

Power Inductor

BPSL 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.
SSL-HC family is designed for low resistance and high current purpose

Applications

1. DC/DC converters

Product Information

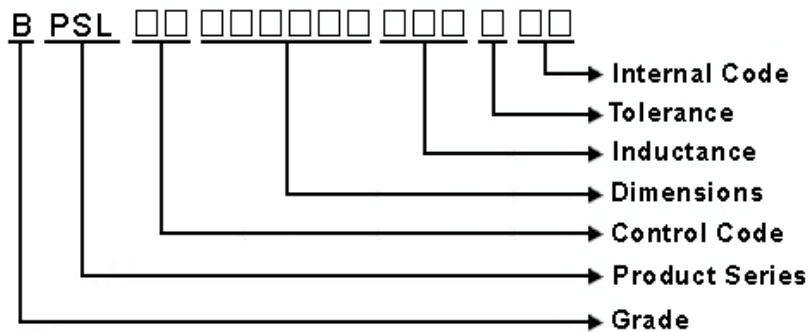
Series	L (mm)	W(mm)	T (mm)	Inductance (μH)
BPSL	8.89	6.10	5.00	0.33 ~ 1500
	12.9	9.4	11.4	
	12.9	9.4	5.21	
	13.2	9.91	6.35	
	18.5	15.2	7.11	



BPSL00090650 Series Specification

1 Scope: This specification applies to SMD Unshielded Power Inductors

2 Part Numbering:



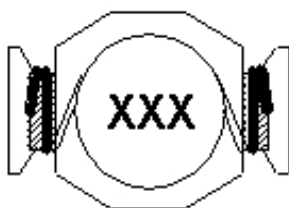
3 Rating:

Operating Temperature: $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ (Including self temp. rise)

Storage Temperature: $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ (For after the circuit board is mounted)

Storage Temperature: (on tape & reel): -20°C to $+40^{\circ}\text{C}$; 75% RH max.

4 Marking:



Ex Marking : 100

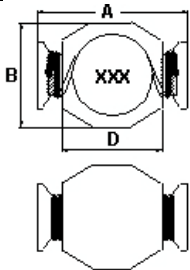
Marking color : White

5 Standard Testing Condition

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

BPSL00090650 Series Specification

6 Configuration and Dimensions and Unit Weight:



Dimensions in mm

TYPE	090650
A	8.89 Max.
B	6.10 Max.
C	5.00 Max.
D	5.84

Net Weight (grms)

SIZE CODE	Net Weight (grms)
090650	0.39(Typ.)

7 Electrical Characteristics:

Part No.	Inductance (uH)	Test Freq.	RDC (Ω)Max.	Isat (A)	Irms (A)	SRF (MHz)Typ.	Marking
BPSL00090650R33□BN	0.33	100 kHz,0.25 V	0.007	8.2	7	330	R33
BPSL00090650R56□BN	0.56	100 kHz,0.25 V	0.01	7.7	6	200	R56
BPSL000906501R0□BN	1	100 kHz,0.25 V	0.017	5.3	4.4	140	1R0
BPSL000906501R2□BN	1.2	100 kHz,0.25 V	0.017	5.3	4.4	140	1R2
BPSL000906501R6□BN	1.6	100 kHz,0.25 V	0.022	4.5	4	100	1R6
BPSL000906502R2□BN	2.2	100 kHz,0.25 V	0.035	3.5	3.1	100	2R2
BPSL000906504R7□BN	4.7	100 kHz,0.25 V	0.054	2.6	2.2	50	4R7
BPSL000906506R8□BN	6.8	100 kHz,0.25 V	0.07	2	1.8	45	6R8
BPSL00090650100□BN	10	100 kHz,0.25 V	0.111	1.9	1.5	40	100
BPSL00090650150□BN	15	100 kHz,0.25 V	0.17	1.5	1.2	30	150
BPSL00090650220□BN	22	100 kHz,0.25 V	0.25	1.2	1	25	220
BPSL00090650270□BN	27	100 kHz,0.25 V	0.32	1	0.85	20	270
BPSL00090650330□BN	33	100 kHz,0.25 V	0.35	0.99	0.82	20	330
BPSL00090650470□BN	47	100 kHz,0.25 V	0.47	0.87	0.72	15	470

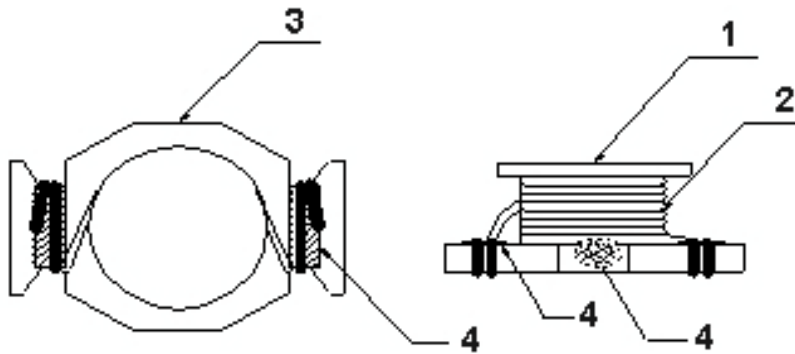
NOTE: □-tolerance M=±20% / T=±30%

1. Operating temperature range - 4 0 °C ~ 1 2 5 °C(Including self - temperature rise)
2. Isat for Inductance drop 30% from its value without current.
3. I rms for a 40 °C temperature rise from 25 °C ambient.

BPSL00090650 Series Specification

8 BPSL00090650 Series

8.1 Construction:



8.2 Material List:

No	Part	Material
1	CORE	FERRITE
2	WIRE	COPPER WIRE
3	BASE	PM9630 PHENOLIC
4	EPOXY	AD3

BPSL00090650 Series Specification

9 Reliability Of Ferrite Wire Wound Power Inductor

1-1.Mechanical Performance

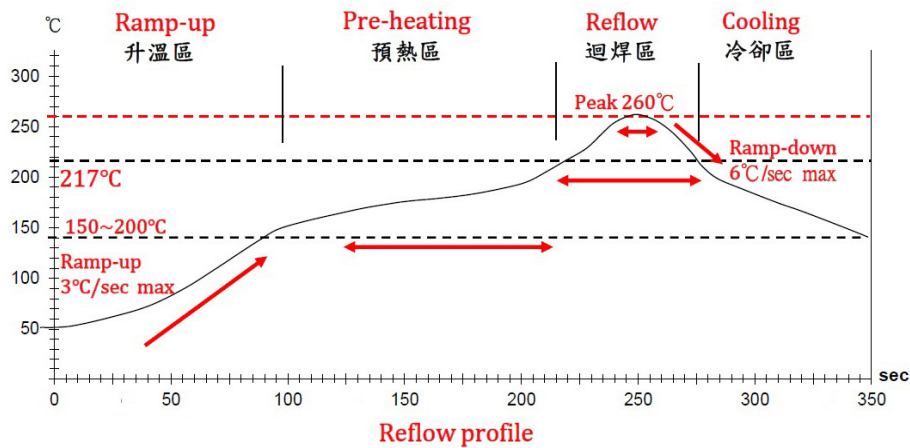
No	Item	Specification	Test Method
1-1-1	Vibration	Appearance: No damage Inductance: within $\pm 10\%$ of initial value Q change: within $\pm 30\%$ of initial value	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-2	Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260 \pm 5°C Immersion Time: 10 \pm 1sec
1-1-3	Solderability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 245 \pm 5°C Immersion Time: 4 \pm 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 $\pm 10\%$ of initial value Q change: within $\pm 30\%$ of initial value	10 cycles (Air to Air) 1 cycles shall consist of: 30 minutes exposure to -55 °C 30 minutes exposure to 125 °C 15 seconds maximum transition between temperatures Measured after exposure in the room condition for 24hrs														
1-2-2	Temperature Cycle		One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40\pm3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25\pm2</td> <td>3</td> </tr> <tr> <td>3</td> <td>125\pm3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25\pm2</td> <td>3</td> </tr> </tbody> </table> Total: 100cycles Measured after exposure in the room condition for 24hrs	Step	Temperature (°C)	Time (min)	1	-40 \pm 3	30	2	25 \pm 2	3	3	125 \pm 3	30	4	25 \pm 2
Step	Temperature (°C)	Time (min)															
1	-40 \pm 3	30															
2	25 \pm 2	3															
3	125 \pm 3	30															
4	25 \pm 2	3															
1-2-3	Humidity Resistance		Temperature: 40 \pm 2°C Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs														
1-2-4	High Temperature Resistance		Temperature: 85 \pm 3°C Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs														
1-2-5	Low Temperature Resistance		Temperature: -40 \pm 3°C Time: 1000hrs Measured after exposure in the room condition for 24hrs														

BPSL00090650 Series Specification

Reflow Soldering Profile



Lead-Free(LF)標準溫度分析範圍

Refer to J-STD-020C

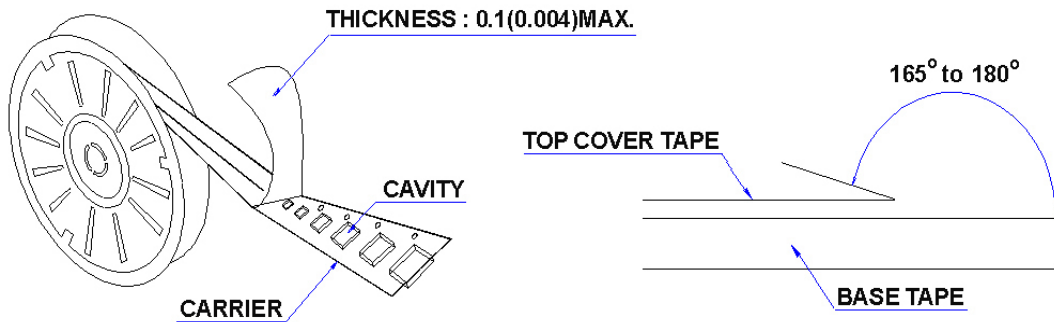
管制項目 Item.	升温區 Ramp-up	預熱區 Pre-heating	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp.scope	R.T ~ 150°C	150°C ~ 200°C	217°C	260±5°C	Peak Temp.~150°C
標準時間 Time spec.	-	60 ~ 180 sec	60 ~ 150 sec	20 ~ 40 sec	-
實際時間 Time result	-	75 ~ 100 sec	90 ~ 120 sec	20 ~ 35 sec	-

BPSL00090650 Series Specification

11 Packaging:

11.1 Packaging -Cover Tape

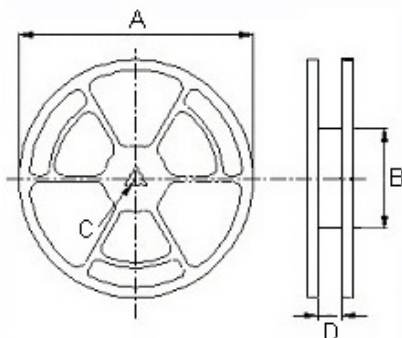
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



11.2 Packaging Quantity

TYPE	PCS/REEL
090650	1000

11.3 Reel Dimensions



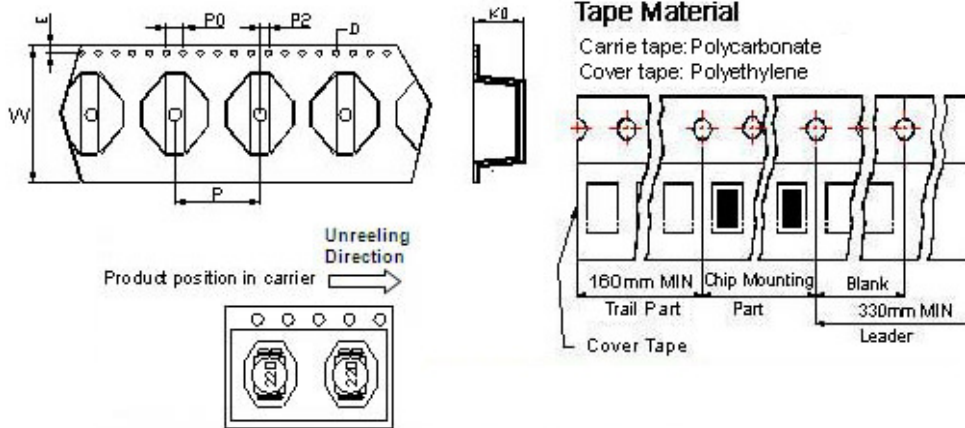
Dimensions in mm

TYPE	A	B	C	D
090650	330	100	13	16

BPSL00090650 Series Specification

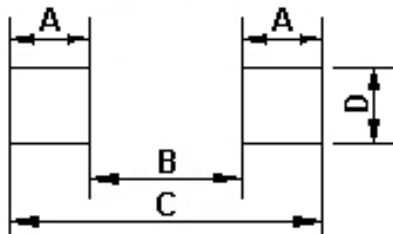
11 Packaging:

11.4 Tape Dimensions in mm



TYPE	K0	D	E	W	P	P0	P2
090650	5.3	1.55	1.75	16	12	4	2

12 Recommended Land Pattern:



Dimensions in mm

TYPE	A	B	C	D
090650	1.91	5.08	8.89	4.06

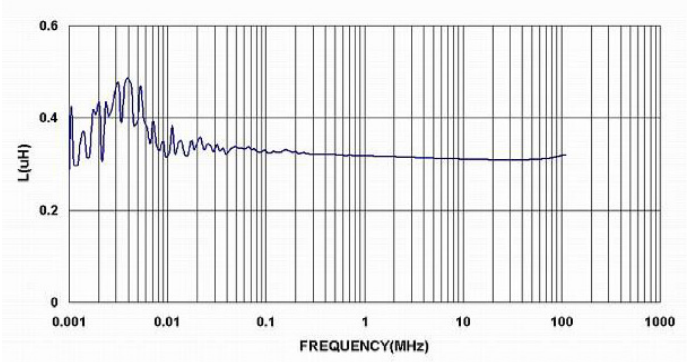
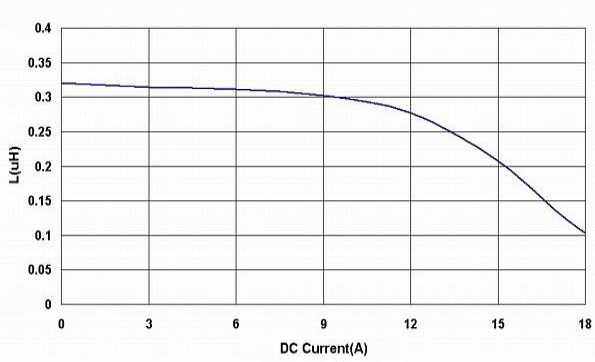
13 Note:

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.

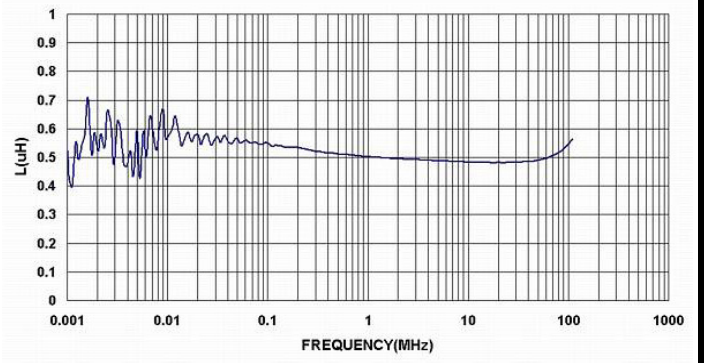
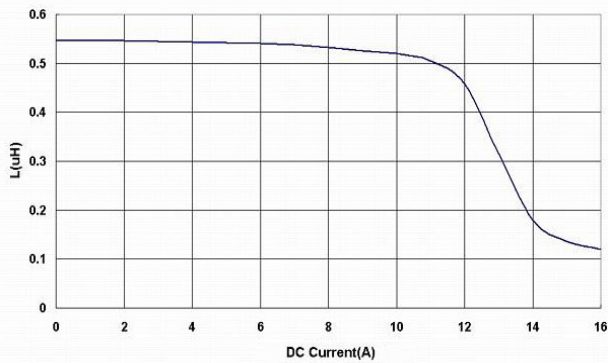
BPSL00090650 Series Specification

14 Graph:

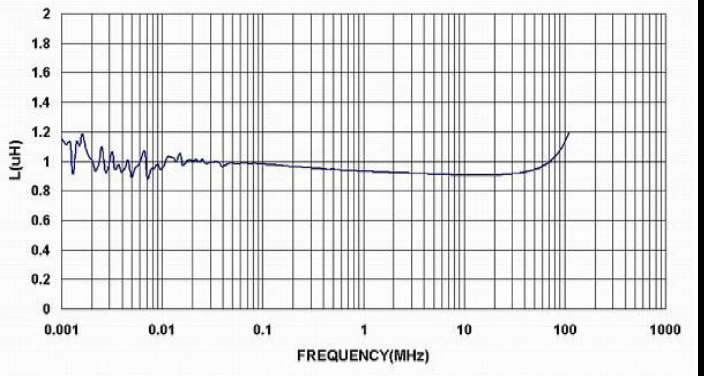
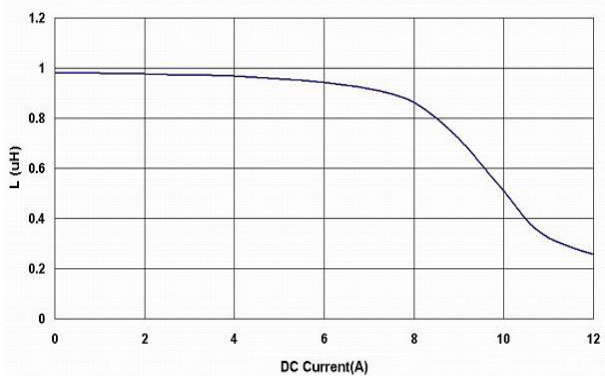
BPSL00090650R33□BN



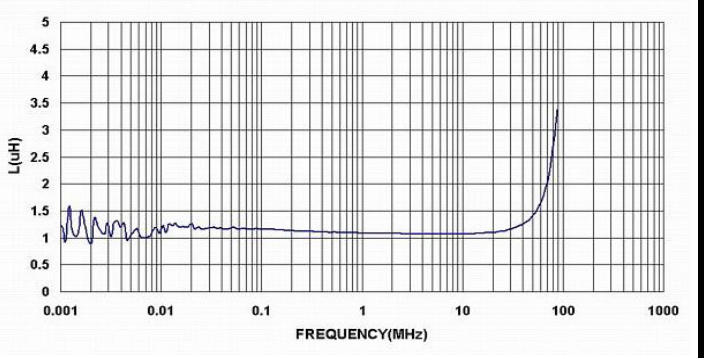
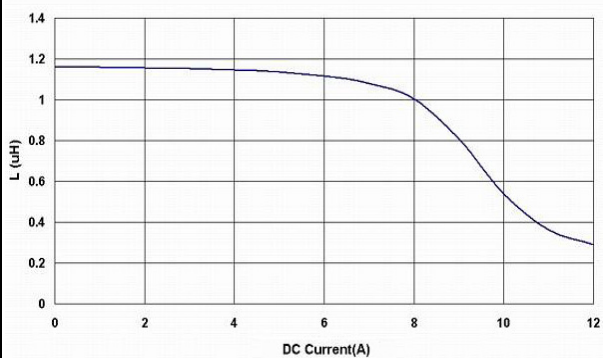
BPSL00090650R56□BN



BPSL000906501R0□BN



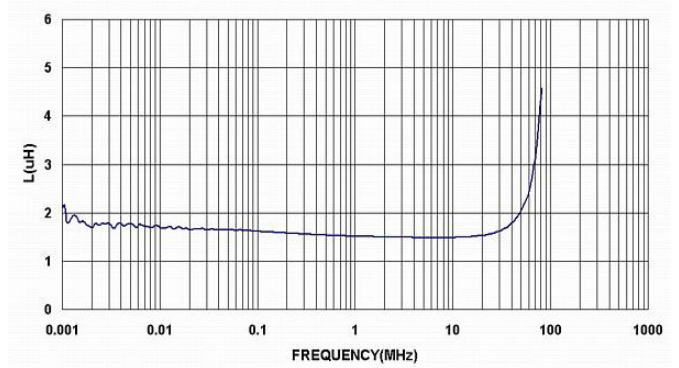
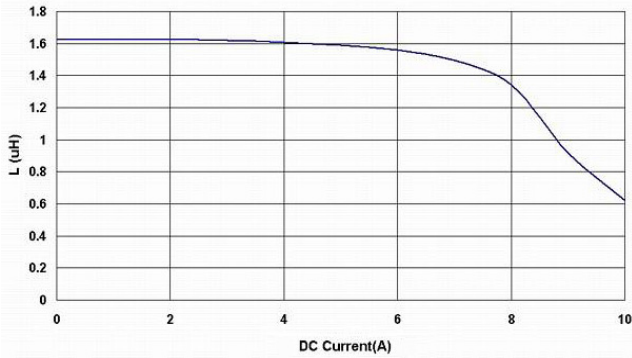
BPSL000906501R2□BN



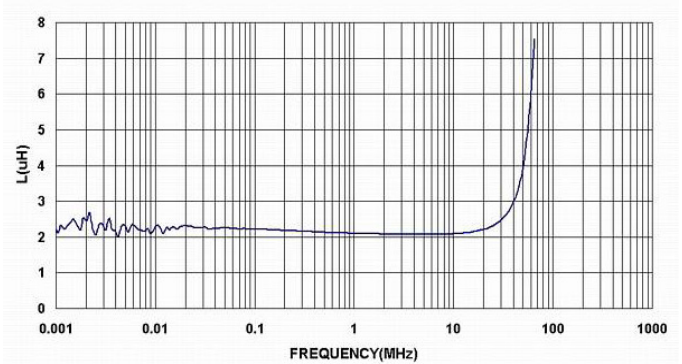
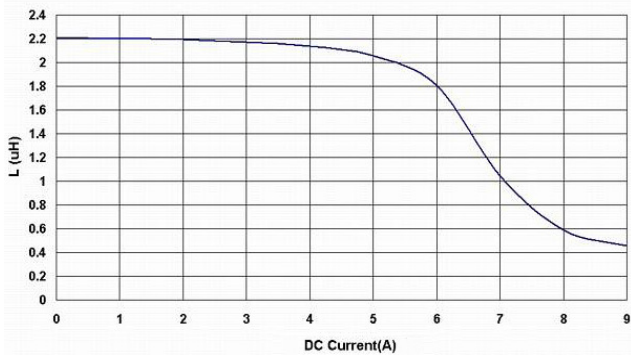
BPSL00090650 Series Specification

14 Graph:

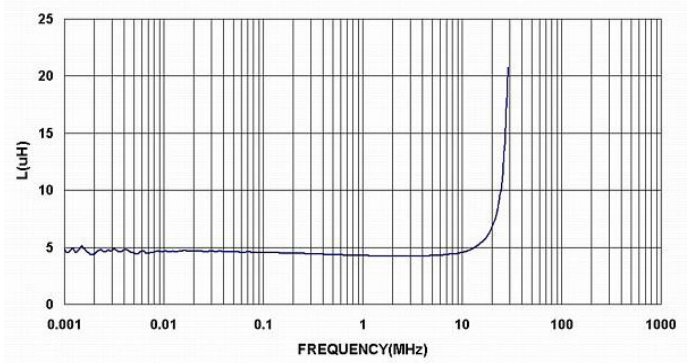
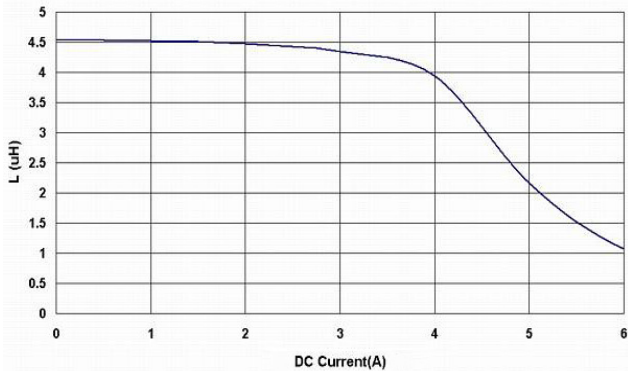
BPSL000906501R6□BN



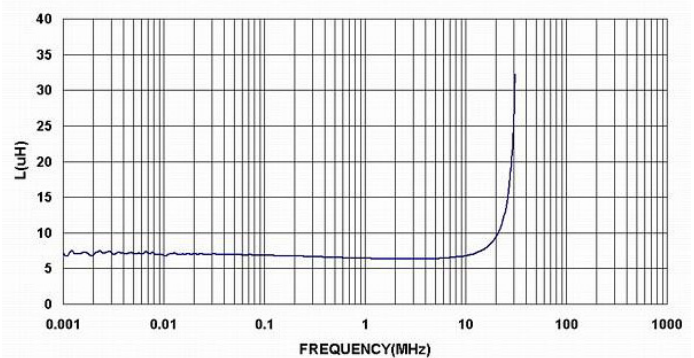
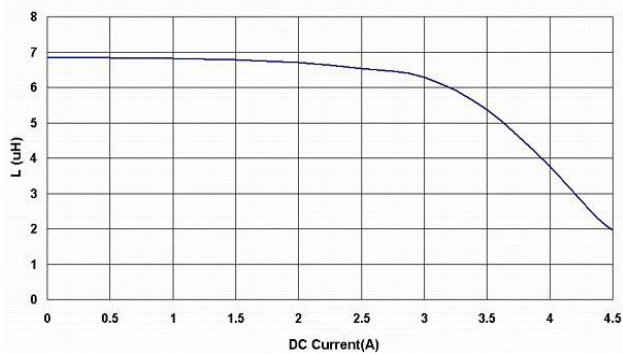
BPSL000906502R2□BN



BPSL000906504R7□BN



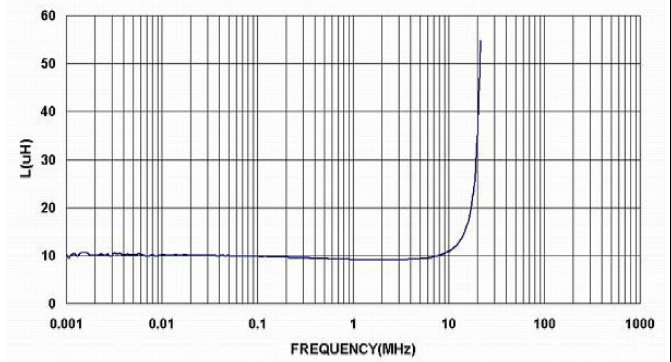
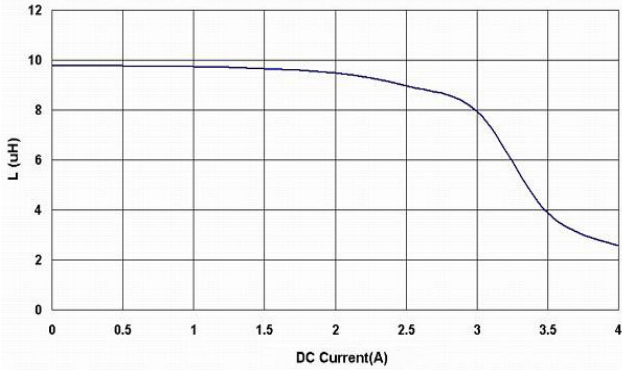
BPSL000906506R8□BN



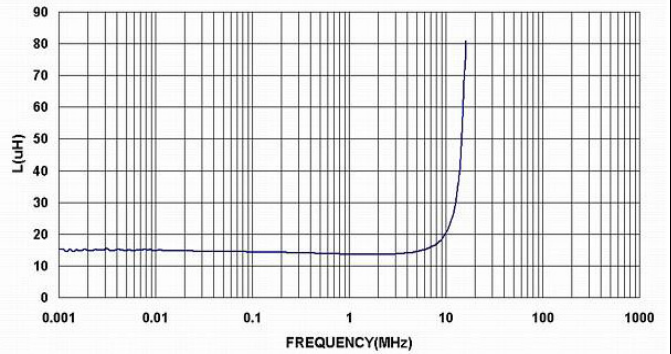
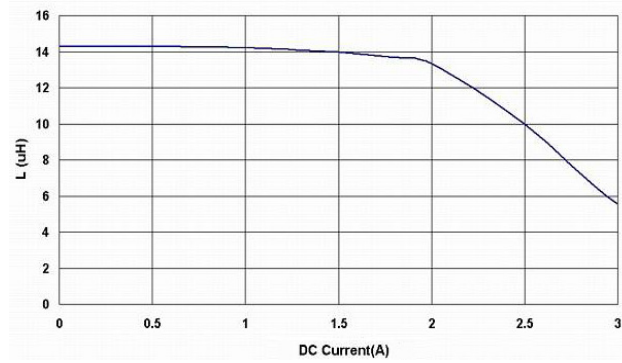
BPSL00090650 Series Specification

14 Graph:

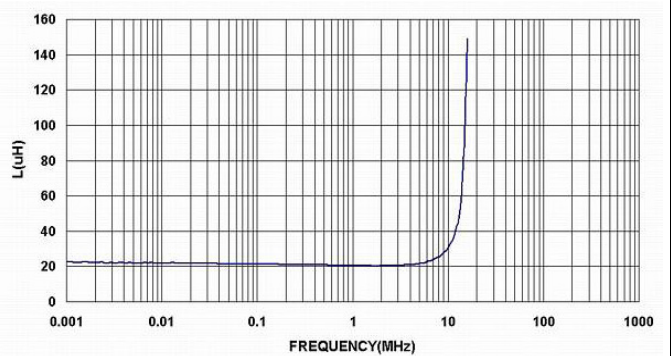
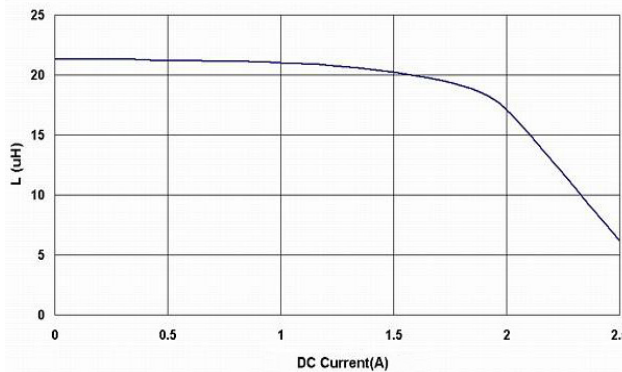
BPSL00090650100□BN



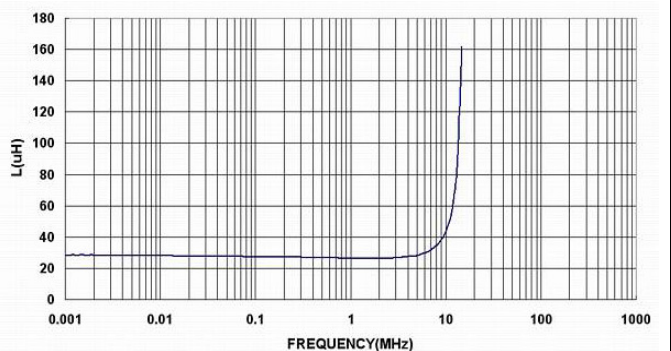
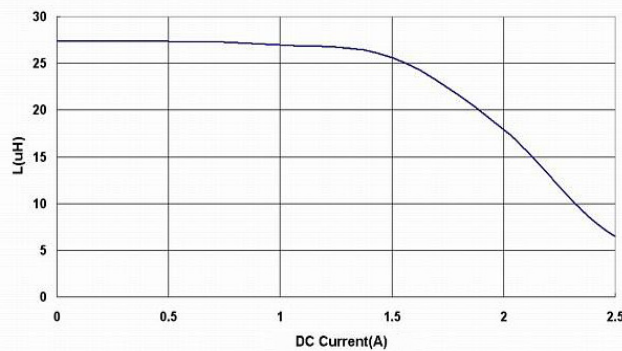
BPSL00090650150□BN



BPSL00090650220□BN



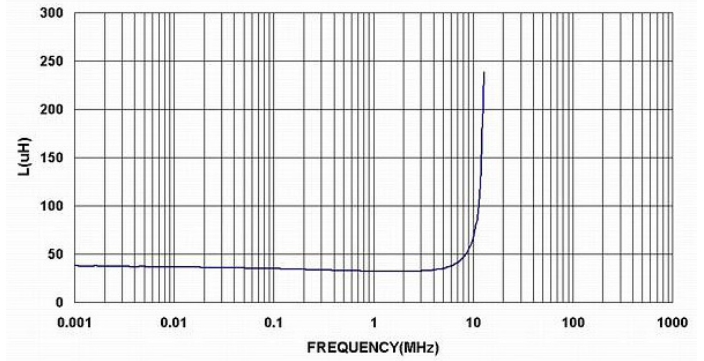
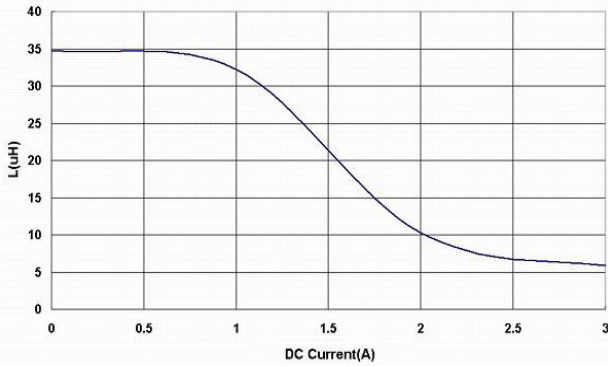
BPSL00090650270□BN



BPSL00090650 Series Specification

14 Graph:

BPSL00090650330□BN



BPSL00090650470□BN

