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 March 2023. 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.

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
	Only for Mobile Devices *4	E	4

*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 4 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.
4. The applications covered by this product series are limited to mobile devices (smartphone, tablet PC, smartwatch, handheld game console, etc.) among general electronic equipment for consumer. The design, specifications and operating environment, etc. differ from those of the product series for "General Electronic Equipment" (Category: S), so please check the individual product specification sheets for details. The product series for "General Electronic Equipment" (Category: S) can also be used for mobile devices.

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

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.

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.

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Industrial Application Guide

We have the product series (the 2nd code from the left side of the part number is “B”) intended for use in telecommunications infrastructure and industrial equipment (its typical examples are as shown in the table below). Therefore, when using our products for these equipment, please check it carefully by referring to the part number or the individual product specification sheets and use the corresponding product series. Should you have any questions on this matter, please contact us.

Product Series (The 2nd Code from the Left Side of the Part Number)	Category	Telecommunications Infrastructure and Industrial Equipment (Typical Example)
B	Telecommunications Infrastructure	• Base Station • Optical Transceiver • Router/Switch (Carrier-Grade) • UPS (Uninterruptible Power Supply), etc.
	Factory Automation	• PLC (Programmable Logic Controller) • Servomotor/Servo Driver • Industry Robot, etc.
	Measurement	• Gas Meter • Water Meter • Flow Meter • Pressure Gauge Meter • Magnetometer • Thermometer, etc.
	Electric Power Apparatus	• Power Conditioner (Solar Power System) • Smart Meter • GFCI (Ground Fault Circuit Interrupter) • Electric Vehicle Charging Station, etc.

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Wire-wound Ferrite Power Inductors LBQB/LBQC/LBQE series for Telecommunications Infrastructure and Industrial Equipment

Code in front of Series have been extracted from Part number, which describes the segment of products, such as kinds and characteristics.

REFLOW

■PART NUMBER

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

L	B	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)	
LBQB	Wire-wound Ferrite Power Inductor for Telecommunications Infrastructure and Industrial Equipment
LBQC	Wire-wound Ferrite Power Inductor for Telecommunications Infrastructure and Industrial Equipment
LBQE	Wire-wound Ferrite Power Inductor for Telecommunications Infrastructure and Industrial Equipment

(1) Product Group

Code	
L	Inductors

(2) Category

Code	Recommended equipment	Quality Grade
B	Telecommunications Infrastructure and Industrial Equipment	2

(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)

③Dimensions(L×W)

Code	Type(inch)	Dimensions(L×W) [mm]
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]
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

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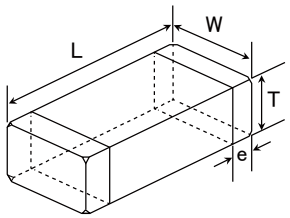
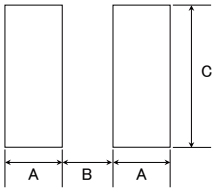
For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our Web site (http://www.ty-top.com/) .

■STANDARD EXTERNAL DIMENSIONS / STANDARD QUANTITY



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
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
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 (0.128±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 (0.128±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)

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■PART NUMBER

・All the Wire-wound Ferrite Inductors of the catalog lineup are RoHS compliant.

Notes)

・The exchange of individual specifications is necessary depending on your application and/or circuit condition. Please contact TAIYO YUDEN's official sales channel.

・The products are for Telecommunications infrastructure and Industrial equipment.
Please consult with TAIYO YUDEN's official sales channel for the details of the product specifications, etc.,
and please review and approve the product specifications before ordering.

●2012(0805) type

New part number	Old part number (for reference)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz](min.)	DC Resistance [Ω](±30%)	Rated current [mA](max.)	Measuring frequency [MHz]
LBQBA201212T1R0M	LB 2012T1R0M 8	1.0	±20%	100	0.15	405	7.96
LBQBA201212T2R2M	LB 2012T2R2M 8	2.2	±20%	80	0.23	260	7.96
LBQBA201212T3R3M	LB 2012T3R3M 8	3.3	±20%	55	0.30	235	7.96
LBQBA201212T4R7M	LB 2012T4R7M 8	4.7	±20%	45	0.40	190	7.96
LBQBA201212T6R8M	LB 2012T6R8M 8	6.8	±20%	38	0.47	135	7.96
LBQBA201212T100K	LB 2012T100K 8	10	±10%	32	0.70	120	2.52
LBQBA201212T100M	LB 2012T100M 8	10	±20%	32	0.70	120	2.52
LBQBA201212T100KR	LB 2012T100KR8	10	±10%	32	0.50	120	2.52
LBQBA201212T100MR	LB 2012T100MR8	10	±20%	32	0.50	120	2.52
LBQBA201212T150K	LB 2012T150K 8	15	±10%	28	1.3	100	2.52
LBQBA201212T150M	LB 2012T150M 8	15	±20%	28	1.3	100	2.52
LBQBA201212T220K	LB 2012T220K 8	22	±10%	16	1.7	80	2.52
LBQBA201212T220M	LB 2012T220M 8	22	±20%	16	1.7	80	2.52
LBQBA201212T470K	LB 2012T470K 8	47	±10%	11	3.7	60	2.52
LBQBA201212T470M	LB 2012T470M 8	47	±20%	11	3.7	60	2.52
LBQBA201212T680K	LB 2012T680K 8	68	±10%	10	6.0	50	2.52
LBQBA201212T680M	LB 2012T680M 8	68	±20%	10	6.0	50	2.52
LBQBA201212T101K	LB 2012T101K 8	100	±10%	8	7.0	45	0.796
LBQBA201212T101M	LB 2012T101M 8	100	±20%	8	7.0	45	0.796

New part number	Old part number (for reference)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz](min.)	DC Resistance [Ω](±30%)	Rated current [mA](max.)	Measuring frequency [MHz]
LBQCA201212T1R0M	LB C2012T1R0M 8	1.0	±20%	100	0.19	620	7.96
LBQCA201212T2R2M	LB C2012T2R2M 8	2.2	±20%	70	0.33	430	7.96
LBQCA201212T4R7M	LB C2012T4R7M 8	4.7	±20%	45	0.50	295	7.96
LBQCA201212T100K	LB C2012T100K 8	10	±10%	40	1.2	200	2.52
LBQCA201212T100M	LB C2012T100M 8	10	±20%	40	1.2	200	2.52
LBQCA201212T220K	LB C2012T220K 8	22	±10%	16	3.7	130	2.52
LBQCA201212T220M	LB C2012T220M 8	22	±20%	16	3.7	130	2.52
LBQCA201212T470K	LB C2012T470K 8	47	±10%	11	5.8	90	2.52
LBQCA201212T470M	LB C2012T470M 8	47	±20%	11	5.8	90	2.52

New part number	Old part number (for reference)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz](min.)	DC Resistance [Ω](±30%)	Rated current [mA](max.)	Measuring frequency [MHz]
LBQEA201212T1R0M	LB R2012T1R0M 8	1.0	±20%	100	0.07	400	7.96
LBQEA201212T2R2M	LB R2012T2R2M 8	2.2	±20%	80	0.13	260	7.96
LBQEA201212T4R7M	LB R2012T4R7M 8	4.7	±20%	45	0.24	200	7.96
LBQEA201212T100K	LB R2012T100K 8	10	±10%	32	0.36	150	2.52
LBQEA201212T100M	LB R2012T100M 8	10	±20%	32	0.36	150	2.52
LBQEA201212T220K	LB R2012T220K 8	22	±10%	16	1.0	100	2.52
LBQEA201212T220M	LB R2012T220M 8	22	±20%	16	1.0	100	2.52
LBQEA201212T470K	LB R2012T470K 8	47	±10%	11	1.7	75	2.52
LBQEA201212T470M	LB R2012T470M 8	47	±20%	11	1.7	75	2.52
LBQEA201212T101K	LB R2012T101K 8	100	±10%	8	4.0	50	0.796
LBQEA201212T101M	LB R2012T101M 8	100	±20%	8	4.0	50	0.796

・LBQB/LBQC series

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

・LBQE 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)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz](min.)	DC Resistance [Ω](±30%)	Rated current [mA](max.)	Measuring frequency [MHz]
LBQBA201616T1R0M	LB 2016T1R0M 8	1.0	±20%	100	0.09	490	7.96
LBQBA201616T1R5M	LB 2016T1R5M 8	1.5	±20%	80	0.11	380	7.96
LBQBA201616T2R2M	LB 2016T2R2M 8	2.2	±20%	70	0.13	375	7.96
LBQBA201616T3R3M	LB 2016T3R3M 8	3.3	±20%	55	0.20	285	7.96
LBQBA201616T4R7M	LB 2016T4R7M 8	4.7	±20%	45	0.25	225	7.96
LBQBA201616T6R8M	LB 2016T6R8M 8	6.8	±20%	38	0.35	200	7.96
LBQBA201616T100K	LB 2016T100K 8	10	±10%	32	0.50	155	2.52
LBQBA201616T100M	LB 2016T100M 8	10	±20%	32	0.50	155	2.52
LBQBA201616T150K	LB 2016T150K 8	15	±10%	28	0.70	130	2.52
LBQBA201616T150M	LB 2016T150M 8	15	±20%	28	0.70	130	2.52
LBQBA201616T220K	LB 2016T220K 8	22	±10%	16	1.0	105	2.52
LBQBA201616T220M	LB 2016T220M 8	22	±20%	16	1.0	105	2.52
LBQBA201616T330K	LB 2016T330K 8	33	±10%	14	1.7	85	2.52
LBQBA201616T330M	LB 2016T330M 8	33	±20%	14	1.7	85	2.52
LBQBA201616T470K	LB 2016T470K 8	47	±10%	11	2.4	70	2.52
LBQBA201616T470M	LB 2016T470M 8	47	±20%	11	2.4	70	2.52
LBQBA201616T680K	LB 2016T680K 8	68	±10%	10	3.0	55	2.52
LBQBA201616T680M	LB 2016T680M 8	68	±20%	10	3.0	55	2.52
LBQBA201616T101K	LB 2016T101K 8	100	±10%	8	4.5	40	0.796
LBQBA201616T101M	LB 2016T101M 8	100	±20%	8	4.5	40	0.796

New part number	Old part number (for reference)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz](min.)	DC Resistance [Ω](±30%)	Rated current [mA](max.)	Measuring frequency [MHz]
LBQCA201616T1R0M	LB C2016T1R0M 8	1.0	±20%	100	0.10	690	7.96
LBQCA201616T1R5M	LB C2016T1R5M 8	1.5	±20%	80	0.15	600	7.96
LBQCA201616T2R2M	LB C2016T2R2M 8	2.2	±20%	70	0.20	520	7.96
LBQCA201616T3R3M	LB C2016T3R3M 8	3.3	±20%	55	0.27	410	7.96
LBQCA201616T4R7M	LB C2016T4R7M 8	4.7	±20%	45	0.37	355	7.96
LBQCA201616T6R8M	LB C2016T6R8M 8	6.8	±20%	38	0.59	290	7.96
LBQCA201616T100K	LB C2016T100K 8	10	±10%	32	0.82	245	2.52
LBQCA201616T100M	LB C2016T100M 8	10	±20%	32	0.82	245	2.52
LBQCA201616T150K	LB C2016T150K 8	15	±10%	28	1.2	200	2.52
LBQCA201616T150M	LB C2016T150M 8	15	±20%	28	1.2	200	2.52
LBQCA201616T220K	LB C2016T220K 8	22	±10%	16	1.8	165	2.52
LBQCA201616T220M	LB C2016T220M 8	22	±20%	16	1.8	165	2.52
LBQCA201616T330K	LB C2016T330K 8	33	±10%	14	2.8	135	2.52
LBQCA201616T330M	LB C2016T330M 8	33	±20%	14	2.8	135	2.52
LBQCA201616T470K	LB C2016T470K 8	47	±10%	11	4.3	110	2.52
LBQCA201616T470M	LB C2016T470M 8	47	±20%	11	4.3	110	2.52
LBQCA201616T680K	LB C2016T680K 8	68	±10%	10	7.0	95	2.52
LBQCA201616T680M	LB C2016T680M 8	68	±20%	10	7.0	95	2.52
LBQCA201616T101K	LB C2016T101K 8	100	±10%	8	8.0	75	0.796
LBQCA201616T101M	LB C2016T101M 8	100	±20%	8	8.0	75	0.796

・LBQB/LBQC series

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

・LBQE 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

●2518(1007) type

New part number	Old part number (for reference)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz](min.)	DC Resistance [Ω](±30%)	Rated current [mA](max.)	Measuring frequency [MHz]
LBQBA251818T1R0M	LB 2518T1R0M 8	1.0	±20%	100	0.06	665	7.96
LBQBA251818T1R5M	LB 2518T1R5M 8	1.5	±20%	80	0.07	405	7.96
LBQBA251818T2R2M	LB 2518T2R2M 8	2.2	±20%	68	0.09	340	7.96
LBQBA251818T3R3M	LB 2518T3R3M 8	3.3	±20%	54	0.11	280	7.96
LBQBA251818T4R7M	LB 2518T4R7M 8	4.7	±20%	46	0.13	240	7.96
LBQBA251818T4R7MR	LB 2518T4R7MR8	4.7	±20%	46	0.10	235	7.96
LBQBA251818T6R8M	LB 2518T6R8M 8	6.8	±20%	38	0.15	195	7.96
LBQBA251818T100K	LB 2518T100K 8	10	±10%	30	0.25	165	2.52
LBQBA251818T100M	LB 2518T100M 8	10	±20%	30	0.25	165	2.52
LBQBA251818T150K	LB 2518T150K 8	15	±10%	23	0.32	145	2.52
LBQBA251818T150M	LB 2518T150M 8	15	±20%	23	0.32	145	2.52
LBQBA251818T220K	LB 2518T220K 8	22	±10%	19	0.50	115	2.52
LBQBA251818T220M	LB 2518T220M 8	22	±20%	19	0.50	115	2.52
LBQBA251818T330K	LB 2518T330K 8	33	±10%	15	0.70	95	2.52
LBQBA251818T330M	LB 2518T330M 8	33	±20%	15	0.70	95	2.52
LBQBA251818T470K	LB 2518T470K 8	47	±10%	12	0.95	85	2.52
LBQBA251818T470M	LB 2518T470M 8	47	±20%	12	0.95	85	2.52
LBQBA251818T680K	LB 2518T680K 8	68	±10%	9.5	1.5	70	2.52
LBQBA251818T680M	LB 2518T680M 8	68	±20%	9.5	1.5	70	2.52
LBQBA251818T101K	LB 2518T101K 8	100	±10%	9.0	2.1	60	0.796
LBQBA251818T101M	LB 2518T101M 8	100	±20%	9.0	2.1	60	0.796
LBQBA251818T151K	LB 2518T151K 8	150	±10%	7.0	3.2	45	0.796
LBQBA251818T151M	LB 2518T151M 8	150	±20%	7.0	3.2	45	0.796
LBQBA251818T221K	LB 2518T221K 8	220	±10%	5.5	4.5	40	0.796
LBQBA251818T221M	LB 2518T221M 8	220	±20%	5.5	4.5	40	0.796
LBQBA251818T331K	LB 2518T331K 8	330	±10%	4.5	7.0	30	0.796
LBQBA251818T331M	LB 2518T331M 8	330	±20%	4.5	7.0	30	0.796
LBQBA251818T471K	LB 2518T471K 8	470	±10%	3.5	10	25	0.796
LBQBA251818T471M	LB 2518T471M 8	470	±20%	3.5	10	25	0.796
LBQBA251818T681K	LB 2518T681K 8	680	±10%	3.0	17	20	0.796
LBQBA251818T681M	LB 2518T681M 8	680	±20%	3.0	17	20	0.796
LBQBA251818T102K	LB 2518T102K 8	1000	±10%	2.4	24	15	0.252
LBQBA251818T102M	LB 2518T102M 8	1000	±20%	2.4	24	15	0.252

New part number	Old part number (for reference)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz](min.)	DC Resistance [Ω](±30%)	Rated current [mA](max.)	Measuring frequency [MHz]
LBQCA251818T1R0M	LB C2518T1R0M 8	1.0	±20%	100	0.080	775	7.96
LBQCA251818T1R0MR	LB C2518T1R0MR8	1.0	±20%	100	0.065	890	7.96
LBQCA251818T1R5M	LB C2518T1R5M 8	1.5	±20%	80	0.110	730	7.96
LBQCA251818T2R2M	LB C2518T2R2M 8	2.2	±20%	68	0.130	630	7.96
LBQCA251818T3R3M	LB C2518T3R3M 8	3.3	±20%	54	0.160	560	7.96
LBQCA251818T4R7M	LB C2518T4R7M 8	4.7	±20%	41	0.200	510	7.96
LBQCA251818T6R8M	LB C2518T6R8M 8	6.8	±20%	38	0.300	420	7.96
LBQCA251818T100K	LB C2518T100K 8	10	±10%	30	0.360	375	2.52
LBQCA251818T100M	LB C2518T100M 8	10	±20%	30	0.360	375	2.52
LBQCA251818T150K	LB C2518T150K 8	15	±10%	23	0.650	285	2.52
LBQCA251818T150M	LB C2518T150M 8	15	±20%	23	0.650	285	2.52
LBQCA251818T220K	LB C2518T220K 8	22	±10%	19	0.770	250	2.52
LBQCA251818T220M	LB C2518T220M 8	22	±20%	19	0.770	250	2.52
LBQCA251818T330K	LB C2518T330K 8	33	±10%	15	1.50	185	2.52
LBQCA251818T330M	LB C2518T330M 8	33	±20%	15	1.50	185	2.52
LBQCA251818T470K	LB C2518T470K 8	47	±10%	12	1.90	165	2.52
LBQCA251818T470M	LB C2518T470M 8	47	±20%	12	1.90	165	2.52
LBQCA251818T680K	LB C2518T680K 8	68	±10%	9.5	2.80	140	2.52
LBQCA251818T680M	LB C2518T680M 8	68	±20%	9.5	2.80	140	2.52
LBQCA251818T101K	LB C2518T101K 8	100	±10%	9.0	3.70	125	0.796
LBQCA251818T101M	LB C2518T101M 8	100	±20%	9.0	3.70	125	0.796
LBQCA251818T151K	LB C2518T151K 8	150	±10%	7.0	6.10	95	0.796
LBQCA251818T151M	LB C2518T151M 8	150	±20%	7.0	6.10	95	0.796
LBQCA251818T221K	LB C2518T221K 8	220	±10%	5.5	8.40	80	0.796
LBQCA251818T221M	LB C2518T221M 8	220	±20%	5.5	8.40	80	0.796
LBQCA251818T331K	LB C2518T331K 8	330	±10%	4.5	12.3	65	0.796
LBQCA251818T331M	LB C2518T331M 8	330	±20%	4.5	12.3	65	0.796
LBQCA251818T471K	LB C2518T471K 8	470	±10%	3.5	22.0	50	0.796
LBQCA251818T471M	LB C2518T471M 8	470	±20%	3.5	22.0	50	0.796
LBQCA251818T681K	LB C2518T681K 8	680	±10%	3.0	28.0	45	0.796
LBQCA251818T681M	LB C2518T681M 8	680	±20%	3.0	28.0	45	0.796

・LBQB/LBQC series

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

・LBQE 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)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LBQEA251818T1R0M	LB R2518T1R0M 8	1.0	±20%	100	0.045	960	7.96
LBQEA251818T2R2M	LB R2518T2R2M 8	2.2	±20%	68	0.07	480	7.96
LBQEA251818T4R7M	LB R2518T4R7M 8	4.7	±20%	45	0.10	345	7.96
LBQEA251818T100K	LB R2518T100K 8	10	±10%	30	0.19	235	2.52
LBQEA251818T100M	LB R2518T100M 8	10	±20%	30	0.19	235	2.52
LBQEA251818T220K	LB R2518T220K 8	22	±10%	19	0.44	175	2.52
LBQEA251818T220M	LB R2518T220M 8	22	±20%	19	0.44	175	2.52
LBQEA251818T470K	LB R2518T470K 8	47	±10%	11	0.84	120	2.52
LBQEA251818T470M	LB R2518T470M 8	47	±20%	11	0.84	120	2.52
LBQEA251818T101K	LB R2518T101K 8	100	±10%	9	1.89	80	0.796
LBQEA251818T101M	LB R2518T101M 8	100	±20%	9	1.89	80	0.796

●3218(1207) type

New part number	Old part number (for reference)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LBQBA321818T1R0M	LB 3218T1R0M 8	1.0	±20%	100	0.06	1,075	7.96
LBQBA321818T1R5M	LB 3218T1R5M 8	1.5	±20%	80	0.07	860	7.96
LBQBA321818T2R2M	LB 3218T2R2M 8	2.2	±20%	68	0.09	775	7.96
LBQBA321818T3R3M	LB 3218T3R3M 8	3.3	±20%	54	0.11	560	7.96
LBQBA321818T4R7M	LB 3218T4R7M 8	4.7	±20%	41	0.13	550	7.96
LBQBA321818T6R8M	LB 3218T6R8M 8	6.8	±20%	40	0.17	380	7.96
LBQBA321818T100K	LB 3218T100K 8	10	±10%	30	0.25	340	2.52
LBQBA321818T100M	LB 3218T100M 8	10	±20%	30	0.25	340	2.52
LBQBA321818T150K	LB 3218T150K 8	15	±10%	25	0.32	300	2.52
LBQBA321818T150M	LB 3218T150M 8	15	±20%	25	0.32	300	2.52
LBQBA321818T220K	LB 3218T220K 8	22	±10%	19	0.49	255	2.52
LBQBA321818T220M	LB 3218T220M 8	22	±20%	19	0.49	255	2.52
LBQBA321818T330K	LB 3218T330K 8	33	±10%	15	0.75	215	2.52
LBQBA321818T330M	LB 3218T330M 8	33	±20%	15	0.75	215	2.52
LBQBA321818T470K	LB 3218T470K 8	47	±10%	12	0.92	205	2.52
LBQBA321818T470M	LB 3218T470M 8	47	±20%	12	0.92	205	2.52
LBQBA321818T680K	LB 3218T680K 8	68	±10%	11	1.49	145	2.52
LBQBA321818T680M	LB 3218T680M 8	68	±20%	11	1.49	145	2.52
LBQBA321818T101K	LB 3218T101K 8	100	±10%	8.0	2.4	140	0.796
LBQBA321818T101M	LB 3218T101M 8	100	±20%	8.0	2.4	140	0.796
LBQBA321818T151K	LB 3218T151K 8	150	±10%	7.0	3.2	105	0.796
LBQBA321818T151M	LB 3218T151M 8	150	±20%	7.0	3.2	105	0.796
LBQBA321818T221K	LB 3218T221K 8	220	±10%	5.0	5.4	80	0.796
LBQBA321818T221M	LB 3218T221M 8	220	±20%	5.0	5.4	80	0.796
LBQBA321818T331K	LB 3218T331K 8	330	±10%	4.0	7.0	65	0.796
LBQBA321818T331M	LB 3218T331M 8	330	±20%	4.0	7.0	65	0.796
LBQBA321818T471K	LB 3218T471K 8	470	±10%	3.5	14	54	0.796
LBQBA321818T471M	LB 3218T471M 8	470	±20%	3.5	14	54	0.796
LBQBA321818T681K	LB 3218T681K 8	680	±10%	3.0	17	45	0.796
LBQBA321818T681M	LB 3218T681M 8	680	±20%	3.0	17	45	0.796
LBQBA321818T102K	LB 3218T102K 8	1000	±10%	2.4	27	39	0.252
LBQBA321818T102M	LB 3218T102M 8	1000	±20%	2.4	27	39	0.252

●3225(1210) type

New part number	Old part number (for reference)	Nominal inductance [μH]	Inductance tolerance	Self-resonant frequency [MHz] (min.)	DC Resistance [Ω] (±30%)	Rated current [mA] (max.)	Measuring frequency [MHz]
LBQCA322525T1R0MR	LB C3225T1R0MR8	1.0	±20%	250	0.055	1,100	0.1
LBQCA322525T1R5MR	LB C3225T1R5MR8	1.5	±20%	220	0.060	1,000	0.1
LBQCA322525T2R2MR	LB C3225T2R2MR8	2.2	±20%	190	0.080	930	0.1
LBQCA322525T3R3MR	LB C3225T3R3MR8	3.3	±20%	160	0.095	820	0.1
LBQCA322525T4R7MR	LB C3225T4R7MR8	4.7	±20%	70	0.100	680	0.1
LBQCA322525T6R8MR	LB C3225T6R8MR8	6.8	±20%	50	0.120	620	0.1
LBQCA322525T100KR	LB C3225T100KR8	10	±10%	23	0.133	540	0.1
LBQCA322525T100MR	LB C3225T100MR8	10	±20%	23	0.133	540	0.1
LBQCA322525T150KR	LB C3225T150KR8	15	±10%	20	0.195	420	0.1
LBQCA322525T150MR	LB C3225T150MR8	15	±20%	20	0.195	420	0.1
LBQCA322525T220KR	LB C3225T220KR8	22	±10%	17	0.27	330	0.1
LBQCA322525T220MR	LB C3225T220MR8	22	±20%	17	0.27	330	0.1
LBQCA322525T330KR	LB C3225T330KR8	33	±10%	13	0.41	300	0.1
LBQCA322525T330MR	LB C3225T330MR8	33	±20%	13	0.41	300	0.1
LBQCA322525T470KR	LB C3225T470KR8	47	±10%	10	0.67	220	0.1
LBQCA322525T470MR	LB C3225T470MR8	47	±20%	10	0.67	220	0.1
LBQCA322525T680KR	LB C3225T680KR8	68	±10%	8	1.0	190	0.1
LBQCA322525T680MR	LB C3225T680MR8	68	±20%	8	1.0	190	0.1
LBQCA322525T101KR	LB C3225T101KR8	100	±10%	6	1.4	150	0.1
LBQCA322525T101MR	LB C3225T101MR8	100	±20%	6	1.4	150	0.1

・LBQB/LBQC series

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

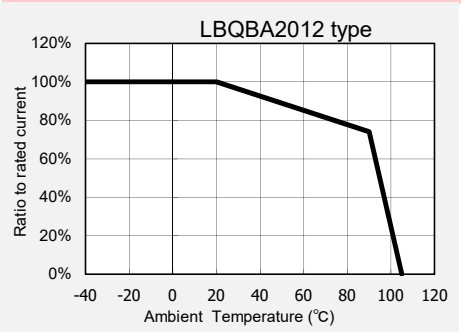
・LBQE series

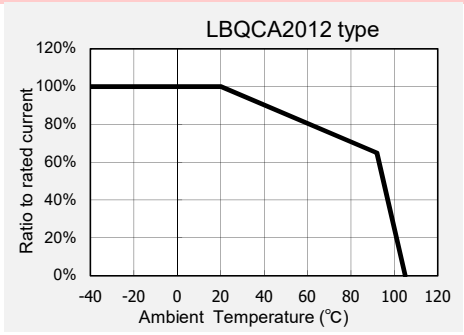
※)Rated Current: The maximum DC value having inductance decrease within 20 % and temperature increase within 20 degC by the application of DC bias.

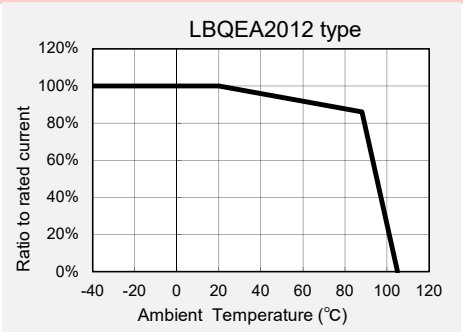
Derating of Rated Current

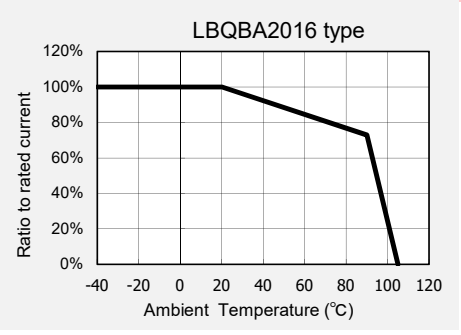
LBQB/LBQC/LBQE series

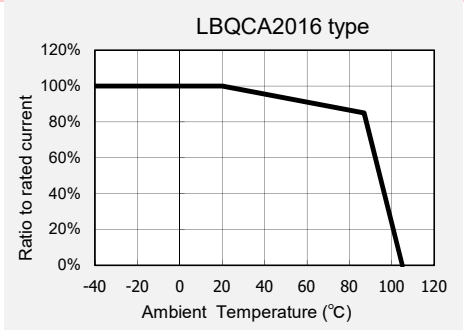
Derating of current is necessary for LBQB/LBQC/LBQE series series depending on ambient temperature.
Please refer to the chart shown below for appropriate derating of current.

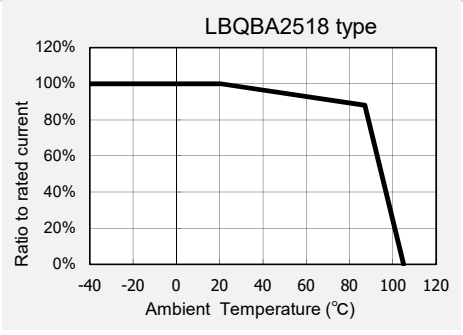


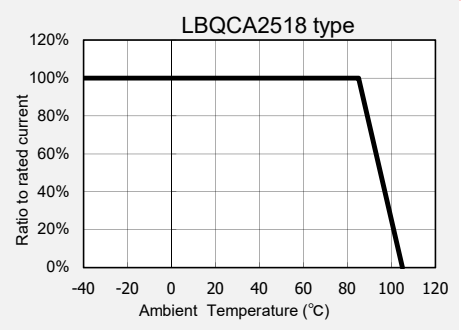


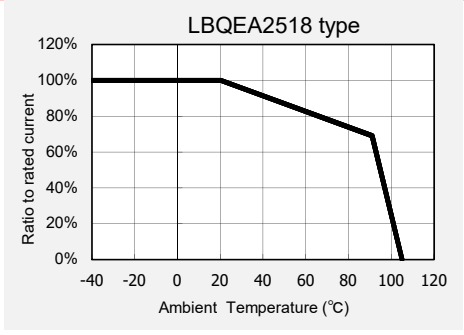


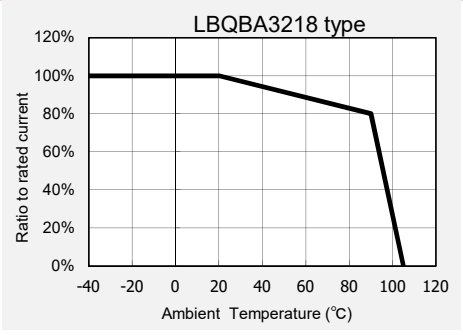


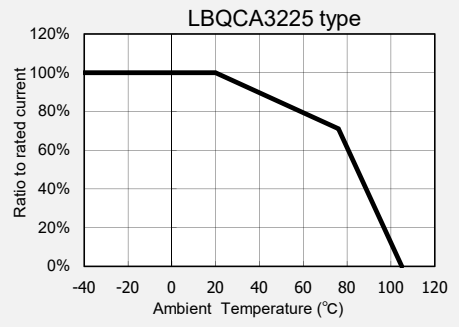












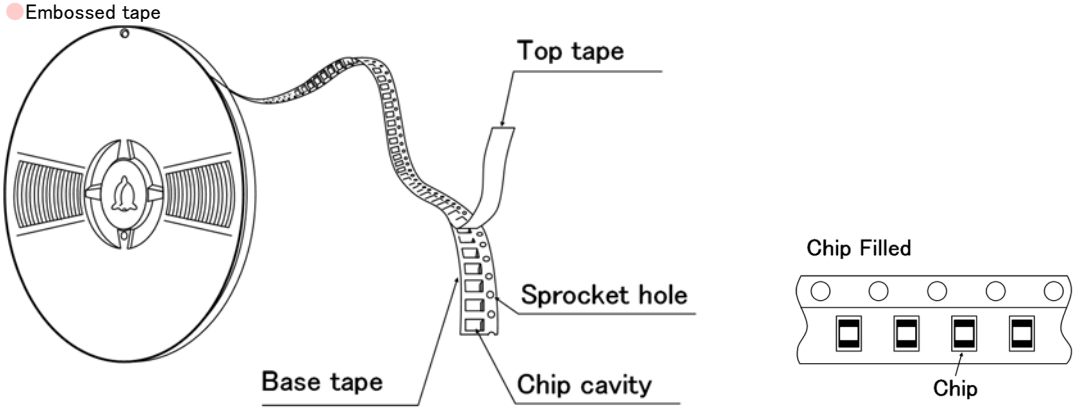
■PACKAGING

①Minimum Quantity

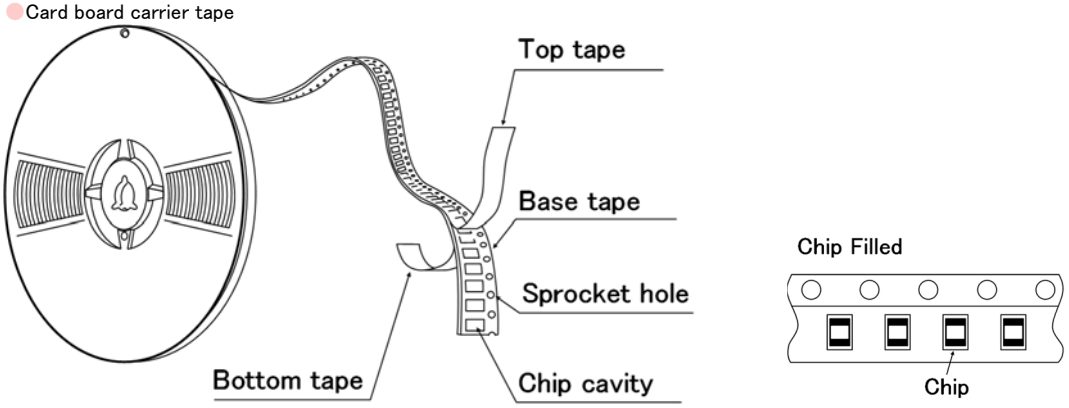
Type	Standard Quantity [pcs]	
	Paper Tape	Embossed Tape
A322525	—	1000
A321818	—	2000
A251818	—	2000
B201616 A201616	—	2000
A201212	—	3000
A201209	4000	—
A160808	4000	—
B160808	—	3000

②Tape material

●Embossed tape

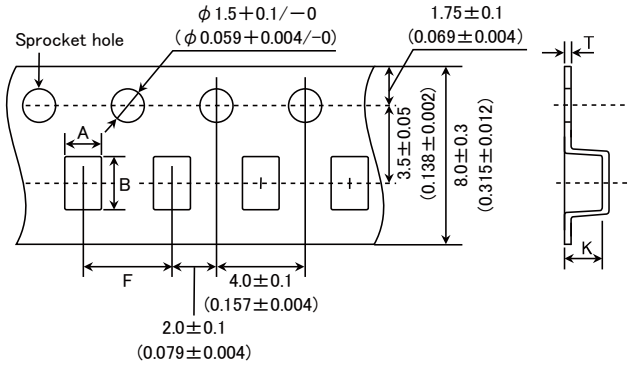


●Card board carrier tape



③Taping Dimensions

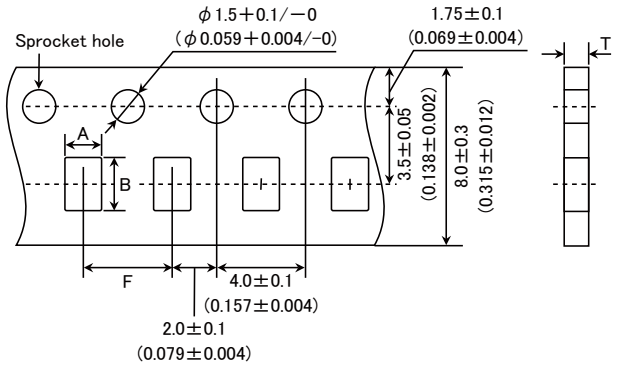
Embossed Tape (0.315 inches wide)



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)

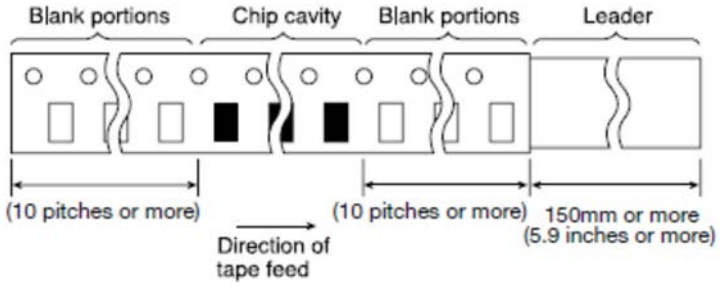
Card board carrier tape (0.315 inches wide)



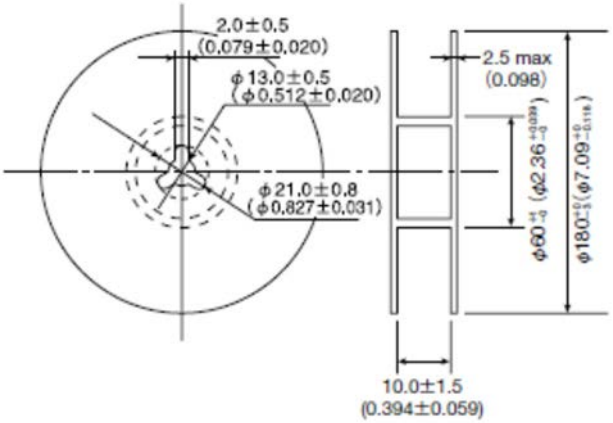
Type	Chip cavity		Insertion pitch	Tape thickness
	A	B	F	T
A201209	1.55±0.1 (0.061±0.004)	2.3±0.1 (0.091±0.004)	4.0±0.1 (0.157±0.004)	1.1max. (0.043max.)
A160808	1.0±0.1 (0.039±0.004)	1.8±0.1 (0.071±0.004)	4.0±0.1 (0.157±0.004)	1.1max. (0.043max.)

Unit : mm (inch)

④Leader and Blank Portion

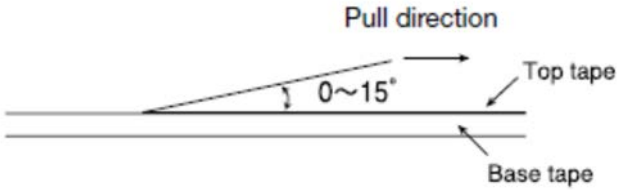


⑤Reel Size



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 Power Inductors LBQB/LBQC/LBQE series for Telecommunications Infrastructure and Industrial Equipment
Wire-wound Ferrite Power Inductors LBQN/LBQPA series for Telecommunications Infrastructure and Industrial Equipment
Wire-wound Ferrite Inductors for Signal Lines LBQM series for Telecommunications Infrastructure and Industrial Equipment
Wire-wound Ferrite Power Inductors LMQB/LMQC/LMQE series for Medical Devices classified as GHTF Class C (Japan Class III)
Wire-wound Ferrite Power Inductors LMQN/LMQPA series for Medical Devices classified as GHTF Class C (Japan Class III)
Wire-wound Ferrite Inductors for Signal Lines LMQM series for Medical Devices classified as GHTF Class C (Japan Class III)

■RELIABILITY DATA

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

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)

6.DC Resistance	
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	LBQMB2016				Inductance change : Within±10%
	LMQMB2016				
	LBQBA2012	LBQEA2012	LBQNA2012	LBQBA2016	Inductance change : Within±20%
	LBQNA2016	LBQBA2518	LBQEA2518	LBQNA2518	
	LBQCA3225	LBQPA3225			
	LMQBA2012	LMQEA2012	LMQNA2012	LMQBA2016	
	LMQNA2016	LMQBA2518	LMQEA2518	LMQNA2518	
	LMQCA3225	LMQPA3225			
	LBQCA2016	LBQPA2016	LBQCA2518	LBQPA2518	Inductance change : Within±25%
	LBQBA3218				
	LMQCA2016	LMQPA2016	LMQCA2518	LMQPA2518	
	LMQBA3218				
	LBQCA2012	LBQPA2012			Inductance change : Within±35%
	LMQCA2012	LMQPA2012			

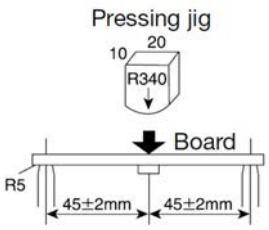
Test Methods and Remarks

Change of maximum inductance deviation in step 1–5

Step	Temperature(℃)
1	20
2	−40
3	20(Reference temperature)
4	+85(Maximum operating temperature)
5	20

9.Rasistance to Flexure of Substrate

Specified Value	No damage.
Test Methods and Remarks	Warp : 2mm Test substrate : Board according to JIS C0051 Thickness : 1.0mm



10.Body Strength

Specified Value	No damage.
Test Methods and Remarks	Applied force : 10N Duration : 10sec.

11.Adhesion of terminal electrode

Specified Value	No abnormality.
Test Methods and Remarks	Applied force : 10N to X and Y directions Duration : 5 sec. Test substrate : Printed board

12.Resistance to vibration	
Specified Value	Inductance change : Within±20% No significant abnormality in appearance.
Test Methods and Remarks	According to JIS C5102 clause 8.2. Vibration type : A Directions : 2 hrs each in X, Y and Z directions. Total:6 hrs Frequency range : 10 to 55 to 10 Hz(1min.) Amplitude : 1.5mm Mounting method : Soldering onto printed board 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	Inductance change : Within±20%
Test Methods and Remarks	3 times of reflow oven at 230℃ MIN for 40sec. with peak temperature at 260 ℃ for 5sec.

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±20% No significant abnormality in appearance.
Test Methods and Remarks	−40～+85℃, maintain times 30min. ,100 cycle 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±20% 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±20% 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±20% 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±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±20% 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.

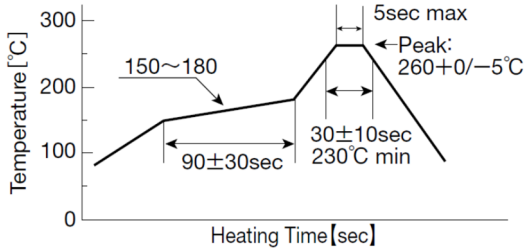
Wire-wound Ferrite Inductors LSQB/LSQC/LSQE/LLQB/LLQC/LLQE/LMQB/LMQC/LMQE/ LBQB/LBQC/LBQE series
Wire-wound Ferrite Power Inductors LSQN/LSQPA/LLQN/LLQPA/LMQN/LMQPA/ LBQN/LBQPA series
Wire-wound Ferrite Inductors for Signal Lines LSQM/LLQM/LMQM/LBQM series

■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°C 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. ・ Storage conditions Ambient temperature : 0～40℃ Humidity : Below 70% RH ・ The recommended ambient temperature is 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.