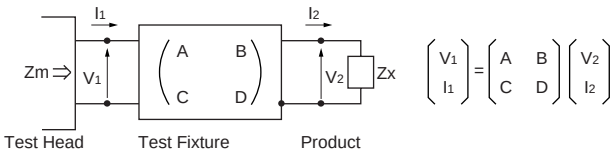
■ Notice (Measuring Method)

LQG15HH

Measuring Method of Inductance/Q

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



$$\begin{pmatrix} V_1 \\ I_1 \end{pmatrix} = \begin{pmatrix} A & B \\ C & D \end{pmatrix} \begin{pmatrix} V_2 \\ I_2 \end{pmatrix}$$

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

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

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	**LQG15HH**

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

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

Lx: Inductance of chip inductor (chip coil)
Qx: Q of chip inductor (chip coil)
f: Measuring frequency

■ Notice (Storage and Operating Conditions)

<Operating Environment>

Do not use products in chemical atmosphere such as chlorine gas, acid or sulfide gas.

<Storage Requirements>

1. Storage Period
   LQG15HH series should be used within 6 month;
   LQH32C series 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 degree C.
   Humidity: 15 to 85% (relative humidity)
   Do not subject products to rapid changes in temperature and humidity.
   Do not store them in 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.

■ Notice (Handling)

This item is designed to have sufficient strength, but handle with care to avoid chipping or breaking its ceramic structure.

LQH32CH series

- To prevent breaking the wire, avoid touching sharp material, such as tweezers, to the wire wound portion.
- To prevent breaking the core, avoid applying excessive mechanical shock to products mounted on the board.

LQG15HH series

- Avoid applying excessive stress to products to prevent damage.
- Do not apply excessive force to products mounted on boards to prevent core breakage.

<Transportation>

Do not apply excessive vibration or mechanical shock to products.

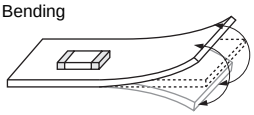
<Resin Coating>

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.

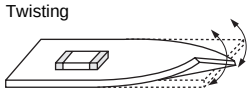
<Handling of a Substrate>

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



■ Notice (Handling)

1. Do not exceed maximum rated current of the product. Thermal stress may be transmitted to the product and short/open circuit of the product or falling off the product may be occurred.
2. Be sure to provide an appropriate fail-safe function on your product to prevent a second damage that may be caused by the abnormal function or the failure our product.