

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

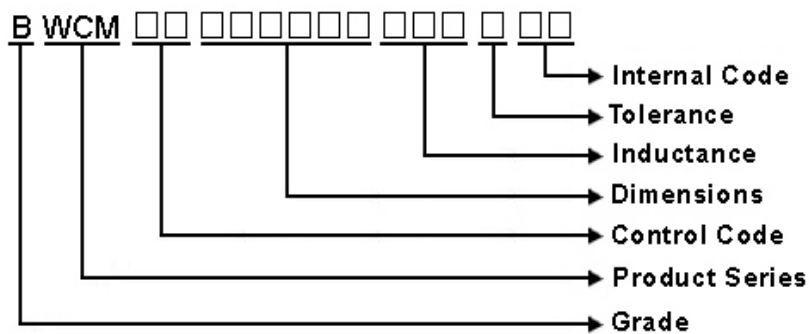
Series	Size Code (JIS/EIA)	Inductance (nH)
BWCM	0603/0201	1 ~ 470
	1005/0402	
	1608/0603	



BWCM00110705 Series Specification

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

2 Part Numbering:



3 Rating:

Operating Temperature: - 4 0 °C ~ 1 2 5 °C

(Including self - temperature rise)

Storage Temperature: - 4 0 °C ~ 1 2 5 °C

(The storage temperature range is for after the assembly)

4 Marking:

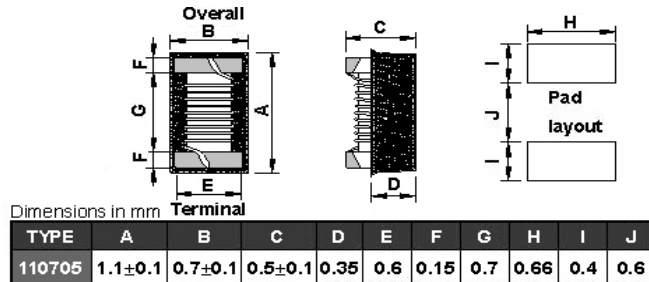
No Marking

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

BWCM00110705 Series Specification

6 Configuration and Dimensions and Unit Weight:



Net Weight (grms)

SIZE CODE	Net Weight (grms)
110705	0.0008 (typ.)

7 Electrical Characteristics:

Part No.	Inductance (nH)	L/Q Test Freq. (MHz)	Q Typ.	SRF (MHz)Min.	RDC (Ω)Max.	Irms (mA)Typ.	Tolerance
BWCM001107051N5□H8	1.5	100/250	20	18000	0.028	2100	C,D
BWCM001107051N6□H8	1.6	100/250	20	18000	0.045	1450	C,D
BWCM001107052N5□H8	2.5	100/250	30	15500	0.03	2100	B,C,D,G
BWCM001107052N7□H8	2.7	100/250	28	14000	0.047	1500	B,C,D,G
BWCM001107053N0□H8	3	100/250	20	12500	0.063	1350	B,C,D,G
BWCM001107053N8□H8	3.8	100/250	35	10000	0.03	1950	B,C,D,G
BWCM001107053N9□H8	3.9	100/250	35	10000	0.03	1950	B,C,D,G
BWCM001107054N0□H8	4	100/250	30	10000	0.03	1950	B,C,D,G
BWCM001107054N1□H8	4.1	100/250	30	9600	0.044	1800	B,C,D,G
BWCM001107054N3□H8	4.3	100/250	32	9600	0.044	1800	B,C,D,G
BWCM001107054N5□H8	4.5	100/250	31	8000	0.071	1200	B,C,D,G,J
BWCM001107054N7□H8	4.7	100/250	31	8000	0.071	1200	B,C,D,G
BWCM001107055N8□H8	5.8	100/250	30	8000	0.04	1770	B,C,D,G
BWCM001107056N2□H8	6.2	100/250	33	8000	0.056	1600	B,C,D,G
BWCM001107056N8□H8	6.8	100/250	30	7000	0.068	1450	G,J
BWCM001107057N1□H8	7.1	100/250	32	7000	0.069	1420	G,J
BWCM001107057N8□H8	7.8	100/250	30	7000	0.05	1700	G,J
BWCM001107057N9□H8	7.9	100/250	30	7000	0.05	1700	G,J
BWCM001107058N0□H8	8	100/250	30	7000	0.05	1700	G,J
BWCM001107058N2□H8	8.2	100/250	32	6500	0.069	1500	G,J
BWCM001107058N6□H8	8.6	100/250	31	6500	0.07	1420	G,J
BWCM001107058N7□H8	8.7	100/250	31	6500	0.07	1420	G,J
BWCM001107058N8□H8	8.8	100/250	31	6500	0.07	1420	G,J
BWCM001107058N9□H8	8.9	100/250	31	6500	0.07	1420	G,J
BWCM001107059N0□H8	9	100/250	30	6500	0.07	1420	G,J

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

1. Operating temperature range - 40°C ~ 125°C

2. I_{rms} for a 15°C temperature rise from 25°C ambient.

3. L/Q Test OSC @200mV.

4. Inductance would be correct Chilisin standard piece.

5. Offset value : -0.556nH

6. weight: 0.0008(typ.)

BWCM00110705 Series Specification

Part No.	Inductance (nH)	L/Q Test Freq. (MHz)	Q Typ.	SRF (MHz)Min.	RDC (Ω)Max.	Irms (mA)Typ.	Tolerance
BWCM001107059N□H8	9.1	100/250	32	6500	0.08	1400	G,J
BWCM0011070511N□H8	11	100/250	32	6200	0.083	1400	G,J
BWCM0011070515N□H8	15	100/250	31	5500	0.114	1150	G,J
BWCM0011070517N□H8	17	100/250	30	5200	0.126	1050	G,J
BWCM0011070518N□H8	18	100/250	30	5200	0.13	1050	G,J
BWCM0011070519N□H8	19	100/250	30	5000	0.156	920	G,J
BWCM0011070520N□H8	20	100/250	30	4500	0.186	800	G,J
BWCM0011070523N□H8	23	100/250	29	4500	0.201	760	G,J
BWCM0011070524N□H8	24	100/250	31	4000	0.212	770	G,J
BWCM0011070527N□H8	27	100/250	30	4000	0.288	680	G,J
BWCM0011070533N□H8	33	100/250	30	3600	0.336	620	G,J
BWCM0011070539N□H8	39	100/250	28	3400	0.456	530	G,J
BWCM0011070547N□H8	47	100/200	25	3200	0.648	440	G,J
BWCM0011070551N□H8	51	100/200	25	2900	0.696	415	G,J
BWCM0011070553N□H8	53	100/200	25	2900	0.696	415	G,J
BWCM0011070556N□H8	56	100/200	25	2900	0.996	340	G,J
BWCM0011070568N□H8	68	100/200	25	2500	1.128	320	G,J
BWCM0011070575N□H8	75	100/200	25	2400	1.224	320	G,J

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

1. Operating temperature range - 40 °C ~ 125 °C

2. Irms for a 15°C temperature rise from 25°C ambient.

3. L/Q Test OSC @200mV.

4. Inductance would be correct Chilisin standard piece.

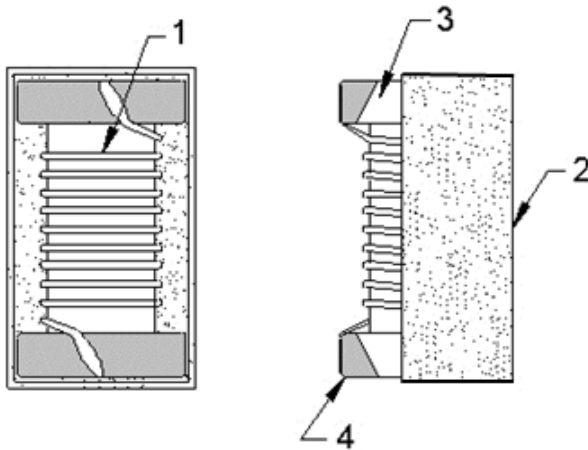
5. Offset value : -0.556nH

6. weight: 0.0008(typ.)

BWCM00110705 Series Specification

8 BWCM00110705 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

BWCM00110705 Series Specification

9 Reliability Of Ceramic Wire Wound Chip Inductor/CERAMIC SERIES

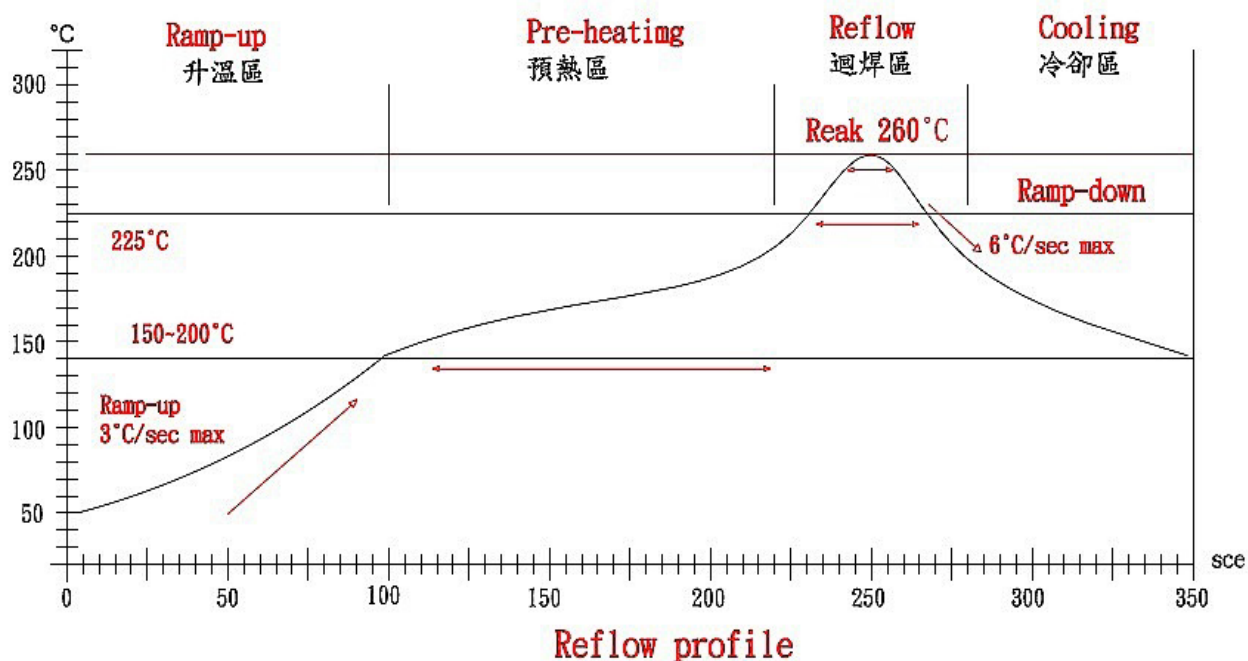
1-1.Environmental Performance

No	Item	Specification	Test Method		
1-1-1	Temperature Cycle	Appearance: No Damage Inductance:within±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	There should be no evidence of short or open circle	Temperature: 40±2°C Relative Humidity: 90~95% Load: Allowed DC Current Time: 96Hrs		

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

BWCM00110705 Series Specification



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:

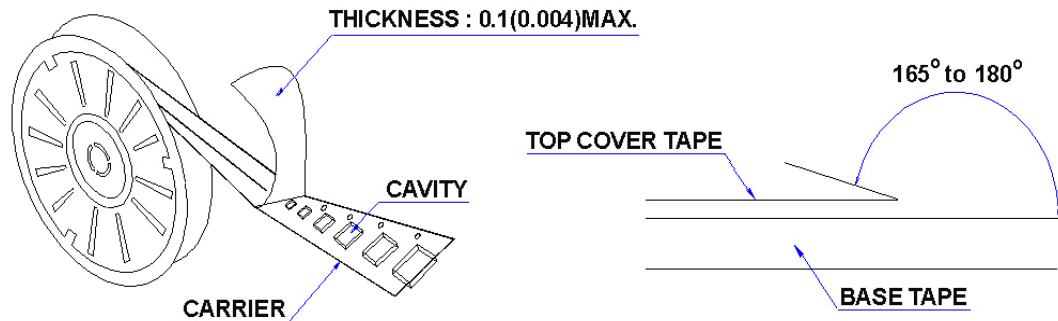
- 1.Re-flow possible times : within 3 times
- 2.Nitrogen adopted is recommends while in re-flow
- 3.Products can only be soldered with reflow

BWCM00110705 Series Specification

10 Packaging:

10.1 Packaging -Cover Tape

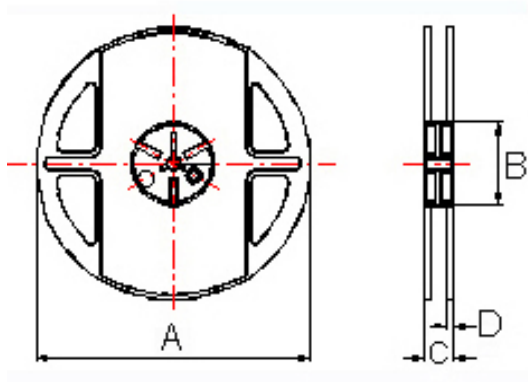
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
110705	4000

10.3 Reel Dimensions



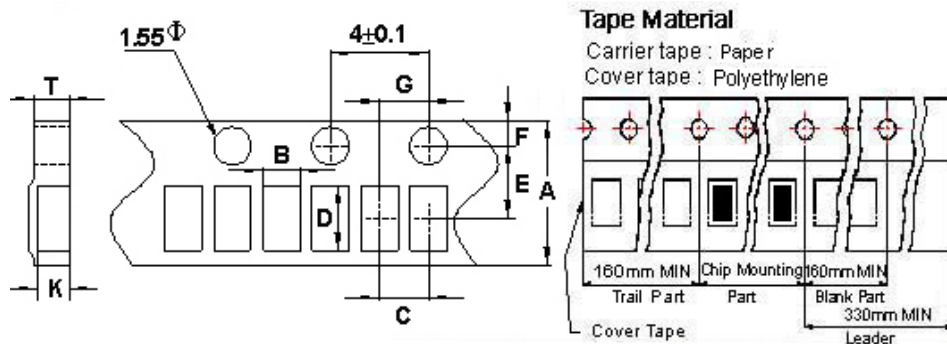
Dimensions in mm

TYPE	A	B	C	D
110705	178±1	60±0.5	12±0.5	1.5±0.5

BWCM00110705 Series Specification

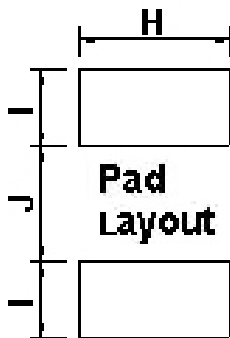
10 Packaging:

10.4 Tape Dimensions in mm



TYPE	A	B	C	D	E	F	G	T	K
110705	8.0	0.85	2	1.25	3.5	1.75	2	0.75	0.6

11 Recommended Land Pattern:



Dimensions in mm

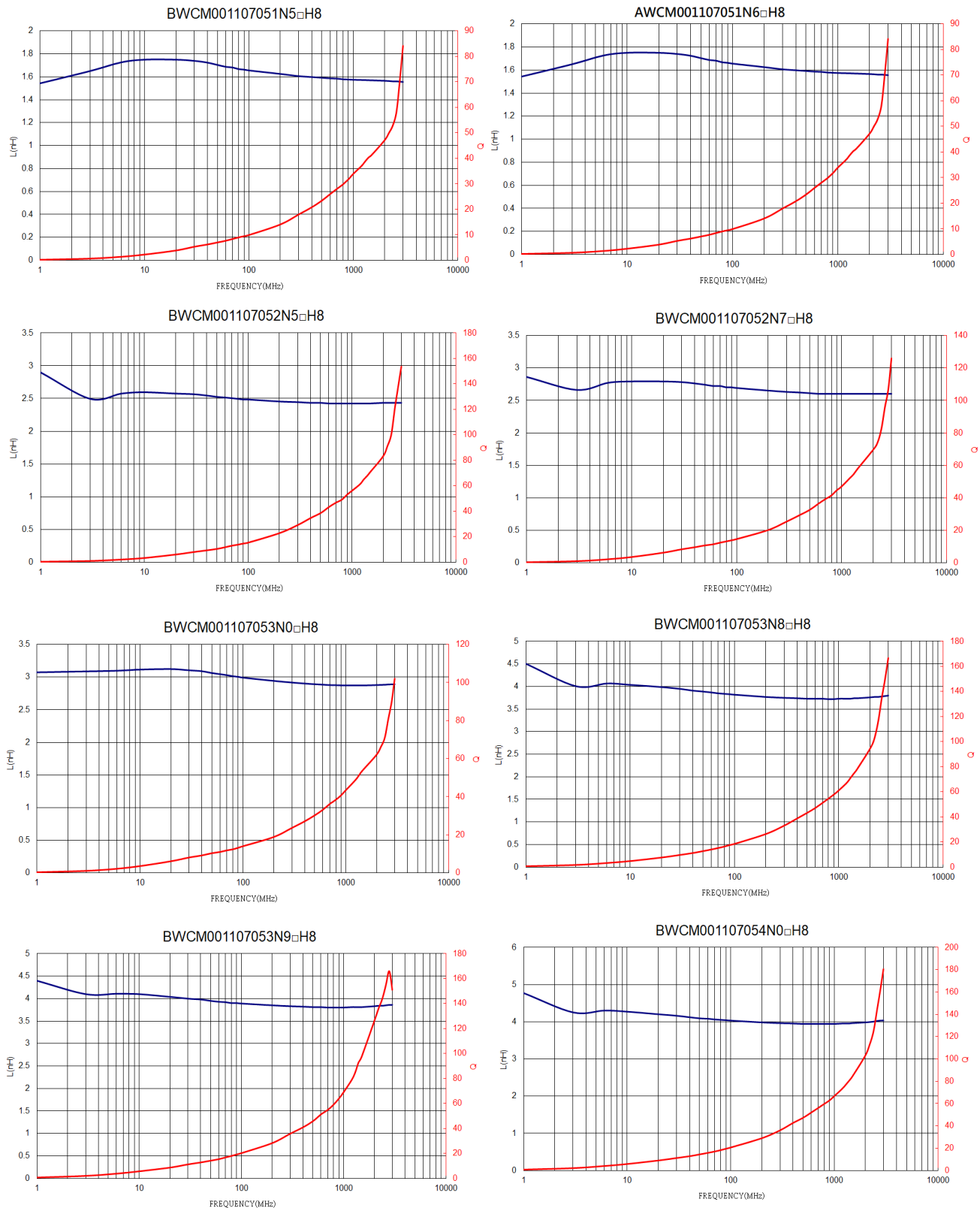
TYPE	H(In/mm)	I(In/mm)	J(In/mm)
110705	0.026/0.66	0.016/0.40	0.024/0.60

12 Note:

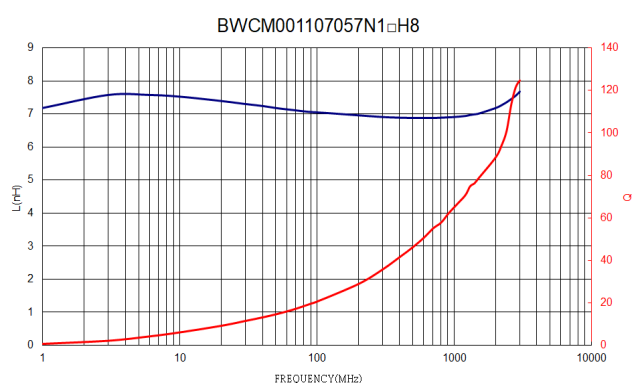
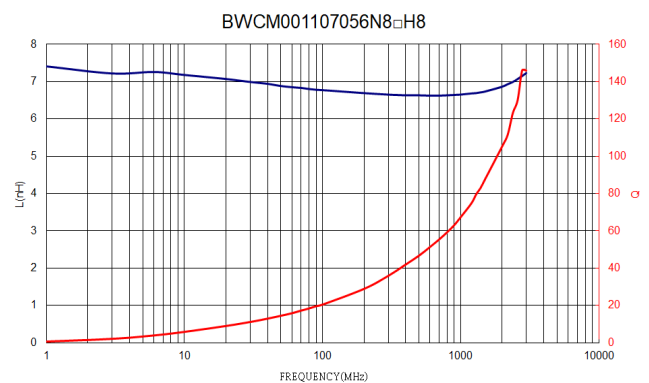
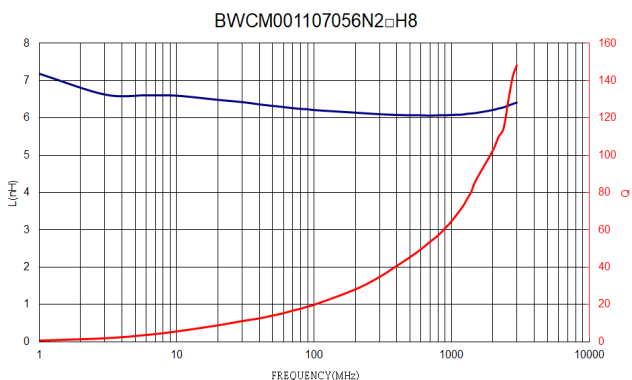
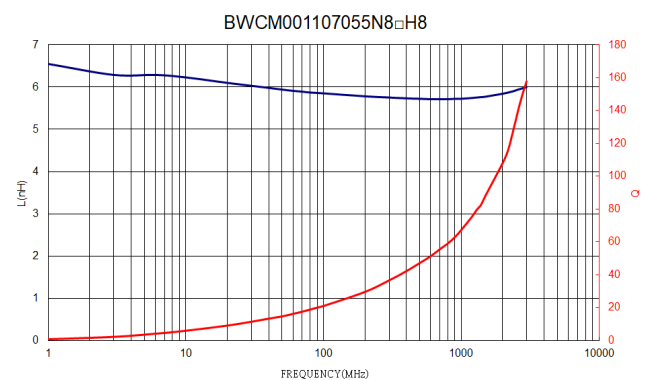
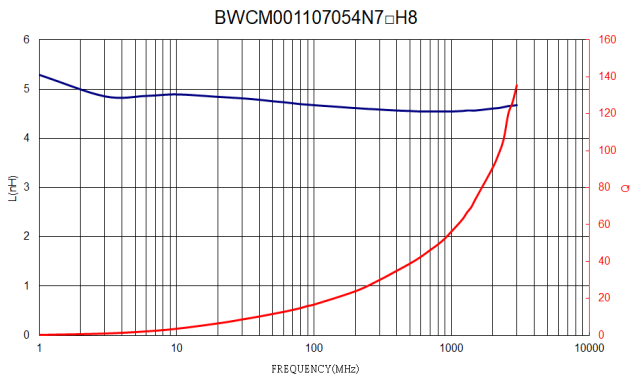
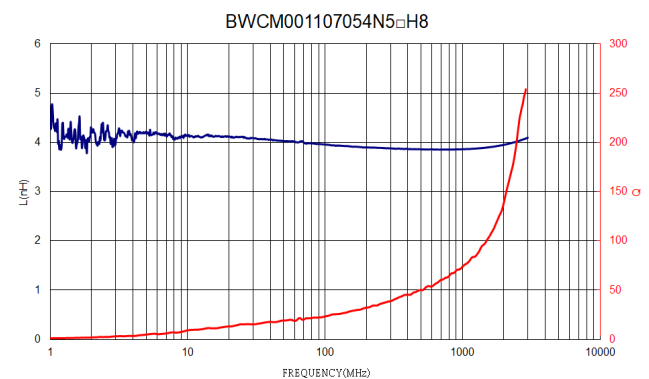
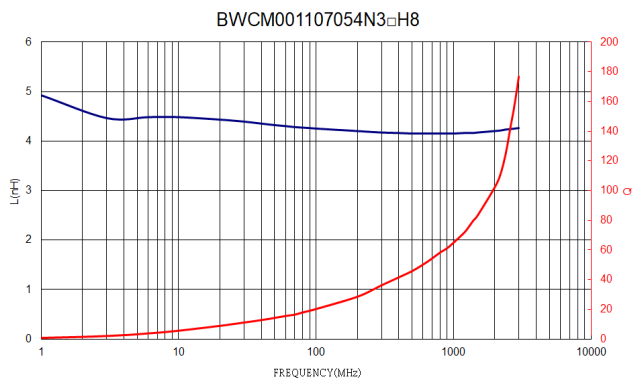
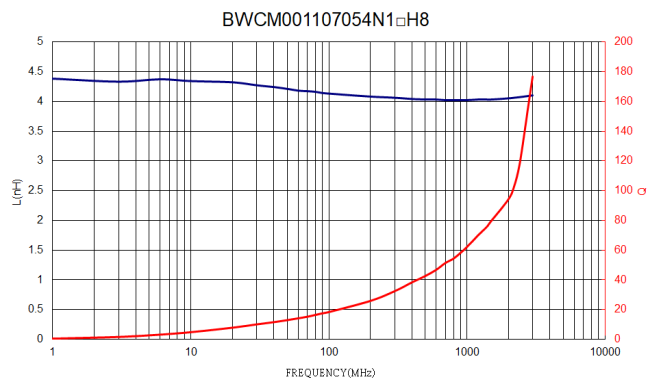
- Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
- Do not knock nor drop.
- All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, 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.

BWCM00110705 Series Specification

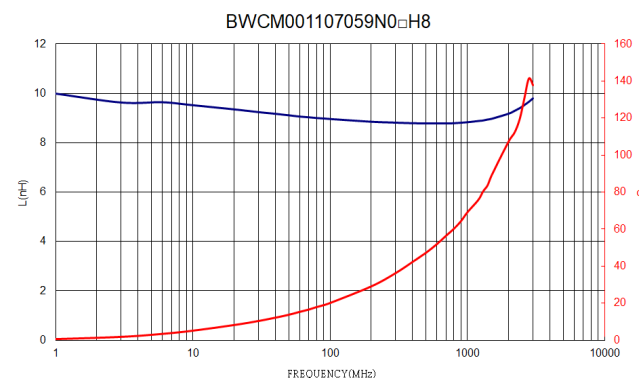
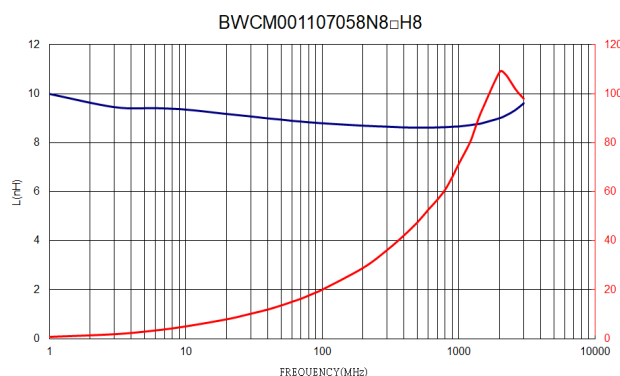
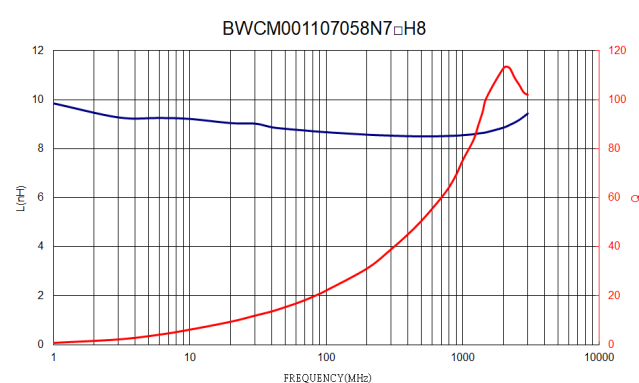
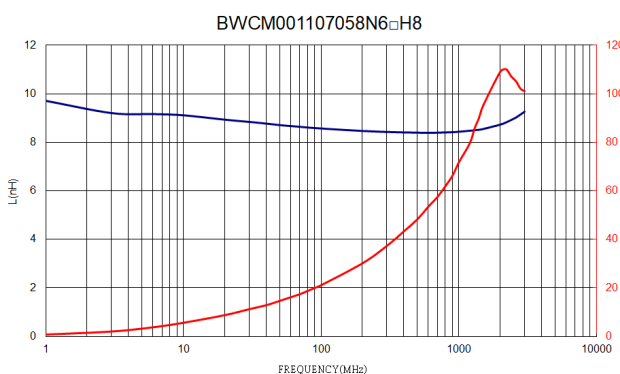
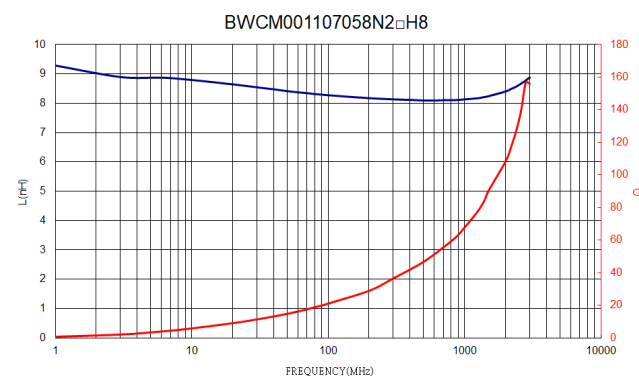
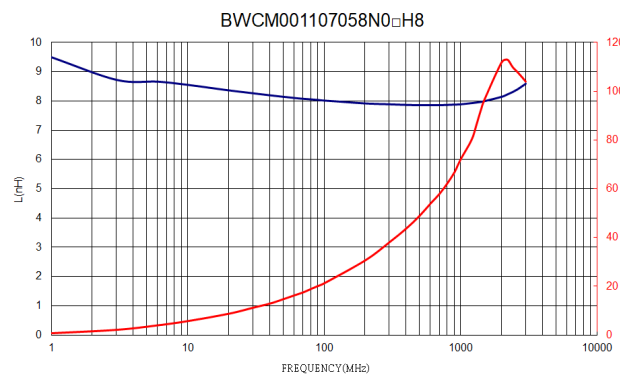
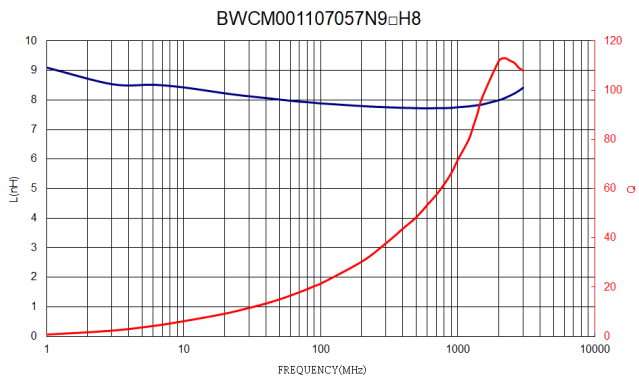
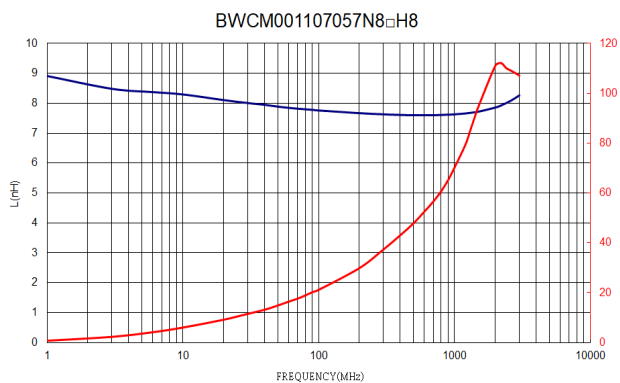
13 Graph:



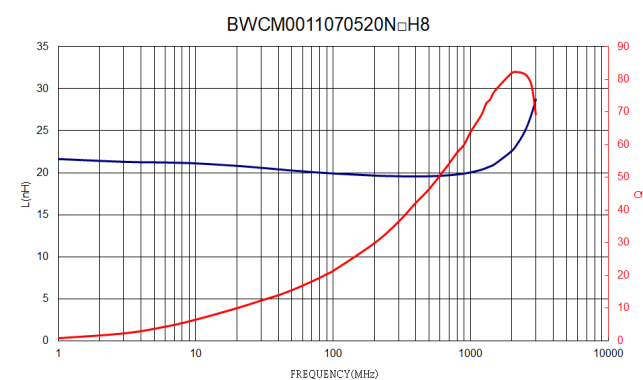
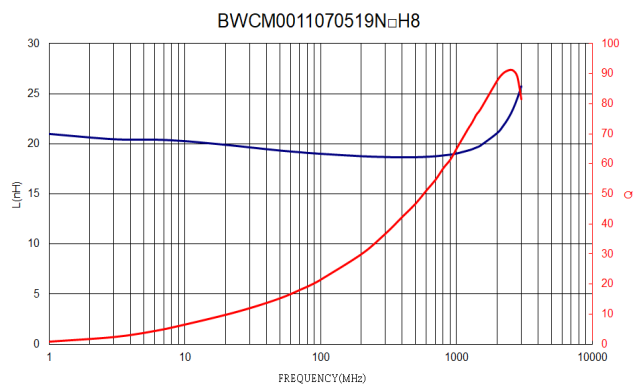
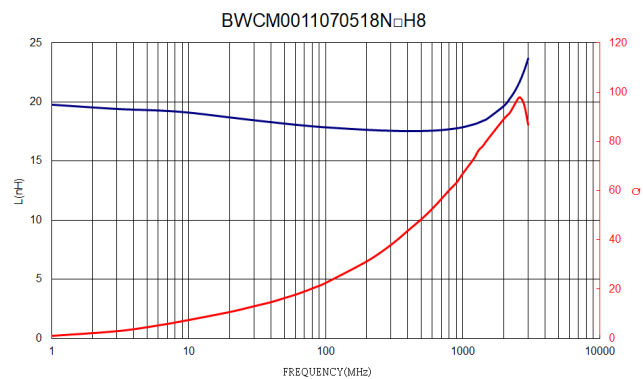
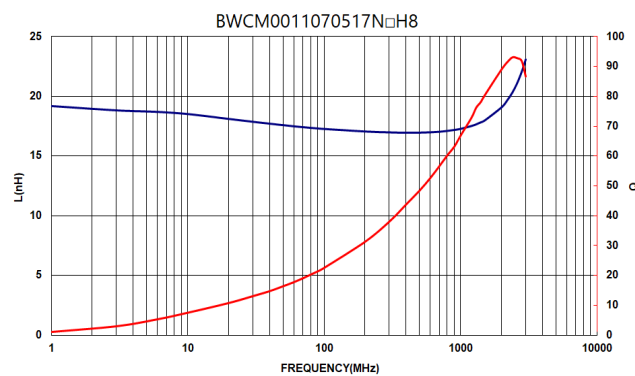
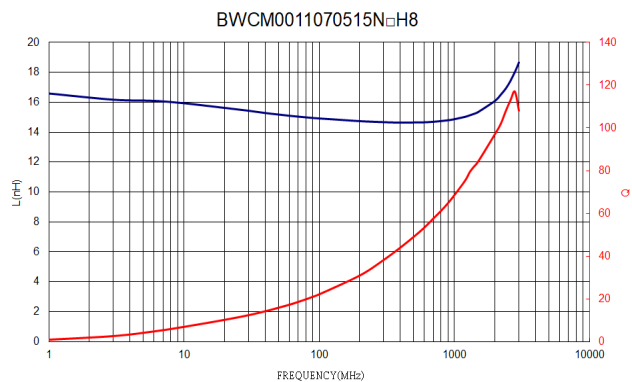
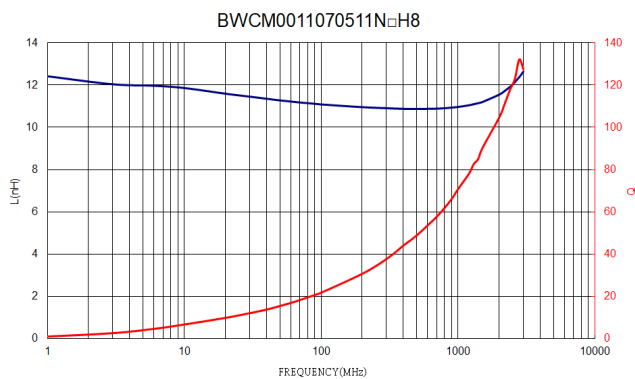
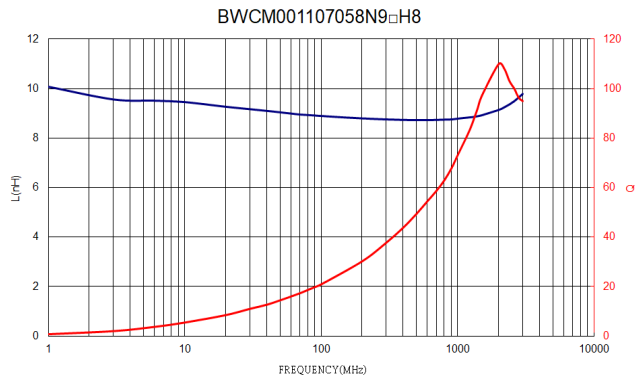
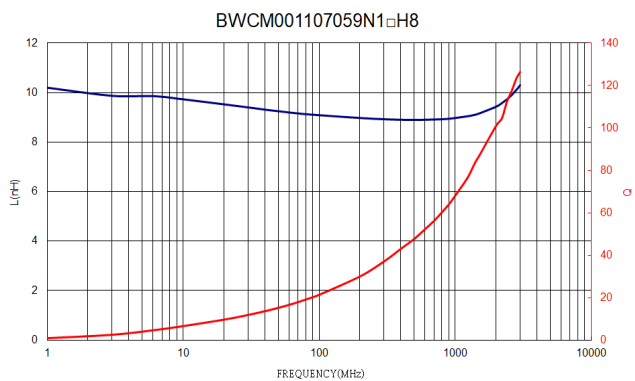
BWCM00110705 Series Specification



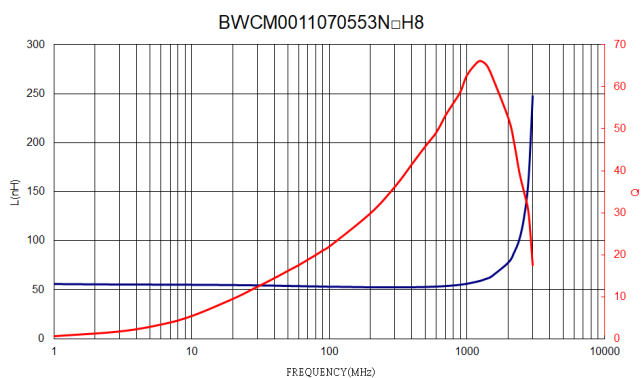
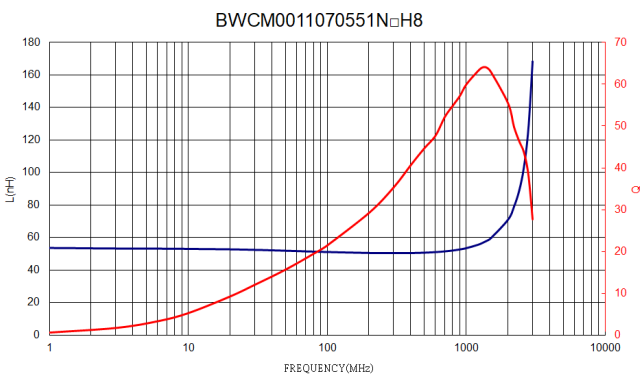
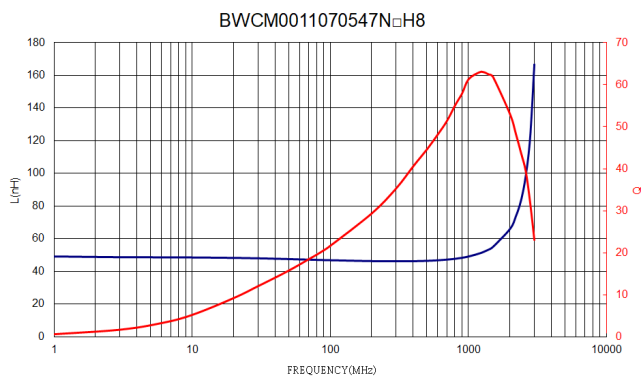
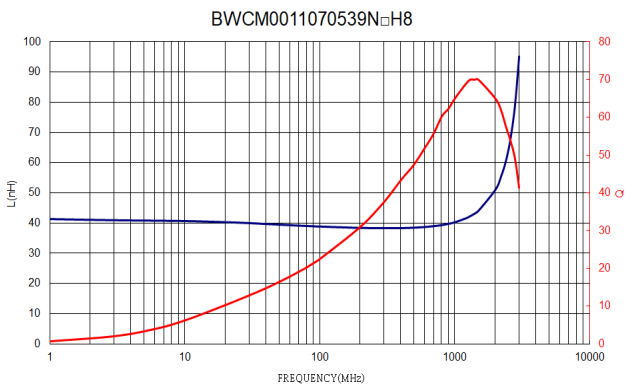
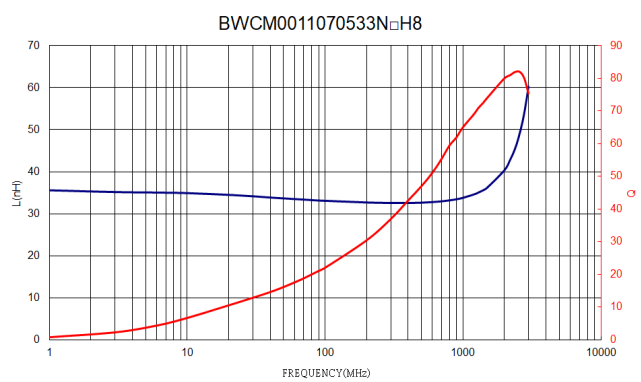
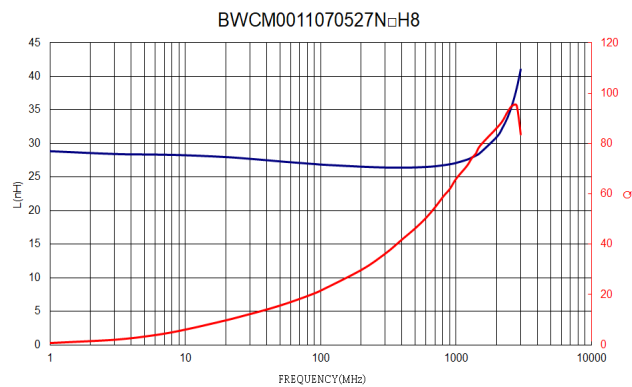
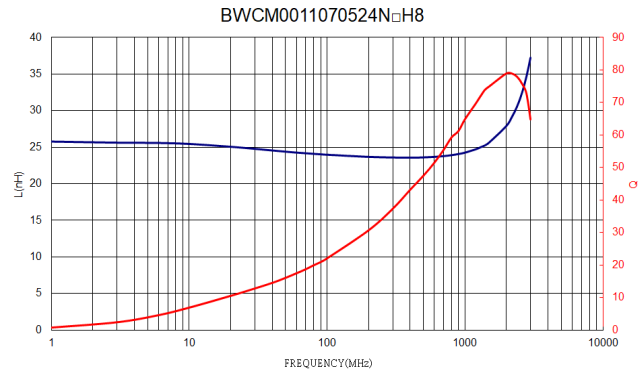
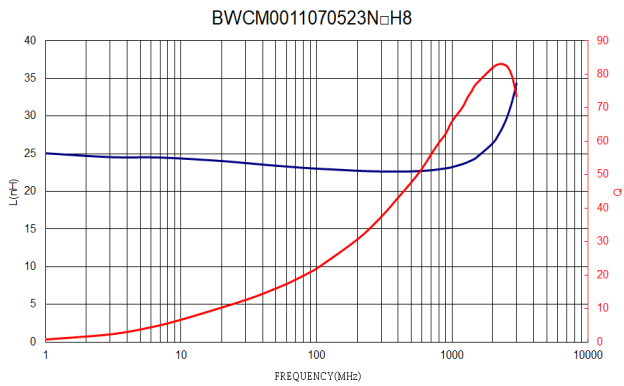
BWCM00110705 Series Specification



BWCM00110705 Series Specification



BWCM00110705 Series Specification



BWCM00110705 Series Specification

