
3. Rated current	
Specified Value	Within the specified tolerance

4. Inductance	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : LCR Meter (HP 4285A or equivalent) Measuring frequency : Specified frequency

5. DC Resistance	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : DC ohmmeter (HIOKI 3227 or equivalent)

6. Self resonance frequency	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : Impedance analyzer/material analyzer (HP4291A or equivalent HP4191A, 4192A or equivalent)

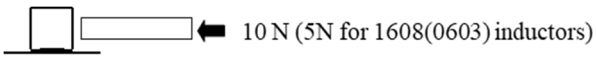
7. Temperature characteristic	
Specified Value	Inductance change : Within ±15%
Test Methods and Remarks	Based on the inductance at 20℃ and Measured at the ambient of −40℃～＋85℃.

8. Resistance to the bendability	
Specified Value	No damage.
Test Methods and Remarks	The given sample is soldered on the board and then the back side of the board is pushed until it bends 2mm like the figure. Dimension of the board : 100×40×1.0mm (0.8mm thickness for 1608(0603) inductors) Material of the board : Glass epoxy-resin Thickness of soldering paste : 0.12mm 

9. Body strength

Specified Value	No damage.
Test Methods and Remarks	2012～ Applied orce 10N Duration : 10sec. 1608 size Applied force : 5N Duration : 10sec.

10. Adhesion of terminal electrodes

Specified Value	Not to removed from the board.
Test Methods and Remarks	The given sample is soldered to the board and then it is kept for 5sec with 10N stress (5N for 1608(0603) inductors) like the figure. 

11. Resistance to vibration

Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.
Test Methods and Remarks	The given sample is soldered to the board and then it is tested depending on the conditions of the following table.

Vibration Frequency	10～55Hz	
Total Amplitude	1.5mm (May not exceed acceleration 196m/s2)	
Sweeping Method	10Hz to 55Hz to 10Hz for 1min.	
Time	X	For 2 hours on each X, Y, and Z axis.
	Y	
	Z	

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

12. Solderability

Specified Value	At least 90% area of the electrodes is covered by new solder.
Test Methods and Remarks	Test Method and Remarks】 The given sample is dipped into the flux and then it is tested depending on the conditions of the following table. Flux : Ethanol solution containing rosin 25%.

Solder Temperature	245±5℃
Time	5±0.5 sec.

13. Resistance to soldering heat

Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.
Test Methods and Remarks	3 times reflow having the temperature profile of 5sec of 260+0/−5 ℃ and 40sec of more than 230℃. Test board thickness : 1.0mm Test board material : Glass epoxy-resin Recovery : At least 2hrs of recovery under the standard condition after the test, followed by the measurement within 48hrs.

14. Thermal shock

Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.
Test Methods and Remarks	The given sample is soldered to the board and then its Inductance is measured after 100cycles of the following conditions.

Conditions of 1 cycle		
Step	Temperature (℃)	Duration (min)
1	−40±3	30±3
2	Room temperature	Within 3
3	+85±2	30±3
4	Room temperature	Within 3

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

15. Damp heat	
Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.
Test Methods and Remarks	The given sample is soldered to the board and then it is kept at the following conditions. Temperature: 60±2℃ Humidity: 90～95%RH Time: 1000 hours. Recovery : At least 2hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

16. Loading under damp heat	
Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.
Test Methods and Remarks	The given sample is soldered to the board and then it is kept at the following conditions. Temperature: 60±2℃ Humidity: 90～95%RH Applied current: Rated current Time: 1000hours. Recovery : At least 2hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

17. Low temperature life test	
Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.
Test Methods and Remarks	The given sample is soldered to the board and then it is kept at the following conditions. Temperature: −40±2℃ Duration: 1000hours Recovery : At least 2hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

18. High temperature life test	
Specified Value	Inductance change : Within ±10% No significant abnormality in appearance.
Test Methods and Remarks	The given sample is soldered to the board and then it is kept at the following conditions. Temperature: 85±2℃ Duration: 1000hours Recovery : At least 2hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

19. Standard conditions	
Specified Value	Standard test condition : Unless otherwise specified, temperature is 20±15℃ and 65±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±2℃ of temperature, 65±5% relative humidity. Inductance is in accordance with our measured value.