■RELIABILITY DATA

1.Operating temperature Range	
Specified Value	−40～＋105℃(Including self-generated heat)

2. Storage Temperature Range(after soldering)	
Specified Value	−40～＋85℃
Test Methods and Remarks	Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors Please refer the term of "7. storage conditions" in precautions.

3.Rated Current	
Specified Value	Within the specified tolerance

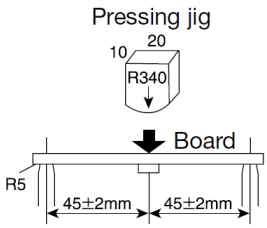
4.Inductance	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : LCR Mater(HP4285A or its equivalent) Measuring frequency : Specified frequency

5.Q	
Specified Value	Wire-wound Ferrite Inductors for Signal Lines: Within the specified tolerance
Test Methods and Remarks	Wire-wound Ferrite Inductors for Signal Lines: Measuring equipment : LCR Mater(HP4285A or its equivalent) Measuring frequency : Specified frequency

6.DC Resisitance	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : DC Ohmmeter (HIOKI 3227 or its equivalent)

7.Self-Resonant Frequency	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : Impedance analyzer (HP4291A or its equivalent)

8.Temperature Characteristic					
Specified Value	LSQMB2016				Inductance change : Within±5%
	LLQMB2016				
	LSQBA1608	LSQBA2012	LSQEA2012	LSQNA2012	Inductance change : Within±20%
	LSQNA2012	LSQBA2016	LSQNA2016	LSQBA2518	
	LSQEA2518	LSQNA2518	LSQCA3225	LSQPA3225	
	LLQBA2016	LLQBA2012	LLQEA2012	LLQNA2012	
	LLQNA2012	LLQBA2016	LLQNA2016	LLQBA2518	
	LLQEA2518	LLQNA2518	LLQCA3225	LLQPA3225	
	LSQBB1608	LSQNB1608	LSQCA2016	LSQPA2016	Inductance change : Within±25%
	LSQCA2518	LSQPA2518	LSQBA3218		
	LLQBB1608	LLQNB1608	LLQCA2016	LLQPA2016	
	LLQCA2518	LLQPA2518	LLQBA3218		
	LSQCA2012	LSQPA2012			Inductance change : Within±35%
	LLQCA2012	LLQPA2012			
Test Methods and Remarks	Based on the inductance at 20℃ and Measured at the ambient of −40℃～+85℃.				

9.Rasistance to Flexure of Substrate	
Specified Value	No damage.
Test Methods and Remarks	Warp : 2mm Test substrate : Glass epoxy-resin substrate Thickness : 1.0mm (1608 type:0.8mm) 

10.Body Strength	
Specified Value	No damage.
Test Methods and Remarks	Applied force : 10N(1608 type:5N) Duration : 10sec.

11.Adhesion of terminal electrode		
Specified Value	LB, LBC, LBR, LBMF Series	No abnormality.
	CB, CBC, CBL, CBMF Series	
	LBM Series	
Test Methods and Remarks	Applied force : 10N to X and Y directions(1608 type:5N to X and Y directions) Duration : 5 sec. Test substrate : Printed board	

12.Resistance to vibration

Specified Value

Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors
Inductance change : Within±10%
No significant abnormality in appearance.
Wire-wound Ferrite Inductors for Signal Lines
Inductance change :Within±5%
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 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

13.Drop test

Specified Value —

14.Solderability

Specified Value At least 90% of surface of terminal electrode is covered by new

Test Methods and Remarks

Solder temperature : 245±5℃
Duration : 5±0.5sec
Flux : Ethanol solution with 25% of colophony

15.Resistance to soldering

Specified Value

Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors
Inductance change : Within±10%
Wire-wound Ferrite Inductors for Signal Lines
Inductance change :Within±5%

Test Methods and Remarks

3 times of reflow oven at 230℃ MIN for 40sec. with peak temperature at 260 ℃ for 5sec.
Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

16.Resisitance to solvent

Specified Value —

Test Methods and Remarks

Solvent temperature : Room temperature
Type of solvent : Isopropyl alcohol
Cleaning conditions : 90s. Immersion and cleaning.

17.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 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

18.Damp heat life test

Specified Value

Inductance change : Within±10%
No significant abnormality in appearance.

Test Methods and Remarks

Temperature : 60±2℃
Humidity : 90～95%RH
Duration : 1000 hrs
Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

19.Loading under damp heat life test	
Specified Value	Inductance change : Within±10% No significant abnormality in appearance.
Test Methods and Remarks	Temperature : 60±2℃ Humidity : 90～95%RH Duration : 1000 hrs Applied current : Rated current Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

20.High temperature life test	
Specified Value	Wire-wound Ferrite Power Inductors, Wire-wound Ferrite Inductors for Signal Lines : Inductance change : Within±10% No significant abnormality in appearance.
Test Methods and Remarks	Temperature : 85±2℃ Duration : 1000 hrs Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

21.Loading at high temperature life test	
Specified Value	Wire-wound Ferrite Inductors: Inductance change : Within±10% (3225 type:Within±20%) No significant abnormality in appearance.
Test Methods and Remarks	Temperature : 85±2℃ Duration : 1000 hrs Applied current : Rated current Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

22.Low temperature life test	
Specified Value	Inductance change : Within±10% No significant abnormality in appearance.
Test Methods and Remarks	Temperature : −40±2℃ Duration : 1000 hrs Recovery : At least 2 hrs of recovery under the standard condition after the test, followed by the measurement within 48 hrs.

23.Standard condition	
Specified Value	Standard test conditions Unless specified, Ambient temperature is 20±15℃ and the Relative humidity is 65±20%. If there is any doubt about the test results, further measurement shall be had within the following limits: Ambient Temperature: 20±2℃ Relative humidity: 65±5% Inductance value is based on our standard measurement systems.