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RF Inductor

BSCQ Series

Overview

RF inductors are designed to operate at high frequencies, typically in the MHz to GHz range. Unlike power inductors, RF inductors are optimized for signal processing in radio frequency (RF) circuits. They play a vital role in tuning, filtering and impedance matching in communication and signal transmission systems.

Benefits

1. Excellent high frequency application
2. High Q factor and SRF value
3. Miniaturization
4. Tight tolerance

Applications

1. Communication Systems
2. RF matching circuit requiring Q value
3. Bluetooth, WLAN, UWB, digital TV tuners and high-frequency circuit and module

Product Information

Series	Size Code (JIS/EIA)	Inductance (nH)
BSCQ	0603/0201	0.1 ~ 22



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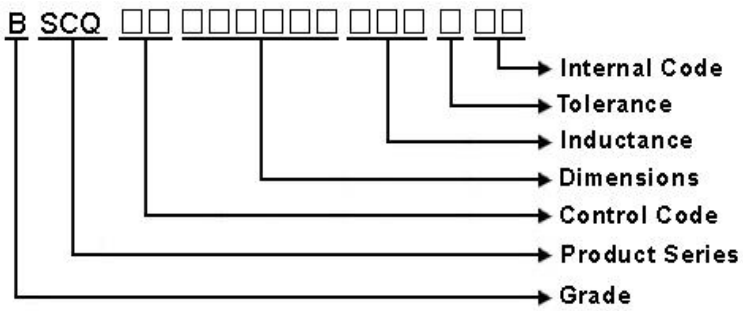
BSCQ00060303 Series Specification

1 Scope: This specification applies to Multilayer ceramic chip inductors

2 Part Numbering:

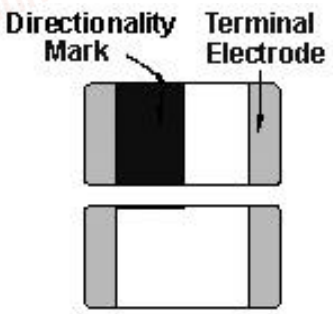


3 Rating:

Operating Temperature: - 55℃ ~ 125℃(Including self - temperature rise)

Storage Temperature: - 55℃ ~ 125℃(after PCB)
- 5℃~40℃,Humidity 40%~70%(before PCB)

4 Marking:



5 Standard Testing Condition

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35℃)	20 to 30℃
Humidity	Ordinary Humidity(25 to 85% RH)	50 to 80 %RH

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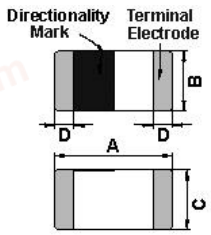
6 Configuration and Dimensions:



Dimensions in mm

TYPE	060303
A	0.60±0.03
B	0.30±0.03
C	0.30±0.03
D	0.15±0.05

Net Weight (grms)

Size Code	Net Weight (grms)
060303	0.000175

7 Electrical Characteristics:

Part No.	Inductance (nH)	L,Q Test Freq.	Q Min.	SRF (MHz)Min.	RDC (Ω)Max.	IDC (mA)Max.	Tolerance
BSCQ000603030N6□00	0.6	500 MHz,500 mV	14	10000	0.06	900	B,C,S
BSCQ000603030N7□00	0.7	500 MHz,500 mV	14	10000	0.06	900	B,C,S
BSCQ000603030N8□00	0.8	500 MHz,500 mV	14	10000	0.06	900	B,C,S
BSCQ000603030N9□00	0.9	500 MHz,500 mV	14	10000	0.06	900	B,C,S
BSCQ000603031N0□00	1	500 MHz,500 mV	14	10000	0.07	850	B,C,S
BSCQ000603031N1□00	1.1	500 MHz,500 mV	14	10000	0.07	850	B,C,S
BSCQ000603031N2□00	1.2	500 MHz,500 mV	14	10000	0.08	800	B,C,S
BSCQ000603031N3□00	1.3	500 MHz,500 mV	14	10000	0.09	760	B,C,S
BSCQ000603031N4□00	1.4	500 MHz,500 mV	14	10000	0.12	640	B,C,S
BSCQ000603031N5□00	1.5	500 MHz,500 mV	14	10000	0.15	600	B,C,S
BSCQ000603031N6□00	1.6	500 MHz,500 mV	14	10000	0.19	510	B,C,S
BSCQ000603031N7□00	1.7	500 MHz,500 mV	14	10000	0.11	680	B,C,S
BSCQ000603031N8□00	1.8	500 MHz,500 mV	14	10000	0.12	640	B,C,S
BSCQ000603031N9□00	1.9	500 MHz,500 mV	14	10000	0.13	620	B,C,S
BSCQ000603032N0□00	2	500 MHz,500 mV	14	10000	0.15	600	B,C,S
BSCQ000603032N1□00	2.1	500 MHz,500 mV	14	10000	0.16	550	B,C,S
BSCQ000603032N2□00	2.2	500 MHz,500 mV	14	10000	0.2	500	B,C,S
BSCQ000603032N3□00	2.3	500 MHz,500 mV	14	10000	0.24	460	B,C,S
BSCQ000603032N4□00	2.4	500 MHz,500 mV	14	10000	0.26	430	B,C,S
BSCQ000603032N5□00	2.5	500 MHz,500 mV	14	10000	0.28	415	B,C,S
BSCQ000603032N6□00	2.6	500 MHz,500 mV	14	10000	0.3	405	B,C,S
BSCQ000603032N7□00	2.7	500 MHz,500 mV	14	10000	0.32	400	B,C,S
BSCQ000603032N8□00	2.8	500 MHz,500 mV	14	9500	0.2	500	B,C,S
BSCQ000603032N9□00	2.9	500 MHz,500 mV	14	9300	0.22	480	B,C,S
BSCQ000603033N0□00	3	500 MHz,500 mV	14	9100	0.24	460	B,C,J,S

NOTE: □-tolerance B=±0.1nH / C=±0.2nH / S=±0.3nH / H=±3% / J=±5%

1.Operating temperature range - 5 5℃~ 1 2 5℃(Including self - temperature rise)

2.IDC:Applied the current to coils, the inductance shall be less than 10% initial value.

3.Residual impedance of short chip : 0.48nH

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Part No.	Inductance (nH)	L,Q Test Freq.	Q Min.	SRF (MHz)Min.	RDC (Ω)Max.	IDC (mA)Max.	Tolerance
BSCQ000603033N1□00	3.1	500 MHz,500 mV	14	8900	0.25	450	B,C,S
BSCQ000603033N2□00	3.2	500 MHz,500 mV	14	8700	0.28	415	B,C,S
BSCQ000603033N3□00	3.3	500 MHz,500 mV	14	8600	0.28	415	B,C,S
BSCQ000603033N4□00	3.4	500 MHz,500 mV	14	8400	0.29	410	B,C,S
BSCQ000603033N5□00	3.5	500 MHz,500 mV	14	8200	0.3	405	B,C,S
BSCQ000603033N6□00	3.6	500 MHz,500 mV	14	8100	0.32	400	B,C,S
BSCQ000603033N7□00	3.7	500 MHz,500 mV	14	8000	0.36	370	B,C,S
BSCQ000603033N8□00	3.8	500 MHz,500 mV	14	7800	0.4	355	B,C,S
BSCQ000603033N9□00	3.9	500 MHz,500 mV	14	7700	0.41	350	B,C,S
BSCQ000603034N3□00	4.3	500 MHz,500 mV	14	6500	0.48	320	C,S
BSCQ000603034N7□00	4.7	500 MHz,500 mV	14	6400	0.42	350	H,C,S
BSCQ000603035N1□00	5.1	500 MHz,500 mV	14	6100	0.45	330	C,S
BSCQ000603035N6□00	5.6	500 MHz,500 mV	14	5500	0.47	325	C,S
BSCQ000603036N2□00	6.2	500 MHz,500 mV	14	5100	0.52	305	H,C,S
BSCQ000603036N8□00	6.8	500 MHz,500 mV	14	4800	0.55	305	H,J
BSCQ000603037N5□00	7.5	500 MHz,500 mV	14	4600	0.55	305	H,J
BSCQ000603038N2□00	8.2	500 MHz,500 mV	14	4300	0.57	290	H,J
BSCQ000603039N1□00	9.1	500 MHz,500 mV	14	4000	0.65	270	H,J
BSCQ0006030310N□00	10	500 MHz,500 mV	14	3800	0.85	230	H,J
BSCQ0006030312N□00	12	500 MHz,500 mV	12	3300	0.85	230	H,J
BSCQ0006030315N□00	15	500 MHz,500 mV	12	2600	0.89	220	H,J
BSCQ0006030318N□00	18	500 MHz,500 mV	12	2300	1.05	205	H,J
BSCQ0006030322N□00	22	500 MHz,500 mV	12	1900	1.29	190	H,J

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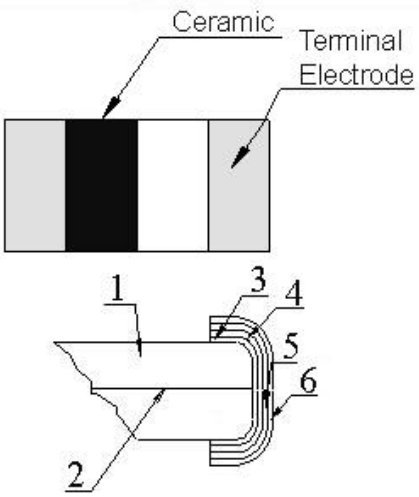
8 BSCQ00060303 Series

8.1 Construction:



8.2 Material List:

NO	PART	MATERIAL
1	**Main Substance**	Al2O3-B2O3-SiO2
2	**Silver electrode**	**Ag**
3	**Silver electrode**	**Ag**
4	**Cu plating**	**Cu**
5	**Ni plating**	**Ni**
6	**Sn plating**	**Sn**

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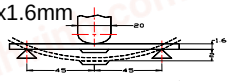
9 Reliability Of Ceramic Multilayer Chip Inductor For High Freq.

1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Flexure Strength	The forces applied on the right conditions must not damage the terminal electrode and the Ceramic.	Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm  Keeping Time: 30sec *For 100505, substrate dimension is 100x40x0.8mm
1-1-2	Vibration		Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-3	Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 260±5℃ Immersion Time: 10±1sec
1-1-4	Solder ability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245±5℃(Pb-Free) Immersion Time: 4±1sec

1-2.Environmental Performance

No	Item	Specification	Test Method
1-2-1	Temperature Cycle	Appearance: No damage Inductance:within±10% of initial value Q change:within±30% of initial value	One cycle: Step / Temperature (℃) / Time (min) 1 / -55±3 / 30 2 / 25±2 / 3 3 / 125±3 / 30 4 / 25±2 / 3 Total: 100cycles Measured after exposure in the room condition for 24hrs
1-2-2	Humidity Resistance		Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-3	High Temperature Resistance		Temperature: 125±3℃ Relative Humidity: 0% Applied Current: Rated Current / Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-4	Low Temperature Resistance		Temperature: -55±3℃ Relative Humidity: 0% / Time: 1000hrs Measured after exposure in the room condition for 24hrs

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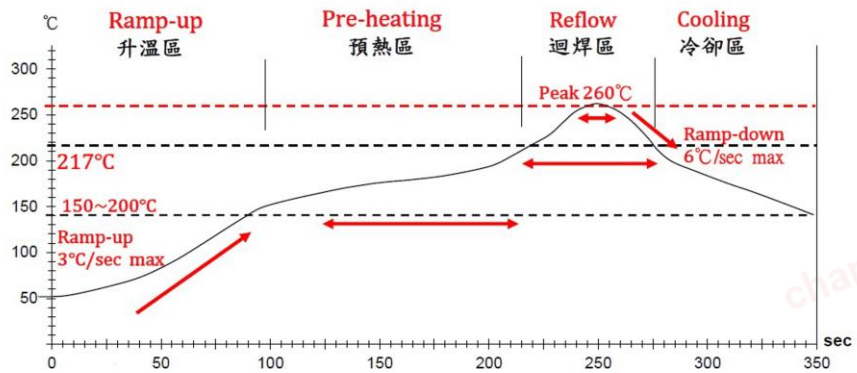
BSCQ00060303 Series Specification



Reflow profile

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℃	150℃ ~ 200℃	Above 217℃	260±5℃	Peak Temp.~150℃
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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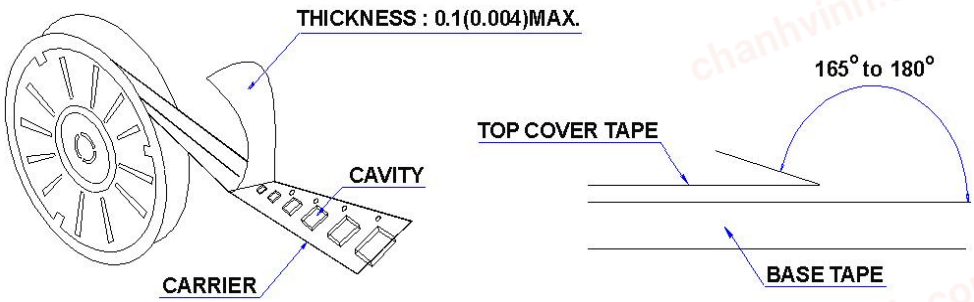
10 Packaging:

10.1 Packaging -Cover Tape

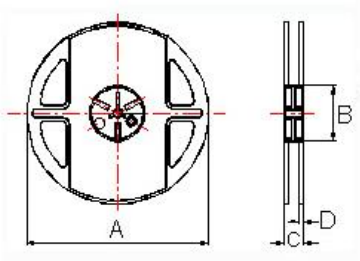
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
060303	15000

10.3 Reel Dimensions



Dimensions in mm

TYPE	A	B	C	D
060303	180	60	13	1.5

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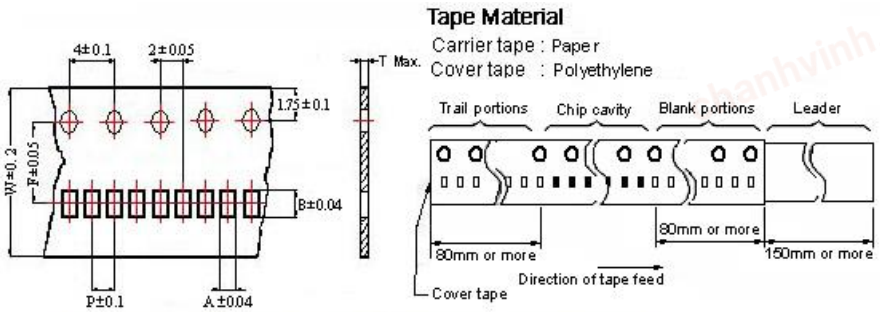
BSCQ00060303 Series Specification

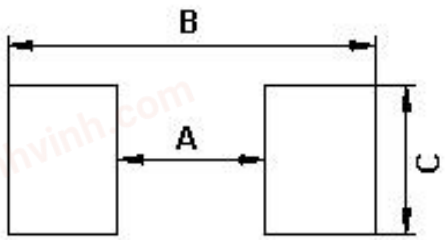
10 Packaging:

10.4 Tape Dimensions in mm



TYPE	A	B	T	W	P	F
060303	0.37	0.67	0.42	8	2	3.5

11 Recommended Land Pattern:



Dimensions in mm

TYPE	A	B	C
060303	0.3	0.75~1.05	0.3

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. Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)
5. The moisture sensitivity level (MSL) of products is classified as level 1.

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BSCQ00060303 Series Specification

13 Graph:

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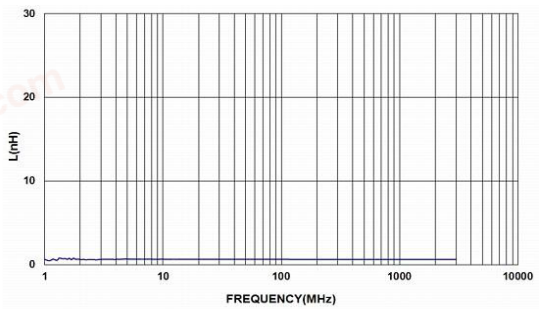

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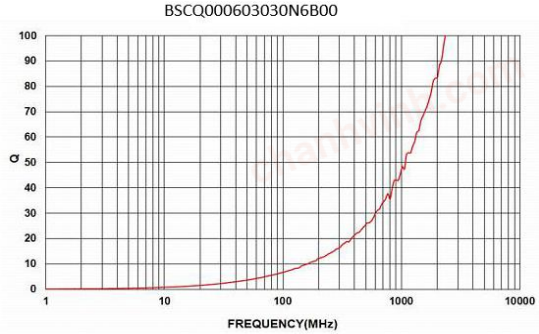

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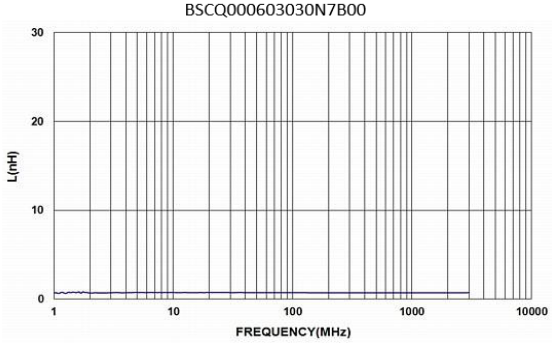

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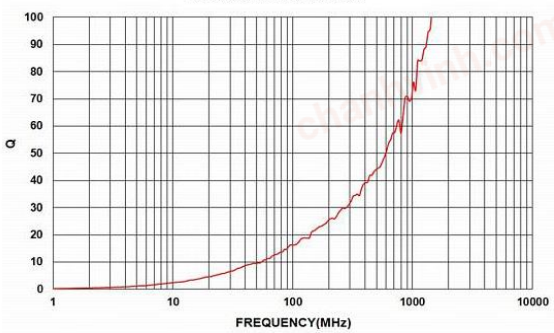

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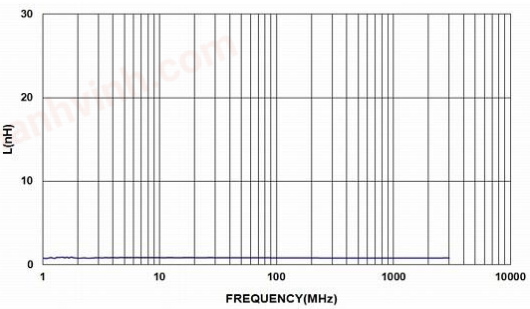

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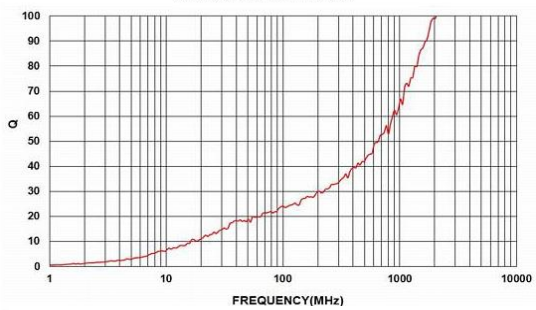

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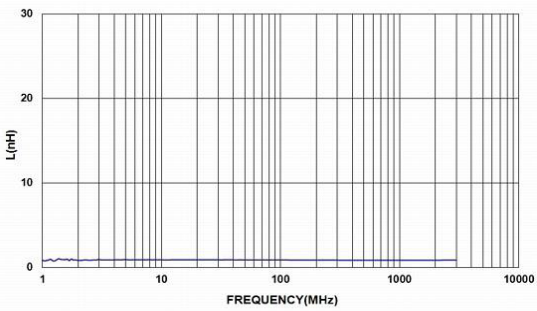

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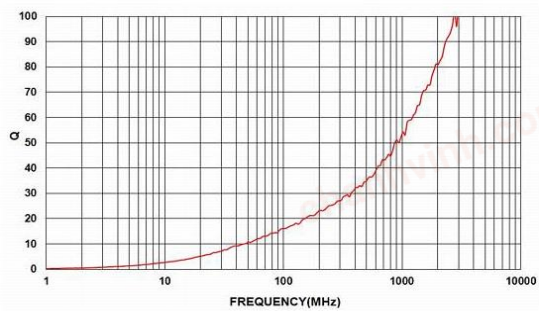

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BSCQ00060303 Series Specification

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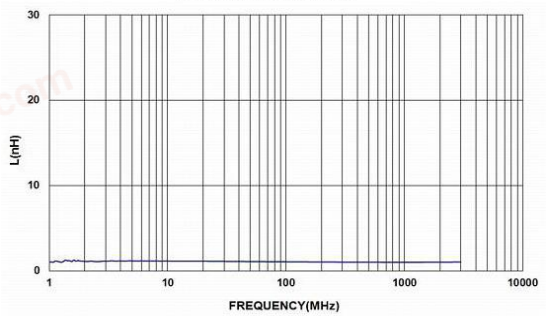

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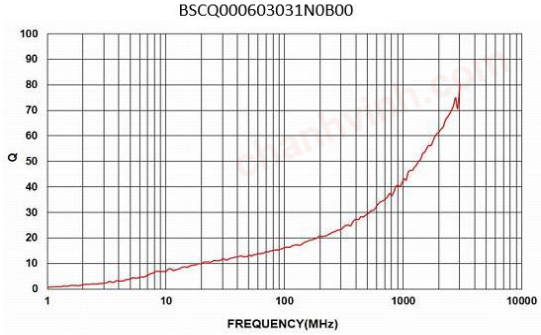

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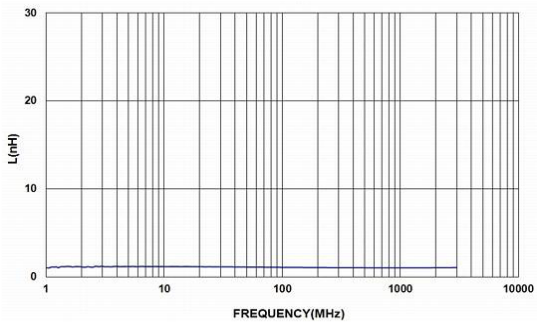

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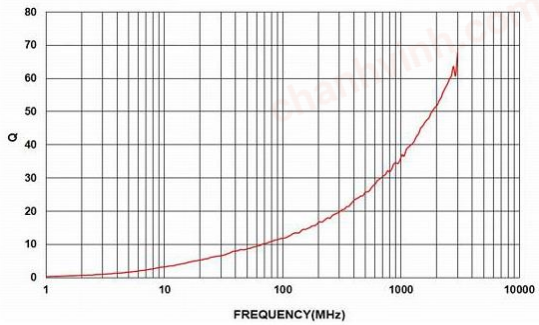

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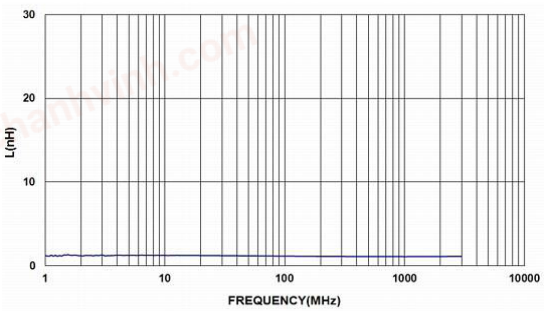

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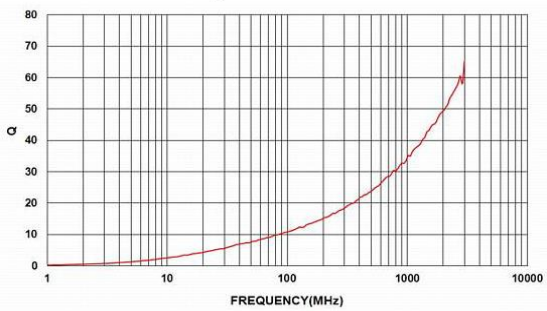

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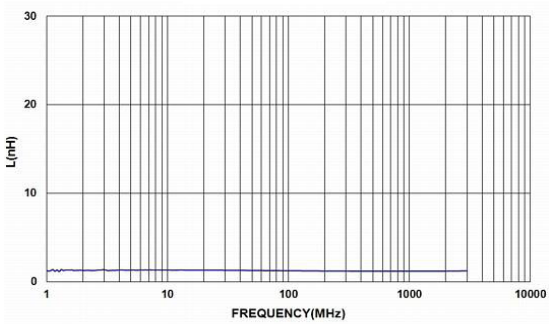

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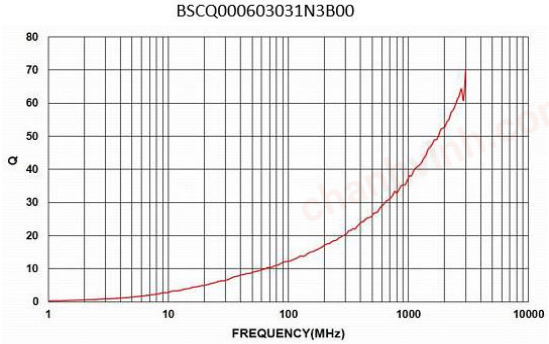

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BSCQ00060303 Series Specification

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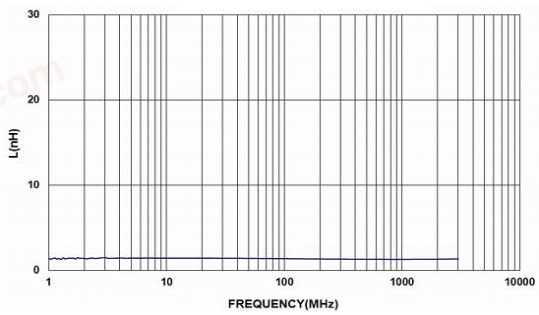

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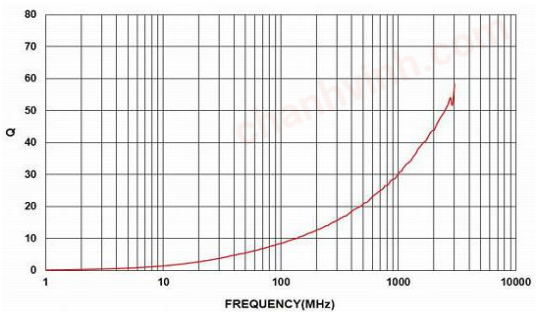

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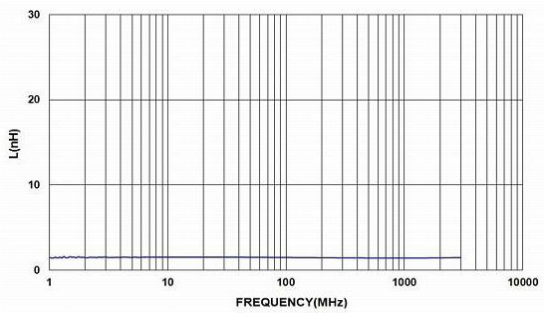

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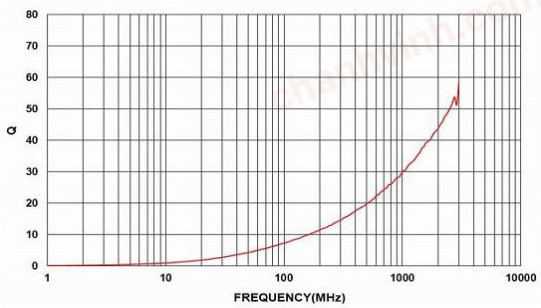

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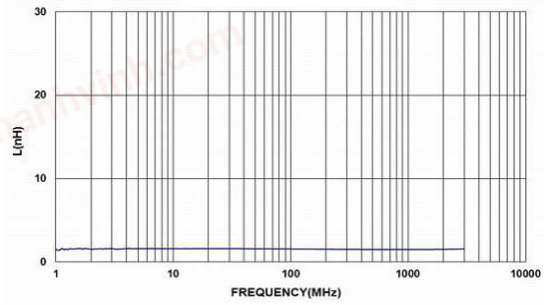

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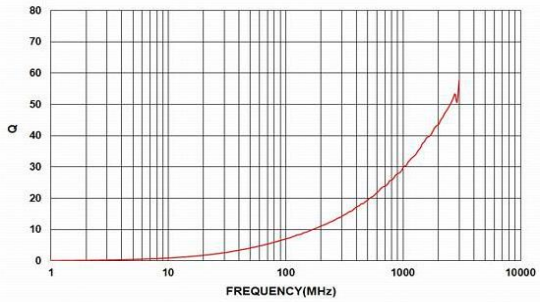

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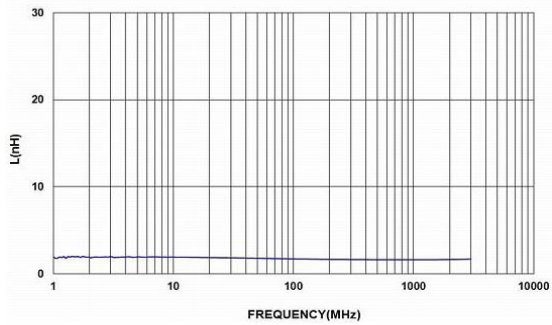

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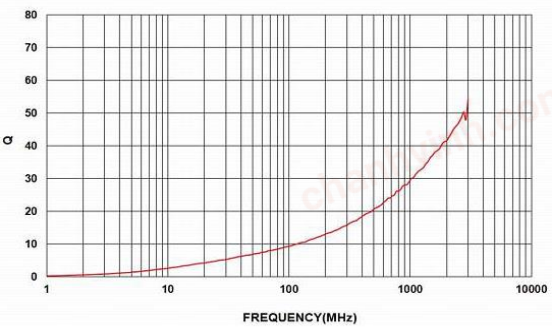

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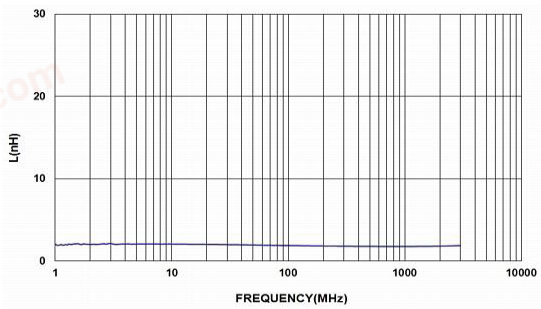

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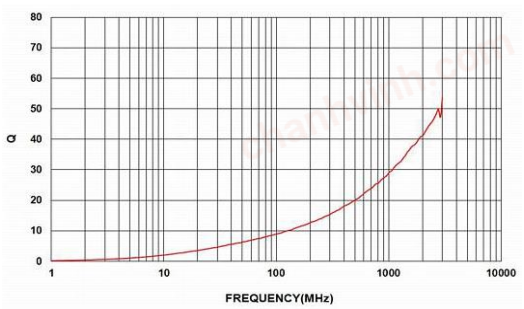

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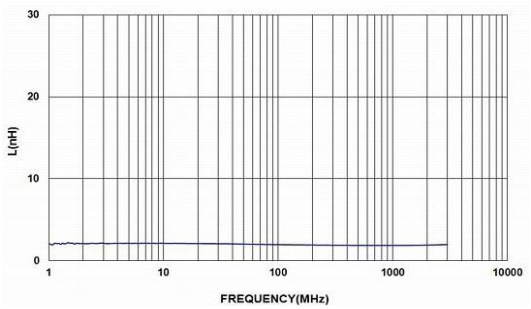

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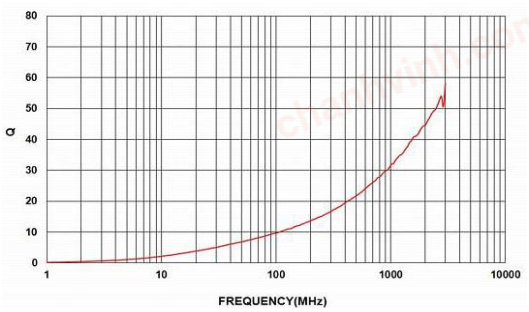

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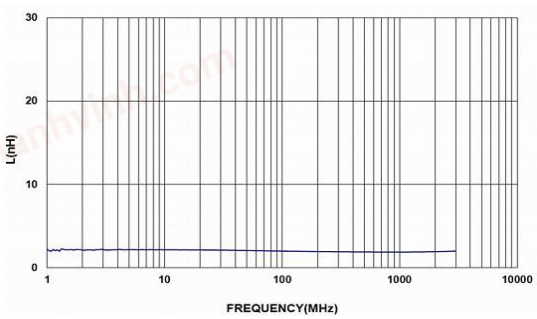

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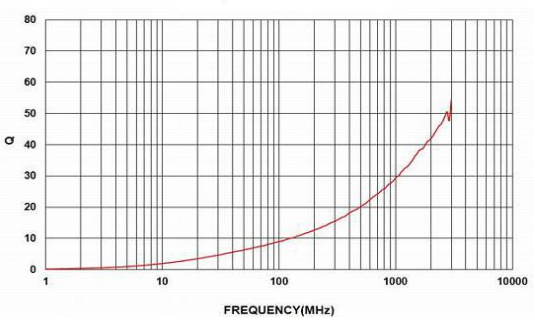

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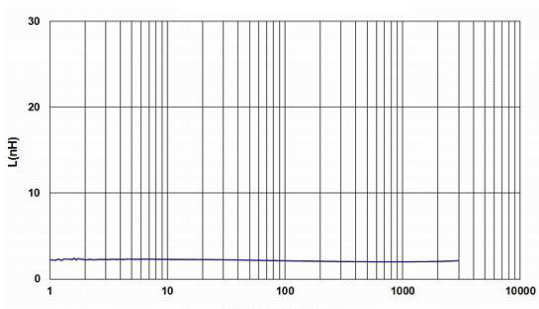

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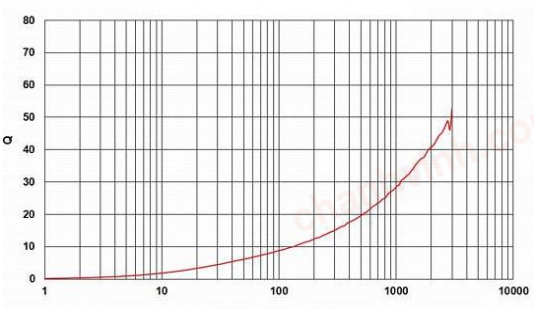

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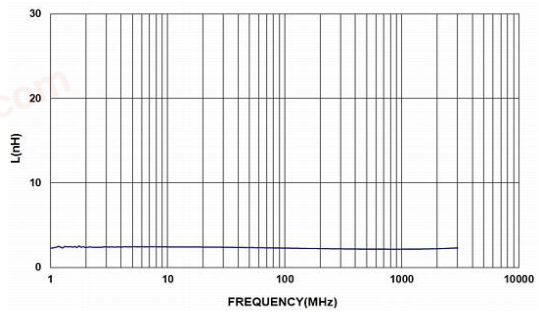

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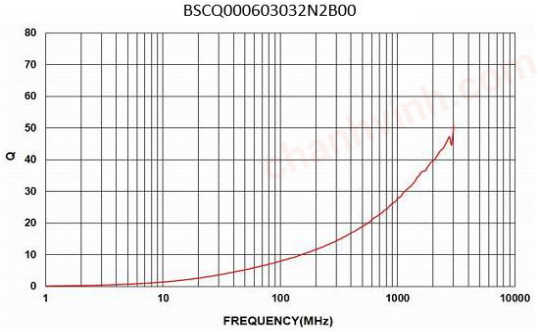

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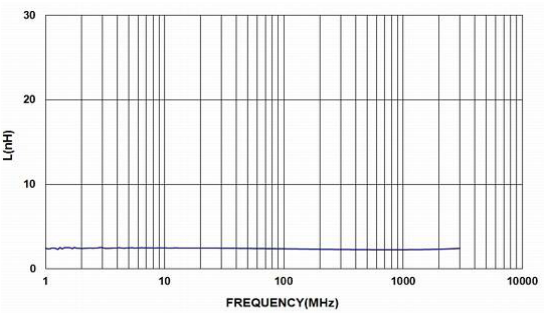

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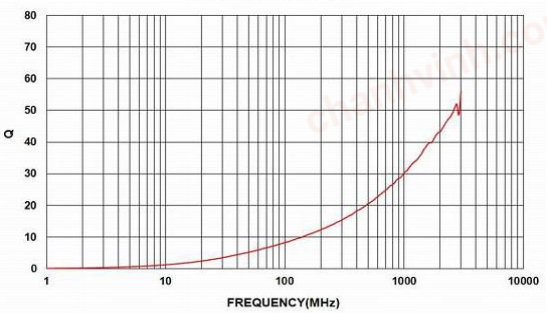

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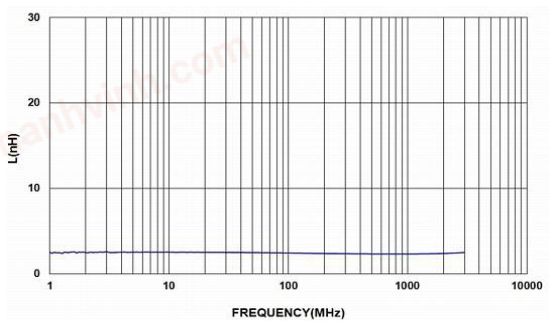

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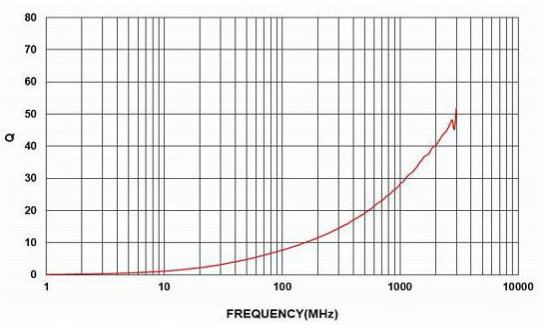

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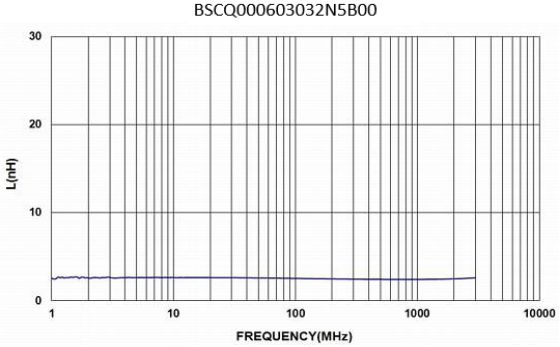

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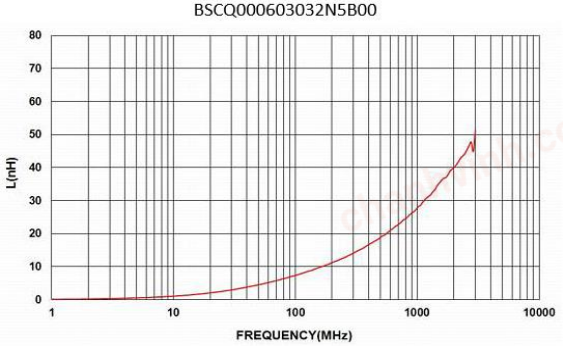

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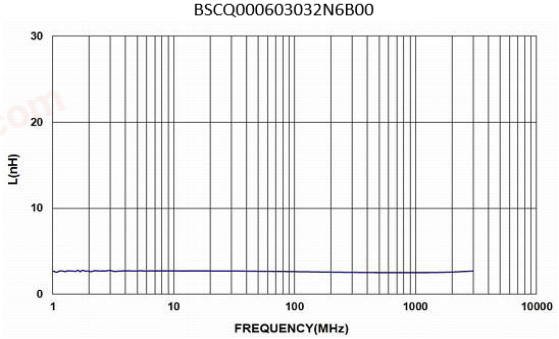

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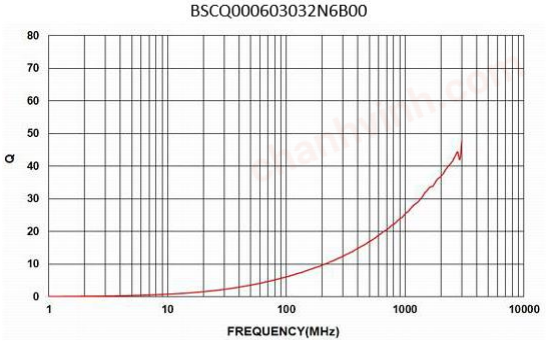

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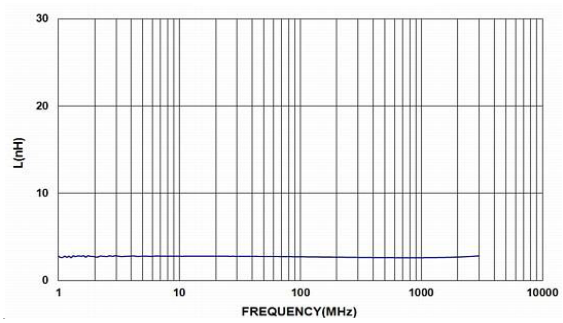

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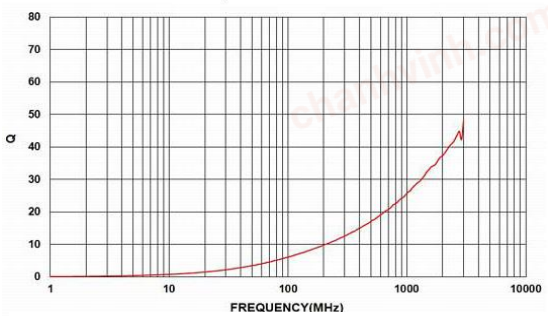

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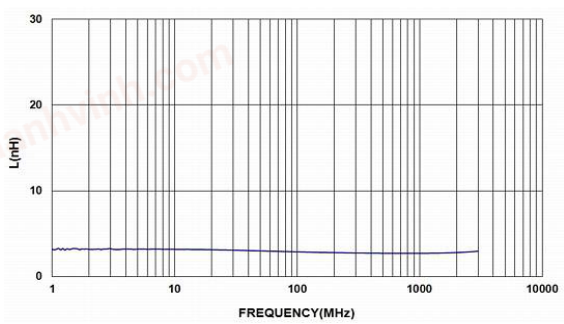

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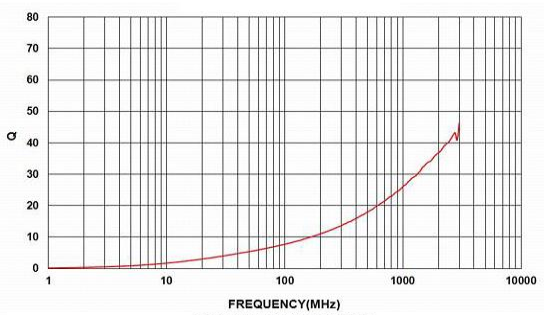

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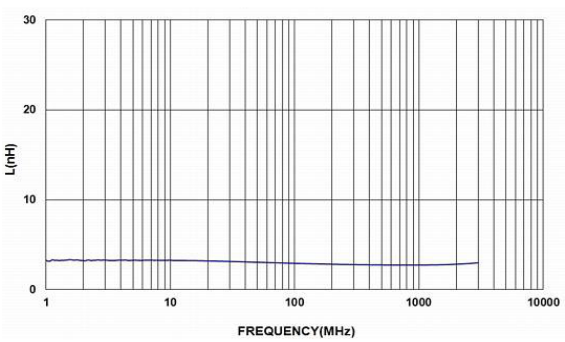

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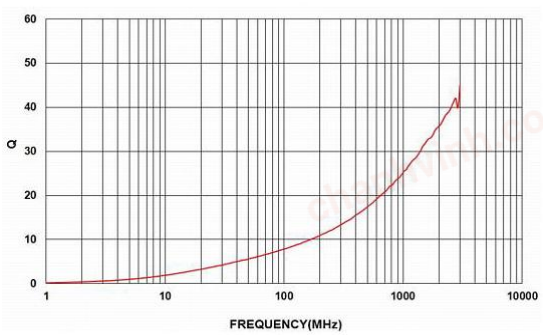

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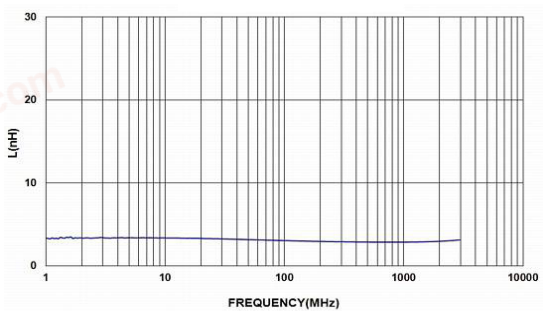

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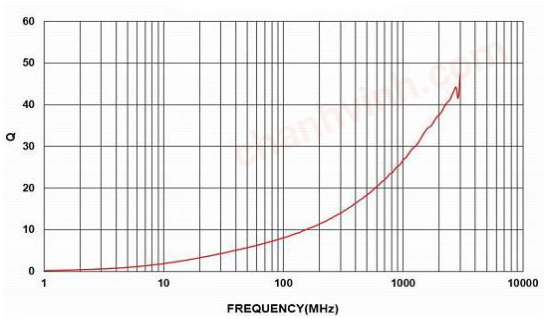

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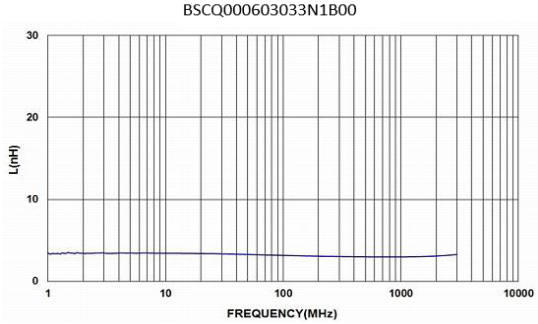

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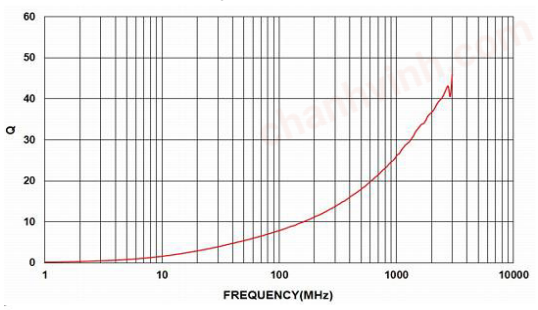

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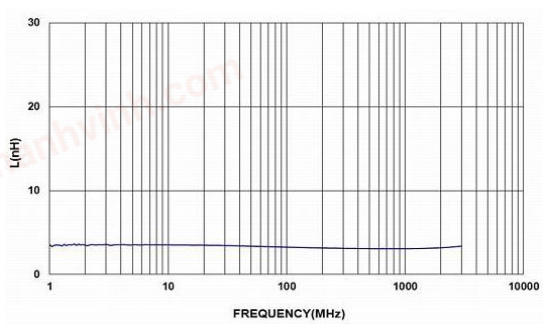

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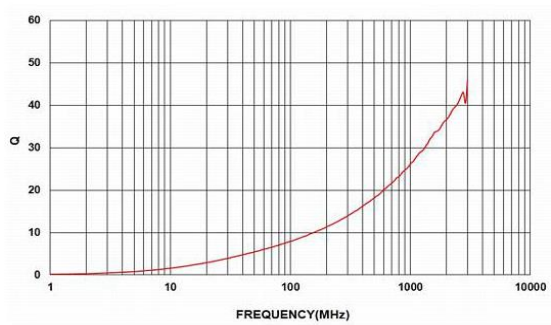

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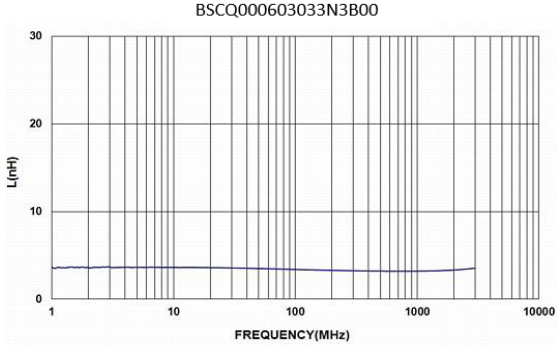

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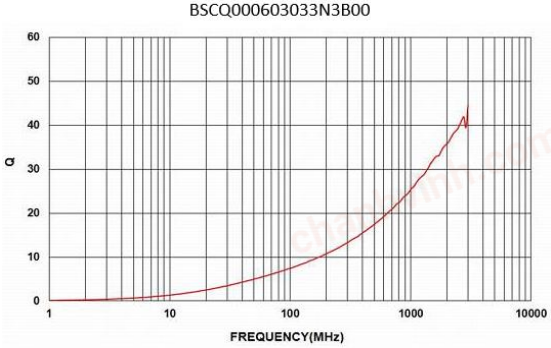

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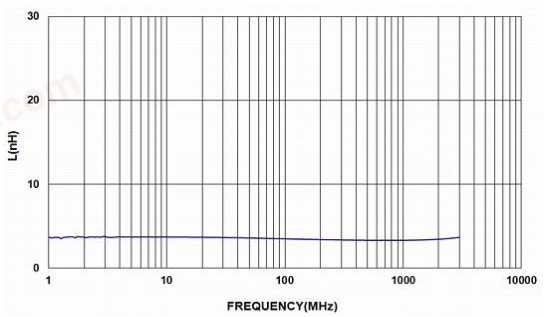

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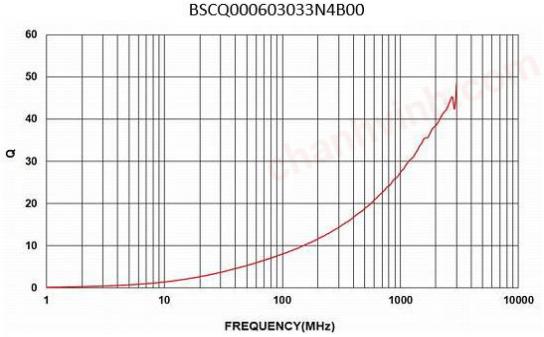

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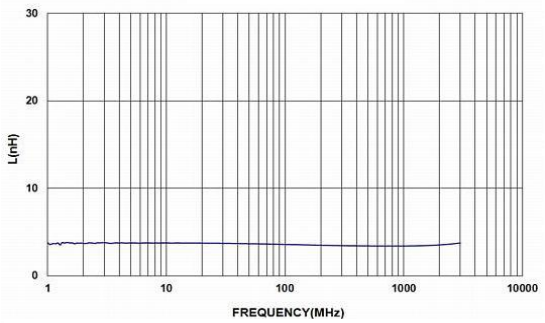

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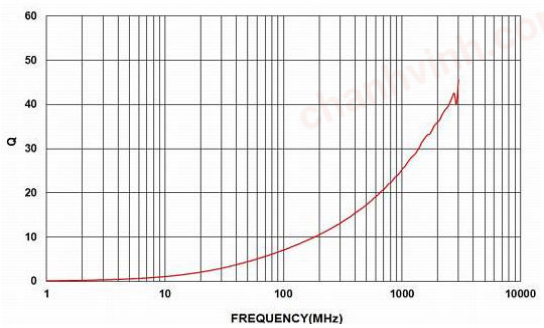

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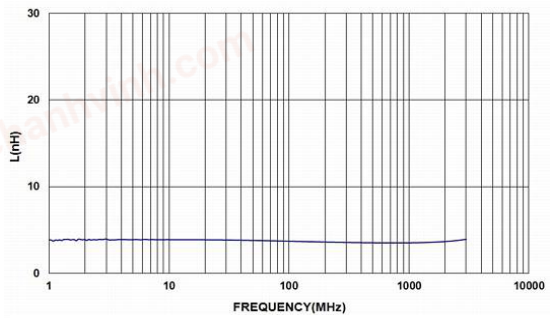

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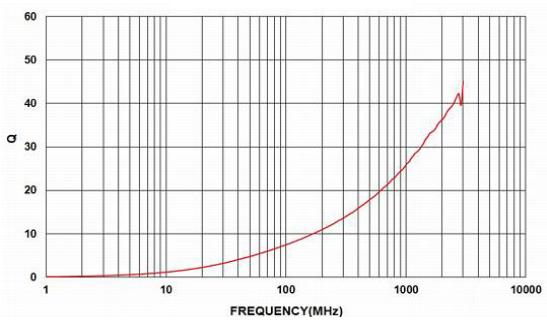

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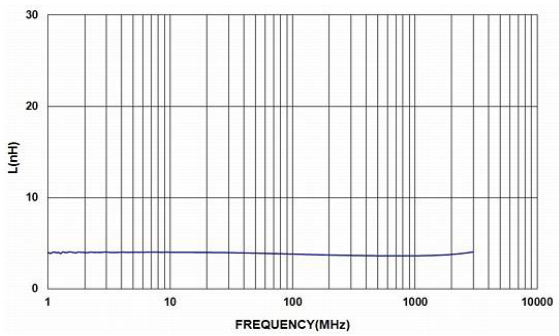

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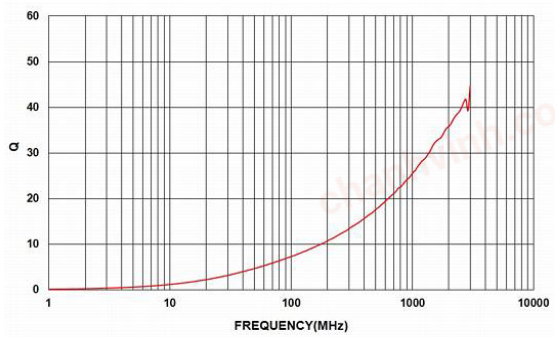

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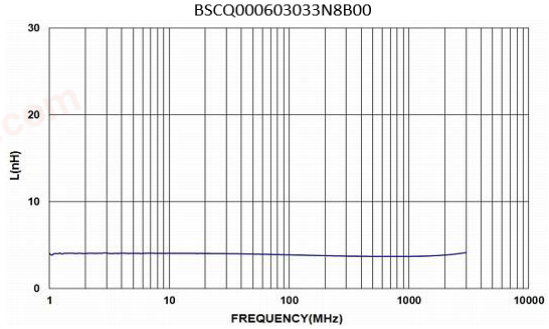

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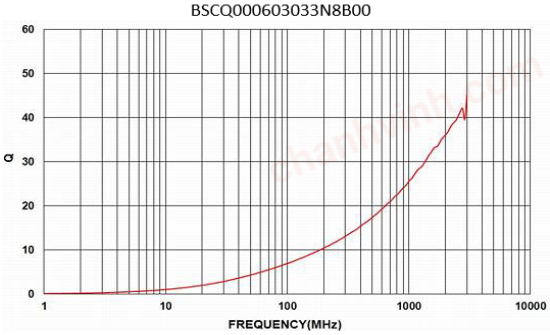

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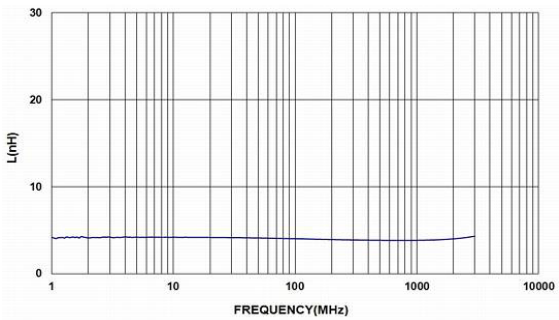

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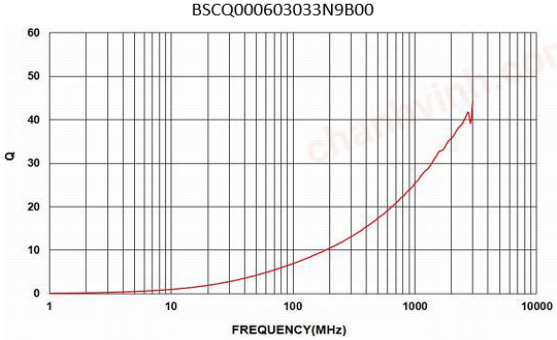

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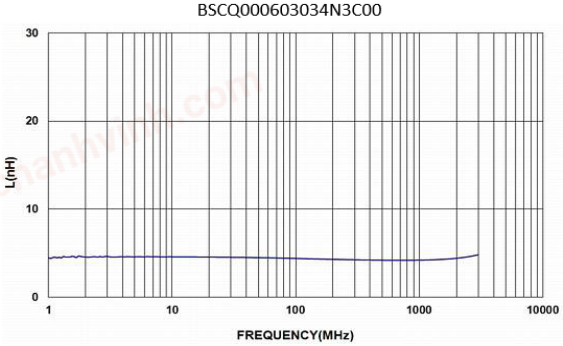

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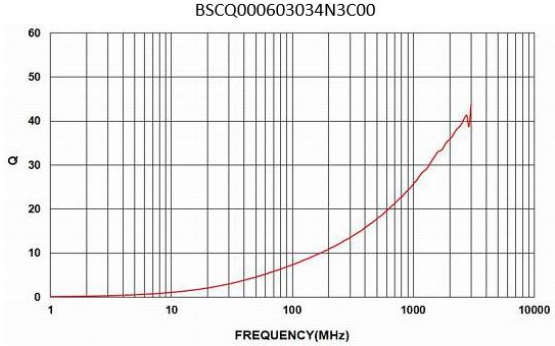

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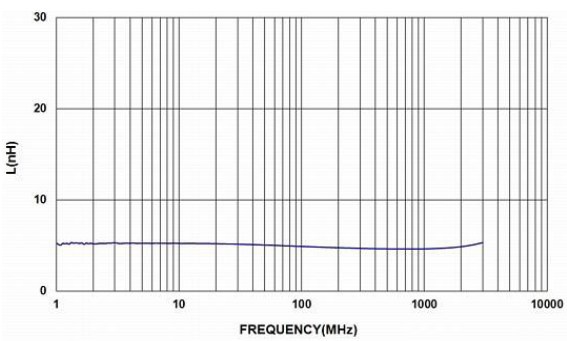

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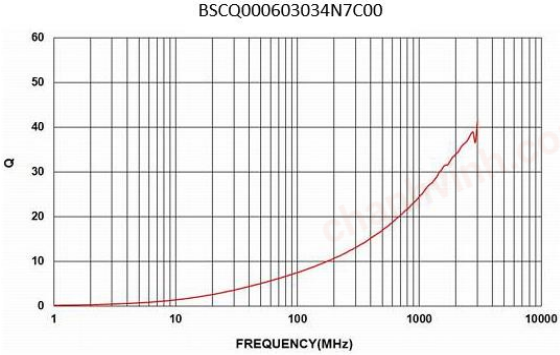

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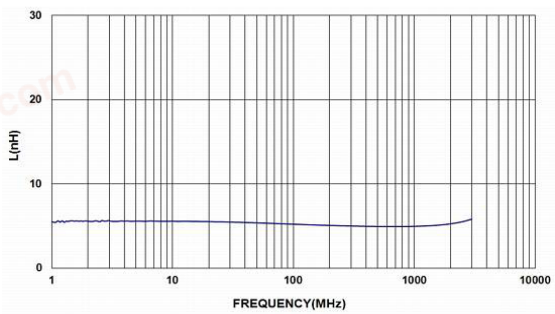

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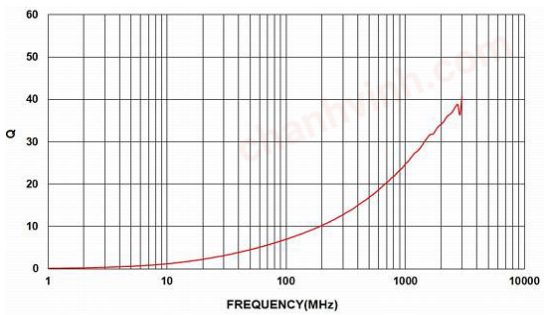

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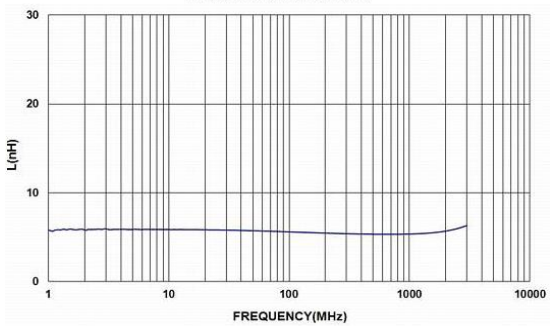

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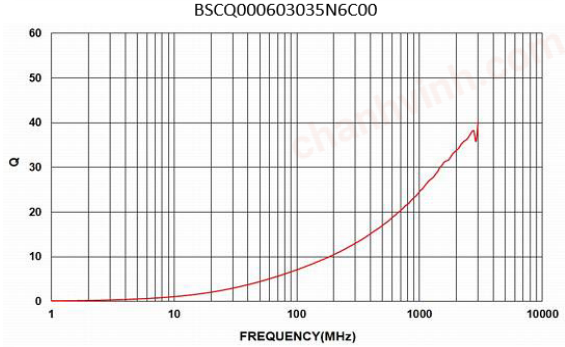

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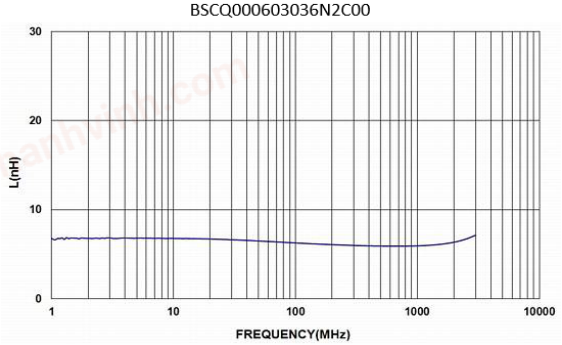

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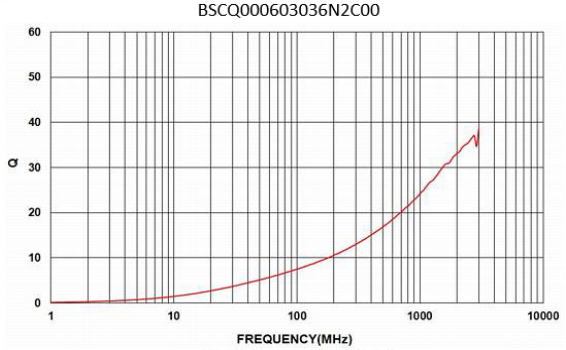

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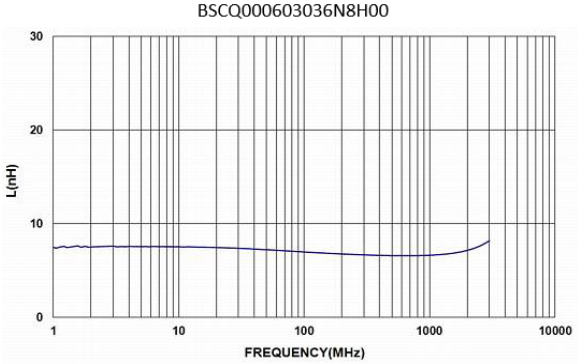

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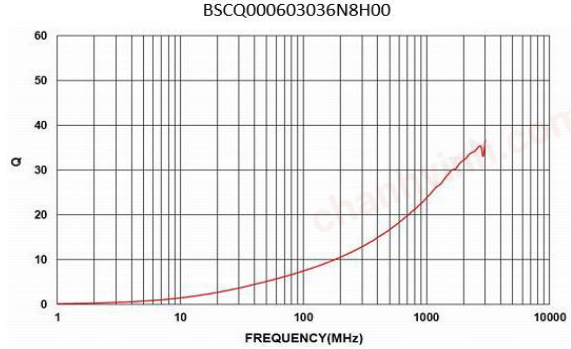

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13 Graph:

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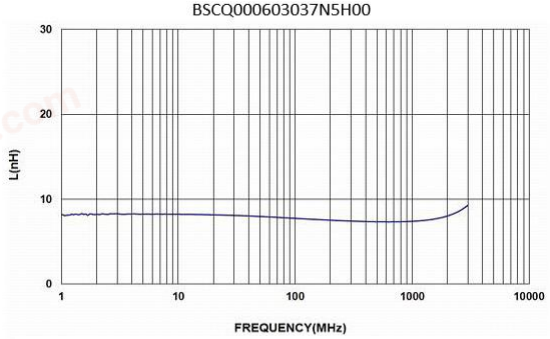

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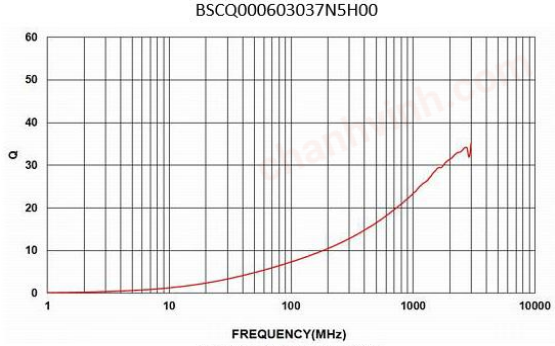

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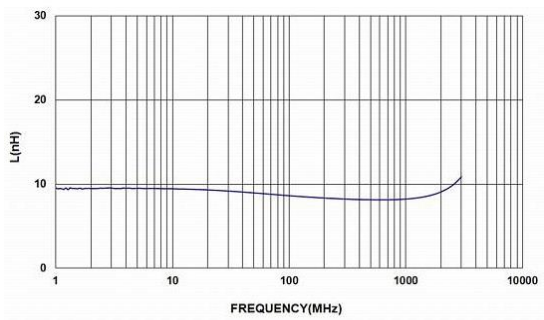

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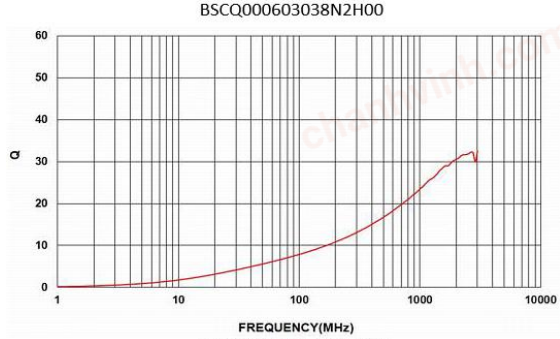

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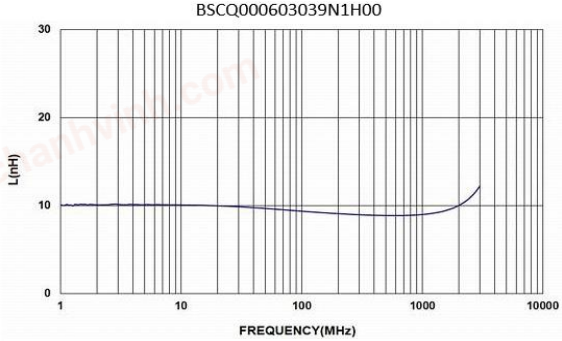

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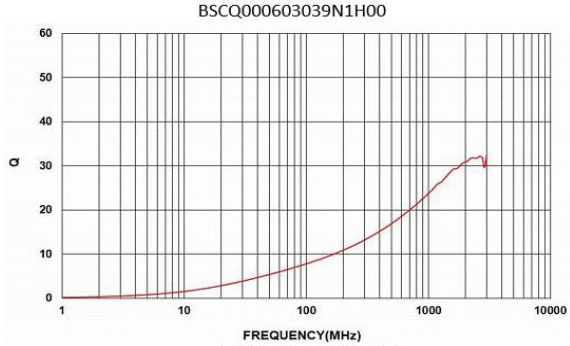

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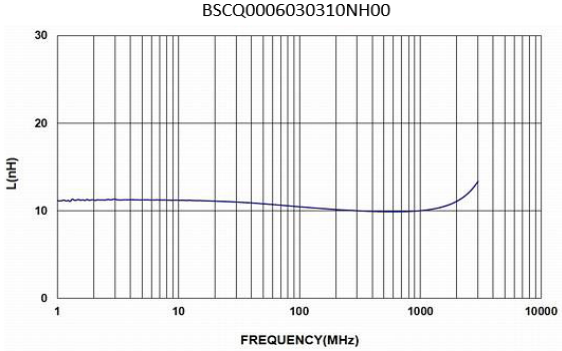

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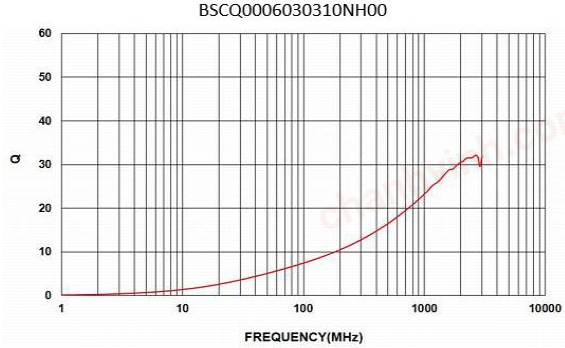

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BSCQ00060303 Series Specification

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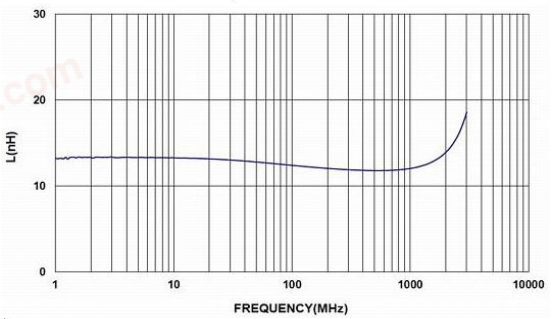

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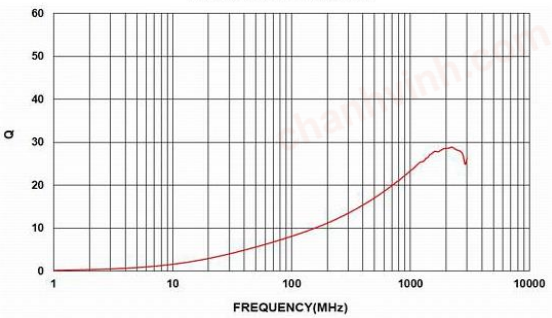

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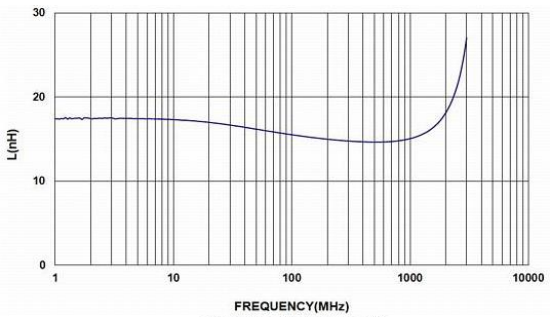

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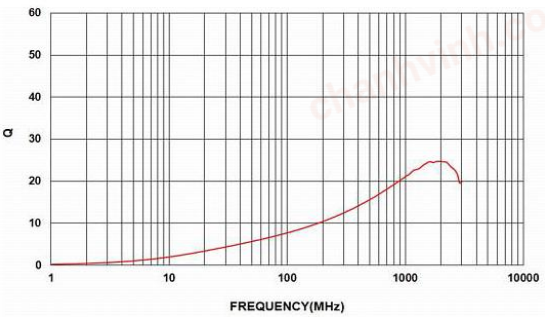

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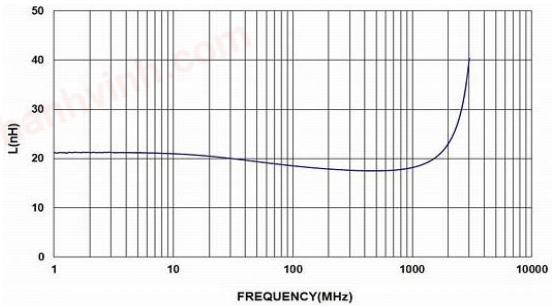

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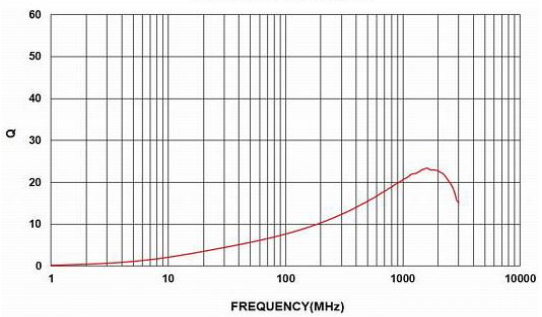

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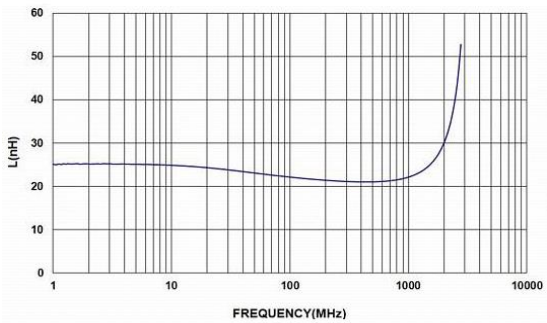

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