

# RF Inductor



## BWHC Series



### Overview

Wire-wound RF inductors are electronic components designed to store energy in a magnetic field when electrical current passes through them. They are constructed by winding a conductive wire (usually copper or gold-plated) around a core material such as air, ceramic, or ferrite.

This configuration allows them to provide high inductance values with minimal power loss, especially at high frequencies.

### Benefits

1. High Q-Factor (Quality Factor)
2. Ceramic body and wire wound construction provide high SRFs
3. Low DC resistance design
4. High Current Handling
5. Can maintain excellent thermal stability at different temperatures

### Applications

1. Industrial and Medical Equipmen: RFID systems and medical imaging equipment.
2. Data Centers
3. Networking
4. Base Station
5. Consumer Electronics
6. Security system

### Product Information

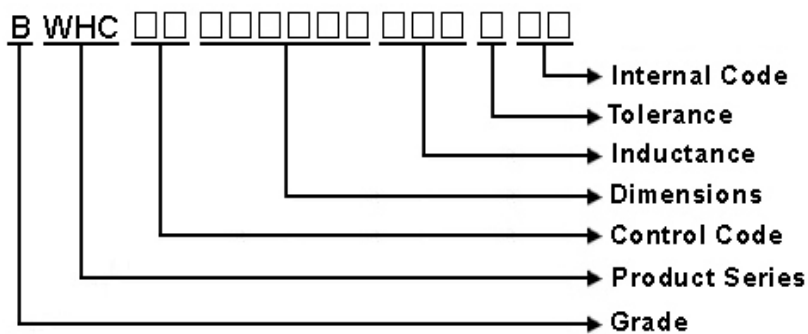
Series	Size Code (JIS/EIA)	Inductance (nH)
BWHC	1608/0603	2.6 ~ 24



## BWHC00181210 Series Specification

**1 Scope:** This specification applies to Wire Wound Ceramic Chip Inductors

**2 Part Numbering:**

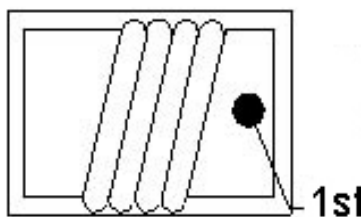


**3 Rating:**

Operating Temperature: - 40°C ~ 125°C  
(Including self - temperature rise)

Storage Temperature: - 40°C ~ 125°C  
(The storage temperature range is for after the assembly)

**4 Marking:**



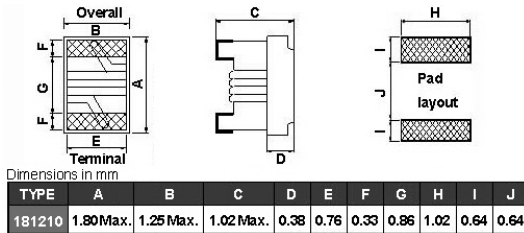
**Marking: 1st → BRN**

**5 Standard Testing Condition**

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35°C)	20 to 30°C
Humidity	Ordinary Humidity(25 to 85% RH)	50 to 80 %RH

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### 6 Configuration and Dimensions and Unit Weight:



### 7 Electrical Characteristics:

Part No.	Inductance (nH)	L/Q Test Freq. (MHz)	Q Min.	SRF (MHz)Min.	RDC ( $\Omega$ )Max.	I <sub>rms</sub> (mA)Max.	Tolerance ( $\pm$ %)	Color Code
								1st
BWHC001812101N6□00	1.6	250/250	24	12500	0.03	2400	10,5	BLK
BWHC001812103N6□00	3.6	250/250	24	5900	0.048	2300	10,5	BRN
BWHC001812103N9□00	3.9	250/250	25	5900	0.054	2200	10,5	RED
BWHC001812104N3□00	4.3	250/250	25	5800	0.054	2100	10,5	ORN
BWHC001812106N8□00	6.8	250/250	35	5800	0.054	2100	10,5	ORN
BWHC001812107N5□00	7.5	250/250	35	3700	0.059	2100	10,5	YEL
BWHC001812108N2□00	8.2	250/250	38	3700	0.071	2000	10,5	BRN
BWHC0018121010N□00	10	250/250	38	3700	0.071	2000	10,5,2	GRN
BWHC0018121012N□00	12	250/250	38	3000	0.075	2000	10,5,2	BLU
BWHC0018121015N□00	15	250/250	38	2800	0.08	1900	10,5,2	VIO
BWHC0018121018N□00	18	250/250	40	2800	0.099	1900	10,5,2	GRY
BWHC0018121022N□00	22	250/250	42	2400	0.099	1800	10,5,2	WHT
BWHC0018121024N□00	24	250/250	42	2400	0.105	1800	10,5,2	BLK

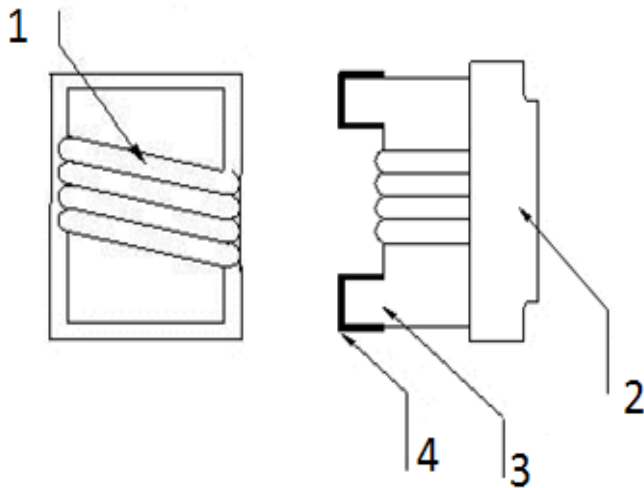
**NOTE:** □-tolerance G=±2% / J=±5% / K=±10%

1. Operating temperature range - 4 0 °C ~ 1 2 5 °C (Including self - temperature rise)
2. I<sub>rms</sub> for a 20°C temperature rise from 25°C ambient.
3. L/Q Test OSC @200mV.

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### 8 BWHC00181210 Series

#### 8.1 Construction:



#### 8.2 Material List:

NO	PART	MATERIAL
1	WIRE	COPPER 180
2	EPOXY	UV GLUE
3	CORE	CERAMIC
4	TERMINAL	Ag/Cu/Ni/Sn

# BWHC00181210 Series Specification

## 9 Reliability Of Ceramic Wire Wound Chip Inductor/CERAMIC SERIES

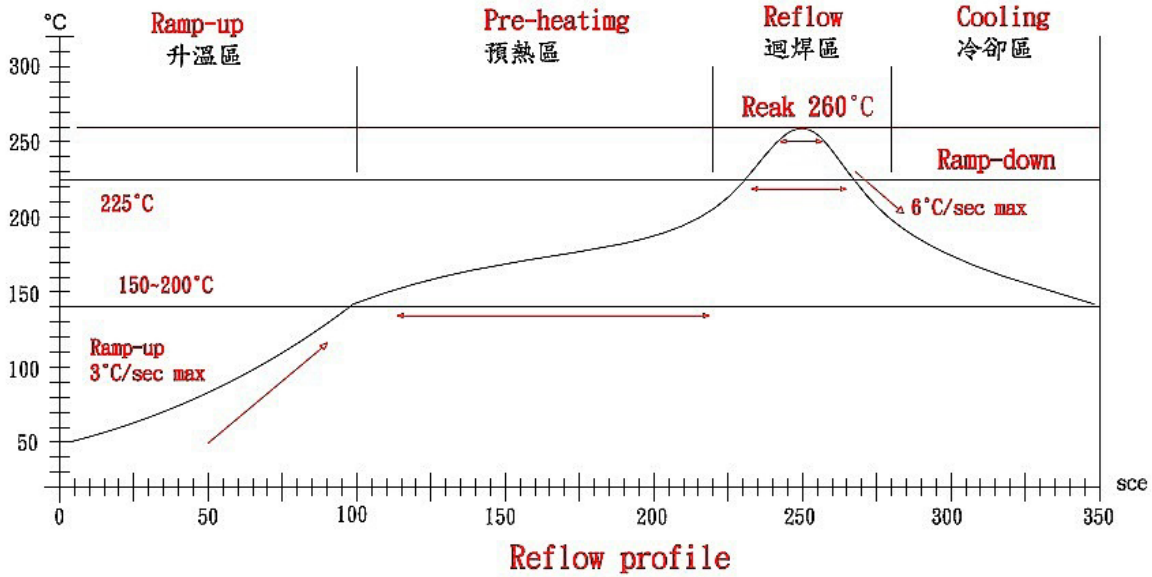
### 1-1.Environmental Performance

No	Item	Specification	Test Method																		
1-1-1	Temperature Cycle	Appearance: No Damage Inductance: within $\pm 10\%$ of initial value Q change: within $\pm 30\%$ of initial value	<table border="1"> <tr> <td colspan="3">One cycle:</td> </tr> <tr> <td>Step</td> <td>Temperature (<math>^{\circ}\text{C}</math>)</td> <td>Time (min)</td> </tr> <tr> <td>1</td> <td><math>-40\pm 3</math></td> <td>30</td> </tr> <tr> <td>2</td> <td><math>25\pm 2</math></td> <td>15</td> </tr> <tr> <td>3</td> <td><math>125\pm 3</math></td> <td>30</td> </tr> <tr> <td>4</td> <td><math>25\pm 2</math></td> <td>15</td> </tr> </table> <p>Total: 5 cycles Measured After Exposure in The Room Condition For 1hrs</p>	One cycle:			Step	Temperature ( $^{\circ}\text{C}$ )	Time (min)	1	$-40\pm 3$	30	2	$25\pm 2$	15	3	$125\pm 3$	30	4	$25\pm 2$	15
One cycle:																					
Step	Temperature ( $^{\circ}\text{C}$ )	Time (min)																			
1	$-40\pm 3$	30																			
2	$25\pm 2$	15																			
3	$125\pm 3$	30																			
4	$25\pm 2$	15																			
1-1-2	Humidity Resistance		<p>Temperature: <math>40\pm 2^{\circ}\text{C}</math> Relative Humidity: 90 ~ 95% Time: 100hrs Measured After Exposure In The Room Condition For 1hrs</p>																		
1-1-3	High Temperature Resistance		<p>Temperature: <math>125\pm 3^{\circ}\text{C}</math> Time: 50Hrs Measured After Exposure In The Room Condition For 1Hrs</p>																		
1-1-4	Low Temperature Resistance		<p>Temperature: <math>-40\pm 3^{\circ}\text{C}</math> Time: 50Hrs Measured After Exposure In The Room Condition For 1Hrs</p>																		
1-1-5	High Temperature Load Life	There should be no evidence of short or open circle	<p>Temperature: <math>85\pm 3^{\circ}\text{C}</math> Load: Allowed DC Current Time: 1000Hrs</p>																		
1-1-6	Humidity Load Life		<p>Temperature: <math>40\pm 2^{\circ}\text{C}</math> Relative Humidity: 90~95% Load: Allowed DC Current Time: 1000Hrs</p>																		

### 1-2.Mechanical Performance

No	Item	Specification	Test Method
1-2-1	Vibration Test (Low Frequency)	1.Appearance: No Damage 2.Inductance: within $\pm 10\%$ of initial value 3.Q change: within $\pm 30\%$ of initial value	<ol style="list-style-type: none"> <li>1. Test device shall be soldered on the substrate.</li> <li>2. Oscillation frequency: 10 to 55 to 10Hz for 1min.</li> <li>3. Amplitude: 1.5mm</li> <li>4. Time: 2hrs for each axis(X, Y &amp; Z),total 6hrs</li> </ol>
1-2-2	Resistance TO Soldering Heat	Appearance: No Damage	<ol style="list-style-type: none"> <li>1. The device should be reflow soldered on PCB (peak <math>260^{\circ}\text{C} \pm 5^{\circ}\text{C}</math> for 10 seconds)</li> <li>2. Solder Composition: Sn/Ag3.0/Cu0.5</li> <li>3. Test time: 6 minutes</li> </ol>
1-2-3	Solder ability	The electrodes shall be at least 95% covered with new solder coating	<ol style="list-style-type: none"> <li>1. Pre-Heating: <math>150^{\circ}\text{C}</math>, 1min.</li> <li>2. Solder Composition: Sn/Ag3.0/Cu0.5</li> <li>3. Solder Temperature: <math>245\pm 5^{\circ}\text{C}</math>.</li> <li>4. Immersion Time: <math>4\pm 1</math> sec.</li> </ol>
1-2-4	Component Adhesion (Push Test)	1 Lbs. For 0402 2 Lbs. For 0603 4 Lbs. For The Rest	<p>The device should be reflow soldered (<math>245\pm 5^{\circ}\text{C}</math> For 10 seconds) to a tinned copper substrate. A force gauge should be applied to the side of the component. The device must withstand a minimum force of 2 or 4 pounds without a failure of the termination attached to component</p>

# BWHC00181210 Series Specification



Lead-Free(LF)標準溫度分析範圍

Refer to J-STD-020C

管制項目 Item.	升温區 Ramp-up	預熱區 Pre-heating	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp.scope	R.T ~ 150°C	150°C ~ 200°C	Above 217°C	260±5°C	Peak Temp.~150°C
標準時間 Time spec.	-	60 ~ 180 sec	60 ~ 150 sec	20 ~ 40 sec	-
實際時間 Time result	-	75 ~ 100 sec	90 ~ 120 sec	20 ~ 35 sec	-

**NOTE:**

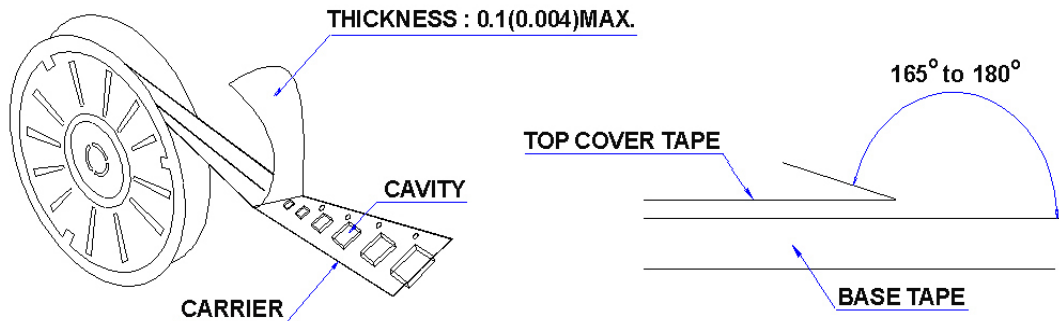
- 1.Re-flow possible times : within 3 times
- 2.Nitrogen adopted is recommends while in re-flow
- 3.Products can only be soldered with reflow

## BWHC00181210 Series Specification

### 11 Packaging:

#### 11.1 Packaging -Cover Tape

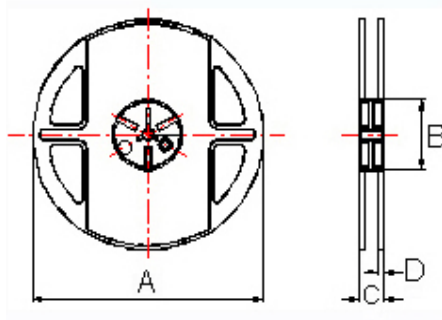
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



#### 11.2 Packaging Quantity

TYPE	PCS/REEL
181210	4000

#### 11.3 Reel Dimensions



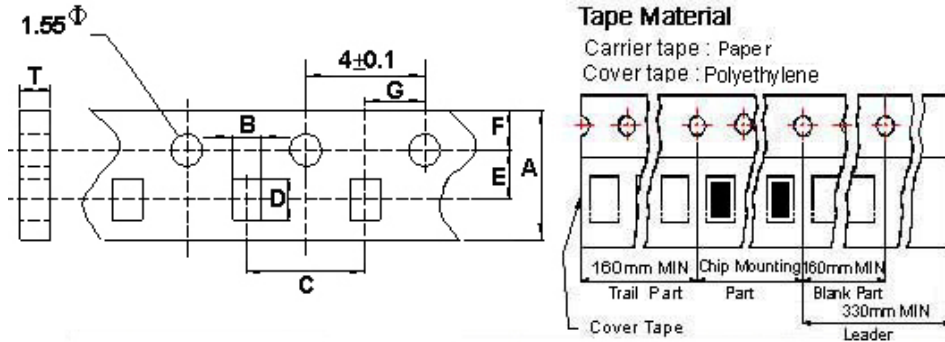
Dimensions in mm

TYPE	A	B	C	D
181210	178±1	60±0.5	12±0.5	1.5±0.5

## BWHC00181210 Series Specification

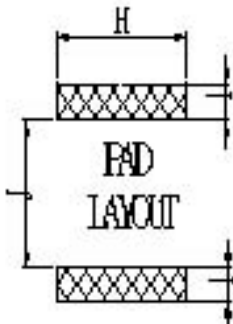
### 10 Packaging:

#### 11.4 Tape Dimensions in mm



TYPE	A	B	C	D	E	F	G	T
181210	8.0	1.25	4	1.9	3.5	1.75	2	1.05

### 11 Recommended Land Pattern:



Dimensions in mm

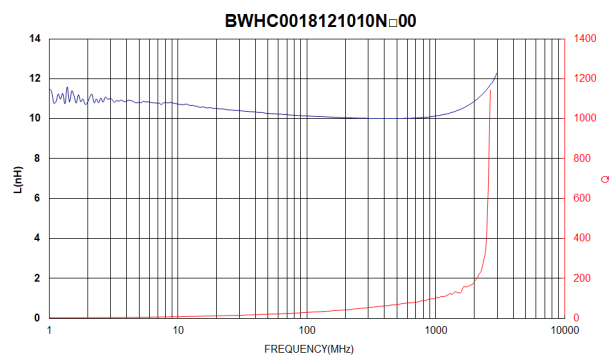
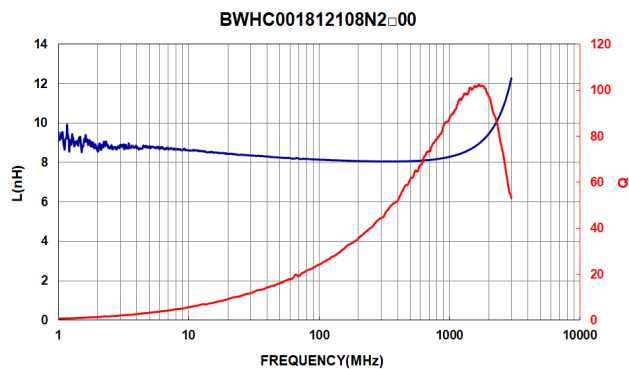
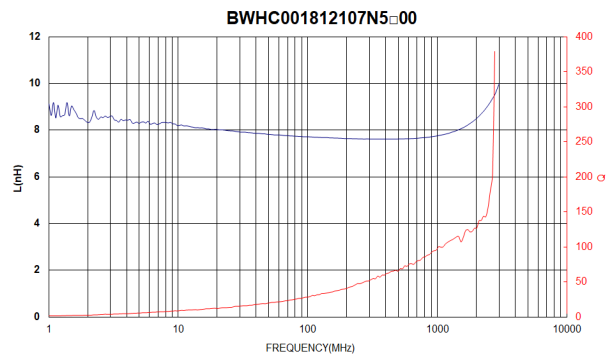
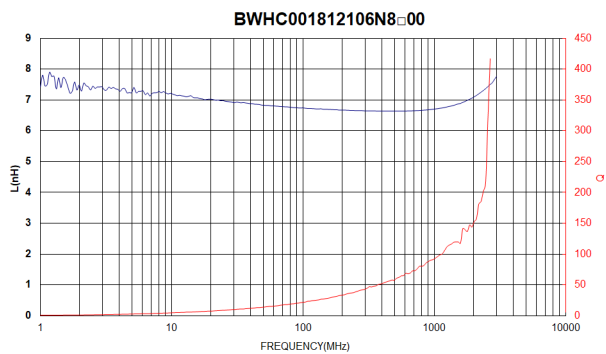
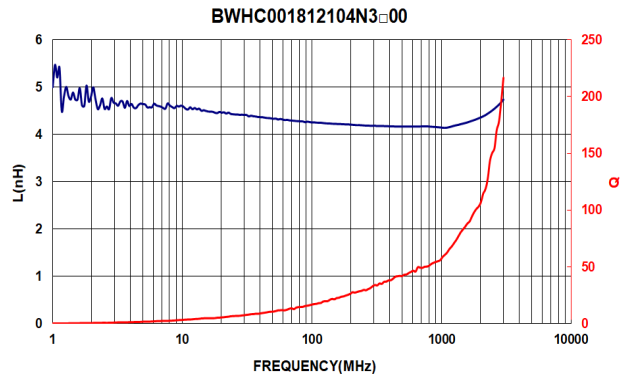
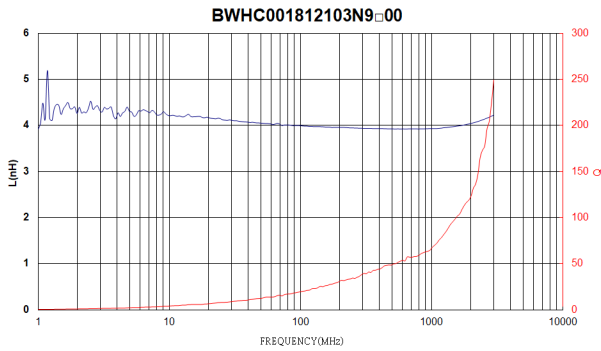
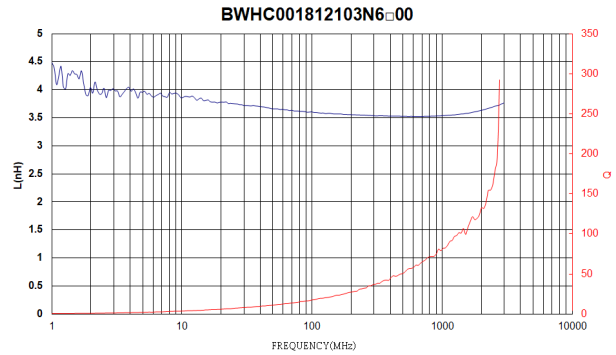
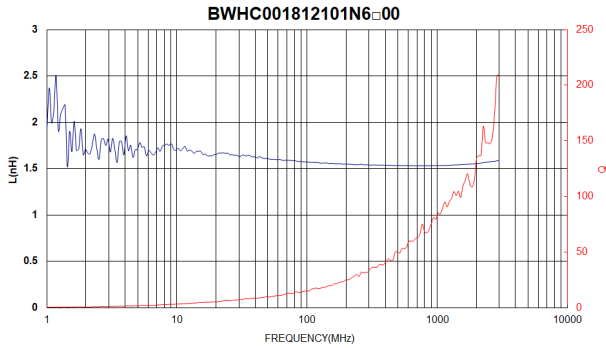
TYPE	H(In/mm)	I(In/mm)	J(In/mm)
181210	0.04/1.02	0.025/0.64	0.025/0.64

### 12 Note:

- Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
- Do not knock nor drop.
- All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
- The storage period is less than 12 months. Be sure to follow the storage conditions (Temperature: 5 to 40°C, Humidity: 10 to 75% RH or less).  
If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
- Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
- The moisture sensitivity level (MSL) of products is classified as level 1.

# BWHC00181210 Series Specification

## 13 Graph:



# BWHC00181210 Series Specification

