

# RF Inductor

## Automotive Grade

### AWVI 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. Wide Frequency Range
3. Low Signal Loss
4. High Current Handling
5. Can maintain excellent thermal stability at different temperatures

### Applications

1. Automotive Electronics: infotainment systems, ADAS, and car keyless entry systems.
2. Industrial and Medical Equipmen: RFID systems and medical imaging equipment.
3. Data Centers and Networking
4. Consumer Electronics

### Product Information

Series	Size Code (JIS/EIA)	Inductance (nH)
AWVI	3325/1210	0.68 ~ 1000

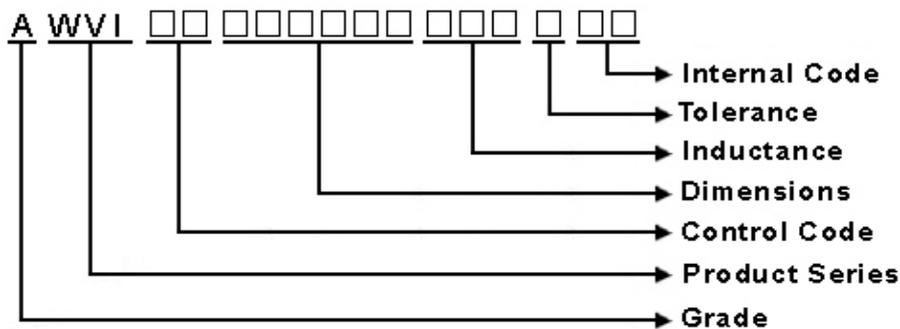


# AWVI00322522 Series Specification

AEC-Q200

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

**2 Part Numbering:**



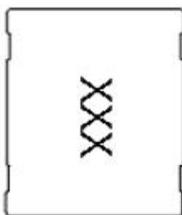
**3 Rating:**

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:**



**Ex Marking : 4R7**

**Marking color : Black**

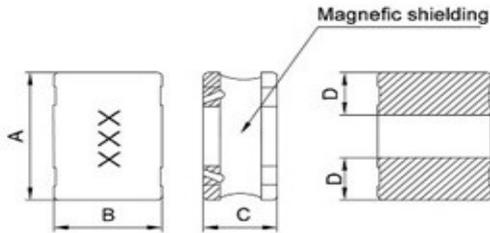
**5 Standard Testing Condition**

	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

# AWVI00322522 Series Specification

AEC-Q200

## 6 Configuration and Dimensions:



Dimensions in mm

TYPE	322522
A	3.2±0.2
B	2.5±0.2
C	2.2±0.2
D	1.1 typ.

Net Weight (grams)

SIZE CODE	Net Weight (grams)
322522	0.0618 (typ).

## 7 Electrical Characteristics:

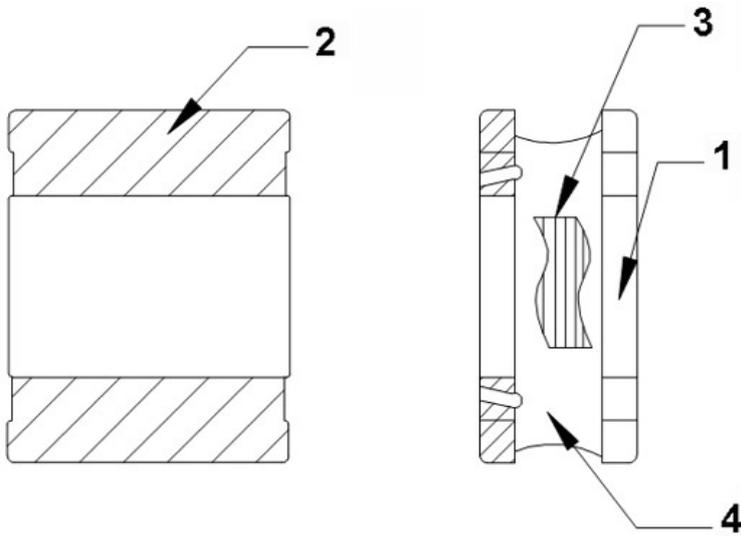
Part No.	Inductance (uH)	L/Q Test Freq. (MHz)	Q Min.	SRF (MHz)Min.	RDC (Ω)Max.	I <sub>rms</sub> (mA)Max.	Marking
AWVI00322522R68□H2	0.68	7.96/2.52	10	190	0.065	1400	R68
AWVI003225221R0□H2	1.0	7.96/2.52	10	150	0.1	1150	1R0
AWVI003225221R5□H2	1.5	7.96/2.52	10	110	0.14	900	1R5
AWVI003225221R8□H2	1.8	7.96/2.52	10	75	0.15	850	1R8
AWVI003225222R2□H2	2.2	7.96/2.52	10	70	0.16	800	2R2
AWVI003225222R7□H2	2.7	7.96/2.52	10	45	0.18	780	2R7
AWVI003225223R3□H2	3.3	7.96/2.52	10	45	0.18	770	3R3
AWVI003225224R7□H2	4.7	7.96/2.52	10	40	0.25	700	4R7
AWVI003225226R8□H2	6.8	7.96/2.52	10	35	0.35	570	6R8
AWVI00322522100□H2	10	2.52/2.52	12	25	0.46	500	100
AWVI00322522150□H2	15	2.52/2.52	12	20	0.72	390	150
AWVI00322522220□H2	22	2.52/2.52	12	14	1.0	330	220
AWVI00322522330□H2	33	2.52/2.52	15	10	1.4	280	330
AWVI00322522470□H2	47	2.52/2.52	15	8	2.1	230	470
AWVI00322522680□H2	68	2.52/2.52	15	8	3.4	180	680
AWVI00322522101□H2	100	0.796/0.796	17	6	4.8	150	101
AWVI00322522121□H2	120	0.796/0.796	17	5	6.2	140	121
AWVI00322522151□H2	150	0.796/0.796	17	5	7.5	120	151
AWVI00322522181□H2	180	0.796/0.796	17	4	9.8	110	181
AWVI00322522221□H2	220	0.796/0.796	17	4	10.9	100	221
AWVI00322522331□H2	330	0.796/0.796	17	3.5	13	90	331
AWVI00322522471□H2	470	0.796/0.796	17	2.5	20	76	471
AWVI00322522561□H2	560	0.796/0.796	10	2.5	27	70	561
AWVI00322522681□H2	680	0.796/0.796	10	2.0	31	61	681
AWVI00322522102□H2	1000	0.1/0.1	10	1.5	40	60	102

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

1. Operating temperature range - 4 0°C ~ 1 2 5°C (Including self - temperature rise)
2. I<sub>rms</sub> for a 15°C temperature rise from 25°C ambient.
3. L/Q Test OSC @100mV.

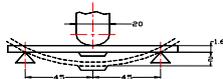
**8 AWVI00322522 Series**

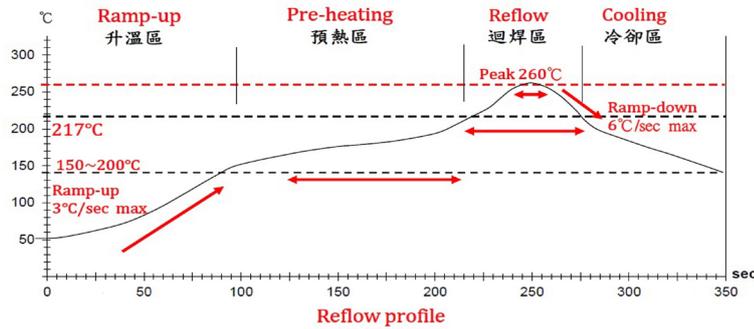
**8.1 Construction:**



**8.2 Material List:**

NO	Part	Material
1	Core	Ferrite
2	Terminal	Ag/Cu/Ni/Sn
3	Wire	Copper(180°C)
4	Epoxy	Magnetic powder resin(Black)

<b>9 Reliability of Wire Wound Power Inductors</b>			
<b>1-1.Mechanical Performance</b>			
<b>Item</b>	<b>Specification</b>	<b>Test Method</b>	
1-1-1	Board Flex The forces applied on the right conditions must not damage the terminal electrode and the ferrite.	Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 60 sec 	
1-1-2	Terminal Strength The chip must not damage the terminal electrode and the ferrite.	Appendix 1 Note(AEC-Q200-005):Force of 1.8 kg for 60 seconds.	
1-1-3	Solderability The electrodes shall be at least 95% covered with new solder coating.	Pre-heating: 150℃, 1min Solder Composition: Sn/3.0Ag/0.5Cu Solder Temperature: 245±5℃ Immersion Time: 4±1sec	
1-1-4	Resistance to Soldering Heat Appearance:No damage Inductance change shall be within ±10%.	Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260±5℃ Immersion Time: 10±1sec	
1-1-5	Resistance to Solvents There must be no change in appearance or obliteration of marking.	Inductors must withstand 6 minutes of alcohol or water.	
1-1-6	Mechanical Shock The forces applied on the right conditions must not damage the terminal electrode and the ferrite.	Pulse shape : Half-sine waveform Impact acceleration : 100 g Pulse duration : 6 ms Number of shocks : 18 shocks (3 shocks for each face) Orientation : Bottom, top, left, right, front and rear faces	
1-1-7	Vibration Appearance:No damage Inductance change shall be within ±10%.	Vibration waveform: Sine waveform Vibration frequency: 10Hz~2000Hz Vibration acceleration: 5g Sweep rate: 0.764386octave/minute Duration of test: 12 cycles each of 3 orientations 20 minutes for each cycle Vibration axes: X, Y & Z	
<b>1-2.Environmental Performance</b>			
<b>No</b>	<b>Item</b>	<b>Specification</b>	<b>Test Method</b>
1-2-1	High Temperature Exposure (Storage)	Appearance:No damage (for microscope of CASTOR MZ-4 20X)Inductance change shall be within ±10%.	Temperature: 125±3℃ Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-2	Operational Life		Temperature: 125±2℃ Applied Current : Rated Current Time: 1000± 24 hrs Measured after exposure in the room condition for 24hrs
1-2-3	Biased Humidity		Temperature: 85±2℃ Relative Humidity: 85% Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-4	Temperature Cycling		Total cycles: 1000 cycles Temperature Cycling Test Conditions : -40 to +125 ℃ Soak Mode Condition : 30 minutes Measured after exposure in the room condition for 24hrs
1-2-5	ESD		Test mode : Contact Discharge Discharge level : ±6KV, Discharge interval : 1 second Polarity of the output voltage : Positive and negative Number of discharge : Discharge +/- for 1 time for the 2 test points. Test Mode : Air Discharge Discharge level : ±12KV, ±16KV, ±25KV Discharge interval : < 5 seconds Polarity of the output voltage : Positive and negative Number of discharge : Discharge +/- for 1 time for the 1~2 test points.



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	-

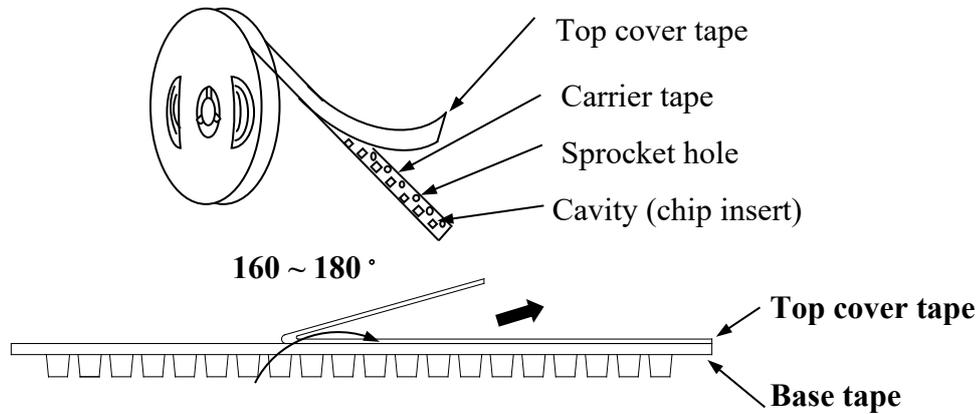
NOTE :

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

**10 Packaging:**

**10.1 Packaging -Cover tape**

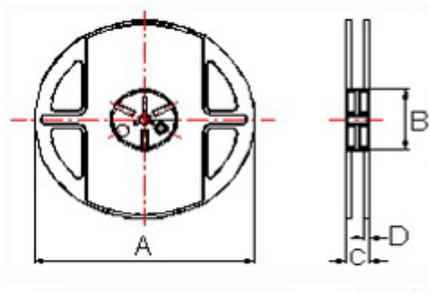
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



**10.2 Packaging Quantity**

TYPE	PCS/REEL
322522	1000

**10.3 Reel Dimensions**

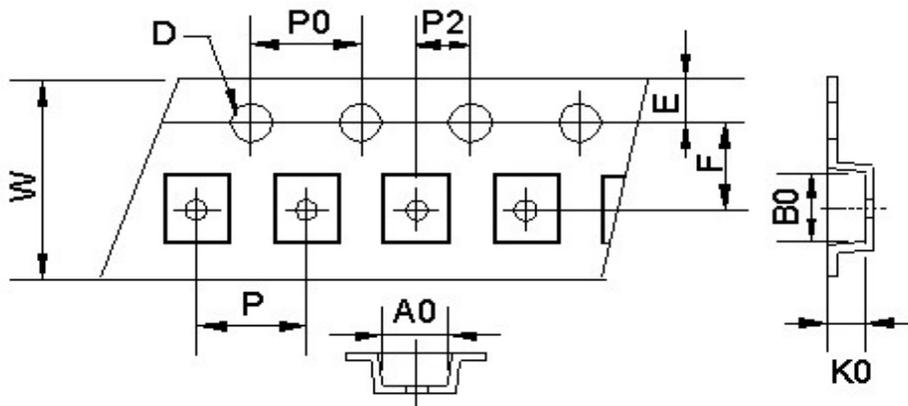


Dimensions in mm

TYPE	A	B	C	D
322522	178	60	12	1.5

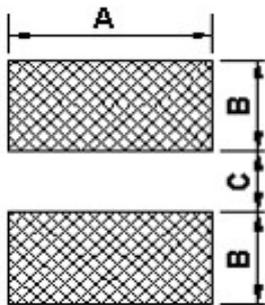
**10 Packaging:**

**10.4 Tape Dimensions in mm**



TYPE	A0	B0	K0	D	E	F	W	P	P0	P2
322522	2.8	3.4	2.4	1.5	1.75	3.5	8	4	4	2

**11 Recommended Land Pattern:**



Dimensions in mm

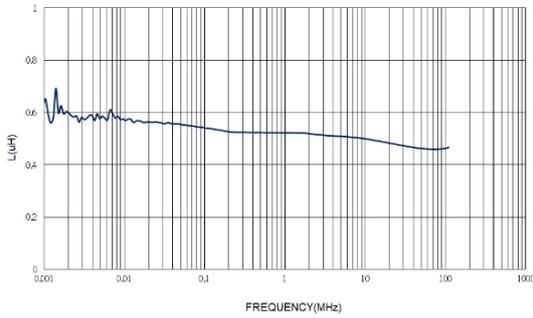
TYPE	A	B	C
322522	2.7	1.2	1.0

**12 Note:**

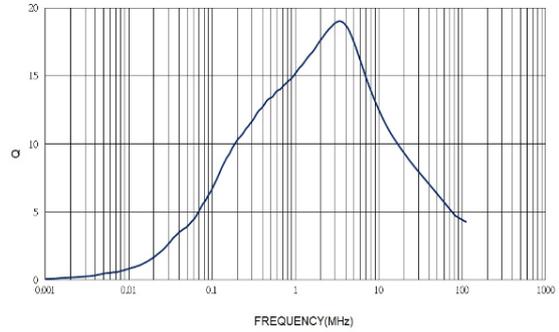
1. Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the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

**13** Graph: AWVI00322522-H2 Series Graph

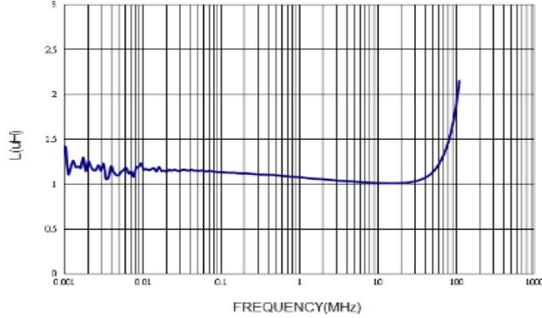
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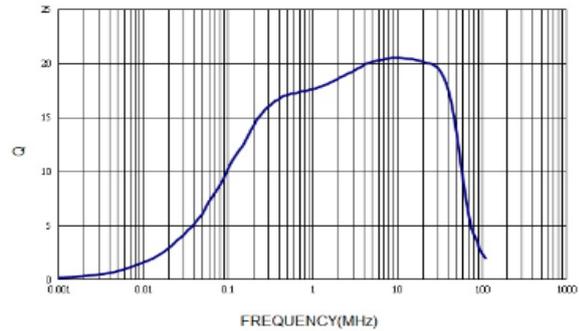
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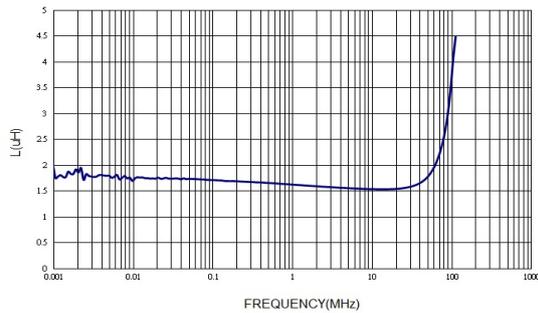
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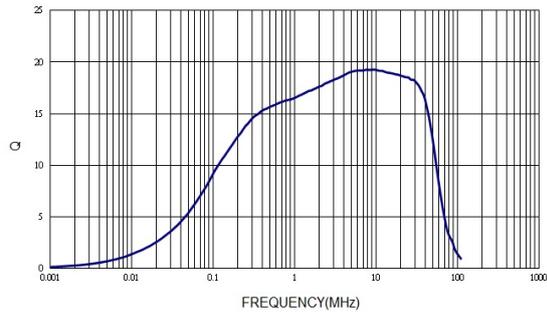
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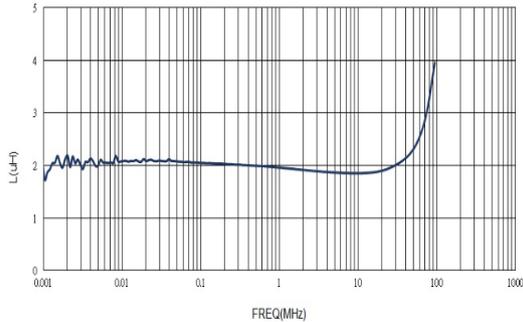
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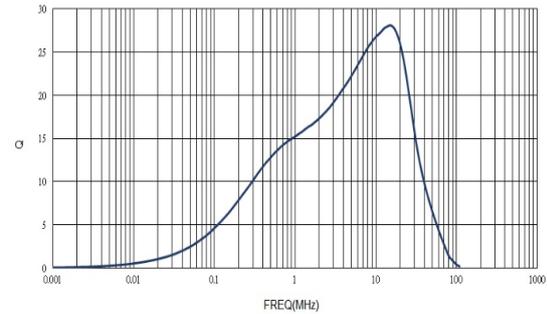
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**AWVI003225221R8-H2**

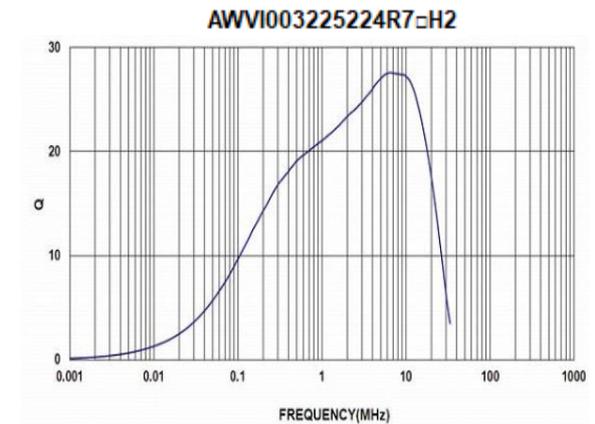
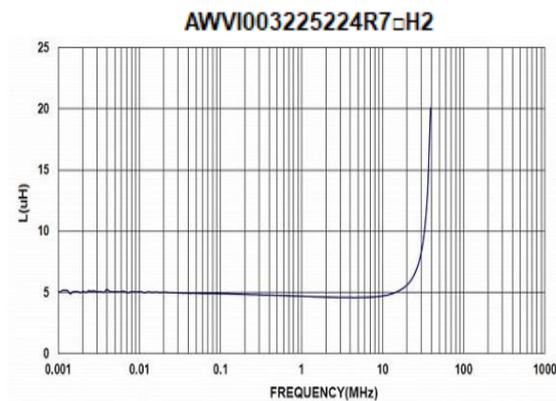
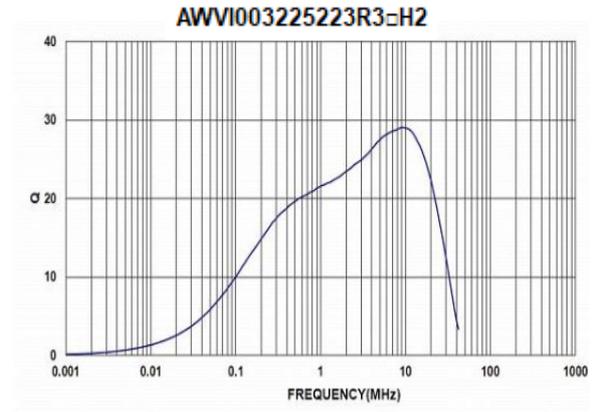
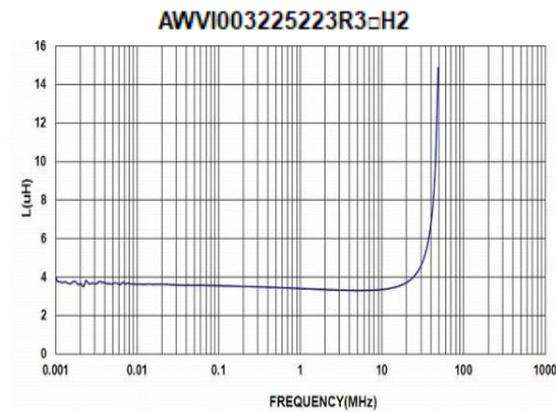
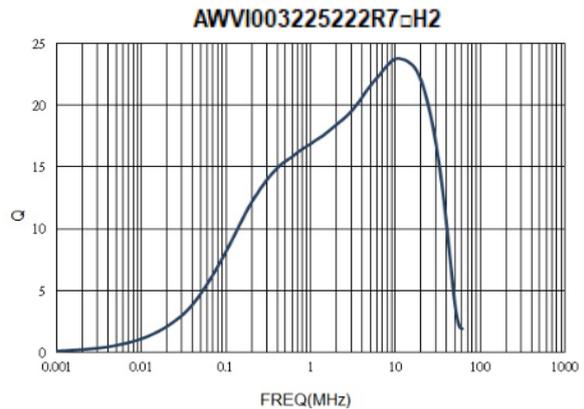
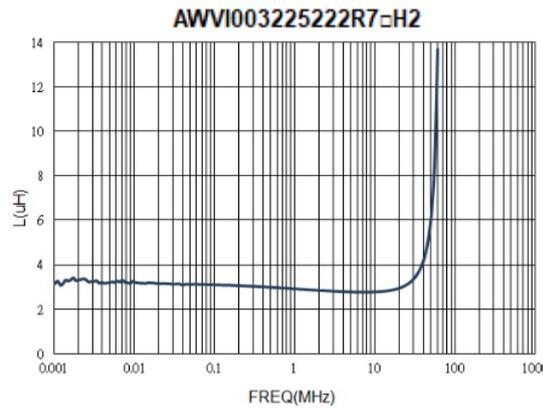
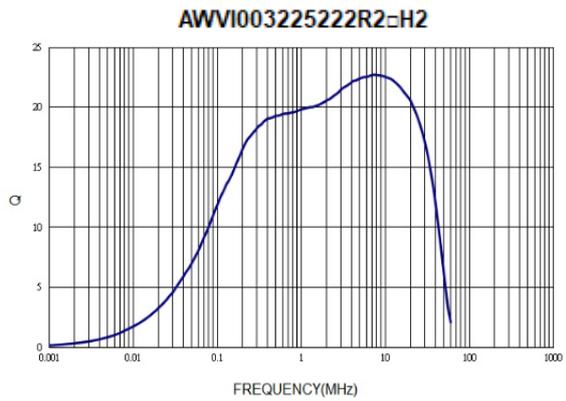
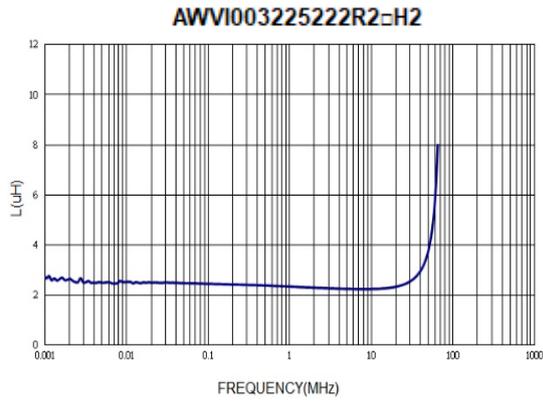


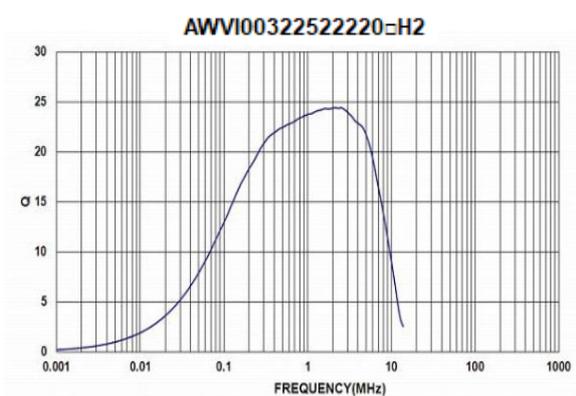
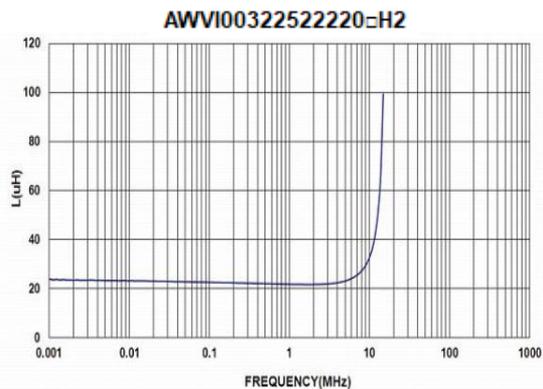
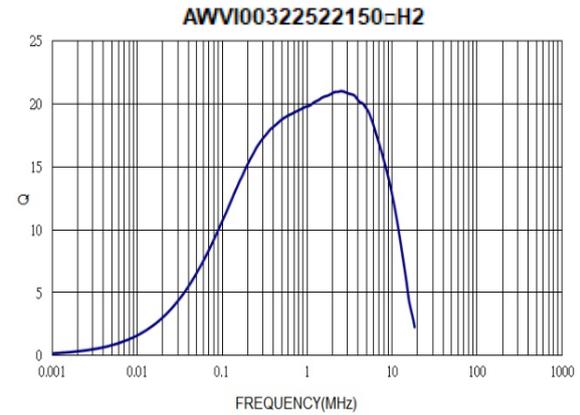
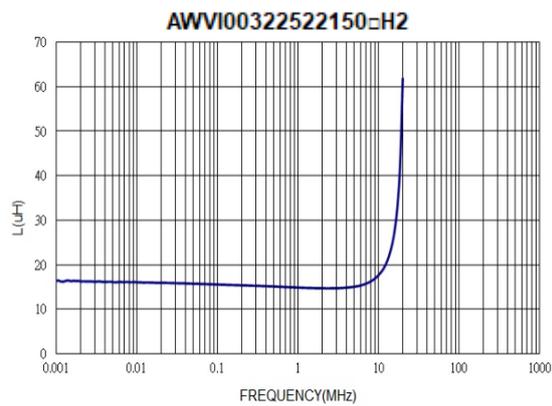
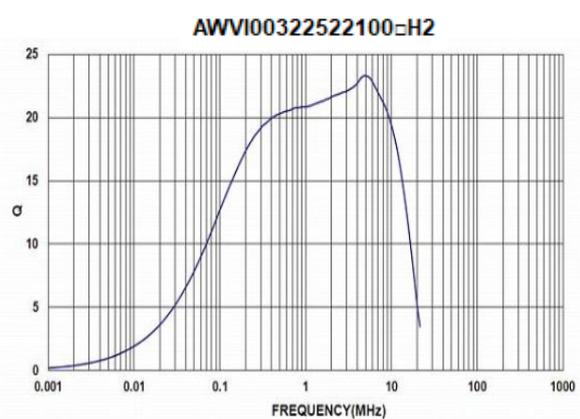
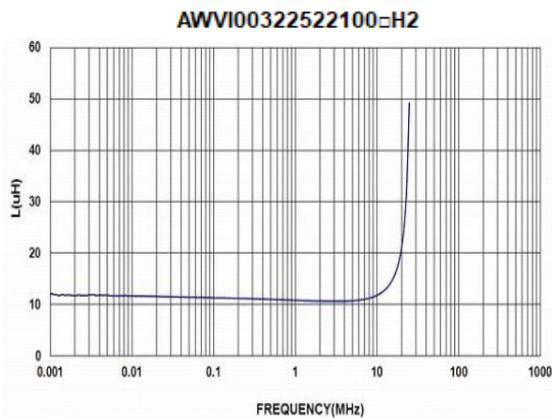
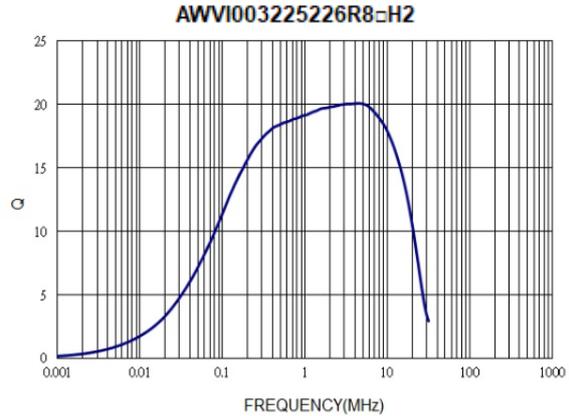
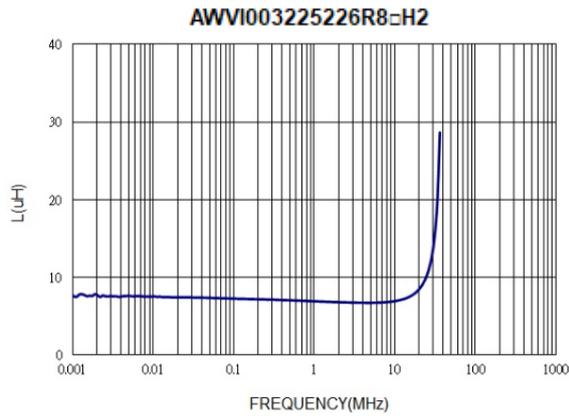
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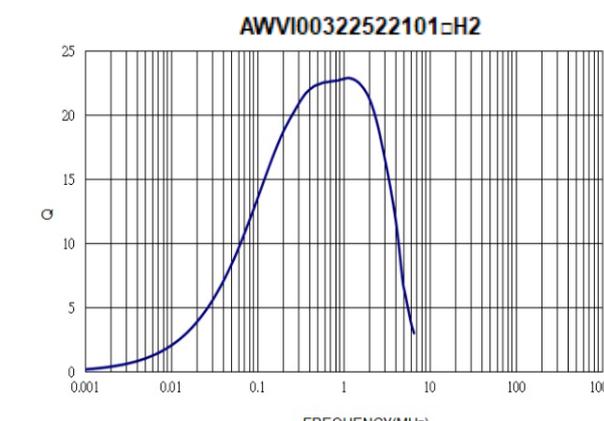
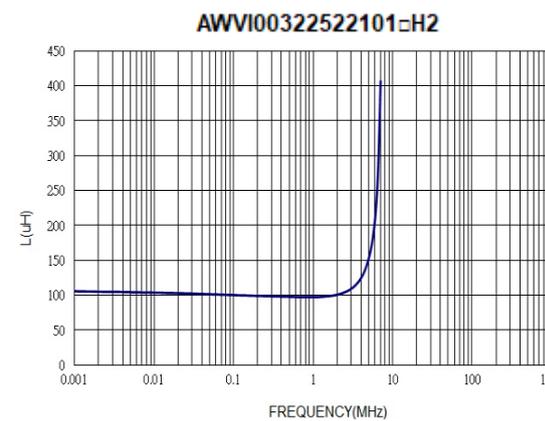
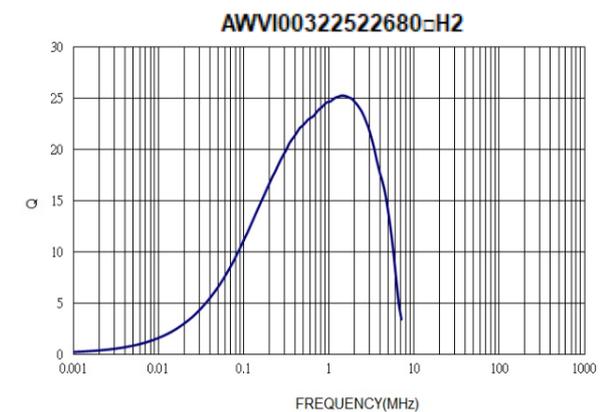
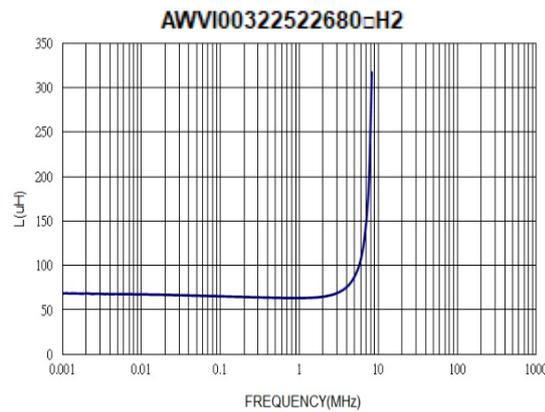
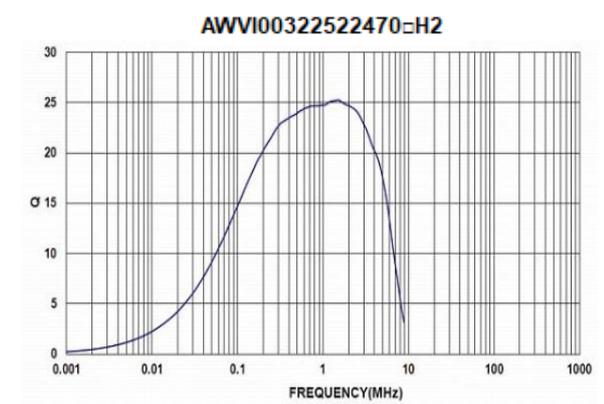
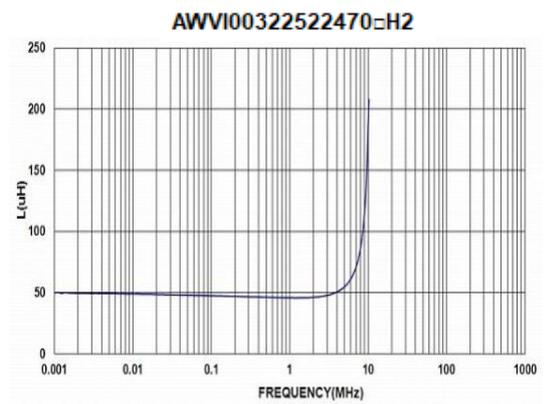
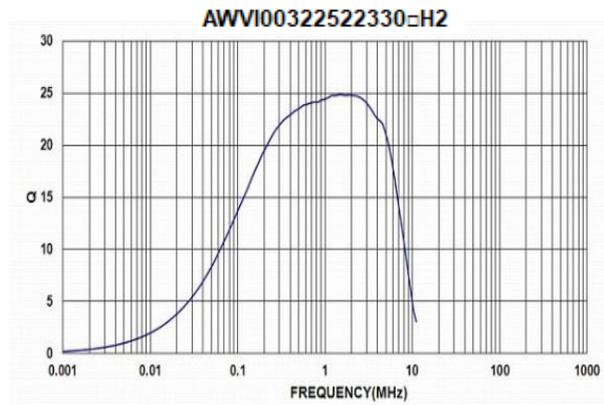
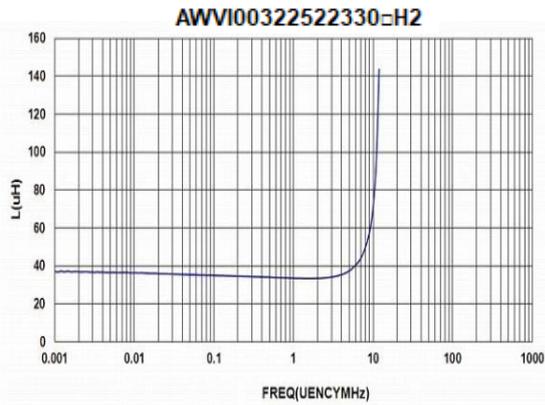


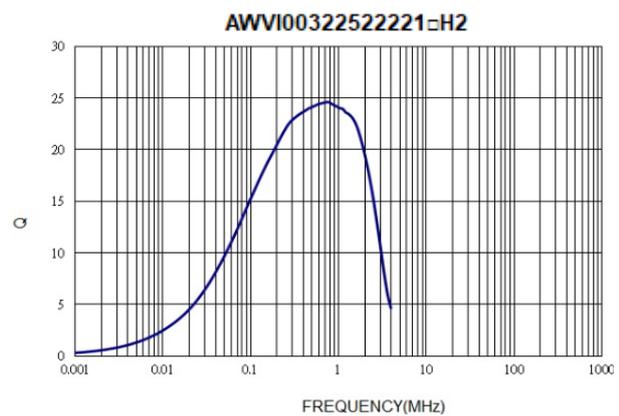
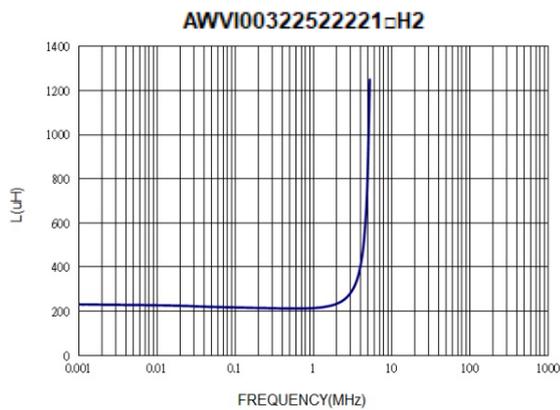
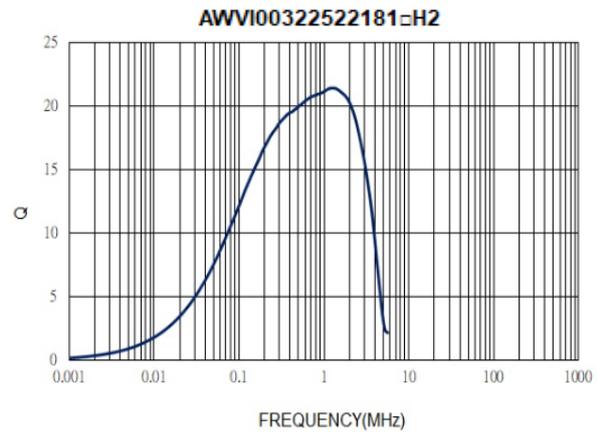
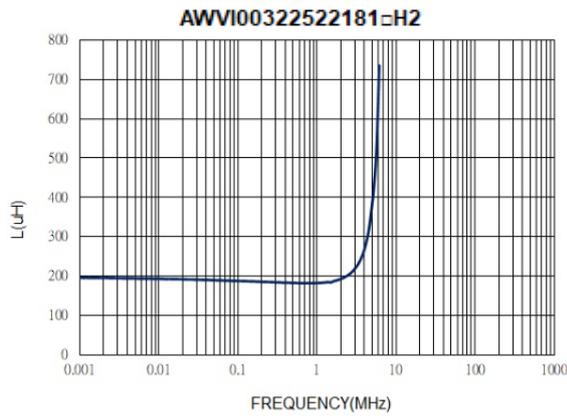
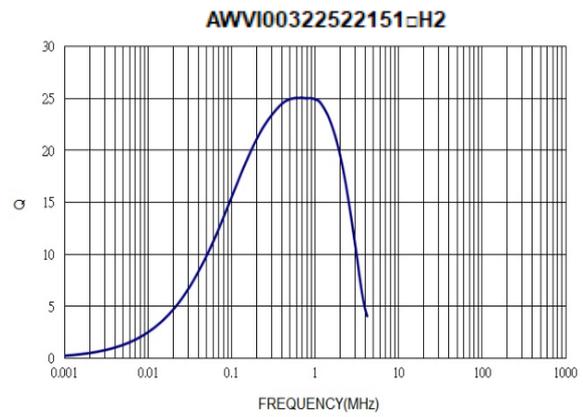
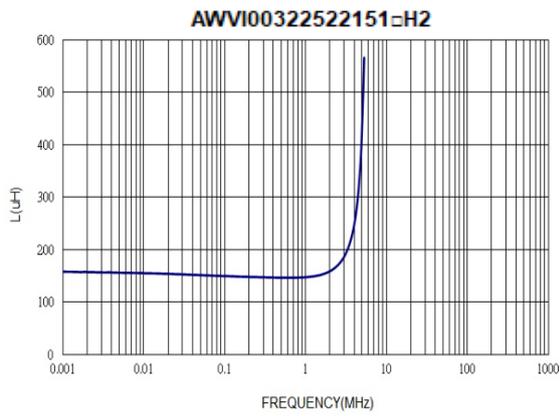
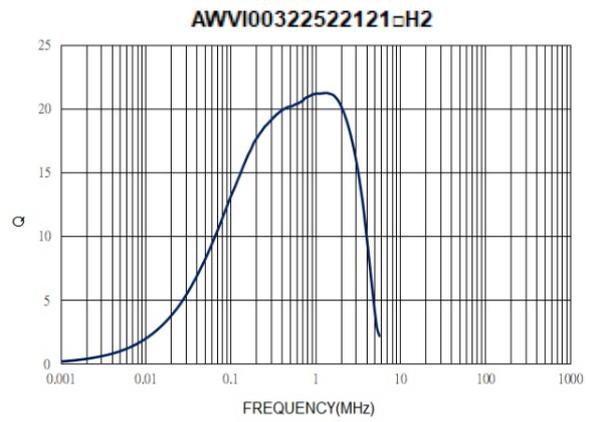
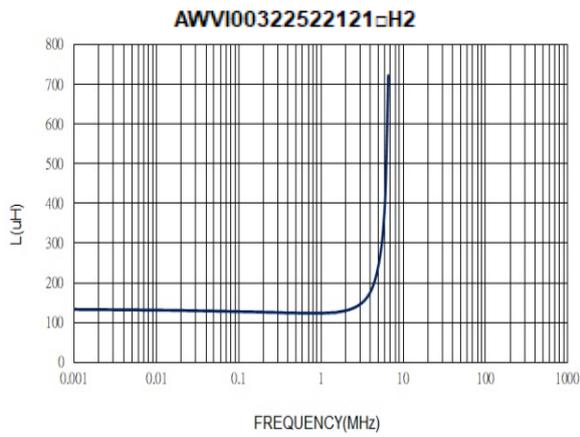
# AWVI00322522 Series Specification

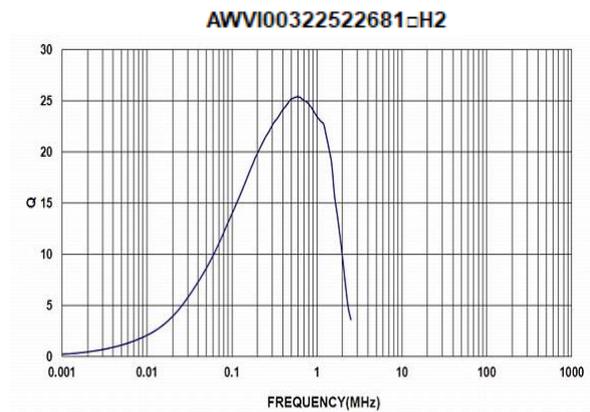
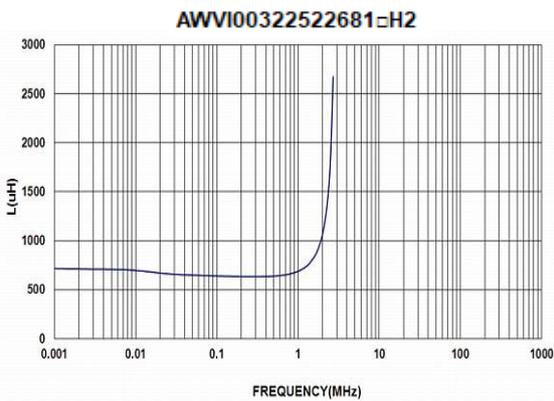
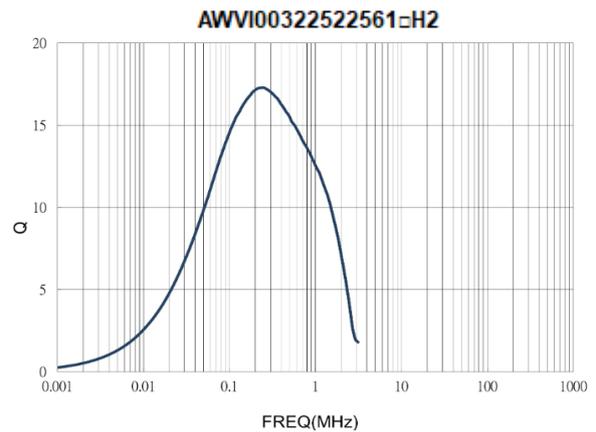
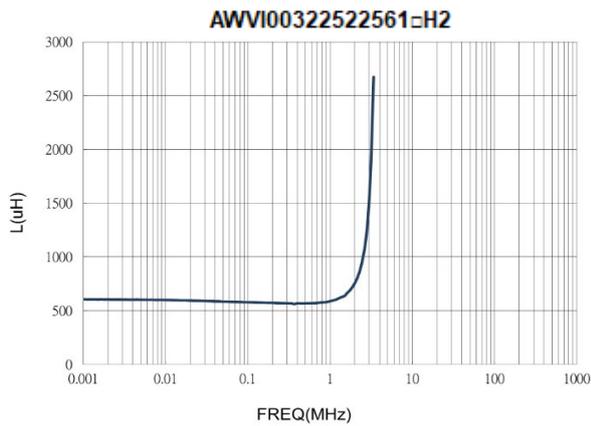
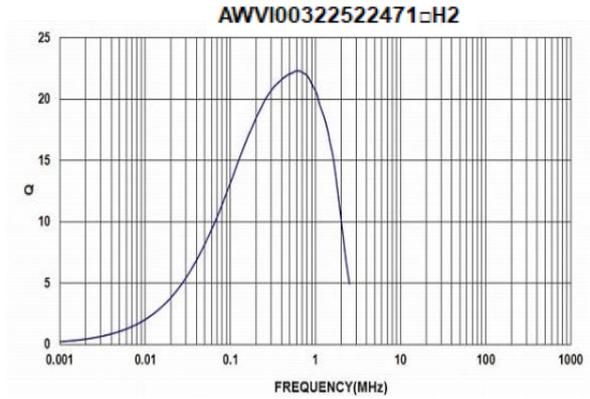
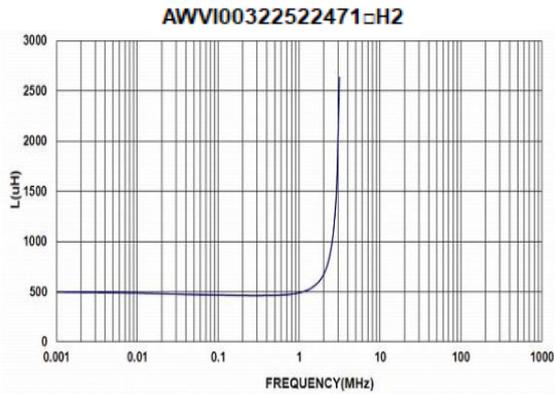
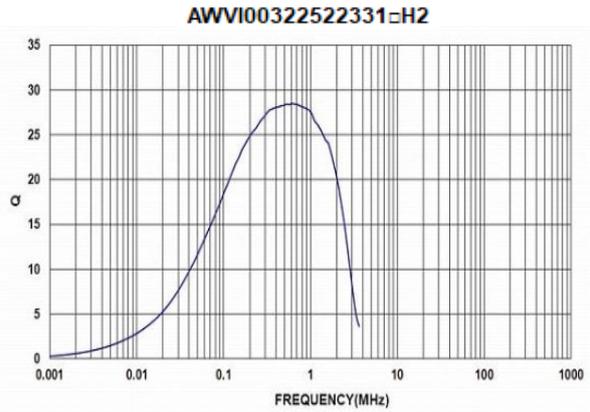
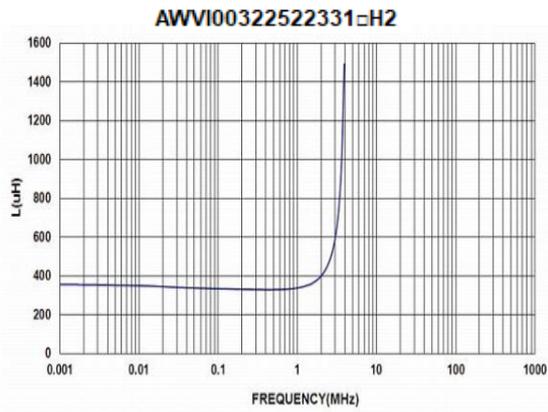
AEC-Q200











# AWVI00322522 Series Specification

AEC-Q200

