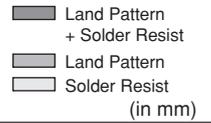


1. Standard Land Pattern Dimensions

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.



Series	Standard Land Dimensions				
LQG15H LQG18H LQP02T LQP03T LQP15M LQP18M LQW04A LQW15A LQW18A LQW21H LQW2BH LQW2BA LQW2UA LQW31H LQH31H		Part Number	a	b	c
		LQG15H	0.4	1.4-1.5	0.5-0.6
		LQG18H	0.6-0.8	1.8-2.2	0.6-0.8
		LQP02T	0.16-0.2	0.4-0.56	0.2-0.23
		LQP03T	0.2-0.3	0.8-0.9	0.2-0.3
		LQP15M	0.4	1.4-1.5	0.5-0.6
		LQP18M	0.6-0.8	1.8-2.2	0.7-0.9
		LQW04A	0.40	1.0	0.40
		LQW15A	0.50	1.2	0.65
		LQW18A	0.6-0.8	1.9-2.0	0.7-1.0
		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 inductor (Chip coils) can be flow or reflow soldered.

Please contact Murata regarding other soldering methods.

As for LQG, LQP, LQW04A/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.

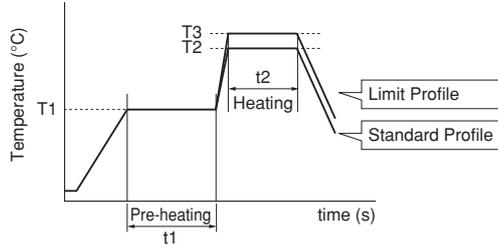
The flux used for LQW04/15/18/21/2BA/2UA series should use the rosin-based flux that includes middle activator equivalent to 0.06wt% to 0.1wt% chlorine.

For additional mounting methods, please contact Murata.

Continued on the following page.

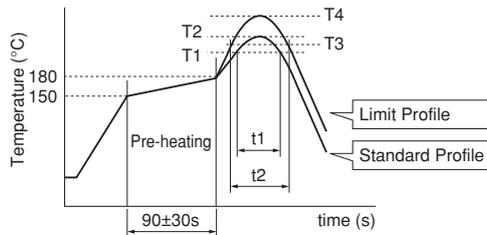
(2) Soldering profile

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



Series	Pre-heating		Standard Profile			Limit Profile		
	Temp. (T1)	Time. (t1)	Heating		Cycle of flow	Heating		Cycle of flow
			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 LQW04A/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 Soldering Iron *Except LQP02T 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:

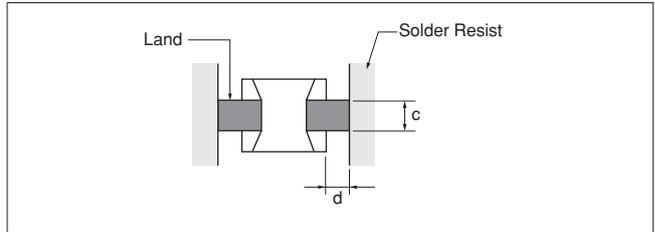
- Soldering iron power output: 80W max.
- Temperature of soldering iron tip: 350°C
- Diameter of soldering iron end: 3.0mm max.
- Soldering time: within 3 s

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.

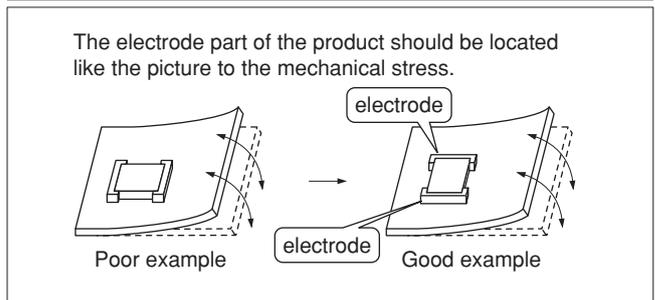
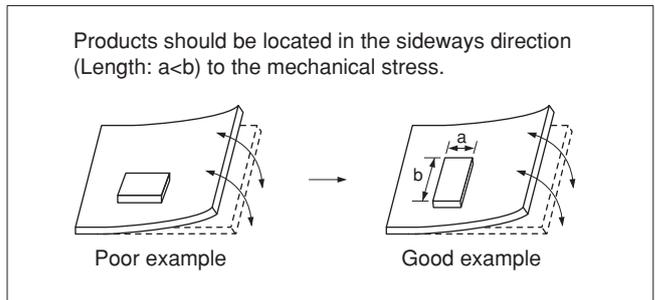


(2) Land Pattern Designing (LQW series)

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) PCB Warping

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



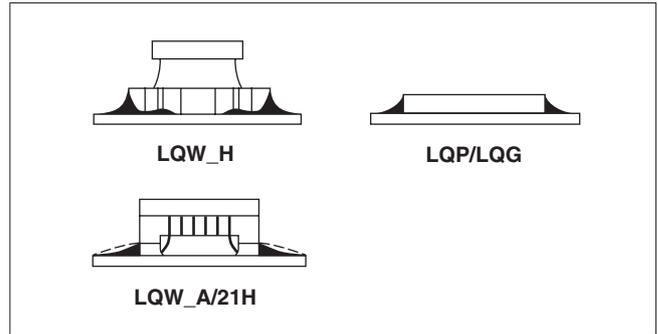
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(4) Amount of Solder Paste

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 solder is applied.

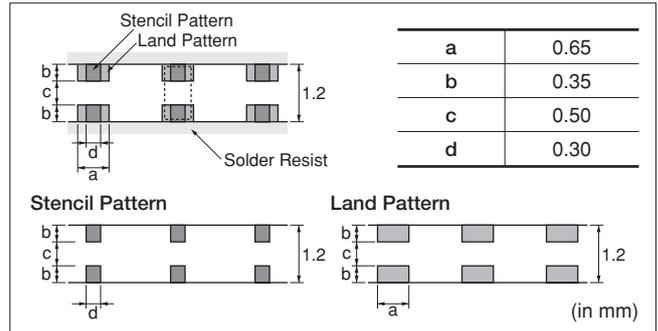
● Guideline of solder paste thickness

- LQP (Except LQP02T), LQG, LQW15A/18A/21H/2BA/2UA: 100 to 150µm
- LQP02T: 50 to 80µm
- LQW04A: 80 to 100µm
- LQW_H: 200 to 300µm



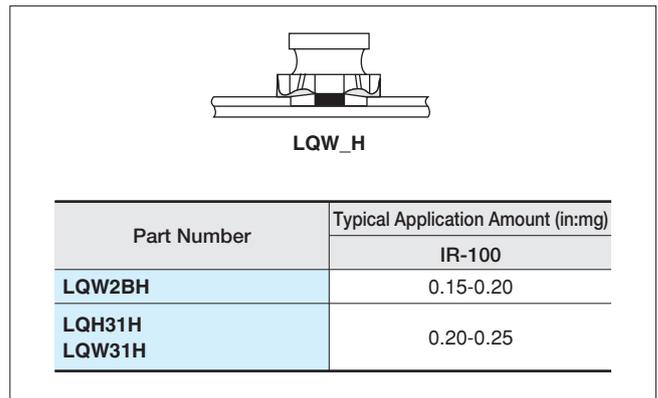
LQW15A Series:

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



(5) 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.



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.