

RF Inductor



BWQC 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. Low DC resistance, high current capacity, and high impedance characteristics
2. Excellent solder heat resistance
3. Both flow and reflow soldering methods can be employed

Applications

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

Product Information

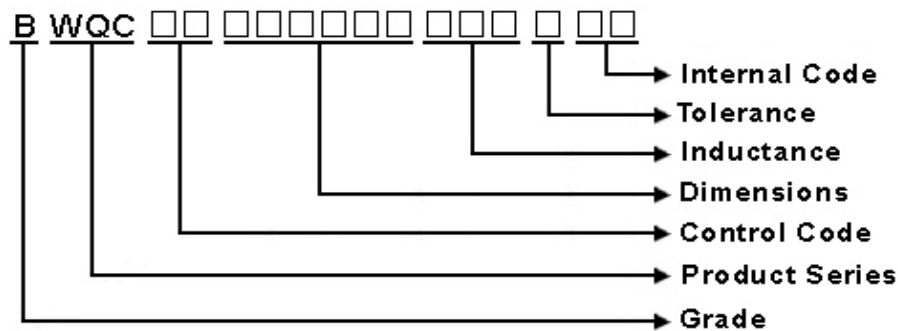
Series	Size Code (JIS/EIA)	Inductance (nH)
BWQC	3225/1210	0.15 ~ 1500
	4532/1812	



BWQC00453226 Series Specification

1 Scope: This specification applies to CHIP COIL

2 Part Numbering:



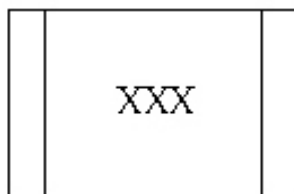
3 Rating:

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 : 221

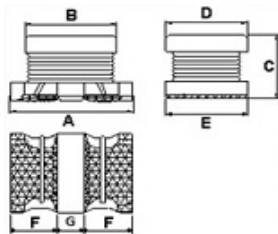
Marking color : Black

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	453226
A	4.5±0.3
B	3.6±0.2
C	2.6±0.2
D	3.2±0.2
E	3.2±0.2
F	1.45±0.3
G	1.6±0.2

Net Weight (grms)

SIZE CODE	Net Weight (grms)
453226	0.12 (typ).

7 Electrical Characteristics:

Part No.	Inductance (uH)	Test Freq.	SRF (MHz)Min.	RDC (Ω)Max	Rated Current (A)	Tolerance	Marking
BWQC004532261R0□00	1.0	1V 1MHz	100	0.08	1.08	20	1R0
BWQC004532261R5□00	1.5	1V 1MHz	85	0.09	1.00	20	1R5
BWQC004532261R8□00	1.8	1V 1MHz	65	0.10	0.90	20	1R8
BWQC004532262R2□00	2.2	1V 1MHz	60	0.11	0.90	10,20	2R2
BWQC004532263R3□00	3.3	1V 1MHz	47	0.13	0.80	20	3R3
BWQC004532264R7□00	4.7	1V 1MHz	35	0.15	0.75	10,20	4R7
BWQC004532266R8□00	6.8	1V 1MHz	30	0.20	0.72	10,20	6R8
BWQC00453226100□00	10	1V 1MHz	23	0.24	0.65	5,10,20	100
BWQC00453226150□00	15	1V 1MHz	20	0.32	0.57	5,10,20	150
BWQC00453226220□00	22	1V 1MHz	15	0.60	0.42	5,10,20	220
BWQC00453226330□00	33	1V 1MHz	12	1.00	0.31	5,10,20	330
BWQC00453226470□00	47	1V 1MHz	10	1.10	0.28	5,10,20	470
BWQC00453226680□00	68	1V 1MHz	8.4	1.70	0.22	5,10,20	680
BWQC00453226101□00	100	1V 1MHz	6.8	2.20	0.19	5,10,20	101
BWQC00453226151□00	150	1V 1MHz	5.5	3.50	0.13	5,10,20	151
BWQC00453226221□00	220	1V 1MHz	4.5	4.00	0.11	5,10,20	221
BWQC00453226331□00	330	1V 1MHz	3.6	6.80	0.10	5,10,20	331
BWQC00453226471□00	470	1V 1MHz	3.0	8.50	0.09	5,10,20	471
BWQC00453226561□00	560	1V 1kHz	2.5	10.4	0.08	5,10,20	561
BWQC00453226681□00	680	1V 1kHz	2.2	14.7	0.07	5,10,20	681
BWQC00453226821□00	820	1V 1kHz	2.0	20.0	0.06	5,10,20	821
BWQC00453226102□00	1000	1V 1kHz	2.0	27.9	0.05	5,10,20	102
BWQC00453226152□00	1500	1V 1kHz	1.8	35.0	0.04	5,10,20	152

NOTE: □-tolerance J=±5% / K=±10% / M=±20% / T=±30%

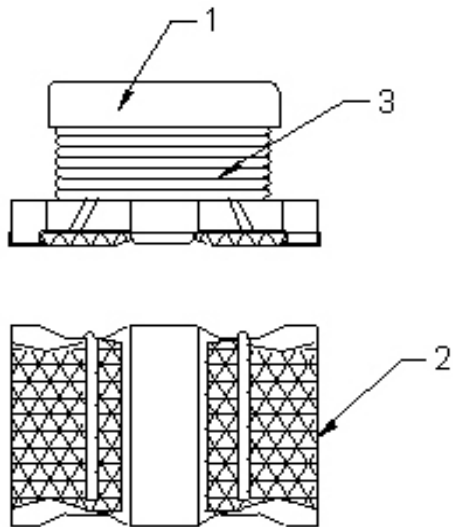
1.Operating temperature range - 4 0 °C ~ 1 2 5 °C(Including self - temperature rise)

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

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8.1 Construction:



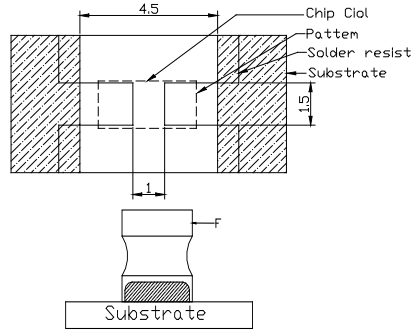
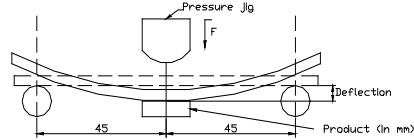
8.2 Material List:

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

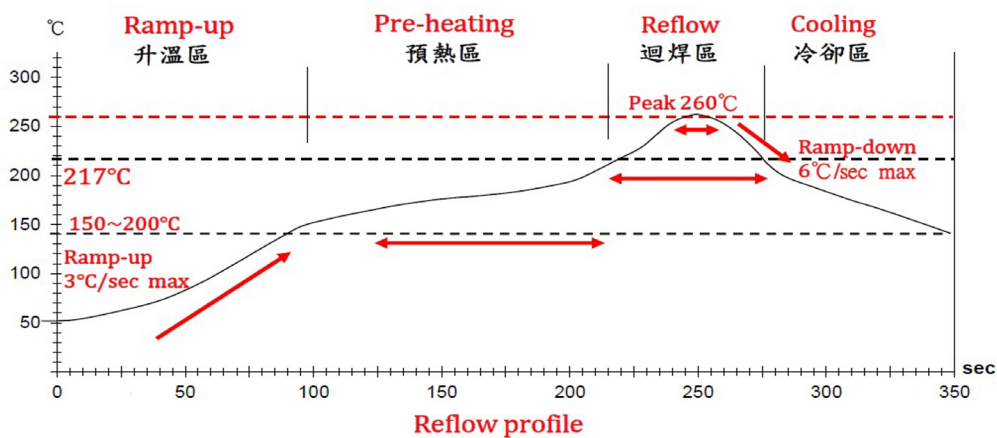
1-1. Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Shear Test	Chip coil shall not be damaged after tested as test method	<p>Substrate: Glass-epoxy substrate</p>  <p>Solder: Sn/Ag3.0/Cu0.5 Applied Direction:</p> <p>Force : 10N Hold Duration: 5s±1s</p>
1-1-2	Bending Test		<p>Substrate: Glass-epoxy substrate (100mm*40mm*1.6mm) speed of Applying Force: 1mm/s Deflection: 2mm Hold Duration: 30s</p> 
1-1-3	Vibration		<p>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)</p>
1-1-4	Solderability	The wetting area of the electrode shall be at least 95% covered with new solder coating	<p>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</p>
1-1-5	Resistance to Soldering Heat	Appearance: No damage	<p>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</p>
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%	Temperature:85℃±3℃ Time:1000h Then measured after exposure in the room Condition for 24h±2h														
1-2-2	Cold Resistance		Temperature: -40℃±3℃ Time:1000h Then measured after exposure in the room Condition for 24h±2h														
1-2-3	Humidity		Temperature: 40℃±2℃ 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><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>125±3</td><td>30</td></tr><tr><td>4</td><td>25±2</td><td>3</td></tr></table> Total: 100cycles Measured after exposure in the room condition for 24hrs	Step	Temperature (℃)	Time (min)	1	-40±3	30	2	25±2	3	3	125±3	30	4	25±2
Step	Temperature (℃)	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 :

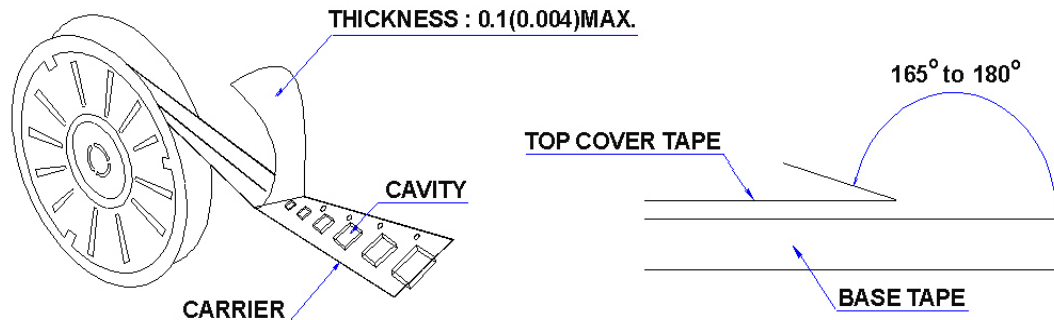
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow
3. Products can only be soldered with reflow

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10 Packaging:

10.1 Packaging -Cover Tape

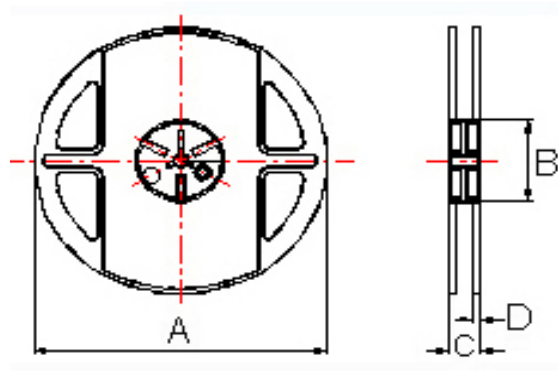
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
453226	500

10.3 Reel Dimensions



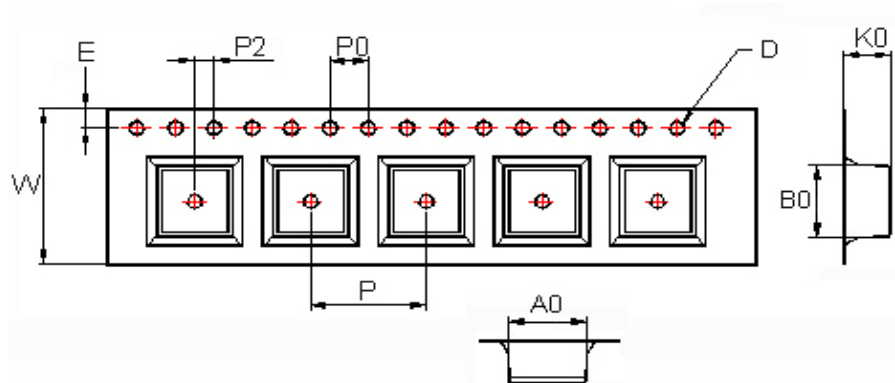
Dimensions in mm

TYPE	A	B	C	D
453226	178	60	13.2	1.5

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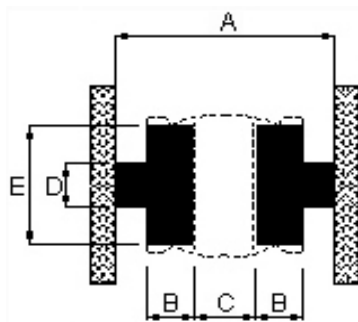
10 Packaging:

10.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	W	P	P0	P2
453226	3.6	4.9	3	1.5	1.75	12	8	4	2

11 Recommended Land Pattern:



Dimensions in mm

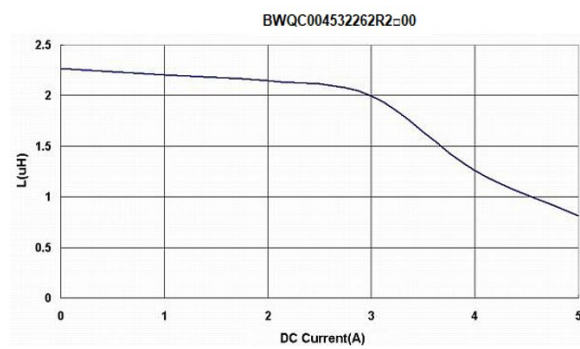
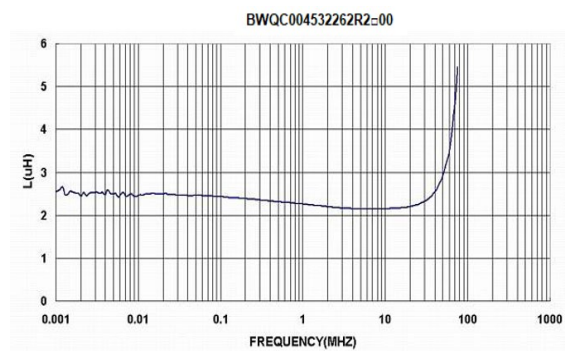
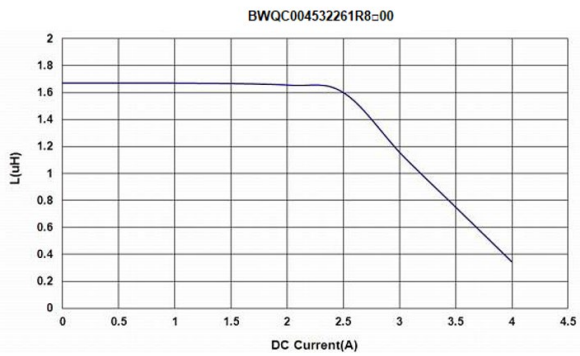
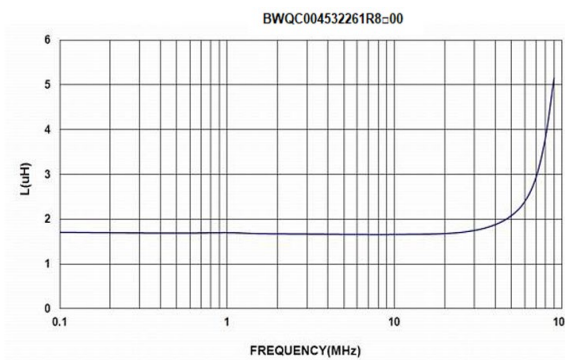
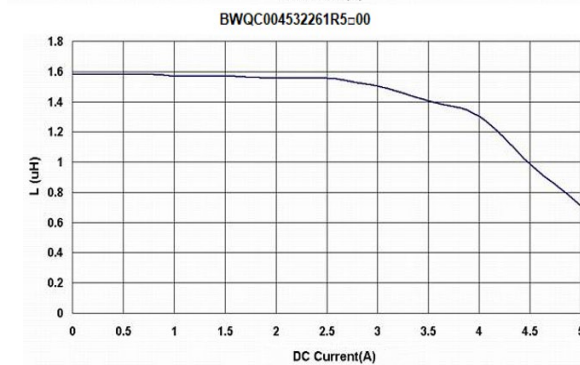
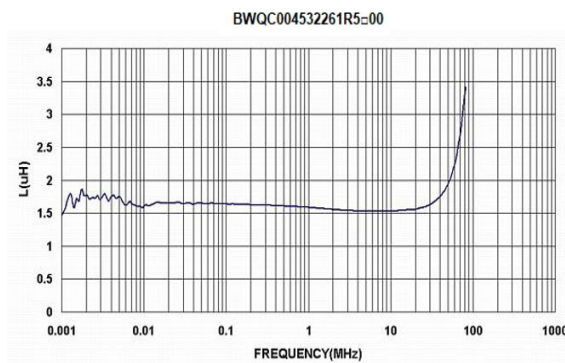
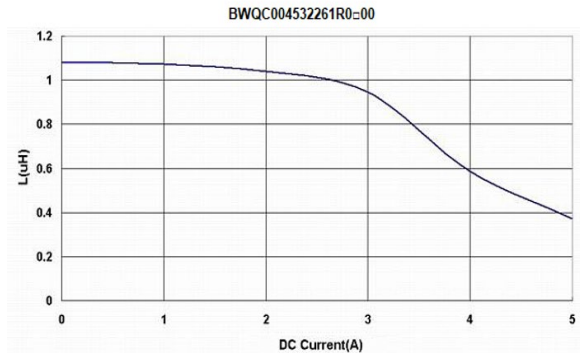
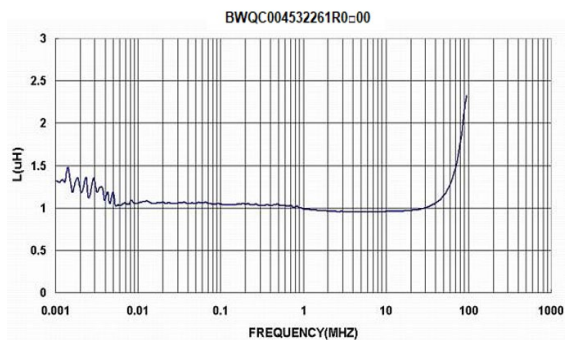
TYPE	A(in/mm)	B(in/mm)	C(in/mm)	D(in/mm)	E(in/mm)
453226	0.295/7.5	0.059/1.5	0.059/1.5	0.059/1.5	0.118/3.0

12 Note:

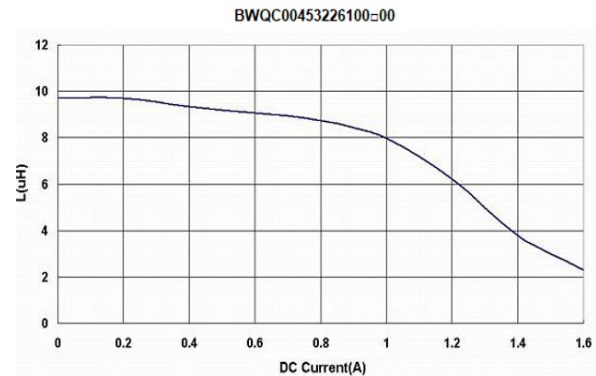
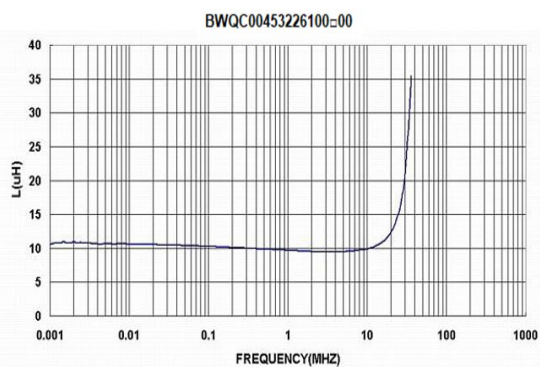
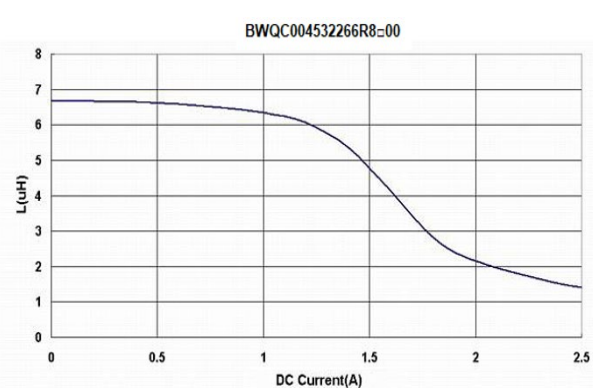
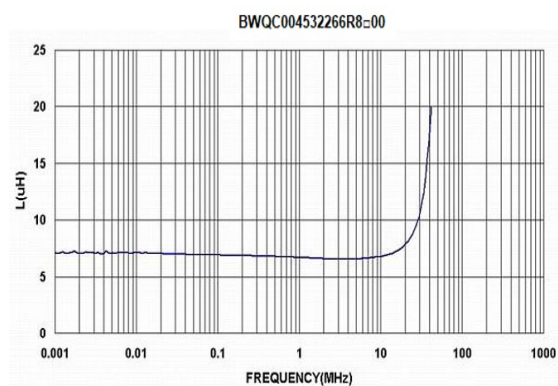
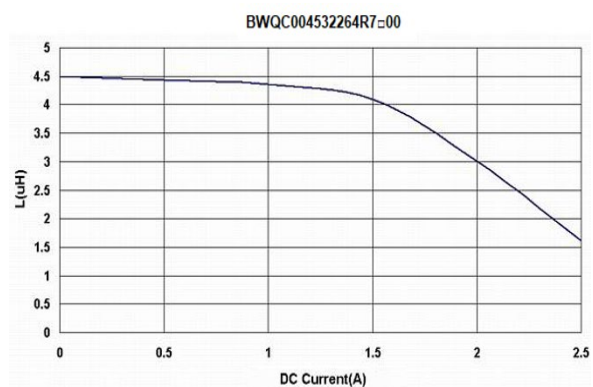
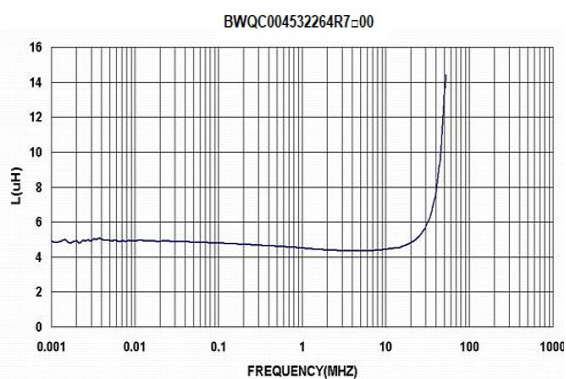
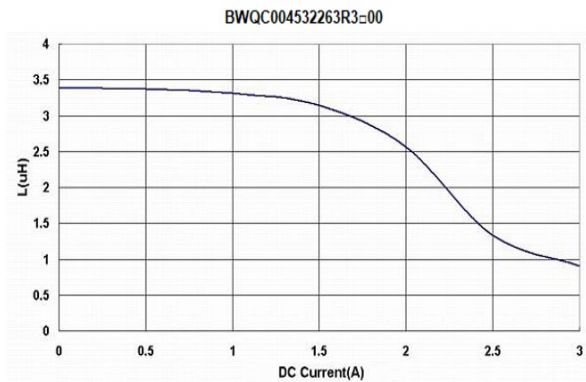
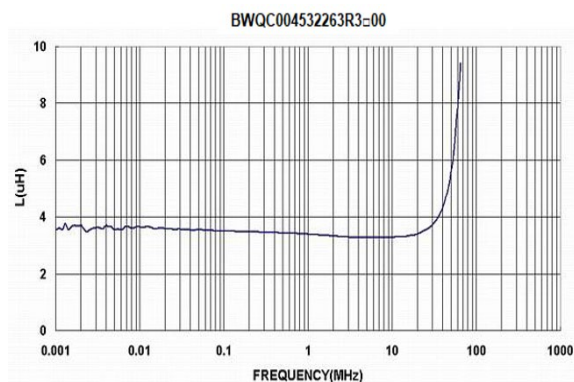
- Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
- Do not knock nor drop.
- All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, 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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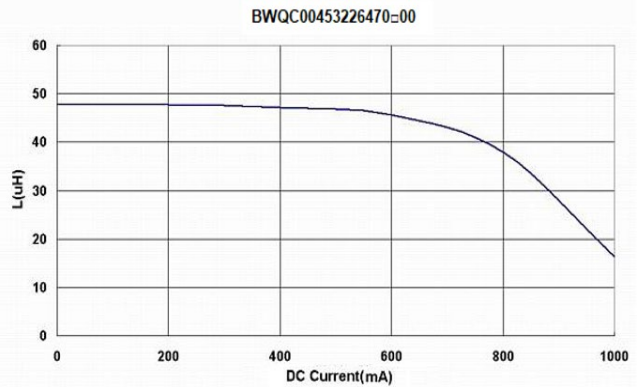
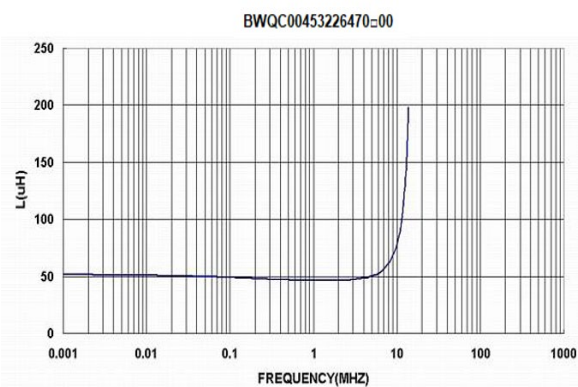
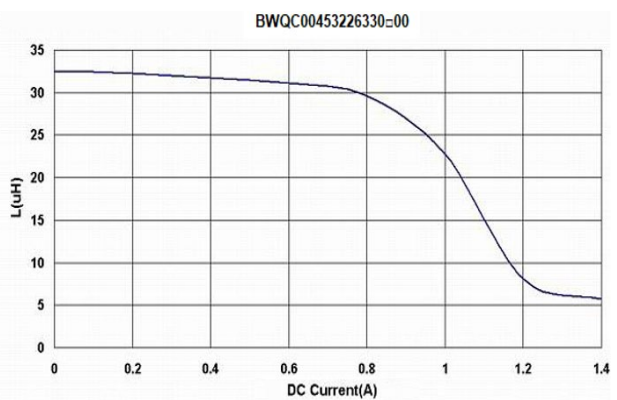
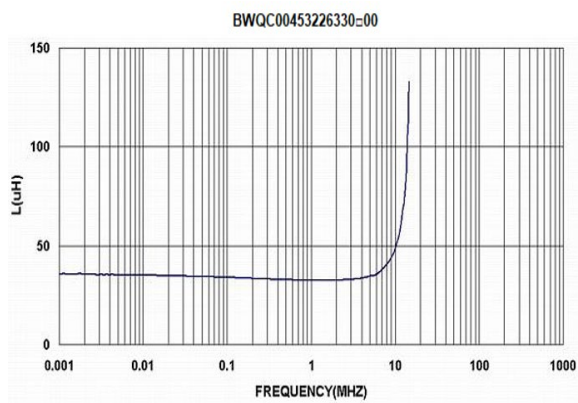
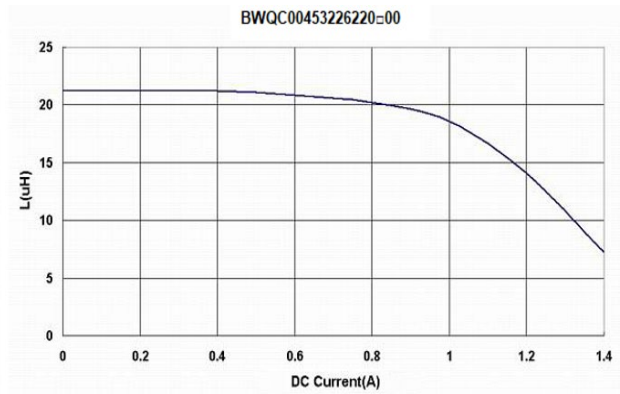
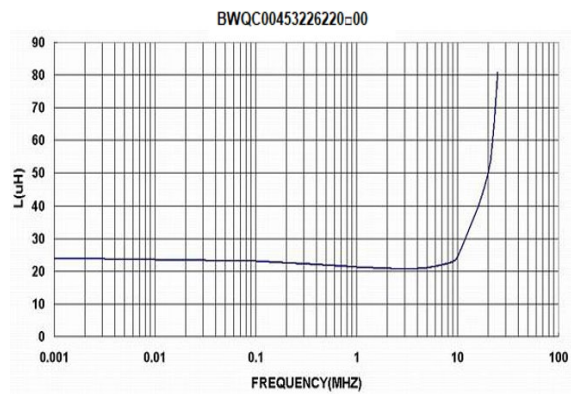
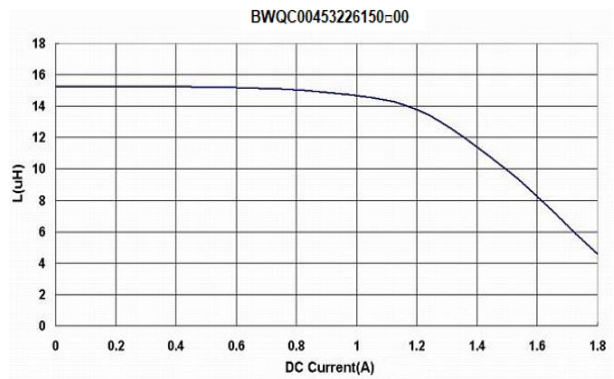
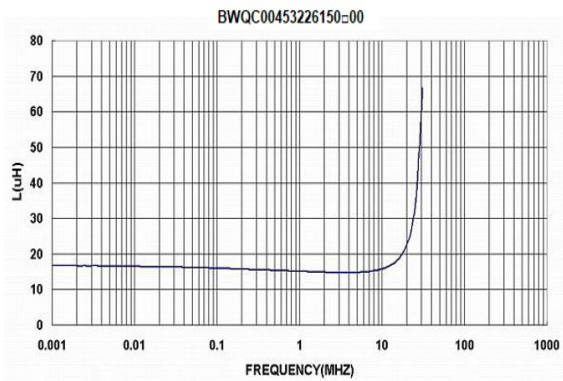
13 Graph: BWQC00453226 Series Graph



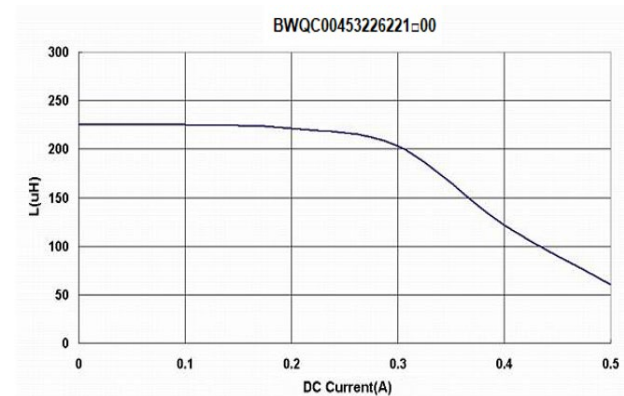
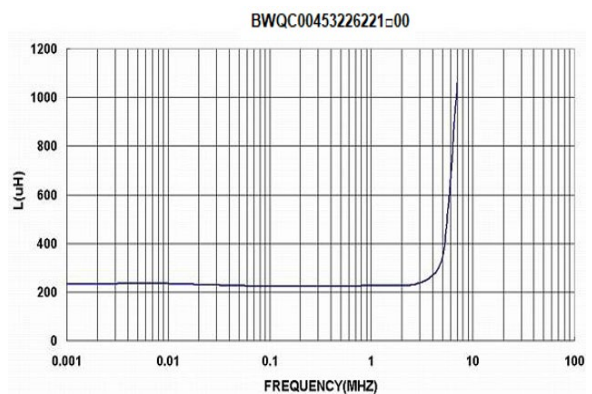
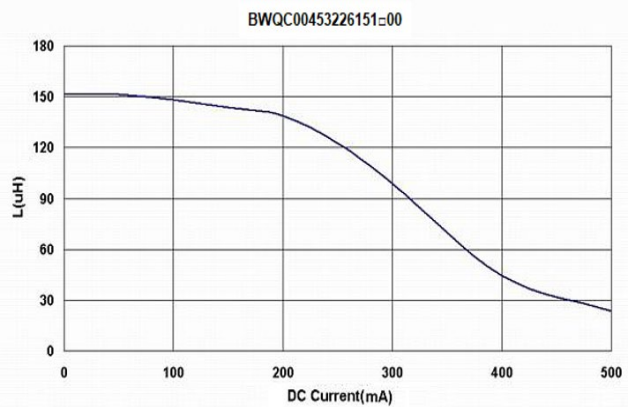
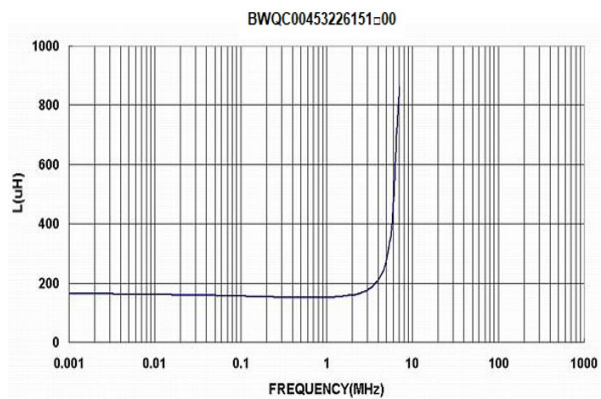
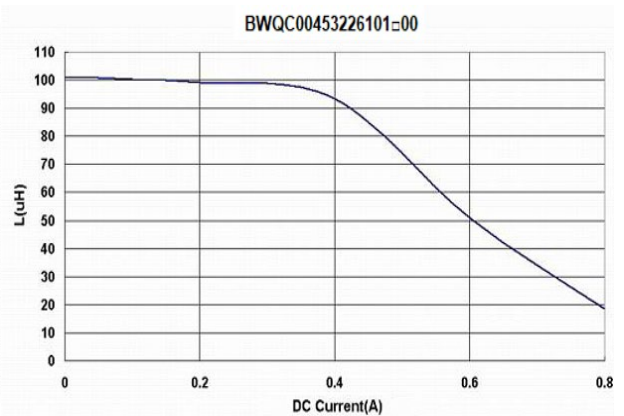
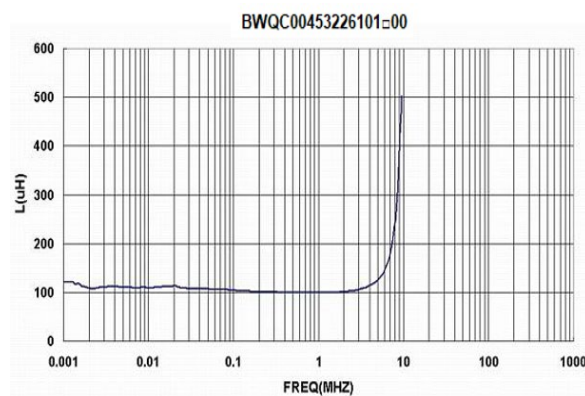
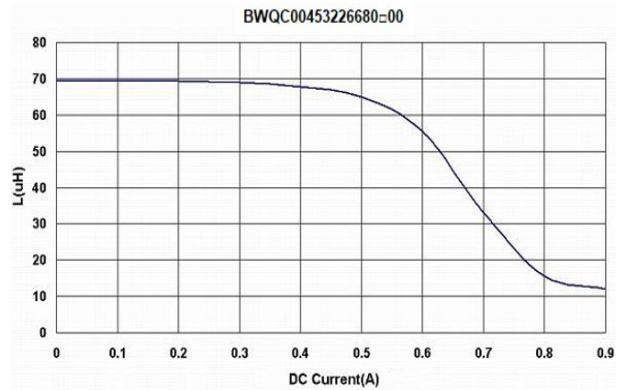
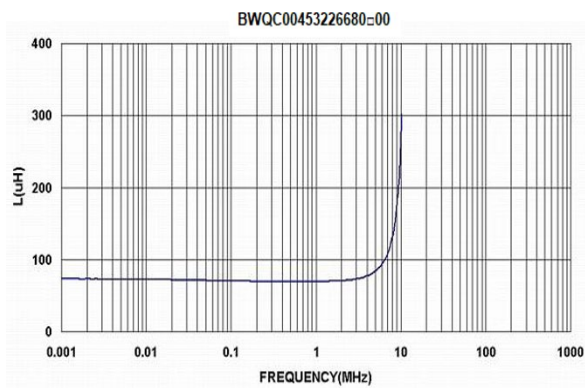
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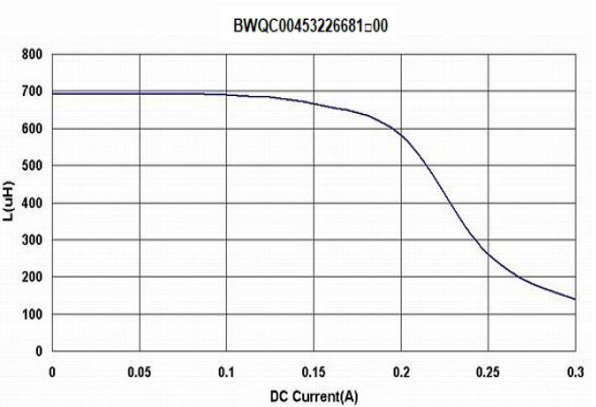
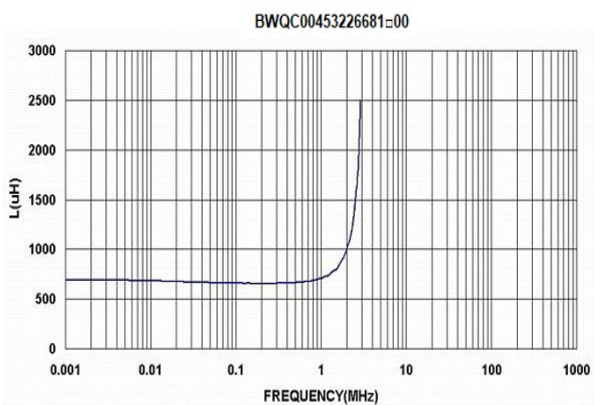
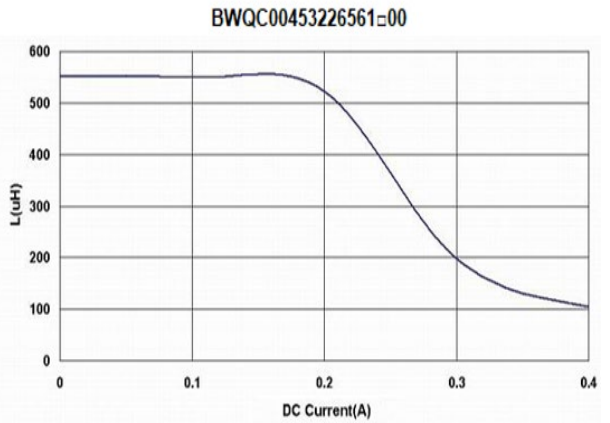
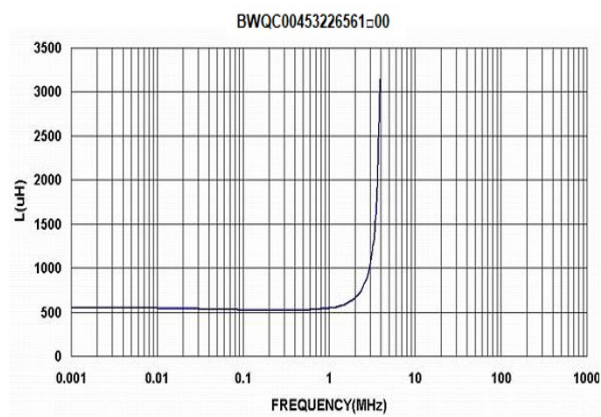
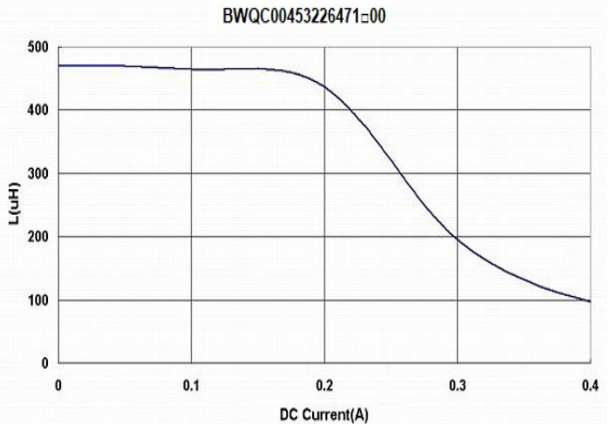
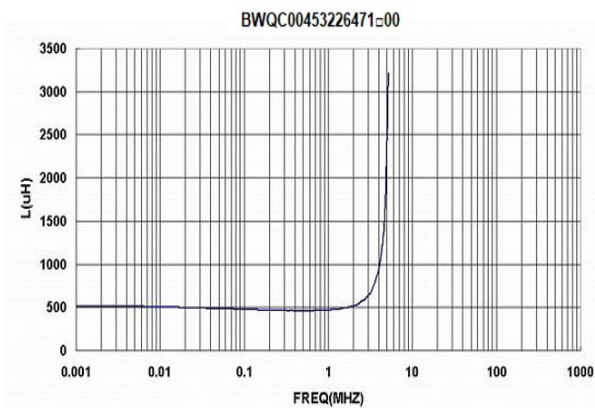
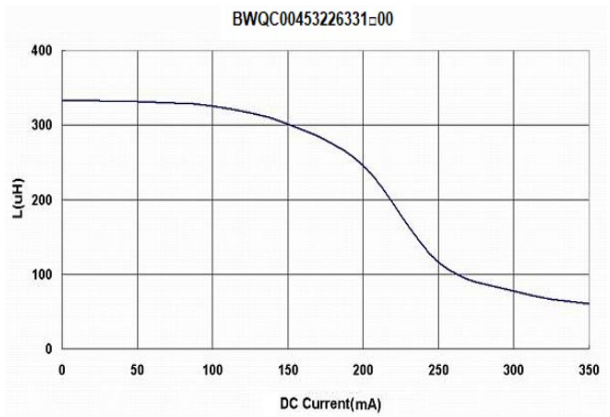
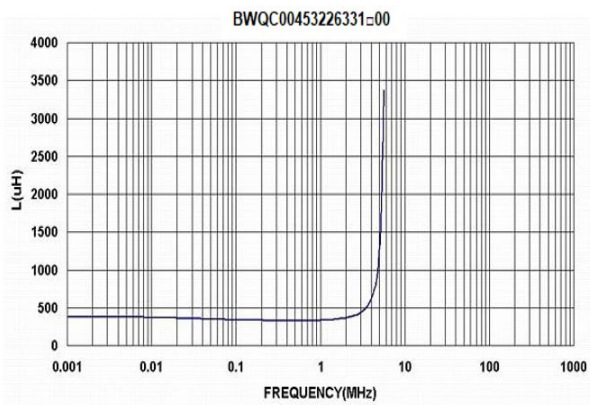
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