RF Inductor

BWHQ 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

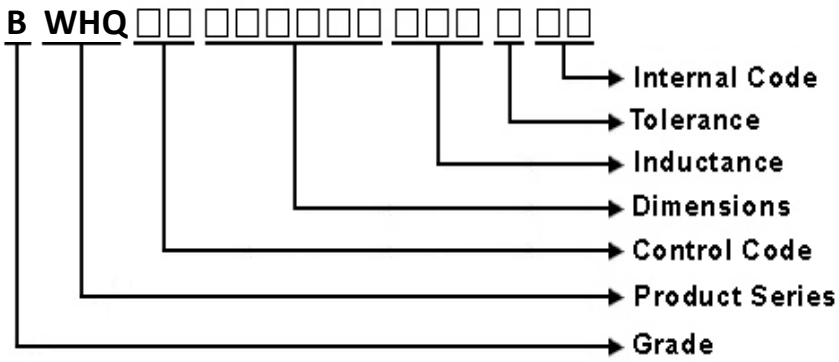
Product Information

Series	Size Code (JIS/EIA)	Inductance (nH)
BWHQ	2012/0805 2520/1008 4938/1812	2.5 ~ 390

BWHQ00231816 Series Specification

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

2 Part Numbering:

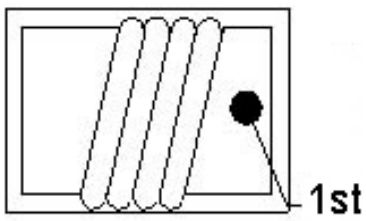


3 Rating:

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

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

4 Marking:



EX Marking:1st→RED

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

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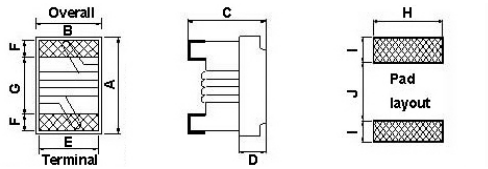
6 Configuration and Dimensions and Unit Weight:



Dimensions in mm

TYPE	A	B	C	D	E	F	G	H	I	J
231816	2.29Max.	1.78Max.	1.56Max.	0.5	1.27	0.44	1.27	1.8	1.02	0.76

Net Weight (grms)

SIZE CODE	Net Weight (grms)
231816	0.01 (typ.)

7 Electrical Characteristics:

Part No.	Inductance (nH)	L/Q Test Freq. (MHz)	Q Min.	SRF (MHz)Min.	RDC (Ω)Max.	Irms (mA)Max.	Tolerance (±%)	Color Code 1st
BWHQ002318162N5□00	2.5	250/1500	80	6000	0.02	1600	10,5	BLK
BWHQ002318165N6□00	5.6	250/1500	98	6000	0.035	1600	10,5,2	BRN
BWHQ002318166N2□00	6.2	250/1000	88	4750	0.035	1600	10,5	RED
BWHQ0023181612N□00	12	250/1000	80	3000	0.045	1600	10,5	ORN
BWHQ0023181616N□00	16	250/500	72	2950	0.06	1500	10,5,2	YEL
BWHQ0023181618N□00	18	250/500	75	2550	0.06	1400	10,5,2	GRN
BWHQ0023181620N□00	20	250/500	70	2050	0.055	1400	10,5,2	BLU
BWHQ0023181622N□00	22	250/500	70	2025	0.055	1400	10,5,2	RED
BWHQ0023181627N□00	27	250/500	75	2000	0.07	1300	10,5,2	VIO
BWHQ0023181630N□00	30	250/500	65	1950	0.095	1200	10,5,2	GRY
BWHQ0023181639N□00	39	250/500	65	1600	0.095	1100	10,5,2	WHT
BWHQ0023181648N□00	48	200/500	65	1400	0.11	1200	10,5,2	BLK
BWHQ0023181651N□00	51	200/500	65	1400	0.12	1000	10,5,2	BRN

NOTE: □-tolerance G=±2% / J=±5% / K=±10% / M=±20%

1.Operating temperature range －４０℃～１２５℃(Including self - temperature rise)

2.Irms for a 15℃ temperature rise from 25℃ ambient.

3.L/Q Test OSC @200mV.

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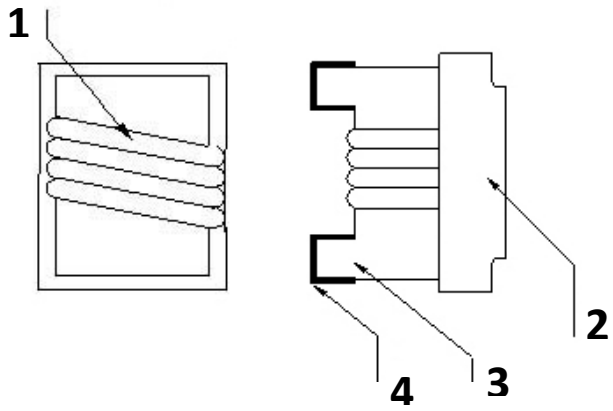
8 BWHQ00231816 Series

8.1 Construction:



8.2 Material List:

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

BWHQ00231816 Series Specification

9 Reliability Of Ceramic Wire Wound Chip Inductor/CERAMIC SERIES

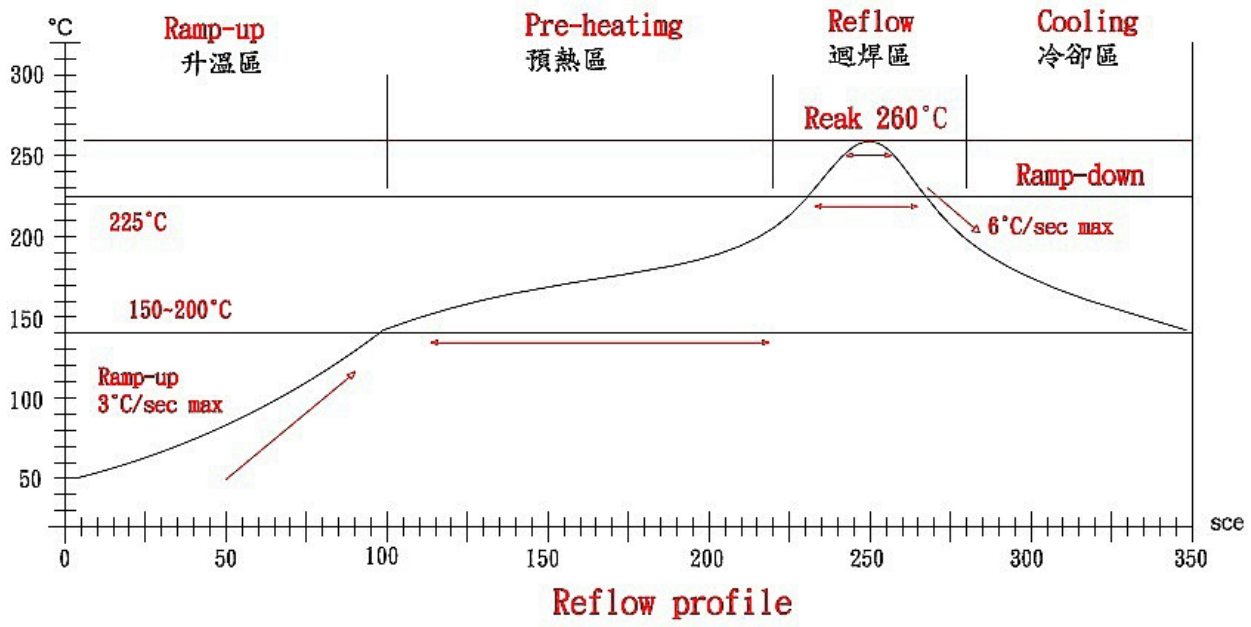
1-1.Environmental Performance

<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:
Step | Temperature (℃) | Time (min)
1 | -40±3 | 30
2 | 25±2 | 15
3 | 125±3 | 30
4 | 25±2 | 15
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: 125±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: -40±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	Vibration Test (Low Frequency)	1.Appearance: No Damage 2.Inductance:within±10% of initial value 3.Q change:within±30% of initial value	1. Test device shall be soldered on the substrate. 2. Oscillation frequency: 10 to 55 to 10Hz for 1min. 3. Amplitude: 1.5mm 4. Time: 2hrs for each axis(X, Y & Z),total 6hrs
1-2-2	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
1-2-3	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.
1-2-4	Component Adhesion (Push Test)	1 Lbs. For 0402 2 Lbs. For 0603 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 2 or 4 pounds without a failure of the termination attached to component

BWHQ00231816 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°C	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 2 times
2. Nitrogen adopted is recommended while in re-flow
3. Products can only be soldered with reflow

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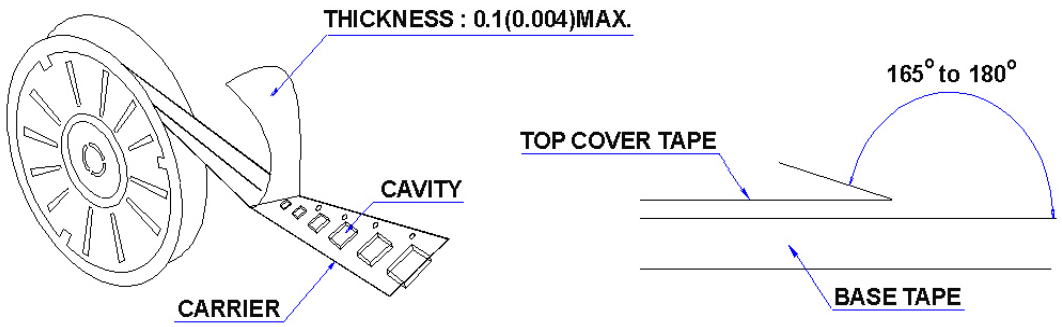
10 Packaging:

10.1 Packaging -Cover Tape

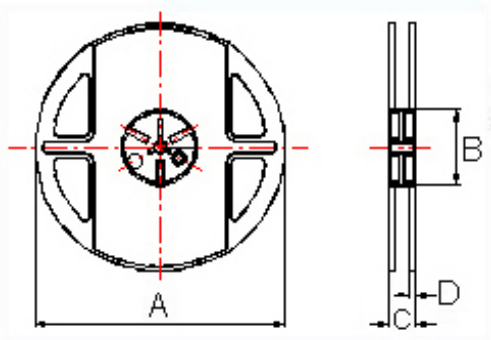
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
231816	2000

10.3 Reel Dimensions



Dimensions in mm

TYPE	A	B	C	D
231816	178±1	60±0.5	12±0.5	1.5±0.5

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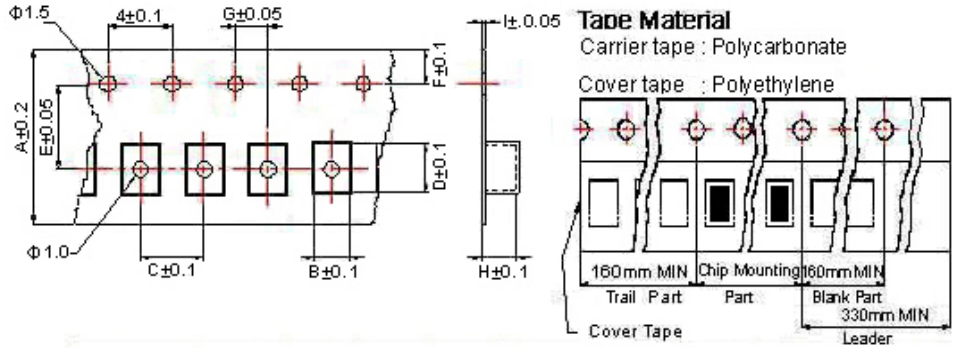
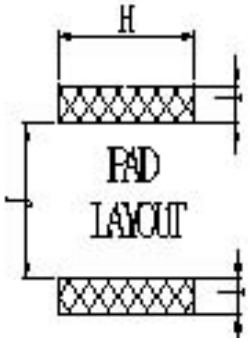
10 Packaging:

10.4 Tape Dimensions in mm



TYPE	A	B	C	D	E	F	G	H	I
231816	8	1.85	4	2.45	3.5	1.75	2	1.50	0.23

11 Recommended Land Pattern:



Dimensions in mm

TYPE	H(In/mm)	I(In/mm)	J(In/mm)
231816	0.07/1.78	0.04/1.02	0.03/0.76

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.

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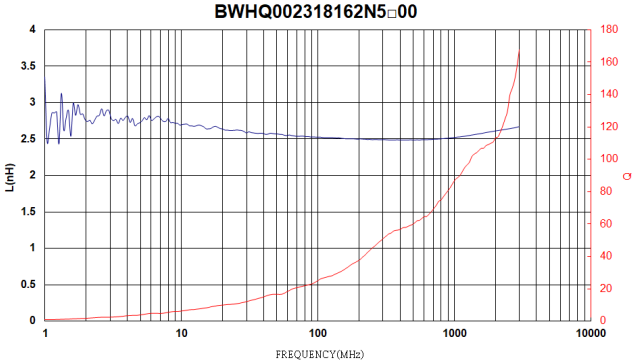
13 Graph:

BWHQ002318162N5□00



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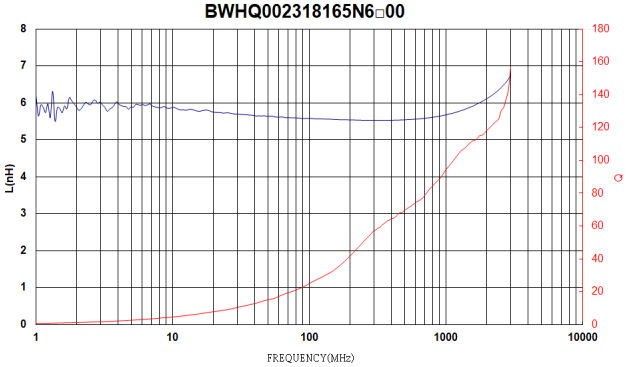

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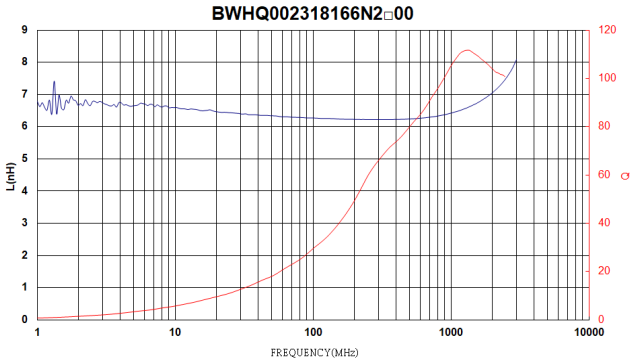

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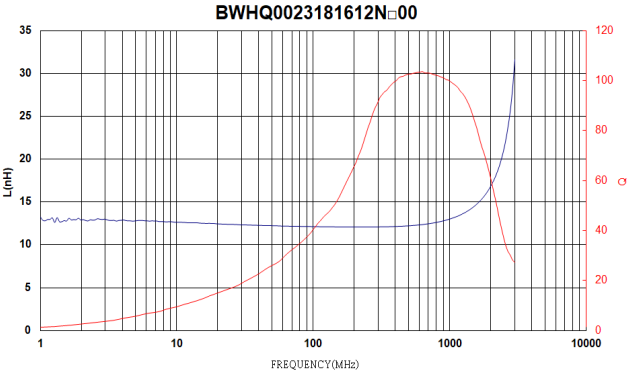

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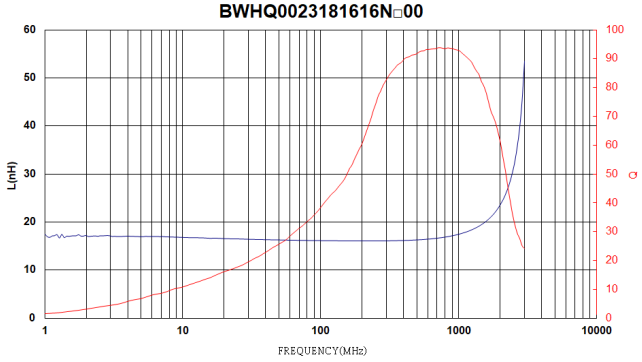

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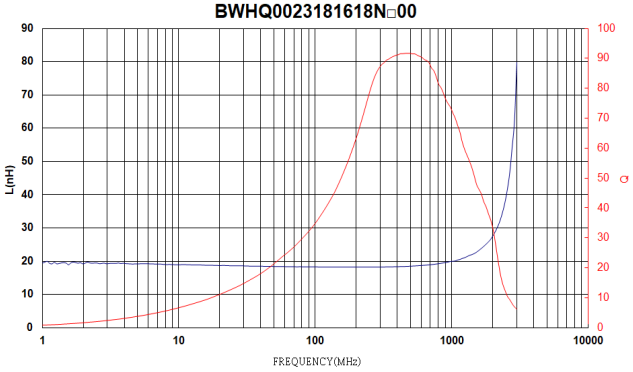

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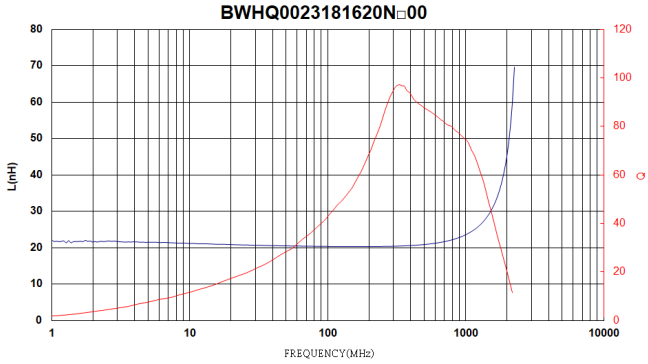

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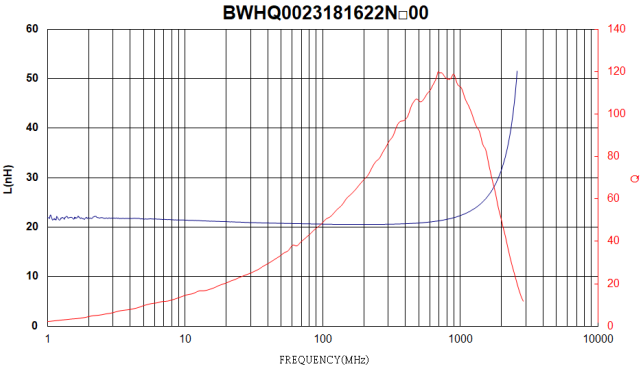

BWHQ00231816 Series Specification

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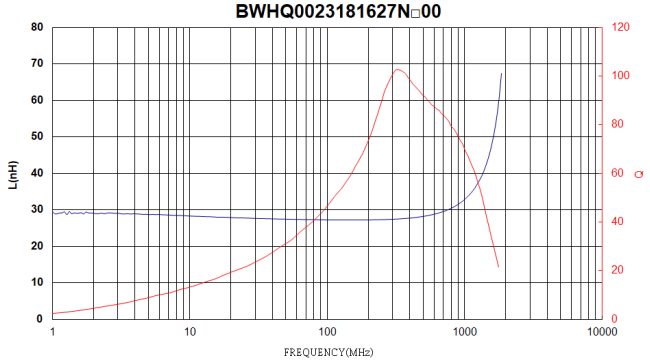

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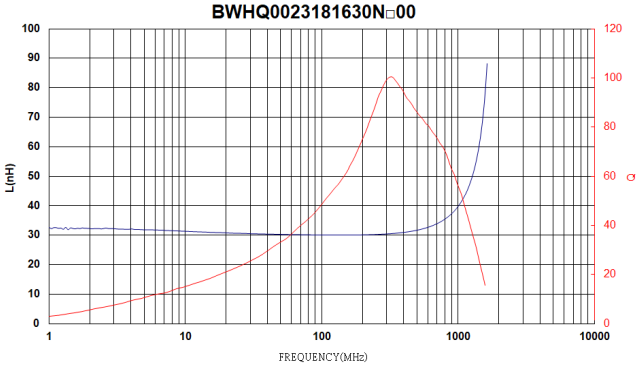

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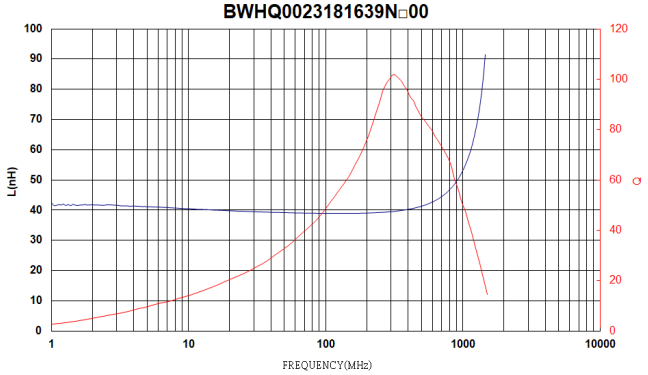

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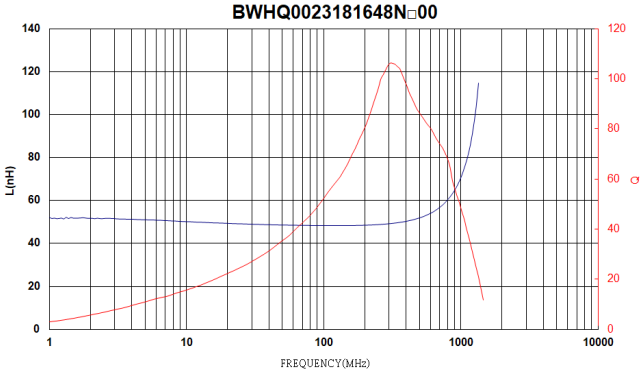

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