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
LQM18N LQM21N LQH31M	a, b, c (see table below)
LQH32M	5.5; 2.0; 1.0; 1.0 1.3 1.0
LQH43M LQH43N	7.5; 3.0; 1.5; 1.5 1.5 1.5

Part Number		a	b	c
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

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

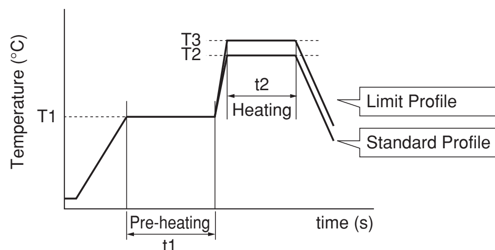
2. Standard Soldering Conditions

(1) Soldering method
Chip inductor (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.

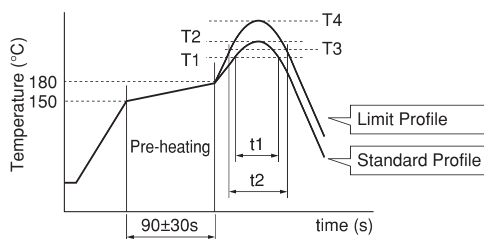
(2) Soldering profile

●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)	
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)		
LQM18N LQM21N LQH31M	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

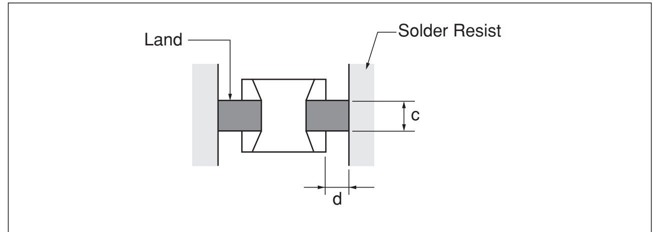
Preheating at 150°C for 1 minute is required. Do not directly touch the ceramic element with the tip of the soldering iron. The reworking soldering conditions are as follows:

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.

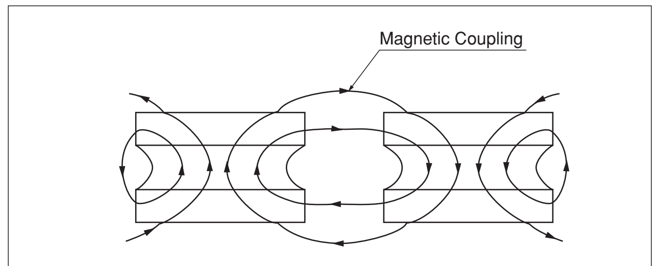
3. Mounting Instructions

(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.

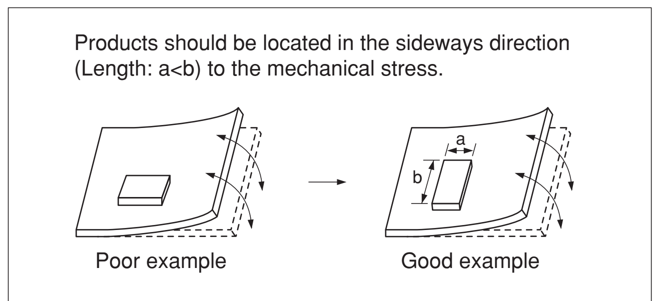


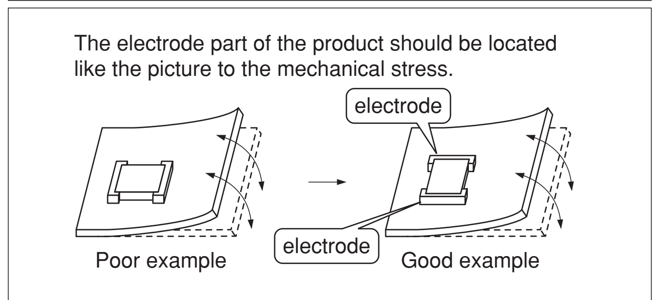
(2) Land Pattern Designing (LQH series)
Please follow the recommended patterns.
Otherwise, their performance which includes electrical performance or solderability may be affected, or result to "position shift" in soldering process.

(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 series have a magnetically shielded structure. The structure makes their coupling coefficient smaller than that of conventional chip inductors (chip coils).



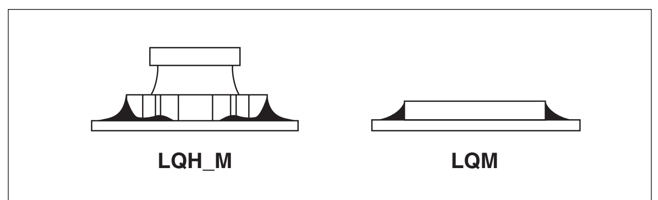
(4) PCB Warping
PCB should be designed so that products are not subjected to the mechanical stress caused by warping the board.





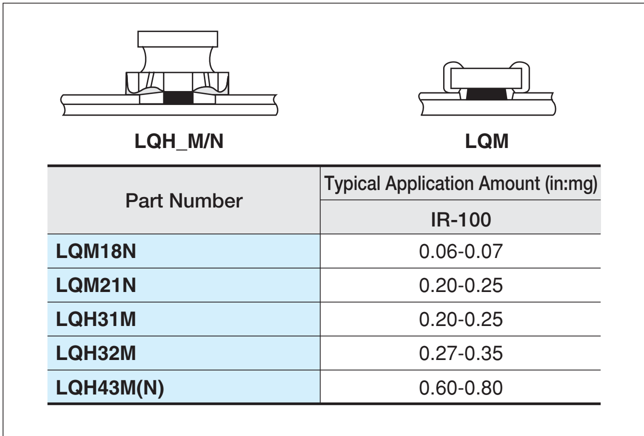
(5) Amount of Solder Paste
Excessive solder causes electrode corrosion, while insufficient solder causes low electrode bonding strength. Adjust the amount of solder paste as shown on the right so that solder is applied.

● Guideline of solder paste thickness
· LQM: 100 to 150μm
· LQHs except for ones written above: 200 to 300μm



Continued on the following page.

(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
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.