Chip Coil (Chip Inductors) LQW2BAS□□□□0C□ REFERENCE SPECIFICATION

1. Scope

This reference specification applies to chip coils (chip inductors) LQW2BAS□□□□0C□ series for general electronic equipment.

2. Part Numbering

(Ex.)

LQ	W	2B	AS	2N7	J	0C	L
Product ID	Type	Dimension (L × W)	Application and characteristic	Inductance	Tolerance	Category	Packaging L: taping *B: bulk

*B: Bulk packing is also available.(The product sealed on the carrier tape is stored in a plastic bag.)

3. Part Number and Rating

Operating temperature range	-40°C to +85°C
Storage temperature range	-40°C to +85°C

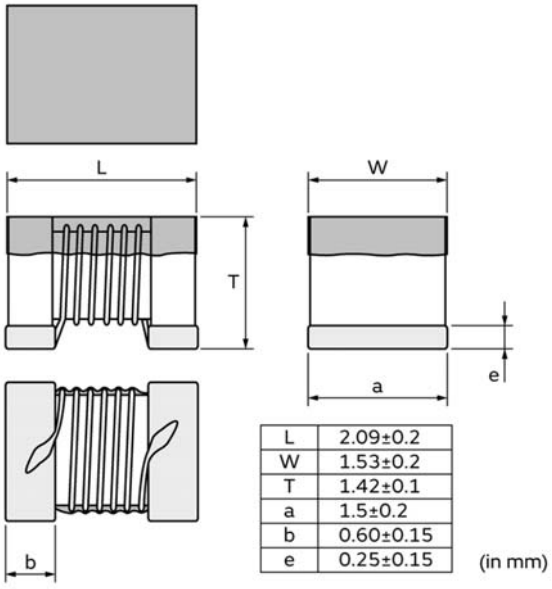
Customer Part number	Murata Part number	Inductance		Q (Min.)	DC resistance (Ω max.)	Self-resonant frequency (MHz min.)	Rated current (mA)
		Nominal value (nH)	Tolerance				
	LQW2BAS2N7J0CL	2.7	±5%	80	0.03	15000	910
	LQW2BAS2N8J0CL	2.8	±5%	80	0.06	12200	800
	LQW2BAS3N0J0CL	3.0	±5%	65	0.06	12200	800
	LQW2BAS5N6J0CL	5.6	±5%	65	0.08	5900	600
	LQW2BAS6N0J0CL	6.0	±5%	70	0.03	4500	600
	LQW2BAS6N8J0CL	6.8	±5%	50	0.11	5600	600
	LQW2BAS7N5J0CL	7.5	±5%	50	0.14	4800	600
	LQW2BAS8N2G0CL	8.2	±2%	50	0.12	4400	600
	LQW2BAS8N2J0CL	8.2	±5%	50	0.12	4400	600
	LQW2BAS10NG0CL	10	±2%	60	0.10	4300	600
	LQW2BAS10NJ0CL	10	±5%	60	0.10	4300	600
	LQW2BAS12NG0CL	12	±2%	50	0.15	4000	600
	LQW2BAS12NJ0CL	12	±5%	50	0.15	4000	600
	LQW2BAS15NG0CL	15	±2%	50	0.17	3200	600
	LQW2BAS15NJ0CL	15	±5%	50	0.17	3200	600
	LQW2BAS18NG0CL	18	±2%	50	0.20	3100	600
	LQW2BAS18NJ0CL	18	±5%	50	0.20	3100	600
	LQW2BAS22NG0CL	22	±2%	55	0.22	2600	500
	LQW2BAS22NJ0CL	22	±5%	55	0.22	2600	500
	LQW2BAS24NG0CL	24	±2%	50	0.22	2400	500
	LQW2BAS24NJ0CL	24	±5%	50	0.22	2400	500
	LQW2BAS27NG0CL	27	±2%	55	0.25	2580	500
	LQW2BAS27NJ0CL	27	±5%	55	0.25	2580	500
	LQW2BAS33NG0CL	33	±2%	60	0.27	2150	500
	LQW2BAS33NJ0CL	33	±5%	60	0.27	2150	500
	LQW2BAS36NG0CL	36	±2%	55	0.27	1900	500
	LQW2BAS36NJ0CL	36	±5%	55	0.27	1900	500
	LQW2BAS39NG0CL	39	±2%	60	0.29	2000	500
	LQW2BAS39NJ0CL	39	±5%	60	0.29	2000	500

Customer Part number	Murata Part number	Inductance		Q (Min.)	DC resistance (Ω max.)	Self-resonant frequency (MHz min.)	Rated current (mA)
		Nominal value (nH)	Tolerance				
	LQW2BAS43NG0CL	43	±2%	60	0.34	1800	500
	LQW2BAS43NJ0CL	43	±5%	60	0.34	1800	500
	LQW2BAS47NG0CL	47	±2%	60	0.31	1700	500
	LQW2BAS47NJ0CL	47	±5%	60	0.31	1700	500
	LQW2BAS56NG0CL	56	±2%	60	0.34	1600	500
	LQW2BAS56NJ0CL	56	±5%	60	0.34	1600	500
	LQW2BAS68NG0CL	68	±2%	60	0.38	1500	500
	LQW2BAS68NJ0CL	68	±5%	60	0.38	1500	500
	LQW2BAS82NG0CL	82	±2%	65	0.42	1330	400
	LQW2BAS82NJ0CL	82	±5%	65	0.42	1330	400
	LQW2BAS91NG0CL	91	±2%	65	0.48	1330	400
	LQW2BAS91NJ0CL	91	±5%	65	0.48	1330	400
	LQW2BASR10G0CL	100	±2%	65	0.46	1250	400
	LQW2BASR10J0CL	100	±5%	65	0.46	1250	400
	LQW2BASR11G0CL	110	±2%	50	0.48	1100	400
	LQW2BASR11J0CL	110	±5%	50	0.48	1100	400
	LQW2BASR12G0CL	120	±2%	50	0.51	1100	400
	LQW2BASR12J0CL	120	±5%	50	0.51	1100	400
	LQW2BASR15G0CL	150	±2%	50	0.56	920	400
	LQW2BASR15J0CL	150	±5%	50	0.56	920	400
	LQW2BASR18G0CL	180	±2%	50	0.64	920	400
	LQW2BASR18J0CL	180	±5%	50	0.64	920	400
	LQW2BASR22G0CL	220	±2%	50	0.70	820	400
	LQW2BASR22J0CL	220	±5%	50	0.70	820	400
	LQW2BASR24G0CL	240	±2%	44	1.00	770	350
	LQW2BASR24J0CL	240	±5%	44	1.00	770	350
	LQW2BASR27G0CL	270	±2%	48	1.00	730	350
	LQW2BASR27J0CL	270	±5%	48	1.00	730	350
	LQW2BASR33G0CL	330	±2%	48	1.40	650	310
	LQW2BASR33J0CL	330	±5%	48	1.40	650	310
	LQW2BASR39J0CL	390	±5%	48	1.50	600	290
	LQW2BASR47J0CL	470	±5%	33	1.76	300	250
	LQW2BASR50J0CL	500	±5%	33	3.20	585	200
	LQW2BASR56J0CL	560	±5%	23	1.90	270	230
	LQW2BASR68J0CL	680	±5%	23	2.20	250	190
	LQW2BASR82J0CL	820	±5%	23	2.35	230	180
	LQW2BAS1R0J0CL	1000	±5%	23	2.40	200	170

4. Testing Conditions

Unless otherwise specified	Temperature: ordinary temperature (15°C to 35°C) Humidity: ordinary humidity [25% to 85% (RH)]
In case of doubt	Temperature: 20°C±2°C Humidity: 60% to 70% (RH) Atmospheric pressure: 86 kPa to 106 kPa

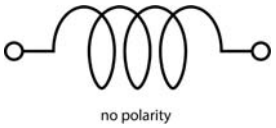
5. Appearance and Dimensions



L	2.09±0.2
W	1.53±0.2
T	1.42±0.1
a	1.5±0.2
b	0.60±0.15
e	0.25±0.15

(in mm)

■ Equivalent Circuit

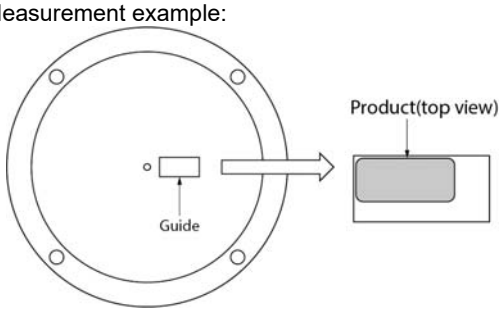


■ Unit mass (typical value): 0.014 g

6. Marking

No marking.

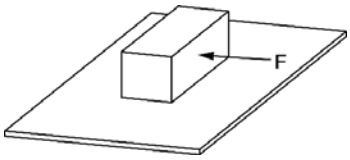
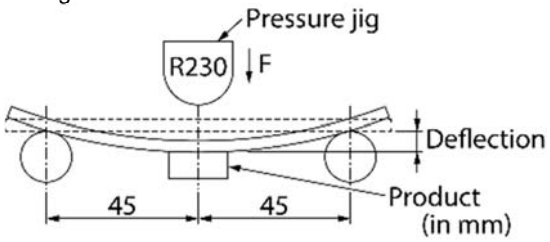
7. Electrical Performance

<table>
<tr><th>No.</th><th>Item</th><th>Specification</th><th>Test method</th></tr>
<tr><td>7.1</td><td>Inductance / Q</td><td>Meet chapter 3 ratings.</td><td>Measuring equipment: Keysight E4991A or the equivalent
Measuring frequency:
<table>
<tr><td rowspan="6">Inductance</td><td>250 MHz</td><td>2.7 nH to 39 nH</td></tr>
<tr><td>200 MHz</td><td>43 nH to 68 nH</td></tr>
<tr><td>150 MHz</td><td>82 nH to 120 nH</td></tr>
<tr><td>100 MHz</td><td>150 nH to 390 nH</td></tr>
<tr><td>50 MHz</td><td>470 nH to 500 nH</td></tr>
<tr><td>25 MHz</td><td>560 nH to 1000 nH</td></tr>
<tr><td rowspan="6">Q</td><td>1500 MHz</td><td>2.7 nH to 3.0 nH</td></tr>
<tr><td>1000 MHz</td><td>5.6 nH to 8.2 nH</td></tr>
<tr><td>500 MHz</td><td>10 nH to 100 nH</td></tr>
<tr><td>250 MHz</td><td>110 nH to 390 nH</td></tr>
<tr><td>100 MHz</td><td>470 nH to</td></tr>
<tr><td>50 MHz</td><td>500 nH to 1000 nH</td></tr>
</table>
Measuring Condition:
Measurement signal level: Approx. 0dBm
Measurement terminal distance：1.5 mm
Electrical length: 10.0 mm
Measuring Fixture: KEYSIGHT 16197A
Position the chip coil under test as shown in the measuring example below and connect it to the electrode by applying weight.
Measurement example:
 

Measuring method: see "Electrical performance: Measuring method for inductance/Q" in the chapter "Appendix".</td></tr>
<tr><td>7.2</td><td>DC resistance</td><td>Meet chapter 3 ratings.</td><td>Measuring equipment: digital multimeter.</td></tr>
<tr><td>7.3</td><td>Self-resonant frequency</td><td>Meet chapter 3 ratings.</td><td>Measuring equipment: Keysight N5230A or the equivalent</td></tr>
<tr><td>7.4</td><td>Rated current</td><td>Temperature rise caused by self-generated heat shall be limited to 40°C max.</td><td>Apply the rated current specified in chapter 3.</td></tr>
</table>

8. Mechanical Performance

The product is soldered on a substrate for test.(Except Solderability)
(Test shall be done using Flux, Solder and Soldering condition which are specified in chapter 12 except the case of being specified special condition.)

No.	Item	Specification	Test method
8.1	Shear test	No significant mechanical damage or no sign of electrode peeling off shall be observed.	Applying force: 10 N Holding time: 5 s Force application direction: 
8.2	Bending test	No significant mechanical damage or no sign of electrode peeling off shall be observed.	Test substrate: glass-epoxy substrate (100 mm × 40 mm × 1.6 mm) Pressurizing speed: 1.0 mm/s Pressure jig: R230 Amount of bending: 2 mm Holding time: 20 s 
8.3	Vibration	Appearance shall have no significant mechanical damage.	Oscillation frequency: 10 Hz to 2000 Hz to 10 Hz/20 min Amplitude: total amplitude of 3.0 mm or acceleration amplitude of 196 m/s2, whichever is smaller Test time: 3 directions perpendicular to each other, 2 h for each direction (6 h in total)
8.4	Solderability	90% or more of the outer electrode shall be covered with new solder seamlessly. (except exposed wire)	Flux: Ethanol solution of rosin, 25(wt)% Pre-heating: 150°C/60 s Solder: Sn-3.0Ag-0.5Cu solder Solder temperature: 245°C±3°C Immersion time: 3 s

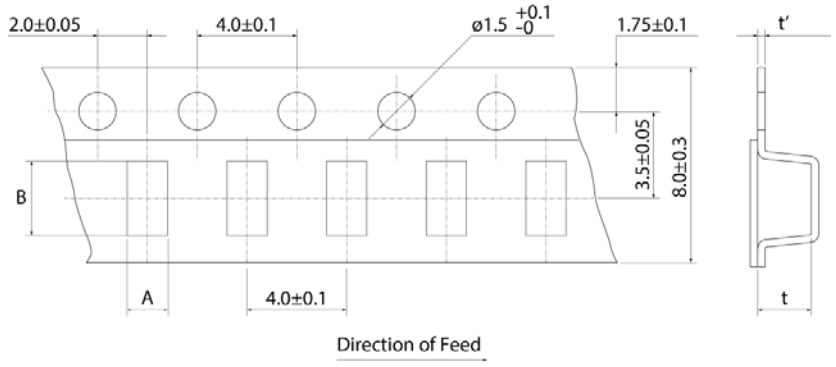
9. Environmental Performance

The product is soldered on a substrate for test.
(Test shall be done using Flux, Solder and Soldering condition which are specified in chapter 12 except the case of being specified special condition.)

No.	Item	Specification	Test method
9.1	Heat life	Appearance: No significant mechanical damage shall be observed. Inductance change rate: within ±10%	Temperature: 85°C±2°C Applying Current: Rated Current Test time: 1000 h (+48 h, -0 h) Post-treatment: left for 4 hours to 48 hours at room temperature.
9.2	Cold resistance	Appearance: No significant mechanical damage shall be observed. Inductance change rate: within ±10%	Temperature: -40°C±2°C Test time: 1000 h (+48 h, -0 h) Post-treatment: left for 4 hours to 48 hours at room temperature.
9.3	Humidity	Appearance: No significant mechanical damage shall be observed. Inductance change rate: within ±10%	Temperature: 40°C±2°C Humidity: 90% to 95% (RH) Test time: 1000 h (+48 h, -0 h) Post-treatment: left for 4 hours to 48 hours at room temperature.
9.4	Temperature cycle	Appearance: No significant mechanical damage shall be observed. Inductance change rate: within ±10%	Single cycle conditions: Step 1: -40°C (+0°C, -3°C), 30 min (+3 min, -0 min) Step 2: ordinary temperature, 3 min max. Step 3: +85°C (+3°C, -0°C), 30 min (+3 min, -0 min) Step 4: ordinary temperature, 3 min max. Number of testing: 100 cycles Post-treatment: left for 4 hours to 48 hours at room temperature.

10. Specification of Packaging

10.1 Appearance and dimensions of tape (8 mm width/plastic tape)



A	1.8±0.1
B	2.3±0.1
t	1.65±0.1
t'	(0.25)

(in mm)

* The dimensions of the cavity are measured at its bottom.

10.2 Taping specifications

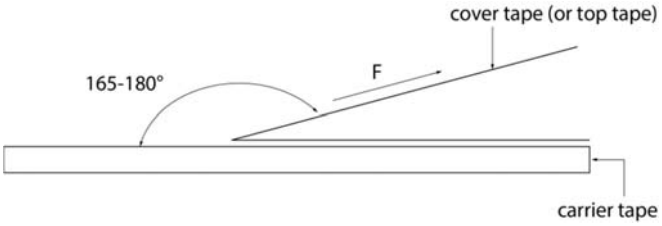
Packing quantity (Standard quantity)	2000 pcs/reel
Packing method	The products are placed in cavities of a carrier tape and sealed by a cover tape (top tape and bottom tape when the cavities of the carrier tape are punched type).
Feed hole position	The feed holes on the carrier tape are on the right side when the cover tape (top tape when the cavities of the carrier tape are punched type) is pulled toward the user.
Joint	The carrier tape and cover tape (top tape when the cavities of the carrier tape are punched type) are seamless.
Number of missing products	Number of missing products within 0.025% of the number per reel or 1 pc., whichever is greater, and are not continuous. The specified quantity per reel is kept.

10.3 Break down force of tape

Cover tape (or top tape)	5 N min.
Bottom tape (only when the cavities of the carrier tape are punched type)	5 N min.

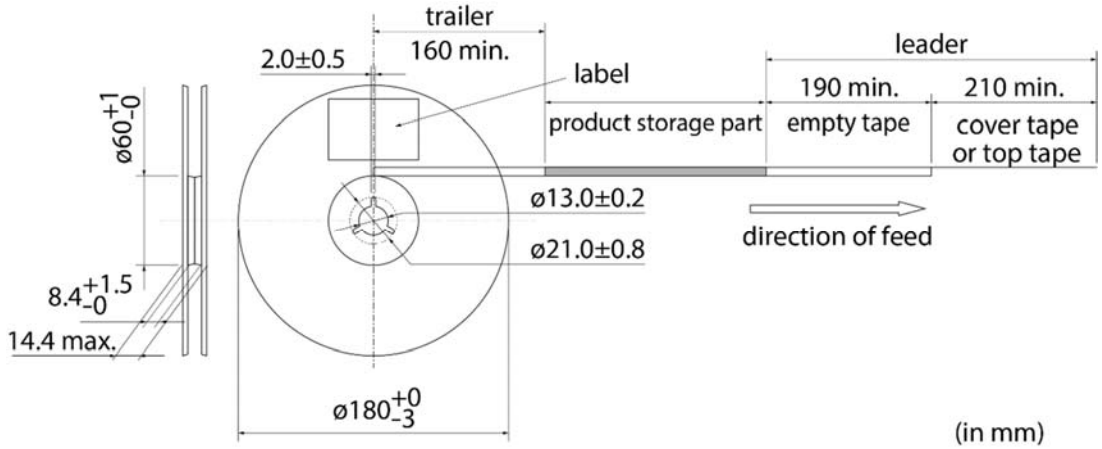
10.4 Peeling off force of tape

Speed of peeling off	300 mm/min
Peeling off force	0.1 N to 0.7 N (The lower limit is for typical value.)



10.5 Dimensions of leader section, trailer section and reel

A vacant section is provided in the leader (start) section and trailer (end) section of the tape for the product. The leader section is further provided with an area consisting only of the cover tape (or top tape). (See the diagram below.)



10.6 Marking for reel

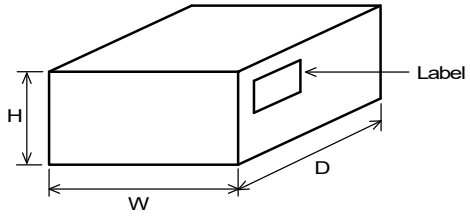
Customer part number, Murata part number, inspection number (*1), RoHS marking (*2), quantity, etc.

*1 Expression of inspection No.: □□ (1) ○○○○ (2) ◇◇◇ (3)	(1) Factory code (2) Date First digit: year/last digit of year Second digit: month/Jan. to Sep.→1 to 9, Oct. to Dec.→O, N, D Third, Fourth digit: day (3) Serial No.
*2 Expression of RoHS marking: ROHS- Y (1) (△) (2)	(1) RoHS regulation conformity (2) Murata classification number

10.7 Marking on outer box (corrugated box)

Customer name, purchasing order number, customer part number, Murata part number, RoHS marking (*2), quantity, etc.

10.8 Specification of outer box



Dimensions of outer box (mm)			Standard reel quantity in outer box (reel)
W	D	H	
186	186	93	5
* Above outer box size is typical. It depends on a quantity of an order.			

11. ⚠Caution

11.1 Restricted applications

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property.

(1) Aircraft equipment
(2) Aerospace equipment
(3) Undersea equipment
(4) Power plant control equipment
(5) Medical equipment
(6) Transportation equipment (vehicles, trains, ships, etc.)
(7) Traffic signal equipment
(8) Disaster/crime prevention equipment
(9) Data-processing equipment
(10) Applications of similar complexity and/or reliability requirements to the applications listed in the above

11.2 Precautions on rating

Avoid using in exceeded the rated temperature range, rated voltage, or rated current.
Usage when the ratings are exceeded could lead to wire breakage, burning, or other serious fault.

11.3 Inrush current

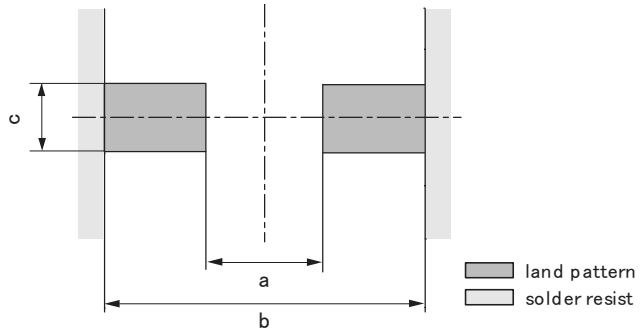
If an inrush current (or pulse current or rush current) that significantly exceeds the rated current is applied to the product, overheating could occur, resulting in wire breakage, burning, or other serious fault.

12. Precautions for Use

This product is for use only with reflow soldering. It is designed to be mounted by soldering. If you want to use other mounting method, for example, using a conductive adhesive, please consult us beforehand.
Also, if repeatedly subjected to temperature cycles or other thermal stress, due to the difference in the coefficient of thermal expansion with the mounting substrate, the solder (solder fillet part) in the mounting part may crack.
The occurrence of cracks due to thermal stress is affected by the size of the land where mounted, the solder volume, and the heat dissipation of the mounting substrate. Carefully design it when a large change in ambient temperature is assumed.

12.1 Land dimensions

The following diagram shows the recommended land dimensions for reflow soldering.



a	0.76
b	2.8
c	1.78

(in mm)

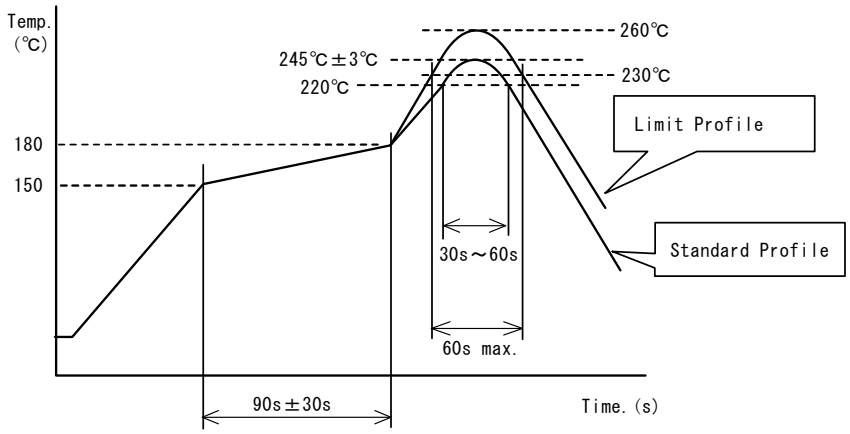
12.2 Flux and solder used

Flux	• Use a rosin-based flux. • Do not use a highly acidic flux with a halide content exceeding 0.2(wt)% (chlorine conversion value). • Do not use a water-soluble flux.
Solder	• Use Sn-3.0Ag-0.5Cu solder. • Standard thickness of solder paste: 100 μm to 150 μm

If you want to use a flux other than the above, please consult our technical department.

12.3 Soldering conditions (reflow)

- Pre-heating should be in such a way that the temperature difference between solder and product surface is limited to 100°C max.
  Cooling into solvent after soldering also should be in such a way that the temperature difference is limited to 100°C max.
  Insufficient pre-heating may cause cracks on the product, resulting in the deterioration of product quality.
- Standard soldering profile and the limit soldering profile is as follows.
  The excessive limit soldering conditions may cause leaching of the electrode and/or resulting in the deterioration of product quality.



	Standard profile	Limit profile
Pre-heating	150°C to 180°C/90 s±30 s	150°C to 180°C/90 s±30 s
Heating	Above 220°C/30 s to 60 s	Above 230°C/60 s max.
Peak temperature	245°C±3°C	260°C/10 s
Number of reflow cycles	2 times	2 times

12.4 Reworking with soldering iron

The following requirements must be met to rework a soldered product using a soldering iron.

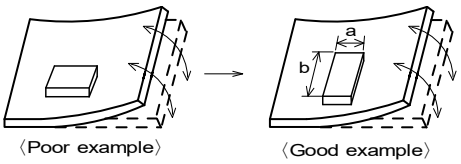
Item	Requirement
Pre-heating	150°C/approx. 1 min
Tip temperature of soldering iron	350°C max.
Power consumption of soldering iron	80 W max.
Tip diameter of soldering iron	ø3 mm max.
Soldering time	3 s (+1 s, -0 s)
Number of reworking operations	2 times max.
* Avoid a direct contact of the tip of the soldering iron with the product. Such a direction contact may cause cracks in the ceramic body due to thermal shock.	

12.5 Solder volume

Solder shall be used not to increase the volume too much.
An increased solder volume increases mechanical stress on the product. Exceeding solder volume may cause the failure of mechanical or electrical performance.

12.6 Product's location

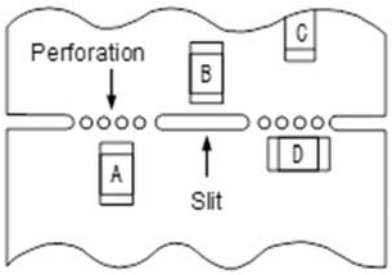
The following shall be considered when designing and laying out PCBs.
(1) PCB shall be designed so that products are not subject to mechanical stress due to warping the board.
[Products direction]
Products shall be located in the sideways direction (length: a < b) to the mechanical stress.



(2) Components location on PCB separation

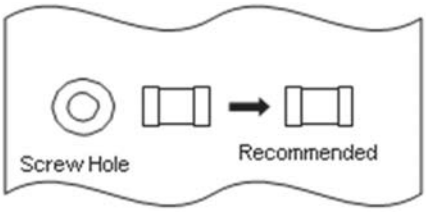
It is effective to implement the following measures, to reduce stress in separating the board.
It is best to implement all of the following three measures; however, implement as many measures as possible to reduce stress.

Contents of measures	Stress level
(1) Turn the mounting direction of the component parallel to the board separation surface.	A > D*1
(2) Add slits in the board separation part.	A > B
(3) Keep the mounting position of the component away from the board separation surface.	A > C
*1 A > D is valid when stress is added vertically to the perforation as with hand separation. If a cutting disc is used, stress will be diagonal to the PCB, therefore A > D is invalid.	



(3) Mounting components near screw holes

When a component is mounted near a screw hole, it may be affected by the board deflection that occurs during the tightening of the screw.
Mount the component in a position as far away from the screw holes as possible.



12.7 Handling of substrate

After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate. Excessive mechanical stress may cause cracking in the product.

Bending Twisting

12.8 Cleaning

Excessive ultrasonic oscillation during cleaning can cause the PCBs to resonate, resulting in cracked chips or broken solder joints. Before starting your production process, test your cleaning equipment / process to insure it does not degrade this product.

12.9 Storage and transportation

Storage period	Use the product within 12 months after delivery. If you do not use the product for more than 12 months, check solderability before using it.
Storage conditions	• The products shall be stored in a room not subject to rapid changes in temperature and humidity. The recommended temperature range is -10°C to +40°C. The recommended relative humidity range is 15% to 85%. Keeping the product in corrosive gases, such as sulfur, chlorine gas or acid may cause the poor solderability. • Do not place the products directly on the floor; they should be placed on a palette so that they are not affected by humidity or dust. • Avoid keeping the products in a place exposed to direct sunlight, heat or vibration. • Do not keep products in bulk packaging. Bulk storage could result in collisions between the products or between the products and other parts, resulting in chipping or wire breakage. • Avoid storing the product by itself bare (i.e. exposed directly to air).
Transportation	Excessive vibration and impact reduces the reliability of the products. Exercise caution when handling the products.

12.10 Resin coating (including moisture-proof coating)

When the product is coated/molded with resin, its electrical characteristics may change.
A wire breakage issue may occur by mechanical stress caused by the resin, amount/cured shape of resin, or operating condition etc.
Some resins contain impurities or hydrolyzable chlorine, which could result in corrosion of the conducting materials, leading to wire breakage.
So, please pay your careful attention when you select resin in case of coating/molding the products with the resin.
Prior to use the coating resin, please make sure no reliability issue is observed by evaluating products mounted on your board.

12.11 Mounting conditions

Check the mounting condition before using.
Using mounting conditions (nozzles, equipment conditions, etc.) that are not suitable for products may lead to pick up errors, misalignment, or damage to the product.

12.12 Operating environment

Do not use this product under the following environmental conditions as it may cause deterioration of product quality.
(1) In the corrodible atmosphere such as acidic gases, alkaline gases, chlorine, sulfur gases, organic gases and etc. (the sea breeze, Cl2, H2S, NH3, SO2, NO2, etc)
(2) In the atmosphere where liquid such as organic solvent, may splash on the products.
(3) In the atmosphere where the temperature/humidity changes rapidly and it is easy to dew.

12.13 Mounting density

If this product is placed near heat-generating products, be sure to implement sufficient heat-dissipating measures.
If this product is subjected to a significant amount of heat from other products, this could adversely affect product quality, resulting in a circuit malfunction or failure of the mounted section. Also, be sure that the product is used in a manner so that the heat that the product is subjected to from other products does not exceed the upper limit of the rated operating temperature for the product.

12.14 Handling of product

・Sharp material such as a pair of tweezers or other material such as bristles of cleaning brush , shall not be touched to the winding portion and electrode to prevent the breaking of wire.
・Mechanical shock should not be applied to the products mounted on the board to prevent the breaking of the core.

13. ⚠Note

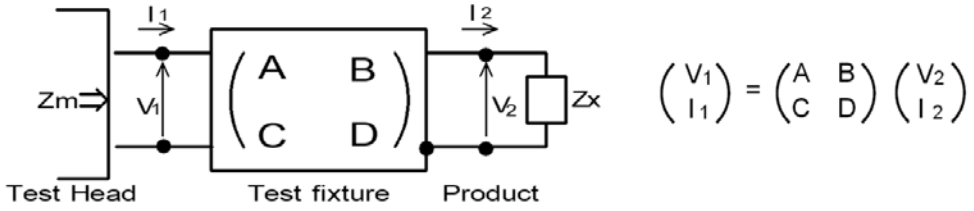
(1) Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.
(2) You are requested not to use our product deviating from the reference specifications.
(3) The contents of this reference specification are subject to change without advance notice. Please approve our product specifications or transact the approval sheet for product specifications before ordering.

Appendix

Electrical performance: Measuring method for inductance/Q (Q measurement is applicable only when the Q value is included in the rating table.)

Perform measurement using the method described below. (Perform correction to ensure that the inductance value is compatible with inductors of other manufacturers.)

(1) Residual elements and stray elements of the measuring terminal can be expressed by the F parameter for the 2-pole terminal as shown in the figure below.



(2) The product's impedance value (Zx) and measured impedance value (Zm) can be expressed as shown below, by using the respective current and voltage for input/output.

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

(3) Thus, the relationship between the product's impedance value (Zx) and measured impedance value (Zm) is as follows.

$Zx=\alpha\frac{Zm-\beta}{1-Zm\Gamma}$	Here, α = D/A = 1 β = B/D = Zsm - (1 - Yom Zsm) Zss Γ = C/A = Yom Zsm: measured impedance when measuring terminal is shorted Zss: residual impedance of short chip (= Equivalent series inductance X) Yom: measured admittance when measuring terminal is open

Important
In consideration of compatibility with other venders' products, Zss is defined as the correction value to fit nominal inductance of other venders' products.
When calibrating the measurement, please input X value instead of the equivalent series inductance (ShortL) for each L value.
Perform measurement of Q using the residual impedance 0.771 nH obtained through our conventional standard measurement method.

(4) Calculate inductance Lx and Qx using the equations shown below.

$Lx=\frac{Im(Zx)}{2\pi f}$	Lx: inductance of chip coil Qx: Q of chip coil f: measuring frequency
$Qx=\frac{Im(Zx)}{Re(Zx)}$	

Table: Equivalent series inductance to fit nominal inductance of other venders' products

Part number	Inductance	
	X (nH) Equivalent series Inductance	Measuring frequency (MHz)
LQW2BAS2N7_0C	0.121	250
LQW2BAS2N8_0C	0.171	250
LQW2BAS3N0_0C	0.131	250
LQW2BAS5N6_0C	-0.009	250
LQW2BAS6N0_0C	0.031	250
LQW2BAS6N8_0C	0.301	250
LQW2BAS7N5_0C	-0.299	250
LQW2BAS8N2_0C	0.271	250
LQW2BAS10N_0C	-0.229	250
LQW2BAS12N_0C	0.371	250
LQW2BAS15N_0C	0.051	250
LQW2BAS18N_0C	-0.029	250
LQW2BAS22N_0C	0.491	250
LQW2BAS24N_0C	-0.389	250
LQW2BAS27N_0C	0.931	250
LQW2BAS33N_0C	0.481	250
LQW2BAS36N_0C	0.531	250
LQW2BAS39N_0C	0.771	250
LQW2BAS43N_0C	-0.689	200
LQW2BAS47N_0C	1.091	200
LQW2BAS56N_0C	0.331	200
LQW2BAS68N_0C	0.811	200
LQW2BAS82N_0C	-0.839	150
LQW2BAS91N_0C	-1.339	150
LQW2BASR10_0C	0.171	150
LQW2BASR11_0C	1.371	150
LQW2BASR12_0C	-1.629	150
LQW2BASR15_0C	-0.029	100
LQW2BASR18_0C	4.071	100
LQW2BASR22_0C	0.771	100
LQW2BASR24_0C	3.071	100
LQW2BASR27_0C	-1.429	100
LQW2BASR33_0C	4.071	100
LQW2BASR39_0C	0.971	100
LQW2BASR47_0C	-8.829	50
LQW2BASR50_0C	-2.529	50
LQW2BASR56_0C	-8.229	25
LQW2BASR68_0C	-2.229	25
LQW2BASR82_0C	-8.029	25
LQW2BAS1R0_0C	-6.329	25