RF Inductor

BWLS 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. Low inductance value

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

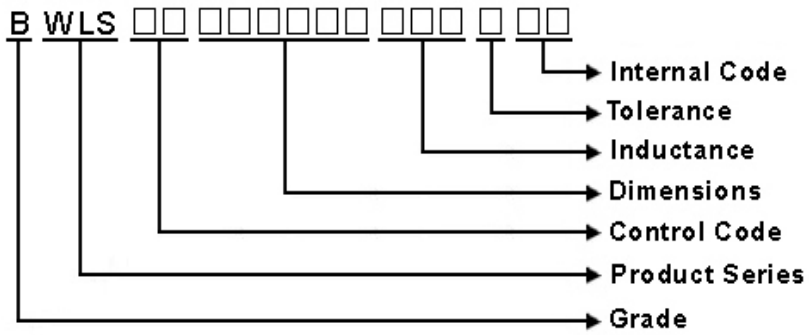
Product Information

Series	Size Code (JIS/EIA)	Inductance (nH)
BWLS	0603/0201 1005/0402 1608/0603 2012/0805 2520/1008	0.0047 ~ 560

BWLS00161109 Series Specification

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

2 Part numbering:

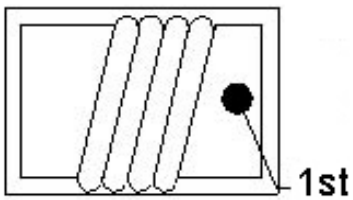


3 Rating:

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

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

4 Marking:



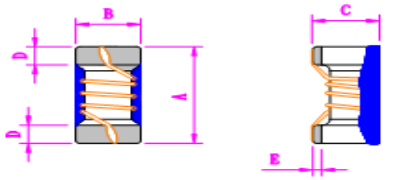
Marking:1st→BLK

5 Standard Testing Condition

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

BWLS00161109 Series Specification

6 Configuration and Dimensions and Unit Weight:



Dimensions in mm

TYPE	A	B	C	D
161109	$1.6^{+0.2}_{-0.1}$	1.1 ± 0.1	$0.9^{+0.2}_{-0.1}$	0.38

Net Weight (grms)

SIZE CODE	Net Weight (grms)
161109	0.005 (typ.)

7 Electrical Characteristics:

Part No.	Inductance (uH)	L/Q Test Freq. (MHz)	Q Typ.	SRF (MHz)Min.	RDC (Ω)Max.	IDC (mA)	Tolerance (±%)	Color Code 1st
BWLS0016110947N□00	0.047	7.9/7.9	17	1700	0.075	1500	5,10	BLK
BWLS0016110972N□00	0.072	7.9/7.9	17	1700	0.12	1500	5,10	BRN
BWLS00161109R10□00	0.1	7.9/7.9	17	1650	0.13	1500	5,10	RED
BWLS00161109R12□00	0.12	7.9/7.9	17	1350	0.15	1500	5,10	ORN
BWLS00161109R15□00	0.15	7.9/7.9	17	1350	0.15	1450	5,10	YEL
BWLS00161109R18□00	0.18	7.9/7.9	17	1150	0.15	1400	5,10	GRN
BWLS00161109R22□00	0.22	7.9/7.9	17	1050	0.16	1350	5,10	BLU
BWLS00161109R24□00	0.24	7.9/7.9	17	1050	0.19	1300	5,10	VIO
BWLS00161109R27□00	0.27	7.9/7.9	17	1050	0.3	1050	5,10	GRY
BWLS00161109R33□00	0.33	7.9/7.9	17	850	0.46	1200	5,10	WHT
BWLS00161109R39□00	0.39	7.9/7.9	17	810	0.51	1200	5,10	BLK
BWLS00161109R47□00	0.47	7.9/7.9	17	720	0.62	1050	5,10	BRN
BWLS00161109R56□00	0.56	7.9/7.9	17	600	0.44	850	5,10	RED
BWLS00161109R68□00	0.68	7.9/7.9	17	600	0.52	850	5,10	ORN
BWLS00161109R78□00	0.78	7.9/7.9	17	460	0.83	850	5,10	YEL
BWLS00161109R82□00	0.82	7.9/7.9	17	480	0.69	750	5,10	GRN
BWLS00161109R91□00	0.91	7.9/7.9	17	330	0.76	670	5,10	BLK
BWLS001611091R0□00	1	7.9/7.9	18	310	0.81	600	5,10	BLU
BWLS001611091R2□00	1.2	7.9/7.9	17	270	0.87	550	5,10	VIO
BWLS001611091R5□00	1.5	7.9/7.9	17	270	1.06	540	5,10	GRY
BWLS001611091R8□00	1.8	7.9/7.9	17	230	1.1	520	5,10	WHT
BWLS001611092R2□00	2.2	7.9/7.9	17	140	1.2	500	5,10	BLK
BWLS001611092R7□00	2.7	7.9/7.9	17	105	1.5	480	5,10	BRN
BWLS001611093R3□00	3.3	7.9/7.9	17	84	1.5	440	5,10	RED
BWLS001611093R9□00	3.9	7.9/7.9	17	80	1.6	430	5,10	ORN

NOTE: □-tolerance J=±5% / K=±10%

1.Operating temperature range －40℃ ~ 105℃(Including self - temperature rise)

2.L/Q Test OSC @200mV.

3.IDC for Inductance drop 10% from its value without current.

BWLS00161109 Series Specification

Part No.	Inductance (uH)	L/Q Test Freq. (MHz)	Q Typ.	SRF (MHz)Min.	RDC (Ω)Max.	IDC (mA)	Tolerance (±%)	Color Code 1st
BWLS001611094R7□00	4.7	7.9/7.9	18	69	2.1	420	5,10	YEL
BWLS001611095R6□00	5.6	7.9/7.9	18	65	2.6	400	5,10	GRN
BWLS001611096R8□00	6.8	7.9/7.9	19	55	3.1	400	5,10	BLU
BWLS001611097R8□00	7.8	7.9/7.9	17	47	3.5	400	5,10	VIO
BWLS001611098R2□00	8.2	7.9/7.9	17	42	3.8	400	5,10	GRY
BWLS00161109100□00	10	7.9/7.9	19	40	4.8	300	5,10	WHT

NOTE: □-tolerance J=±5% / K=±10%

1.Operating temperature range －40℃ ~ 105℃(Including self - temperature rise)

2.L/Q Test OSC @200mV.

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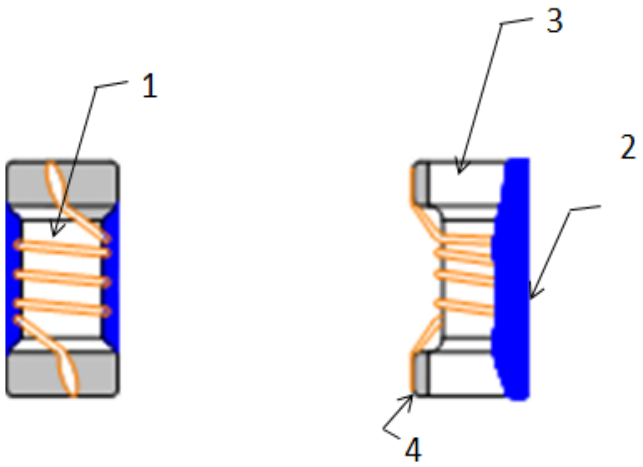
BWLS00161109 Series Specification

8 BWLS00161109 Series

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/Cu/Ni/Sn

BWLS00161109 Series Specification

9 Reliability Of Ferrite Wire Wound Chip Inductor/FERRITE SERIES

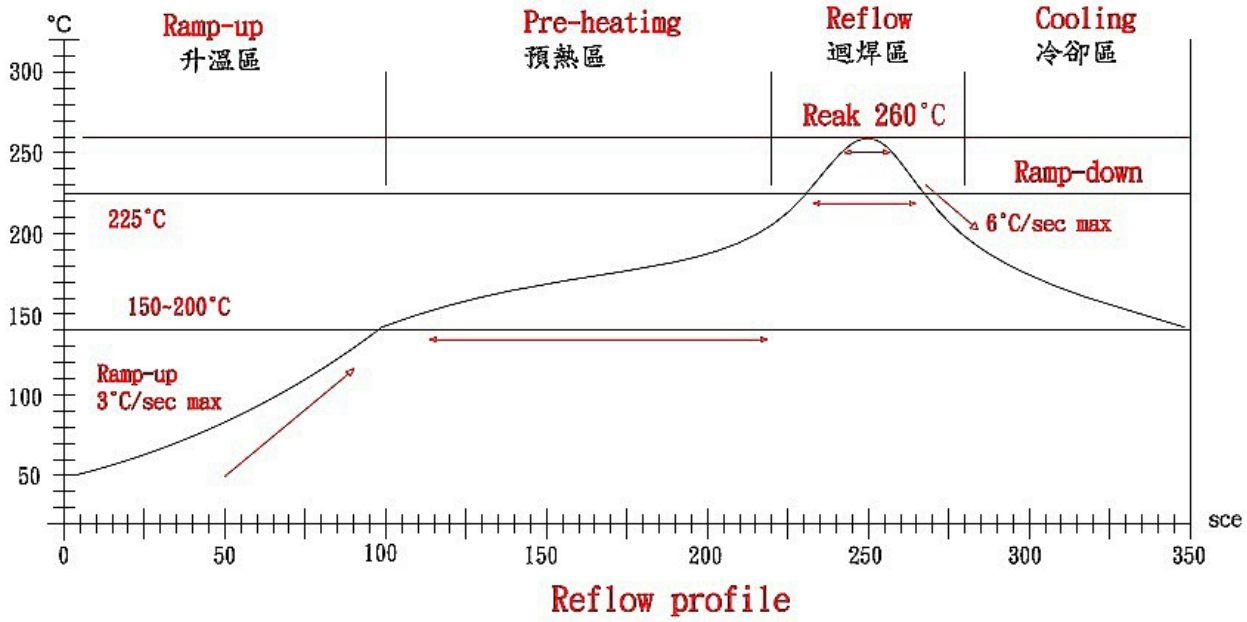
1-1.Environmental Performance

<table>
<tr><th>No</th><th>Item</th><th>Specification</th><th>Test Method</th></tr>
<tr><td>1-1-1</td><td>Temperature Cycle</td><td rowspan="3">Appearance: No Damage
Inductance:within±10% of initial value
Q change:within±30% of initial value</td><td>One cycle:
<table>
<tr><th>Step</th><th>Temperature (℃)</th><th>Time (min)</th></tr>
<tr><td>1</td><td>-40±3</td><td>30</td></tr>
<tr><td>2</td><td>25±2</td><td>3</td></tr>
<tr><td>3</td><td>105±3</td><td>30</td></tr>
<tr><td>4</td><td>25±2</td><td>3</td></tr>
</table>
Total: 5 cycles
Measured After Exposure in The Room Condition For 1hrs</td></tr>
<tr><td>1-1-2</td><td>High Temperature Resistance</td><td>Temperature: 85±3℃
Time: 1000Hrs
Measured After Exposure In The Room Condition For 1Hrs</td></tr>
<tr><td>1-1-3</td><td>Low Temperature Resistance</td><td>Temperature: -25±3℃
Time: 1000Hrs
Measured After Exposure In The Room Condition For 1Hrs</td></tr>
<tr><td>1-1-4</td><td>Humidity Load Life</td><td>There should be no evidence of short or open circle</td><td>Temperature: 40±2℃
Relative Humidity: 90~95%
Load: Allowed DC Current
Time: 96Hrs</td></tr>
</table>

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℃±5℃ 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℃,1min. 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Solder Temperature: 245±5℃. 4. Immersion Time: 4±1 sec.
1-2-3	Component Adhesion (Push Test)	1 Lbs. For 0402 1 Lbs. For 0603 2 Lbs. For 201614 2 Lbs. For 0805 4 Lbs. For The Rest	The device should be reflow soldered (245±5℃ 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 1or2or4 pounds without a failure of the termination attached to component

BWLS00161109 Series Specification



Reflow profile

Lead-Free(LF)標準溫度分析範圍 Refer to J-STD-020C

管制項目 Item.	升溫區 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℃	150℃ ~ 200℃	Above 217℃	260±5℃	Peak Temp.~150℃
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:

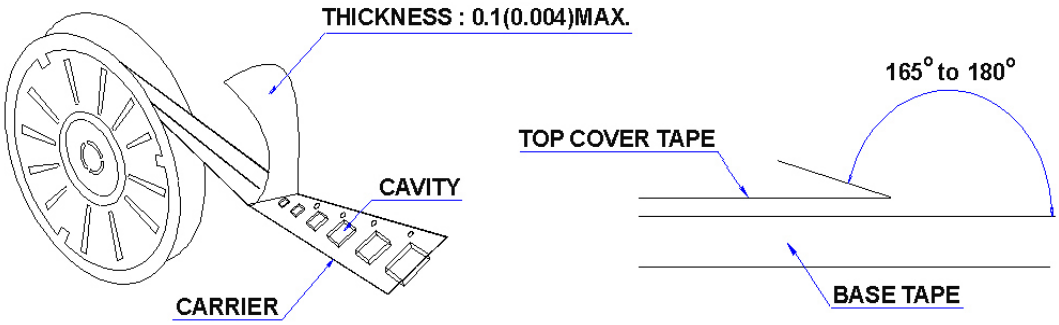
1.Re-flow possible times : within 3 times
2.Nitrogen adopted is recommendes while in re-flow
3.Products can only be soldered with reflow

BWLS00161109 Series Specification

10 Packaging:

10.1 Packaging -Cover Tape

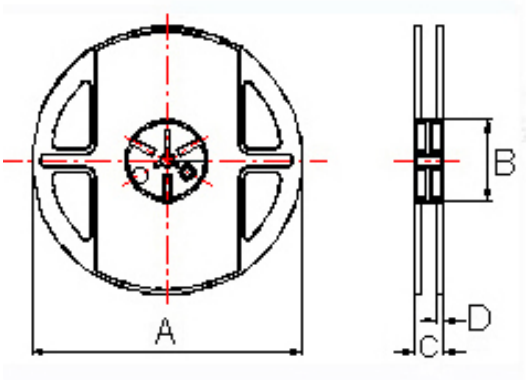
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
161109	4000

10.3 Reel Dimensions



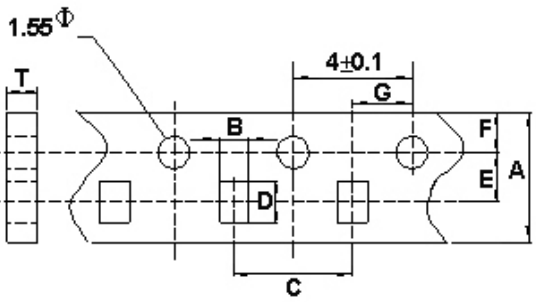
Dimensions in mm

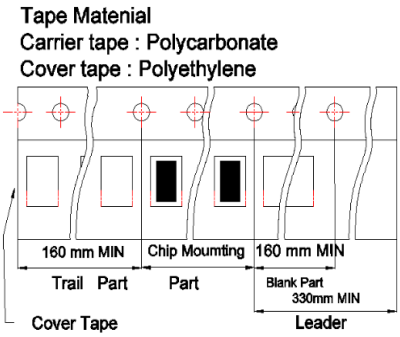
TYPE	A	B	C	D
161109	178±1	60±0.5	12±0.5	1.5±0.5

BWLS00161109 Series Specification

10 Packaging:

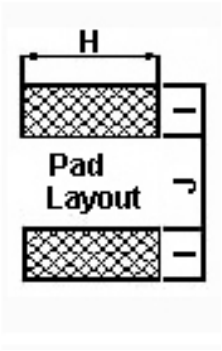
10.4 Tape Dimensions in mm





TYPE	A	B	C	D	E	F	G	T
161109	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)
161109	0.04/1.02	0.025/0.64	0.025/0.64

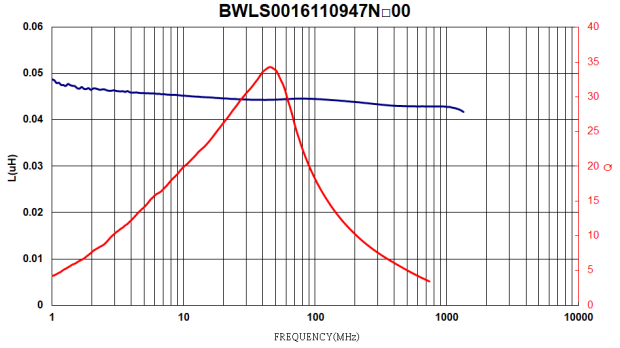
12 Note:

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% RHor 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.

BWLS00161109 Series Specification

13 Graph:

BWLS0016110947N□00



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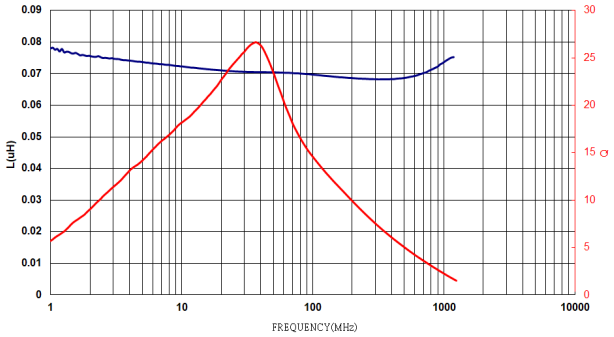

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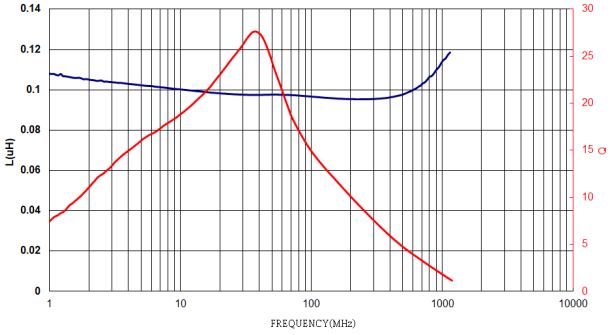

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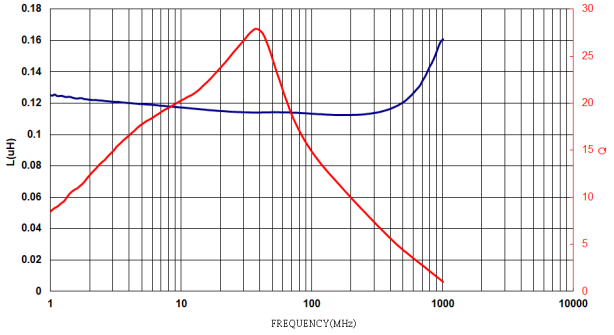

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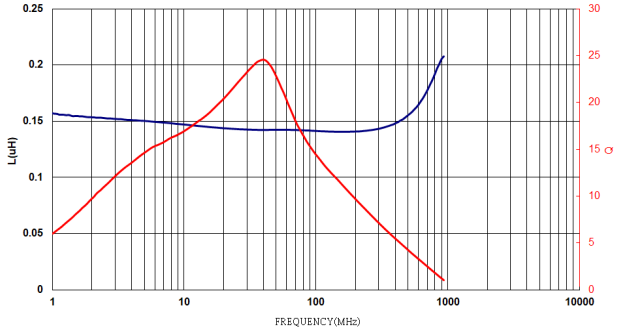

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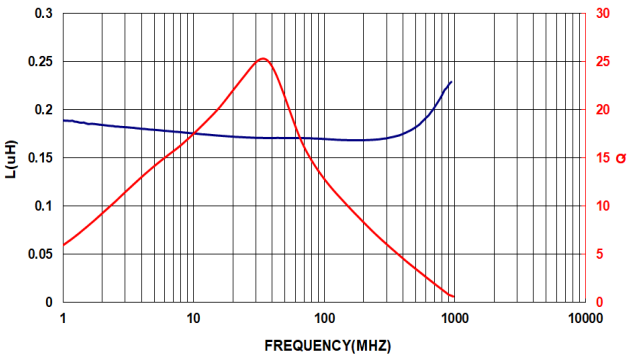

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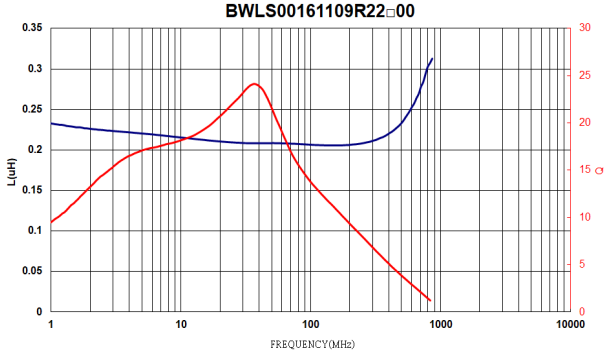

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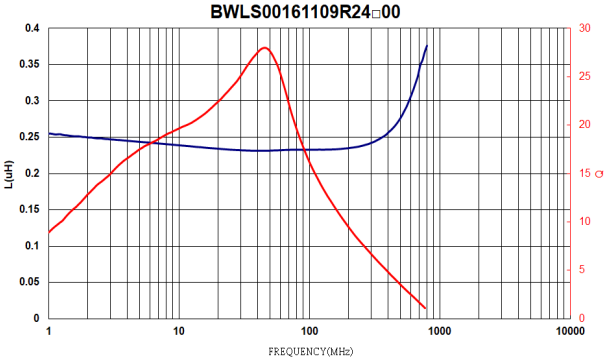
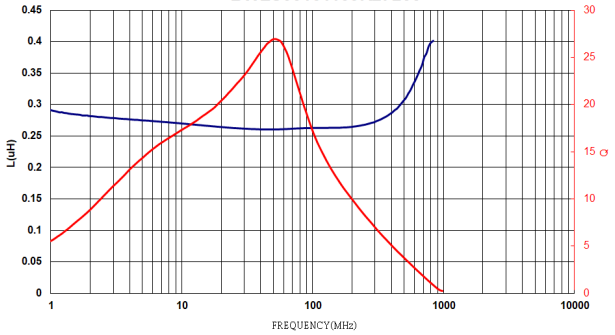


BWLS00161109 Series Specification

BWLS00161109R27□00



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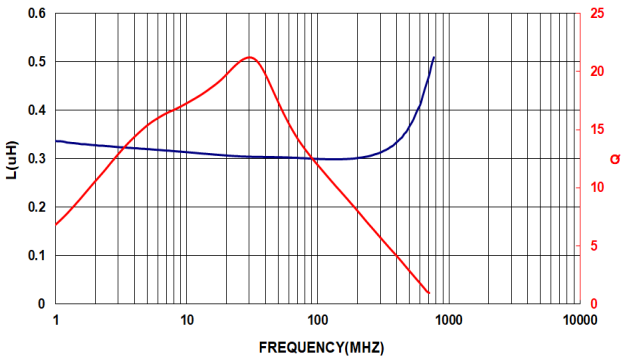

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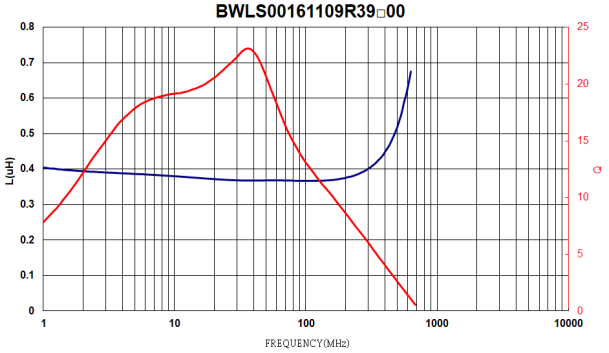

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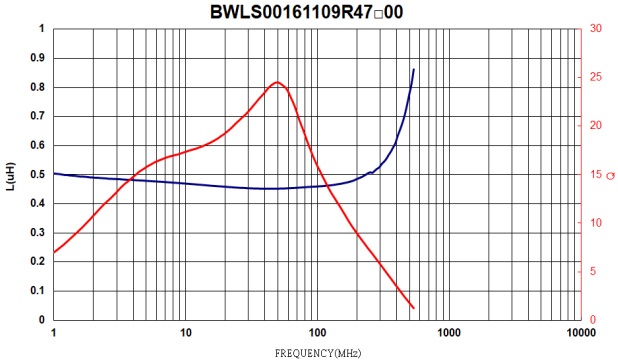

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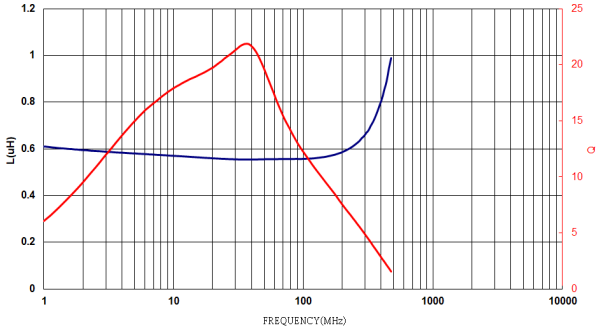

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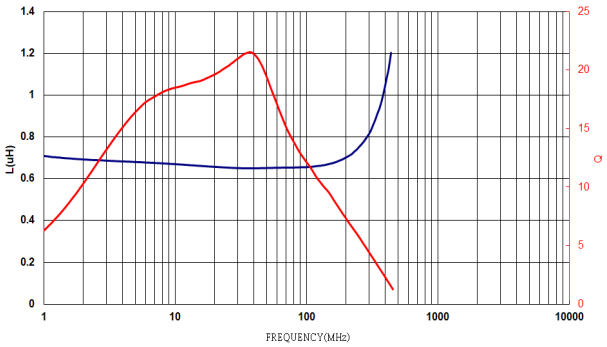

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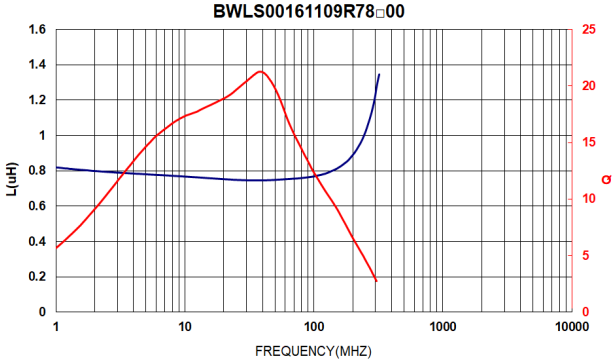

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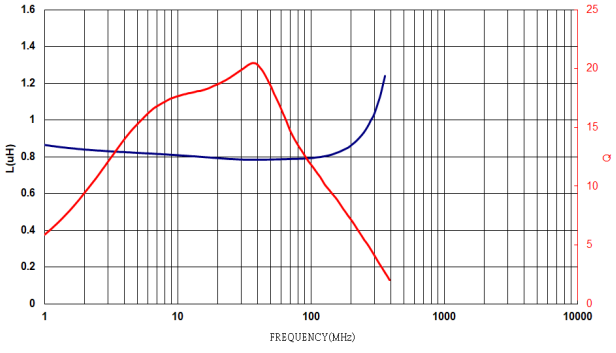
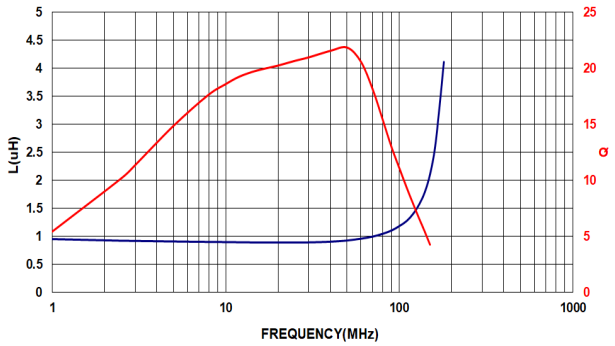


BWLS00161109 Series Specification

BWLS00161109R91□00



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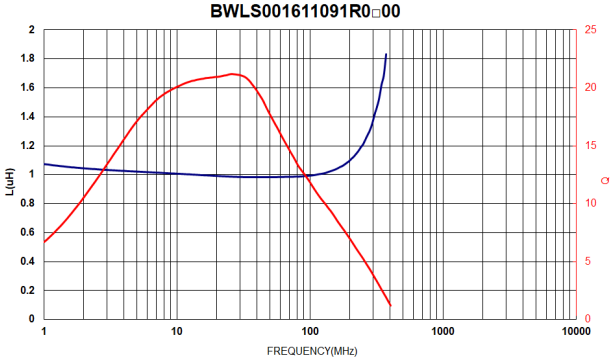

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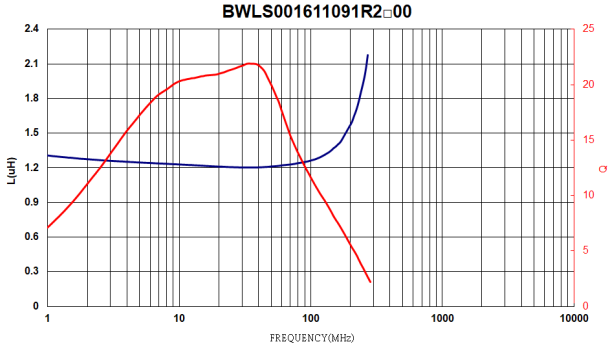

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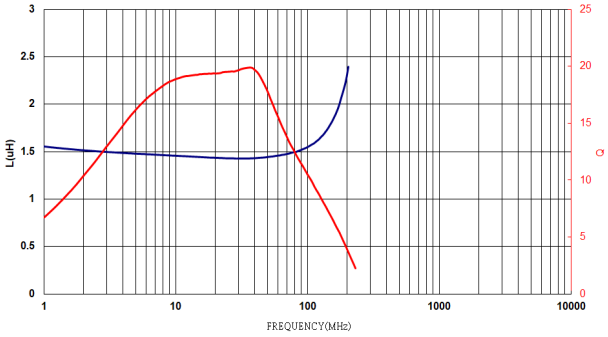

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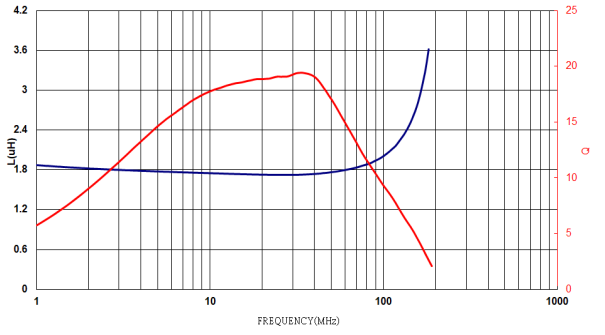

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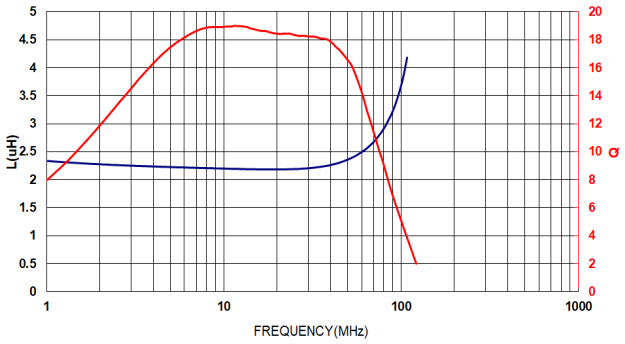

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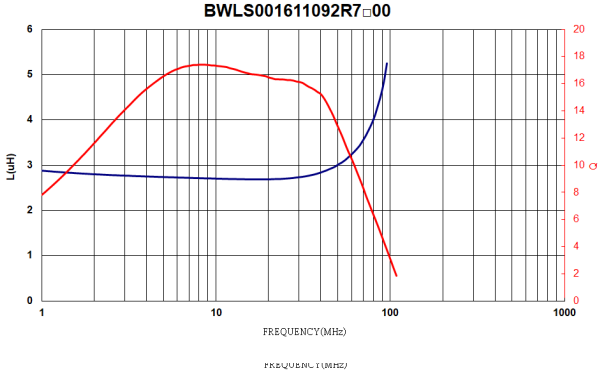

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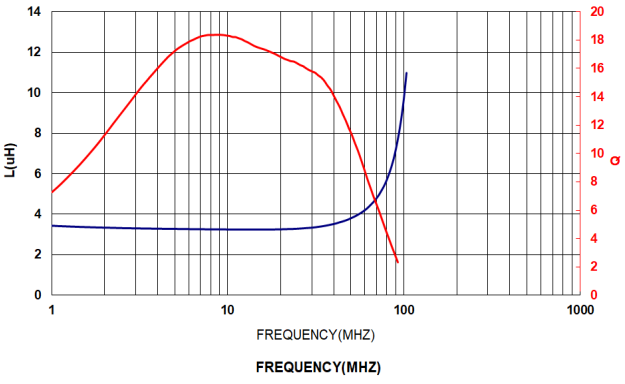
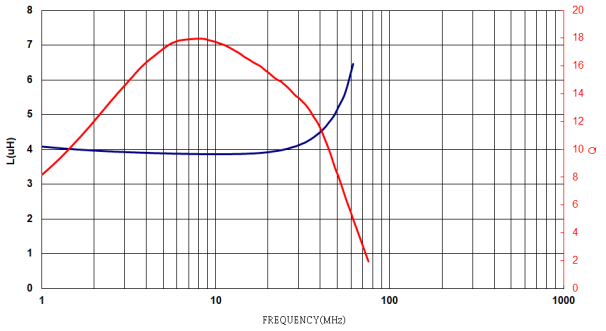


BWLS00161109 Series Specification

BWLS001611093R9□00



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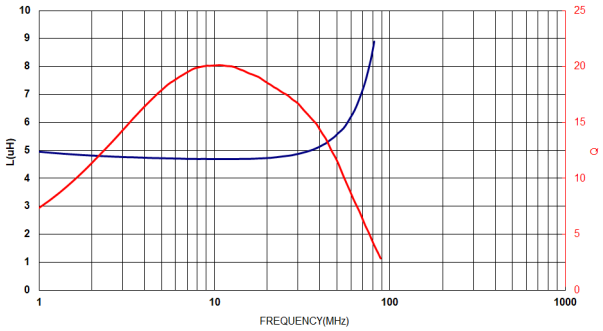

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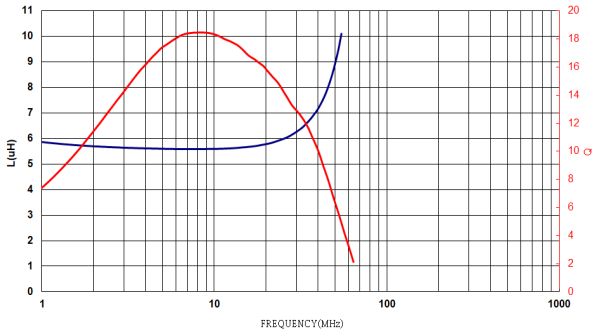

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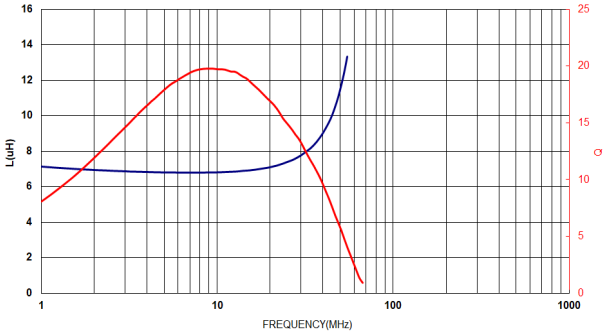

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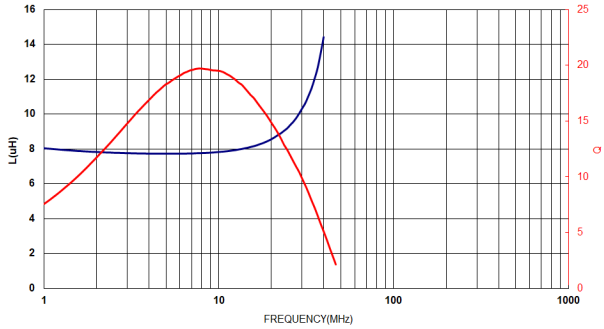

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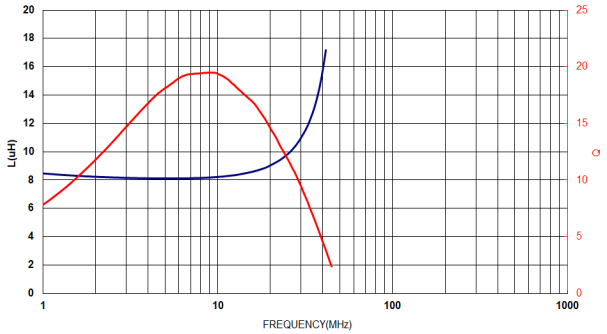
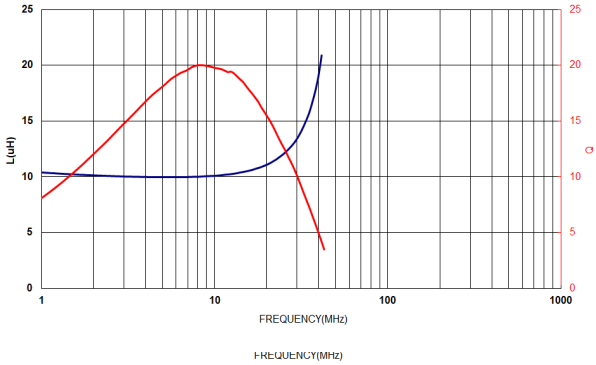
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