RF Inductor

BSCL 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. High mounting density of compact circuit due to crosstalk elimination that results from a closed magnetic flux in a ferrite material
2. Suitable for flow and reflow soldering

Applications

1. Personal computers, HDDs, other various electronic devices
2. Wearable device
3. Consumer Electronics

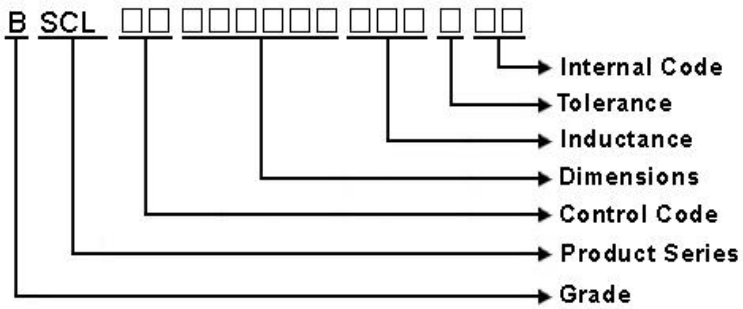
Product Information

Series	Size Code (JIS/EIA)	Inductance (nH)
BSCL	1608/0603 2012/0805 3216/1206	0.1 ~ 27

BSCL00160808 Series Specification

1 Scope: This specification applies to Multilayer Ferrite chip inductors

2 Part Numbering:



3 Rating:

Operating Temperature: - 40℃ ~ 125℃(Including self - temperature rise)

Storage Temperature: - 40℃ ~ 85℃(after PCB)
- 5℃~40℃,Humidity 40%~70%(before PCB)

4 Marking:

No 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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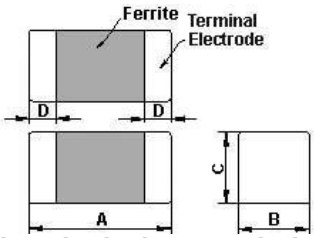
6 Configuration and Dimensions:



Dimensions in mm

TYPE	160808
A	1.6±0.2
B	0.8±0.2
C	0.8±0.2
D	0.3±0.2

Net Weight (grms)

Size Code	Net Weight (grms)
160808	0.00576

7 Electrical Characteristics:

Part No.	Inductance (uH)	L,Q Test Freq.	Q Min.	SRF (MHz)Min.	RDC (Ω)Max.	IDC (mA)Max.	Tolerance (±%)
BSCL00160808R10□00	0.1	25 MHz,200 mV	25	240	0.5	50	20,15,10
BSCL00160808R12□00	0.12	25 MHz,200 mV	25	205	0.5	50	20,15,10
BSCL00160808R15□00	0.15	25 MHz,200 mV	25	180	0.6	50	20,15,10
BSCL00160808R18□00	0.18	25 MHz,200 mV	25	165	0.6	50	20,15,10
BSCL00160808R22□00	0.22	25 MHz,200 mV	25	150	0.8	50	20,15,10
BSCL00160808R27□00	0.27	25 MHz,200 mV	25	136	0.8	50	20,15,10
BSCL00160808R33□00	0.33	25 MHz,200 mV	25	125	0.85	35	20,15,10
BSCL00160808R39□00	0.39	25 MHz,200 mV	25	110	1	35	20,15,10
BSCL00160808R47□00	0.47	25 MHz,200 mV	25	105	1.35	35	20,15,10
BSCL00160808R56□00	0.56	25 MHz,200 mV	25	95	1.5	35	20,15,10
BSCL00160808R68□00	0.68	25 MHz,200 mV	25	85	1.7	35	20,15,10
BSCL00160808R82□00	0.82	25 MHz,200 mV	25	75	2.1	35	20,15,10
BSCL001608081R0□00	1	10 MHz,200 mV	35	65	0.6	25	20,15,10
BSCL001608081R2□00	1.2	10 MHz,200 mV	35	60	0.8	25	20,15,10
BSCL001608081R5□00	1.5	10 MHz,200 mV	35	55	0.8	25	20,15,10
BSCL001608081R8□00	1.8	10 MHz,200 mV	35	50	0.95	25	20,15,10
BSCL001608082R2□00	2.2	10 MHz,200 mV	35	45	1	15	20,15,10
BSCL001608082R7□00	2.7	10 MHz,200 mV	35	40	1.15	15	20,15,10
BSCL001608083R3□00	3.3	10 MHz,200 mV	35	38	1.3	15	20,15,10
BSCL001608083R9□00	3.9	10 MHz,200 mV	35	36	1.5	15	20,15,10
BSCL001608084R7□00	4.7	10 MHz,200 mV	35	33	1.6	15	20,15,10
BSCL001608085R6□00	5.6	4 MHz,200 mV	35	22	1.1	5	20,15,10
BSCL001608086R8□00	6.8	4 MHz,200 mV	35	20	1.3	5	20,15,10
BSCL001608088R2□00	8.2	4 MHz,60 mV	30	18	1.5	5	20,15,10
BSCL00160808100□00	10	2 MHz,60 mV	30	17	1.7	5	20,15,10

NOTE: □-tolerance K=±10% / L=±15% / M=±20%

1.Operating temperature range -40℃~125℃(Including self - temperature rise)

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

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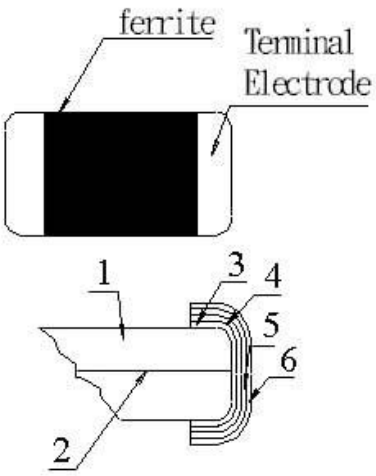
Part No.	Inductance (uH)	L,Q Test Freq.	Q Min.	SRF (MHz)Min.	RDC (Ω)Max.	IDC (mA)Max.	Tolerance (±%)
BSCL00160808120□00	12	2 MHz,60 mV	30	15	1.8	3	20,15,10
BSCL00160808150□00	15	1 MHz,60 mV	20	14	1.5	1	20,15,10
BSCL00160808220□00	22	1 MHz,60 mV	20	11	1.7	1	20,15,10

BSCL00160808 Series Specification

8 BSCL00160808 Series

8.1 Construction:



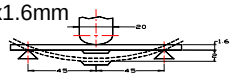
8.2 Material List:

No	Part	Material
1	Ferrite Substance	NiO-CuO-ZnO-Ferrite
2	Silver electrode	Ag
3	Silver electrode	Ag
4	Cu plating	Cu
5	Ni plating	Ni
6	Sn plating	Sn

BSCL00160808 Series Specification

9 Reliability Of Ferrite Multilayer Chip Inductor

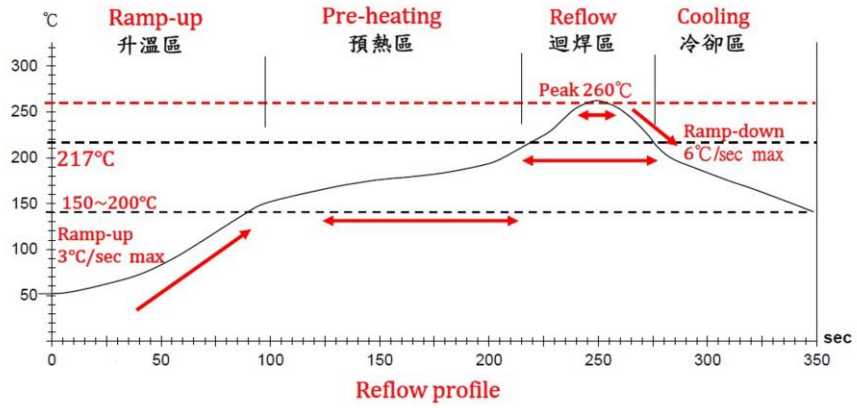
1-1.Mechanical Performance

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 ferrite	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 Inductance change shall be within ±20%. Q change shall be within±30%	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 / -40±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: 85±3℃ Relative Humidity: 20% Applied Current: Rated Current / Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-4	Low Temperature Resistance		Temperature: -40±3℃ Relative Humidity: 0% / Time: 1000hrs Measured after exposure in the room condition for 24hrs

BSCL00160808 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 :

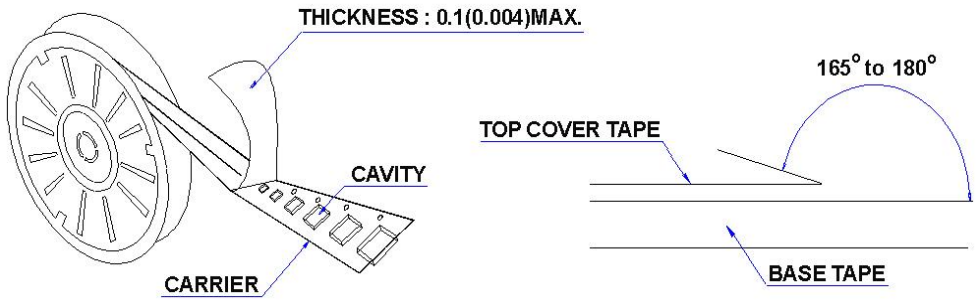
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow
3. Products can only be soldered with reflow

BSCL00160808 Series Specification

11 Packaging:

11.1 Packaging -Cover Tape

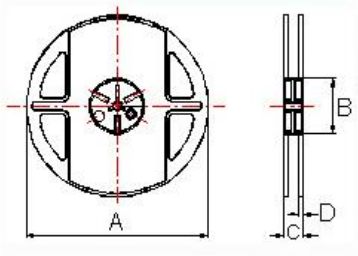
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



11.2 Packaging Quantity

TYPE	PCS/REEL
160808	4000
201209	4000
201212	3000

11.3 Reel Dimensions



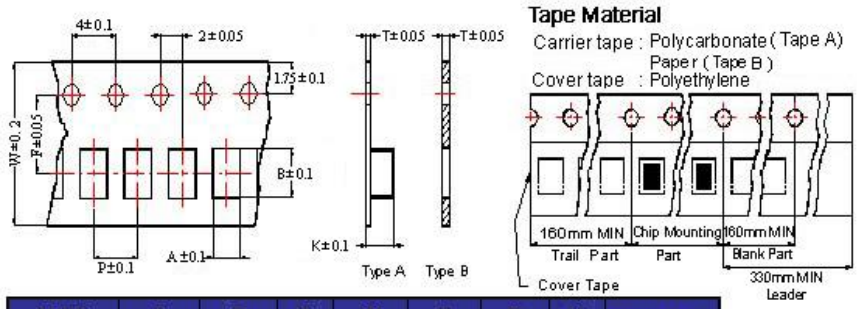
Dimensions in mm

TYPE	A	B	C	D
160808	178	60	12	1.5
201209	178	60	12	1.5
201212	178	60	12	1.5

BSCL00160808 Series Specification

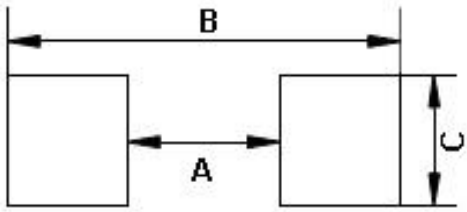
11 Packaging:

11.4 Tape Dimensions in mm



TYPE	A	B	T	W	P	F	K	Tape Typ.
160808	1.05	1.85	0.95	8	4	3.5		B
201209	1.50	2.30	0.97	8	4	3.5		B
201212	1.35	2.25	0.22	8	4	3.5	1.35	A

12 Recommended Land Pattern:



Dimensions in mm

TYPE	A	B	C
160808	0.7~0.8	1.8~2.0	0.6~0.8

13 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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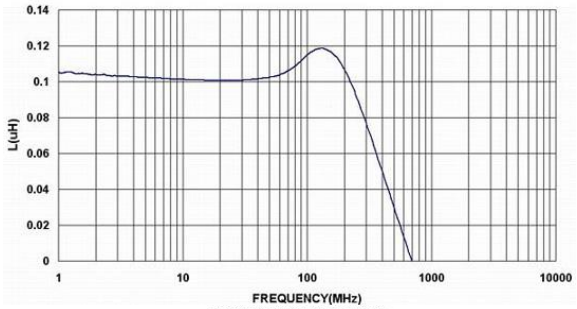
14 Graph:

BSCL00160808R10K00



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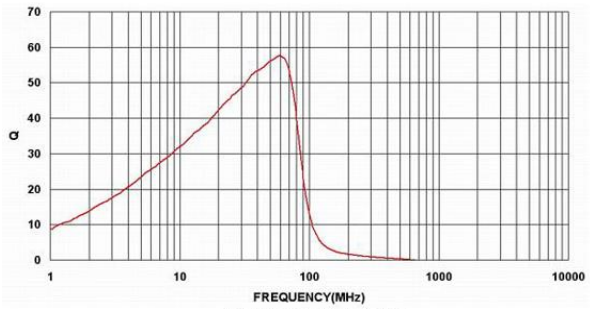

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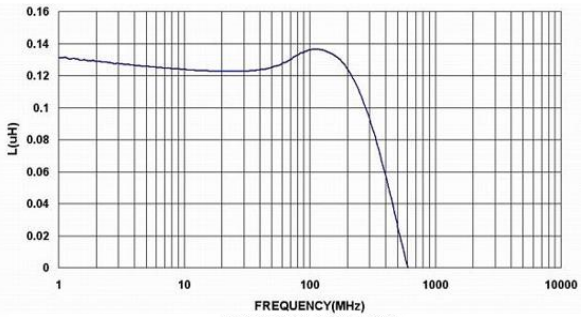

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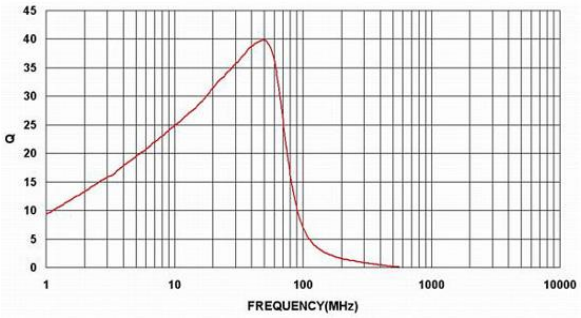

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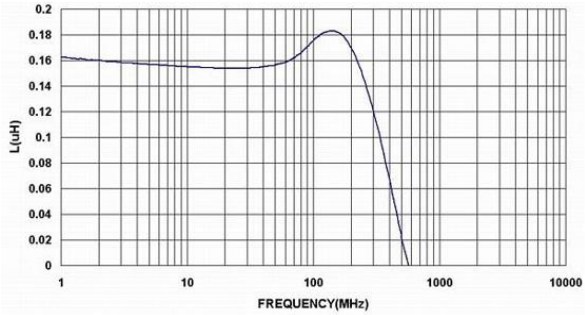

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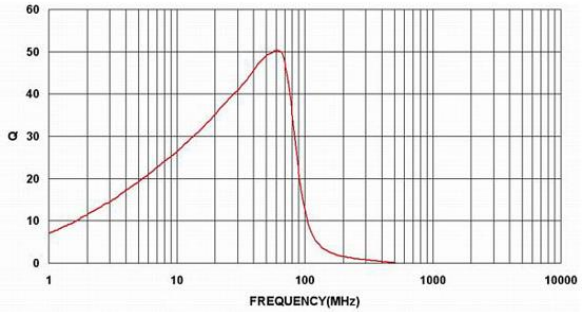

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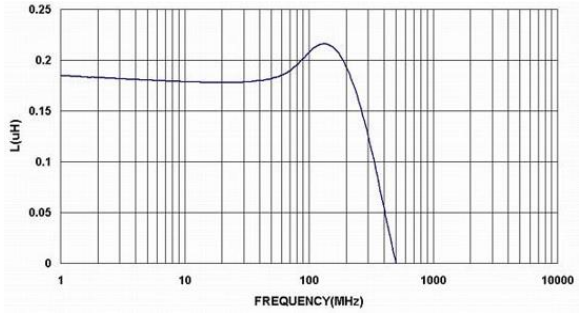

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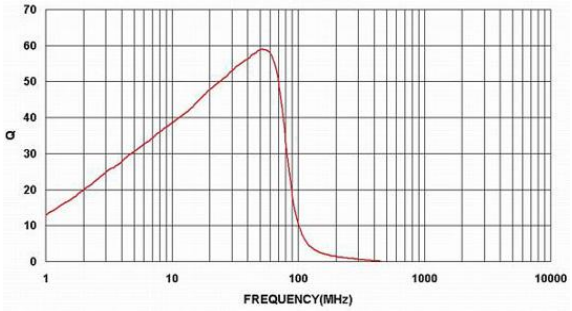

BSCL00160808 Series Specification

14 Graph:

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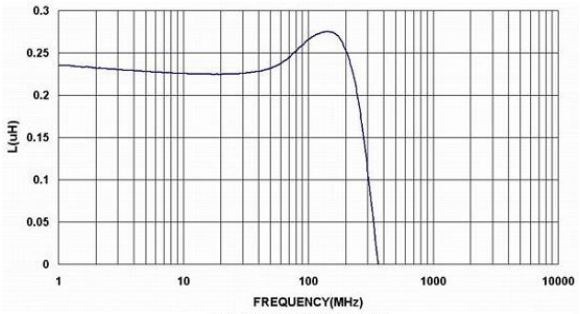

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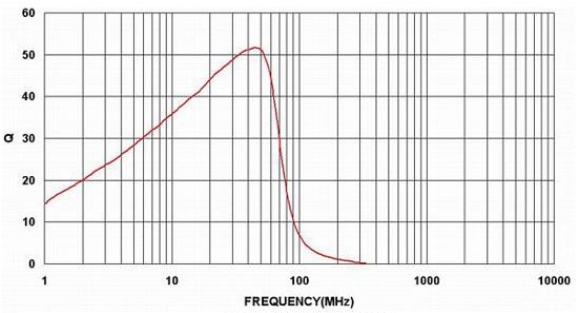

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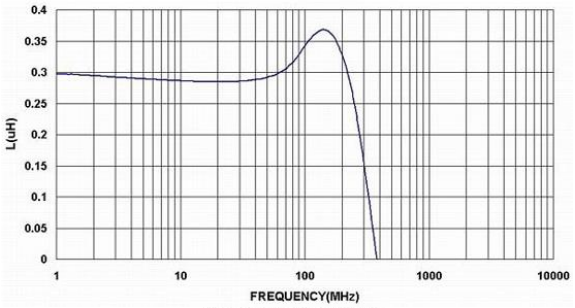

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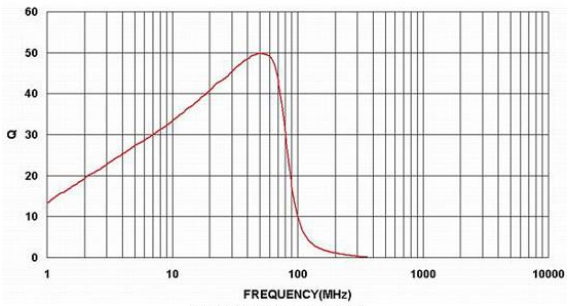

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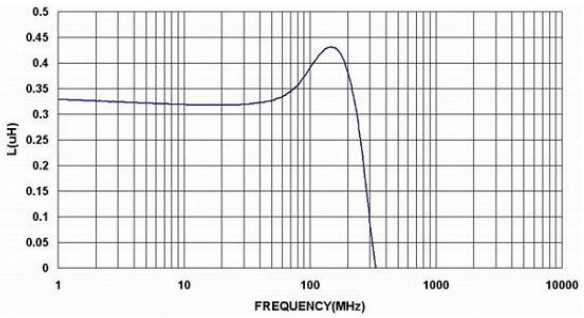

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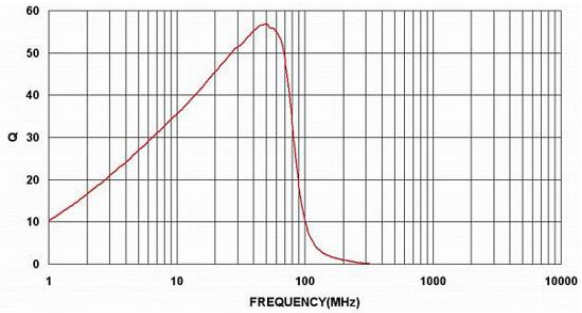

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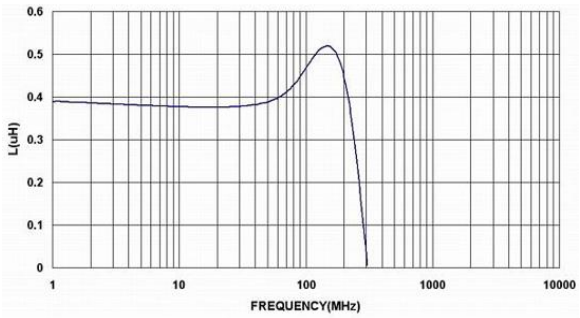

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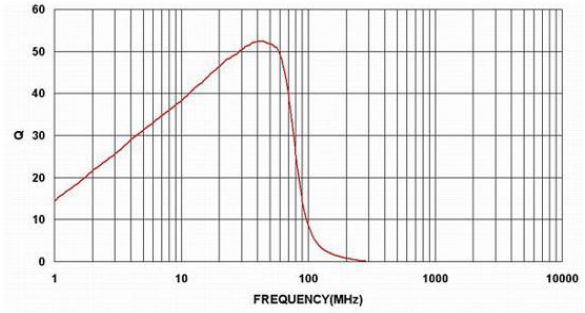

BSCL00160808 Series Specification

14 Graph:

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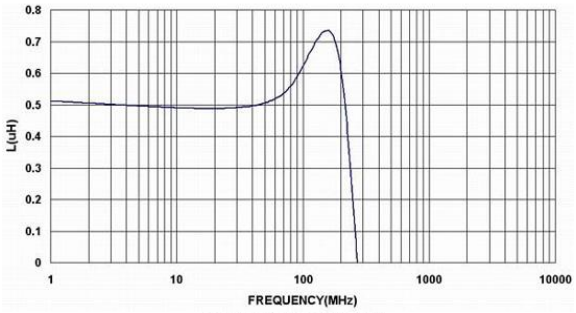

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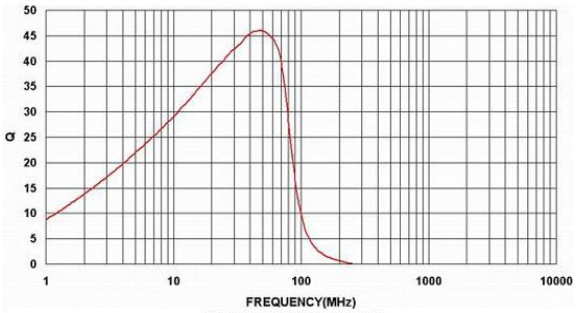

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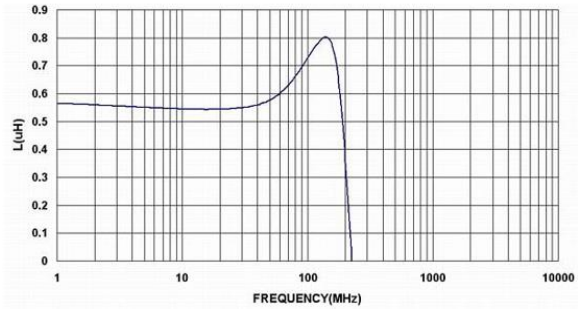

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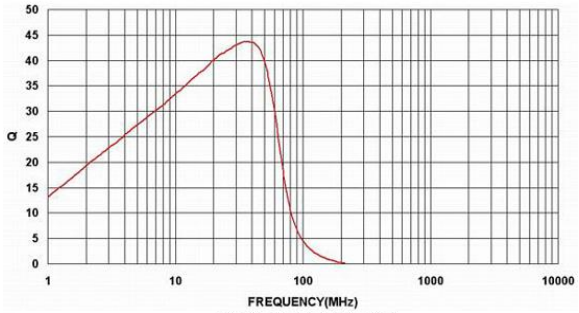

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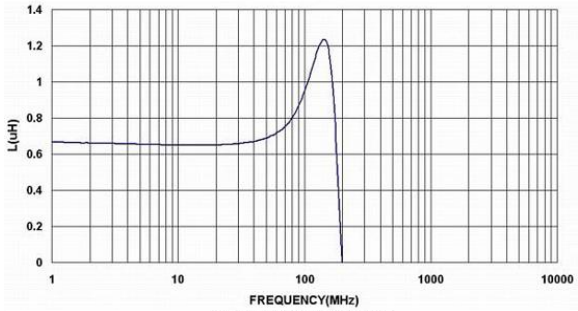

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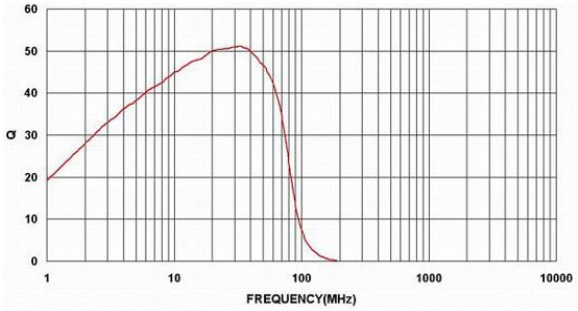

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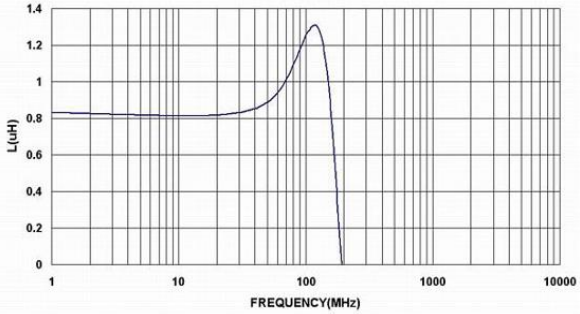

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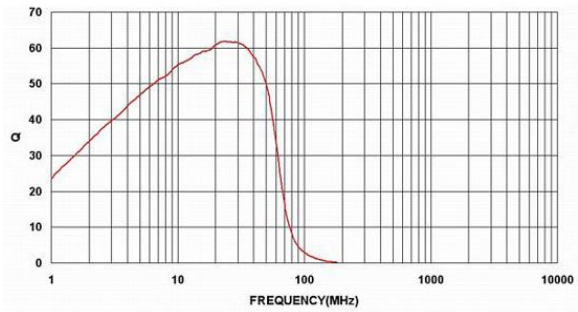

BSCL00160808 Series Specification

14 Graph:

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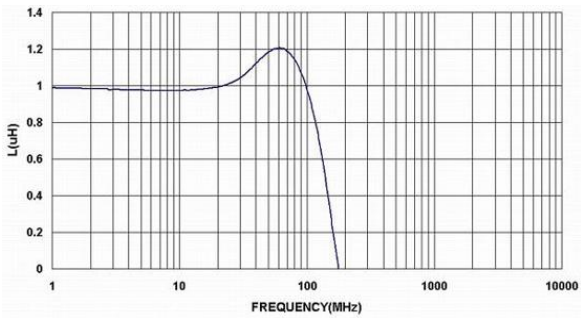

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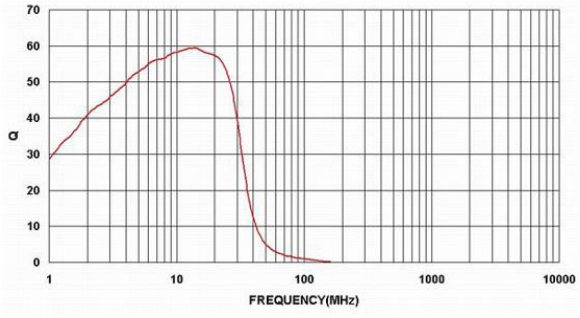

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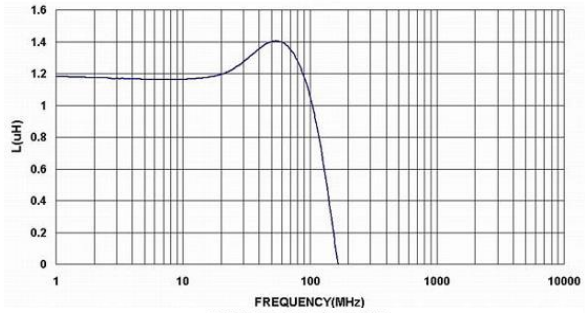

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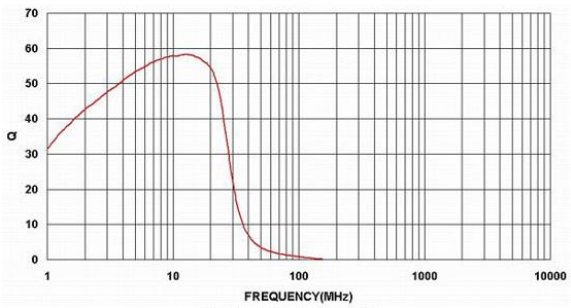

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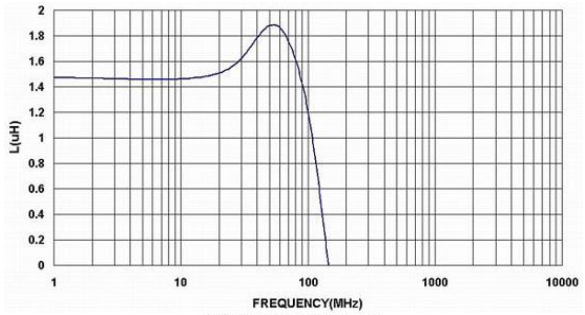

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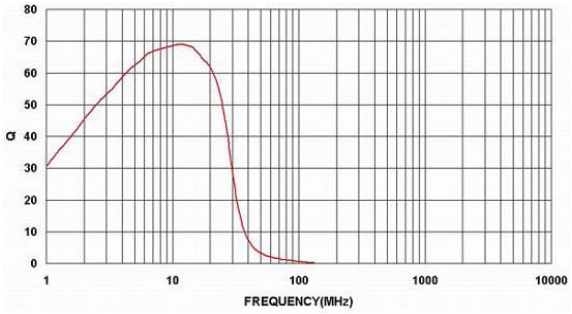

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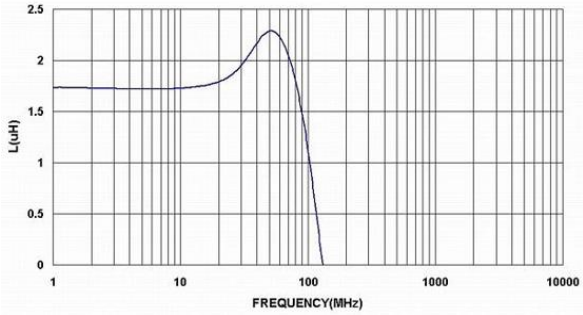

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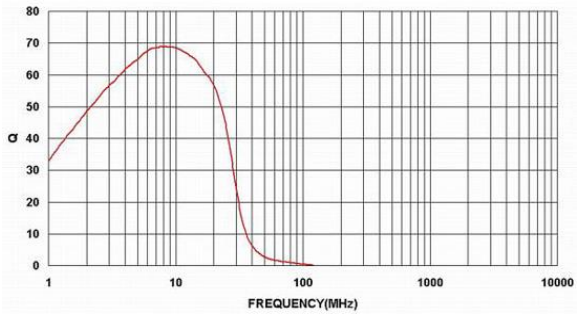

BSCL00160808 Series Specification

14 Graph:

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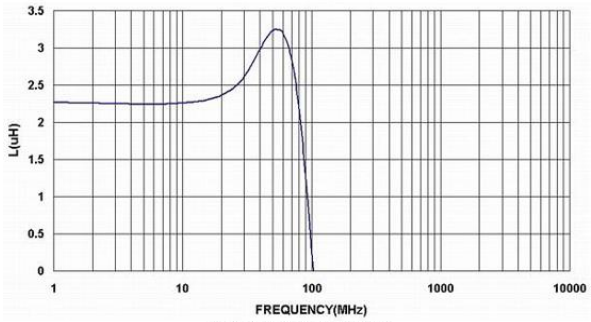

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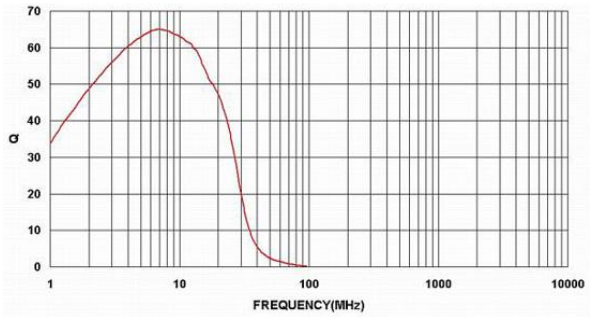

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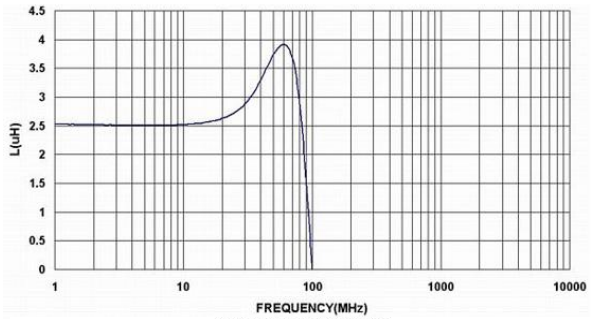

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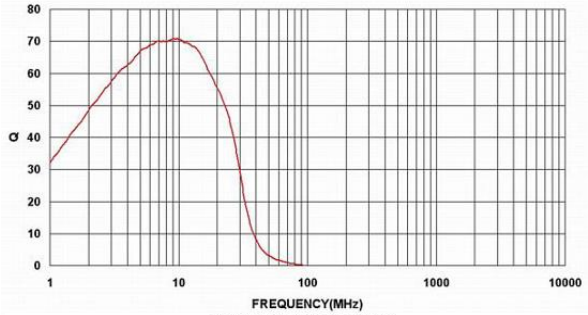

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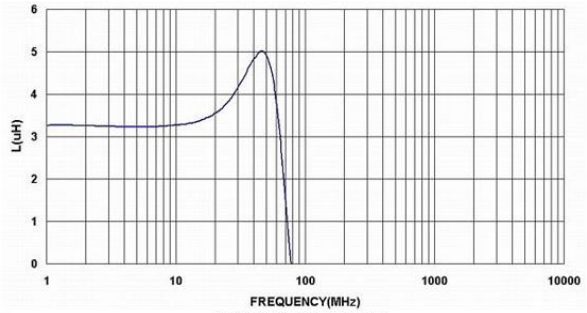

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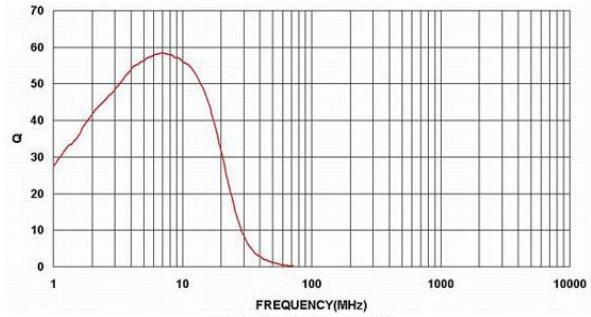

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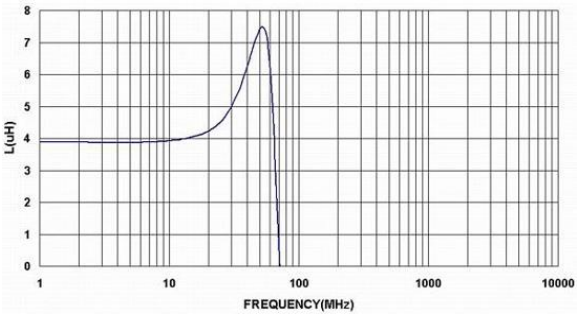

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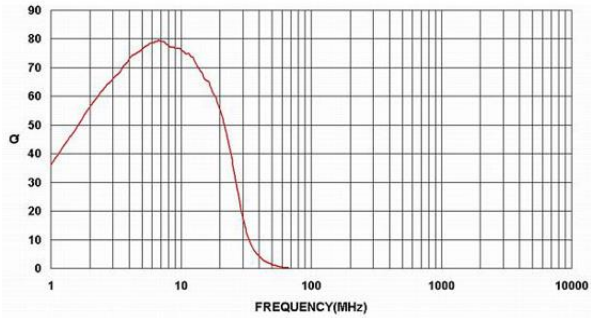

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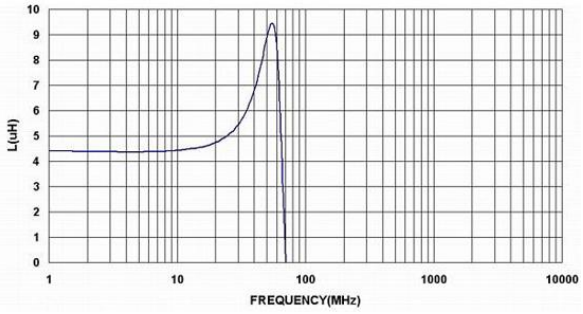

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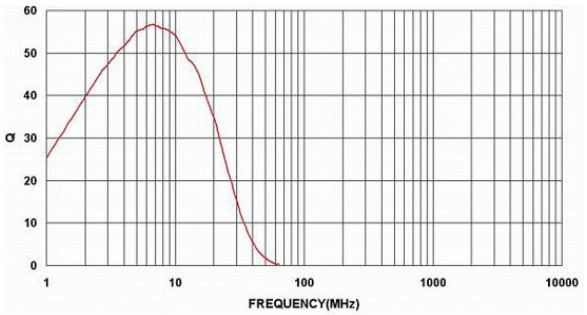

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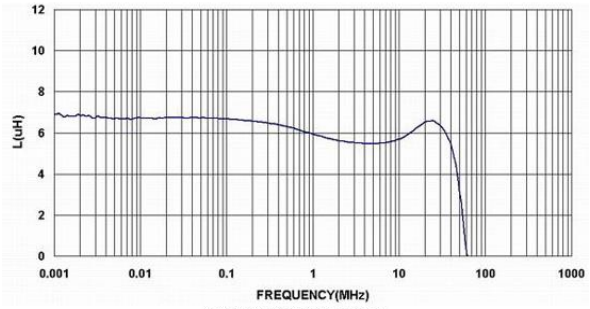

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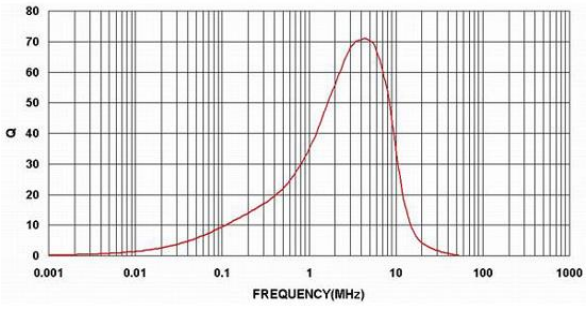

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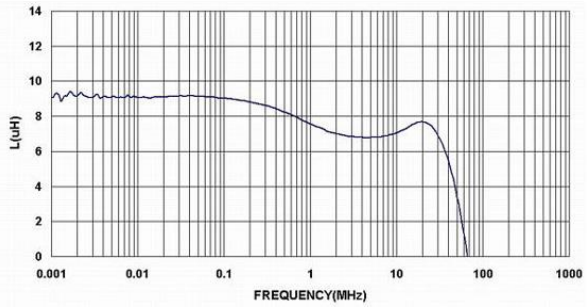

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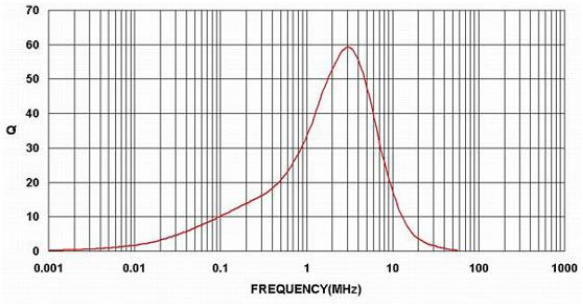

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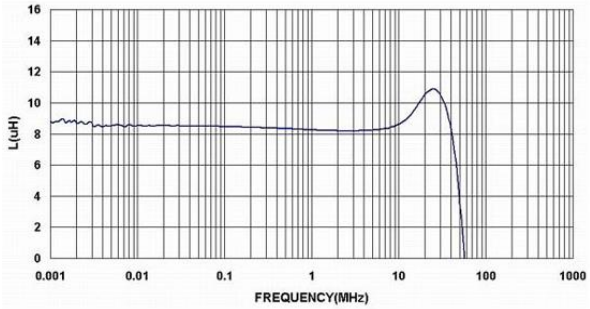

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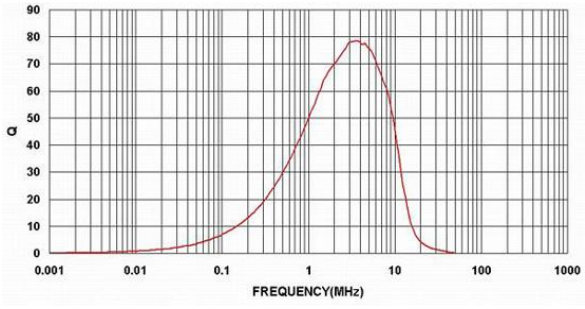

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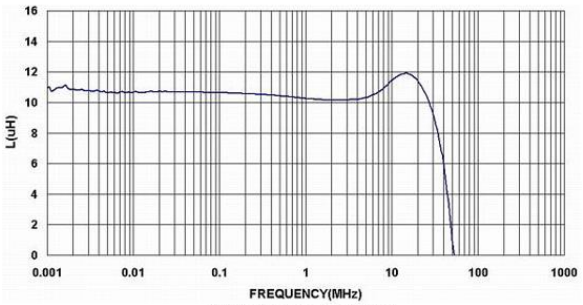

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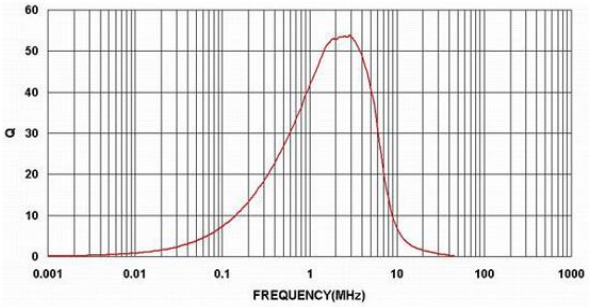

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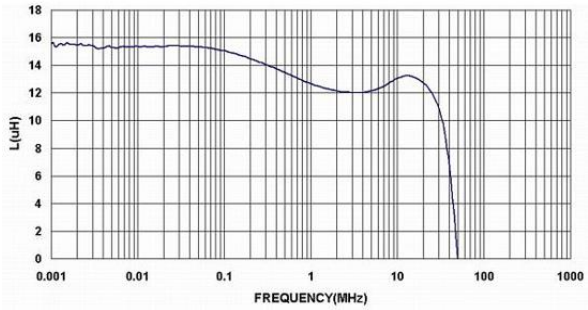

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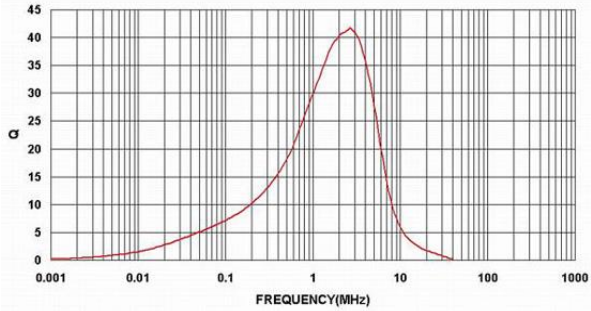

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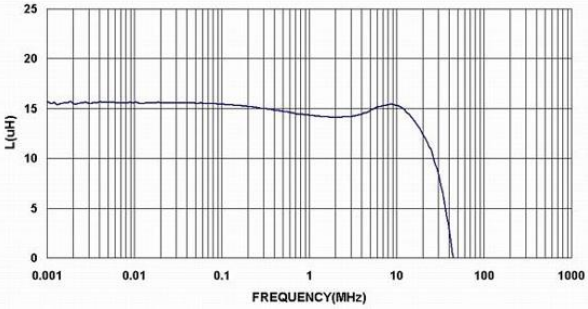

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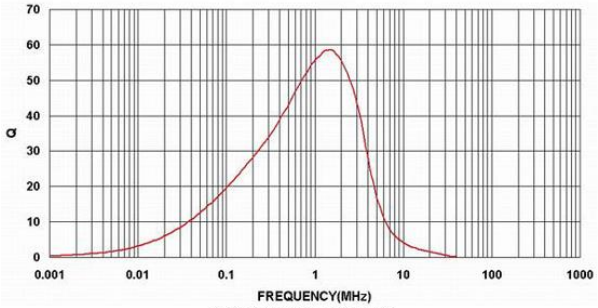

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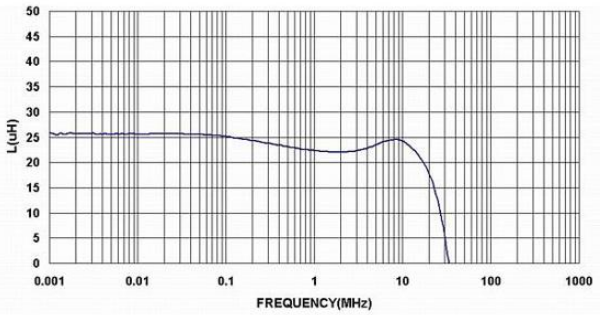

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