

RF Inductor



BWCM 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

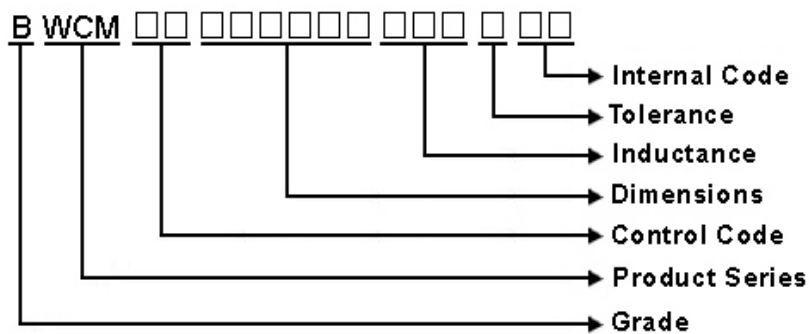
Series	Size Code (JIS/EIA)	Inductance (nH)
BWCM	0603/0201	1 ~ 470
	1005/0402	
	1608/0603	



BWCM00181010 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:

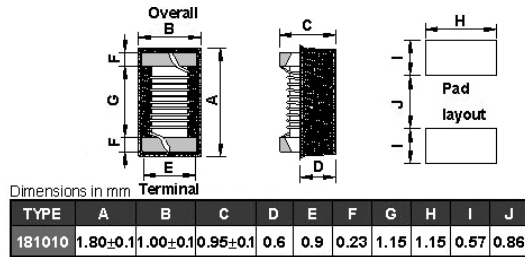
No Marking

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:



Net Weight (grms)	
SIZE CODE	Net Weight (grms)
181010	0.00449 (typ.)

7 Electrical Characteristics:

Part No.	Inductance (nH)	L/Q Test		Q Typ.	SRF (MHz)Min.	RDC (Ω)Max.	I _{rms} (mA)Typ.	Tolerance
		Freq. (MHz)						
BWCM00181010R10□H8	100	100/150		34	1750	0.63	490	J,G
BWCM00181010R11□H8	110	100/150		32	1730	0.7	450	J,G
BWCM00181010R12□H8	120	100/150		32	1650	0.72	450	J,G
BWCM00181010R15□H8	150	100/150		28	1580	0.87	420	J,G
BWCM00181010R18□H8	180	100/100		25	1380	1.65	310	J,G
BWCM00181010R20□H8	200	100/100		25	1350	1.74	290	J,G
BWCM00181010R21□H8	210	100/100		27	1330	1.98	280	J,G
BWCM00181010R22□H8	220	100/100		25	1330	2.08	280	J,G
BWCM00181010R25□H8	250	100/100		24	1330	2.28	250	J,G
BWCM00181010R27□H8	270	100/100		24	1250	2.42	260	J,G
BWCM00181010R30□H8	300	100/100		25	1200	3.12	220	J,G
BWCM00181010R33□H8	330	100/100		25	1100	3.84	190	J,G
BWCM00181010R36□H8	360	100/100		25	1050	3.98	190	J,G
BWCM00181010R39□H8	390	100/100		25	1000	4.23	190	J,G

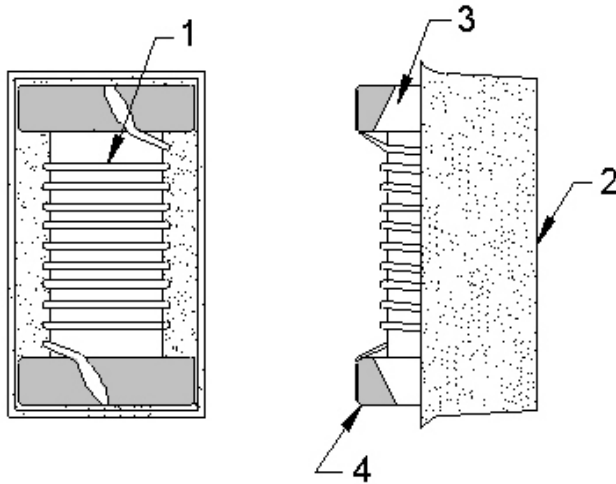
NOTE: □-tolerance B=±0.1nH / C=±0.2nH / D=±0.5nH / G=±2% / J=±5%

- Operating temperature range - 4 0 °C ~ 1 2 5 °C(Including self - temperature rise)
- I_{rms} for a 15°C temperature rise from 25°C ambient.
- L/Q Test OSC @200mV.
- Inductance would be correct Chilisin standard piece.
- Offset value : -0.771nH

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8 BWCM00110705 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/Ni/Sn

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9 Reliability Of Ceramic Wire Wound Chip Inductor/CERAMIC SERIES

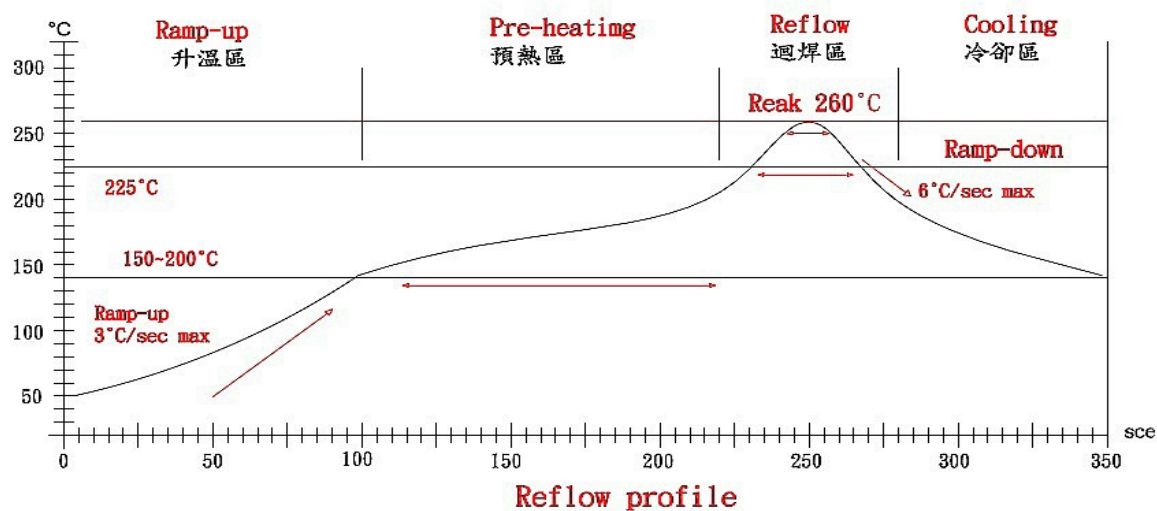
1-1.Environmental Performance

No	Item	Specification	Test Method		
1-1-1	Temperature Cycle	Appearance: No Damage Inductance:within±10% of initial value Q change:within±30% of initial value	One cycle:		
			Step	Temperature (°C)	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		
1-1-2	High Temperature Resistance		Temperature: 125±3°C Time:1000Hrs Measured After Exposure In The Room Condition For 1Hrs		
1-1-3	Low Temperature Resistance		Temperature: -40±3°C Time: 1000Hrs Measured After Exposure In The Room Condition For 1Hrs		
1-1-4	Humidity Load Life		Temperature: 40±2°C Relative Humidity: 90~95% Load: Allowed DC Current Time: 96Hrs		
		There should be no evidence of short or open circle			

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	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 $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 10 seconds) 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Test time: 6 minutes
1-2-3	Solder ability	The electrodes shall be at least 95% covered with new solder coating	1. Pre-Heating: 150°C , 1min. 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Solder Temperature: $245\pm 5^{\circ}\text{C}$. 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 ($245\pm 5^{\circ}\text{C}$ 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

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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°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:

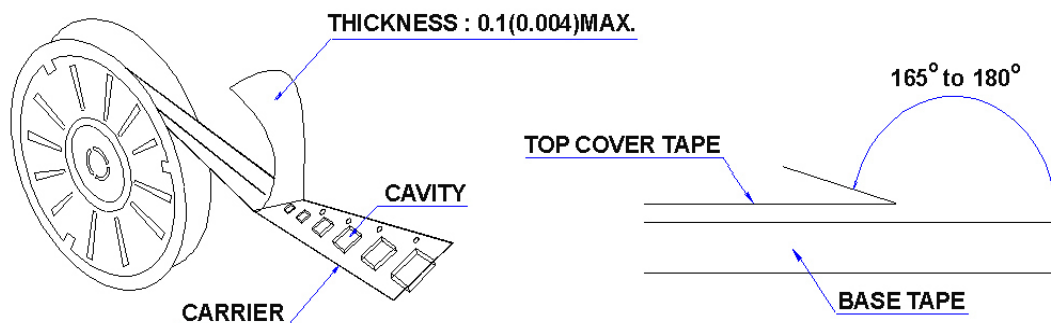
- 1.Re-flow possible times : within 3 times
- 2.Nitrogen adopted is recommends while in re-flow
- 3.Products can only be soldered with reflow

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10 Packaging:

10.1 Packaging -Cover Tape

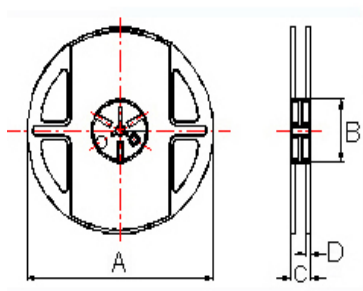
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
181010	4000

10.3 Reel Dimensions



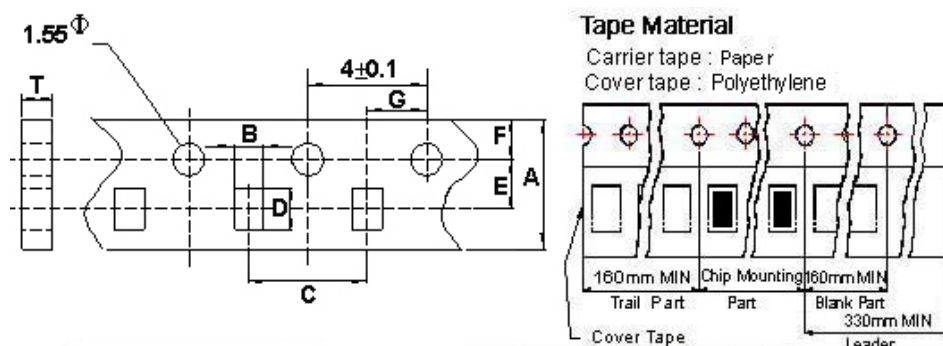
Dimensions in mm

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

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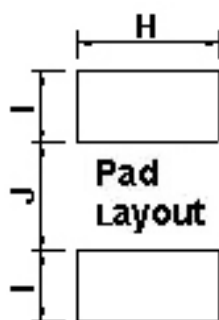
10 Packaging:

10.4 Tape Dimensions in mm



TYPE	A	B	C	D	E	F	G	T
181010	8.0	1.20	4	2	3.5	1.75	2	1.1

11 Recommended Land Pattern:



Dimensions in mm

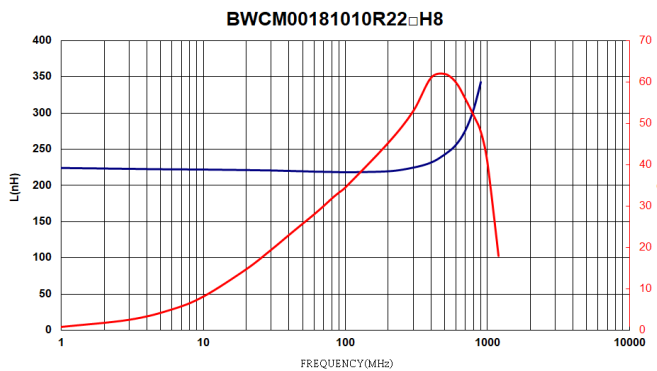
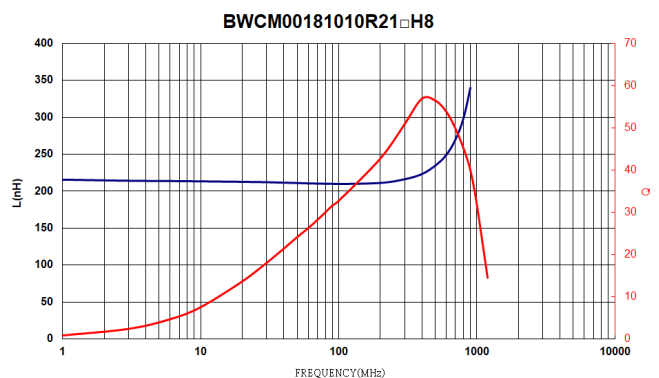
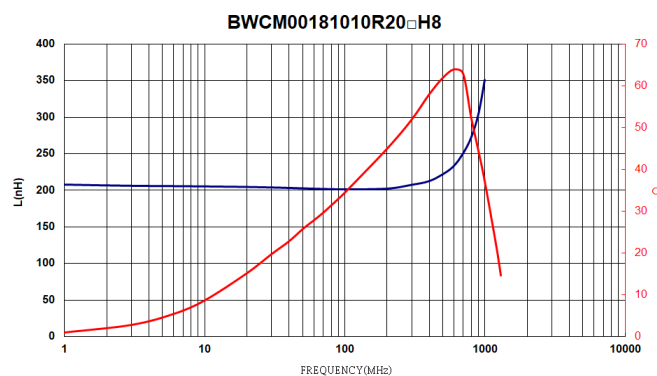
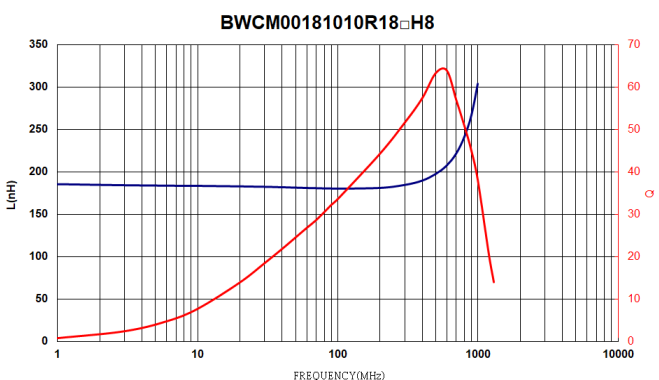
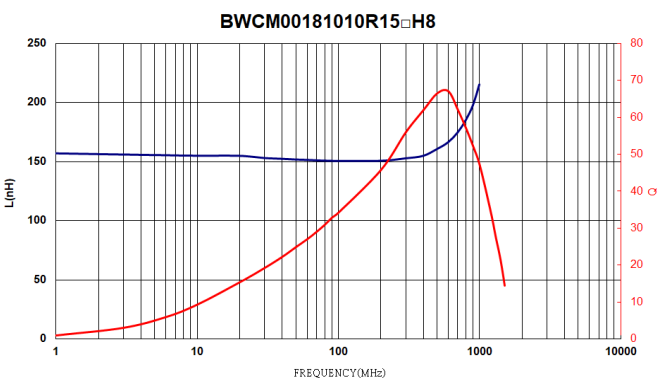
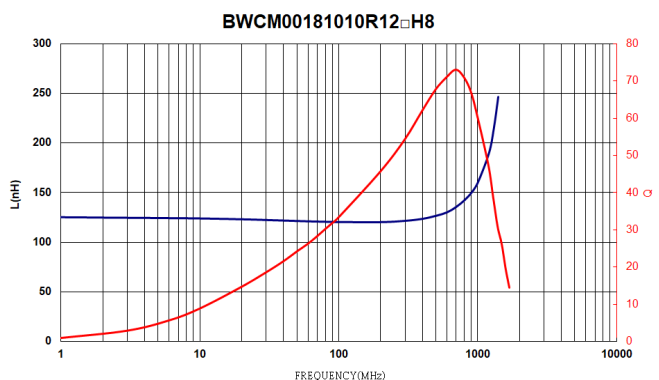
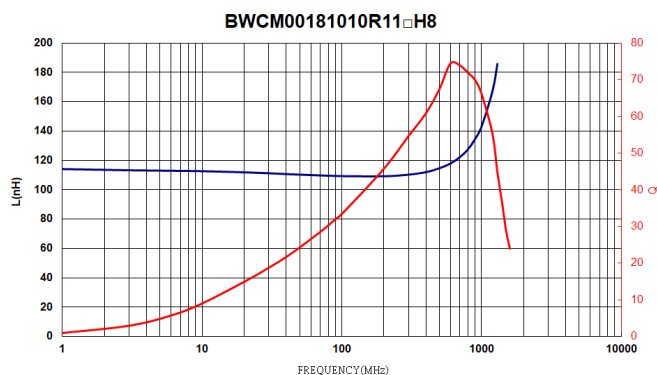
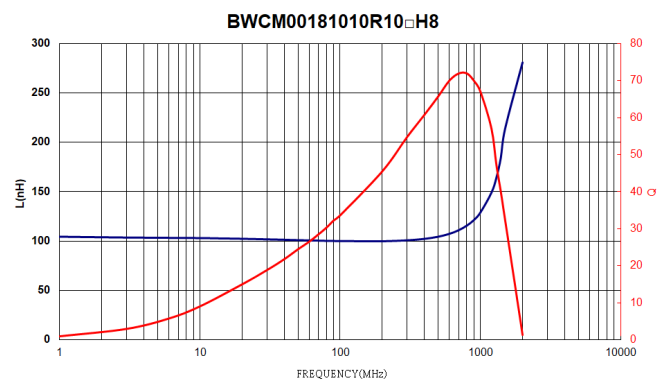
TYPE	H(In/mm)	I(In/mm)	J(In/mm)
181010	0.045/1.15	0.022/0.57	0.034/0.86

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.

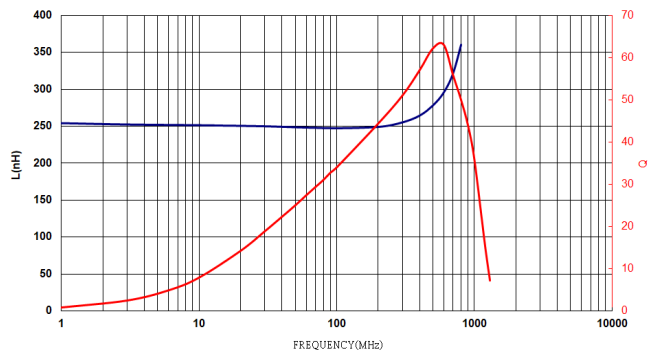
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13 Graph:

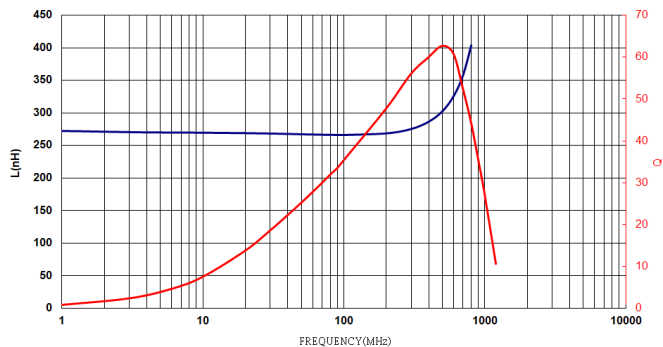


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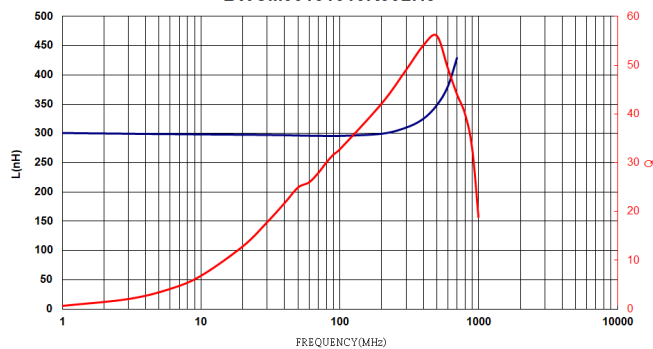
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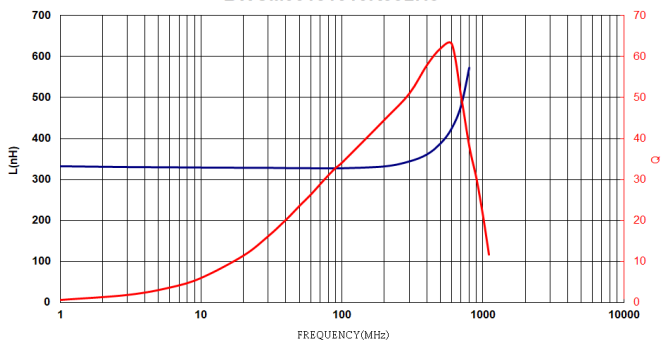
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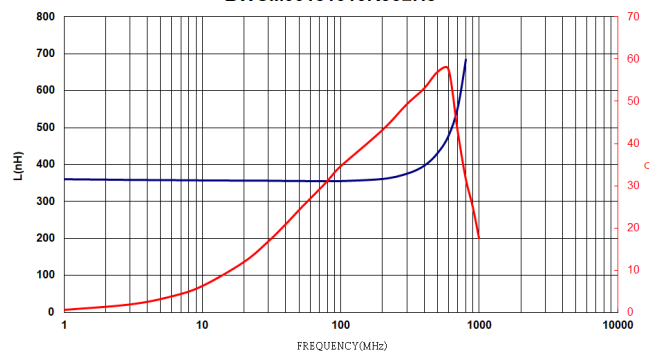
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BWCM00181010R33□H8



BWCM00181010R36□H8



BWCM00181010R39□H8

