

RF Inductor



BWQV 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 value at high frequencies and low DC resistance
2. Wide inductance range
3. Excellent solder heat resistance

Applications

1. NB, PC
2. Disk drives and computer peripherals
3. Pagers, cordless phone
4. DC power supply circuit

Product Information

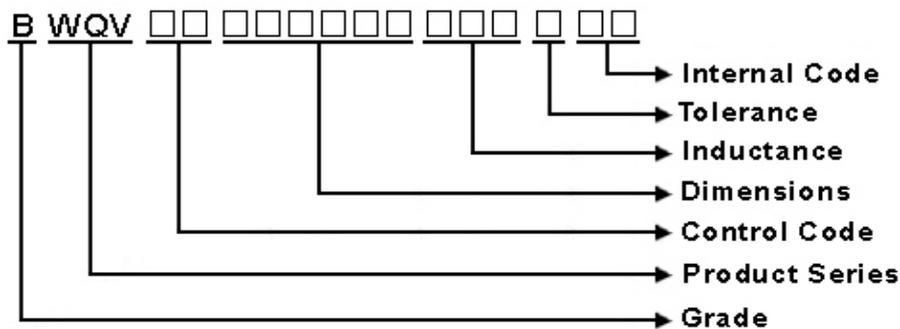
Series	Size Code (JIS/EIA)	Inductance (nH)
BWQV	3225/1210 4532/1812	0.47 ~ 2200



BWQV00322520 Series Specification

1 Scope: This specification applies to CHIP COIL

2 Part Numbering:



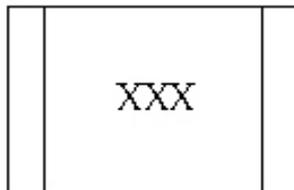
3 Rating:

Operating Temperature: - 4 0 °C ~ 1 2 5 °C(Including self - temperature rise)

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

(The storage temperature range is for after the assembly)

4 Marking:



Ex Marking : 4R7

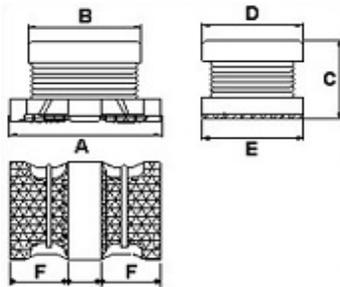
Marking color : Black

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:



Dimensions in mm

TYPE	322520
A	3.2±0.3
B	2.5±0.2
C	2.0±0.2
D	2.5±0.2
E	2.5±0.2
F	1.05±0.3

Net Weight (grms)

SIZE CODE	Net Weight (grms)
322520	0.05765 (typ).

7 Electrical Characteristics:

Part No.	Inductance (uH)	L/Q Test Freq.	Q Min.	SRF (MHz)Min.	RDC (Ω)Max.	Rated Current (A)	Tolerance	Marking
BWQV00322520R47□00	0.47	1MHz/1MHz	20	150	0.06	1.1	20	R47
BWQV00322520R82□00	0.82	1MHz/1MHz	20	120	0.25	0.45	20	R82
BWQV003225201R0□00	1.0	1MHz/1MHz	20	100	0.5	0.445	20	1R0
BWQV003225201R2□00	1.2	1MHz/1MHz	20	100	0.6	0.425	20	1R2
BWQV003225201R5□00	1.5	1MHz/1MHz	20	75	0.6	0.40	10,20	1R5
BWQV003225201R8□00	1.8	1MHz/1MHz	20	60	0.7	0.39	10,20	1R8
BWQV003225202R2□00	2.2	1MHz/1MHz	20	50	0.8	0.37	10,20	2R2
BWQV003225202R7□00	2.7	1MHz/1MHz	20	43	0.9	0.32	10,20	2R7
BWQV003225203R3□00	3.3	1MHz/1MHz	20	38	1.0	0.3	10,20	3R3
BWQV003225203R9□00	3.9	1MHz/1MHz	20	35	1.1	0.29	10,20	3R9
BWQV003225204R7□00	4.7	1MHz/1MHz	20	31	1.2	0.27	10,20	4R7
BWQV003225205R6□00	5.6	1MHz/1MHz	20	28	1.3	0.25	10,20	5R6
BWQV003225206R8□00	6.8	1MHz/1MHz	20	25	1.5	0.24	10,20	6R8
BWQV003225208R2□00	8.2	1MHz/1MHz	20	23	1.6	0.225	10,20	8R2
BWQV00322520100□00	10	1MHz/1MHz	35	20	1.8	0.19	5,10,20	100
BWQV00322520120□00	12	1MHz/1MHz	35	18	2.0	0.18	5,10,20	120
BWQV00322520150□00	15	1MHz/1MHz	35	16	2.2	0.17	5,10,20	150
BWQV00322520180□00	18	1MHz/1MHz	35	15	2.5	0.165	5,10,20	180
BWQV00322520220□00	22	1MHz/1MHz	35	14	2.8	0.15	5,10,20	220
BWQV00322520270□00	27	1MHz/1MHz	35	13	3.1	0.125	5,10,20	270
BWQV00322520330□00	33	1MHz/1MHz	40	12	3.5	0.115	5,10,20	330
BWQV00322520390□00	39	1MHz/1MHz	40	11	3.9	0.11	5,10,20	390
BWQV00322520470□00	47	1MHz/1MHz	40	11	4.3	0.1	5,10,20	470
BWQV00322520560□00	56	1MHz/1MHz	40	10	4.9	0.085	5,10,20	560
BWQV00322520680□00	68	1MHz/1MHz	40	9	5.5	0.08	5,10,20	680

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

1. Operating temperature range - 4 0°C ~ 1 2 5°C (Including self - temperature rise)

2. Rated Current: Self temperature rise shall be limited to 35°C Max. Inductance drop 10% typ.

3. L/Q Test OSC @1V

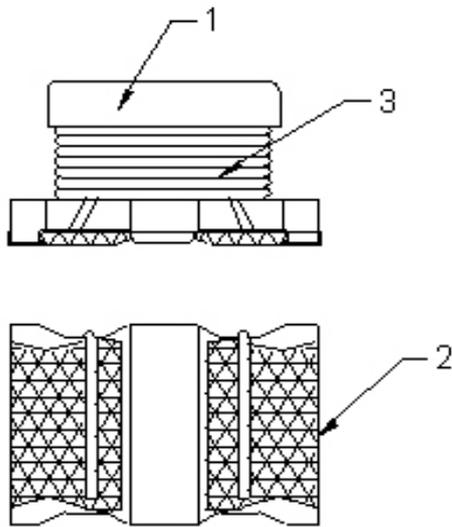
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Part No.	Inductance (uH)	L/Q Test Freq.	Q Min.	SRF (MHz)Min.	RDC (Ω)Max.	Rated Current (A)	Tolerance	Marking
BWQV00322520820□00	82	1MHz/1MHz	40	8.5	6.2	0.07	5,10,20	820
BWQV00322520101□00	100	1MHz/796kHz	40	8	7.0	0.08	5,10,20	101
BWQV00322520121□00	120	1MHz/796kHz	40	7.5	8.0	0.075	5,10,20	121
BWQV00322520151□00	150	1MHz/796kHz	40	7	9.3	0.07	5,10,20	151
BWQV00322520181□00	180	1MHz/796kHz	40	6	10.2	0.065	5,10,20	181
BWQV00322520221□00	220	1MHz/796kHz	40	5.5	11.8	0.065	5,10,20	221
BWQV00322520271□00	270	1MHz/796kHz	40	5	12.5	0.065	5,10,20	271
BWQV00322520331□00	330	1MHz/796kHz	40	5	13	0.065	5,10,20	331
BWQV00322520391□00	390	1MHz/796kHz	50	5	22	0.05	5,10,20	391
BWQV00322520471□00	470	1kHz/796kHz	50	5	25	0.045	5,10,20	471
BWQV00322520561□00	560	1kHz/796kHz	40	2	28	0.04	5,10,20	561

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8.1 Construction:



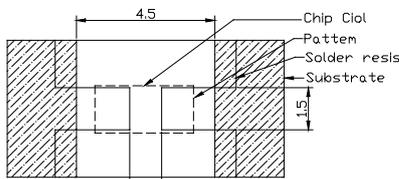
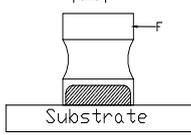
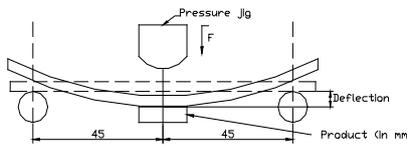
8.2 Material List:

NO	Part	Material
1	Core	Ferrite
2	Terminal	Ag/Ni/Sn
3	Wire	Copper(180°C)

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9 Reliability Of Ferrite Wire Wound Chip Coil

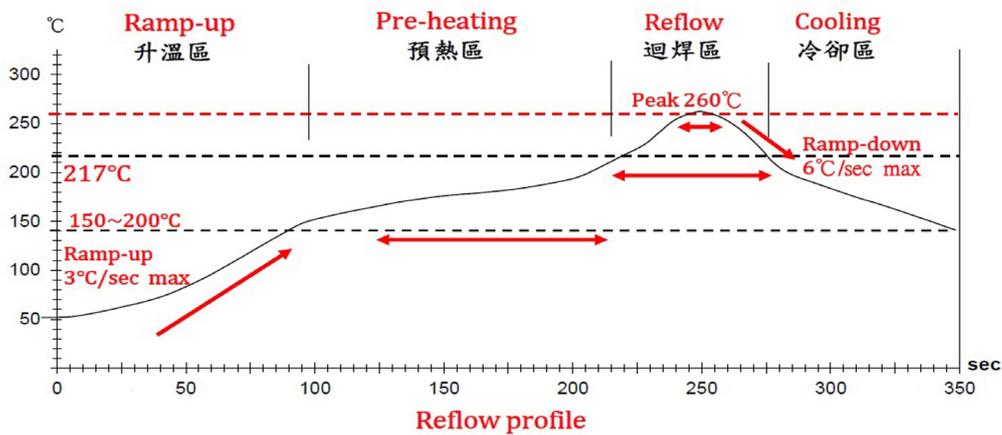
1-1. Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Shear Test	Chip coil shall not be damaged after tested as test method	Substrate: Glass-epoxy substrate  Solder: Sn/Ag3.0/Cu0.5 Applied Direction: Force : 10N Hold Duration: 5s±1s 
1-1-2	Bending Test		Substrate: Glass-epoxy substrate (100mm*40mm*1.6mm) speed of Applying Force: 1mm/s Deflection: 2mm Hold Duration: 30s 
1-1-3	Vibration		Oscillation Frequency: 10Hz to 55 Hz to 10 hZ for 1 min Total Amplitude: 1.5mm Testing Time: A period of 2 hours in each of 3 mutually perpendicular directions (Total 6 hours)
1-1-4	Solderability	The wetting area of the electrode shall be at least 95% covered with new solder coating	Solder: Sn/Ag3.0/Cu0.5 per-Heating: 150°C ±10°C / 1min to 2min solder Temperature: 245°C ±5°C Immersion Time: 4s±1s
1-1-5	Resistance to Soldering Heat	Appearance: No damage	Solder: Sn/Ag3.0/Cu0.5 per-Heating: 150°C ±10°C / 1min to 2min solder Temperature: 260°C ±5°C Immersion Time: 10s±1s
1-1-6	Resistance to solvent	There must be no change in appearance or obliteration of marking.	Inductors must withstand 6 minutes of alcohol or water.

1-2. Environmental Performance

No	Item	Specification	Test Method															
1-2-1	Heat Resistance	Appearance: No damage Inductance Change: within ±10% Q change : within ±30%	Temperature: 85°C ±3°C Time: 1000h Then measured after exposure in the room Condition for 24h±2h															
1-2-2	Cold Resistance		Temperature: -40°C ±3°C Time: 1000h Then measured after exposure in the room Condition for 24h±2h															
1-2-3	Humidity		Temperature: 40°C ±2°C Humidity: 90%(RH) to 95%(RH) Time: 1000h Then measures after exposure in the room Condition for 24h±2h															
1-2-4	Temperature Cycle		One cycle: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <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>125±3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25±2</td> <td>3</td> </tr> </tbody> </table> Total: 100cycles Measured after exposure in the room condition for 24hrs	Step	Temperature (°C)	Time (min)	1	-40±3	30	2	25±2	3	3	125±3	30	4	25±2	3
Step	Temperature (°C)	Time (min)																
1	-40±3	30																
2	25±2	3																
3	125±3	30																
4	25±2	3																

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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 :

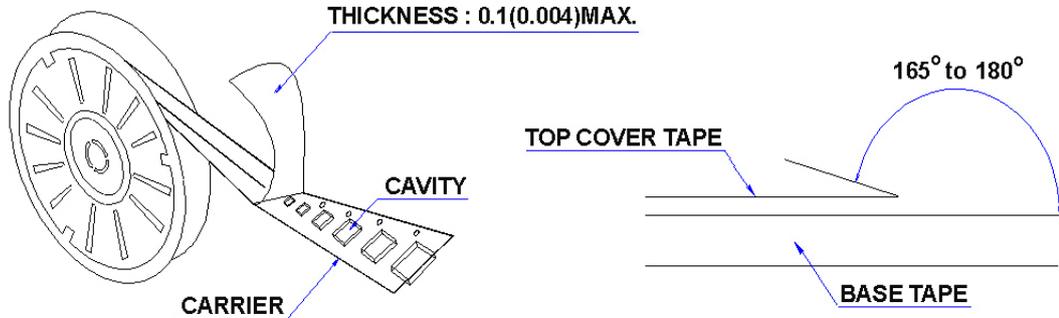
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow
3. Products can only be soldered with reflow

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10 Packaging:

10.1 Packaging -Cover Tape

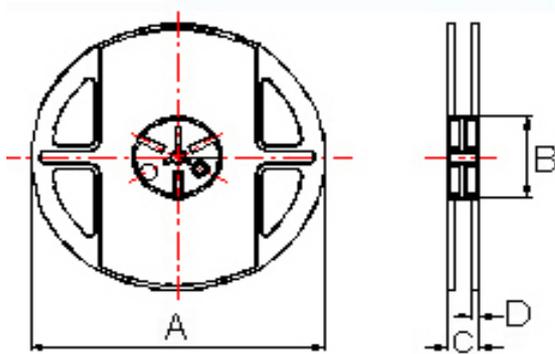
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
322520	2000

10.3 Reel Dimensions



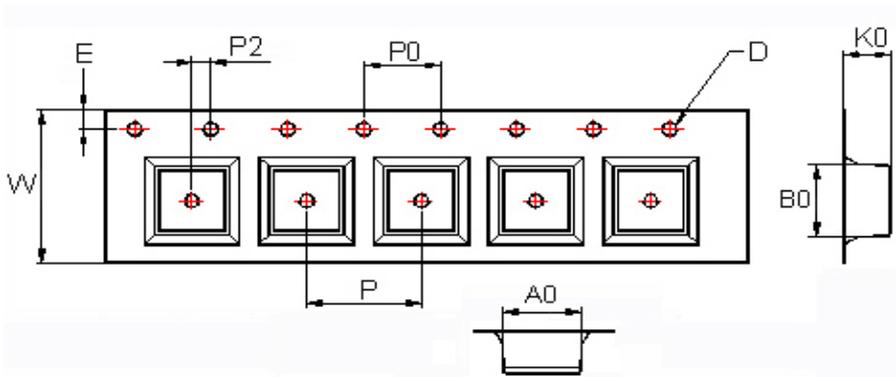
Dimensions in mm:

TYPE	A	B	C	D
322520	178	60	9	1.5

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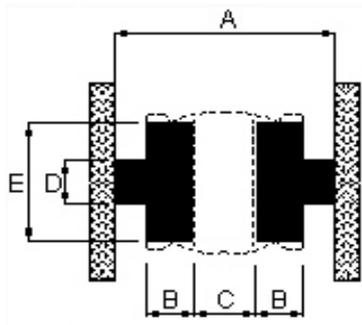
10 Packaging:

10.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	W	P	P0	P2
322520	2.85	3.60	2.25	1.5	1.75	8	4	4	2

11 Recommended Land Pattern:



Dimensions in mm

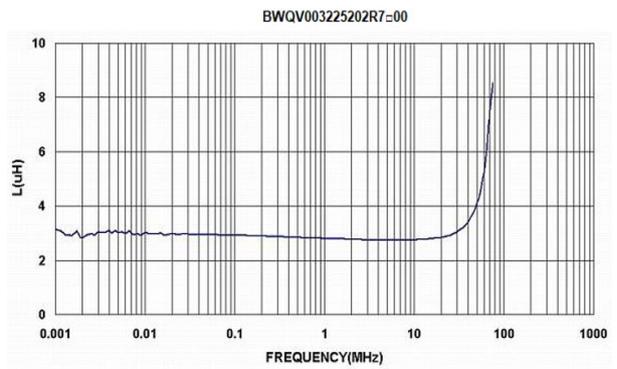
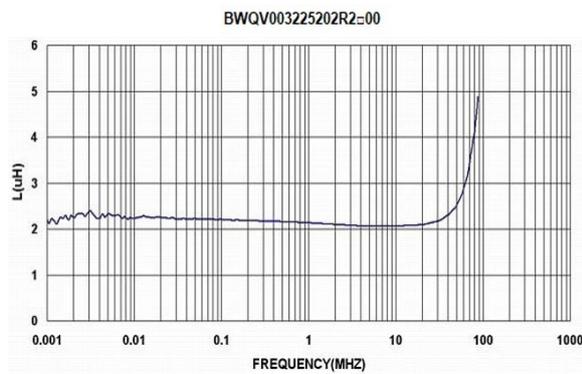
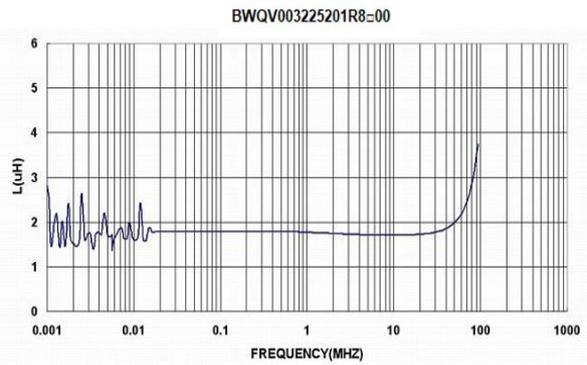
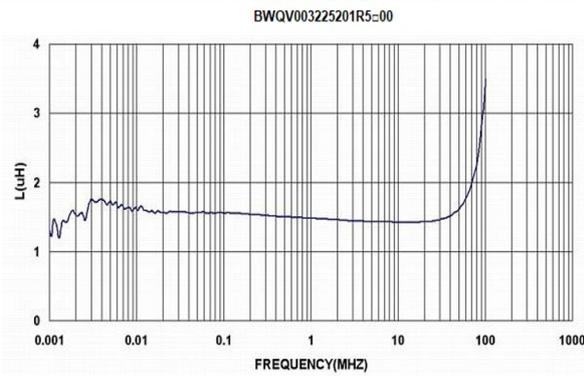
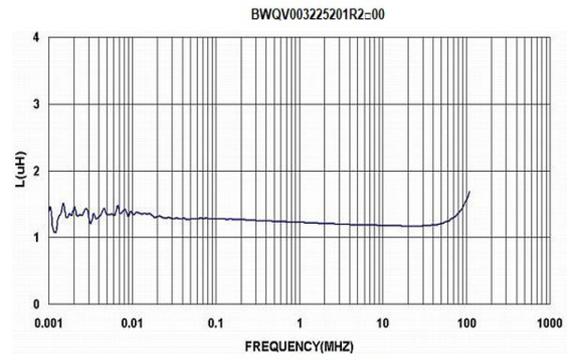
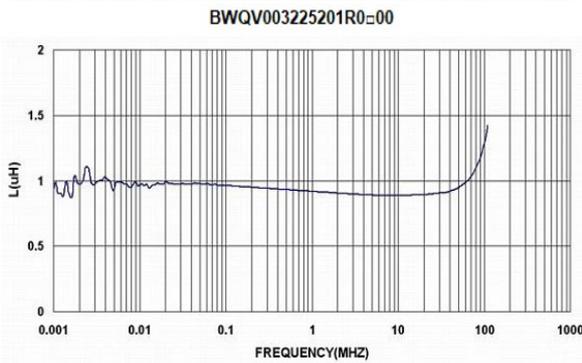
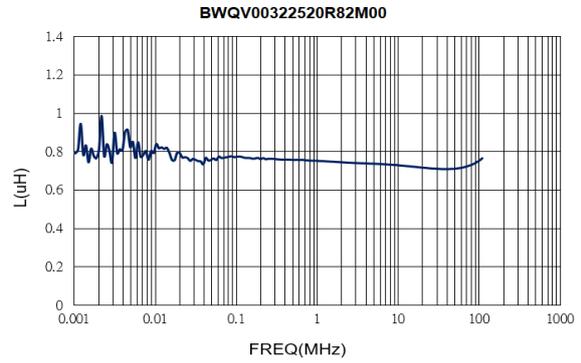
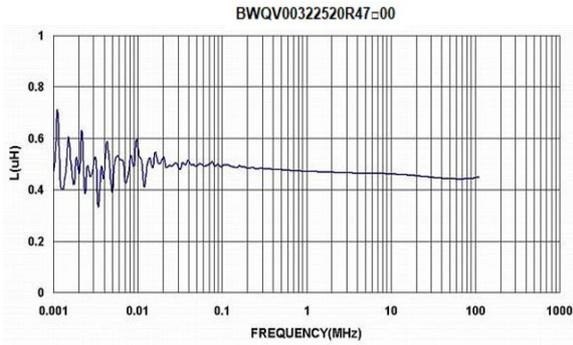
TYPE	A(in/mm)	B(in/mm)	C(in/mm)	D(in/mm)	E(in/mm)
322520	0.217/5.5	0.039/1.0	0.051/1.3	0.039/1.0	0.079/2.0

12 Note:

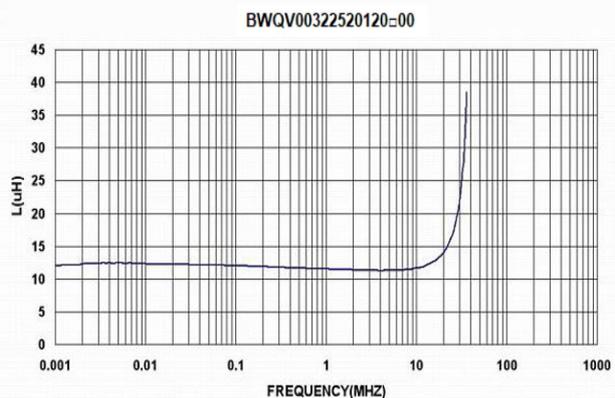
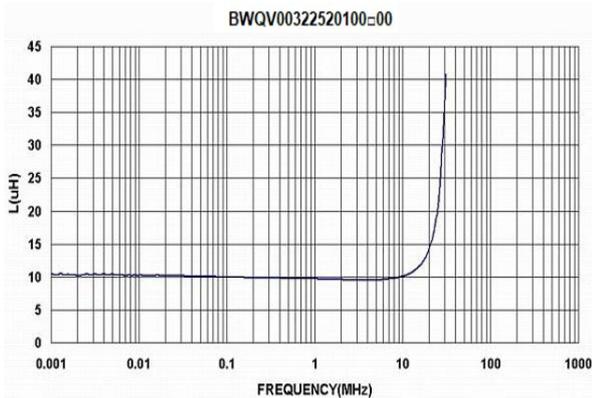
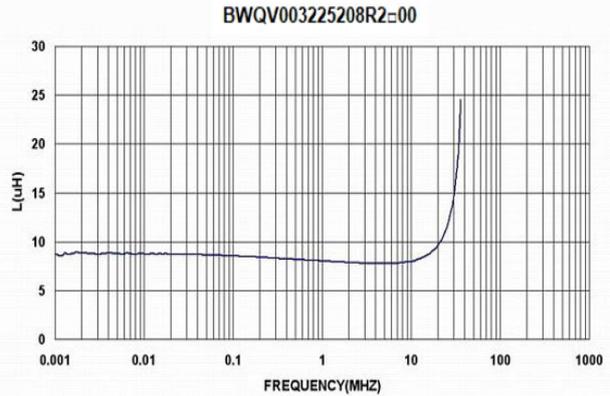
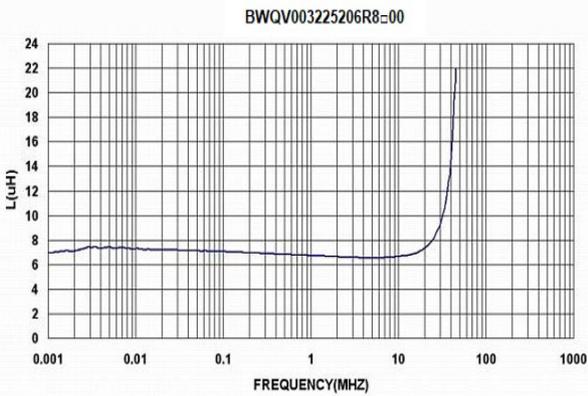
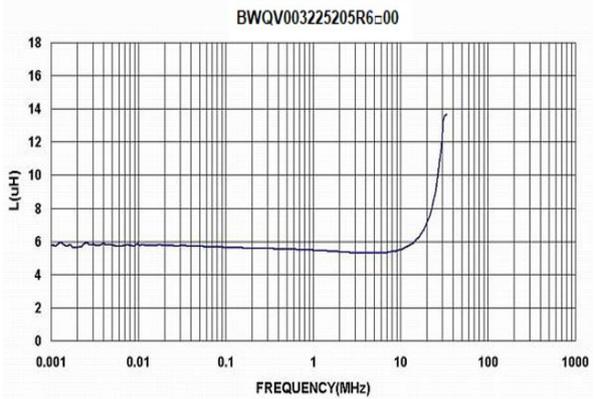
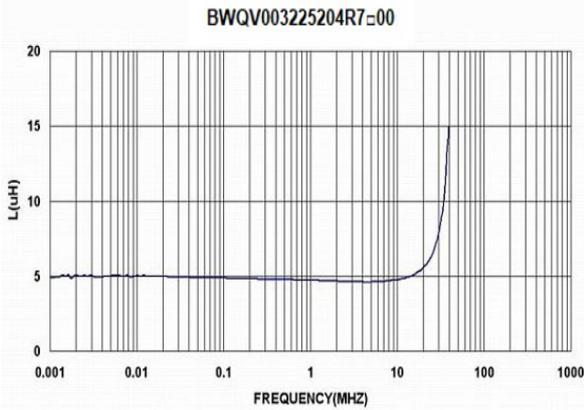
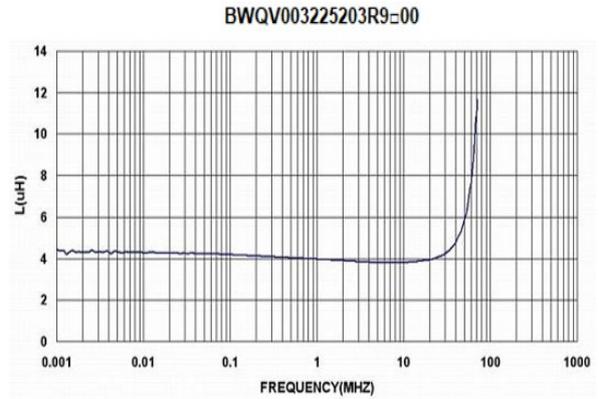
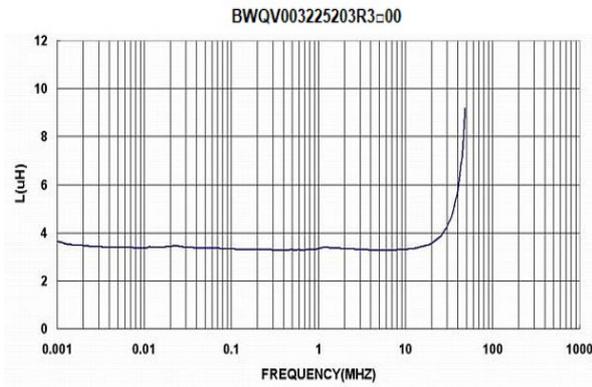
- Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
- Do not knock nor drop.
- All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, 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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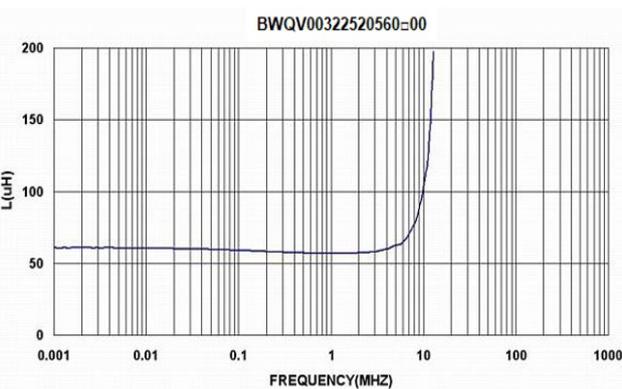
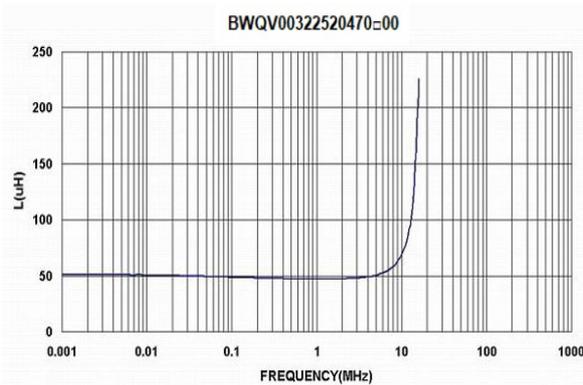
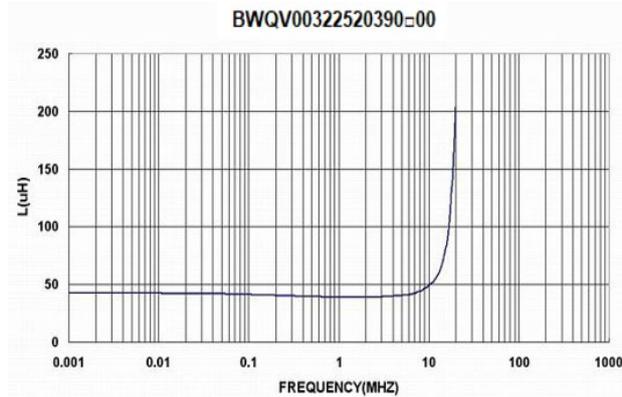
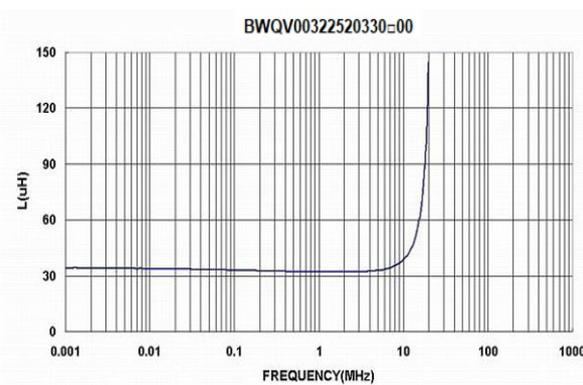
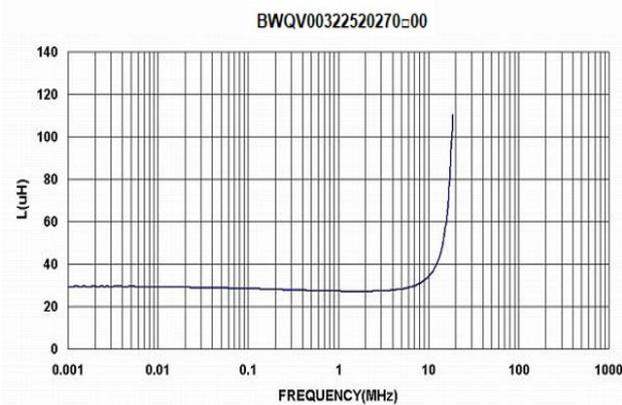
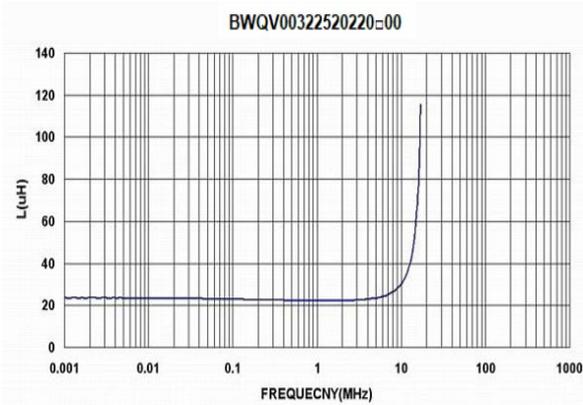
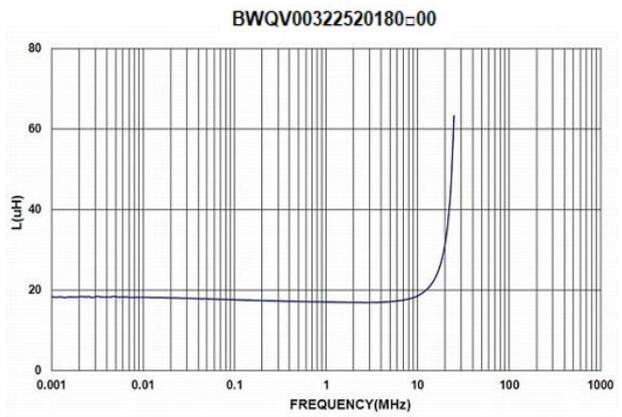
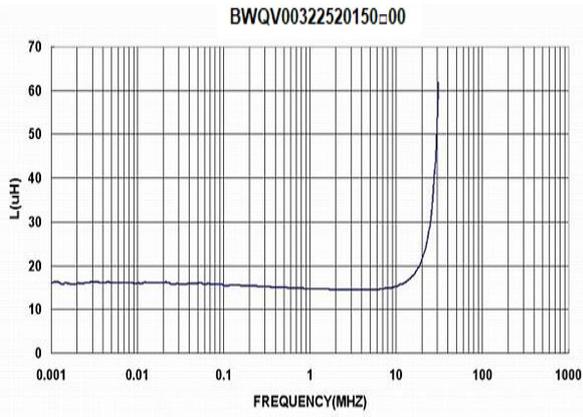
13 Graph: BWQV00322520 Series Graph



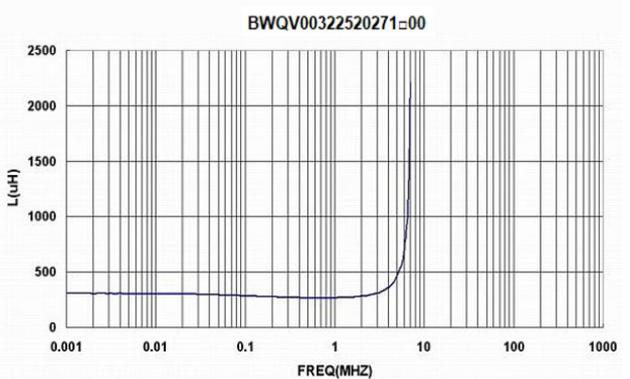
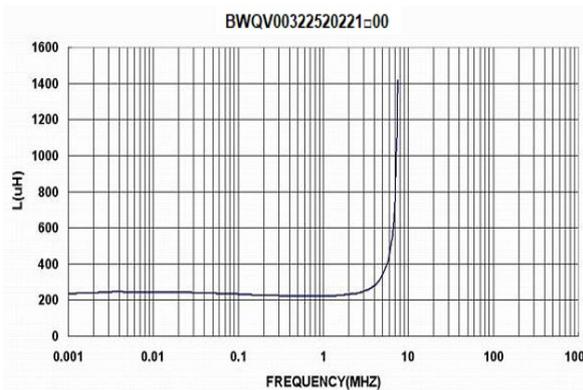
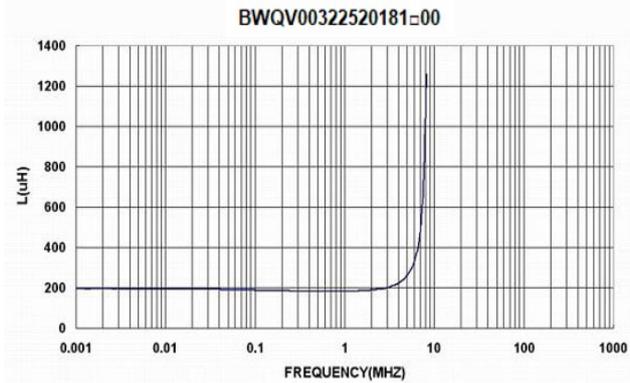
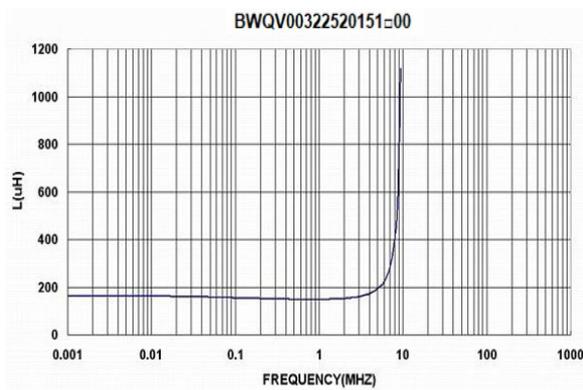
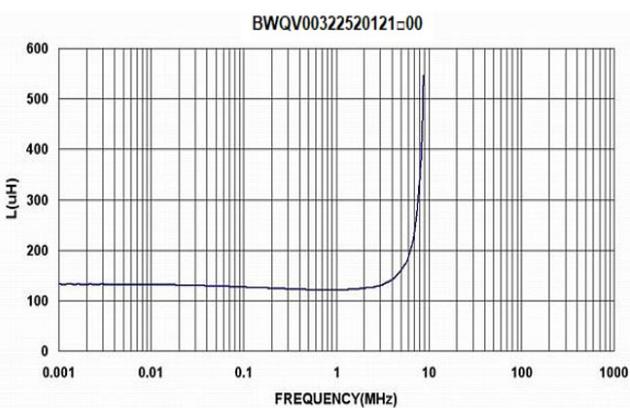
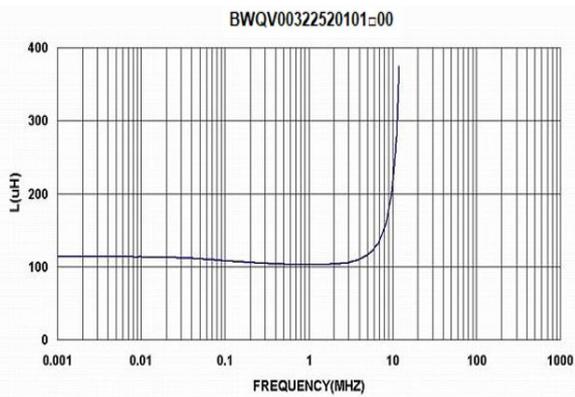
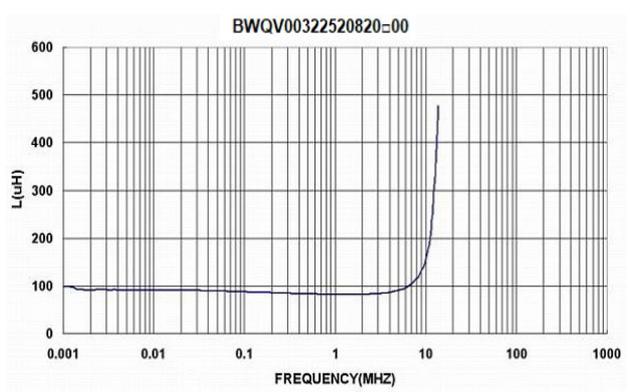
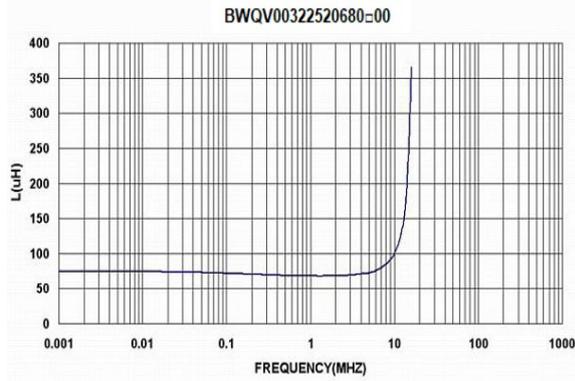
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