Notice for TAIYO YUDEN Products

Please read this notice before using the TAIYO YUDEN products.

⚠ REMINDERS

Product Information in this Catalog

Product information in this catalog is as of October 2021. All of the contents specified herein and production status of the products listed in this catalog are subject to change without notice due to technical improvement of our products, etc. Therefore, please check for the latest information carefully before practical application or use of our products.

Please note that TAIYO YUDEN shall not be in any way responsible for any damages and defects in products or equipment incorporating our products, which are caused under the conditions other than those specified in this catalog or individual product specification sheets.

Approval of Product Specifications

Please contact TAIYO YUDEN for further details of product specifications as the individual product specification sheets are available. When using our products, please be sure to approve our product specifications or make a written agreement on the product specification with TAIYO YUDEN in advance.

Pre-Evaluation in the Actual Equipment and Conditions

Please conduct validation and verification of our products in actual conditions of mounting and operating environment before using our products.

Safety Design

When using our products for high safety and/or reliability-required equipment or circuits, please fully perform safety and/or reliability evaluation. In addition, please install (i) systems equipped with a protection circuit and a protection device and/or (ii) systems equipped with a redundant circuit or other system to prevent an unsafe status in the event of a single fault for a failsafe design to ensure safety.

Intellectual Property Rights

Information contained in this catalog is intended to convey examples of typical performances and/or applications of our products and is not intended to make any warranty with respect to the intellectual property rights or any other related rights of TAIYO YUDEN or any third parties nor grant any license under such rights.

Limited Warranty

Please note that the scope of warranty for our products is limited to the delivered our products themselves conforming to the product specifications specified in the individual product specification sheets, and TAIYO YUDEN shall not be in any way responsible for any damages resulting from a failure or defect in our products. Notwithstanding the foregoing, if there is a written agreement (e.g., supply and purchase agreement, quality assurance agreement) signed by TAIYO YUDEN and your company, TAIYO YUDEN will warrant our products in accordance with such agreement, provided, however, that our products shall be used for general-purpose and standard use in the equipment specified in this catalog or the individual product specification sheets.

TAIYO YUDEN's Official Sales Channel

The contents of this catalog are applicable to our products which are purchased from our sales offices or authorized distributors (hereinafter "TAIYO YUDEN's official sales channel"). Please note that the contents of this catalog are not applicable to our products purchased from any seller other than TAIYO YUDEN's official sales channel.

Caution for Export

Some of our products listed in this catalog may require specific procedures for export according to "U.S. Export Administration Regulations", "Foreign Exchange and Foreign Trade Control Law" of Japan, and other applicable regulations. Should you have any questions on this matter, please contact our sales staff.

Limited Application

1. Equipment Intended for Use

The products listed in this catalog are intended for general-purpose and standard use in general electronic equipment for consumer (e.g., AV equipment, OA equipment, home electric appliances, office equipment, information and communication equipment including, without limitation, mobile phone, and PC) and other equipment specified in this catalog or the individual product specification sheets, or the equipment approved separately by TAIYO YUDEN.
TAIYO YUDEN has the product series intended for use in the following equipment. Therefore, when using our products for these equipment, please check available applications specified in this catalog or the individual product specification sheets and use the corresponding products.

Application	Product Series		Quality Grade *3
	Equipment *1	Category (Part Number Code *2)	
Automotive	Automotive Electronic Equipment (POWERTRAIN, SAFETY)	A	1
	Automotive Electronic Equipment (BODY & CHASSIS, INFOTAINMENT)	C	2
Industrial	Telecommunications Infrastructure and Industrial Equipment	B	2
Medical	Medical Devices classified as GHTF Class C (Japan Class III)	M	2
	Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)	L	3
Consumer	General Electronic Equipment	S	3

*Notes: 1. Based on the general specifications required for electronic components for such equipment, which are recognized by TAIYO YUDEN, the use of each product series for the equipment is recommended. Please be sure to contact TAIYO YUDEN before using our products for equipment other than those covered by the product series.
2. On each of our part number, the 2nd code from the left is a code indicating the “Category” as shown in the above table. For details, please check the explanatory materials regarding the part numbering system of each of our products.
3. Each product series is assigned a “Quality Grade” from 1 to 3 in order of higher quality. Please do not incorporate a product into any equipment with a higher Quality Grade than the Quality Grade of such product without the prior written consent of TAIYO YUDEN.

2. Equipment Requiring Inquiry

Please be sure to contact TAIYO YUDEN for further information before using the products listed in this catalog for the following equipment (excluding intended equipment as specified in this catalog or the individual product specification sheets) which may cause loss of human life, bodily injury, serious property damage and/or serious public impact due to a failure or defect of the products and/or malfunction attributed thereto.

(1) Transportation equipment (automotive powertrain control system, train control system, and ship control system, etc.)
(2) Traffic signal equipment
(3) Disaster prevention equipment, crime prevention equipment
(4) Medical devices classified as GHTF Class C (Japan Class III)
(5) Highly public information network equipment, data-processing equipment (telephone exchange, and base station, etc.)
(6) Any other equipment requiring high levels of quality and/or reliability equal to the equipment listed above

3. Equipment Prohibited for Use

Please do not incorporate our products into the following equipment requiring extremely high levels of safety and/or reliability.

(1) Aerospace equipment (artificial satellite, rocket, etc.)
(2) Aviation equipment *1
(3) Medical devices classified as GHTF Class D (Japan Class IV), implantable medical devices *2
(4) Power generation control equipment (nuclear power, hydroelectric power, thermal power plant control system, etc.)
(5) Undersea equipment (submarine repeating equipment, etc.)
(6) Military equipment
(7) Any other equipment requiring extremely high levels of safety and/or reliability equal to the equipment listed above

*Notes: 1. There is a possibility that our products can be used only for aviation equipment that does not directly affect the safe operation of aircraft (e.g., in-flight entertainment, cabin light, electric seat, cooking equipment) if such use meets requirements specified separately by TAIYO YUDEN. Please be sure to contact TAIYO YUDEN for further information before using our products for such aviation equipment.
2. Implantable medical devices contain not only internal unit which is implanted in a body, but also external unit which is connected to the internal unit.

4. Limitation of Liability

Please note that unless you obtain prior written consent of TAIYO YUDEN, TAIYO YUDEN shall not be in any way responsible for any damages incurred by you or third parties arising from use of the products listed in this catalog for any equipment that is not intended for use by TAIYO YUDEN, or any equipment requiring inquiry to TAIYO YUDEN or prohibited for use by TAIYO YUDEN as described above.

Wire-wound Ferrite Inductors LSQB/LSQC/LSQE series for General Electronic Equipment for Consumer

シリーズ前の記号は、品番から抽出したものであり、製品の種類や特性などの区分を示すためのものです。

REFLOW

■PART NUMBER

＊ Operating Temp.: −40〜+105℃ (Including self-generated heat)

L	S	Q	B	A	2	0	1	2	1	2	T	1	0	0	M		
①				②	③				④		⑤	⑥			⑦	⑧	⑨

①Series

Code (1)(2)(3)(4)	
LSQB	Wire-wound Ferrite Inductor for General Electronic Equipment for Consumer
LSQC	Wire-wound Ferrite Inductor for General Electronic Equipment for Consumer
LSQE	Wire-wound Ferrite Inductor for General Electronic Equipment for Consumer

(1) Product Group

Code	
L	Inductors

(2) Category

Code	Recommended equipment	Quality Grade
S	General Electronic Equipment for Consumer	3

(3) Type

Code	
Q	Ferrite Wire-wound (Horizontal type)

(4) Features, Characteristics

Code	
B	Standard
C	High current
E	Low Rdc

②Features

Code	Feature
A	5-surface electrode (Ag-resin × Sn-plate)
B	L-shape electrode (Ag-resin × Sn-plate)

③Dimensions (L × W)

Code	Type (inch)	Dimensions (L × W) [mm]
1608	1608 (0603)	1.6 × 0.8
2012	2012 (0805)	2.0 × 1.25
2016	2016 (0806)	2.0 × 1.6
2518	2518 (1007)	2.5 × 1.8
3218	3218 (1207)	3.2 × 1.8
3225	3225 (1210)	3.2 × 2.5

④Dimensions (T)

Code	Dimensions (T) [mm]
08	0.8
12	1.25
16	1.6
18	1.8
25	2.5

⑤Packaging

Code	Packaging
T	Taping

⑥Nominal inductance

Code (example)	Nominal inductance [μH]
1R0	1.0
100	10
101	100

※R=Decimal point

⑦Inductance tolerance

Code	Inductance tolerance
K	±10%
M	±20%

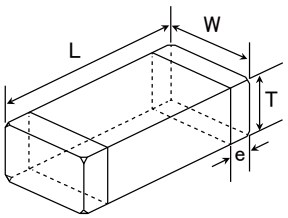
⑧Special code

Code	Special code
R	Low Rdc type

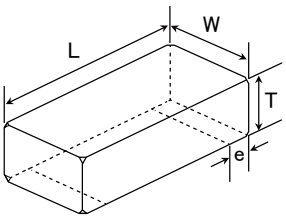
⑨Internal code

■STANDARD EXTERNAL DIMENSIONS / STANDARD QUANTITY

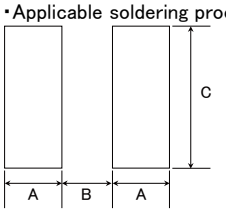
5-surface electrode



L-shape electrode



Recommended Land Patterns
Surface Mounting
・Mounting and soldering conditions should be checked beforehand.
・Applicable soldering process to these products is reflow soldering only.



Type	A	B	C
A1608	0.55	0.7	0.9
B1608	0.55	0.7	1.0
A2012	0.60	1.0	1.45
A2016	0.60	1.0	1.8
A2518	0.60	1.5	2.0
A3218	0.85	1.7	2.0
A3225	0.85	1.7	2.7

Unit : mm

Type	L	W	T	e	Standard quantity [pcs]	
					Paper tape	Embossed tape
A160808	1.6±0.1 (0.063±0.004)	0.8±0.1 (0.031±0.004)	0.8±0.1 (0.031±0.004)	0.35±0.15 (0.014±0.006)	4000	—
B160808	1.6±0.2 (0.063±0.008)	0.8±0.2 (0.031±0.008)	0.8±0.2 (0.031±0.008)	0.45±0.15 (0.016±0.006)	—	3000
A201212	2.0±0.2 (0.079±0.008)	1.25±0.2 (0.049±0.008)	1.25±0.2 (0.049±0.008)	0.5±0.2 (0.020±0.008)	—	3000
A201616	2.0±0.2 (0.079±0.008)	1.6±0.2 (0.063±0.008)	1.6±0.2 (0.063±0.008)	0.5±0.2 (0.020±0.008)	—	2000
A251818	2.5±0.2 (0.098±0.008)	1.8±0.2 (0.071±0.008)	1.8±0.2 (0.071±0.008)	0.5±0.2 (0.020±0.008)	—	2000
A321818	3.2±0.2 (0.126±0.008)	1.8±0.2 (0.071±0.008)	1.8±0.2 (0.071±0.008)	0.6±0.2 (0.024±0.008)	—	2000
A322525	3.2±0.2 (0.126±0.008)	2.5±0.2 (0.098±0.008)	2.5±0.2 (0.098±0.008)	0.6±0.3 (0.024±0.012)	—	1000

Unit : mm (inch)

■PART NUMBER

●1608(0603) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA160808T1R0M	LB 1608T1R0M	RoHS	1.0	±20%	100	0.17	160	7.96
LSQBA160808T2R2M	LB 1608T2R2M	RoHS	2.2	±20%	80	0.33	115	7.96
LSQBA160808T4R7M	LB 1608T4R7M	RoHS	4.7	±20%	45	0.55	70	7.96
LSQBA160808T8R2M	LB 1608T8R2M	RoHS	8.2	±20%	32	0.70	60	2.52
LSQBA160808T100M	LB 1608T100M	RoHS	10	±20%	32	0.70	60	2.52

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBB160808T1R0M	LBMF1608T1R0M	RoHS	1.0	±20%	100	0.09	230	7.96
LSQBB160808T2R2M	LBMF1608T2R2M	RoHS	2.2	±20%	80	0.17	160	7.96
LSQBB160808T3R3M	LBMF1608T3R3M	RoHS	3.3	±20%	60	0.22	130	7.96
LSQBB160808T4R7M	LBMF1608T4R7M	RoHS	4.7	±20%	45	0.24	110	7.96
LSQBB160808T100K	LBMF1608T100K	RoHS	10	±10%	32	0.36	80	2.52
LSQBB160808T100M	LBMF1608T100M	RoHS	10	±20%	32	0.36	80	2.52
LSQBB160808T220K	LBMF1608T220K	RoHS	22	±10%	16	1.0	50	2.52
LSQBB160808T220M	LBMF1608T220M	RoHS	22	±20%	16	1.0	50	2.52
LSQBB160808T470K	LBMF1608T470K	RoHS	47	±10%	11	2.5	35	2.52
LSQBB160808T470M	LBMF1608T470M	RoHS	47	±20%	11	2.5	35	2.52

●2012(0805) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA201212T1R0M	LB 2012T1R0M	RoHS	1.0	±20%	100	0.15	405	7.96
LSQBA201212T2R2M	LB 2012T2R2M	RoHS	2.2	±20%	80	0.23	260	7.96
LSQBA201212T3R3M	LB 2012T3R3M	RoHS	3.3	±20%	55	0.30	235	7.96
LSQBA201212T4R7M	LB 2012T4R7M	RoHS	4.7	±20%	45	0.40	190	7.96
LSQBA201212T6R8M	LB 2012T6R8M	RoHS	6.8	±20%	38	0.47	135	7.96
LSQBA201212T100K	LB 2012T100K	RoHS	10	±10%	32	0.70	120	2.52
LSQBA201212T100M	LB 2012T100M	RoHS	10	±20%	32	0.70	120	2.52
LSQBA201212T100KR	LB 2012T100KR	RoHS	10	±10%	32	0.50	120	2.52
LSQBA201212T100MR	LB 2012T100MR	RoHS	10	±20%	32	0.50	120	2.52
LSQBA201212T150K	LB 2012T150K	RoHS	15	±10%	28	1.3	100	2.52
LSQBA201212T150M	LB 2012T150M	RoHS	15	±20%	28	1.3	100	2.52
LSQBA201212T220K	LB 2012T220K	RoHS	22	±10%	16	1.7	80	2.52
LSQBA201212T220M	LB 2012T220M	RoHS	22	±20%	16	1.7	80	2.52
LSQBA201212T470K	LB 2012T470K	RoHS	47	±10%	11	3.7	60	2.52
LSQBA201212T470M	LB 2012T470M	RoHS	47	±20%	11	3.7	60	2.52
LSQBA201212T680K	LB 2012T680K	RoHS	68	±10%	10	6.0	50	2.52
LSQBA201212T680M	LB 2012T680M	RoHS	68	±20%	10	6.0	50	2.52
LSQBA201212T101K	LB 2012T101K	RoHS	100	±10%	8	7.0	45	0.796
LSQBA201212T101M	LB 2012T101M	RoHS	100	±20%	8	7.0	45	0.796

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQCA201212T1R0M	LB C2012T1R0M	RoHS	1.0	±20%	100	0.19	620	7.96
LSQCA201212T2R2M	LB C2012T2R2M	RoHS	2.2	±20%	70	0.33	430	7.96
LSQCA201212T4R7M	LB C2012T4R7M	RoHS	4.7	±20%	45	0.50	295	7.96
LSQCA201212T100K	LB C2012T100K	RoHS	10	±10%	40	1.2	200	2.52
LSQCA201212T100M	LB C2012T100M	RoHS	10	±20%	40	1.2	200	2.52
LSQCA201212T220K	LB C2012T220K	RoHS	22	±10%	16	3.7	130	2.52
LSQCA201212T220M	LB C2012T220M	RoHS	22	±20%	16	3.7	130	2.52
LSQCA201212T470K	LB C2012T470K	RoHS	47	±10%	11	5.8	90	2.52
LSQCA201212T470M	LB C2012T470M	RoHS	47	±20%	11	5.8	90	2.52

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQEA201212T1R0M	LB R2012T1R0M	RoHS	1.0	±20%	100	0.07	400	7.96
LSQEA201212T2R2M	LB R2012T2R2M	RoHS	2.2	±20%	80	0.13	260	7.96
LSQEA201212T4R7M	LB R2012T4R7M	RoHS	4.7	±20%	45	0.24	200	7.96
LSQEA201212T100K	LB R2012T100K	RoHS	10	±10%	32	0.36	150	2.52
LSQEA201212T100M	LB R2012T100M	RoHS	10	±20%	32	0.36	150	2.52
LSQEA201212T220K	LB R2012T220K	RoHS	22	±10%	16	1.0	100	2.52
LSQEA201212T220M	LB R2012T220M	RoHS	22	±20%	16	1.0	100	2.52
LSQEA201212T470K	LB R2012T470K	RoHS	47	±10%	11	1.7	75	2.52
LSQEA201212T470M	LB R2012T470M	RoHS	47	±20%	11	1.7	75	2.52
LSQEA201212T101K	LB R2012T101K	RoHS	100	±10%	8	4.0	50	0.796
LSQEA201212T101M	LB R2012T101M	RoHS	100	±20%	8	4.0	50	0.796

LSQB/LSQC series
Rated Current : The maximum DC value having inductance decrease within 10 % and temperature increase within 20 degC by the application of DC bias.

LSQE series
Rated Current : The maximum DC value having inductance decrease within 20 % and temperature increase within 20 degC by the application of DC bias.

■PART NUMBER

●2016(0806) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA201616T1R0M	LB 2016T1R0M	RoHS	1.0	±20%	100	0.09	490	7.96
LSQBA201616T1R5M	LB 2016T1R5M	RoHS	1.5	±20%	80	0.11	380	7.96
LSQBA201616T2R2M	LB 2016T2R2M	RoHS	2.2	±20%	70	0.13	375	7.96
LSQBA201616T3R3M	LB 2016T3R3M	RoHS	3.3	±20%	55	0.20	285	7.96
LSQBA201616T4R7M	LB 2016T4R7M	RoHS	4.7	±20%	45	0.25	225	7.96
LSQBA201616T6R8M	LB 2016T6R8M	RoHS	6.8	±20%	38	0.35	200	7.96
LSQBA201616T100K	LB 2016T100K	RoHS	10	±10%	32	0.50	155	2.52
LSQBA201616T100M	LB 2016T100M	RoHS	10	±20%	32	0.50	155	2.52
LSQBA201616T150K	LB 2016T150K	RoHS	15	±10%	28	0.70	130	2.52
LSQBA201616T150M	LB 2016T150M	RoHS	15	±20%	28	0.70	130	2.52
LSQBA201616T220K	LB 2016T220K	RoHS	22	±10%	16	1.0	105	2.52
LSQBA201616T220M	LB 2016T220M	RoHS	22	±20%	16	1.0	105	2.52
LSQBA201616T330K	LB 2016T330K	RoHS	33	±10%	14	1.7	85	2.52
LSQBA201616T330M	LB 2016T330M	RoHS	33	±20%	14	1.7	85	2.52
LSQBA201616T470K	LB 2016T470K	RoHS	47	±10%	11	2.4	70	2.52
LSQBA201616T470M	LB 2016T470M	RoHS	47	±20%	11	2.4	70	2.52
LSQBA201616T680K	LB 2016T680K	RoHS	68	±10%	10	3.0	55	2.52
LSQBA201616T680M	LB 2016T680M	RoHS	68	±20%	10	3.0	55	2.52
LSQBA201616T101K	LB 2016T101K	RoHS	100	±10%	8	4.5	40	0.796
LSQBA201616T101M	LB 2016T101M	RoHS	100	±20%	8	4.5	40	0.796

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQCA201616T1R0M	LB C2016T1R0M	RoHS	1.0	±20%	100	0.10	690	7.96
LSQCA201616T1R5M	LB C2016T1R5M	RoHS	1.5	±20%	80	0.15	600	7.96
LSQCA201616T2R2M	LB C2016T2R2M	RoHS	2.2	±20%	70	0.20	520	7.96
LSQCA201616T3R3M	LB C2016T3R3M	RoHS	3.3	±20%	55	0.27	410	7.96
LSQCA201616T4R7M	LB C2016T4R7M	RoHS	4.7	±20%	45	0.37	355	7.96
LSQCA201616T6R8M	LB C2016T6R8M	RoHS	6.8	±20%	38	0.59	290	7.96
LSQCA201616T100K	LB C2016T100K	RoHS	10	±10%	32	0.82	245	2.52
LSQCA201616T100M	LB C2016T100M	RoHS	10	±20%	32	0.82	245	2.52
LSQCA201616T150K	LB C2016T150K	RoHS	15	±10%	28	1.2	200	2.52
LSQCA201616T150M	LB C2016T150M	RoHS	15	±20%	28	1.2	200	2.52
LSQCA201616T220K	LB C2016T220K	RoHS	22	±10%	16	1.8	165	2.52
LSQCA201616T220M	LB C2016T220M	RoHS	22	±20%	16	1.8	165	2.52
LSQCA201616T330K	LB C2016T330K	RoHS	33	±10%	14	2.8	135	2.52
LSQCA201616T330M	LB C2016T330M	RoHS	33	±20%	14	2.8	135	2.52
LSQCA201616T470K	LB C2016T470K	RoHS	47	±10%	11	4.3	110	2.52
LSQCA201616T470M	LB C2016T470M	RoHS	47	±20%	11	4.3	110	2.52
LSQCA201616T680K	LB C2016T680K	RoHS	68	±10%	10	7.0	95	2.52
LSQCA201616T680M	LB C2016T680M	RoHS	68	±20%	10	7.0	95	2.52
LSQCA201616T101K	LB C2016T101K	RoHS	100	±10%	8	8.0	75	0.796
LSQCA201616T101M	LB C2016T101M	RoHS	100	±20%	8	8.0	75	0.796

●2518(1007) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA251818T1R0M	LB 2518T1R0M	RoHS	1.0	±20%	100	0.06	665	7.96
LSQBA251818T1R5M	LB 2518T1R5M	RoHS	1.5	±20%	80	0.07	405	7.96
LSQBA251818T2R2M	LB 2518T2R2M	RoHS	2.2	±20%	68	0.09	340	7.96
LSQBA251818T3R3M	LB 2518T3R3M	RoHS	3.3	±20%	54	0.11	280	7.96
LSQBA251818T4R7M	LB 2518T4R7M	RoHS	4.7	±20%	46	0.13	240	7.96
LSQBA251818T4R7MR	LB 2518T4R7MR	RoHS	4.7	±20%	46	0.10	235	7.96
LSQBA251818T6R8M	LB 2518T6R8M	RoHS	6.8	±20%	38	0.15	195	7.96
LSQBA251818T100K	LB 2518T100K	RoHS	10	±10%	30	0.25	165	2.52
LSQBA251818T100M	LB 2518T100M	RoHS	10	±20%	30	0.25	165	2.52
LSQBA251818T150K	LB 2518T150K	RoHS	15	±10%	23	0.32	145	2.52
LSQBA251818T150M	LB 2518T150M	RoHS	15	±20%	23	0.32	145	2.52
LSQBA251818T220K	LB 2518T220K	RoHS	22	±10%	19	0.50	115	2.52
LSQBA251818T220M	LB 2518T220M	RoHS	22	±20%	19	0.50	115	2.52
LSQBA251818T330K	LB 2518T330K	RoHS	33	±10%	15	0.70	95	2.52
LSQBA251818T330M	LB 2518T330M	RoHS	33	±20%	15	0.70	95	2.52
LSQBA251818T470K	LB 2518T470K	RoHS	47	±10%	12	0.95	85	2.52
LSQBA251818T470M	LB 2518T470M	RoHS	47	±20%	12	0.95	85	2.52
LSQBA251818T680K	LB 2518T680K	RoHS	68	±10%	9.5	1.5	70	2.52
LSQBA251818T680M	LB 2518T680M	RoHS	68	±20%	9.5	1.5	70	2.52
LSQBA251818T101K	LB 2518T101K	RoHS	100	±10%	9.0	2.1	60	0.796
LSQBA251818T101M	LB 2518T101M	RoHS	100	±20%	9.0	2.1	60	0.796
LSQBA251818T151K	LB 2518T151K	RoHS	150	±10%	7.0	3.2	45	0.796
LSQBA251818T151M	LB 2518T151M	RoHS	150	±20%	7.0	3.2	45	0.796
LSQBA251818T221K	LB 2518T221K	RoHS	220	±10%	5.5	4.5	40	0.796
LSQBA251818T221M	LB 2518T221M	RoHS	220	±20%	5.5	4.5	40	0.796
LSQBA251818T331K	LB 2518T331K	RoHS	330	±10%	4.5	7.0	30	0.796
LSQBA251818T331M	LB 2518T331M	RoHS	330	±20%	4.5	7.0	30	0.796
LSQBA251818T471K	LB 2518T471K	RoHS	470	±10%	3.5	10	25	0.796
LSQBA251818T471M	LB 2518T471M	RoHS	470	±20%	3.5	10	25	0.796
LSQBA251818T681K	LB 2518T681K	RoHS	680	±10%	3.0	17	20	0.796
LSQBA251818T681M	LB 2518T681M	RoHS	680	±20%	3.0	17	20	0.796
LSQBA251818T102K	LB 2518T102K	RoHS	1000	±10%	2.4	24	15	0.252
LSQBA251818T102M	LB 2518T102M	RoHS	1000	±20%	2.4	24	15	0.252

LSQB/LSQC series
Rated Current : The maximum DC value having inductance decrease within 10 % and temperature increase within 20 degC by the application of DC bias.

LSQE series
Rated Current : The maximum DC value having inductance decrease within 20 % and temperature increase within 20 degC by the application of DC bias.

■PART NUMBER

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQCA251818T1R0M	LB C2518T1R0M	RoHS	1.0	±20%	100	0.08	775	7.96
LSQCA251818T1R0MR	LB C2518T1R0MR	RoHS	1.0	±20%	100	0.07	890	7.96
LSQCA251818T1R5M	LB C2518T1R5M	RoHS	1.5	±20%	80	0.11	730	7.96
LSQCA251818T2R2M	LB C2518T2R2M	RoHS	2.2	±20%	68	0.13	630	7.96
LSQCA251818T3R3M	LB C2518T3R3M	RoHS	3.3	±20%	54	0.16	560	7.96
LSQCA251818T4R7M	LB C2518T4R7M	RoHS	4.7	±20%	41	0.20	510	7.96
LSQCA251818T6R8M	LB C2518T6R8M	RoHS	6.8	±20%	38	0.30	420	7.96
LSQCA251818T100K	LB C2518T100K	RoHS	10	±10%	30	0.36	375	2.52
LSQCA251818T100M	LB C2518T100M	RoHS	10	±20%	30	0.36	375	2.52
LSQCA251818T150K	LB C2518T150K	RoHS	15	±10%	23	0.65	285	2.52
LSQCA251818T150M	LB C2518T150M	RoHS	15	±20%	23	0.65	285	2.52
LSQCA251818T220K	LB C2518T220K	RoHS	22	±10%	19	0.77	250	2.52
LSQCA251818T220M	LB C2518T220M	RoHS	22	±20%	19	0.77	250	2.52
LSQCA251818T330K	LB C2518T330K	RoHS	33	±10%	15	1.5	185	2.52
LSQCA251818T330M	LB C2518T330M	RoHS	33	±20%	15	1.5	185	2.52
LSQCA251818T470K	LB C2518T470K	RoHS	47	±10%	12	1.9	165	2.52
LSQCA251818T470M	LB C2518T470M	RoHS	47	±20%	12	1.9	165	2.52
LSQCA251818T680K	LB C2518T680K	RoHS	68	±10%	9.5	2.8	140	2.52
LSQCA251818T680M	LB C2518T680M	RoHS	68	±20%	9.5	2.8	140	2.52
LSQCA251818T101K	LB C2518T101K	RoHS	100	±10%	9.0	3.7	125	0.796
LSQCA251818T101M	LB C2518T101M	RoHS	100	±20%	9.0	3.7	125	0.796
LSQCA251818T151K	LB C2518T151K	RoHS	150	±10%	7.0	6.1	95	0.796
LSQCA251818T151M	LB C2518T151M	RoHS	150	±20%	7.0	6.1	95	0.796
LSQCA251818T221K	LB C2518T221K	RoHS	220	±10%	5.5	8.4	80	0.796
LSQCA251818T221M	LB C2518T221M	RoHS	220	±20%	5.5	8.4	80	0.796
LSQCA251818T331K	LB C2518T331K	RoHS	330	±10%	4.5	12.3	65	0.796
LSQCA251818T331M	LB C2518T331M	RoHS	330	±20%	4.5	12.3	65	0.796
LSQCA251818T471K	LB C2518T471K	RoHS	470	±10%	3.5	22	50	0.796
LSQCA251818T471M	LB C2518T471M	RoHS	470	±20%	3.5	22	50	0.796
LSQCA251818T681K	LB C2518T681K	RoHS	680	±10%	3.0	28	45	0.796
LSQCA251818T681M	LB C2518T681M	RoHS	680	±20%	3.0	28	45	0.796

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQEA251818T1R0M	LB R2518T1R0M	RoHS	1.0	±20%	100	0.045	960	7.96
LSQEA251818T2R2M	LB R2518T2R2M	RoHS	2.2	±20%	68	0.07	480	7.96
LSQEA251818T4R7M	LB R2518T4R7M	RoHS	4.7	±20%	45	0.10	345	7.96
LSQEA251818T100K	LB R2518T100K	RoHS	10	±10%	30	0.19	235	2.52
LSQEA251818T100M	LB R2518T100M	RoHS	10	±20%	30	0.19	235	2.52
LSQEA251818T220K	LB R2518T220K	RoHS	22	±10%	19	0.44	175	2.52
LSQEA251818T220M	LB R2518T220M	RoHS	22	±20%	19	0.44	175	2.52
LSQEA251818T470K	LB R2518T470K	RoHS	47	±10%	11	0.84	120	2.52
LSQEA251818T470M	LB R2518T470M	RoHS	47	±20%	11	0.84	120	2.52
LSQEA251818T101K	LB R2518T101K	RoHS	100	±10%	9	1.89	80	0.796
LSQEA251818T101M	LB R2518T101M	RoHS	100	±20%	9	1.89	80	0.796

●3218(1207) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQBA321818T1R0M	LB 3218T1R0M	RoHS	1.0	±20%	100	0.06	1,075	7.96
LSQBA321818T1R5M	LB 3218T1R5M	RoHS	1.5	±20%	80	0.07	860	7.96
LSQBA321818T2R2M	LB 3218T2R2M	RoHS	2.2	±20%	68	0.09	775	7.96
LSQBA321818T3R3M	LB 3218T3R3M	RoHS	3.3	±20%	54	0.11	560	7.96
LSQBA321818T4R7M	LB 3218T4R7M	RoHS	4.7	±20%	41	0.13	550	7.96
LSQBA321818T6R8M	LB 3218T6R8M	RoHS	6.8	±20%	40	0.17	380	7.96
LSQBA321818T100K	LB 3218T100K	RoHS	10	±10%	30	0.25	340	2.52
LSQBA321818T100M	LB 3218T100M	RoHS	10	±20%	30	0.25	340	2.52
LSQBA321818T150K	LB 3218T150K	RoHS	15	±10%	25	0.32	300	2.52
LSQBA321818T150M	LB 3218T150M	RoHS	15	±20%	25	0.32	300	2.52
LSQBA321818T220K	LB 3218T220K	RoHS	22	±10%	19	0.49	255	2.52
LSQBA321818T220M	LB 3218T220M	RoHS	22	±20%	19	0.49	255	2.52
LSQBA321818T330K	LB 3218T330K	RoHS	33	±10%	15	0.75	215	2.52
LSQBA321818T330M	LB 3218T330M	RoHS	33	±20%	15	0.75	215	2.52
LSQBA321818T470K	LB 3218T470K	RoHS	47	±10%	12	0.92	205	2.52
LSQBA321818T470M	LB 3218T470M	RoHS	47	±20%	12	0.92	205	2.52
LSQBA321818T680K	LB 3218T680K	RoHS	68	±10%	11	1.49	145	2.52
LSQBA321818T680M	LB 3218T680M	RoHS	68	±20%	11	1.49	145	2.52
LSQBA321818T101K	LB 3218T101K	RoHS	100	±10%	8.0	2.4	140	0.796
LSQBA321818T101M	LB 3218T101M	RoHS	100	±20%	8.0	2.4	140	0.796
LSQBA321818T151K	LB 3218T151K	RoHS	150	±10%	7.0	3.2	105	0.796
LSQBA321818T151M	LB 3218T151M	RoHS	150	±20%	7.0	3.2	105	0.796
LSQBA321818T221K	LB 3218T221K	RoHS	220	±10%	5.0	5.4	80	0.796
LSQBA321818T221M	LB 3218T221M	RoHS	220	±20%	5.0	5.4	80	0.796
LSQBA321818T331K	LB 3218T331K	RoHS	330	±10%	4.0	7.0	65	0.796
LSQBA321818T331M	LB 3218T331M	RoHS	330	±20%	4.0	7.0	65	0.796
LSQBA321818T471K	LB 3218T471K	RoHS	470	±10%	3.5	14	54	0.796
LSQBA321818T471M	LB 3218T471M	RoHS	470	±20%	3.5	14	54	0.796
LSQBA321818T681K	LB 3218T681K	RoHS	680	±10%	3.0	17	45	0.796
LSQBA321818T681M	LB 3218T681M	RoHS	680	±20%	3.0	17	45	0.796
LSQBA321818T102K	LB 3218T102K	RoHS	1000	±10%	2.4	27	39	0.252
LSQBA321818T102M	LB 3218T102M	RoHS	1000	±20%	2.4	27	39	0.252

LSQB/LSQC series
Rated Current : The maximum DC value having inductance decrease within 10 % and temperature increase within 20 degC by the application of DC bias.

LSQE series
Rated Current : The maximum DC value having inductance decrease within 20 % and temperature increase within 20 degC by the application of DC bias.

■PART NUMBER

●3225(1210) type

New part number	Old part number (for reference)	EHS	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LSQCA322525T1R0MR	LB C3225T1R0MR	RoHS	1.0	±20%	250	0.055	1,100	0.1
LSQCA322525T1R5MR	LB C3225T1R5MR	RoHS	1.5	±20%	220	0.060	1,000	0.1
LSQCA322525T2R2MR	LB C3225T2R2MR	RoHS	2.2	±20%	190	0.080	930	0.1
LSQCA322525T3R3MR	LB C3225T3R3MR	RoHS	3.3	±20%	160	0.095	820	0.1
LSQCA322525T4R7MR	LB C3225T4R7MR	RoHS	4.7	±20%	70	0.100	680	0.1
LSQCA322525T6R8MR	LB C3225T6R8MR	RoHS	6.8	±20%	50	0.120	620	0.1
LSQCA322525T100KR	LB C3225T100KR	RoHS	10	±10%	23	0.133	540	0.1
LSQCA322525T100MR	LB C3225T100MR	RoHS	10	±20%	23	0.133	540	0.1
LSQCA322525T150KR	LB C3225T150KR	RoHS	15	±10%	20	0.195	420	0.1
LSQCA322525T150MR	LB C3225T150MR	RoHS	15	±20%	20	0.195	420	0.1
LSQCA322525T220KR	LB C3225T220KR	RoHS	22	±10%	17	0.27	330	0.1
LSQCA322525T220MR	LB C3225T220MR	RoHS	22	±20%	17	0.27	330	0.1
LSQCA322525T330KR	LB C3225T330KR	RoHS	33	±10%	13	0.41	300	0.1
LSQCA322525T330MR	LB C3225T330MR	RoHS	33	±20%	13	0.41	300	0.1
LSQCA322525T470KR	LB C3225T470KR	RoHS	47	±10%	10	0.67	220	0.1
LSQCA322525T470MR	LB C3225T470MR	RoHS	47	±20%	10	0.67	220	0.1
LSQCA322525T680KR	LB C3225T680KR	RoHS	68	±10%	8	1.0	190	0.1
LSQCA322525T680MR	LB C3225T680MR	RoHS	68	±20%	8	1.0	190	0.1
LSQCA322525T101KR	LB C3225T101KR	RoHS	100	±10%	6	1.4	150	0.1
LSQCA322525T101MR	LB C3225T101MR	RoHS	100	±20%	6	1.4	150	0.1

LSQB/LSQC series
Rated Current : The maximum DC value having inductance decrease within 10 % and temperature increase within 20 degC by the application of DC bias.

LSQE series
Rated Current : The maximum DC value having inductance decrease within 20 % and temperature increase within 20 degC by the application of DC bias.

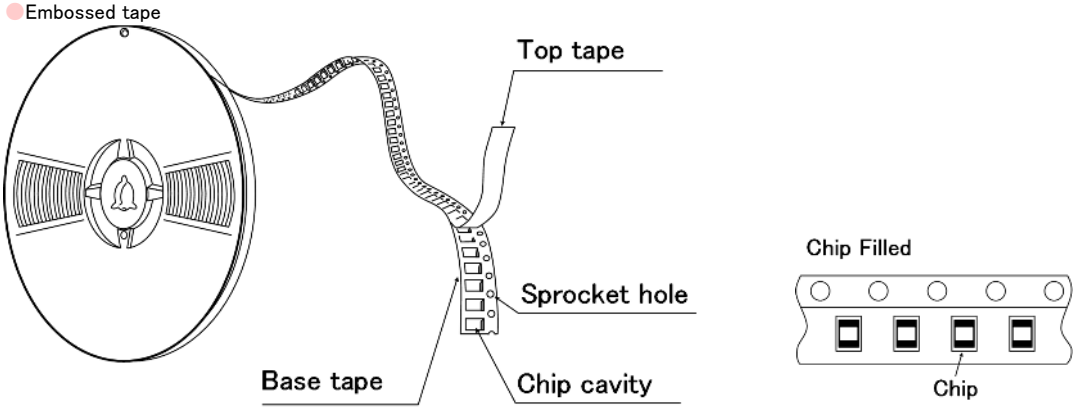
■PACKAGING

①Minimum Quantity

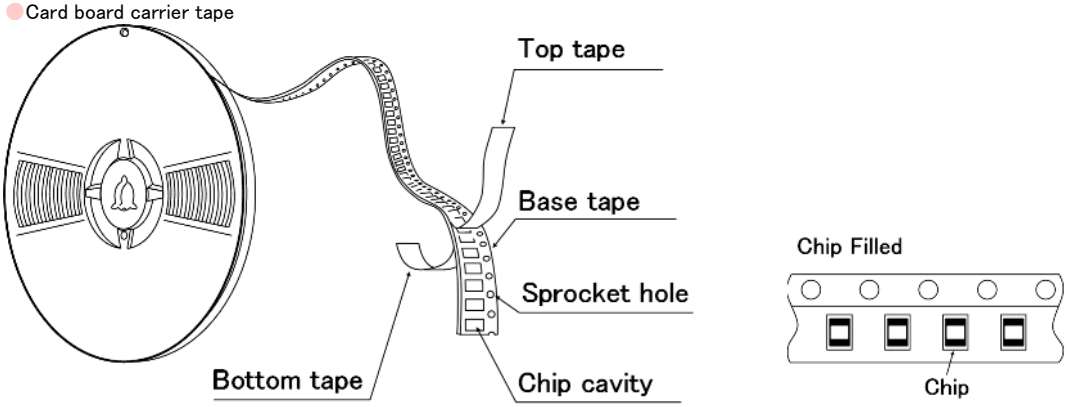
Type	Standard Quantity [pcs]	
	Paper Tape	Embossed Tape
A322525	—	1000
A321818	—	2000
A251818	—	2000
B201616 A201616	—	2000
A201212	—	3000
A201209	4000	—
A160808	4000	—
B160808	—	3000

②Tape material

●Embossed tape

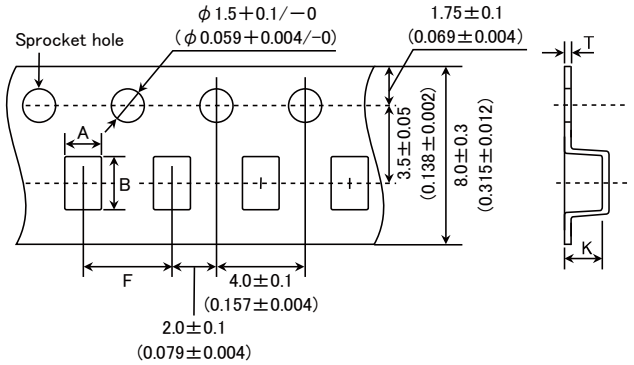


●Card board carrier tape



③Taping Dimensions

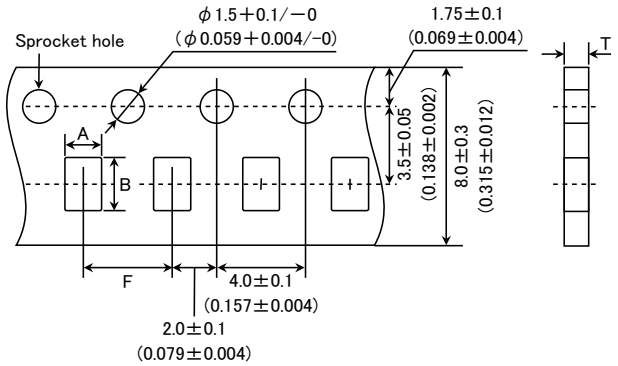
Embossed Tape (0.315 inches wide)



Type	Chip cavity		Insertion pitch	Tape thickness	
	A	B	F	T	K
B201616	1.75±0.1 (0.069±0.004)	2.1±0.1 (0.083±0.004)	4.0±0.1 (0.157±0.004)	0.3±0.05 (0.012±0.002)	1.9max. (0.075max.)
A322525	2.8±0.1 (0.110±0.004)	3.5±0.1 (0.138±0.004)	4.0±0.1 (0.157±0.004)	0.3±0.05 (0.012±0.002)	4.0max. (0.157max.)
A321818	2.1±0.1 (0.083±0.004)	3.5±0.1 (0.138±0.004)	4.0±0.1 (0.157±0.004)	0.3±0.05 (0.012±0.002)	2.2max. (0.087max.)
A251818	2.15±0.1 (0.085±0.004)	2.7±0.1 (0.106±0.004)	4.0±0.1 (0.157±0.004)	0.3±0.05 (0.012±0.002)	2.2max. (0.087max.)
A201616	1.75±0.1 (0.069±0.004)	2.1±0.1 (0.083±0.004)	4.0±0.1 (0.157±0.004)	0.3±0.05 (0.012±0.002)	1.9max. (0.075max.)
A201212	1.45±0.1 (0.057±0.004)	2.25±0.1 (0.089±0.004)	4.0±0.1 (0.157±0.004)	0.25±0.05 (0.010±0.002)	1.45max. (0.057max.)
B160808	1.1±0.1 (0.043±0.004)	1.9±0.1 (0.075±0.004)	4.0±0.1 (0.157±0.004)	0.25±0.05 (0.010±0.002)	1.2max. (0.047max.)

Unit : mm (inch)

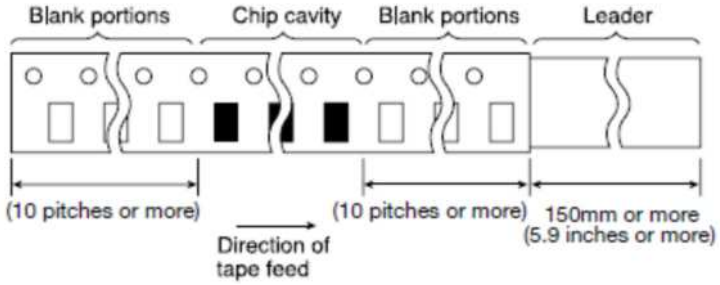
Card board carrier tape (0.315 inches wide)



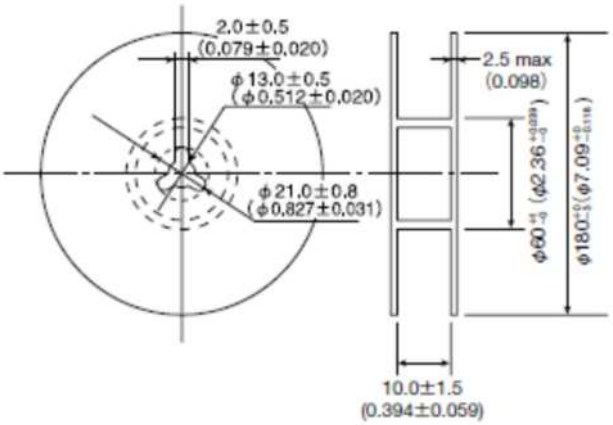
Type	Chip cavity		Insertion pitch	Tape thickness
	A	B	F	T
A201209	1.55±0.1 (0.061±0.004)	2.3±0.1 (0.091±0.004)	4.0±0.1 (0.157±0.004)	1.1max. (0.043max.)
A160808	1.0±0.1 (0.039±0.004)	1.8±0.1 (0.071±0.004)	4.0±0.1 (0.157±0.004)	1.1max. (0.043max.)

Unit : mm (inch)

④Leader and Blank Portion

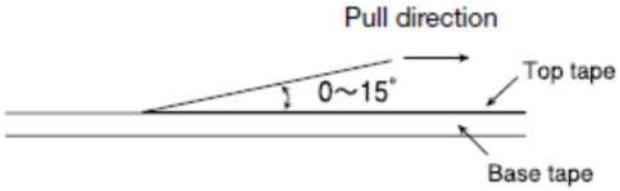


⑤Reel Size



⑥Top Tape Strength

The top tape requires a peel-off force 0.1 to 1.0N in the direction of the arrow as illustrated below.



Wire-wound Ferrite Inductors LSQB/LSQC/LSQE series
for General Electronic Equipment for Consumer
Wire-wound Ferrite Power Inductors LSQN/LSQPA series
for General Electronic Equipment for Consumer
Wire-wound Ferrite Inductors for Signal Lines LSQM series
for General Electronic Equipment for Consumer
Wire-wound Ferrite Inductors LLQB/LLQC/LLQE series
for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)
Wire-wound Ferrite Power Inductors LLQN/LLQPA series
for Medical Devices classified as GHTF Classes A or B (Japan Classes I or II)
Wire-wound Ferrite Inductors for Signal Lines LLQM 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℃(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

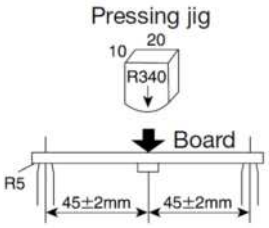
4.Inductance	
Specified Value	Within the specified tolerance
Test Methods and Remarks	Measuring equipment : LCR Mater(HP4285A or its equivalent) Measuring frequency : Specified frequency

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 LSQNA2012 LSQBA2016 LSQNA2016 LSQBA2518 LSQEA2518 LSQNA2518 LSQCA3225 LSQPA3225	Inductance change : Within±20%
	LLQBA2016 LLQBA2012 LLQEA2012 LLQNA2012 LLQNA2012 LLQBA2016 LLQNA2016 LLQBA2518 LLQEA2518 LLQNA2518 LLQCA3225 LLQPA3225	
	LSQBB1608 LSQNB1608 LSQCA2016 LSQPA2016 LSQCA2518 LSQPA2518 LSQBA3218	Inductance change : Within±25%
	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.

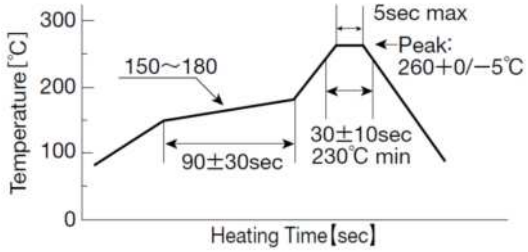
Wire-wound Ferrite Inductors LSQB/LSQC/LSQE/LLQB/LLQC/LLQE/LMQB/LMQC/LMQE/ LBQB/LBQC/LBQE series
Wire-wound Ferrite Power Inductors LSQN/LSQPA/LLQN/LLQPA/LMQN/LMQPA/ LBQN/LBQPA series
Wire-wound Ferrite Inductors for Signal Lines LSQM/LLQM/LMQM/LBQM series

■PRECAUTIONS

1. Circuit Design	
Precautions	◆Verification of operating environment, electrical rating and performance 1. A malfunction in medical equipment, spacecraft, nuclear reactors, etc. may cause serious harm to human life or have severe social ramifications. As such, any inductors to be used in such equipment may require higher safety and/or reliability considerations and should be clearly differentiated from components used in general purpose applications. 2. When inductors are used in places where dew condensation develops and/or where corrosive gas such as hydrogen sulfide, sulfurous acid, or chlorine exists in the air, characteristic deterioration may occur. Please do not use inductors under such environmental conditions. ◆Operating Current (Verification of Rated current) 1. The operating current including inrush current for inductors must always be lower than their rated values. 2. Do not apply current in excess of the rated value because the inductance may be reduced due to the magnetic saturation effect. ◆Temperature rise Temperature rise of power choke coil depends on the installation condition in end products. Make sure that temperature rise of power choke coils in actual end products is within the specified temperature range.

2. PCB Design	
Precautions	◆Land pattern design 1. Please contact any of our offices for a land pattern, and refer to a recommended land pattern of a right figure or specifications.
Technical considerations	PRECAUTIONS 【Recommended Land Patterns】 Surface Mounting ・ Mounting and soldering conditions should be checked beforehand. ・ Applicable soldering process to those products is reflow soldering only.

3. Considerations for automatic placement	
Precautions	◆Adjustment of mounting machine 1. Excessive impact load should not be imposed on the products when mounting onto the PC boards. 2. Mounting and soldering conditions should be checked beforehand.
Technical considerations	1. When installing products, care should be taken not to apply distortion stress as it may deform the products.

4. Soldering	
Precautions	◆Reflow soldering(Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors) 1. For reflow soldering with either leaded or lead-free solder, the profile specified in "point for controlling" is recommended. ◆Recommended conditions for using a soldering iron 1. Put the soldering iron on the land-pattern. Soldering iron's temperature – Below 350℃ Duration-3 seconds or less. The soldering iron should not come in contact with inductor directly.
Technical considerations	◆Reflow soldering(Wire-wound Ferrite Inductors, Wire-wound Ferrite Power Inductors) 1. Reflow profile  ◆Recommended conditions for using a soldering iron 1. Components can be damaged by excessive heat where soldering conditions exceed the specified range.

5. Cleaning	
Precautions	◆Cleaning conditions Washing by supersonic waves shall be avoided.
Technical considerations	◆Cleaning conditions If washed by supersonic waves, the products might be broken.

6. Handling	
Precautions	◆Handling 1. Keep the inductors away from all magnets and magnetic objects. ◆Breakaway PC boards(splitting along perforations) 1. When splitting the PC board after mounting inductors, care should be taken not to give any stresses of deflection or twisting to the board. 2. Board separation should not be done manually, but by using the appropriate devices. ◆Mechanical considerations 1. Please do not give the inductors any excessive mechanical shocks.
Technical considerations	◆Handling 1. There is a case that a characteristic varies with magnetic influence. ◆Breakaway PC boards(splitting along perforations) 1. Planning pattern configurations and the position of products should be carefully performed to minimize stress. ◆Mechanical considerations 1. There is a case to be damaged by a mechanical shock.

7. Storage conditions	
Precautions	◆Storage 1. To maintain the solderability of terminal electrodes and to keep the packing material in good condition, temperature and humidity in the storage area should be controlled. ・ Recommended conditions Ambient temperature : 0～40℃ Humidity : Below 70% RH ・ The ambient temperature must be kept below 30℃. Even under ideal storage conditions, solderability of products electrodes may decrease as time passes. For this reason, product should be used within 6 months from the time of delivery. In case of storage over 6 months, solderability shall be checked before actual usage.
Technical considerations	◆Storage 1. Under a high temperature and humidity environment, problems such as reduced solderability caused by oxidation of terminal electrodes and deterioration of taping/packaging materials may take place.