

RF Inductor



BWLD 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. Low DC resistance design
3. High Current Handling
4. 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

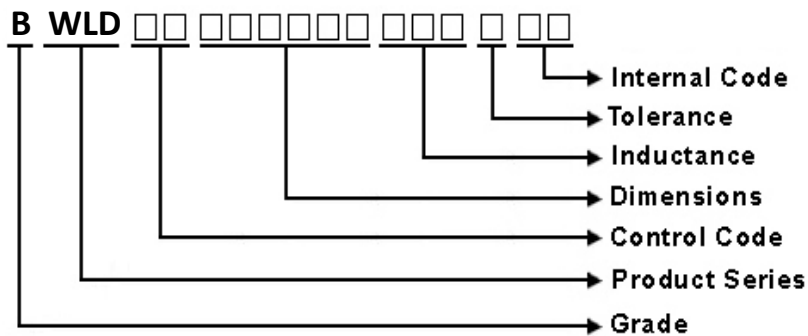
Series	Size Code (JIS/EIA)	Inductance (nH)
BWLD	1608/0603 2012/0805 2520/1008	0.9 ~ 100



BWLD00181010 Series Specification

1 Scope: This specification applies to Wire Wound Ferrite Chip Inductors

2 Part Numbering:

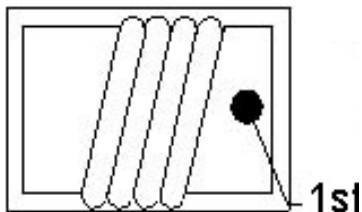


3 Rating:

Operating Temperature: - 40°C ~ 105°C
(Including self - temperature rise)

Storage Temperature: - 40°C ~ 105°C
(The storage temperature range is for after the assembly)

4 Marking:



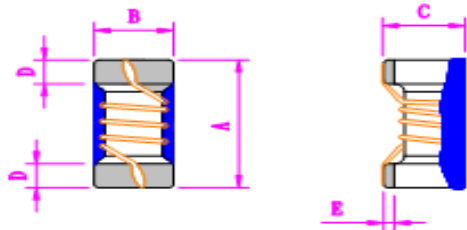
EX Marking: 1st → Brown

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:



Dimensions in mm

TYPE	A	B	C	D	E	Net Weight (grms)	
						SIZE CODE	Net Weight (grms)
181010	1.80±0.1	1.00±0.1	0.95±0.1	0.35	0.1	181010	0.005 (typ.)

7 Electrical Characteristics:

Part No.	Inductance (μ H)	L/Q Test		Q Typ.	SRF (MHz)Typ.	RDC (Ω)±30%	IDC (mA)Typ.	I _{rms} (mA)Typ.	Tolerance (±%)	Color Code 1st
		Freq. (MHz)								
BWLD00181010R47□00	0.47	7.9/7.9		16	650	0.24	1050	1000	J,K,M	Brown
BWLD00181010R56□00	0.56	7.9/7.9		16	580	0.26	1000	950	J,K,M	Orange
BWLD00181010R65□00	0.65	7.9/7.9		16	550	0.28	950	900	J,K,M	Green
BWLD00181010R10□00	1	7.9/7.9		16	390	0.32	860	700	J,K,M	Black
BWLD00181010R15□00	1.5	7.9/7.9		16	250	0.42	740	630	J,K,M	Red
BWLD00181010R22□00	2.2	7.9/7.9		16	82	0.56	600	580	J,K,M	Orange
BWLD00181010R47□00	4.7	7.9/7.9		16	51	0.97	400	420	J,K,M	Violet
BWLD00181010R68□00	6.8	7.9/7.9		16	43	1.5	340	340	J,K,M	White
BWLD00181010R100□00	10	2.5/2.5		14	36	1.85	280	280	J,K,M	Brown
BWLD00181010R150□00	15	2.5/2.5		14	29	2.6	240	240	J,K,M	Orange
BWLD00181010R220□00	22	2.5/2.5		14	24	3.61	200	200	J,K,M	Green

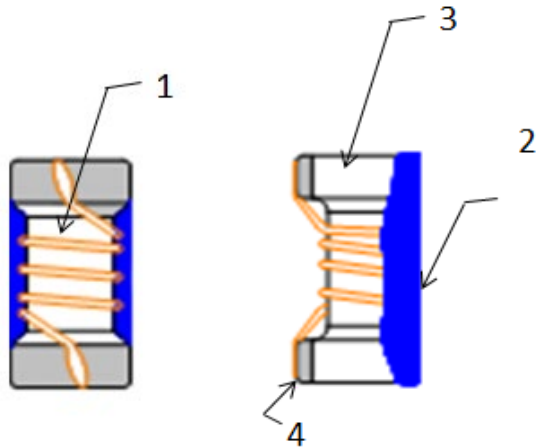
NOTE: □-tolerance J=±5% / K=±10% / M=±20%

1. Operating temperature range -40°C ~ 105°C (Including self - temperature rise)
2. L/Q Test OSC @200mV.
3. IDC for Inductance drop 10% from its value without current.
4. I_{rms} for a 15°C temperature rise from 25°C ambient.
5. weight: 5(mg) typ.

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8.1 Construction:



8.2 Material List:

NO	PART	MATERIAL
1	WIRE	Grade 180
2	EPOXY	UV GLUE
3	CORE	FERRITE CORE
4	TERMINAL	Ag/Ni/Sn

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9 Reliability OF Ferrite Wire Wound Chip Inductor/FERRITE SERIES

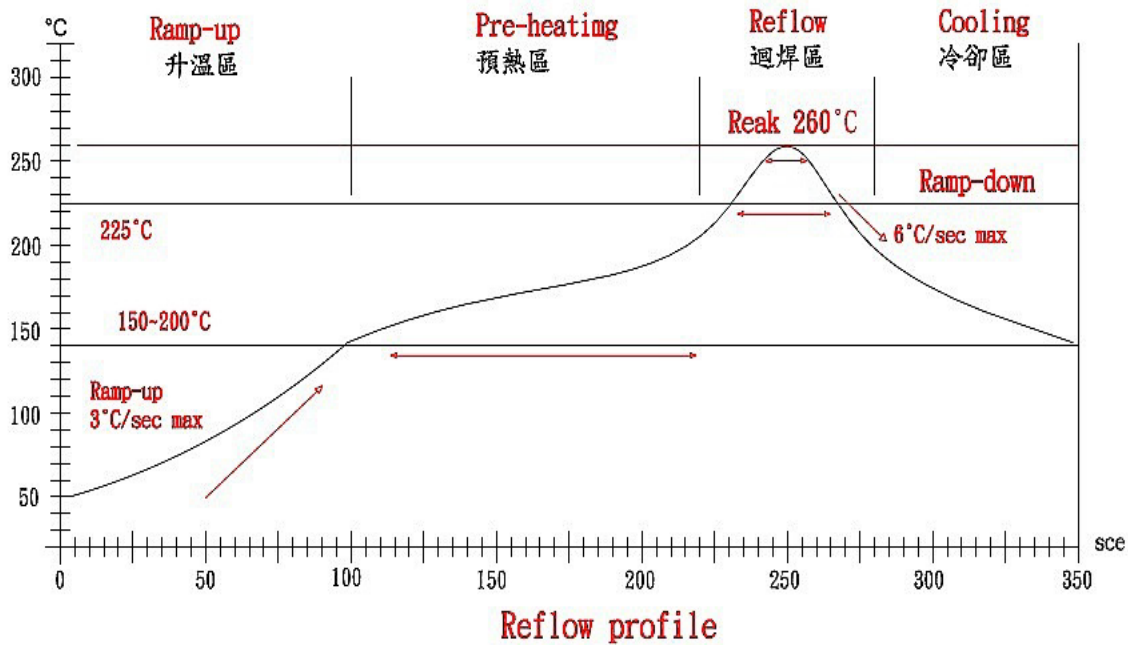
1-1.Environmental Performance

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	One cycle: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Step</th> <th>Temperature ($^{\circ}\text{C}$)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40\pm3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25\pm2</td> <td>3</td> </tr> <tr> <td>3</td> <td>105\pm3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25\pm2</td> <td>3</td> </tr> </tbody> </table> Total: 5 cycles Measured After Exposure in The Room Condition For 1hrs	Step	Temperature ($^{\circ}\text{C}$)	Time (min)	1	-40 \pm 3	30	2	25 \pm 2	3	3	105 \pm 3	30	4	25 \pm 2	3
Step	Temperature ($^{\circ}\text{C}$)	Time (min)																
1	-40 \pm 3	30																
2	25 \pm 2	3																
3	105 \pm 3	30																
4	25 \pm 2	3																
1-1-2	High Temperature Resistance		Temperature: 105 \pm 3 $^{\circ}\text{C}$ Time: 1000Hrs Measured After Exposure In The Room Condition For 1Hrs															
1-1-3	Low Temperature Resistance		Temperature: -40 \pm 3 $^{\circ}\text{C}$ Time: 1000Hrs Measured After Exposure In The Room Condition For 1Hrs															
1-1-4	Humidity Load Life	There should be no evidence of short or open circle	Temperature: 40 \pm 2 $^{\circ}\text{C}$ Relative Humidity: 90~95% Load: Allowed DC Current Time: 96Hrs															

1-2.Mechanical Performance

No	Item	Specification	Test Method
1-2-1	Resistance To Soldering Heat	Appearance: No Damage	1. The device should be reflow soldered on PCB (peak 260 $^{\circ}\text{C}$ \pm 5 $^{\circ}\text{C}$ for 10 seconds) 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Test time: 6 minutes
1-2-2	Solder ability	The electrodes shall be at least 95% covered with new solder coating	1. Pre-Heating: 150 $^{\circ}\text{C}$, 1min. 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Solder Temperature: 245 \pm 5 $^{\circ}\text{C}$. 4. Immersion Time: 4 \pm 1 sec.
1-2-3	Componment Adhesion (Push Test)	1 Lbs. For 0603	The device should be reflow soldered (245 \pm 5 $^{\circ}\text{C}$ For 10 seconds) to a tinned copper substrate. A force guauge should be applied to the side of the component. The device must withstand a minimum force of 2 pounds without a failure of the termination attached to component

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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:

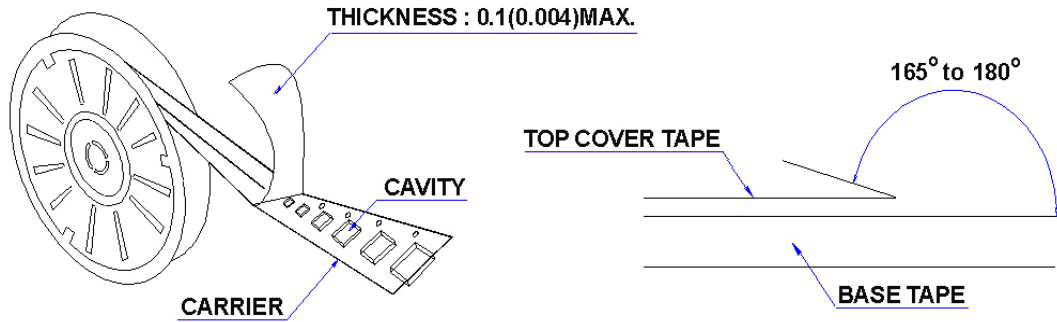
- 1.Re-flow possible times : within 3 times
- 2.Nitrogen adopted is recommendes while in re-flow
- 3.Products can only be soldered with reflow

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10 Packaging:

10.1 Packaging -Cover Tape

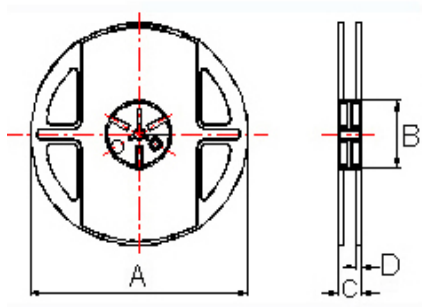
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
181010	4000

10.3 Reel Dimensions



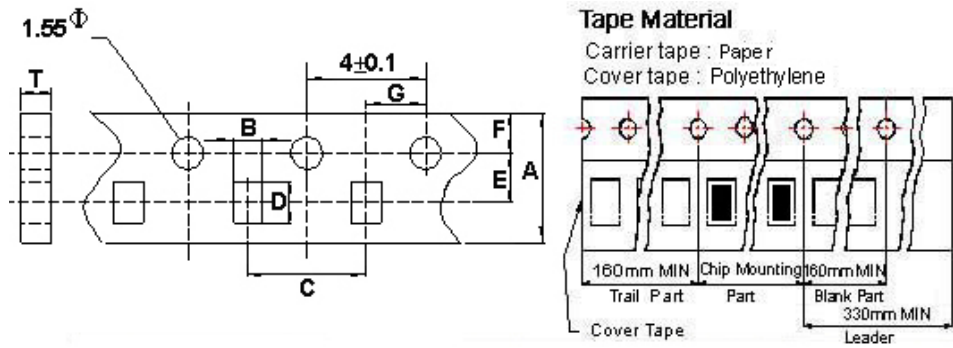
Dimensions in mm

TYPE	A	B	C	D
181010	178±1	60±0.5	12±0.5	1.5±0.5

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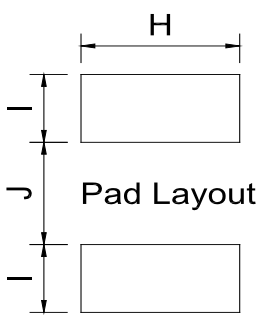
10 Packaging:

10.4 Tape Dimensions in mm



TYPE	A	B	C	D	E	F	G	T
181010	8	1.20	4	2	3.5	1.75	2	1.1

11 Recommended Land Pattern:



Dimensions in mm

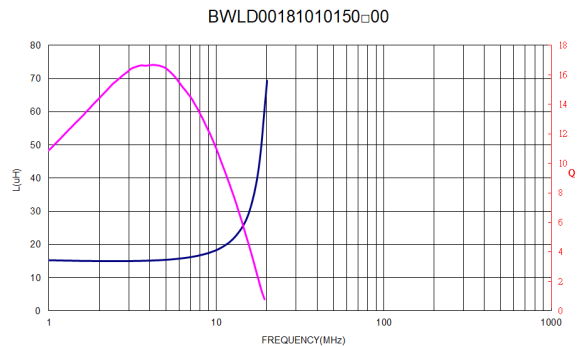
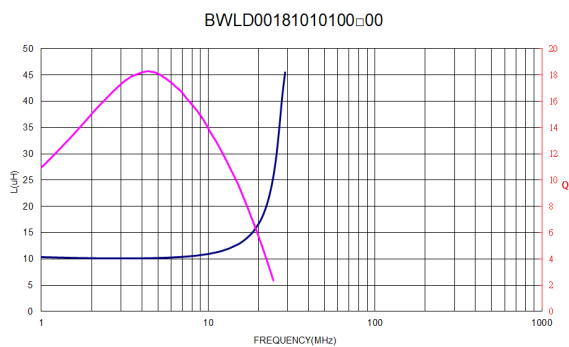
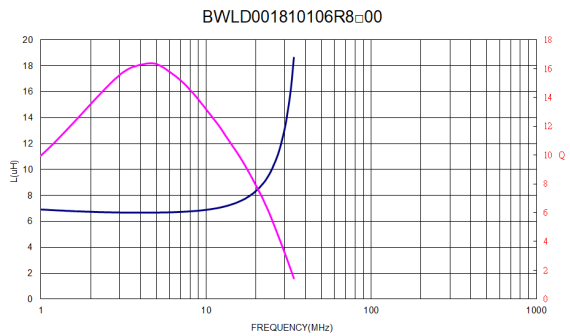
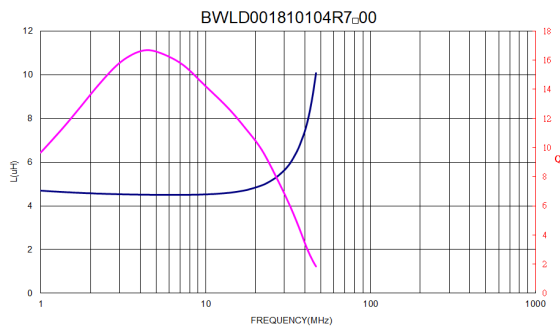
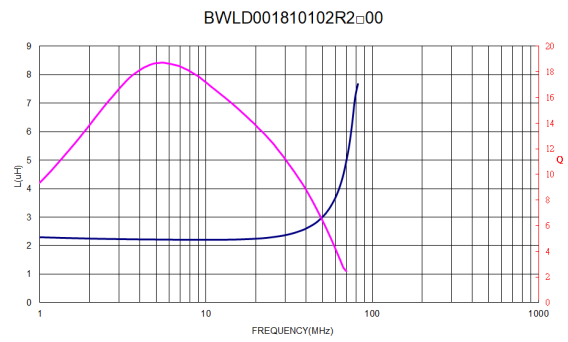
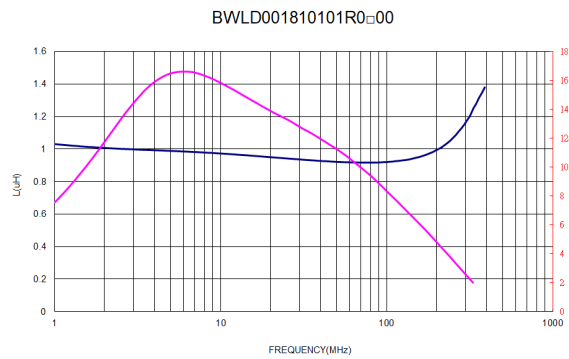
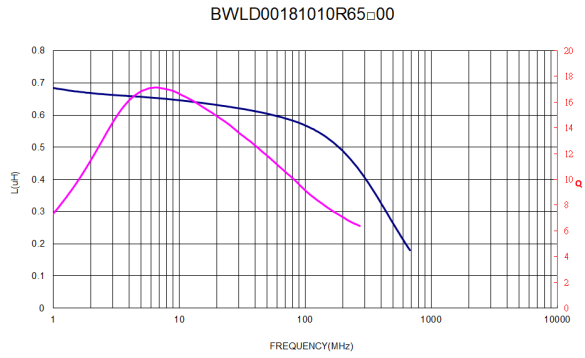
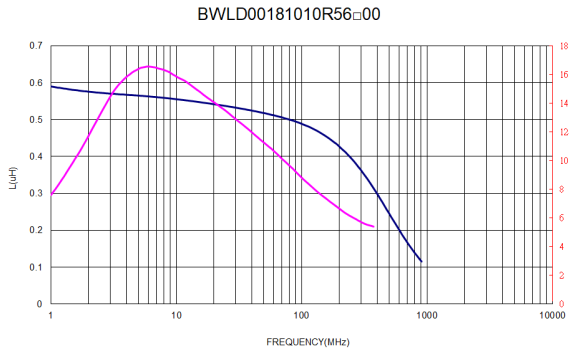
TYPE	H(In/mm)	I(In/mm)	J(In/mm)
181010	0.04/1.02	0.025/0.64	0.31/0.8

12 Note:

1. Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. 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.
4. 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.
5. Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
6. The moisture sensitivity level (MSL) of products is classified as level 1.

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13 Graph:



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