

Power Inductor



BPSY 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. Good Q factor, good energy storage and low resistance

Applications

- 1. Flash memory programmers
- 2. Electric motors
- 3. DC/DC converters

Product Information

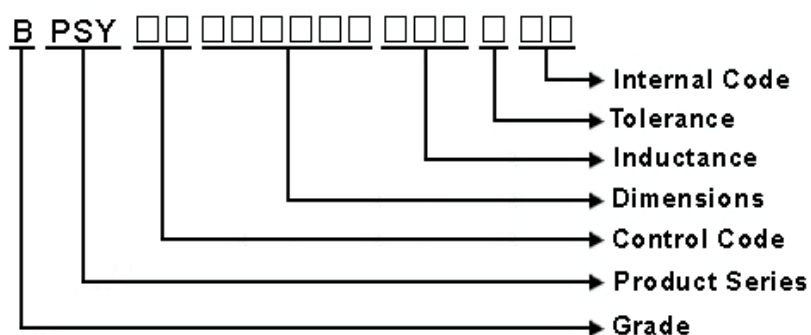
Series	L (mm)	W(mm)	T (mm)	Inductance (μH)
BPSY	12.9	9.4	5.08	1 ~ 1000
	18.5	15.2	7.62	



BPSY00130951 Series Specification

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°C to +40°C; 75% RH max.

4 Marking:



Ex Marking : 100

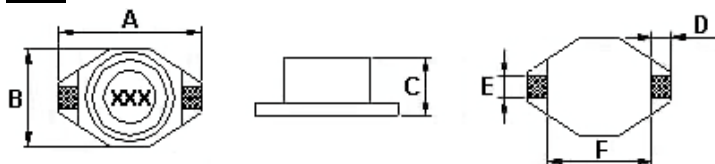
Marking color : Black

5 Standard Testing Condition

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35°C)	20 to 30°C
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	A	B	C	D	E	F
130951	12.95 Max.	9.4 Max.	5.08 Max.	2.54	2.54	7.62

Net Weight (grms)

SIZE CODE	Net Weight (grms)
130951	0.92(Typ.)

7 Electrical Characteristics:

Part No.	Inductance (uH)	Test Freq. (kHz)	RDC (Ω)Max.	I _{rms} (A)	I _{sat} (A)	SRF (MHz) Typ.	Q Freq. Min. (kHz)	Marking
BPSY001309511R0M00	1	100kHz,0.1V	0.021	5	5.6	110	3/100	1R0
BPSY001309511R5M00	1.5	100kHz,0.1V	0.022	4.5	5.2	90	5/100	1R5
BPSY001309512R2M00	2.2	100kHz,0.1V	0.032	3.8	5	60	5/100	2R2
BPSY001309513R3M00	3.3	100kHz,0.1V	0.039	3.3	3.9	55	5/100	3R3
BPSY001309514R7M00	4.7	100kHz,0.1V	0.054	2.7	3.2	30	10/100	4R7
BPSY001309516R8M00	6.8	100kHz,0.1V	0.075	2.2	2.8	30	10/100	6R8
BPSY00130951100M00	10	100kHz,0.1V	0.101	2	2.4	28	10/100	100
BPSY00130951150M00	15	100kHz,0.1V	0.15	1.5	2	20	15/100	150
BPSY00130951220M00	22	100kHz,0.1V	0.207	1.3	1.6	15	20/100	220
BPSY00130951330M00	33	100kHz,0.1V	0.334	1.1	1.4	12	20/100	330
BPSY00130951470M00	47	100kHz,0.1V	0.472	0.8	1	10	20/100	470
BPSY00130951680M00	68	100kHz,0.1V	0.66	0.7	0.9	10		680
BPSY00130951101M00	100	100kHz,0.1V	1.11	0.6	0.8	7		101
BPSY00130951151M00	150	100kHz,0.1V	1.55	0.5	0.6	6		151
BPSY00130951221M00	220	100kHz,0.1V	2	0.37	0.5	5		221
BPSY00130951102M00	1000	100kHz,0.1V	8.3	0.17	0.32	2		102

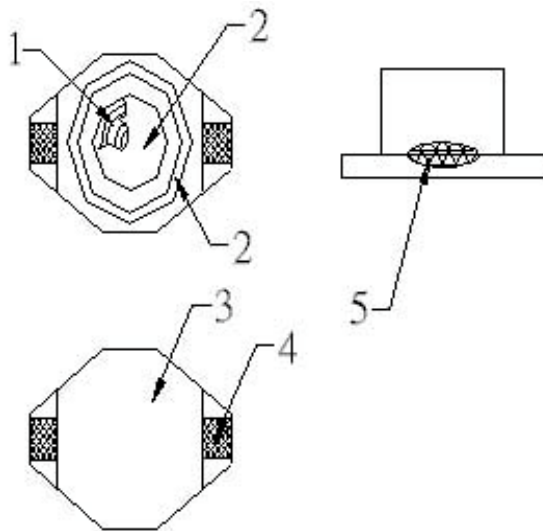
NOTE: tolerance M=±20%

- Operating temperature range - 4 0 °C ~ 1 2 5 °C(Including self - temperature rise)
- I_{sat} for Inductance drop 10% from its value without current.
- I_{rms} for a 40°C temperature rise from 25°C ambient.

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8 BPSY00130951 Series

8.1 Construction:



8.2 Material List:

No	Part	Material
1	WIRE	COPPER WIRE
2	CORE	FERRITE
3	BASE	LCP
4	TERMINAL	TERMINAL COPPER
5	EPOXY	471-5LL(HV)A,B

BPSY00130951 Series Specification

9 Reliability Of Ferrite Wire Wound Power Inductor

1-1.Mechanical Performance

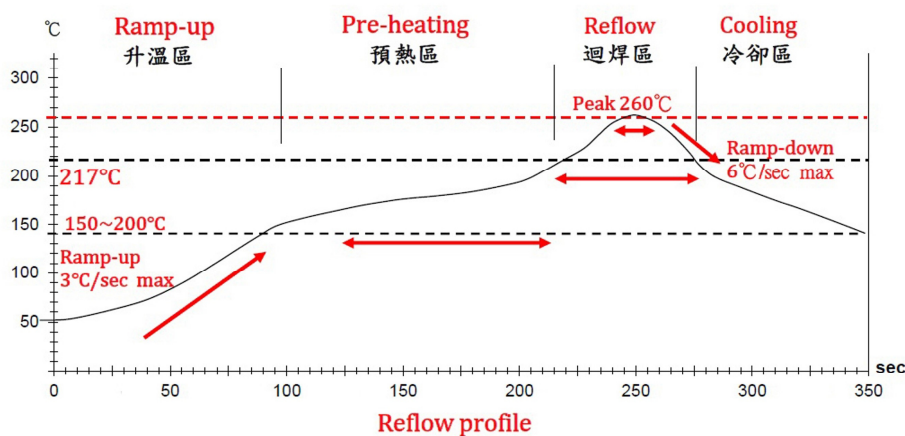
No	Item	Specification	Test Method
1-1-1	Vibration	Appearance: No damage Inductance: within $\pm 10\%$ of initial value Q change: within $\pm 30\%$ of initial value	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (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 ± 5 °C Immersion Time: 10 ± 1 sec
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 ± 5 °C Immersion Time: 4 ± 1 sec
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 Q change:within±30% 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 Measured after exposure in the room condition for 24hrs															
1-2-2	Temperature Cycle		One cycle: <table><tr><th>Step</th><th>Temperature (℃)</th><th>Time (min)</th></tr><tr><td>1</td><td>-40±3</td><td>30</td></tr><tr><td>2</td><td>25±2</td><td>3</td></tr><tr><td>3</td><td>125±3</td><td>30</td></tr><tr><td>4</td><td>25±2</td><td>3</td></tr></table> Total: 100cycles Measured after exposure in the room condition for 24hrs	Step	Temperature (℃)	Time (min)	1	-40±3	30	2	25±2	3	3	125±3	30	4	25±2	3
Step	Temperature (℃)		Time (min)															
1	-40±3		30															
2	25±2		3															
3	125±3	30																
4	25±2	3																
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	High Temperature Resistance	Temperature: 85±3℃ Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs																
1-2-5	Low Temperature Resistance	Temperature: -40±3℃ Time: 1000hrs Measured after exposure in the room condition for 24hrs																

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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	Above 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	-

NOTE :

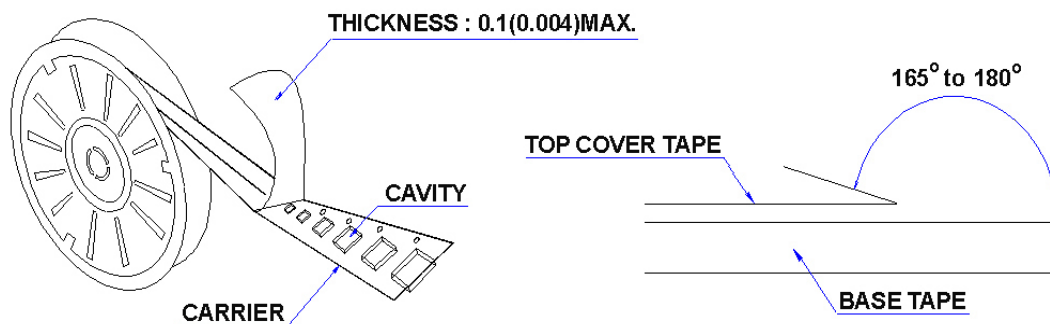
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow
3. Products can only be soldered with reflow

BPSY00130951 Series Specification

10 Packaging:

10.1 Packaging -Cover Tape

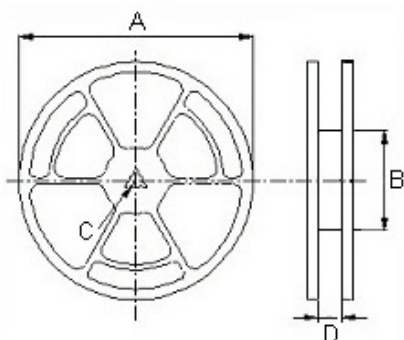
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
130951	1000

10.3 Reel Dimensions



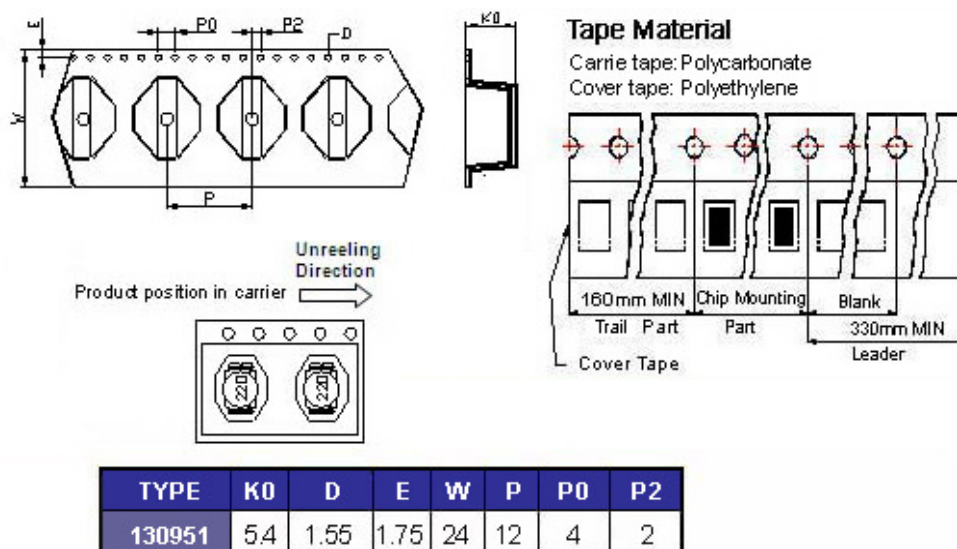
Dimensions in mm

TYPE	A	B	C	D
130951	330	100	13	24.4

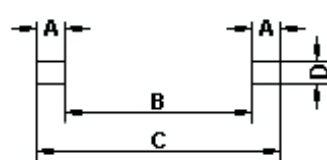
BPSY00130951 Series Specification

10 Packaging:

10.4 Tape Dimensions in mm



11 Recommended Land Pattern:



Dimensions in mm

TYPE	A	B	C	D
130951	2.92	7.37	13.21	2.79

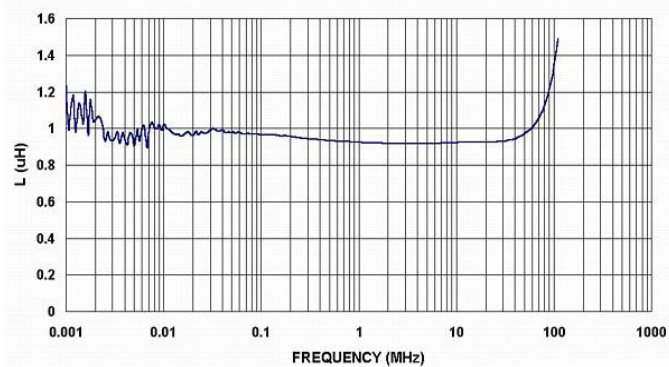
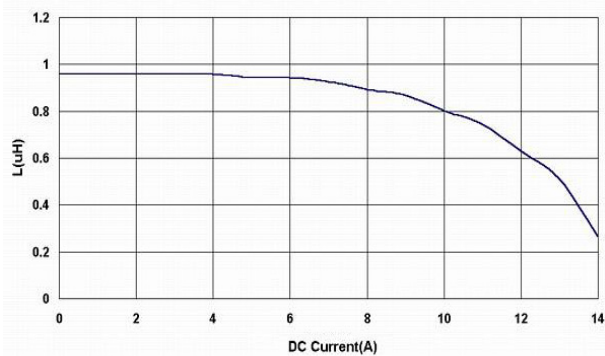
12 Note:

- Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
- Do not knock nor drop.
- 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.
- Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)
- The moisture sensitivity level (MSL) of products is classified as level 1.

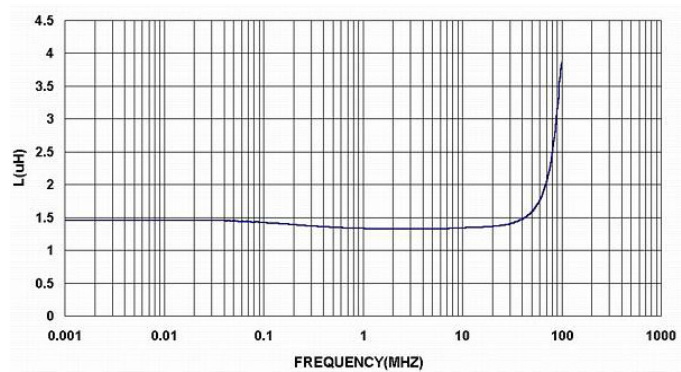
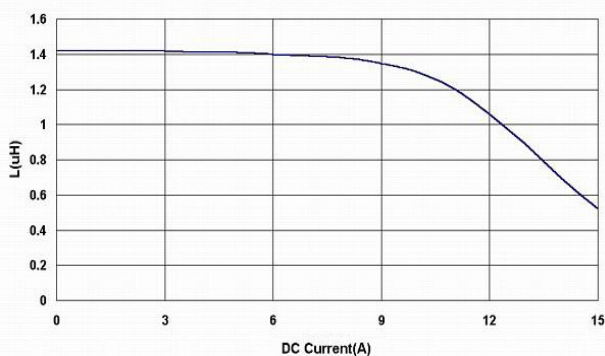
BPSY00130951 Series Specification

13 Graph:

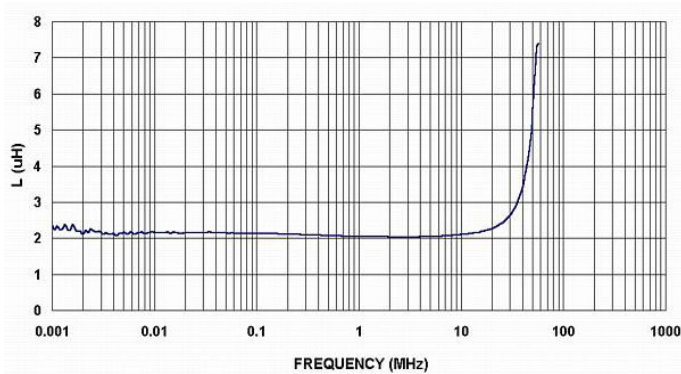
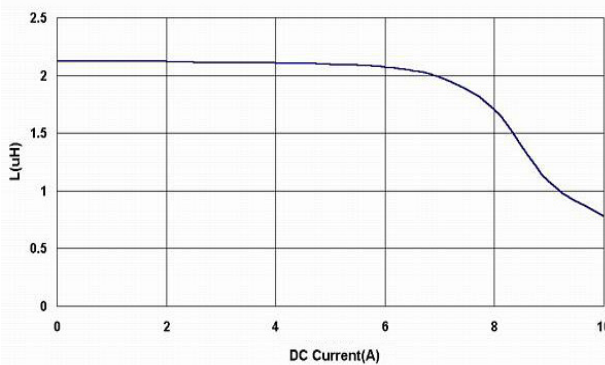
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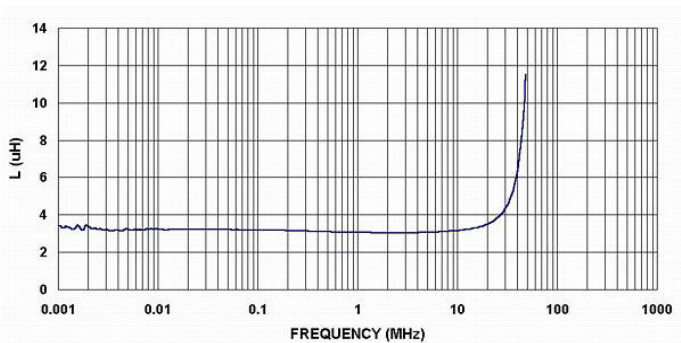
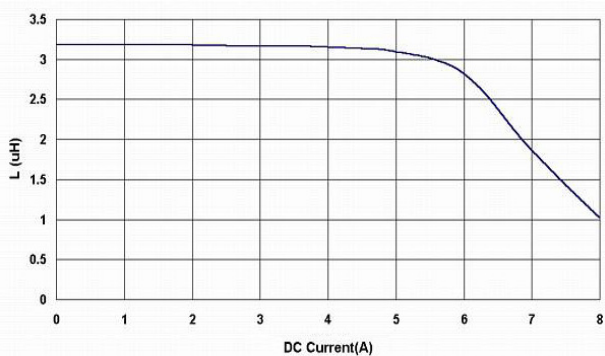
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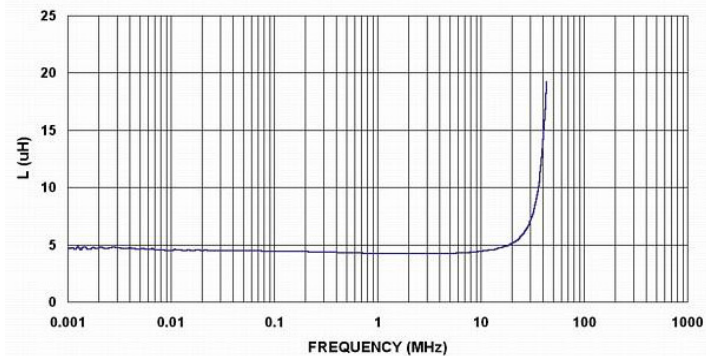
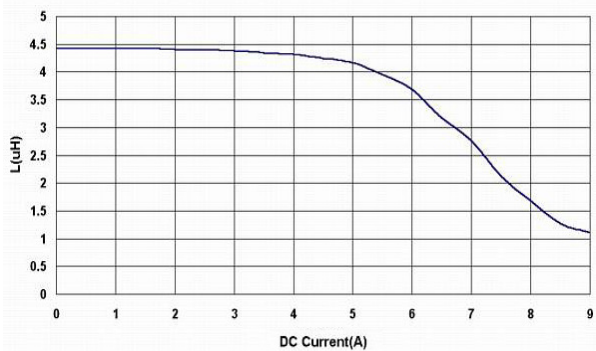
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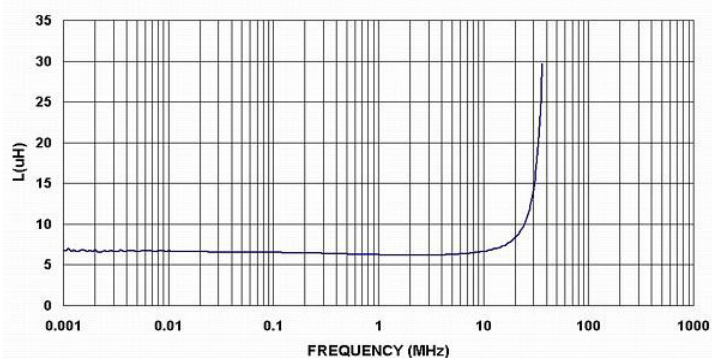
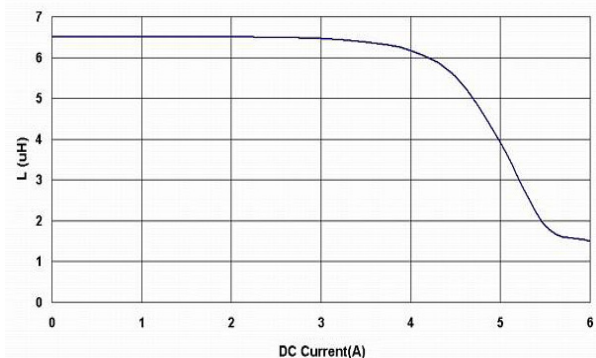
BPSY00130951 Series Specification

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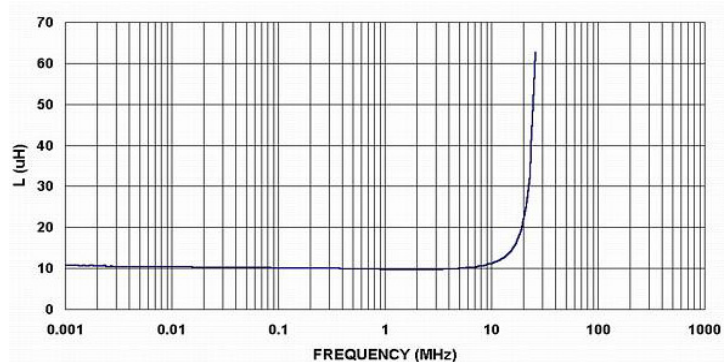
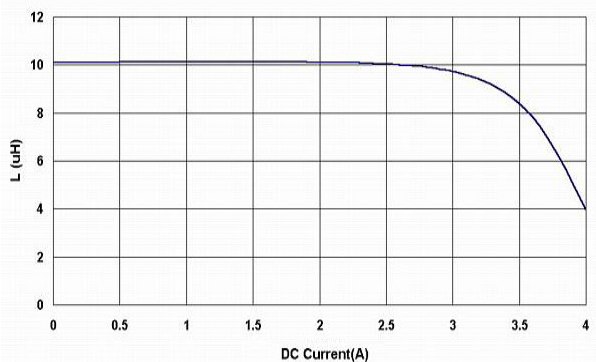
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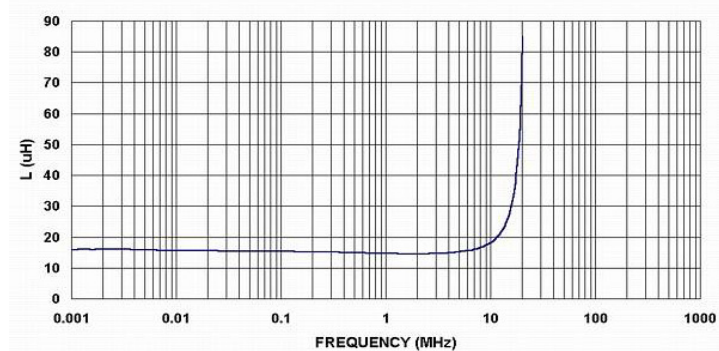
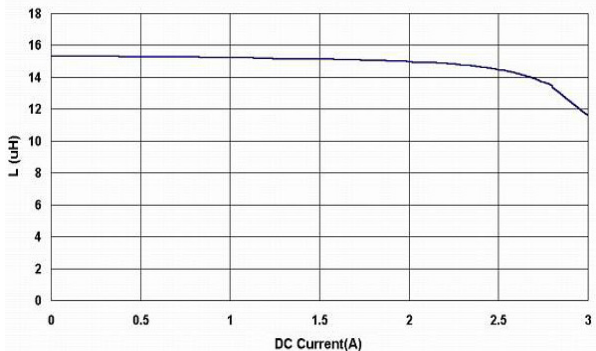
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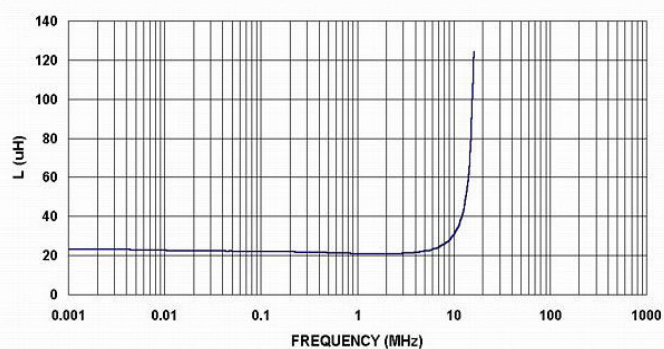
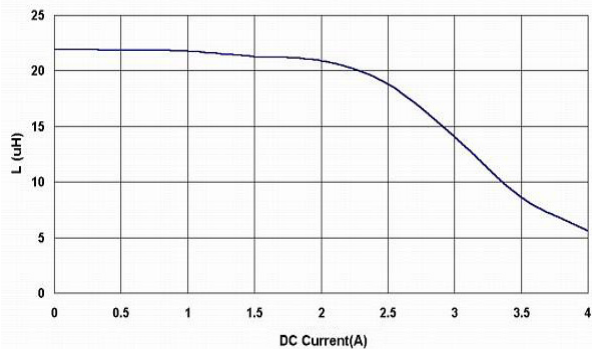
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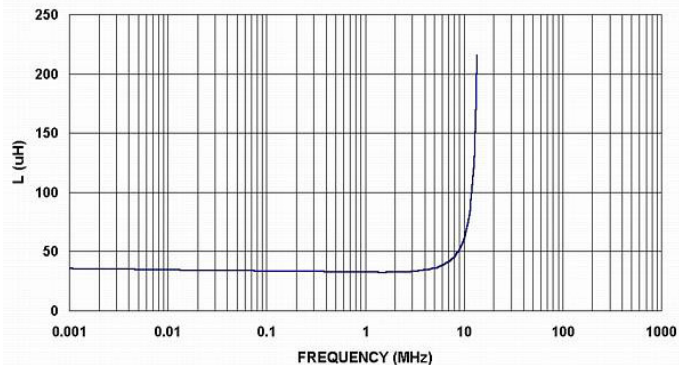
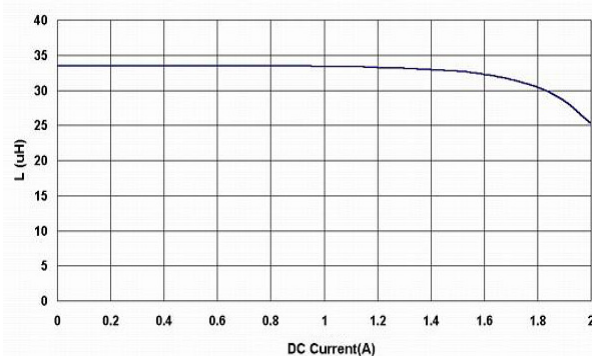
BPSY00130951 Series Specification

13 Graph:

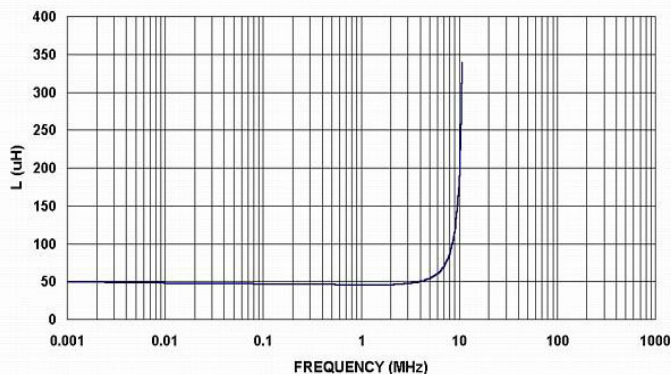
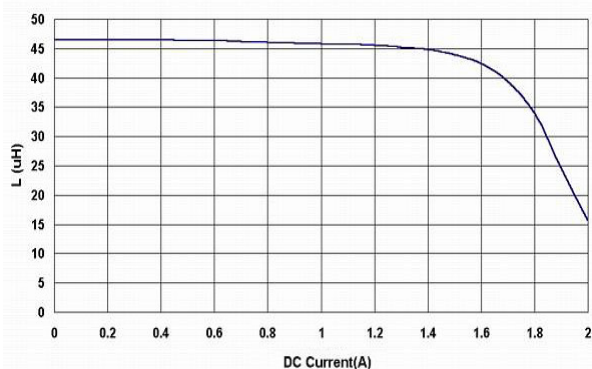
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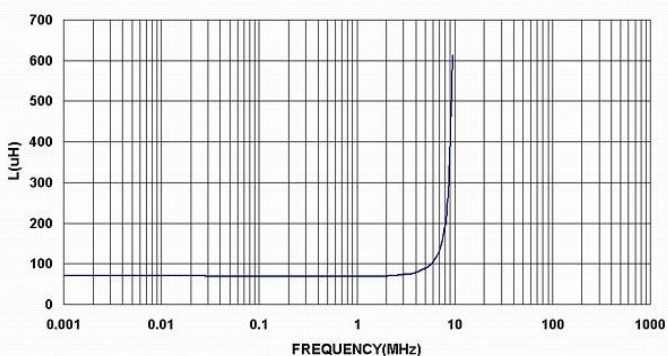
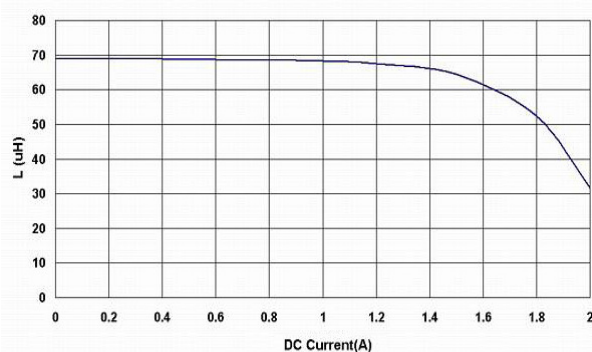
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BPSY00130951470M00



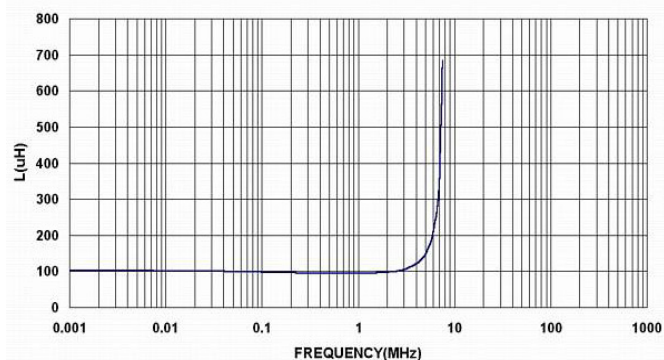
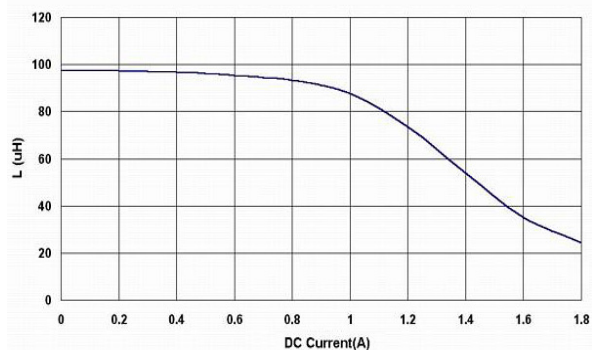
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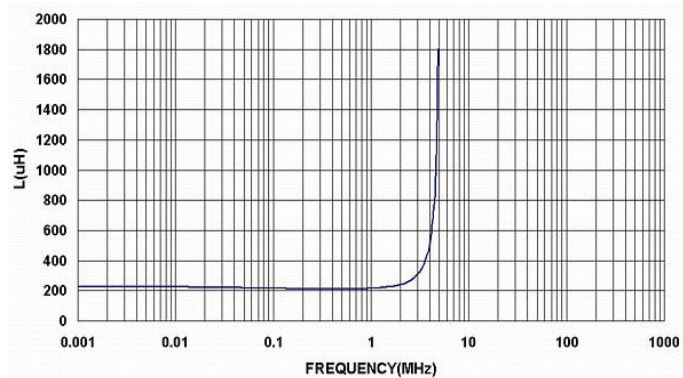
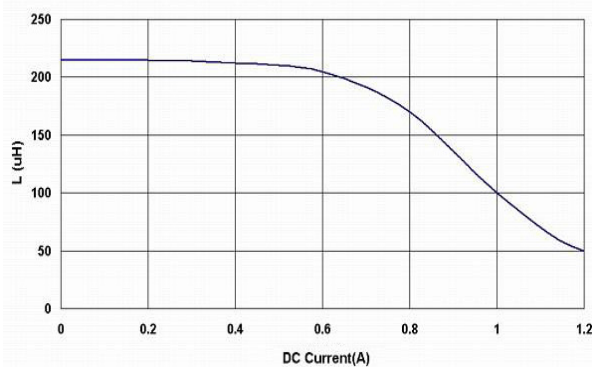
BPSY00130951 Series Specification

13 Graph:

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BPSY00130951221M00



BPSY00130951102M00

