

Power Inductor



BPCA 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. Ultra High Current

Applications

1. Thin-screen TVs
2. LCDs
3. AV equipment
4. STBs
5. LED lights

Product Information

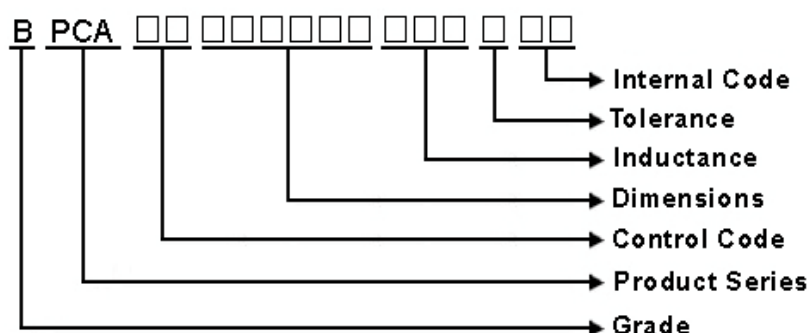
Series	L (mm)	W(mm)	T (mm)	Inductance (μH)
BPCA	6.0	6.3	4.5	1 ~ 470
	7.0	7.4	4.5	
	10.3	10.0	6.5	
	12.5	12.3	8.0	



BPCA00060645 Series Specification

1 Scope: This specification applies to SMD Shielded Power Inductors

2 Part Numbering:



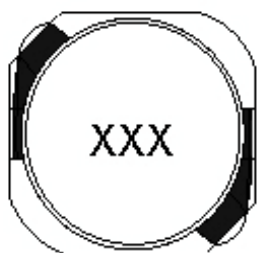
3 Rating:

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 : 221

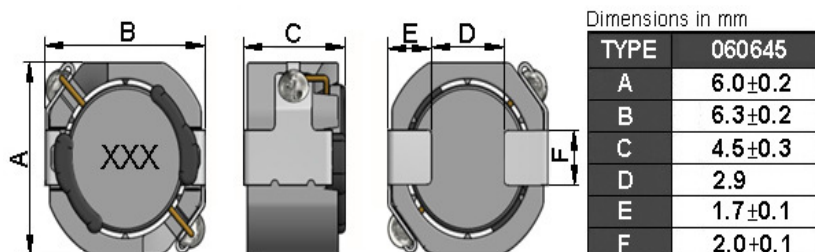
Marking color : Black

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:



Net Weight (grms)

SIZE CODE	Net Weight (grms)
060645	0.55(Typ.)

7 Electrical Characteristics:

Part No.	Inductance (uH)	Test Freq.	RDC (Ω)Max.	Isat (A)Max.	Irms (A)	Tolerance	Marking
BPCA000606451R0□00	1	100 kHz, 1V	0.0143	6	4.8	T	1R0
BPCA000606451R5□00	1.5	100 kHz, 1V	0.0169	5.2	4.5	T	1R5
BPCA000606452R2□00	2.2	100 kHz, 1V	0.0195	3.6	4.1	T	2R2
BPCA000606453R3□00	3.3	100 kHz, 1V	0.0247	3.2	3.7	T	3R3
BPCA000606454R7□00	4.7	100 kHz, 1V	0.0299	2.5	3.3	T	4R7
BPCA000606456R8□00	6.8	100 kHz, 1V	0.0351	2	3.1	T	6R8
BPCA00060645100□00	10	100 kHz, 1V	0.042	1.7	2.6	M	100
BPCA00060645150□00	15	100 kHz, 1V	0.072	1.4	2	M	150
BPCA00060645220□00	22	100 kHz, 1V	0.09	1.1	1.8	M	220
BPCA00060645330□00	33	100 kHz, 1V	0.12	0.9	1.6	M	330
BPCA00060645470□00	47	100 kHz, 1V	0.156	0.78	1.4	M	470
BPCA00060645680□00	68	100 kHz, 1V	0.24	0.65	1.1	M	680
BPCA00060645101□00	100	100 kHz, 1V	0.384	0.55	0.86	M	101
BPCA00060645151□00	150	100 kHz, 1V	0.578	0.46	0.72	M	151
BPCA00060645221□00	220	100 kHz, 1V	0.864	0.36	0.57	M	221
BPCA00060645331□00	330	100 kHz, 1V	1.104	0.28	0.49	M	331
BPCA00060645471□00	470	100 kHz, 1V	1.56	0.25	0.41	M	471

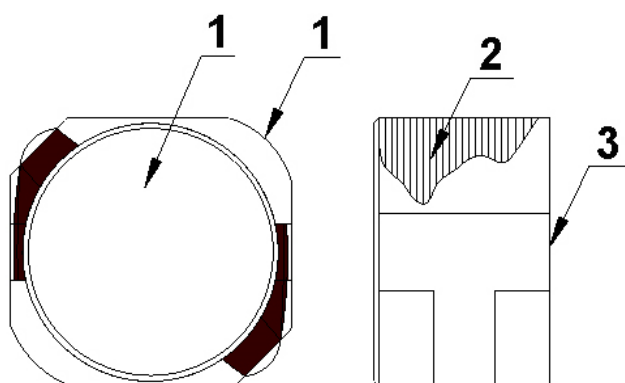
NOTE: □-tolerance M=±20% / T=±30%

- Operating temperature range - 40 °C ~ 125 °C(Including self - temperature rise)
- Isat for Inductance drop 30% from its value without current.
- The actual use current is suggested not to be out of Isat*80%
- Irms for a 40°C temprature rise from 25°C ambient.

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8.1 Construction:



8.2 Material List:

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

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9 Reliability Of Ferrite Wire Wound Power Inductor

1-1.Mechanical Performance

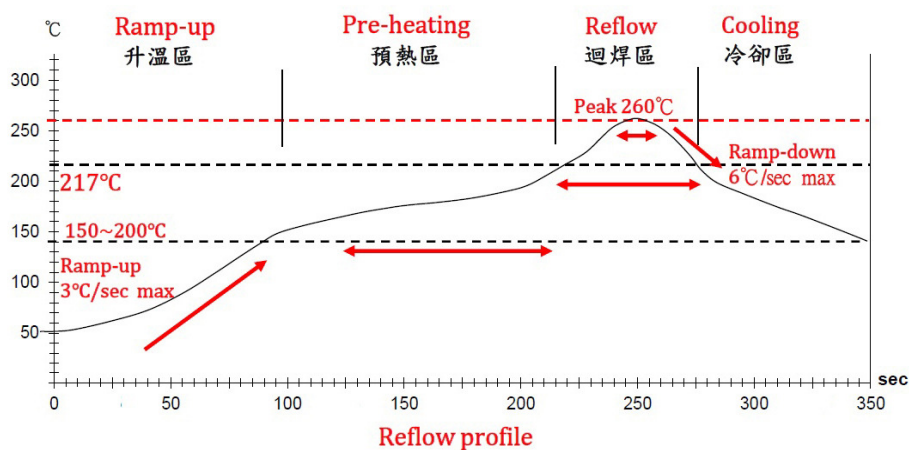
No	Item	Specification	Test Method
1-1-1	Vibration	Appearance: No damage Inductance: within $\pm 10\%$ of initial value	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-2	Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260 $\pm$ 5°C Immersion Time: 10 $\pm$ 1sec
1-1-3	Solder ability	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±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: <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>105±3</td><td>30</td></tr><tr><td>4</td><td>25±2</td><td>3</td></tr></table>	Step	Temperature (℃)	Time (min)	1	-40±3	30	2	25±2	3	3	105±3	30	4	25±2	3
Step	Temperature (℃)		Time (min)															
1	-40±3		30															
2	25±2		3															
3	105±3	30																
4	25±2	3																
1-2-3	Humidity Resistance	Total: 100cycles Measured after exposure in the room condition for 24hrs																
1-2-4	Heat Life	Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs																
1-2-5	Cold Resistance	Temperature: 85±3℃ Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs																
		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

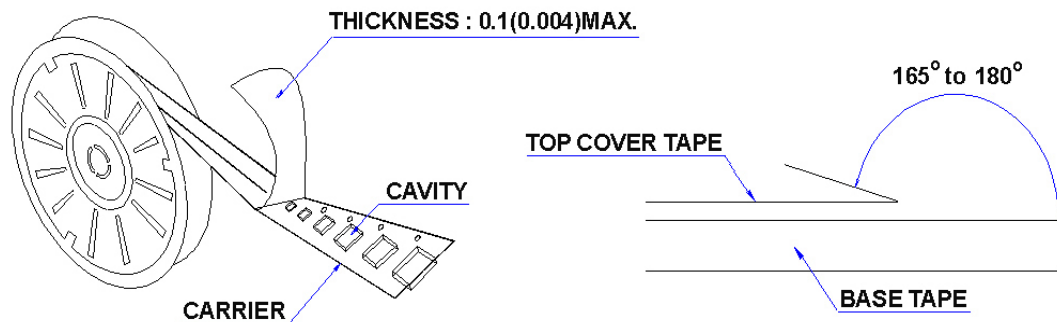
管制項目 Item.	升溫區 Ramp-up	預熱區 Pre-heating	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp.scope	R.T ~ 150°C	150°C ~ 200°C	217°C	260±5°C	Peak Temp.~150°C
標準時間 Time spec.	—	60 ~ 180 sec	60 ~ 150 sec	20 ~ 40 sec	—
實際時間 Time result	—	75 ~ 100 sec	90 ~ 120 sec	20 ~ 35 sec	—

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11 Packaging:

11.1 Packaging -Cover Tape

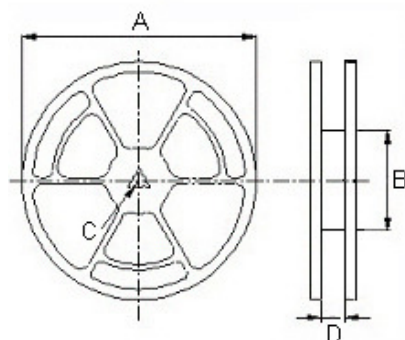
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



11.2 Packaging Quantity

TYPE	PCS/REEL
060645	1000

11.3 Reel Dimensions



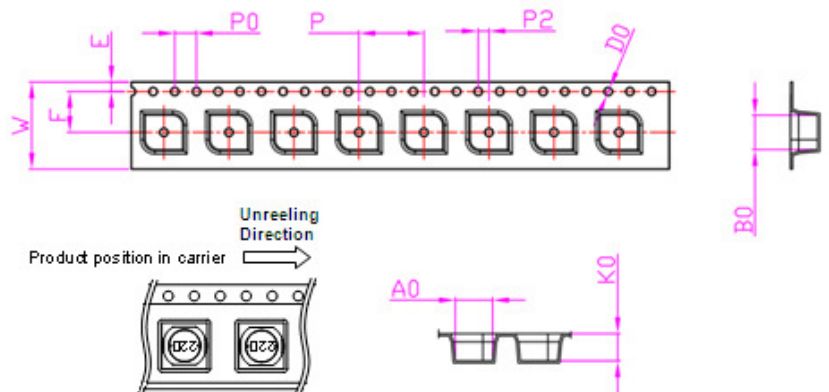
Dimensions in mm

TYPE	A	B	C	D
060645	330	100	13	16

BPCA00060645 Series Specification

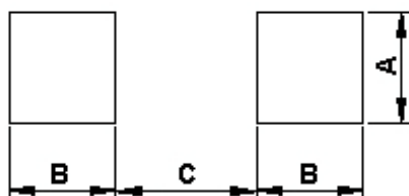
11 Packaging:

11.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	F	W	P	P0	P2
060645	6.9	6.3	5.0	1.55	1.75	7.5	16	12	4	2

12 Recommended Land Pattern:



Dimensions in mm

TYPE	A	B	C
060645	2.2	2.1	2.8

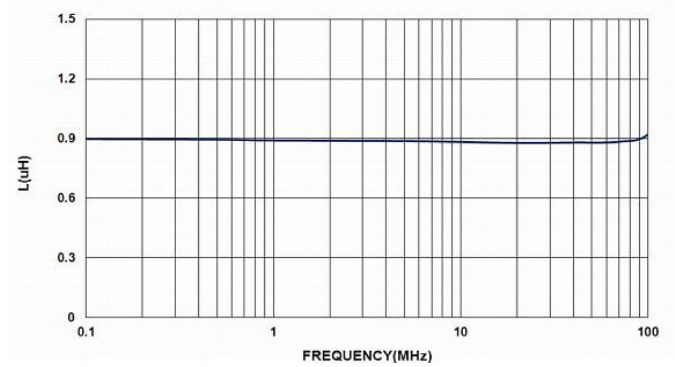
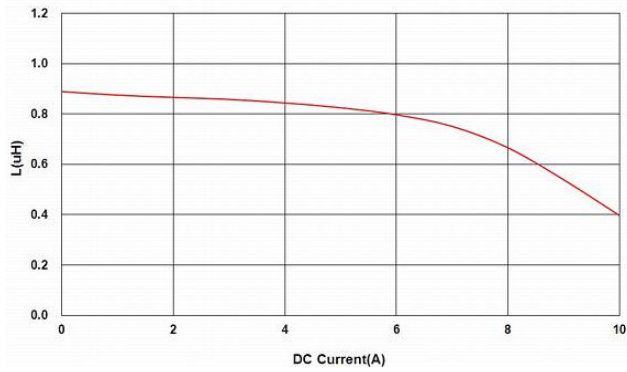
13 Note:

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.

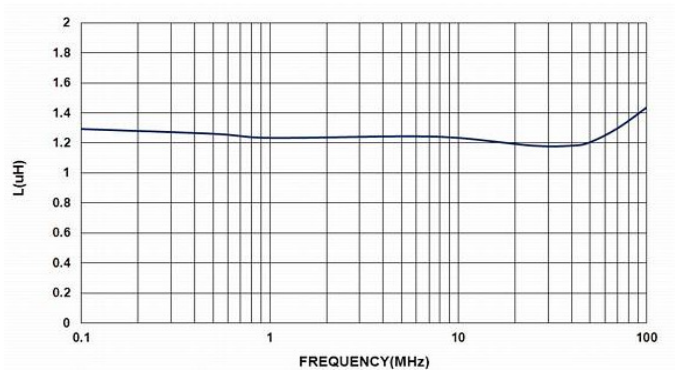
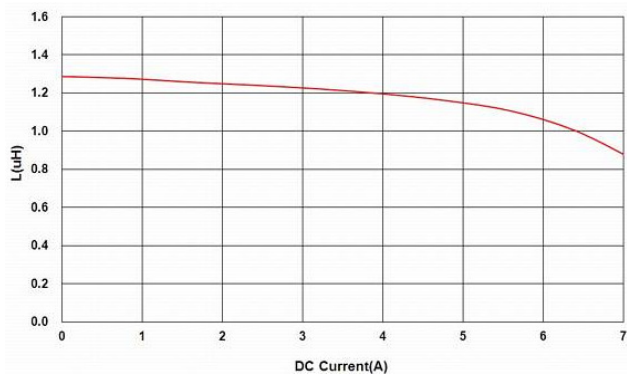
BPCA00060645 Series Specification

14 Graph:

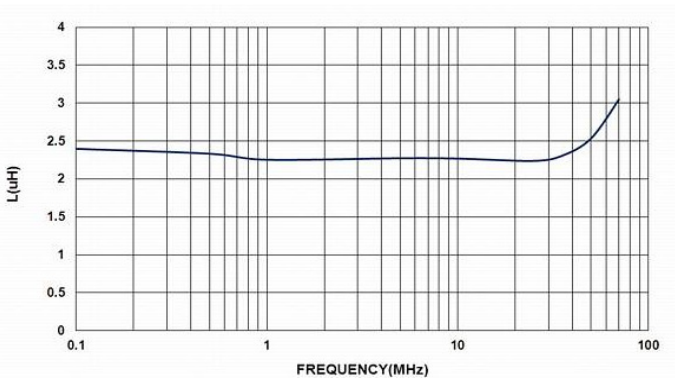
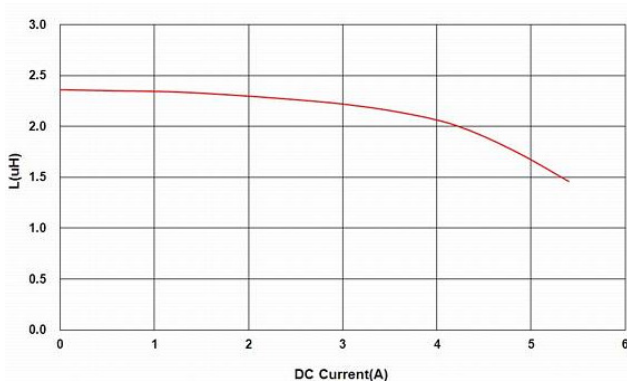
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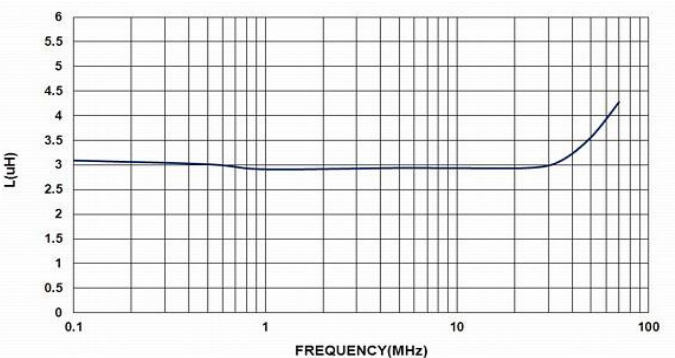
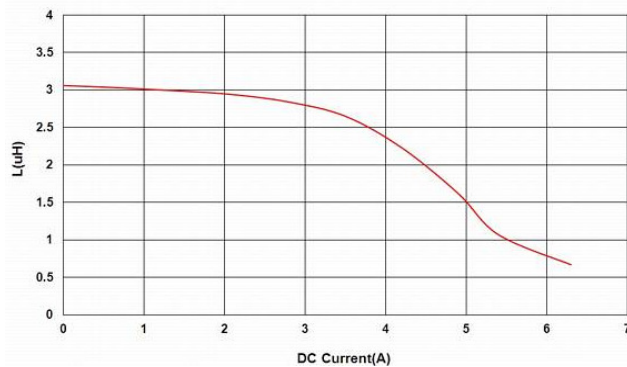
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BPCA000606452R2□00



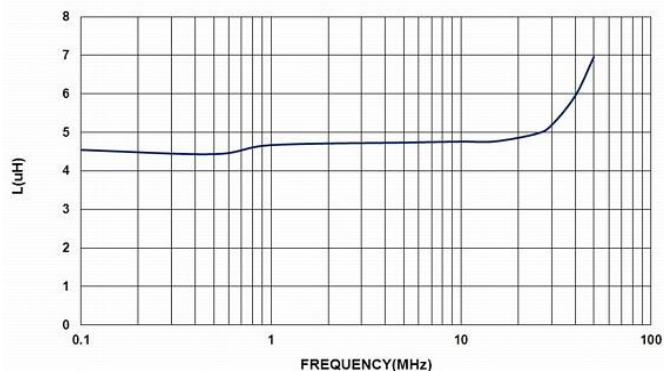
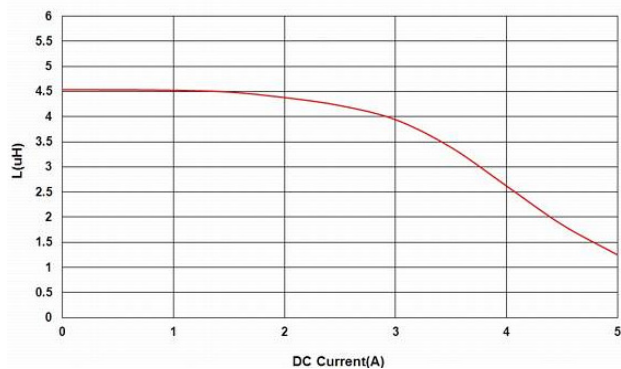
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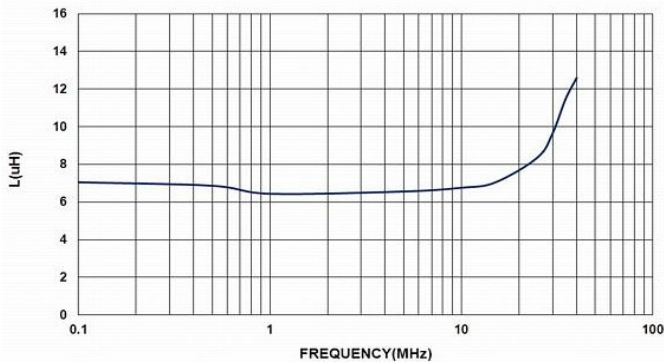
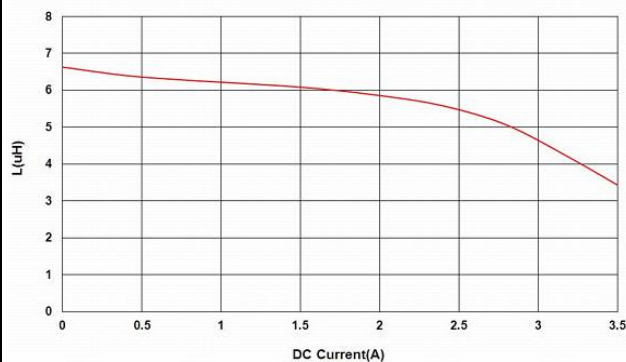
BPCA00060645 Series Specification

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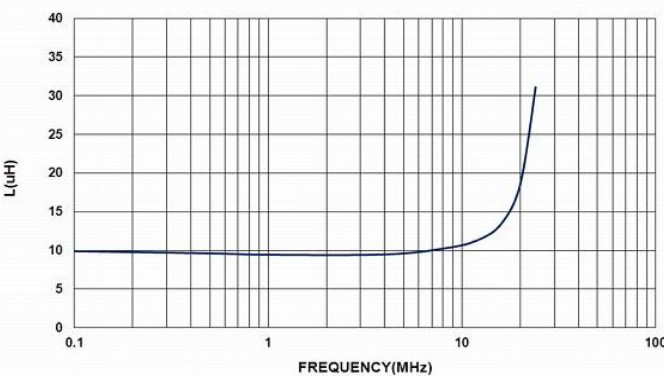
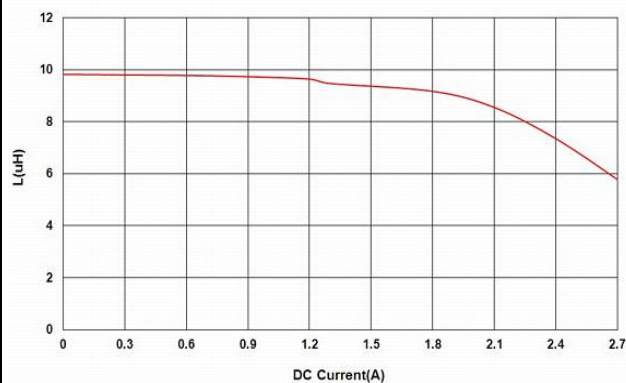
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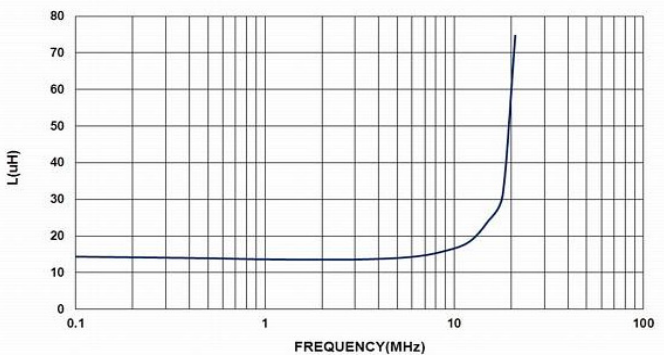
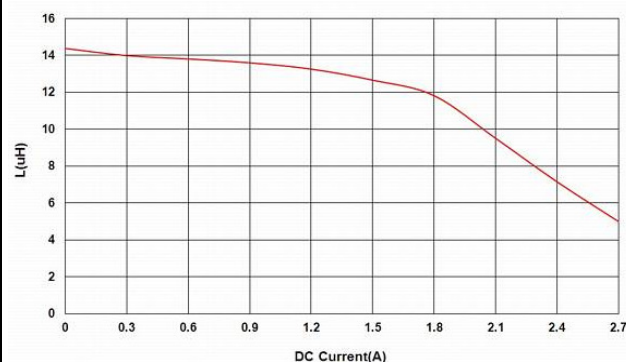
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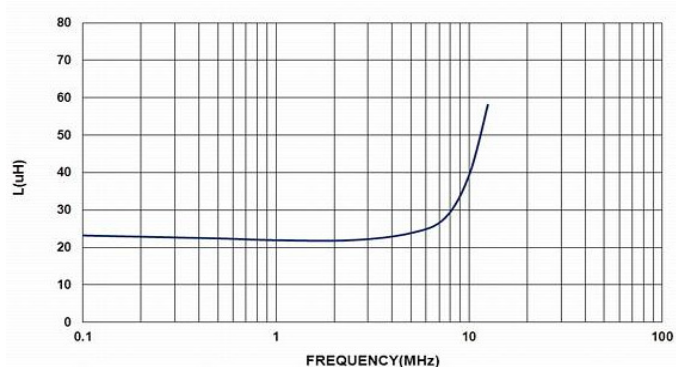
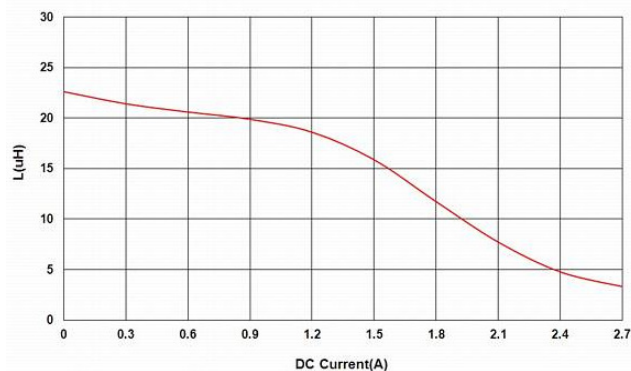
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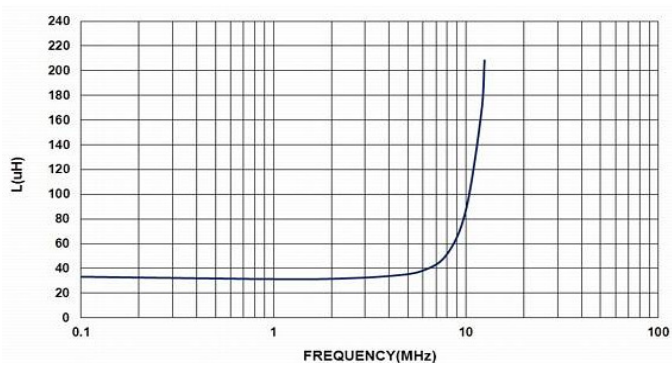
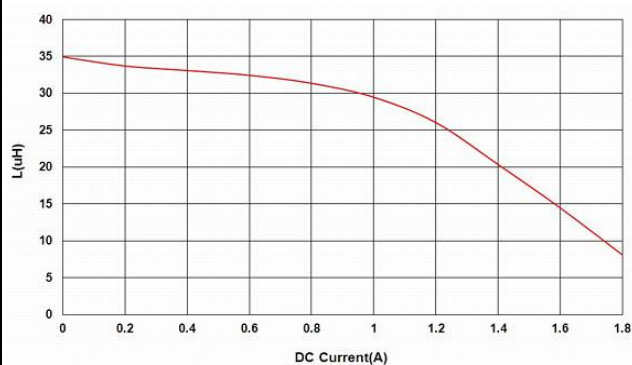
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14 Graph:

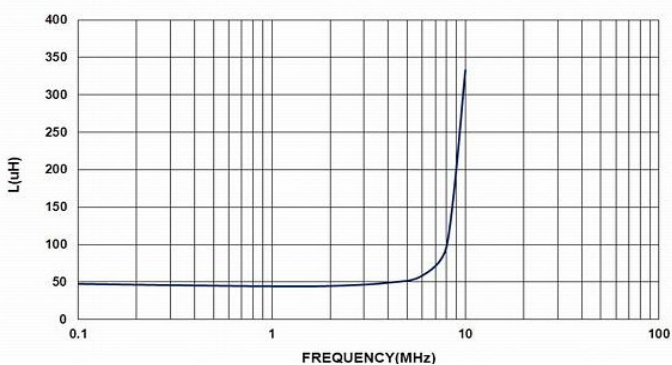
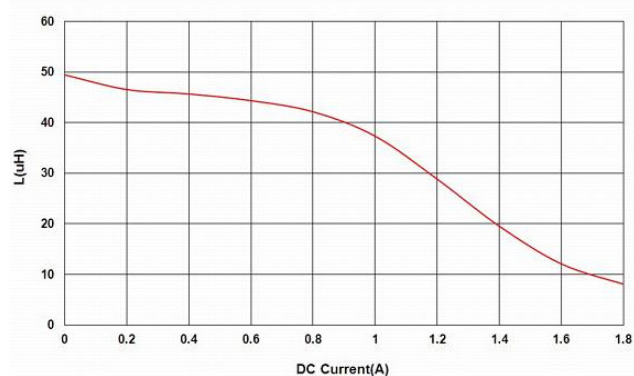
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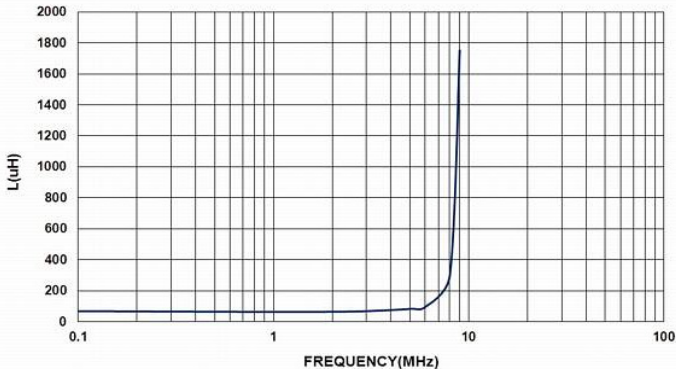
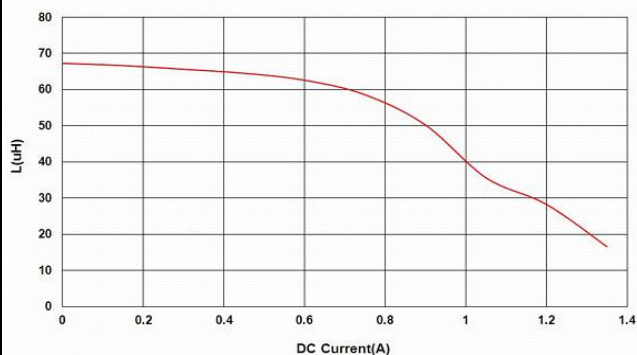
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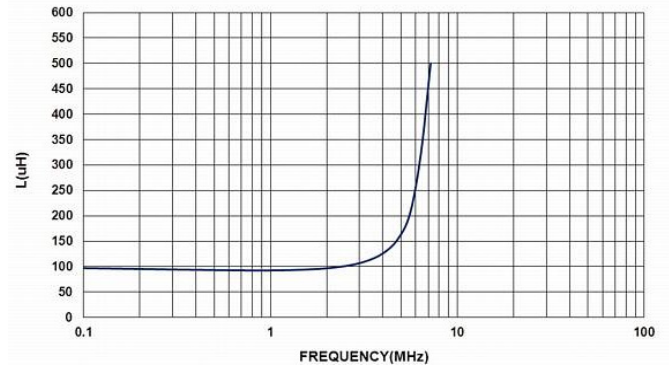
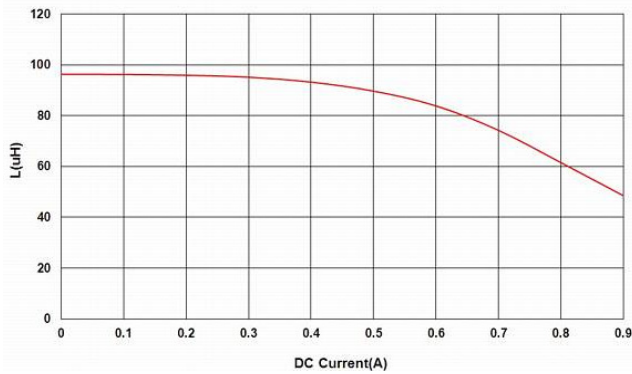
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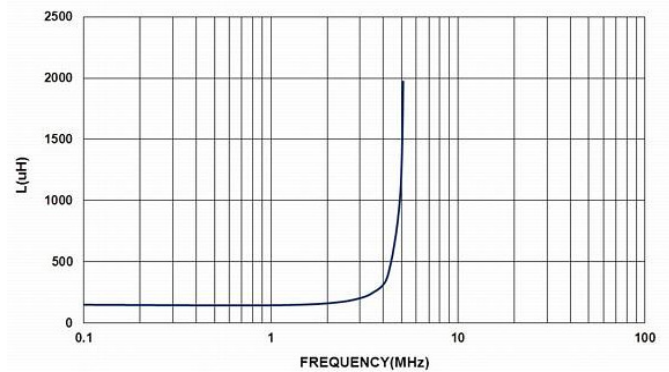
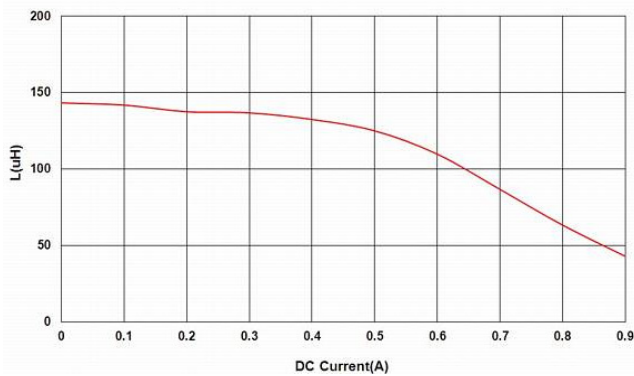
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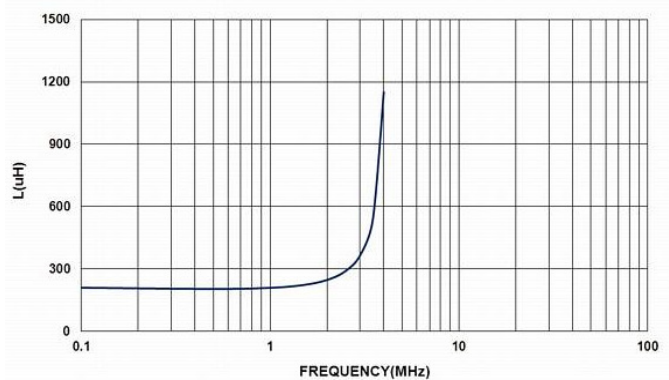
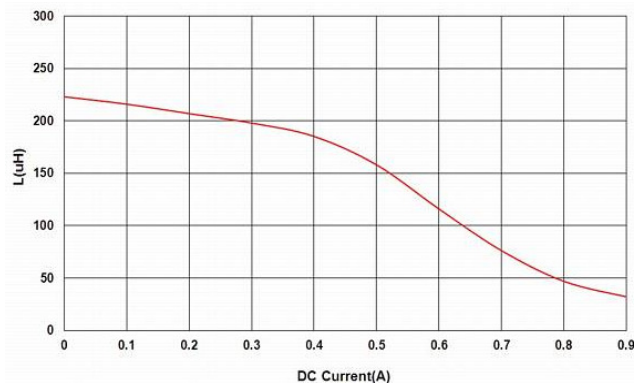
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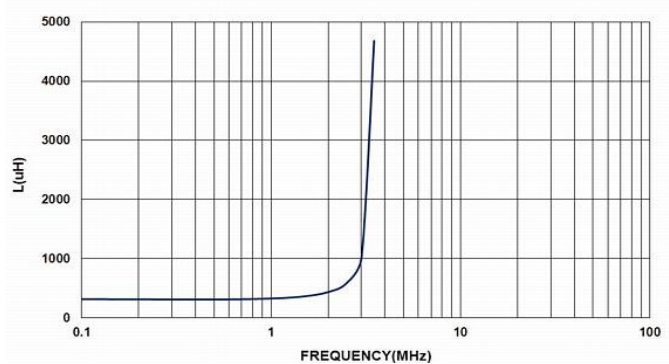
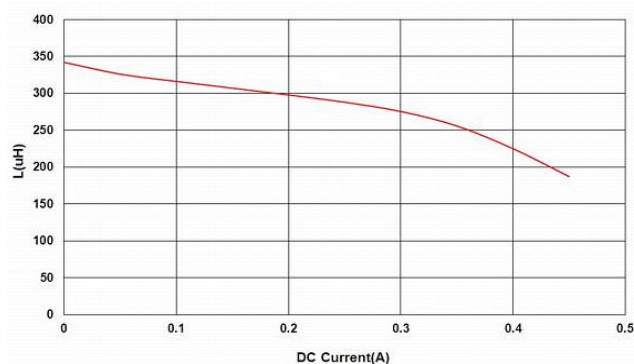
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BPCA00060645 Series Specification

14 Graph:

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