Inductors for Power Lines Part Numbering

(Part Number)

LQ	M	21	P	N	R54	M	G	0	D
❶	❷	❸	❹	❺	❻	❼	❽	❾	❿

❶Product ID

Product ID	
LQ	Chip Inductors (Chip Coils)

❷Structure

Code	Structure
H	Wire Wound Type (Ferrite Core)
W	
M	Multilayer Type (Ferrite Core)

❸Dimensions (L×W)

Code	Dimensions (L×W)	Size Code (in inch)
15	1.0×0.5mm	0402
18	1.6×0.8mm	0603
21	2.0×1.25mm	0805
2M	2.0×1.6mm	0806
2H	2.5×2.0mm	1008
3N	3.0×3.0mm	1212
31	3.2×1.6mm	1206
32	3.2×2.5mm	1210
43	4.5×3.2mm	1812
44	4.0×4.0mm	1515
5B	5.0×5.0mm	2020
55	5.7×5.0mm	2220
66	6.3×6.3mm	2525

❹Applications and Characteristics

Code	Series	Applications and Characteristics
D	LQM	for Choke (Low-current DC Power Supplies)
F		for Choke (DC Power Supplies)
D	LQH	for Choke
S		for Choke (Magnetically Shielded Type)
C	LQH/LQW	for Choke (Coating Type)
P	LQM/LQH	for Power Line

❺Category

Code	Category
N	Standard Type
B	Special Feature Classification

❻Inductance

Expressed by three-digit alphanumerics. The unit is micro-henry (μH). The first and second figures are significant digits, and the third figure expresses the number of zeros that follow the two figures. If there is a decimal point, it is expressed by the capital letter "**R**." In this case, all figures are significant digits. If inductance is less than 0.1μH, the inductance code is expressed by a combination of two figures and the capital letter "**N**," and the unit of inductance is nano-henry (nH).
The capital letter "**N**" indicates the unit of "nH," and also expresses a decimal point. In this case, all figures are significant digits.

❼Inductance Tolerance

Code	Inductance Tolerance
D	±0.5nH
J	±5%
K	±10%
M	±20%
N	±30%

❽Features (Except for **LQH□□P/LQM□□P**)

Code	Features	Series
0	Standard Type	**LQM/LQH***1 **/LQW**
1	Low DC Resistance	**LQW**
2	Standard Type	**LQH32C**
3	Low DC Resistance	**LQH32C/43CN**
5	Low Profile Type	**LQH2MC/32C**
7	Large Current Type	**LQM21F**
8	Low DC Resistance /Large Current Type	

*1 Except for LQH32 Series

❽Thickness (**LQH□□P/LQM□□P** Only • Except for **LQH43P**)

Code	Dimensions (T)
B	0.35mm
C	0.5mm
D	0.6mm
E	0.7mm
F	0.8mm
0	0.85mm
G	0.9mm
J	1.1mm
M	1.4mm
N	1.55mm
P	1.65mm
T	2.0mm

❾Electrode (Except for **LQH□□P/LQM□□P**)

•Lead (Pb) Free

Code	Electrode	Series
0	Sn	**LQM/LQW**
2		**LQH2MC**
3	LF Solder	**LQH** (Except for **LQH2MC**)

❾Specification (**LQH□□P/LQM□□P** Only • Except for **LQH43P**)

Code	Specification
0/S	Standard Type
C	Good Bias Current Characteristics Type
H	High Spec Type (Low DC Resistance/ Good Bias Current Characteristics Type)
R	Low DC Resistance Type

Continued on the following page.

❽❾Thickness (**LQH43P** Only)

Code	Dimensions (T)
26	2.6mm

❿Packaging

Code	Packaging	Series
K	Embossed Taping (ø330mm Reel)	**LQH***1 **/LQM21***2
F		**LQH3NP_MR**
L	Embossed Taping (ø180mm Reel)	**LQH***5**/LQM18P/LQM21***2 **/LQM31P/LQM2HP/LQM2MP**
E		**LQH3NP_MR**
B	Bulk	**LQH2MC/LQM/LQW**
J	Paper Taping (ø330mm Reel)	**LQM18/LQM21***3
D	Paper Taping (ø180mm Reel)	**LQM18/LQM21***4 **/LQW**

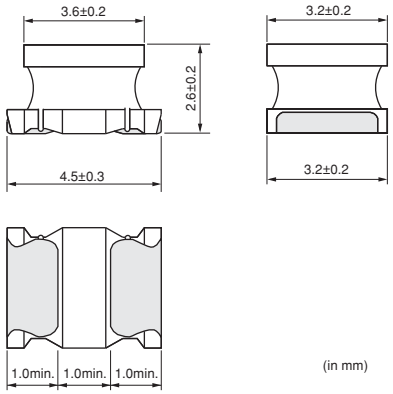
*1 Except for LQH2MC/LQH2HP_G0/LQH3NP/LQH43C
*2 LQM21D(22 - 47µH)/LQM21F(4.7 - 47µH)
*3 LQM21D(1.0 - 10µH)/LQM21F(1.0 - 2.2µH)
*4 LQM21D(1.0 - 10µH)/LQM21F(1.0 - 2.2µH)/LQM21P
*5 Except for LQH3NP_MR

Wire Wound Type (Ferrite Core)

LQH43MN_03/LQH43NN_03 Series 1812/4532 (inch/mm)

Size Code 1812 (4532) in inch (in mm)

■ Appearance/ Dimensions



■ Packaging

Code	Packaging	Minimum Quantity
L	ø180mm Embossed Taping	500
K	ø330mm Embossed Taping	2500

Thickness 2.8mm max. | E-12 Step | Reflow OK | Flow OK

Refer to pages 137 to 140 for mounting information.

■ Rated Value (☐: packaging code)

Part Number	Inductance	Inductance Test Frequency	Rated Current	Max. of DC Resistance	Q (min.)	Q Test Frequency	Self-Resonance Frequency (min.)	
LQH43MN1R0M03☐	1.0μH ±20%	1MHz	500mA	0.20Ω	20	1MHz	120MHz	Kit
LQH43MN1R2M03☐	1.2μH ±20%	1MHz	500mA	0.20Ω	20	1MHz	100MHz	Kit
LQH43MN1R5M03☐	1.5μH ±20%	1MHz	500mA	0.30Ω	20	1MHz	85MHz	Kit
LQH43MN1R8M03☐	1.8μH ±20%	1MHz	500mA	0.30Ω	20	1MHz	75MHz	Kit
LQH43MN2R2M03☐	2.2μH ±20%	1MHz	500mA	0.30Ω	20	1MHz	62MHz	Kit
LQH43MN2R7M03☐	2.7μH ±20%	1MHz	500mA	0.32Ω	20	1MHz	53MHz	Kit
LQH43MN3R3M03☐	3.3μH ±20%	1MHz	500mA	0.35Ω	20	1MHz	47MHz	Kit
LQH43MN3R9M03☐	3.9μH ±20%	1MHz	500mA	0.38Ω	20	1MHz	41MHz	Kit
LQH43MN4R7K03☐	4.7μH ±10%	1MHz	500mA	0.40Ω	30	1MHz	38MHz	Kit
LQH43MN5R6K03☐	5.6μH ±10%	1MHz	500mA	0.47Ω	30	1MHz	33MHz	Kit
LQH43MN6R8K03☐	6.8μH ±10%	1MHz	450mA	0.50Ω	30	1MHz	31MHz	Kit
LQH43MN8R2K03☐	8.2μH ±10%	1MHz	450mA	0.56Ω	30	1MHz	27MHz	Kit
LQH43MN100J03☐	10μH ±5%	1MHz	400mA	0.56Ω	35	1MHz	23MHz	
LQH43MN100K03☐	10μH ±10%	1MHz	400mA	0.56Ω	35	1MHz	23MHz	Kit
LQH43MN120J03☐	12μH ±5%	1MHz	380mA	0.62Ω	35	1MHz	21MHz	
LQH43MN120K03☐	12μH ±10%	1MHz	380mA	0.62Ω	35	1MHz	21MHz	Kit
LQH43MN150J03☐	15μH ±5%	1MHz	360mA	0.73Ω	35	1MHz	19MHz	
LQH43MN150K03☐	15μH ±10%	1MHz	360mA	0.73Ω	35	1MHz	19MHz	Kit
LQH43MN180J03☐	18μH ±5%	1MHz	340mA	0.82Ω	35	1MHz	17MHz	
LQH43MN180K03☐	18μH ±10%	1MHz	340mA	0.82Ω	35	1MHz	17MHz	Kit
LQH43MN220J03☐	22μH ±5%	1MHz	320mA	0.94Ω	35	1MHz	15MHz	
LQH43MN220K03☐	22μH ±10%	1MHz	320mA	0.94Ω	35	1MHz	15MHz	Kit
LQH43MN270J03☐	27μH ±5%	1MHz	300mA	1.1Ω	35	1MHz	14MHz	
LQH43MN270K03☐	27μH ±10%	1MHz	300mA	1.1Ω	35	1MHz	14MHz	Kit
LQH43MN330J03☐	33μH ±5%	1MHz	270mA	1.2Ω	35	1MHz	12MHz	
LQH43MN330K03☐	33μH ±10%	1MHz	270mA	1.2Ω	35	1MHz	12MHz	Kit
LQH43MN390J03☐	39μH ±5%	1MHz	240mA	1.4Ω	35	1MHz	11MHz	
LQH43MN390K03☐	39μH ±10%	1MHz	240mA	1.4Ω	35	1MHz	11MHz	Kit
LQH43MN470J03☐	47μH ±5%	1MHz	220mA	1.5Ω	35	1MHz	10MHz	
LQH43MN470K03☐	47μH ±10%	1MHz	220mA	1.5Ω	35	1MHz	10MHz	Kit
LQH43MN560J03☐	56μH ±5%	1MHz	200mA	1.7Ω	35	1MHz	9.3MHz	
LQH43MN560K03☐	56μH ±10%	1MHz	200mA	1.7Ω	35	1MHz	9.3MHz	Kit

Class of Magnetic Shield: No magnetic shield
Operating Temperature Range (Self-temperature rise is not included): -40℃～+85℃

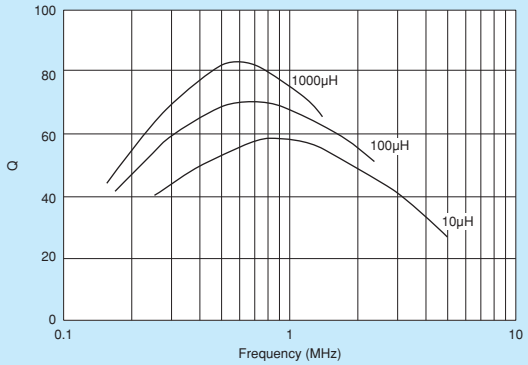
Continued on the following page.

Part Number	Inductance	Inductance Test Frequency	Rated Current	Max. of DC Resistance	Q (min.)	Q Test Frequency	Self-Resonance Frequency (min.)	
LQH43MN680J03□	68μH ±5%	1MHz	180mA	1.9Ω	35	1MHz	8.4MHz	
LQH43MN680K03□	68μH ±10%	1MHz	180mA	1.9Ω	35	1MHz	8.4MHz	Kit
LQH43MN820J03□	82μH ±5%	1MHz	170mA	2.2Ω	35	1MHz	7.5MHz	
LQH43MN820K03□	82μH ±10%	1MHz	170mA	2.2Ω	35	1MHz	7.5MHz	Kit
LQH43MN101J03□	100μH ±5%	1MHz	160mA	2.5Ω	40	796kHz	6.8MHz	
LQH43MN101K03□	100μH ±10%	1MHz	160mA	2.5Ω	40	796kHz	6.8MHz	Kit
LQH43MN121J03□	120μH ±5%	1MHz	150mA	3.0Ω	40	796kHz	6.2MHz	
LQH43MN121K03□	120μH ±10%	1MHz	150mA	3.0Ω	40	796kHz	6.2MHz	Kit
LQH43MN151J03□	150μH ±5%	1MHz	130mA	3.7Ω	40	796kHz	5.5MHz	
LQH43MN151K03□	150μH ±10%	1MHz	130mA	3.7Ω	40	796kHz	5.5MHz	Kit
LQH43MN181J03□	180μH ±5%	1MHz	120mA	4.5Ω	40	796kHz	5.0MHz	
LQH43MN181K03□	180μH ±10%	1MHz	120mA	4.5Ω	40	796kHz	5.0MHz	Kit
LQH43MN221J03□	220μH ±5%	1MHz	110mA	5.4Ω	40	796kHz	4.5MHz	
LQH43MN221K03□	220μH ±10%	1MHz	110mA	5.4Ω	40	796kHz	4.5MHz	Kit
LQH43MN271J03□	270μH ±5%	1MHz	100mA	6.8Ω	40	796kHz	4.0MHz	
LQH43MN271K03□	270μH ±10%	1MHz	100mA	6.8Ω	40	796kHz	4.0MHz	Kit
LQH43MN331J03□	330μH ±5%	1MHz	95mA	8.2Ω	40	796kHz	3.6MHz	
LQH43MN331K03□	330μH ±10%	1MHz	95mA	8.2Ω	40	796kHz	3.6MHz	Kit
LQH43MN391J03□	390μH ±5%	1MHz	90mA	9.7Ω	40	796kHz	3.3MHz	
LQH43MN391K03□	390μH ±10%	1MHz	90mA	9.7Ω	40	796kHz	3.3MHz	Kit
LQH43MN471J03□	470μH ±5%	1kHz	80mA	11.8Ω	40	796kHz	3.0MHz	
LQH43MN471K03□	470μH ±10%	1kHz	80mA	11.8Ω	40	796kHz	3.0MHz	Kit
LQH43MN561J03□	560μH ±5%	1kHz	70mA	14.5Ω	40	796kHz	2.7MHz	
LQH43MN561K03□	560μH ±10%	1kHz	70mA	14.5Ω	40	796kHz	2.7MHz	Kit
LQH43MN681J03□	680μH ±5%	1kHz	65mA	17.0Ω	40	796kHz	2.5MHz	
LQH43MN681K03□	680μH ±10%	1kHz	65mA	17.0Ω	40	796kHz	2.5MHz	Kit
LQH43MN821J03□	820μH ±5%	1kHz	60mA	20.5Ω	40	796kHz	2.2MHz	
LQH43MN821K03□	820μH ±10%	1kHz	60mA	20.5Ω	40	796kHz	2.2MHz	Kit
LQH43MN102J03□	1000μH ±5%	1kHz	50mA	25.0Ω	40	252kHz	2.0MHz	
LQH43MN102K03□	1000μH ±10%	1kHz	50mA	25.0Ω	40	252kHz	2.0MHz	Kit
LQH43MN122J03□	1200μH ±5%	1kHz	45mA	30.0Ω	40	252kHz	1.8MHz	
LQH43MN122K03□	1200μH ±10%	1kHz	45mA	30.0Ω	40	252kHz	1.8MHz	Kit
LQH43MN152J03□	1500μH ±5%	1kHz	40mA	37.0Ω	40	252kHz	1.6MHz	
LQH43MN152K03□	1500μH ±10%	1kHz	40mA	37.0Ω	40	252kHz	1.6MHz	Kit
LQH43NN182J03□	1800μH ±5%	1kHz	35mA	45.0Ω	40	252kHz	1.5MHz	
LQH43NN182K03□	1800μH ±10%	1kHz	35mA	45.0Ω	40	252kHz	1.5MHz	Kit
LQH43NN222J03□	2200μH ±5%	1kHz	30mA	50.0Ω	40	252kHz	1.3MHz	
LQH43NN222K03□	2200μH ±10%	1kHz	30mA	50.0Ω	40	252kHz	1.3MHz	Kit

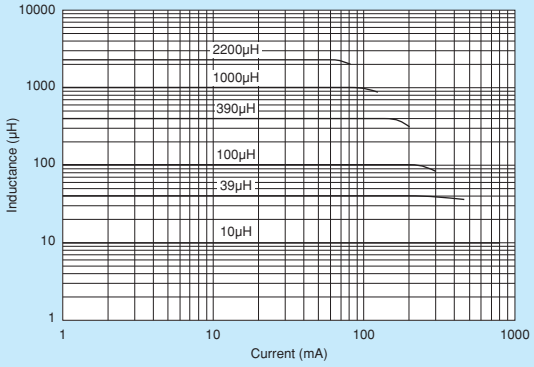
Class of Magnetic Shield: No magnetic shield
Operating Temperature Range (Self-temperature rise is not included): -40℃～+85℃

Continued on the following page.

■ Q-Frequency Characteristics (Typ.)



■ Inductance-Current Characteristics (Typ.)



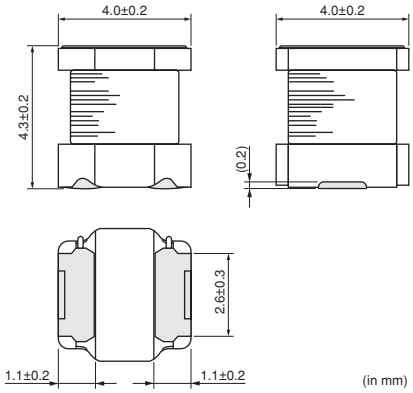
Wire Wound Type (Ferrite Core)

LQH44NN_03

LQH44NN_03 Series 1515/4040 (inch/mm)

Size Code 1515 (4040) in inch (in mm), General

■ Appearance/ Dimensions



■ Packaging

Code	Packaging	Minimum Quantity
L	ø180mm Embossed Taping	250
K	ø330mm Embossed Taping	1500

Thickness 4.5mm max. Reflow OK

Refer to pages 137 to 140 for mounting information.

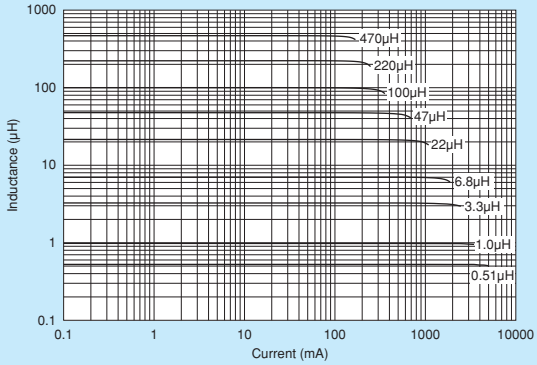
■ Rated Value (☐: packaging code)

Part Number	Inductance	Inductance Test Frequency	Rated Current *1	DC Resistance	Self-Resonance Frequency (min.)	
LQH44NNR51M03☐	0.51μH ±20%	1kHz	4.5A	0.0075Ω ±30%	160MHz	New
LQH44NNR74M03☐	0.74μH ±20%	1kHz	3.5A	0.011Ω ±30%	150MHz	New
LQH44NN1R0M03☐	1.0μH ±20%	1kHz	3.3A	0.012Ω ±30%	90MHz	New
LQH44NN1R5M03☐	1.5μH ±20%	1kHz	3.2A	0.016Ω ±30%	70MHz	New
LQH44NN2R2M03☐	2.2μH ±20%	1kHz	2.5A	0.019Ω ±20%	55MHz	New
LQH44NN3R3M03☐	3.3μH ±20%	1kHz	2.25A	0.024Ω ±30%	34.8MHz	New
LQH44NN4R7M03☐	4.7μH ±20%	1kHz	1.95A	0.040Ω ±30%	23.4MHz	New
LQH44NN5R0K03☐	5.0μH ±10%	1kHz	1.95A	0.040Ω ±30%	23.4MHz	New
LQH44NN6R8K03☐	6.8μH ±10%	1kHz	1.6A	0.051Ω ±30%	19.8MHz	New
LQH44NN100K03☐	10μH ±10%	1kHz	1.3A	0.067Ω ±30%	23.5MHz	New
LQH44NN150K03☐	15μH ±10%	1kHz	1.1A	0.100Ω ±30%	11.5MHz	New
LQH44NN220K03☐	22μH ±10%	1kHz	0.95A	0.170Ω ±30%	14MHz	New
LQH44NN330K03☐	33μH ±10%	1kHz	0.76A	0.210Ω ±30%	12MHz	New
LQH44NN470K03☐	47μH ±10%	1kHz	0.64A	0.330Ω ±30%	10MHz	New
LQH44NN680K03☐	68μH ±10%	1kHz	0.53A	0.410Ω ±30%	8.0MHz	New
LQH44NN101K03☐	100μH ±10%	1kHz	0.3A	0.540Ω ±30%	6.3MHz	New
LQH44NN151K03☐	150μH ±10%	1kHz	0.26A	0.920Ω ±30%	5.2MHz	New
LQH44NN221K03☐	220μH ±10%	1kHz	0.21A	1.20Ω ±30%	3.9MHz	New
LQH44NN331K03☐	330μH ±10%	1kHz	0.18A	1.76Ω ±30%	3.0MHz	New
LQH44NN471K03☐	470μH ±10%	1kHz	0.145A	2.23Ω ±30%	2.7MHz	New

Class of Magnetic Shield: No magnetic shield
Operating Temperature Range (Self-temperature rise is included): -40℃～+125℃
Operating Temperature Range (Self-temperature rise is not included): -40℃～+85℃
For reflow soldering only.
*1 When applied rated current to the products, self-temperature rise shall be limited to 40℃ max. and inductance will be within ±20% of initial inductance value.

Continued on the following page.

■ Inductance-Current Characteristics (Typ.)



⚠Caution

● Rating

1. About the Rated Current
   Do not use products beyond the rated current as this may create excessive heat and deteriorate the insulation resistance.

2. About Excessive Surge Current
   Surge current (pulse current or rush current) greater than the specified rated current applied to the product may cause a critical failure, such as an open circuit, burnout caused by excessive temperature rise. Please contact us in advance in case of applying the surge current.

Notice

● Storage and Operating Condition

<Operating Environment>
Do not use products in chemical atmosphere such as chlorine gas, acid or sulfide gas.
<Storage Requirements>
1. Storage Period
   LQB series and LQM series should be used within 6 months; the other products should be used within 12 months.
   Check solderability if this period is exceeded.
2. Storage Conditions
   (1) Store products in a warehouse in compliance with the following conditions:
   Temperature: -10 to +40 degrees C.
   Humidity: 15 to 85% (relative humidity)
   Do not subject products to rapid changes in temperature and humidity.
   Do not store them in chemical atmosphere such as one containing sulfurous acid gas or alkaline gas.
   This will prevent electrode oxidation, which causes poor solderability and possible corrosion of inductors.
   (2) Do not store products in bulk packaging to prevent collision among inductors, which causes core chipping and wire breakage.
   (3) Store products on pallets to protect from humidity, dust, etc.
   (4) Avoid heat shock, vibration, direct sunlight, etc.

● Handling

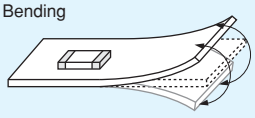
This item is designed to have sufficient strength, but handle with care to avoid chipping or breaking its ceramic structure.
LQH_M/N series
- To prevent breaking the wire, avoid touching with sharp material, such as tweezers or the bristles of a cleaning brush, to the wire wound portion of this product.
- To prevent breaking the core, avoid applying excessive mechanical shock to products mounted on the board.

LQB series and LQM series
- There is the possibility that magnetism may change the inductance value. Do not use a magnet or tweezers with magnetism when handling chip inductors. (The tip of the tweezers should be molded with resin or pottery.)
- When excessive current over the rated current is applied, it may cause the inductance value to change due to magnetism.

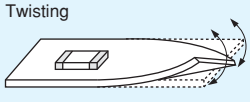
<Handling>
1. Avoid applying excessive stress to products to prevent damage.
2. Do not touch wire wound with sharp objects such as tweezers to prevent wire breakage.
3. Do not apply excessive force to products mounted on boards to prevent core breakage.

<Transportation>
Do not apply excessive vibration or mechanical shock to products.
<Resin Coating>
When coating products with resin, the relatively high resin curing stress may change inductance values. For exterior coating, select resin carefully so that electrical and mechanical performance of the product is not affected. Prior to use, please evaluate reliability with the product mounted in your application set.
(LQH series)
An open circuit issue may occur by mechanical stress caused by the resin, amount/cured shape of resin, or operating conditions, etc. Some resins containing impurities or chloride may possibly generate chlorine by hydrolysis under some operating conditions, causing corrosion of the inductor wire and leading to an open circuit.
<Handling of a Substrate>
After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting the substrate when cropping the substrate, inserting and removing a connector from the substrate, or tightening a screw to the substrate. Excessive mechanical stress may cause cracking in the Product.

Bending



Twisting

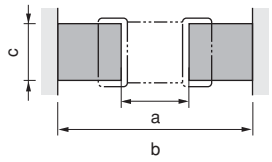
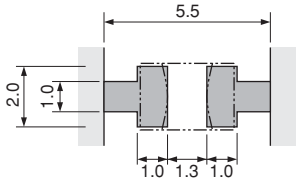
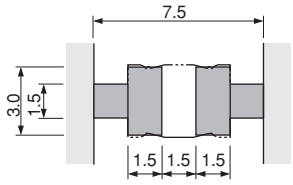


⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

1. Standard Land Pattern Dimensions

A high Q value is achieved when the PCB electrode land pattern is designed so that it does not project beyond the chip Inductors (chip coils) electrode.

Land Pattern + Solder Resist
Land Pattern
Solder Resist
(in mm)

Series	Standard Land Dimensions
LQB15N **LQB18N** **LQM18N** **LQM21N** **LQH31M** **LQH44N**	
LQH32M	
LQH43M **LQH43N**	

Part Number		a	b	c
LQB15NN	Reflow	0.4	1.2-1.4	0.5
LQB18N **LQM18N**	Flow	0.7	2.2-2.6	0.7
	Reflow		1.8-2.0	
LQM21N		1.2	3.0-4.0	1.0
LQH31M		1.0	4.5	1.5
LQH44N		1.3	4.4	3.0

Attention should be paid to potential magnetic coupling effects when using the Inductors (coils) as a resonator.

2. Standard Soldering Conditions

(1) Soldering method

Chip Inductors (Chip coils) can be flow or reflow soldered. Please contact Murata regarding other soldering methods.

Solder: Use Sn-3.0Ag-0.5Cu solder.

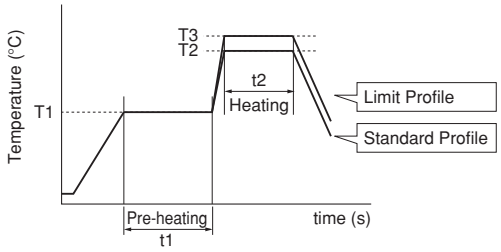
Flux: Use rosin-based flux, but not strongly acidic flux (with chlorine content exceeding 0.2wt%).
Do not use water-soluble flux.

For additional mounting methods, please contact Murata.

Continued on the following page.

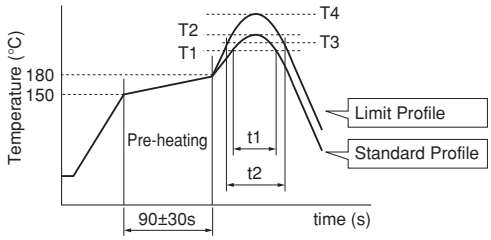
(2) Soldering profile

●Flow Soldering profile
(Sn-3.0Ag-0.5Cu solder)



Series	Pre-heating		Standard Profile			Limit Profile		
			Heating		Cycle of flow	Heating		Cycle of flow
	Temp. (T1)	Time. (t1)	Temp. (T2)	Time. (t2)		Temp. (T3)	Time. (t2)	
LQB18N LQM18N LQM21N LQH31M	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.
LQH32M LQH43M(N)	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	1 times

●Reflow Soldering profile
(Sn-3.0Ag-0.5Cu solder)



Series	Standard Profile				Limit Profile			
	Heating		Peak temperature (T2)	Cycle of reflow	Heating		Peak temperature (T4)	Cycle of reflow
	Temp. (T1)	Time. (t1)			Temp. (T3)	Time. (t2)		
LQB15N LQB18N LQM18N LQM21N LQH31M LQH44N	220°C	30 to 60s	245±3°C	2 times max.	230°C	60s max.	260°C/10s	2 times max.
LQH32M LQH43M(N)	220°C	30 to 60s	245±3°C	2 times max.	230°C	60s max.	260°C/10s	1 time

(3) Reworking with Soldering Iron

Preheating at 150°C for 1 minute is required. Do not directly touch the ceramic element with the tip of the soldering iron. The reworking soldering conditions are as follows:

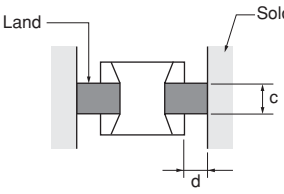
Soldering iron power output: 80W max.
Temperature of soldering iron tip: 350°C
Diameter of soldering iron end: 3.0mm max.
Soldering time: within 3 s

Continued on the following page.

3. Mounting Instructions

(1) Land Pattern Dimensions

Large lands reduce Q of the mounted chip. Also, large protruding land areas (bordered by lines having dimensions 'c' and 'd' shown) cause floating and electrode leaching.

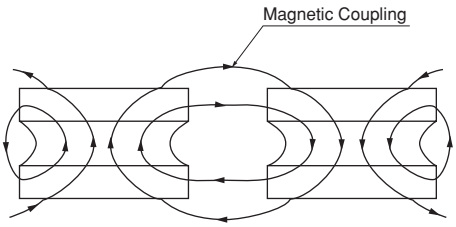


(2) Land Pattern Designing (LQH series)

Please follow the recommended patterns.
Otherwise, their performance, which includes electrical performance or solderability, may be affected, or result in "position shift" in the soldering process.

(3) Magnetic Coupling

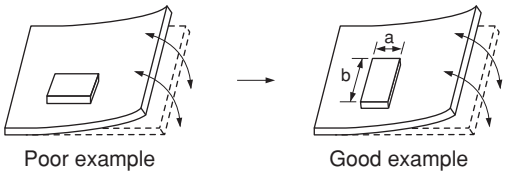
Since some chip inductors (chip coils) are constructed like an open magnetic circuit, narrow spacing between inductors (coils) may cause magnetic coupling.
LQB/LQM series have a magnetically shielded structure. The structure makes their coupling coefficient smaller than that of conventional chip inductors (chip coils).



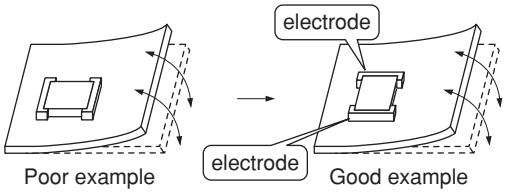
(4) PCB Warping

PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

Products should be located in a sideways direction (Length: a<b) to the mechanical stress.



The electrode part of the product should be located as in the figure to avoid mechanical stress.



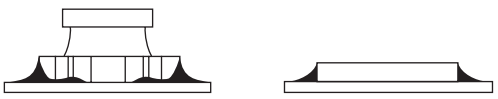
(5) Amount of Solder Paste

Excessive solder causes electrode corrosion, while insufficient solder causes low electrode bonding strength. Adjust the amount of solder paste as shown on the right so that solder is applied.

● Guideline of solder paste thickness

· LQB/LQM: 100 to 150μm

· LQHs except for ones written above: 200 to 300μm



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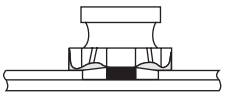
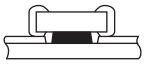
(6) Amount of Adhesive

If too much adhesive is applied, then it may overflow into the land or termination areas and yield poor solderability. In contrast, if insufficient adhesive is applied, or if the adhesive is not sufficiently hardened, then the chip may become detached during flow soldering. Apply the adhesive in accordance with the conditions shown in the chart.



LQH_M/N



LQM

Part Number	Typical Application Amount (in:mg)
	IR-100
LQB18N/LQM18N	0.06-0.07
LQM21N	0.20-0.25
LQH31M	0.20-0.25
LQH32M	0.27-0.35
LQH43M(N)	0.60-0.80

4. Cleaning

The following conditions should be observed when cleaning chip inductors (chip coils):

(1) Cleaning Temperature: 60°C max. (40°C max. for alcohol cleaning agents)

(2) Ultrasonic

Output: 20W/l max.
Duration: 5 minutes max.
Frequency: 28 to 40kHz
Care should be taken not to cause resonance of the PCB and mounted products.

(3) Cleaning agent

The following cleaning agents have been tested on individual components. Evaluation in complete assembly should be done prior to production.

(a) Alcohol cleaning agents
Isopropyl alcohol (IPA)

(b) Aqueous cleaning agents
Pine Alpha ST-100S

(4) Ensure that flux residue is completely removed.

Component should be thoroughly dried after aqueous agents have been removed with deionized water.

For additional cleaning methods, please contact Murata.