Power Inductor
Automotive Grade
APSC Series

Overview

Power inductors are passive electronic components used in various circuits to store energy in a magnetic field when electrical current flows through them. They are critical in filtering, energy storage, and noise suppression in power electronic systems.
They are designed to handle higher currents and are optimized for minimal power loss and thermal efficiency.

Benefits

1. Automotive grade available
2. Ferrite SMD Shielded Type
3. No thermal aging

Applications

1. Automotive Systems for Infotainment, Dashboard, ADAS
2. IPC Equipment
3. Net working

Product Information

Series	L (mm)	W(mm)	T (mm)	Inductance (μH)
APSC	3.2	3.2	1.6	0.47 ~ 1000
	4.0	4.0	1.8	
	4.0	4.0	3.0	
	4.7	4.7	2.0	
	4.7	4.7	3.0	
	4.7	4.7	4.0	
	5.7	5.7	2.0	
	5.7	5.7	3.0	
	6.7	6.7	3.0	
	7.0	7.0	4.0	
	7.5	7.5	4.6	
	10.3	10.5	3.1	
	10.3	10.5	4.0	
	10.3	10.5	5.1	
	12.5	12.5	4.5	
	12.5	12.5	6.0	
	12.5	12.5	8.0	

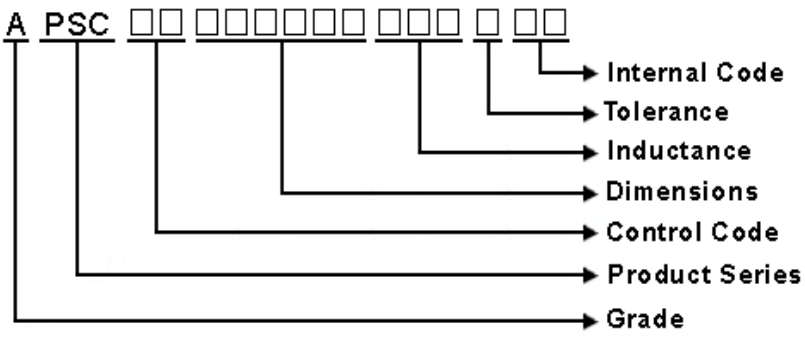
APSC00101140 Series Specification

AEC-Q200

1 Scope:

This specification applies to SMD Shielded Power Inductors

2 Part Numbering:



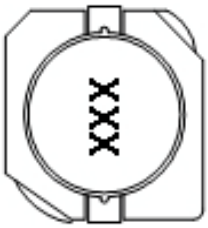
3 Rating:

Operating Temperature: - 40°C ~ + 125°C (Including self temp. rise)

Storage Temperature: - 40°C ~ + 125°C(For after the circuit board is mounted)

Storage Temperature: (on tape & reel): -20℃ to +40℃; 75% RH max.

4 Marking:



Ex Marking: 100

Marking color : Black

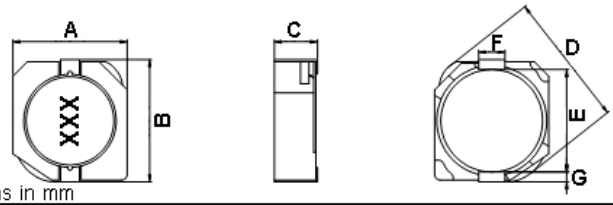
5 Standard Testing Condition

	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

APSC00101140 Series Specification

AEC-Q200

6 Configuration and Dimensions and Unit Weight:



Dimensions in mm

TYPE	A	B	C	D	E	F	G
101140	10.3Max.	10.5Max.	4 Max.	13.5Max.	7.7	3.0	1.2

Net Weight (grms)

SIZE CODE	Net Weight (grms)
101140	1.5(Typ.)

7 Electrical Characteristics:

Part No.	Inductance (uH)	Test Freq.	RDC (Ω)Max.	Isat(A) Max(Typ)	Irms (A)Typ.	Tolerance	Marking
APSC001011403R8□00	3.8	100 kHz,1 V	0.015	6.8(8.5)	5.5	T	3R8
APSC001011404R7□00	4.7	100 kHz,1 V	0.02	5.8(7.3)	5.4	T	4R7
APSC001011405R2□00	5.2	100 kHz,1 V	0.024	5.8(7.3)	5.2	T	5R2
APSC001011405R6□00	5.6	100 kHz,1 V	0.027	5.0(6.5)	4.5	T	5R6
APSC001011406R8□00	6.8	100 kHz,1 V	0.031	5.0(6.5)	4.4	T	6R8
APSC001011407R0□00	7	100 kHz,1 V	0.031	4.8(5.9)	4.4	T	7R0
APSC001011408R2□00	8.2	100 kHz,1 V	0.036	4.8(5.8)	3.8	T	8R2
APSC00101140100□00	10	100 kHz,1 V	0.04	4.0(5.0)	3.6	M,T	100
APSC00101140120□00	12	100 kHz,1 V	0.046	3.7(4.6)	3.4	M,T	120
APSC00101140150□00	15	100 kHz,1 V	0.055	3.4(4.3)	2.8	M,T	150
APSC00101140180□00	18	100 kHz,1 V	0.075	2.9(3.6)	2.5	M,T	180
APSC00101140220□00	22	100 kHz,1 V	0.08	2.6(3.3)	2.4	M,T	220
APSC00101140270□00	27	100 kHz,1 V	0.096	2.4(3.0)	2.2	M,T	270
APSC00101140330□00	33	100 kHz,1 V	0.098	2.3(2.9)	2.1	M,T	330
APSC00101140390□00	39	100 kHz,1 V	0.12	2.1(2.7)	2	M,T	390
APSC00101140470□00	47	100 kHz,1 V	0.144	1.8(2.50)	1.8	M,T	470
APSC00101140560□00	56	100 kHz,1 V	0.175	1.6(2.1)	1.6	M,T	560
APSC00101140680□00	68	100 kHz,1 V	0.204	1.4(1.9)	1.45	M,T	680
APSC00101140820□00	82	100 kHz,1 V	0.25	1.3(1.7)	1.4	M,T	820
APSC00101140101□00	100	100 kHz,1 V	0.304	1.0(1.6)	1.25	M,T	101
APSC00101140151□00	150	100 kHz,1 V	0.506	0.96(1.3)	0.85	M,T	151
APSC00101140221□00	220	100 kHz,1 V	0.69	0.80(1.0)	0.73	M,T	221
APSC00101140331□00	330	100 kHz,1 V	1.09	0.68(0.86)	0.52	M,T	331
APSC00101140471□00	470	100 kHz,1 V	1.6	0.6(0.75)	0.46	M,T	471
APSC00101140561□00	560	100 kHz,1 V	1.68	0.5(0.68)	0.45	M,T	561

NOTE: □-tolerance M=±20% / T=±30% / N=+40% -20%

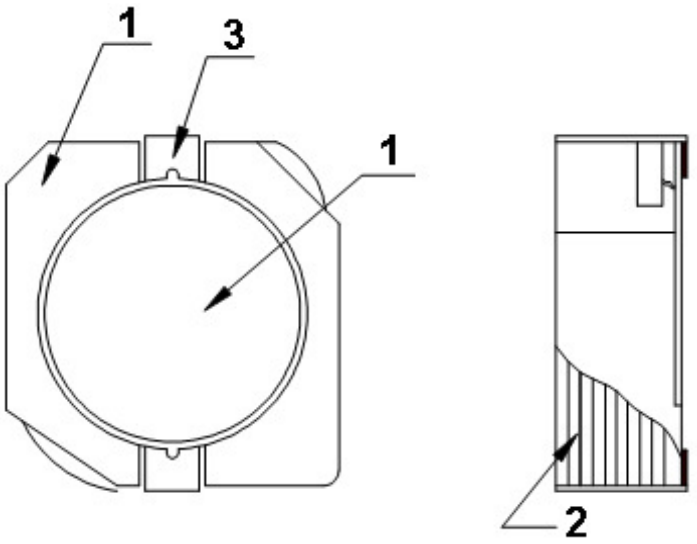
1.Operating temperature range -40℃~125℃(Including self - temperature rise)

2.Isat for Inductance drop 35% from its value without current.

3.Irms for a 40℃ temperature rise from 25℃ ambient.

8 APSC00101140 Series

8.1 Construction:

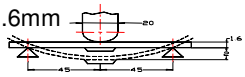


8.2 Material List:

No	Part	Material
1	Core	Ferrite
2	Wire	Magnet Wire
3	Terminal	Terminal Copper

9 Reliability Of Ferrite Wire Wound Power Inductor

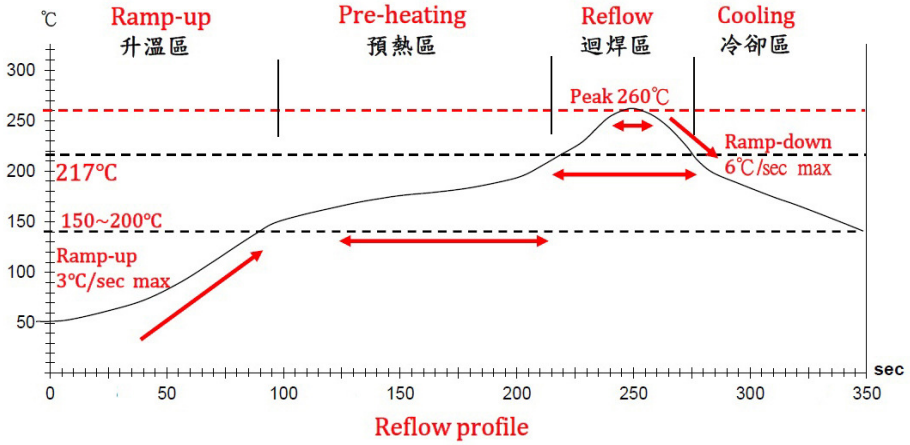
1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Board Flex	The forces applied on the right conditions must not damage the terminal electrode and the ferrite	Refer to AEC-Q200-005 Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 60sec 
1-1-2	Resistance to Soldering Heat	Appearance: No damage Inductance change shall be within ±10%.	Refer to MIL-STD-202 Method 210 Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 250±5℃ Immersion Time: 10±1sec
1-1-3	Solder ability	The electrodes shall be at least 95% covered with new solder coating	Refer to J-STD-002 Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245±5℃(Pb-Free) Immersion Time: 4±1sec
1-1-4	Terminal Strength Test	Appearance: No damage	Refer AEC-Q200-006 Soldered on PCB for testing as fig. Force : 1.8kg Keeping Time: 60 seconds.
1-1-5	Resistance to Solvent	There must be no change in appearance or obliteration of marking	Refer to MIL-STD-202 Method 215 Inductors must withstand 6 mimutes of alcohol or water Sample Size : 15 pcs
1-1-6	Vibration	Appearance: No damage Inductance change shall be within ±10%.	Refer MIL-STD-202 Method 204 Vibration waveform: Sine waveform Vibration frequency: 10Hz~2000Hz Vibration acceleration: 5g Sweep rate: 0.764386otcave/minute Duration of test: 12 cycles each of 3 orientations, 20 minutes for each cycle Vibration axes: X, Y & Z

1-2.Environmental Performance

No	Item	Specification	Test Method
1-2-1	Temperature Cycle	Appearance: No damage Inductance change shall be within±30%	Refer to JESD Method JA-104 Total cycles: 1000 cycles Temperature Cycling Test Conditions : -40 to +125 ℃ -40 ℃ Soak Mode Condition : 30 minutes 125 ℃ Soak Mode Condition : 30 minutes Measured after exposure in the room condition for 24hrs
1-2-2	Biased Humidity Resistance		Refer to MIL-STD-202 Method 103 Temperature: 85±2℃ Relative Humidity:85% / Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-3	High Temperature Exposure (Storage)		Refer to MIL-STD-202 Method 108 Temperature: 125±3℃ Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-4	Operational Life		Refer to MIL-STD-202 Method 108 Temperature: 125±3℃ Applied Current : Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs

Reflow Soldering Profile



Reflow profile

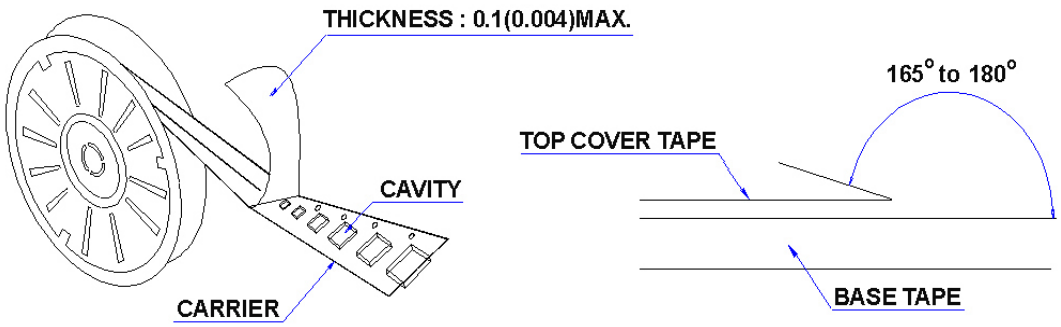
Lead-Free(LF)標準溫度分析範圍 **Refer to J-STD-020C**

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℃	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	–

10 Packaging:

10.1 Packaging -Cover Tape

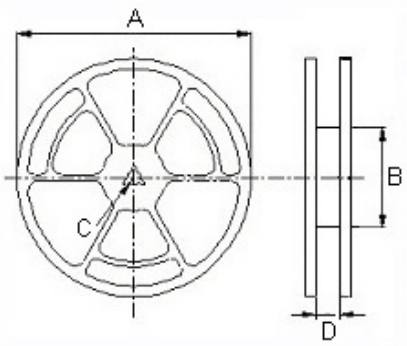
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
101140	1000

10.3 Reel Dimensions

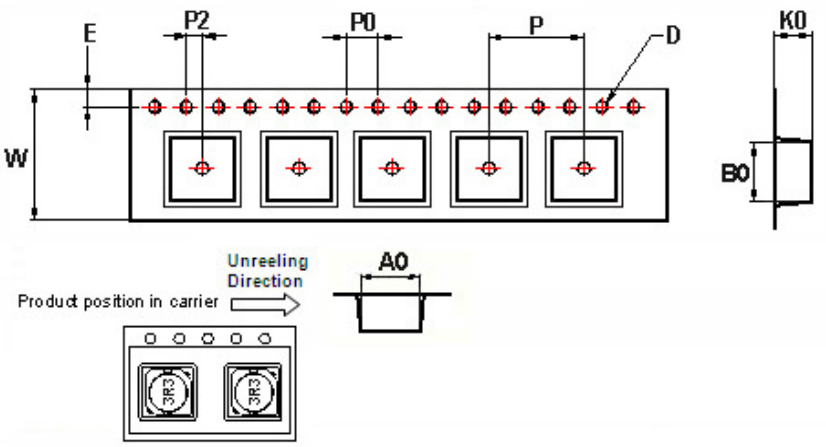


Dimensions in mm

TYPE	A	B	C	D
101140	330	100	13	24.4

10 Packaging:

10.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	W	P	P0	P2
101140	10.6	10.75	4.2	1.55	1.75	24	16	4	2

11 Recommended Land Pattern:

Dimensions in mm

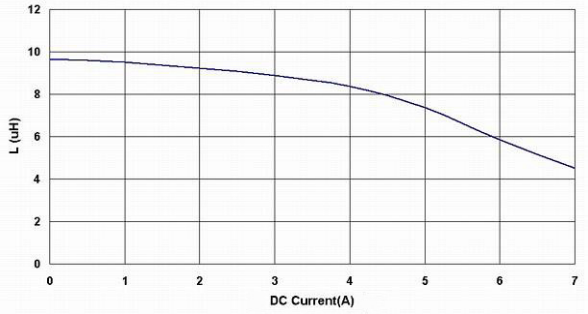
TYPE	A	B	C
101140	1.6	7.3	3.2

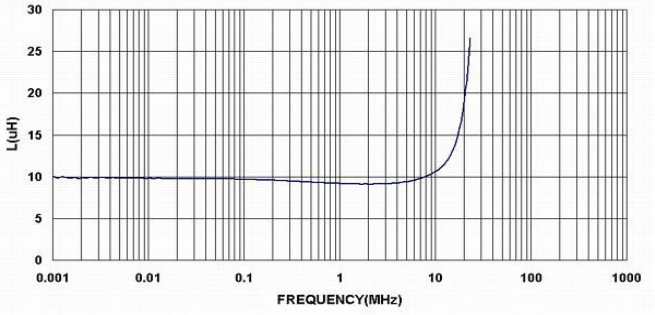
12 Note:

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.

13 Graph:

APSC00101140100□00





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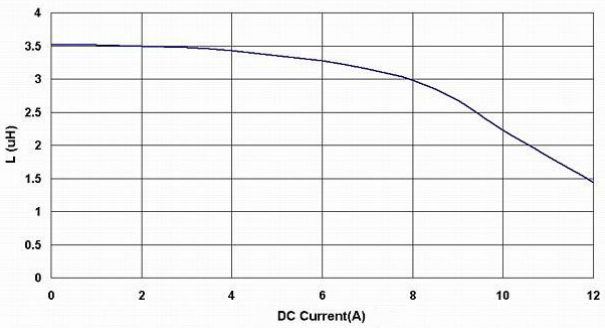

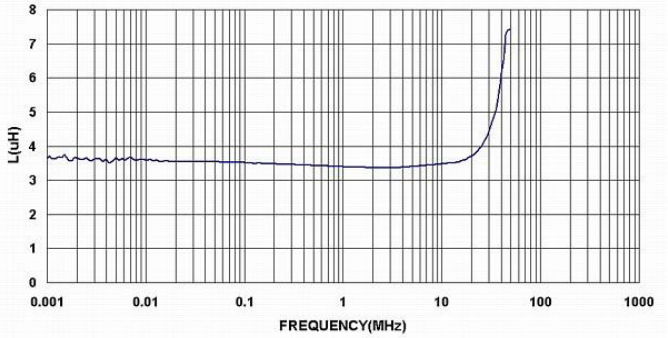

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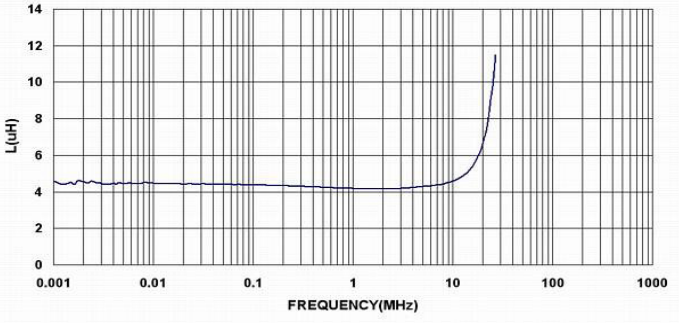

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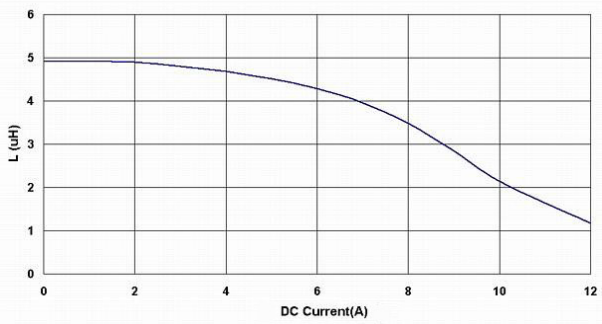

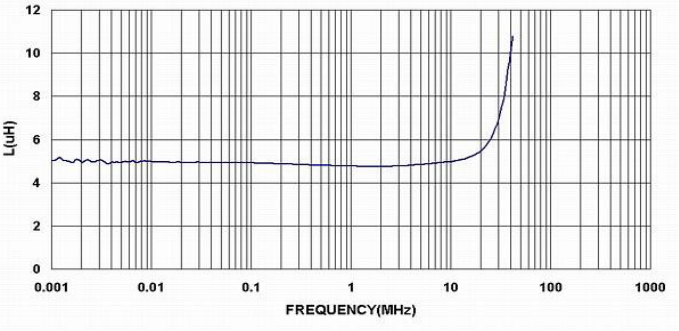

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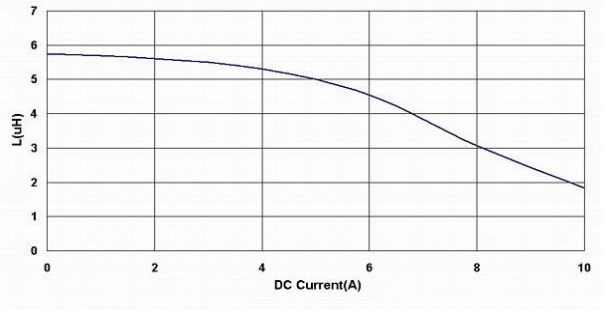

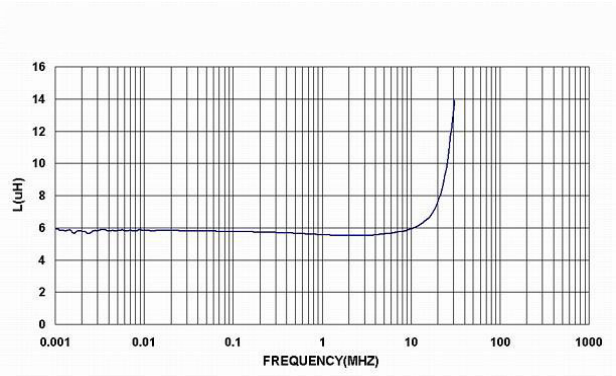

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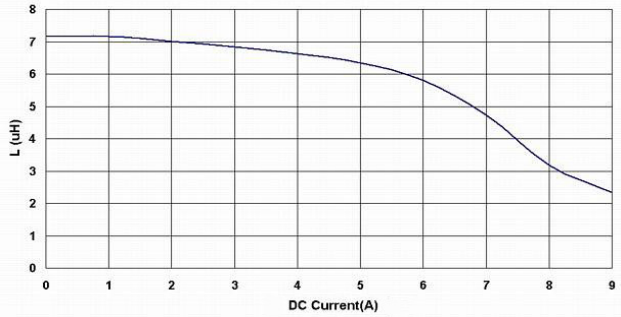

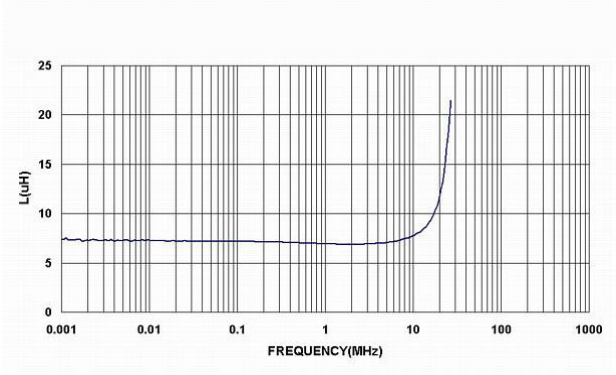

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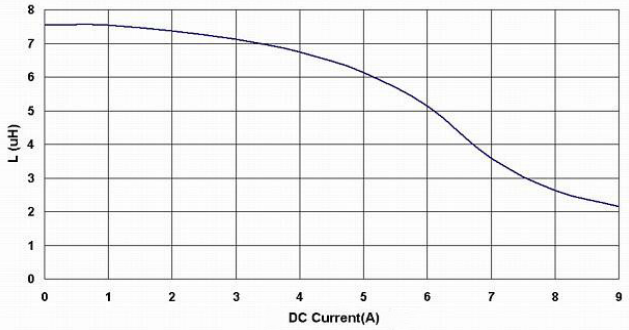

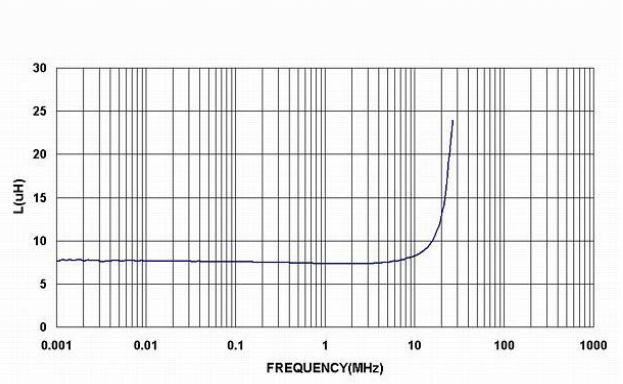

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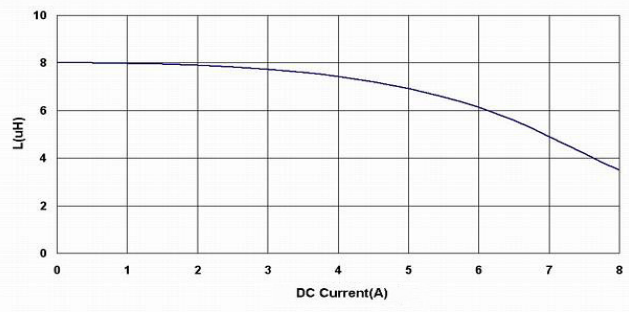
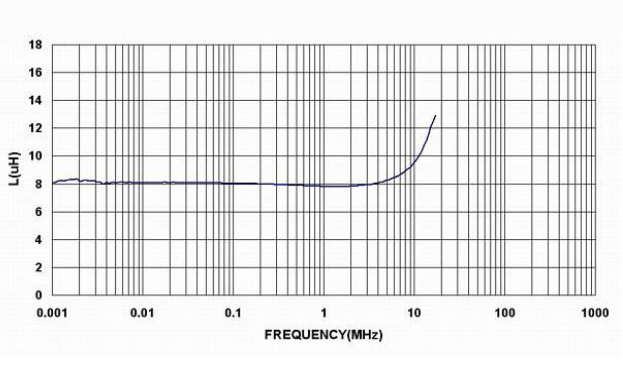


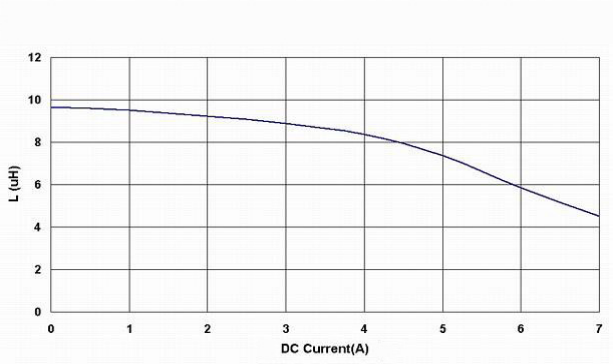


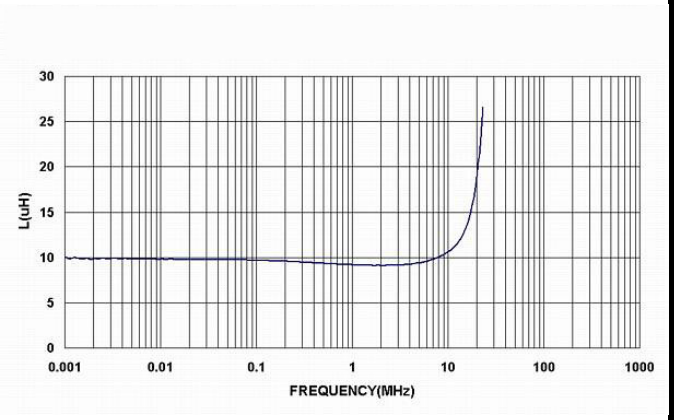
APSC00101140 Series Specification

AEC-Q200

13 Graph:

APSC00101140100□00





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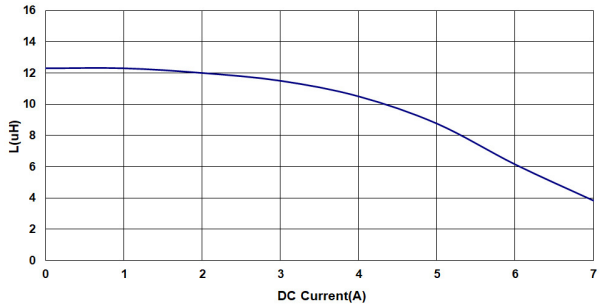

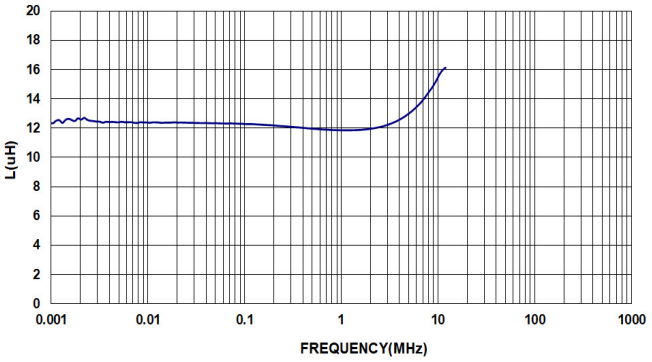

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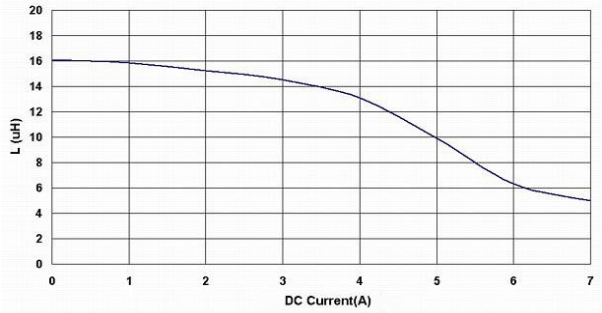

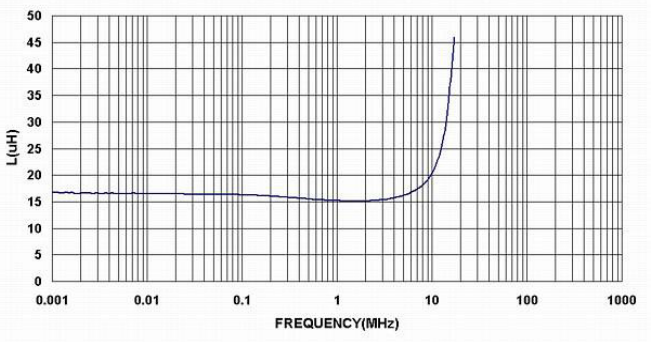

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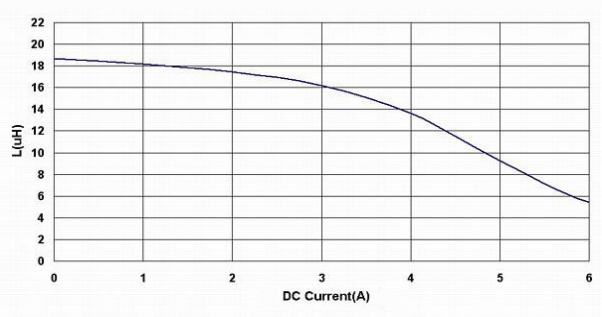

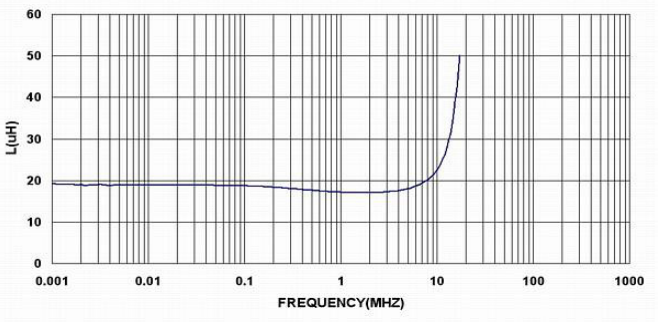

13 Graph:

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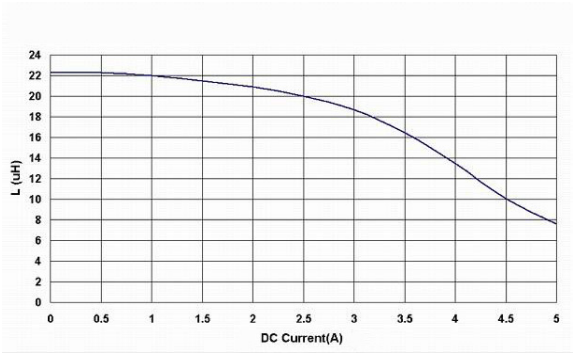

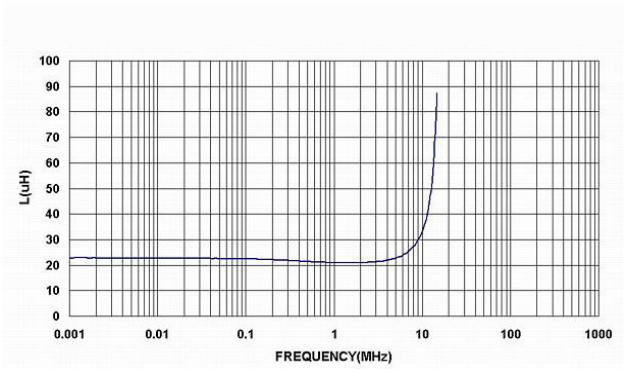

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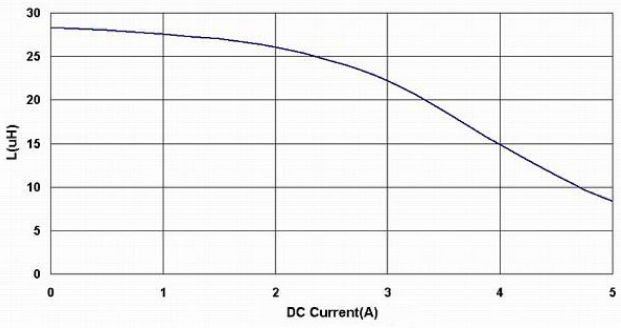

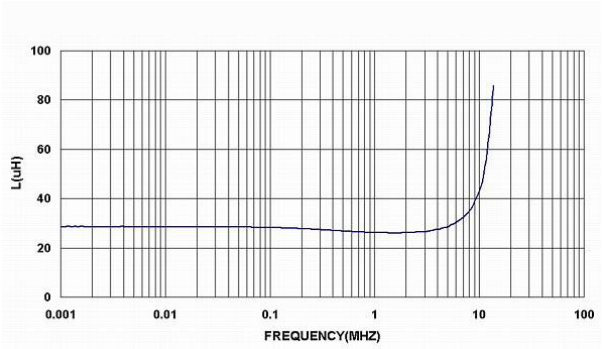

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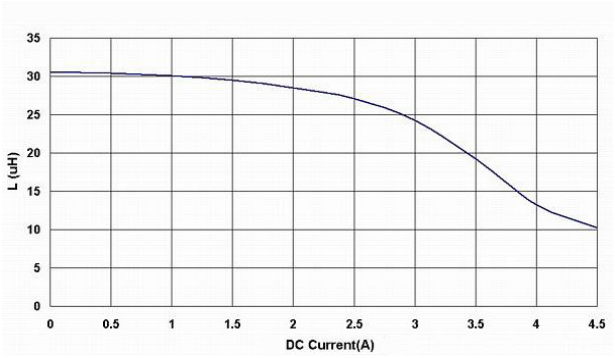

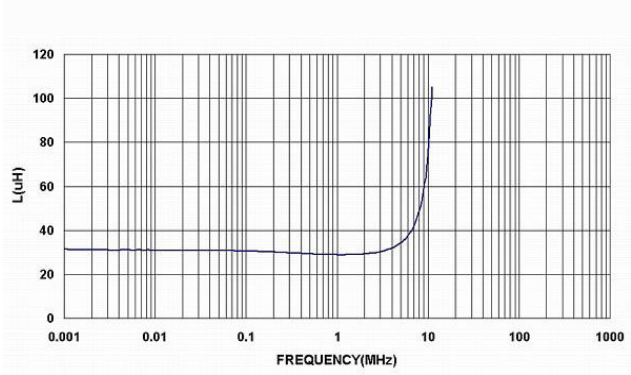

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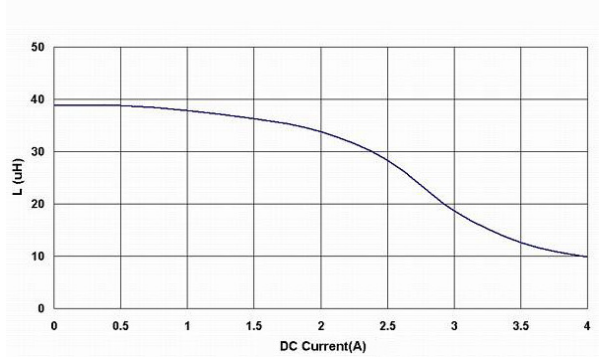

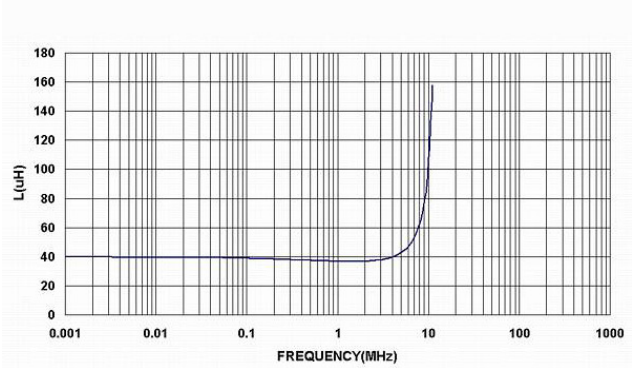

13 Graph:

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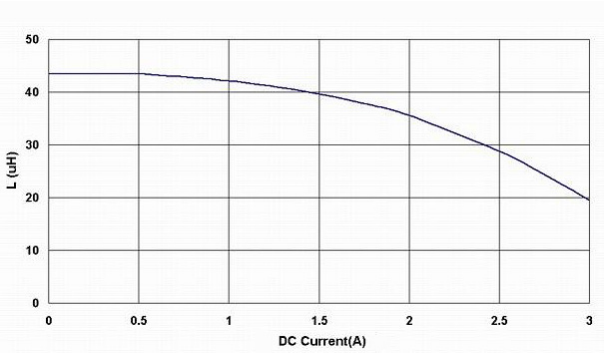

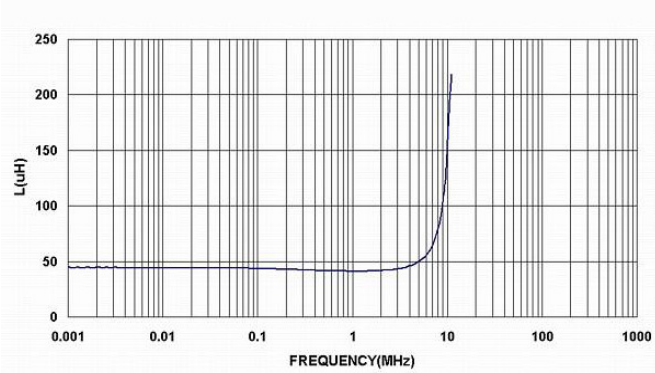

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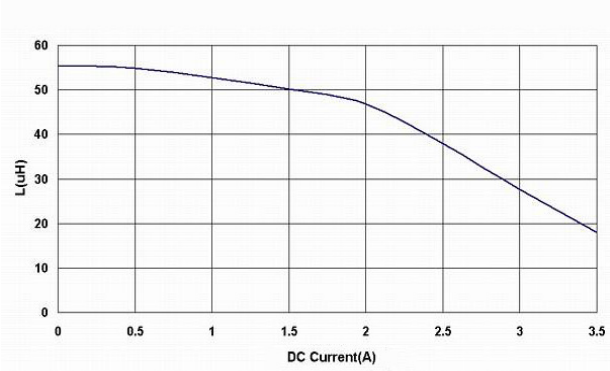

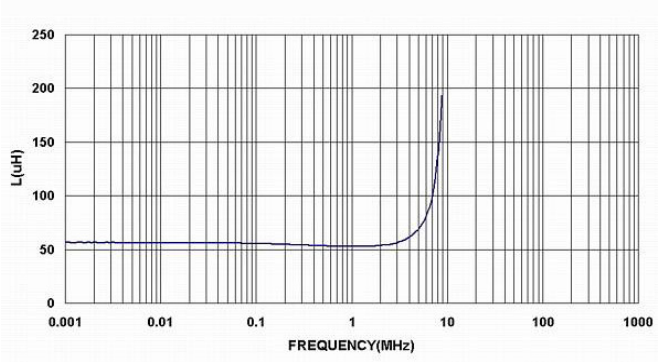

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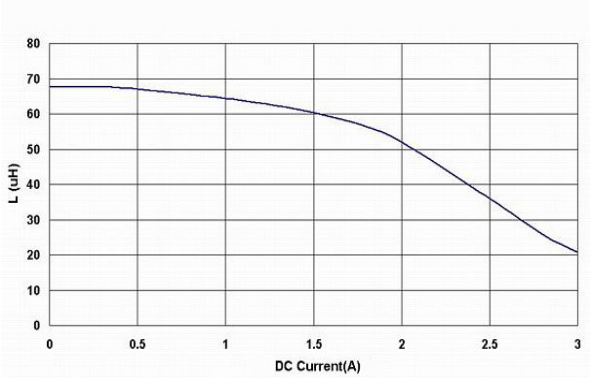

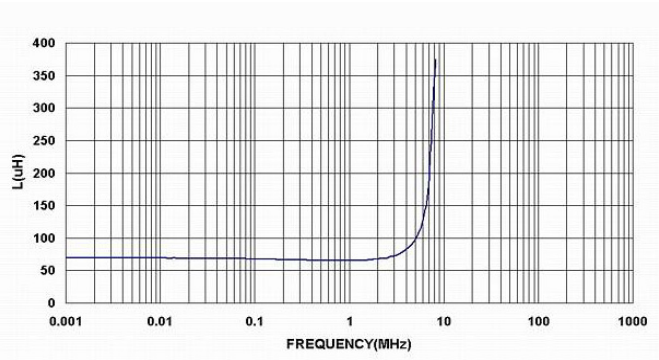

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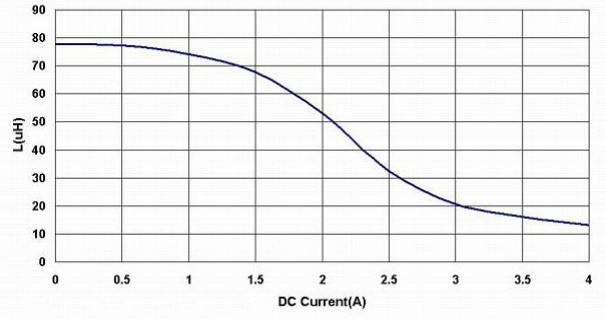

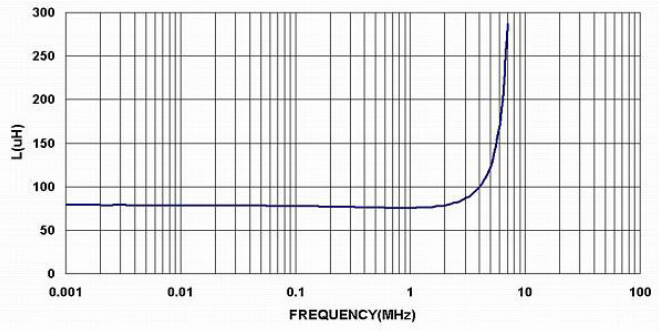

13 Graph:

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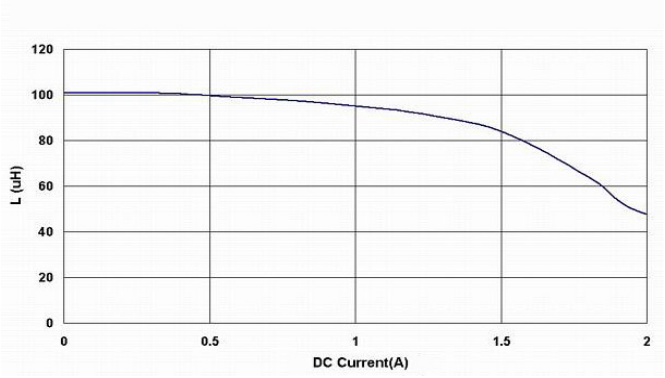

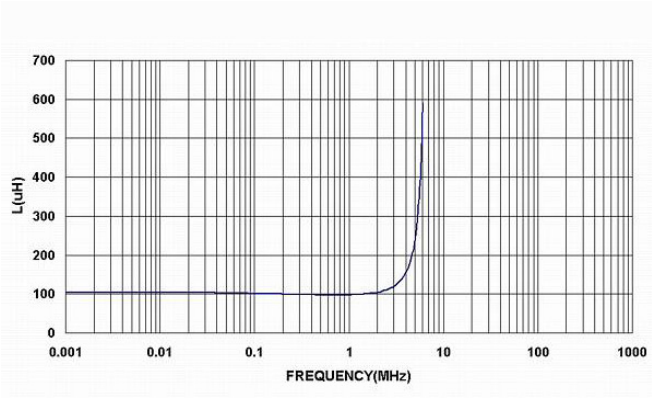

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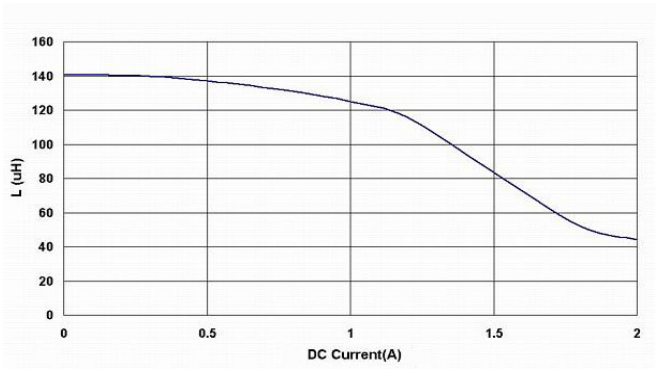

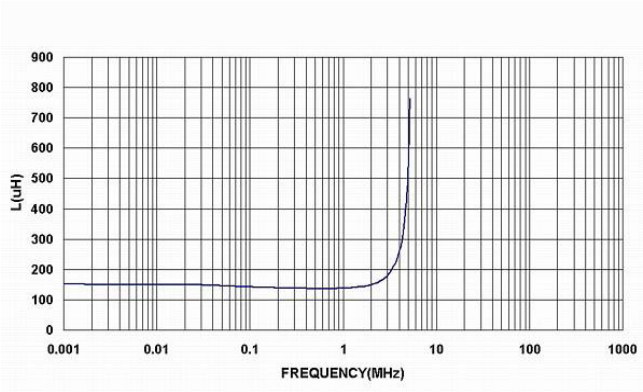

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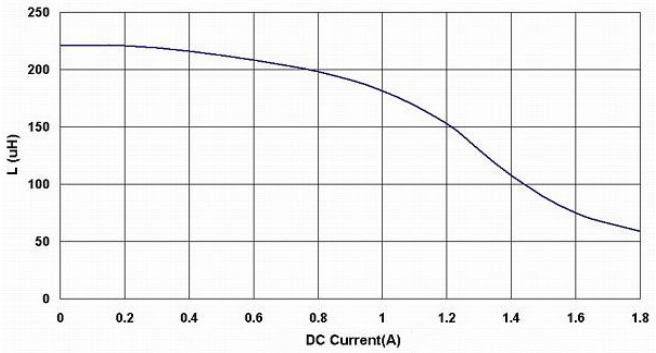

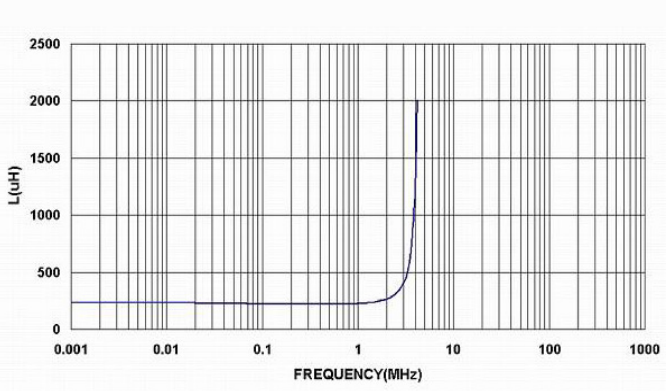

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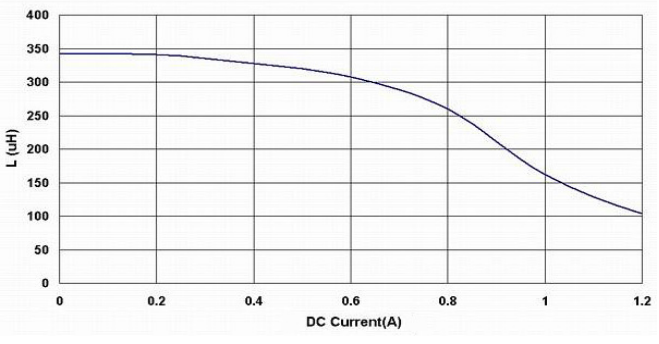

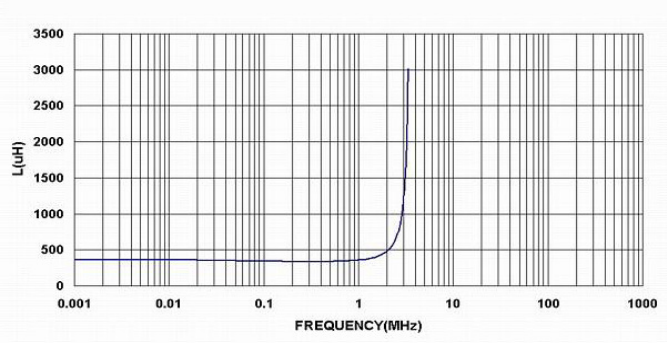

13 Graph:

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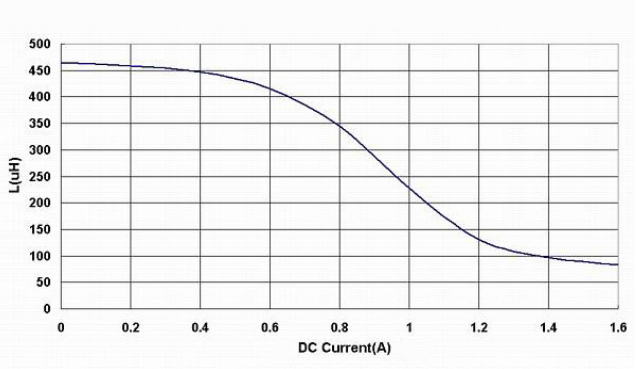

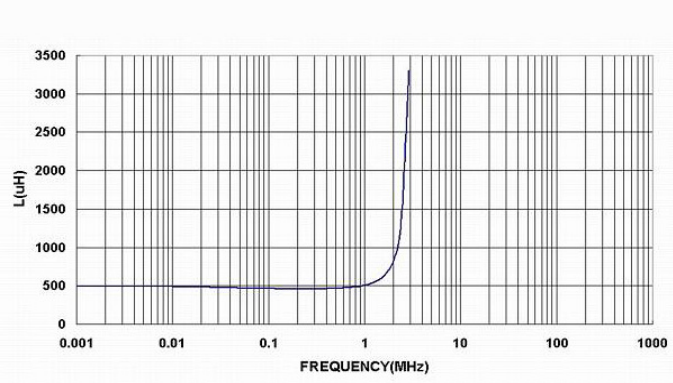
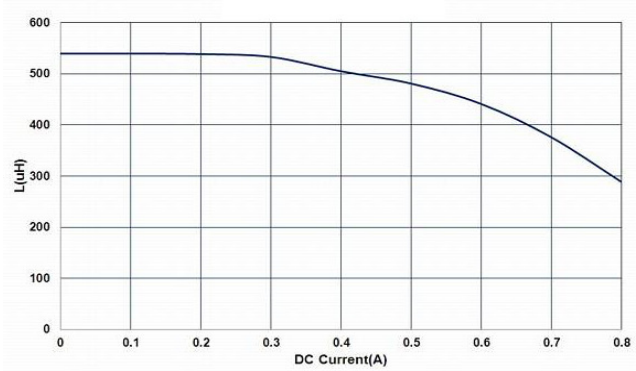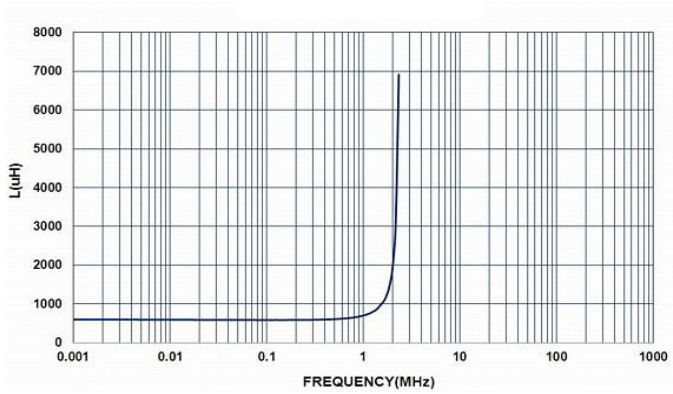
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