	Series	Structure	Size Code in inch (in mm)	Inductance Range (H) 0.1n 1n 10n 100n 1µ 10µ 100µ 1m 10m	Rated Current (A) 10m 100m 1 10 100
RF Inductors	LQG15HN_02 p201	Multilayer Type	0402 (1005)	1nH 120nH	150mA 1A
	LQG15HS_02 p204		0402 (1005)	1nH 270nH	110mA 1A
	LQG18HN_00 p208		0603 (1608)	1.2nH 100nH	350mA 1.1A
	LQW21HN_00 p289	Wire Wound Ferrite Core Type	0805 (2012)	470nH 2.2µH	75mA 160mA
	LQP02HQ_02 p210	Film Type	01005 (0402)	0.2nH 56nH	100mA 1A
	LQP02TN_02 p214		01005 (0402)	0.2nH 39nH	90mA 320mA
	LQP02TQ_02 p218		01005 (0402)	0.2nH 22nH	120mA 990mA
	LQP03HQ_02 p221		0201 (0603)	0.6nH 150nH	80mA 1.1A
	LQP03PN_02 p225		0201 (0603)	2.2nH 4.7nH	900mA 1.4A
	LQP03TG_02 p227		0201 (0603)	0.1nH 120nH	80mA 850mA
	LQP03TN_02 p231		0201 (0603)	0.6nH 270nH	60mA 850mA
	LQP03TQ_02 p235		0201 (0603)	0.6nH 13nH	250mA 1A
	LQP15MN_02 p238		0402 (1005)	1nH 33nH	60mA 400mA
	LQP18MN_02 p240		0603 (1608)	1.3nH 100nH	50mA 300mA
	LQW03AW_00 p242	Wire Wound Non-Magnetic Core Type	0201 (0603)	1nH 15.5nH	230mA 900mA
	LQW04AN_00 p244		03015 (0804)	0.8nH 33nH	140mA 1.8A
	LQW04AN_10 p249		03015 (0804)	36nH 56nH	180mA 200mA
	LQW15AN_00 p250		0402 (1005)	1.5nH 120nH	110mA 1A
	LQW15AN_10 p256		0402 (1005)	1.3nH 8.4nH	640mA 1.2A
	LQW15AN_80 p258		0402 (1005)	1.3nH 75nH	320mA 3.15A
	LQW18AN_00 p265		0603 (1608)	2.2nH 470nH	75mA 850mA
	LQW18AN_10 p268		0603 (1608)	2.2nH 33nH	550mA 1.4A
	LQW18AN_80 p270		0603 (1608)	2.2nH 390nH	190mA 3.2A
	LQW18AS_00 p275		0603 (1608)	1.6nH 390nH	100mA 700mA
	LQW2BAN_00 p278		0805 (2015)	3.2nH 200nH	750mA 3.8A
	LQW2BAS_00 p281		0805 (2015)	2.8nH 820nH	180mA 800mA
	LQW2BHN_03 p283		0805 (2015)	3.3nH 470nH	160mA 1.32A
	LQW2BHN_13 p285		0805 (2015)	2.7nH 27nH	900mA 1.9A
	LQW2UAS_00 p286		1008 (2520)	12nH 4.7µH	260mA 1A
	LQW31HN_03 p290		1206 (3216)	8.8nH 100nH	230mA 750mA

Part Numbering

RF Inductors

(Part Number)

LQ	G	15	H	N	1N0	S	0	2	D
❶	❷	❸	❹	❺	❻	❼	❽	❾	❿

❶Product ID

Product ID	
LQ	Chip Inductors (Chip Coils)

❷Structure

Code	Structure
G	Multilayer Type (Air-core Inductors (Coils))
H	Wire Wound Type (Ferrite Core)
P	Film Type
W	Wire Wound Type (Air-core Inductors (Coils))
	Wire Wound Type (Ferrite Core)

❷Dimensions (LxW)

Code	Nominal Dimensions (LxW)	Size Code (in inch)
02	0.4×0.2mm	01005
03	0.6×0.3mm	0201
04	0.8×0.4mm	03015
15	1.0×0.5mm	0402
18	1.6×0.8mm	0603
21	2.0×1.25mm	0805
2B	2.0×1.5mm	0805
2U	2.5×2.0mm	1008
31	3.2×1.6mm	1206

❹Applications and Characteristics

Code	Series	Applications and Characteristics
H	LQG	Multilayer Air-core Inductors (Coils)
	LQP	Film Type (High Q Type)
M	LQP	Film Type
P		Film Type (For Large Current)
T		Film Type (Low DC Resistance Type)
A	LQW	High Q Type (UHF-SHF)
H		High Q Type (VHF-UHF)
H	LQH	for High-frequency Resonant Circuit

❺Category

Code	Category	
G/N	General	Standard Type
S		
Q		High Q Type
W		Specialty Dimensions

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. For those products whose inductance values are specified using three designated digits, these values may be indicated using the closest two digits instead.

❼Inductance Tolerance

Code	Inductance Tolerance
B	±0.1nH
C	±0.2nH
D	±0.5nH
F	±1%
G	±2%
H	±3%
J	±5%
K	±10%
S	±0.3nH
W	±0.05nH

❽Features

Code	Features	Series
0	Standard Type	LQG/LQP/LQW/LQH*1
1	High-Q/Low DC Resistance	LQW15A/18A/2BH
8	Low DC Resistance, Large Rated Current	LQW15A/LQW18A

*1 Except for LQH32 Series

❾Electrode

▪Lead (Pb) Free

Code	Electrode	Series
0	Sn	LQG18H/LQW□□A/LQW□□C
2		LQG15H/LQP02T/LQP03T/ LQP15T/LQP□□M
3	LF Solder	LQW□□H/LQH

❿Packaging

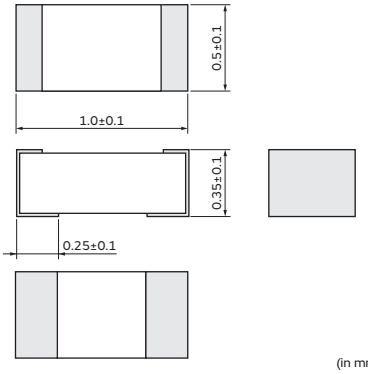
Code	Packaging	Series
K	Embossed Taping (ø330mm Reel)	LQH/LQW□□H*2
L/E	Embossed Taping (ø180mm Reel)	LQH/LQW2BA/LQW2UA/LQW□□H/LQP
B	Bulk	LQW/LQG/LQP
J	Paper Taping (ø330mm Reel)	LQW18A/LQG/LQP*1
D	Paper Taping (ø180mm Reel)	LQW□□A*3 /LQG/LQP

*1 Except for LQP02T *2 Except for LQW21H *3 Except for LQW2BA/LQW2UA

RF Inductors

LQP15MN_02 Series 0402 (1005) inch (mm)

Appearance/Dimensions



(in mm)

Packaging

Code	Packaging	Minimum Quantity
D	ø180mm Paper Taping	10000
J	ø330mm Paper Taping	50000
B	Packing in Bulk	500

Rated Value (□: packaging code)

Part Number	Inductance	Inductance Test Frequency	Q (min.)	Q Test Frequency	Rated Current	Max. of DC Resistance	S.R.F.* (min.)
LQP15MN1N0W02□	1.0nH ±0.05nH	500MHz	13	500MHz	400mA	0.1Ω	6000MHz
LQP15MN1N0B02□	1.0nH ±0.1nH	500MHz	13	500MHz	400mA	0.1Ω	6000MHz
LQP15MN1N1W02□	1.1nH ±0.05nH	500MHz	13	500MHz	390mA	0.1Ω	6000MHz
LQP15MN1N1B02□	1.1nH ±0.1nH	500MHz	13	500MHz	390mA	0.1Ω	6000MHz
LQP15MN1N2W02□	1.2nH ±0.05nH	500MHz	13	500MHz	390mA	0.1Ω	6000MHz
LQP15MN1N2B02□	1.2nH ±0.1nH	500MHz	13	500MHz	390mA	0.1Ω	6000MHz
LQP15MN1N3W02□	1.3nH ±0.05nH	500MHz	13	500MHz	280mA	0.2Ω	6000MHz
LQP15MN1N3B02□	1.3nH ±0.1nH	500MHz	13	500MHz	280mA	0.2Ω	6000MHz
LQP15MN1N4W02□	1.4nH ±0.05nH	500MHz	13	500MHz	280mA	0.2Ω	6000MHz
LQP15MN1N5W02□	1.5nH ±0.05nH	500MHz	13	500MHz	280mA	0.2Ω	6000MHz
LQP15MN1N5B02□	1.5nH ±0.1nH	500MHz	13	500MHz	280mA	0.2Ω	6000MHz
LQP15MN1N6W02□	1.6nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN1N6B02□	1.6nH ±0.1nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN1N7W02□	1.7nH ±0.05nH	500MHz	13	500MHz	280mA	0.2Ω	6000MHz
LQP15MN1N8W02□	1.8nH ±0.05nH	500MHz	13	500MHz	280mA	0.2Ω	6000MHz
LQP15MN1N8B02□	1.8nH ±0.1nH	500MHz	13	500MHz	280mA	0.2Ω	6000MHz
LQP15MN1N9W02□	1.9nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N0W02□	2.0nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N0B02□	2.0nH ±0.1nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N1W02□	2.1nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N2W02□	2.2nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N2B02□	2.2nH ±0.1nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N3W02□	2.3nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N4W02□	2.4nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N4B02□	2.4nH ±0.1nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N5W02□	2.5nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N6W02□	2.6nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N7W02□	2.7nH ±0.05nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N7B02□	2.7nH ±0.1nH	500MHz	13	500MHz	220mA	0.3Ω	6000MHz
LQP15MN2N8W02□	2.8nH ±0.05nH	500MHz	13	500MHz	190mA	0.4Ω	6000MHz
LQP15MN2N9W02□	2.9nH ±0.05nH	500MHz	13	500MHz	190mA	0.4Ω	6000MHz
LQP15MN3N0W02□	3.0nH ±0.05nH	500MHz	13	500MHz	190mA	0.4Ω	6000MHz

Operating temp. range (Self-temp. rise not included): -40 to 85°C
For reflow soldering only
*S.R.F.: Self-Resonant Frequency

Continued on the following page.↗

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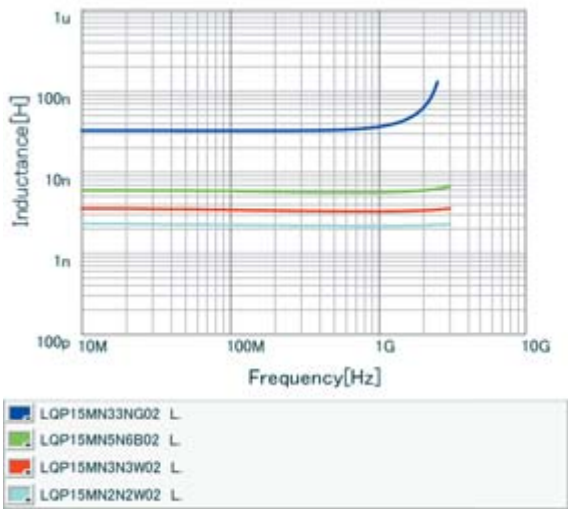
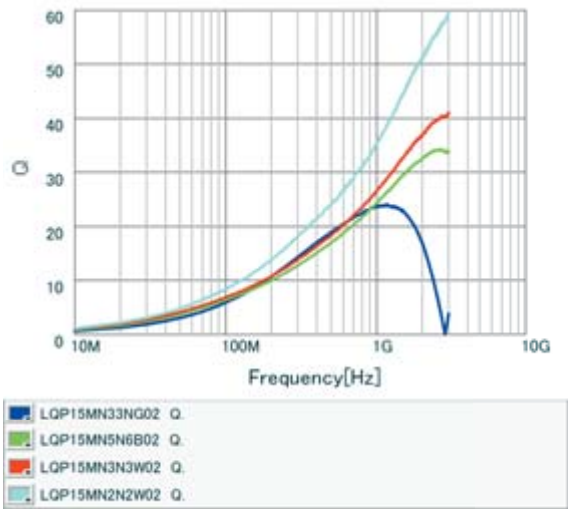
Part Number	Inductance	Inductance Test Frequency	Q (min.)	Q Test Frequency	Rated Current	Max. of DC Resistance	S.R.F.* (min.)
LQP15MN3N0B02□	3.0nH ±0.1nH	500MHz	13	500MHz	190mA	0.4Ω	6000MHz
LQP15MN3N1W02□	3.1nH ±0.05nH	500MHz	13	500MHz	190mA	0.4Ω	6000MHz
LQP15MN3N2W02□	3.2nH ±0.05nH	500MHz	13	500MHz	190mA	0.4Ω	6000MHz
LQP15MN3N3W02□	3.3nH ±0.05nH	500MHz	13	500MHz	190mA	0.4Ω	6000MHz
LQP15MN3N3B02□	3.3nH ±0.1nH	500MHz	13	500MHz	190mA	0.4Ω	6000MHz
LQP15MN3N4W02□	3.4nH ±0.05nH	500MHz	13	500MHz	170mA	0.5Ω	6000MHz
LQP15MN3N5W02□	3.5nH ±0.05nH	500MHz	13	500MHz	170mA	0.5Ω	6000MHz
LQP15MN3N6W02□	3.6nH ±0.05nH	500MHz	13	500MHz	170mA	0.5Ω	6000MHz
LQP15MN3N6B02□	3.6nH ±0.1nH	500MHz	13	500MHz	170mA	0.5Ω	6000MHz
LQP15MN3N7W02□	3.7nH ±0.05nH	500MHz	13	500MHz	170mA	0.5Ω	6000MHz
LQP15MN3N8W02□	3.8nH ±0.05nH	500MHz	13	500MHz	170mA	0.5Ω	6000MHz
LQP15MN3N9W02□	3.9nH ±0.05nH	500MHz	13	500MHz	170mA	0.5Ω	6000MHz
LQP15MN3N9B02□	3.9nH ±0.1nH	500MHz	13	500MHz	170mA	0.5Ω	6000MHz
LQP15MN4N3B02□	4.3nH ±0.1nH	500MHz	13	500MHz	160mA	0.6Ω	6000MHz
LQP15MN4N7B02□	4.7nH ±0.1nH	500MHz	13	500MHz	160mA	0.6Ω	6000MHz
LQP15MN5N1B02□	5.1nH ±0.1nH	500MHz	13	500MHz	140mA	0.7Ω	6000MHz
LQP15MN5N6B02□	5.6nH ±0.1nH	500MHz	13	500MHz	140mA	0.7Ω	6000MHz
LQP15MN6N2B02□	6.2nH ±0.1nH	500MHz	13	500MHz	130mA	0.9Ω	6000MHz
LQP15MN6N8B02□	6.8nH ±0.1nH	500MHz	13	500MHz	130mA	0.9Ω	6000MHz
LQP15MN7N5B02□	7.5nH ±0.1nH	500MHz	13	500MHz	110mA	1.1Ω	5500MHz
LQP15MN8N2B02□	8.2nH ±0.1nH	500MHz	13	500MHz	110mA	1.1Ω	5500MHz
LQP15MN9N1B02□	9.1nH ±0.1nH	500MHz	13	500MHz	100mA	1.3Ω	4500MHz
LQP15MN10NG02□	10nH ±2%	500MHz	13	500MHz	100mA	1.3Ω	4500MHz
LQP15MN12NG02□	12nH ±2%	500MHz	13	500MHz	90mA	1.6Ω	3700MHz
LQP15MN15NG02□	15nH ±2%	500MHz	13	500MHz	90mA	1.8Ω	3300MHz
LQP15MN18NG02□	18nH ±2%	500MHz	13	500MHz	80mA	2.0Ω	3100MHz
LQP15MN22NG02□	22nH ±2%	500MHz	13	500MHz	70mA	2.6Ω	2800MHz
LQP15MN27NG02□	27nH ±2%	500MHz	13	500MHz	70mA	3.1Ω	2500MHz
LQP15MN33NG02□	33nH ±2%	500MHz	13	500MHz	60mA	3.8Ω	2100MHz

Operating temp. range (Self-temp. rise not included): -40 to 85°C
For reflow soldering only
*S.R.F.: Self-Resonant Frequency

Inductance-Frequency Characteristics (Typ.)



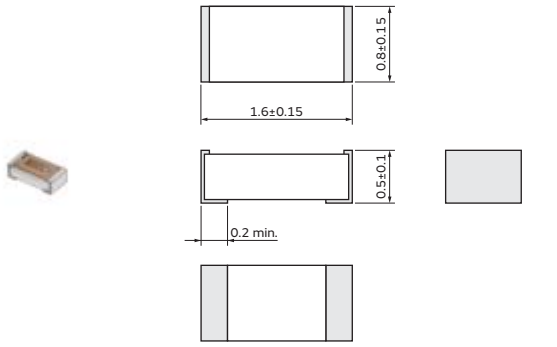
Q-Frequency Characteristics (Typ.)



RF Inductors

LQP18MN_02 Series 0603 (1608) inch (mm)

Appearance/Dimensions



(in mm)

Packaging

Code	Packaging	Minimum Quantity
D	ø180mm Paper Taping	4000
J	ø330mm Paper Taping	10000
B	Packing in Bulk	500

Rated Value (□: packaging code)

Part Number	Inductance	Inductance Test Frequency	Q (min.)	Q Test Frequency	Rated Current	Max. of DC Resistance	S.R.F.* (min.)
LQP18MN1N3C02□	1.3nH ±0.2nH	500MHz	17	500MHz	300mA	0.3Ω	6000MHz
LQP18MN1N5C02□	1.5nH ±0.2nH	500MHz	17	500MHz	300mA	0.3Ω	6000MHz
LQP18MN1N8C02□	1.8nH ±0.2nH	500MHz	17	500MHz	250mA	0.4Ω	6000MHz
LQP18MN2N2C02□	2.2nH ±0.2nH	500MHz	17	500MHz	250mA	0.4Ω	6000MHz
LQP18MN2N7C02□	2.7nH ±0.2nH	500MHz	17	500MHz	250mA	0.4Ω	6000MHz
LQP18MN3N3C02□	3.3nH ±0.2nH	500MHz	17	500MHz	250mA	0.4Ω	6000MHz
LQP18MN3N9C02□	3.9nH ±0.2nH	500MHz	17	500MHz	200mA	0.5Ω	5900MHz
LQP18MN4N7C02□	4.7nH ±0.2nH	500MHz	17	500MHz	200mA	0.5Ω	5200MHz
LQP18MN5N6C02□	5.6nH ±0.2nH	500MHz	17	500MHz	200mA	0.6Ω	4700MHz
LQP18MN6N8C02□	6.8nH ±0.2nH	500MHz	17	500MHz	200mA	0.7Ω	4300MHz
LQP18MN8N2C02□	8.2nH ±0.2nH	500MHz	17	500MHz	150mA	0.8Ω	3600MHz
LQP18MN10NG02□	10nH ±2%	500MHz	17	500MHz	150mA	1.0Ω	3400MHz
LQP18MN12NG02□	12nH ±2%	500MHz	17	500MHz	150mA	1.0Ω	3000MHz
LQP18MN15NG02□	15nH ±2%	500MHz	17	500MHz	150mA	1.3Ω	2700MHz
LQP18MN18NG02□	18nH ±2%	500MHz	17	500MHz	100mA	1.5Ω	2300MHz
LQP18MN22NG02□	22nH ±2%	500MHz	17	500MHz	100mA	1.9Ω	2100MHz
LQP18MN27NG02□	27nH ±2%	500MHz	17	500MHz	100mA	2.4Ω	1900MHz
LQP18MN33NG02□	33nH ±2%	500MHz	17	500MHz	100mA	2.8Ω	1700MHz
LQP18MN39NG02□	39nH ±2%	500MHz	17	500MHz	100mA	2.8Ω	1400MHz
LQP18MN47NG02□	47nH ±2%	300MHz	17	300MHz	100mA	2.2Ω	1200MHz
LQP18MN56NG02□	56nH ±2%	300MHz	17	300MHz	50mA	3.4Ω	1000MHz
LQP18MN68NG02□	68nH ±2%	300MHz	17	300MHz	50mA	3.5Ω	900MHz
LQP18MN82NG02□	82nH ±2%	300MHz	17	300MHz	50mA	4.6Ω	800MHz
LQP18MNR10G02□	100nH ±2%	300MHz	17	300MHz	50mA	6.1Ω	700MHz

Operating temp. range (Self-temp. rise not included): -40 to 85°C
For reflow soldering only
*S.R.F.: Self-Resonant Frequency

Continued on the following page.↗

RF Inductors ⚠Caution/Notice

⚠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 or burnout caused by excessive temperature rise.
Please contact us in advance if applying a surge current.

Notice

Storage and Operating Condition

<Operating Environment>
Do not use products in a chemical atmosphere such as chlorine gas, acid or sulfide gas.
<Storage Requirements>
1. Storage Period
The LQG 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 a 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.
LQW_A/LQW_H series
- To prevent breaking the wire, avoid touching with sharp materials, such as tweezers or the bristles of a cleaning brush, to the wire wound portion.
- To prevent breaking the core, avoid applying excessive mechanical shock to products mounted on the board.
- In some mounting machines, when picking up components, a support pin pushes the components up from the bottom of the base tape. In this case, please remove the support pin. The support pin may damage the components and break the wire.
- In rare cases, the laser recognition cannot recognize this component. Please contact us when you use laser recognizion. (There is no problem with the permeation and reflection type.)

LQH_H series
- To prevent breaking the wire, avoid touching with sharp materials, 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.

LQG,LQP series (except LQP02_02/LQP03_02)
- The pattern of the chip Inductors is covered with protective film. Take care to avoid damaging the chip Inductors when handling it with pick-up nozzles, sharp instruments, etc.

<Transportation>
Do not apply excessive vibration or mechanical shock to products.

Continued on the following page.↗

RF Inductors Soldering and Mounting

Continued from the preceding page.↘

<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.

(LQW, 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.

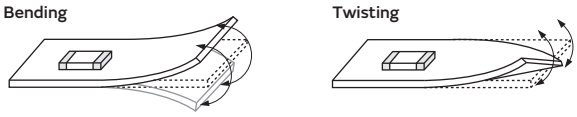
(LQP02_02/LQP03_02)

When products are coated with resin, please contact us in advance.

<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.

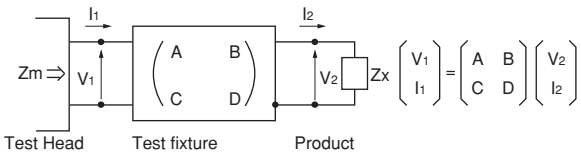
Excessive mechanical stress may cause cracking in the Product.



Measuring Method

Measuring Method of Inductance/Q

1. Residual elements and stray elements of test fixtures can be described by F-parameter as shown in the following:



2. The impedance of chip Inductors (chip coils) Zx and measured value Zm can be described by input/output current/voltage.

$$Zm = \frac{V_1}{I_1} \quad , \quad Zx = \frac{V_2}{I_2}$$

3. Thus, the relation between Zx and Zm is shown in the following:

$$Zx = \alpha \frac{Zm - \beta}{1 - Zm\Gamma}$$

where, $\alpha = D / A = 1$
$\beta = B / D = Zsm - (1 - Yom\ Zsm)\ Zss$
$\Gamma = C / A = Yom$

Zsm: measured impedance of short chip
Zss: residual impedance of short chip*
Yom: measured admittance when opening the fixture

*Residual impedance of short chip

Residual Impedance	Series
0nH	**LQG15H/LQP03TG**
0.110nH	**LQP02HQ/LQP02TN/LQP02TQ**
0.464nH	**LQW04AN**
0.480nH	**LQP03HQ/LQP03TN_02/LQW03AW**
0.556nH	**LQG15HN, LQW15A, LQP15M**
0.771nH	**LQG18H, LQP18M, LQW18A,LQW21H/LQW2BAN**

4. Lx and Qx should be calculated with the following equation.

$$Lx = \frac{Im\ (Zx)}{2\pi f} \quad , \quad Qx = \frac{Im\ (Zx)}{Re\ (Zx)}$$

Lx: Inductance of chip Inductors (chip coils)
Qx: Q of chip Inductors (chip coils)
f: Measuring frequency

Please contact us for LQW18AS, LQW2BAS, LQW2UAS, because they are different from other inductors regarding the inductance calculation method.

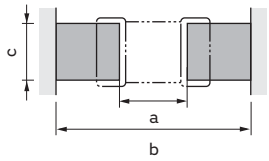
RF Inductors Soldering and Mounting

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 Inductor's (chip coil's) electrode.

Land Pattern + Solder Resist Land Pattern Solder Resist

(in mm)

Series	Standard Land Dimensions
LQG15H **LQG18H** **LQP02TN** **LQP02TQ** **LQP03T** **LQP15M** **LQP18M** **LQW03A** **LQW04A** **LQW15A** **LQW18A** **LQW21H** **LQW2BH** **LQW2BA** **LQW2UA** **LQW31H** **LQH31H**	

Part Number	a	b	c
LQG15H	0.4	1.4 to 1.5	0.5 to 0.6
LQG18H	0.6 to 0.8	1.8 to 2.2	0.6 to 0.8
LQP02TN	0.16 to 0.2	0.4 to 0.56	0.2 to 0.23
LQP02HQ/TQ	0.2	0.56	0.16
LQP03HQ	0.3	0.9	0.25 to 0.3
LQP03TN/TG/PN	0.2 to 0.3	0.8 to 0.9	0.2 to 0.3
LQP03TQ	0.3	0.9	0.25
LQP15M	0.4	1.4 to 1.5	0.5 to 0.6
LQP18M	0.7 to 0.9	1.8 to 2.2	0.6 to 0.8
LQW03A	0.23	0.65	0.4
LQW04A	0.4	1.0	0.4
LQW15A_00/10	0.5	1.2	0.65
LQW15A_80	0.6	1.42	0.66
LQW18AN_00/10/AS_00	0.6 to 0.8	1.9 to 2.0	0.7 to 1.0
LQW18A_80	0.86	2.0	1.15
LQW21H	1.0	2.6	1.2
LQW2BH	0.8	3.0	1.2
LQW2BA	0.76	2.8	1.78
LQW2UA	1.27	3.3	2.54
LQH31H **LQW31H**	1.0	4.5	1.5

Attention should be paid to potential magnetic coupling effects when using the Inductor (coil) 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.

For LQG, LQP, LQW03A/04A/15A/18A/21H/2BA/2UA series, please use reflow soldering.

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.
The flux used for the LQW03/04/15/18/21/2BA/2UA series should be a rosin-based flux that includes a middle activator equivalent to 0.06wt% to 0.1wt% chlorine.

For additional mounting methods, please contact Murata.

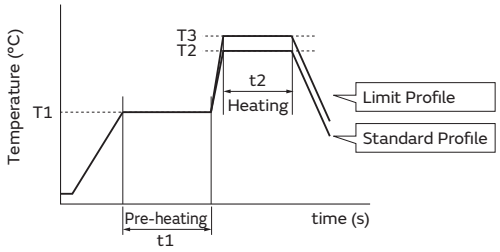
Continued on the following page.↗

RF Inductors Soldering and Mounting

Continued from the preceding page.↘

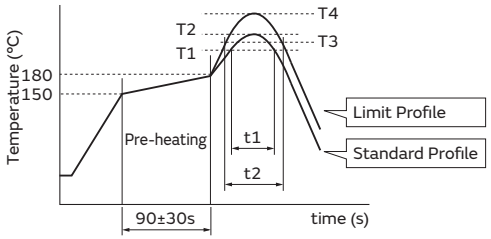
(2) Soldering profile

●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)	
LQW2BH/31H LQH31H	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.

●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)		
LQG15H/18H LQW03A/04A/15A/18A/21H LQW2BA/2UA LQP02T/03T/15M/18M LQW2BH/31H LQH31H	220°C	30 to 60s	245±3°C	2 times max.	230°C	60s max.	260°C/10s	2 times max.

(3) Reworking with a Soldering Iron

*Except for LQP02T/LQW04AN/03AW/15AN_80 Series

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

Please keep the fix time with the soldering iron within 2 times.

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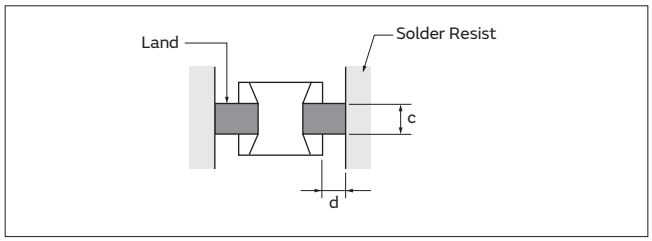
RF Inductors Soldering and Mounting

Continued from the preceding page.↘

3. Mounting Instructions

(1) Land Pattern Dimensions

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

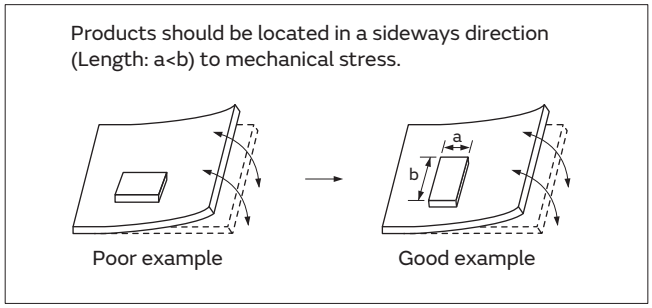


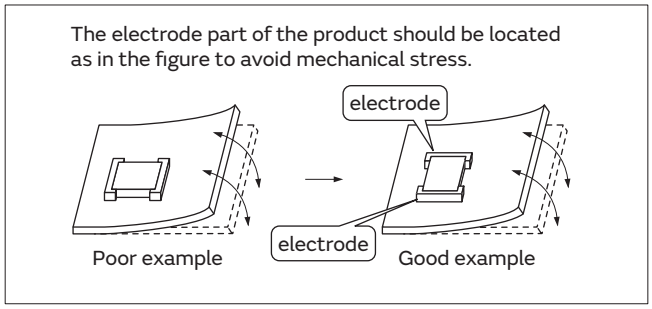
(2) Land Pattern Designing (LQW series)

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) PCB Warping

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





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RF Inductors Soldering and Mounting

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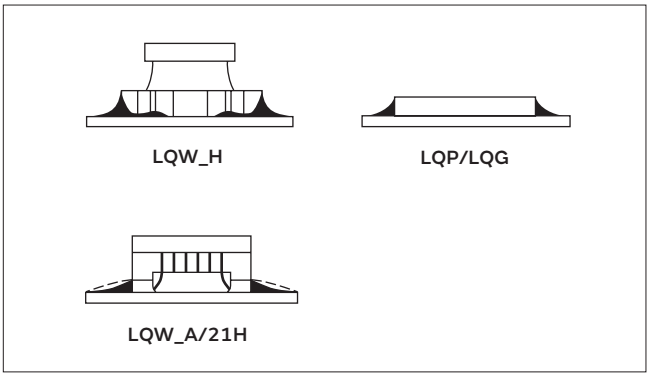
(4) Amount of Solder Paste

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 the correct amount is applied.

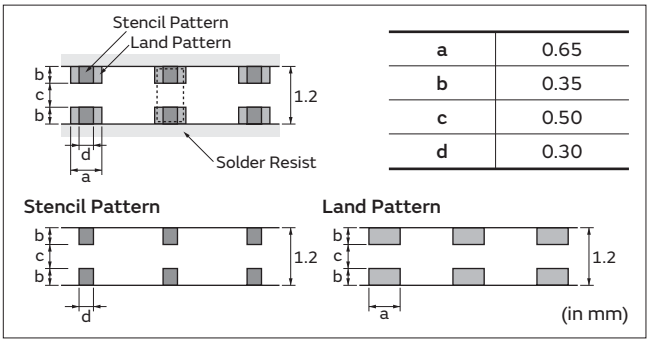
Guideline of solder paste thickness

- LQP (*Except for LQP02TN/LQP02TQ/HQ/ LQP03TQ/HQ),LQG,LQW15AN_00/ LQW15AN_10/LQW18AN/LQW21H/LQW2BA/ LQW2UA: 100 to 150μm
- LQP02TN: 50 to 80μm
- LQP02TQ/HQ: 50 to 65μm
- LQP03TQ/HQ: 100μm
- LQW03A/LQW04A: 80 to 100μm
- LQW15AN_80: 50 to 100μm
- LQW_H: 200 to 300μm



LQW15A Series:

Too much solder may cause slant or rotation of the chip at the time of solder melting. Please reduce the amount of solder by using a smaller solder area than the land pattern, as shown in the figure at right.



a	0.65
b	0.35
c	0.50
d	0.30

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

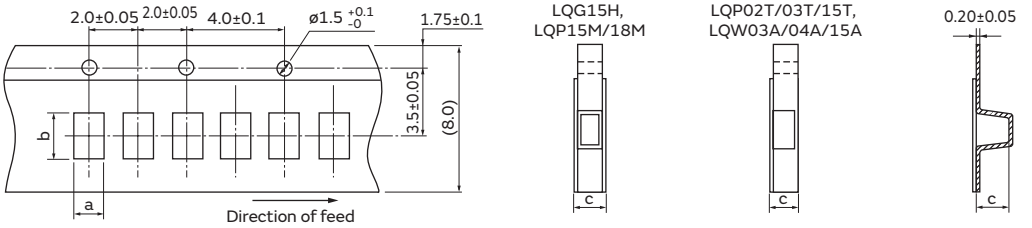
(4) Ensure that flux residue is completely removed.

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

For additional cleaning methods, please contact Murata.

RF Inductors Packaging

Minimum Quantity and 8mm Width Taping Dimensions



Paper Tape

Part Number	Dimensions		Total Thickness of Tape	Packaging Code (Minimum Qty. (pcs.))		
	a	b	c	ø180mm reel	ø330mm reel	Bulk
LQG15H	0.62	1.12	0.8 max.	**D** (10000)	**J** (50000)	**B** (1000)
LQP02TN	0.24	0.47	0.39 max.	**D** (20000)	—	**B** (500)
LQP02TQ	0.23	0.45	0.39 max.	**D** (20000)	—	**B** (500)
LQP03HQ	0.36	0.68	0.55 max.	**D** (15000)	**J** (50000)	**B** (500)
LQP03TN/TG/TQ *1	0.35	0.65/0.67	0.55 max.	**D** (15000)	**J** (50000)	**B** (500)
LQP15M	0.70	1.20	0.8 max.	**D** (10000)	**J** (50000)	**B** (500)
LQP18M	1.19	2.0	0.8 max.	**D** (4000)	**J** (10000)	**B** (500)
LQW03A	0.52	0.65	0.75 max.	**D** (10000)	—	—
LQW04A	0.49	0.91	0.75 max.	**D** (10000)	—	**B** (500)
LQW15A_00 *2	0.64/0.66/0.69	1.18	0.8 max.	**D** (10000)	—	**B** (500)
LQW15A_10 *3	0.66/0.69	1.18	0.8 max.	**D** (10000)	—	**B** (500)
LQW15A_80	0.75	1.18	0.8 max.	**D** (10000)	—	**B** (500)

*1 0.67 (LQP03TG · LQP03TN_02; 0.6 to 62nH, 130 to 270nH · LQP03PN, LQP03TQ)
0.65 (LQP03TN_02; 68 to 120nH)
*2 0.69 (1.5nH, 2.4 to 2.8nH, 3.9 to 4.8nH, 5.8 to 6.8nH, 8.2 to 9.9nH, 11nH, 12nH, 15nH)
0.66 (1.6 to 1.8nH, 2.9nH, 3.0nH, 3.1nH, 3.2nH, 4.9 to 5.1nH, 6.9 to 7.5nH, 10nH, 13nH, 16 to 23nH, 100nH, 120nH)
0.64 (24 to 91nH)
*3 0.69 (1.3nH, 1.4nH)
0.66 (2.2 to 8.4nH)

Embossed Tape

Part Number	Dimensions		Total Thickness of Tape	Packaging Code (Minimum Qty. (pcs.))		
	a	b	c	ø180mm reel	ø330mm reel	Bulk
LQP02HQ	0.24	0.46	0.34 max.	**E** (15000)	—	**B** (500)

(in mm)

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RF Inductors Packaging

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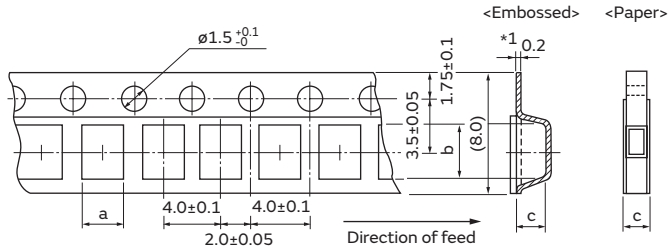
Minimum Quantity and 8mm Width Taping Dimensions



The dimension of the cavity of embossed tape is measured at the bottom side.

Paper Tape

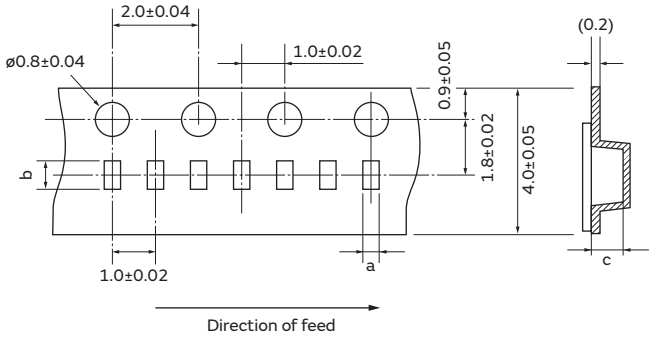
Part Number	Dimensions		Total Thickness of Tape	Packaging Code (Minimum Qty. (pcs.))		
	a	b	c	ø180mm reel	ø330mm reel	Bulk
LQG18H	1.05	1.85	1.1 max.	**D** (4000)	**J** (10000)	**B** (1000)
LQW18AN_00	1.0	1.8	1.1 max.	**D** (4000)	**J** (10000)	**B** (500)
LQW18AN_10	1.1	1.9	1.1 max.	**D** (4000)	**J** (10000)	**B** (500)
LQW18AN_80	1.15	1.9	1.1 max.	**D** (4000)	**J** (10000)	**B** (500)
LQW18AS_00	1.06	1.86	1.1 max.	**D** (4000)	**J** (10000)	**B** (500)

Embossed Tape

Part Number	Dimensions		Depth of Cavity	Packaging Code (Minimum Qty. (pcs.))		
	a	b	c	ø180mm reel	ø330mm reel	Bulk
LQP02HQ	0.24	0.46	0.34 max.	**L** (30000)	—	**B** (500)
LQH31H, LQW31H	1.9	3.6	2.0	**L** (2000)	**K** (7500)	—
LQW21H	1.55	2.3	1.1	**L** (3000)	—	**B** (500)
LQW2BH	1.75	2.3	2.0	**L** (2000)	**K** (7500)	—
LQW2BA	1.8	2.3	1.65	**L** (2000)	—	—
LQW2UA	2.7	2.8	2.15	**L** (2000)	—	—

(in mm)

Minimum Quantity and 4mm Width Taping Dimensions



Embossed Tape

Part Number	Dimensions		Total Thickness of Tape	Packaging Code (Minimum Qty. (pcs.))		
	a	b	c	ø180mm reel	ø330mm reel	Bulk
LQP02HQ	0.24	0.46	0.34 max.	**L** (30000)	—	**B** (500)
LQP02TN	0.21	0.43	0.23 max.	**L** (40000)	—	**B** (500)
LQP02TQ	0.22	0.47	0.23 max.	**L** (40000)	—	**B** (500)

(in mm)