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Power Inductor

BPSD 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. Ferrite SMD Shielded Type
2. Unshielded power inductor
3. Various package size and wide inductance range

Applications

1. Graphic cards
2. DC/DC converters

Product Information

Series	L (mm)	W(mm)	T (mm)	Inductance (μH)
BPSD	3.3	3.0	1.5	0.15 ~ 8200
	3.3	3.0	2.1	
	4.5	4.0	3.2	
	5.8	5.2	2.5	
	5.8	5.2	3.0	
	5.8	5.2	4.5	
	7.8	7.0	3.5	
	7.8	7.0	5.0	
	10	9.0	4.0	
	10	9.0	5.4	
	10	9.0	6.5	



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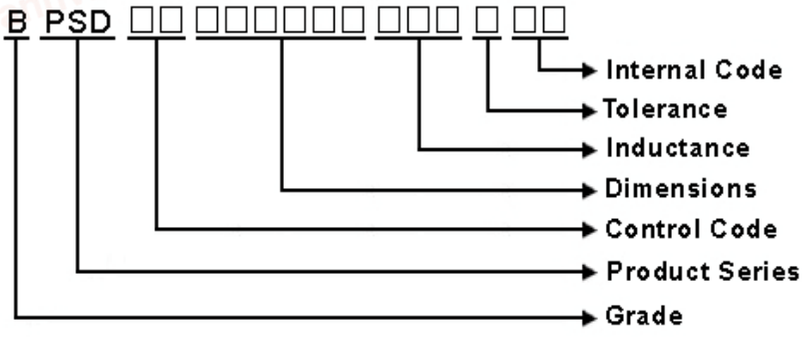
1 Scope:
This specification applies to SMD Unshielded Power Inductors

2 Part Numbering:



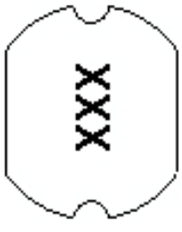
3 Rating:

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

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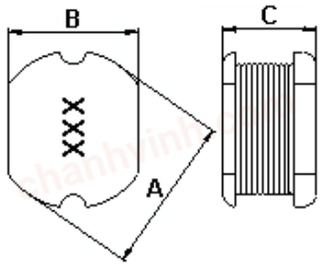
6 Configuration and Dimensions and Unit Weight:



Dimensions in mm

TYPE	050432
A	4.5±0.3
B	4.0±0.3
C	3.2±0.3
D	1.2

Net Weight (grms)

SIZE CODE	Net Weight (grms)
050432	0.23(Typ.)

7 Electrical Characteristics:

Part No.	Inductance (uH)	Test Freq.	RDC (Ω)Max.	Isat (A)	Irms (A)	Tolerance (±%)	Marking
BPSD00050432R15□00	0.15	7.96 MHz,1 V	0.0085	7.5	7.5	30	R15
BPSD000504321R0□00	1	7.96 MHz,1 V	0.033	3.8	3.8	10,20	1R0
BPSD000504321R2□00	1.2	7.96 MHz,1 V	0.035	3.5	3.5	20	1R2
BPSD000504321R4□00	1.4	7.96 MHz,1 V	0.038	3.3	3.3	20	1R4
BPSD000504321R8□00	1.8	7.96 MHz,1 V	0.042	2.91	2.91	10,20	1R8
BPSD000504322R2□00	2.2	7.96 MHz,1 V	0.047	2.6	2.6	10,20	2R2
BPSD000504322R7□00	2.7	7.96 MHz,1 V	0.052	2.43	2.43	20	2R7
BPSD000504323R3□00	3.3	7.96 MHz,1 V	0.058	2.15	2.15	10,20	3R3
BPSD000504323R9□00	3.9	7.96 MHz,1 V	0.076	1.98	1.98	20	3R9
BPSD000504324R7□00	4.7	7.96 MHz,1 V	0.094	1.7	1.7	10,20	4R7
BPSD000504325R6□00	5.6	7.96 MHz,1 V	0.101	1.6	1.6	10,20	5R6
BPSD000504326R2□00	6.2	7.96 MHz,1 V	0.11	1.5	1.5	20	6R2
BPSD000504326R8□00	6.8	7.96 MHz,1 V	0.117	1.41	1.41	10,20	6R8
BPSD000504328R2□00	8.2	7.96 MHz,1 V	0.132	1.26	1.26	10,20	8R2
BPSD00050432100□00	10	2.52 MHz,1 V	0.182	1.15	1.15	10,20	100
BPSD00050432120□00	12	2.52 MHz,1 V	0.21	1.05	1.05	20	120
BPSD00050432150□00	15	2.52 MHz,1 V	0.235	0.92	0.92	10,20	150
BPSD00050432180□00	18	2.52 MHz,1 V	0.338	0.84	0.84	20	180
BPSD00050432220□00	22	2.52 MHz,1 V	0.378	0.76	0.76	10,20	220
BPSD00050432270□00	27	2.52 MHz,1 V	0.522	0.71	0.71	10,20	270
BPSD00050432330□00	33	2.52 MHz,1 V	0.54	0.64	0.64	10,20	330
BPSD00050432390□00	39	2.52 MHz,1 V	0.587	0.59	0.59	10,20	390
BPSD00050432470□00	47	2.52 MHz,1 V	0.844	0.54	0.54	10,20	470
BPSD00050432560□00	56	2.52 MHz,1 V	0.937	0.5	0.5	10,20	560
BPSD00050432680□00	68	2.52 MHz,1 V	1.117	0.46	0.46	10,20	680

NOTE: □-tolerance K=±10% / M=±20%

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

2.Isat for Inductance drop 10% from its value without current.

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

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Part No.	Inductance (uH)	Test Freq.	RDC (Ω)Max.	Isat (A)	Irms (A)	Tolerance (±%)	Marking
BPSD00050432101□00	100	1kHz,1 V	2	0.4	0.4	10,20	101
BPSD00050432121□00	120	1kHz,1 V	1.8	0.38	0.38	10,20	121
BPSD00050432151□00	150	1kHz,1 V	2.8	0.3	0.3	10,20	151
BPSD00050432181□00	180	1kHz,1 V	3.2	0.25	0.25	10,20	181
BPSD00050432221□00	220	1kHz,1 V	4	0.15	0.15	10,20	221
BPSD00050432331□00	330	1 kHz,1 V	5.85	0.21	0.21	10,20	331

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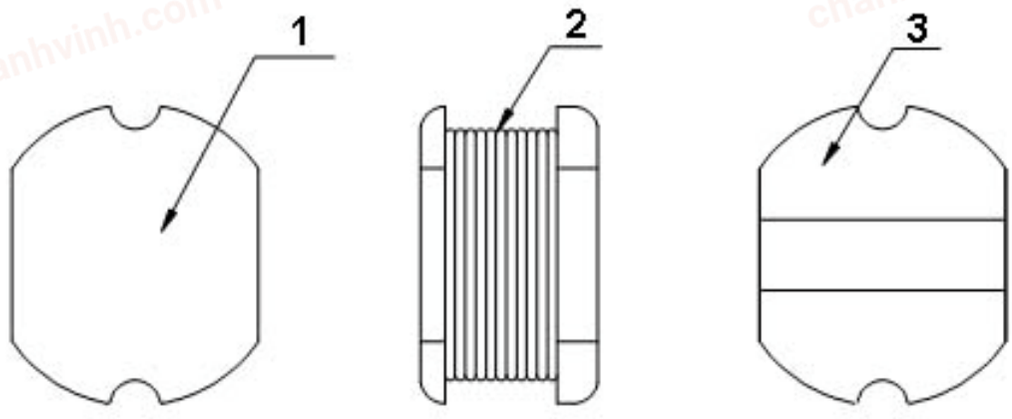
8 BPSD00050432 Series

8.1 Construction:



8.2 Material List:

No	Part	Material
1	CORE	FERRITE
2	WIRE	MAGNET WIRE
3	TERMINAL	Ag/Ni/Sn

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9 Reliability Of Ferrite Wire Wound Power Inductor

1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Vibration	Appearance: No damage Inductance:within±10% of initial value	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
1-1-2	Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260±5℃ Immersion Time: 10±1sec
1-1-3	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 Solder Temperature: 245±5℃ Immersion Time: 4±1sec
1-1-4	Resistance to solvent	There must be no change in appearance or obliteration of marking.	Inductors must withstand 6 minutes of alcohol or water.

1-2.Environmental Performance

No	Item	Specification	Test Method
1-2-1	Temperature Shock	Appearance: No damage Inductance:within±10% of initial value	10 cycles (Air to Air) 1 cycles shall consist of: 30 minutes exposure to –55 ℃ 30 minutes exposure to 125 ℃ 15 seconds maximum transition between temperatures
1-2-2	Temperature Cycle		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

1-2-3	Humidity Resistance	Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-4	Heat Life	Temperature: 85±3℃ Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-5	Cold Resistance	Temperature: -40±3℃ Time: 1000hrs Measured after exposure in the room condition for 24hrs

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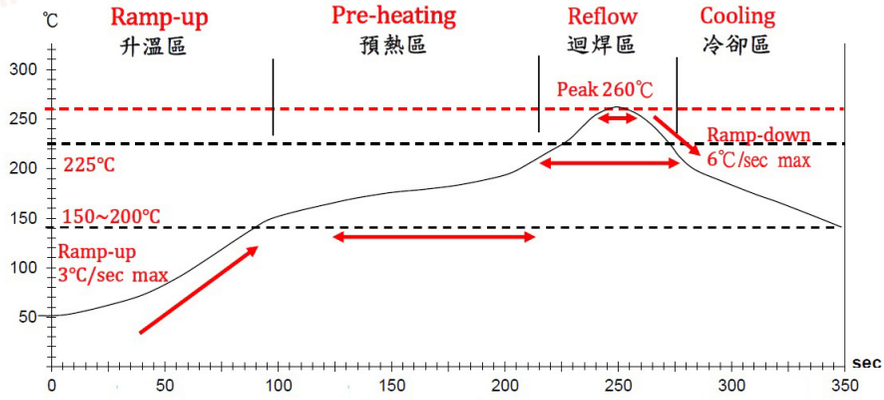
Reflow Soldering Profile



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℃	225℃	260±5℃	Peak Temp.~150℃
實際時間 Time result	-	60 ~ 180 sec	20 ~ 60 sec	15 ~20 sec	-

NOTE :

1. **Re-flow possible times : within 2 times**
2. **Nitrogen adopted is recommended while in re-flow**

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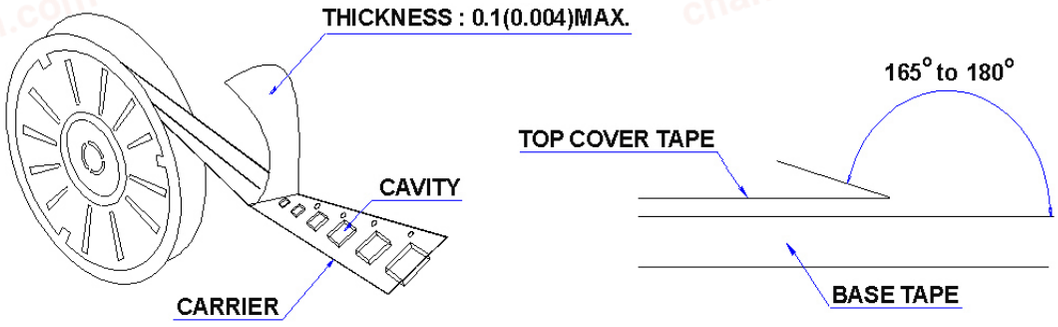
10 Packaging:

10.1 Packaging -Cover Tape

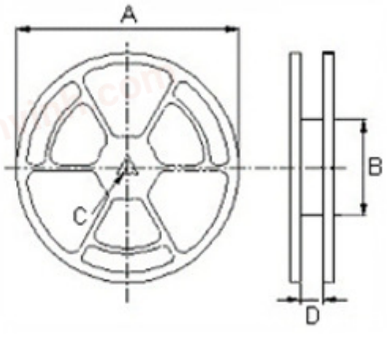
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
050432	2000

10.3 Reel Dimensions



Dimensions in mm

TYPE	A	B	C	D
050432	330	100	13	13.4

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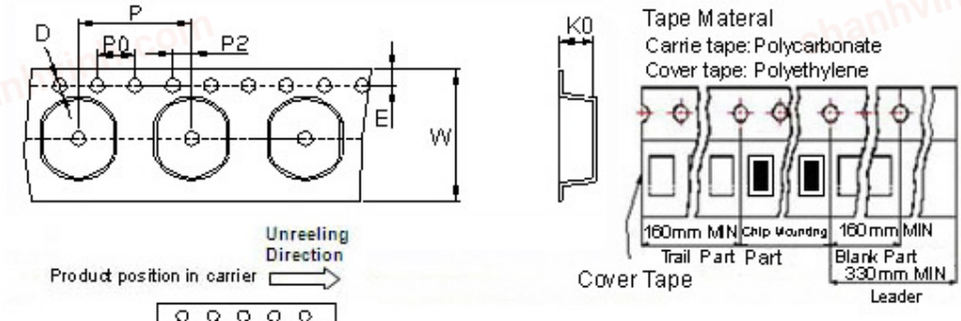
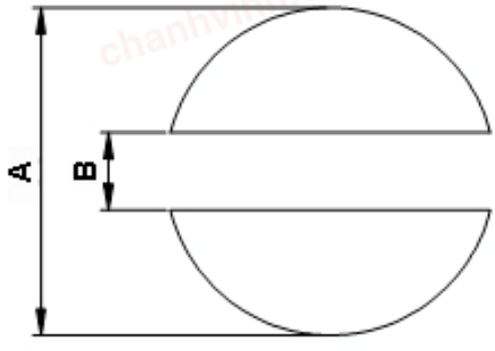
10 Packaging:

10.4 Tape Dimensions in mm



TYPE	K0	D	E	W	P	P0	P2
050432	3.55	1.55	1.75	12	8	4	2

11 Recommended Land Pattern:



Dimensions in mm

TYPE	A	B
050432	5.5	1.2

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.

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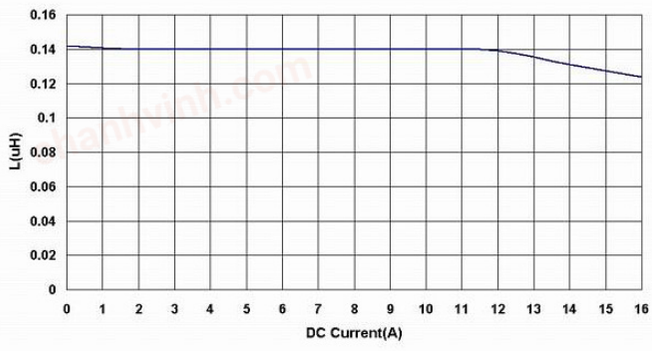
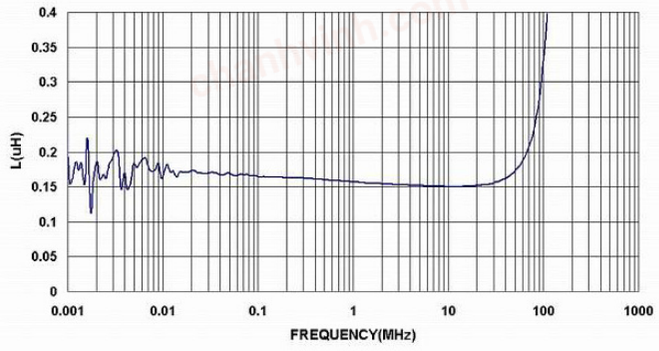
BPSD00050432 Series Specification

13 Graph:

BPSD00050432R15□00





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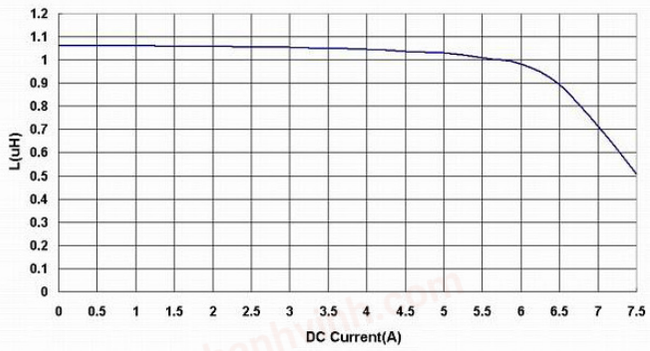

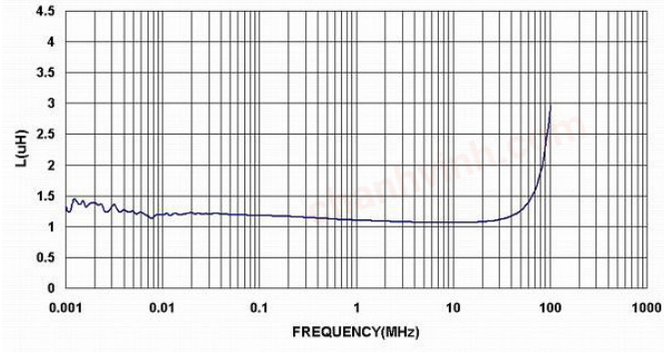

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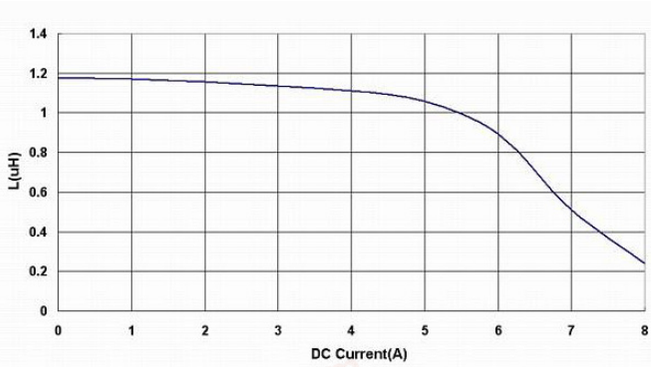

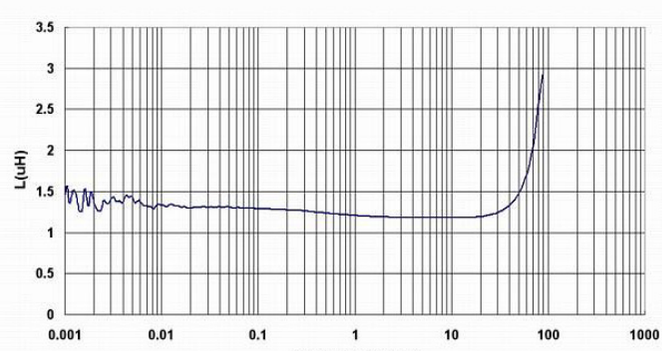

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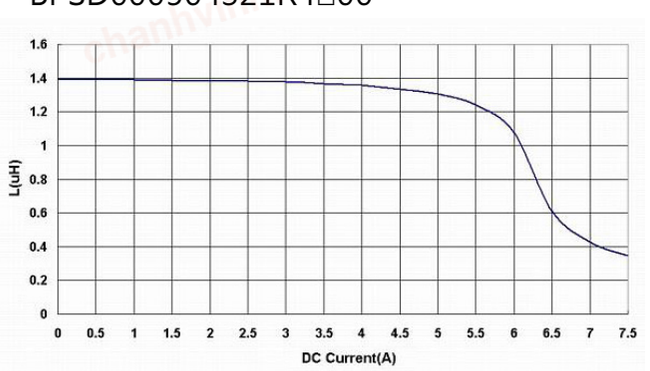

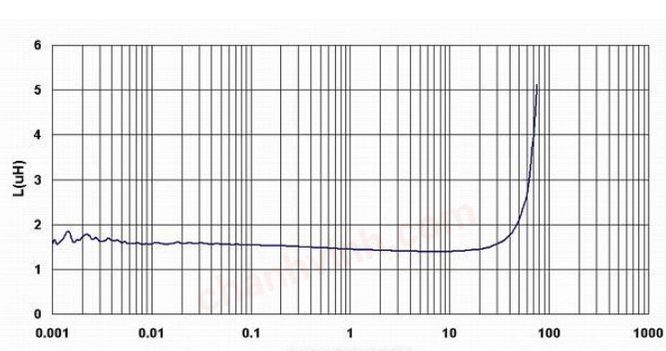

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13 Graph:

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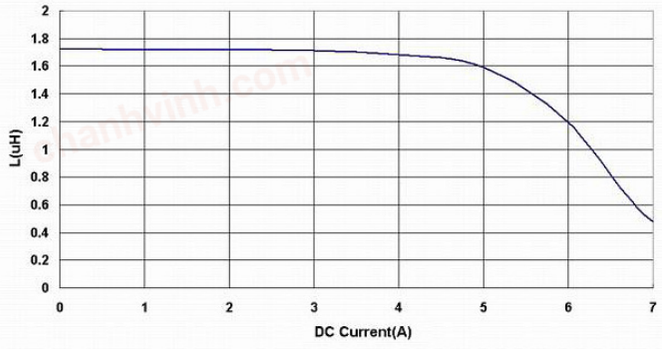

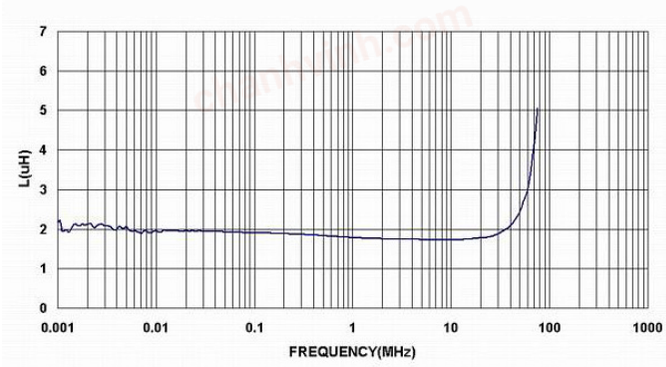

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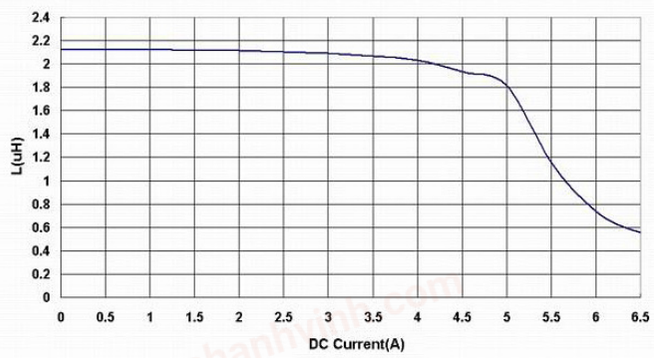

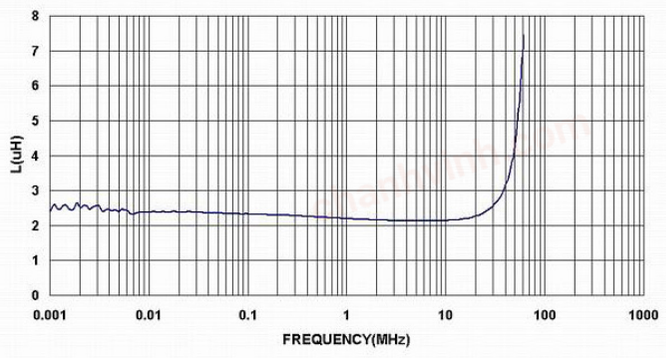

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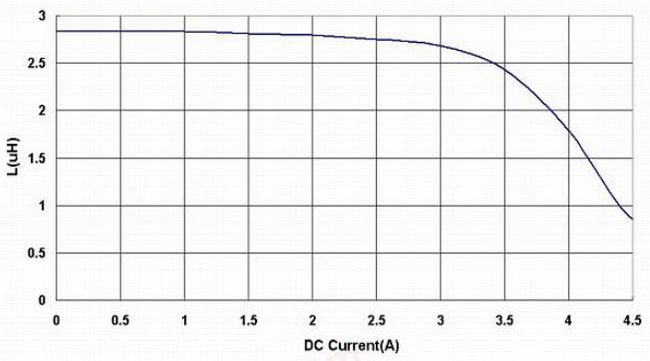

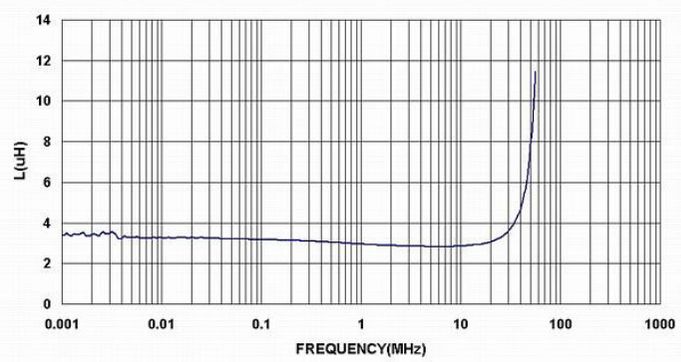

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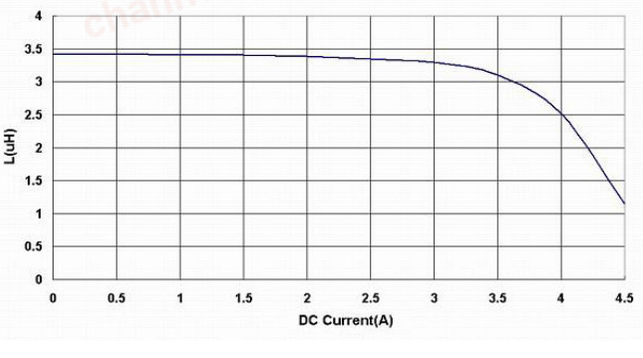

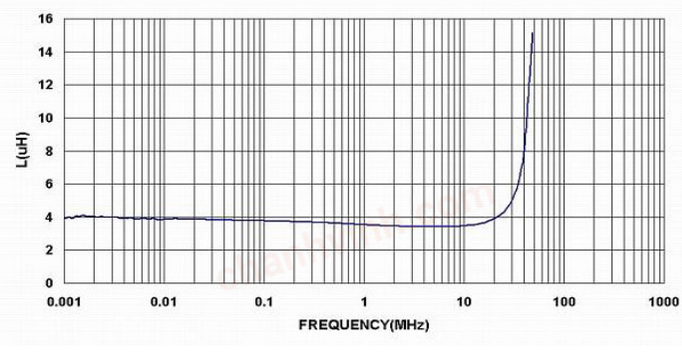

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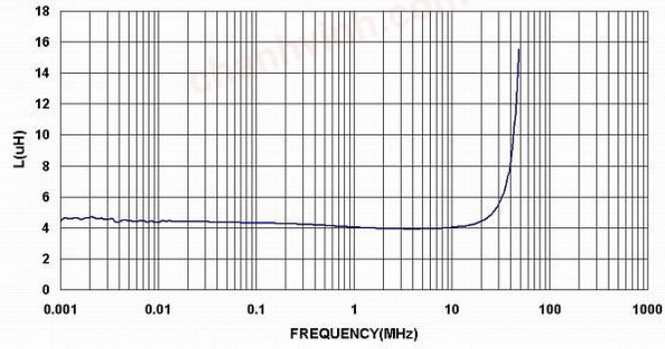
BPSD00050432 Series Specification

13 Graph:

BPSD000504323R9□00





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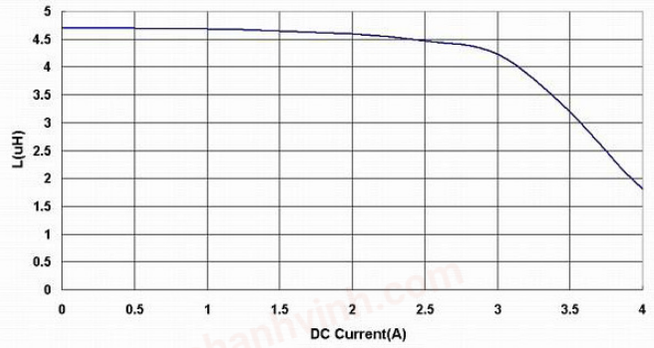

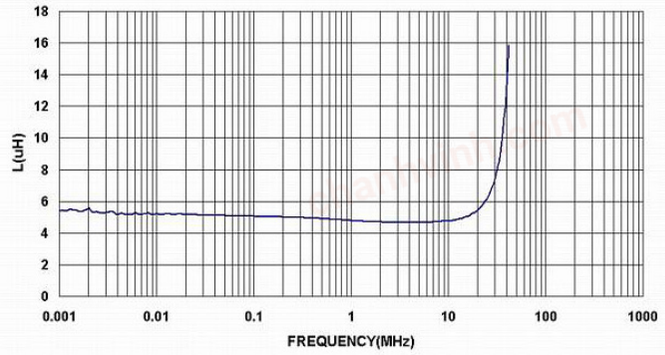

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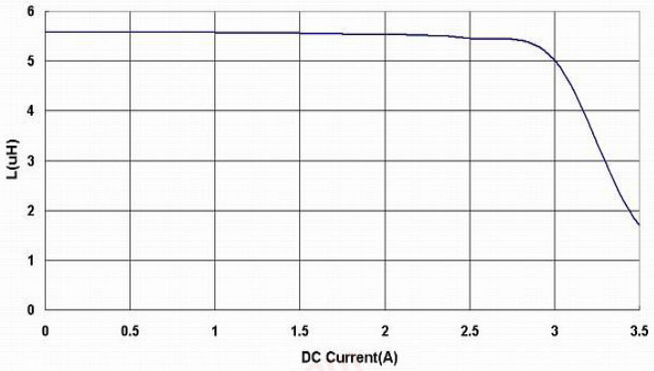

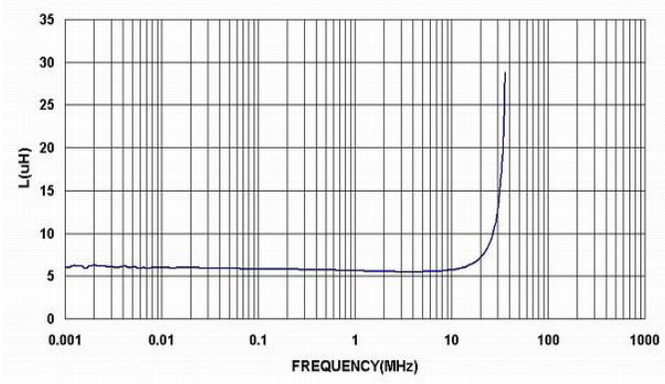

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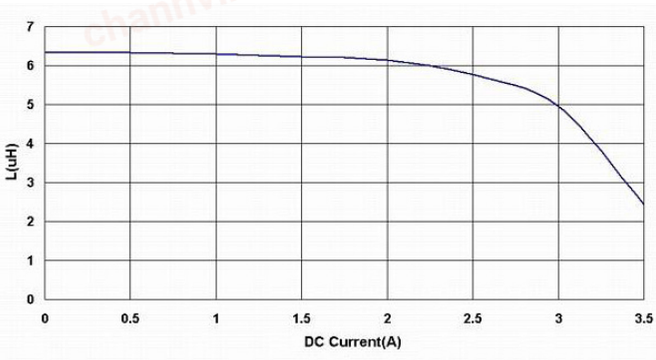

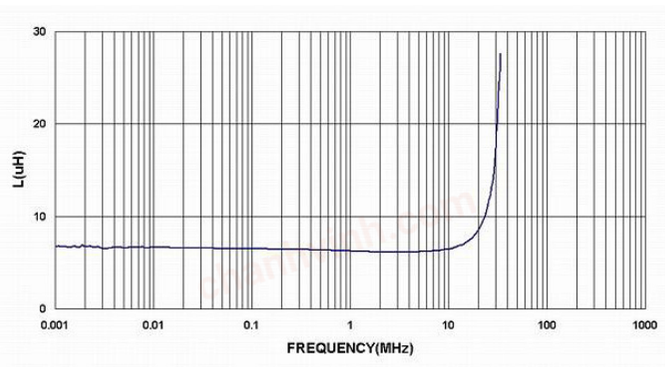

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BPSD00050432 Series Specification

13 Graph:

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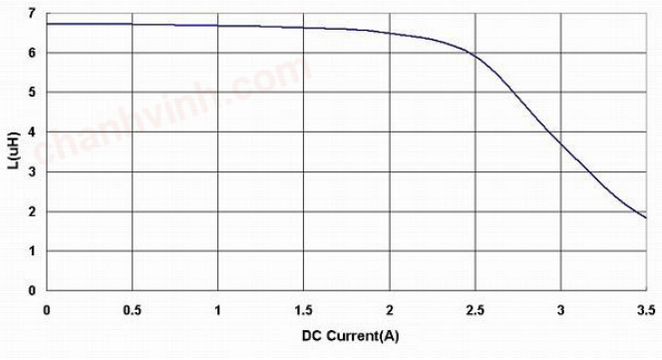

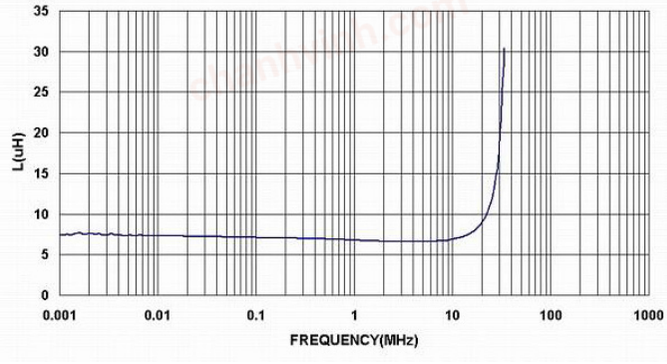

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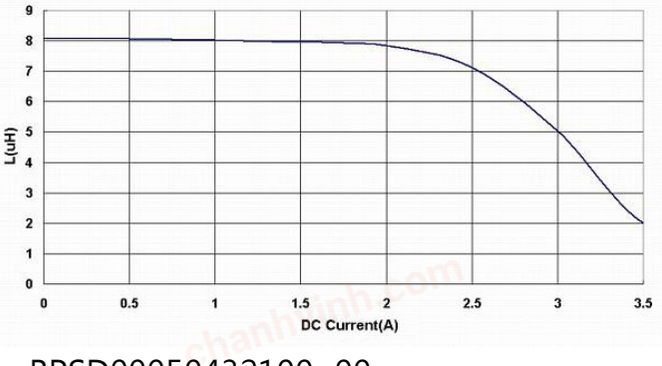

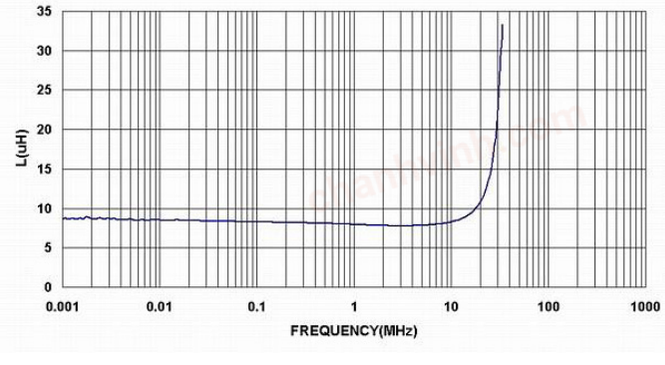

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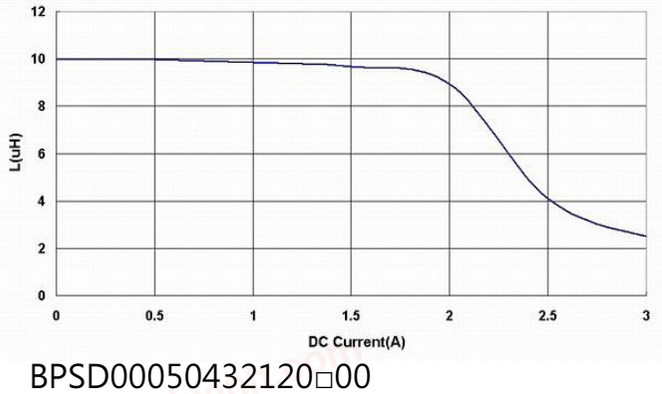

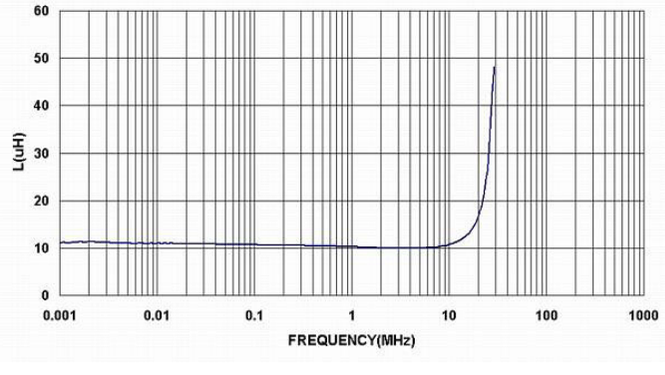

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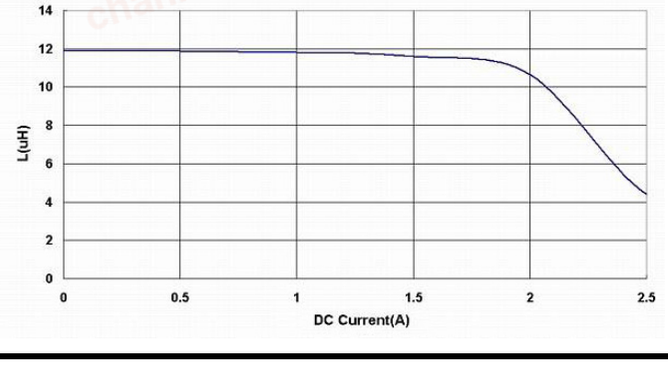

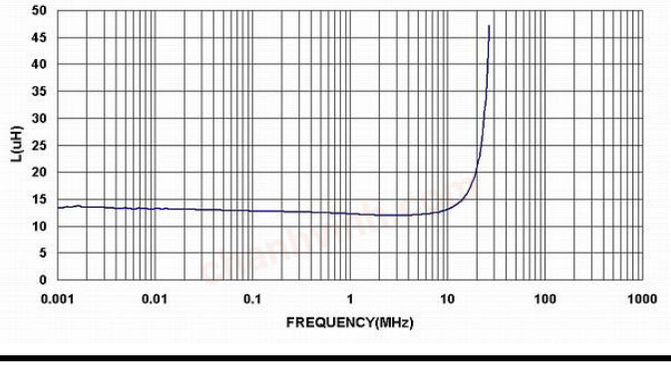

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13 Graph:

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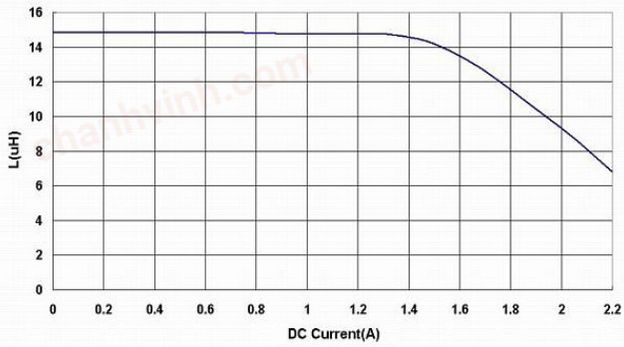

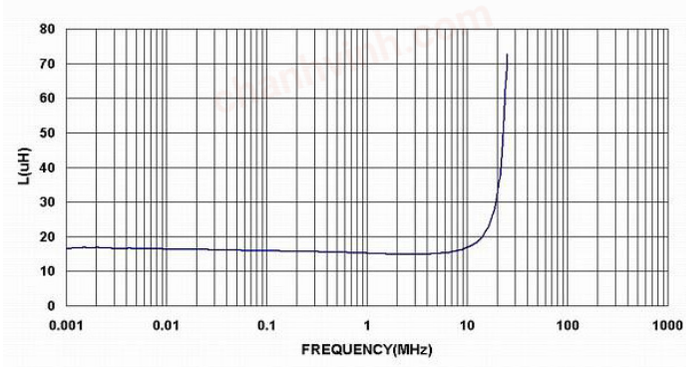

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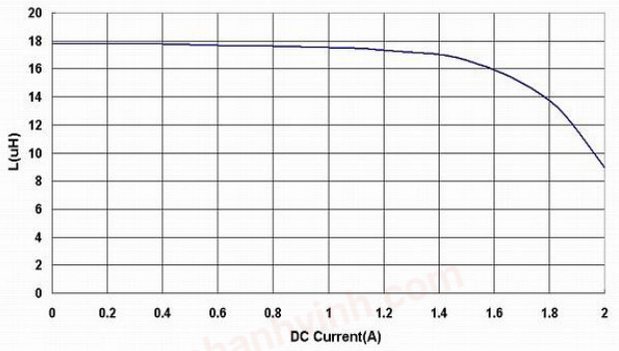

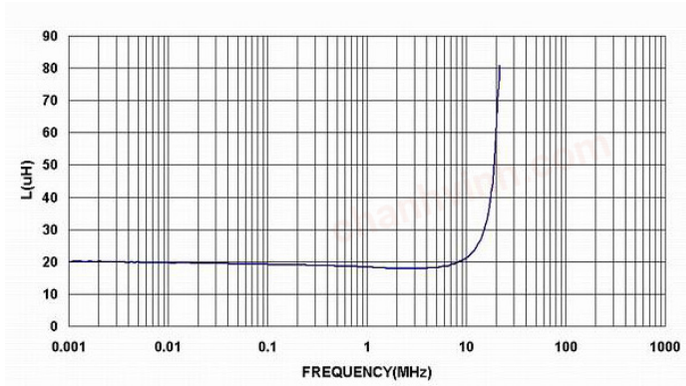

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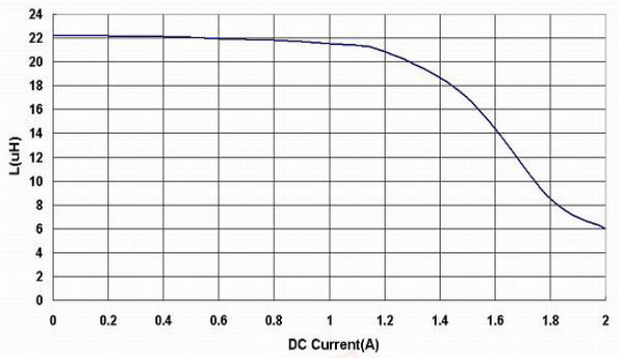

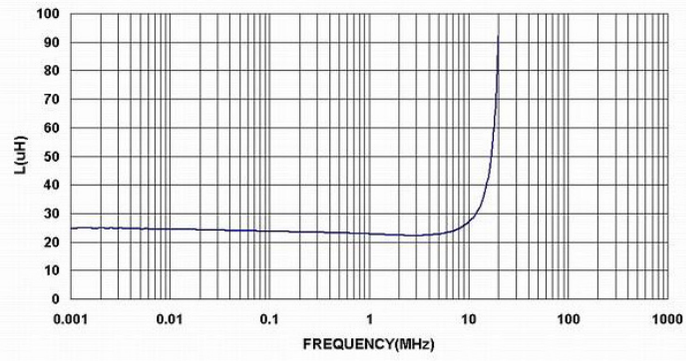

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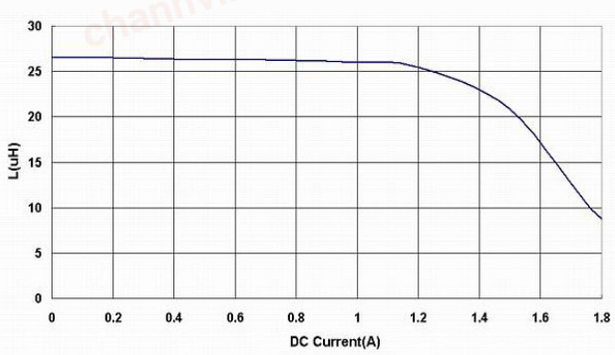

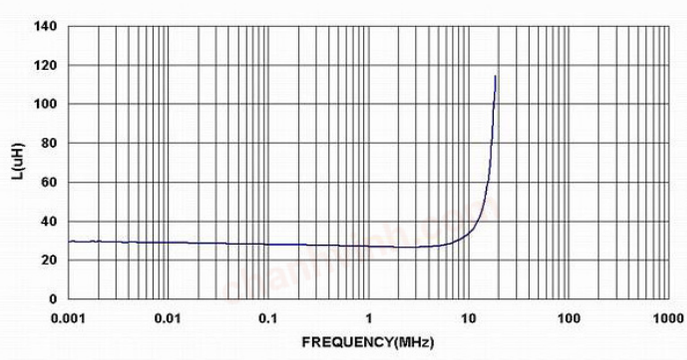

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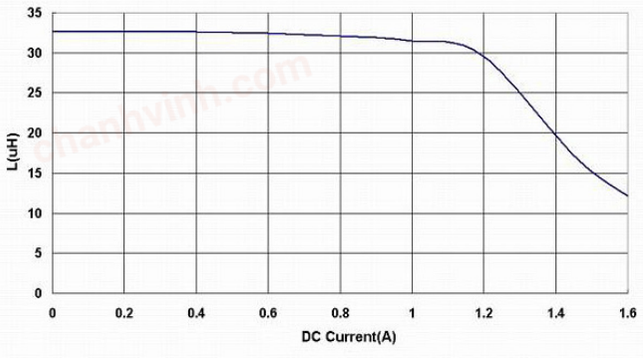

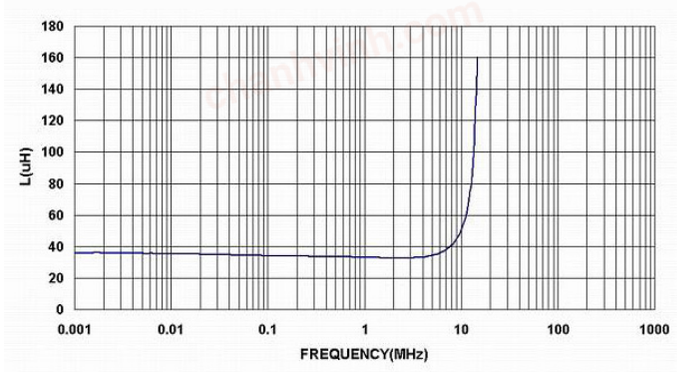

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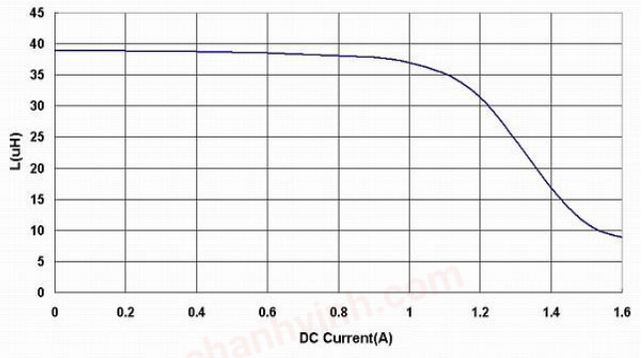

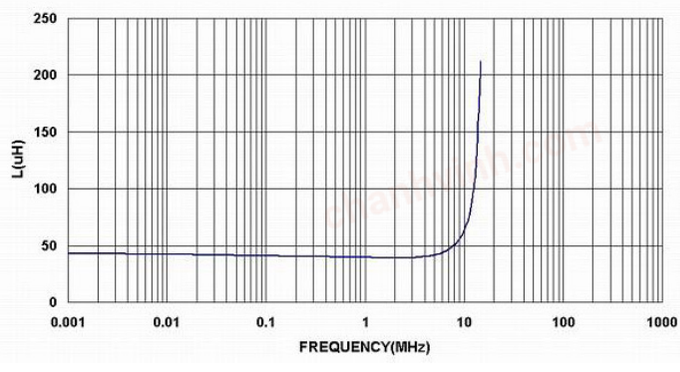

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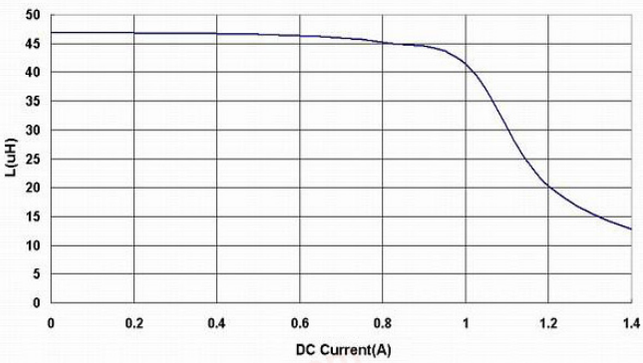

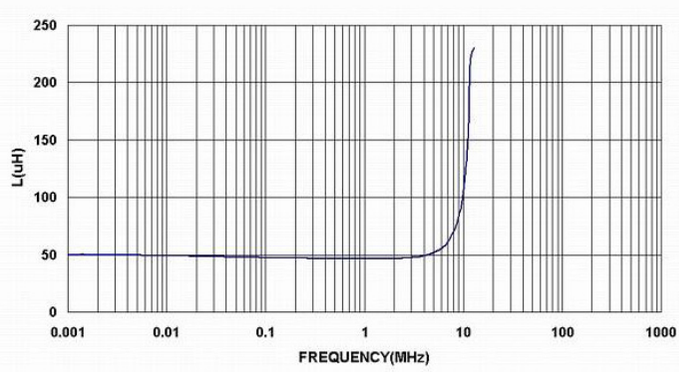

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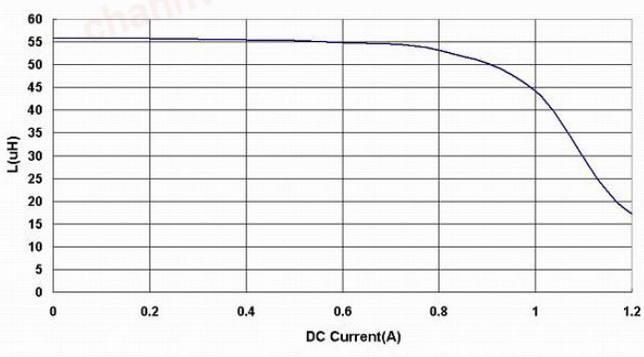

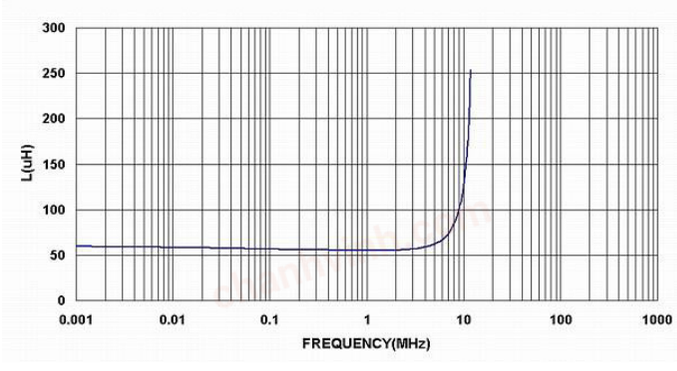

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13 Graph:

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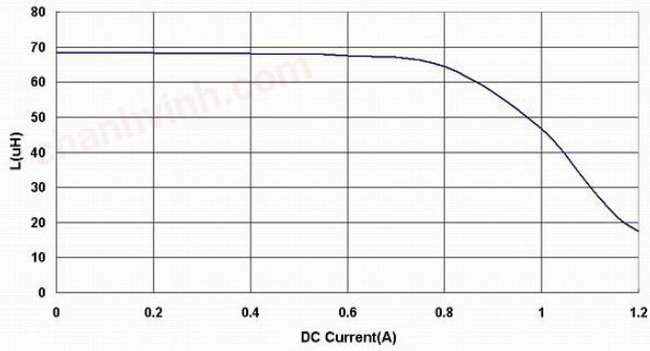

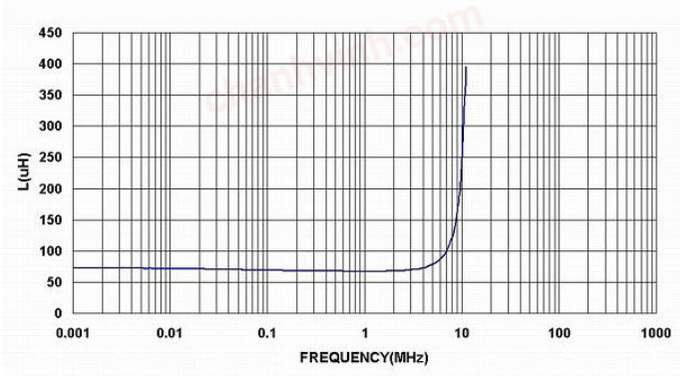

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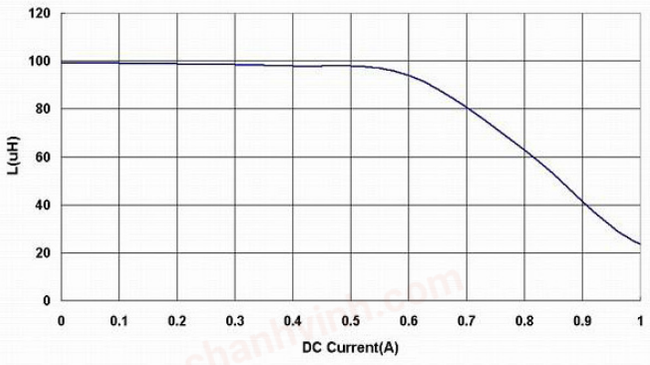

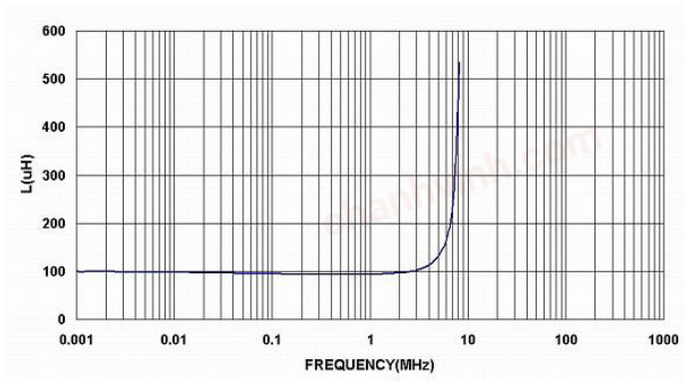

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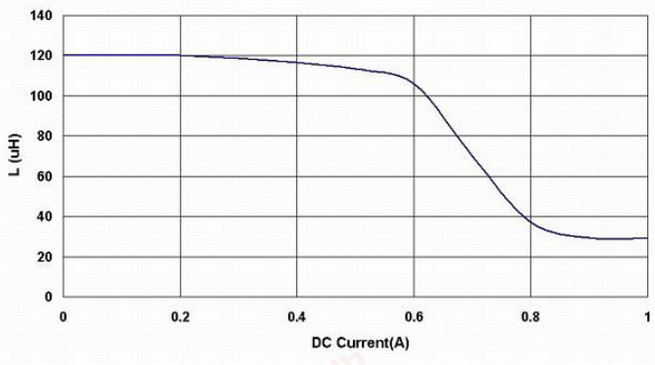

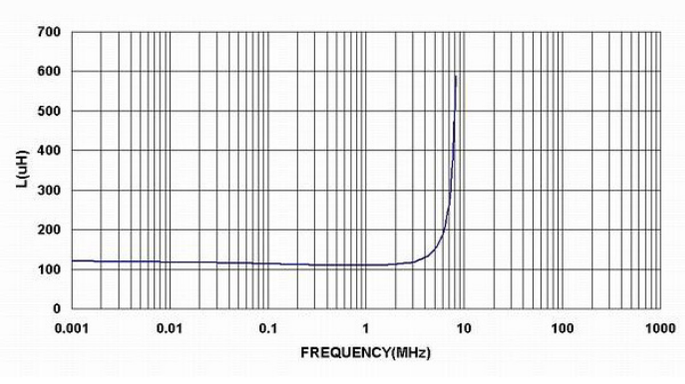

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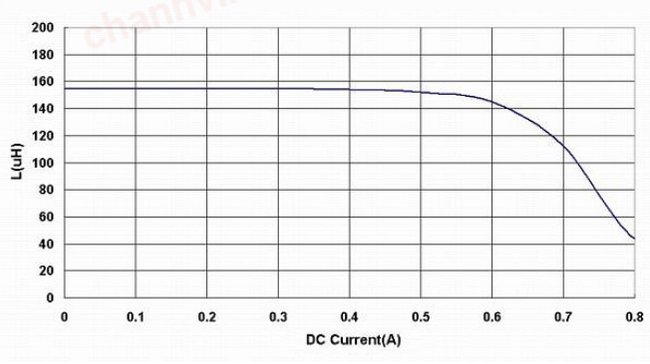

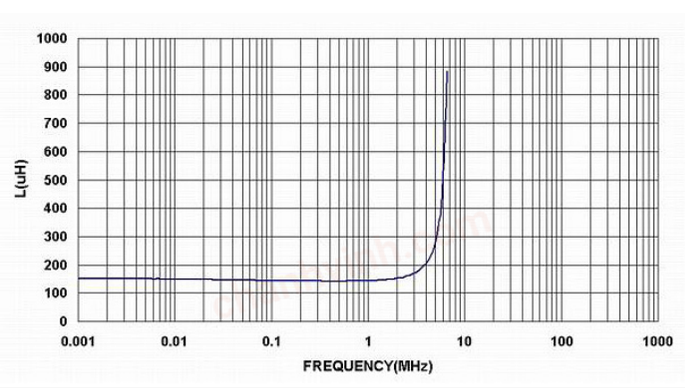

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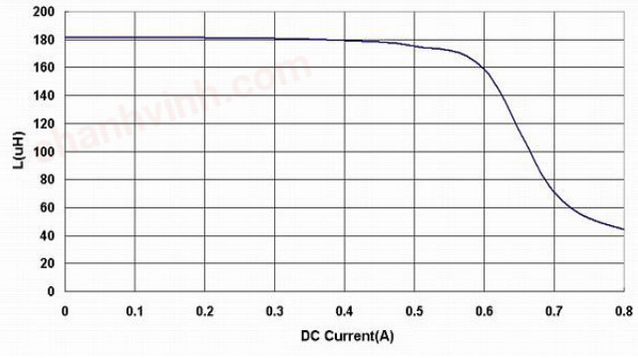

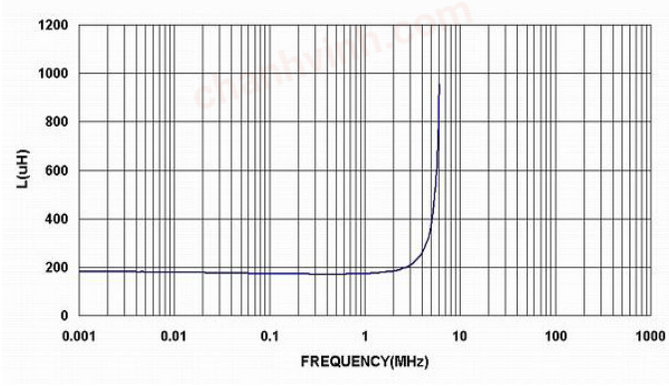

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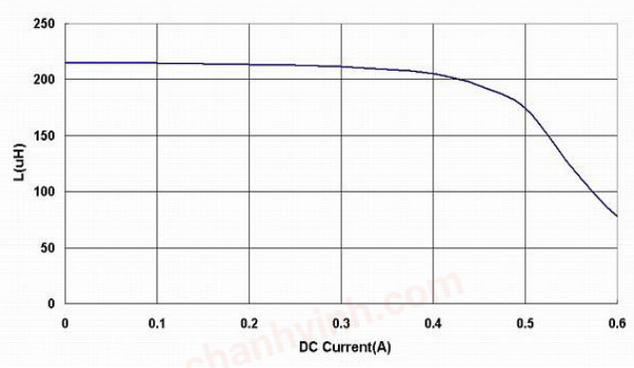

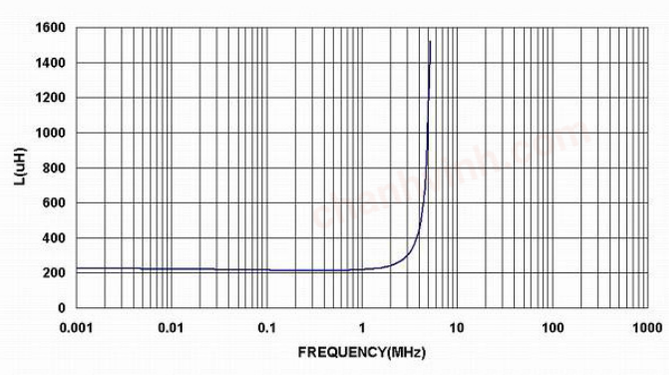

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