Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

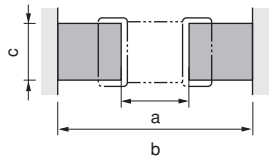
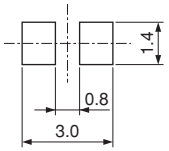
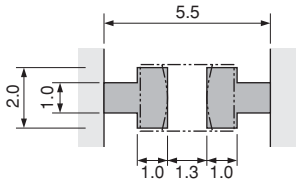
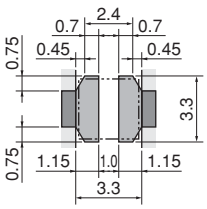
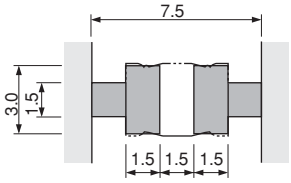
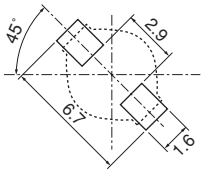
Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

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 (chip coil) electrode.

Land Pattern + Solder Resist
Land Pattern
Solder Resist

(in mm)

Series	Standard Land Dimensions
LQM18F/18P **LQM21D/21F/21P** **LQM2MP** **LQM2HP** **LQM31P** **LQM32P** **LQH2MC** **LQH31C** **LQH32P** **LQH44P** **LQH5BP** **LQH55D/66S** **LQW15C_00** **LQW15C_10** **LQW18C**	
LQH2HP	
LQH32C	
LQH3NP	
LQH43C **LQH43P**	
LQH55P	

Part Number		a	b	c
LQM18F /18P	Flow	0.7	2.2-2.6	0.7
	Reflow		1.8-2.0	
LQM21D/21F/21P		1.2	3.0-4.0	1.0
LQM2MP		0.8	2.4	1.8
LQM2HP		1.6	3.0	1.5
LQM31P		2.0	4.2-5.2	1.2
LQM32P		1.9	3.6	2.7
LQH2MC		0.8	2.6	1.0
LQH31C		1.0	4.5	1.5
LQH32P		1.3	3.8	2.0
LQH44P		1.3	4.4	3.0
LQH5BP		1.8	5.5	4.1
LQH55D/66S		2.0	8.0	3.5
LQW15C_00		0.4	1.4	0.6
LQW15C_10		0.4	1.4	0.66
LQW18C		0.7	2.2	1.0

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

Continued on the following page.

2. Standard Soldering Conditions

(1) Soldering method

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

As for LQH2MC/2HP/3NP/32P/44P/5BP/55D/55P/66S, LQM32P, LQW15C/18C series, please use reflow soldering.

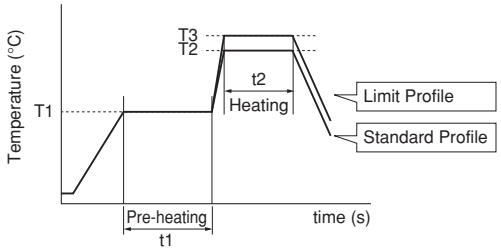
Solder: Use Sn-3.0Ag-0.5Cu solder.

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 LQW15C/18C series should use the rosin-based flux that includes middle activator equivalent to 0.06wt% to 0.1wt% chlorine.

For additional mounting methods, please contact Murata.

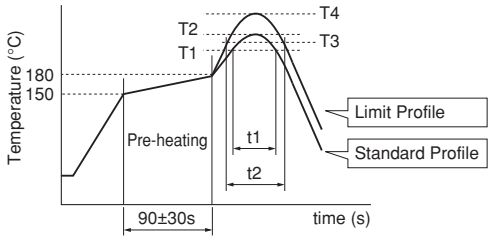
(2) Soldering profile

●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)	
LQM18F/18P LQM21D/21F/21P/2MP/2HP LQM31P LQH31C	150°C	60s min.	250°C	4 to 6s	2 times max.	265±3°C	5s max.	2 times max.
LQH32C LQH43C/43P	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)		
LQM18F/18P LQM21D/21F/21P/2MP/2HP LQM31P/32P LQH2MC, LQH2HP LQH31C LQH3NP/32P/43P/44P/5BP/55P LQW15C/18C	220°C	30 to 60s	245±3°C	2 times max.	230°C	60s max.	260°C/10s	2 times max.
LQH32C LQH43C LQH55D, LQH66S	220°C	30 to 60s	245±3°C	2 times max.	230°C	60s max.	260°C/10s	1 time

Continued on the following page.

(3) Reworking with Soldering Iron

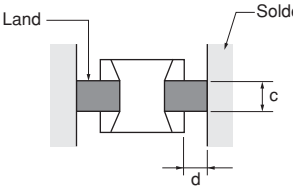
Preheating at 150°C for 1 minute is required. Do not directly touch the ceramic element with the tip of the soldering iron. The reworking soldering conditions are as follows:

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

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.

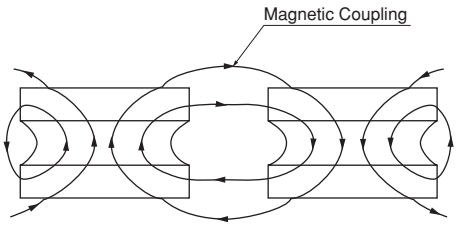


(2) Land Pattern Designing (LQH series)

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

(3) Magnetic Coupling

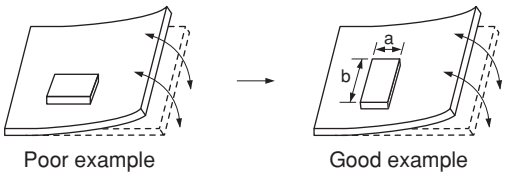
Since some chip inductors (chip coils) are constructed like an open magnetic circuit, narrow spacing between inductors (coils) may cause magnetic coupling.
LQM, LQH66S and LQH_P series have a magnetically shielded structure. The structure makes their coupling coefficient smaller than that of conventional chip inductors (chip coils).



(4) PCB Warping

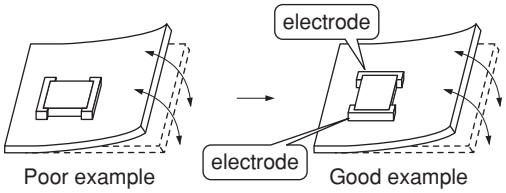
PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.

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



except LQH3NP/44P/5BP

The electrode part of the product should be located like the picture to the mechanical stress.



LQH3NP/44P/5BP

Continued on the following page.

(5) Amount of Solder Paste

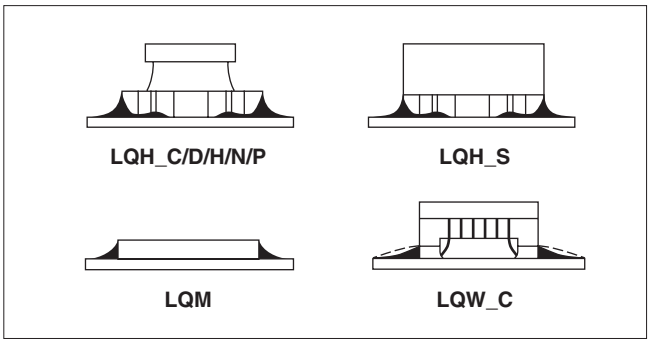
Excessive solder causes electrode corrosion, while insufficient solder causes low electrode bonding strength. Adjust the amount of solder paste as shown on the right so that solder is applied.

● Guideline of solder paste thickness

· LQW15C: 50 to 100µm

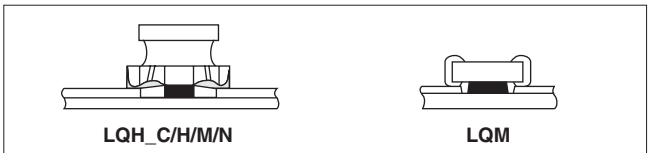
· LQM, LQW18C, LQH2MC/2HP, LQH3NP/32P, LQH44P/5BP/55P: 100 to 150µm

· LQH31C/32C, LQH43C/43P, LQH55D, LQH66S: 200 to 300µm



(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 chart.



Part Number	Typical Application Amount (in:mg)
	IR-100
LQM18F/18P	0.06-0.07
LQM21D/21F/21P/2MP	0.20-0.25
LQM2HP/31P	0.25-0.30
LQH31C	0.20-0.25
LQH32C	0.27-0.35
LQH43C	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

LQH66S series: Aqueous agents should not be used because they may cause quality deterioration or damage to appearance.

(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.