

Power Inductor



BPSS 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. Low Rdc and high saturation current for portable DC to DC converter line
- 2. High magnetic shielding construction provides high resolution for EMC protection
- 3. Support lead-free soldering

Applications

- 1. Notebook PC
- 2. Set top box, SSD
- 3. LCD TV, LCD displays
- 4. Portable communication device
- 5. DC/DC converters
- 6. Networking

Product Information

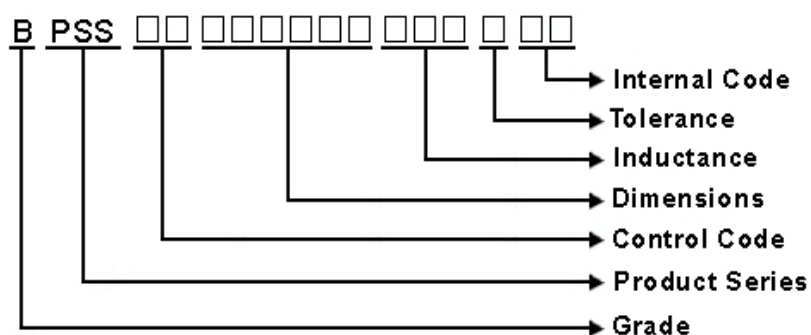
Series	L (mm)	W(mm)	T (mm)	Inductance (μH)
BPSS	5.2	5.0	2.2	1 ~ 150
	7.5	7.4	2.5	
	7.5	7.4	4.0	



BPSS00050522 Series Specification

1 Scope: This specification applies to SMD Shielded Power Inductors

2 Part Numbering:



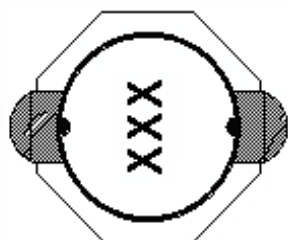
3 Rating:

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

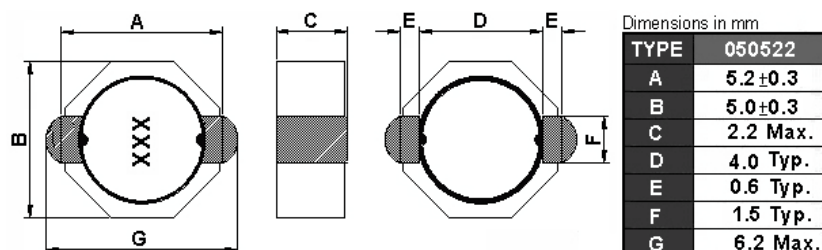
Marking Color : Black

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

BPSS00050522 Series Specification

6 Configuration and Dimensions and Unit Weight:



Net Weight (grms)

SIZE CODE	Net Weight (grms)
050522	1.54(Typ.)

7 Electrical Characteristics:

Part No.	Inductance (μ H)	Test Freq.	SRF (MHz)Min.	RDC (Ω)Max.	Isat (A)	Irms (A)	Tolerance ($\pm$ %)	Marking
BPSS000505221R2□00	1.2	100kHz,1V	95	0.025	4.3	3.43	30	1R2
BPSS000505221R8□00	1.8	100kHz,1V	65	0.032	3.6	3.12	30	1R8
BPSS000505223R3□00	3.3	100kHz,1V	45	0.054	2.5	2.68	30	3R3
BPSS000505224R7□00	4.7	100kHz,1V	40	0.081	2	2.18	30	4R7
BPSS00050522100□00	10	100kHz,1V	24	0.16	1.4	1.51	20,30	100
BPSS00050522220□00	22	100kHz,1V	14	0.32	0.9	1.02	20,30	220
BPSS00050522330□00	33	100kHz,1V	5	0.49	0.77	0.8	20,30	330

NOTE: □-tolerance M=±20% / T=±30%

1. Operating temperature range - 40 °C ~ 105 °C(Including self - temperature rise)

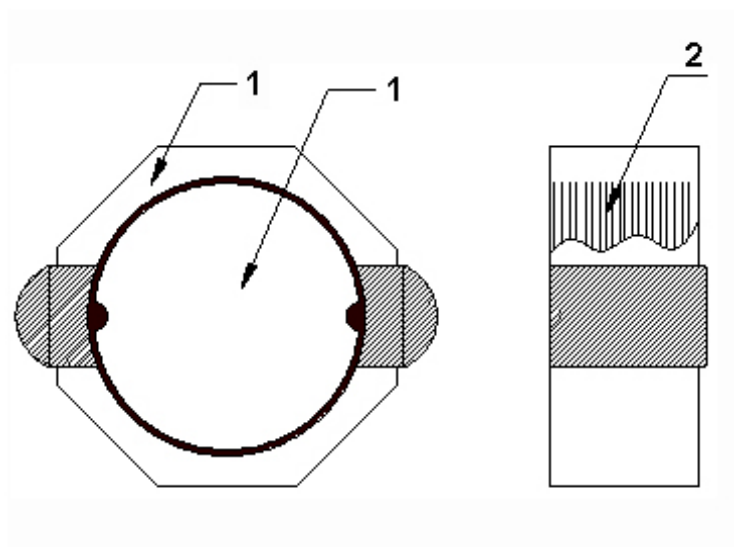
2. Isat for Inductance drop 30% from its value without current.

3. Irms for a 40°C temperature rise from 25°C ambient.

BPSS00050522 Series Specification

8 BPSS00050522 Series

8.1 Construction:



8.2 Material List:

No	Part	Material
1	CORE	FERRITE
2	WIRE	COPPER WIRE

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9 Reliability Of Ferrite Wire Wound Power Inductor

1-1.Mechanical Performance

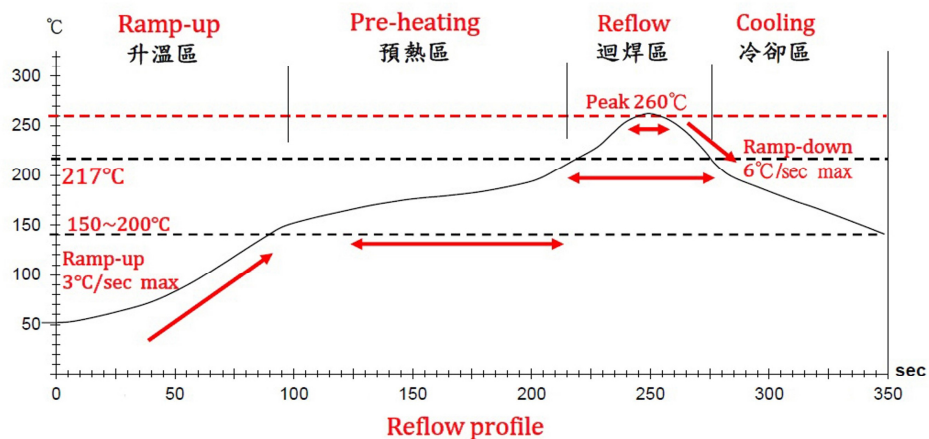
No	Item	Specification	Test Method
1-1-1	Vibration	Appearance: No damage	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-2	Resistance to Soldering Heat	Appearance: No damage Inductance: within $\pm 10\%$ of initial value	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	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 ± 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	Thermal 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 °C 30 minutes exposure to 125 °C 15 seconds maximum transition between temperatures															
1-2-2	Temperature Cycle		One cycle: <table><tr><th>Step</th><th>Temperature (°C)</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 (°C)	Time (min)	1	-40±3	30	2	25±2	3	3	105±3	30	4	25±2	3
Step	Temperature (°C)		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 Temperature: 40±2°C Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs																
1-2-4	Heat Life	Temperature: 85±3°C Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs																
1-2-5	Cold Resistance	Temperature: -40±3°C Time: 1000hrs Measured after exposure in the room condition for 24hrs																

BPSS00050522 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	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 :

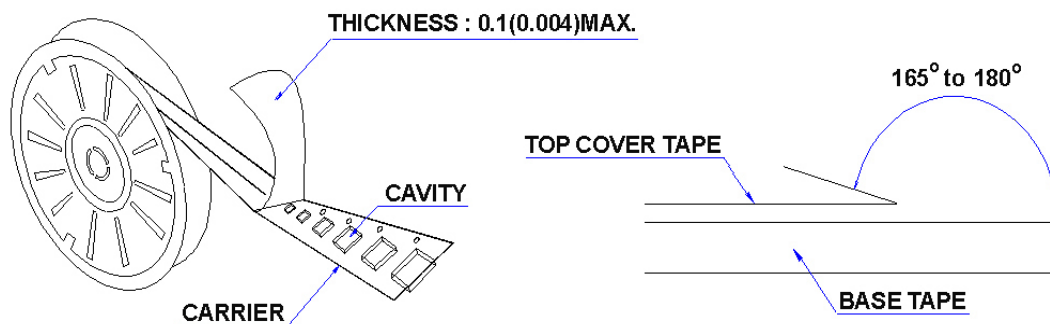
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow
3. Products can only be soldered with reflow

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10 Packaging:

10.1 Packaging -Cover Tape

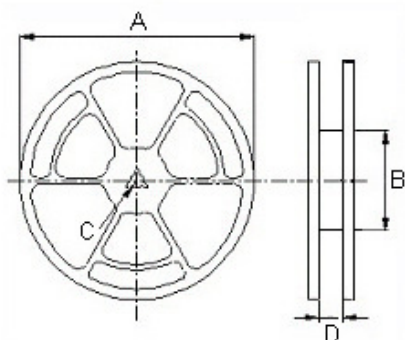
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
050522	2000

10.3 Reel Dimensions



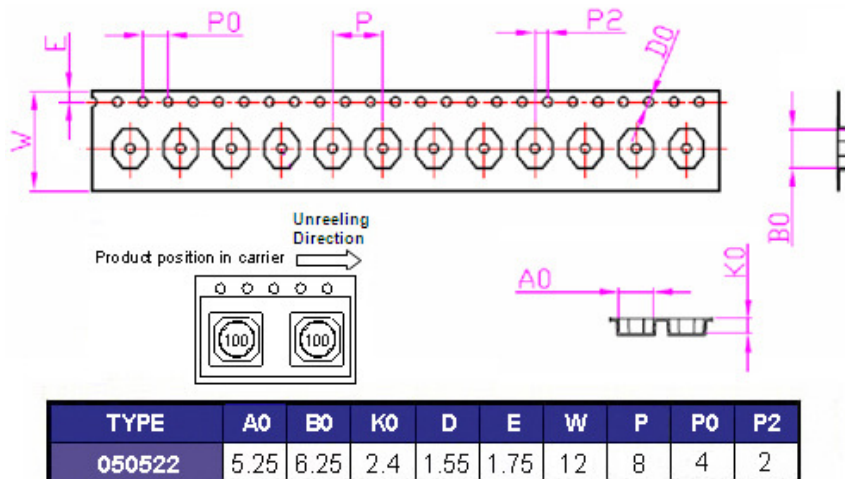
Dimensions in mm

TYPE	A	B	C	D
050522	330	100	13	13.4

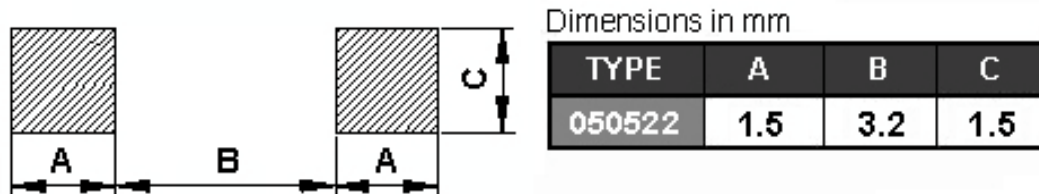
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10 Packaging:

10.4 Tape Dimensions in mm



11 Recommended Land Pattern:



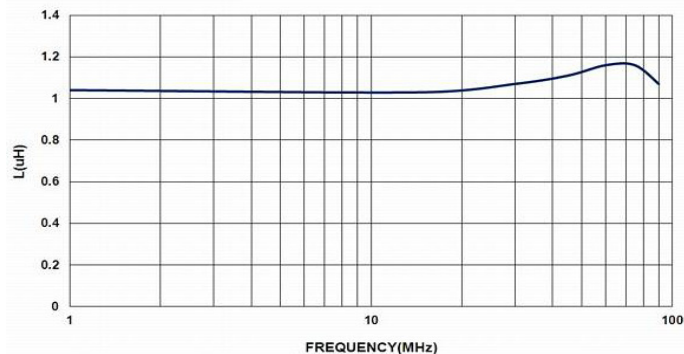
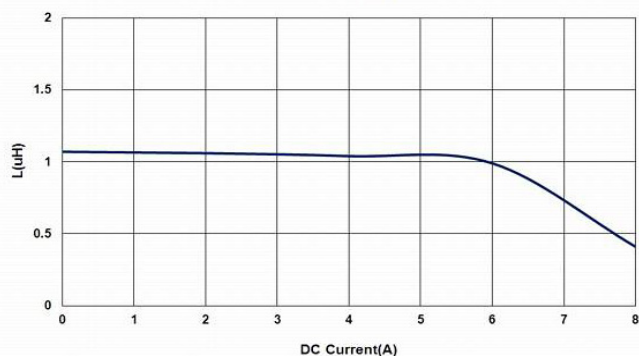
12 Note:

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.

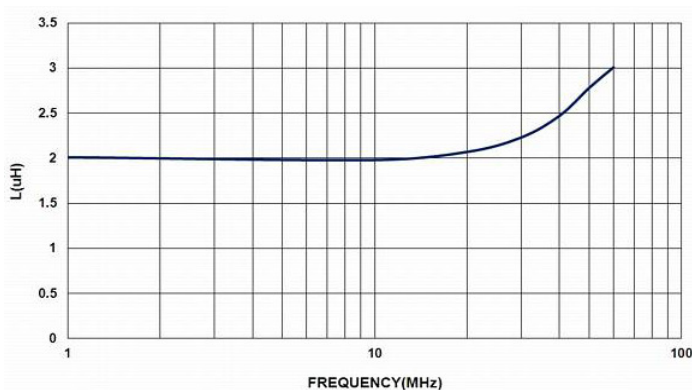
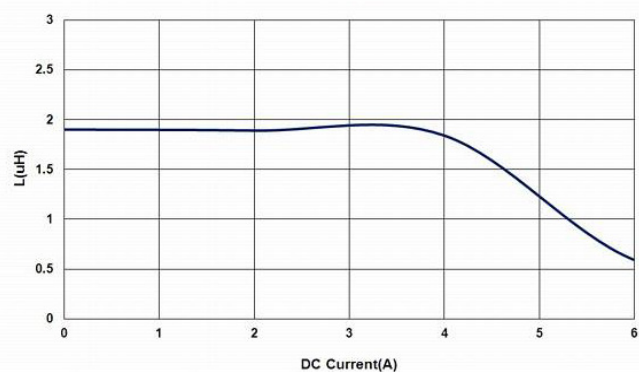
BPSS00050522 Series Specification

13 Graph:

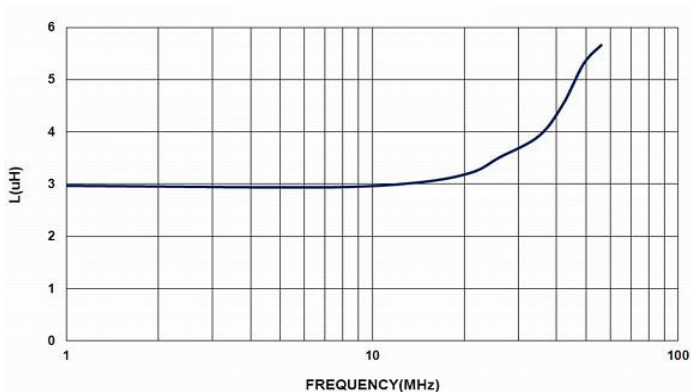
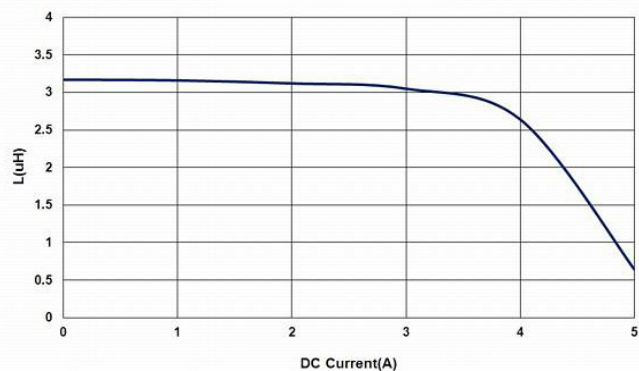
BPSS000505221R2□00



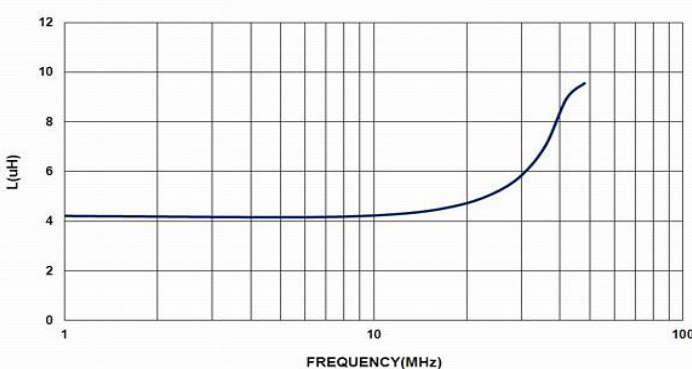
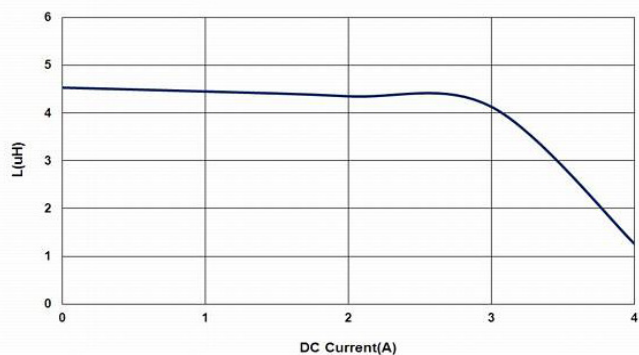
BPSS000505221R8□00



BPSS000505223R3□00



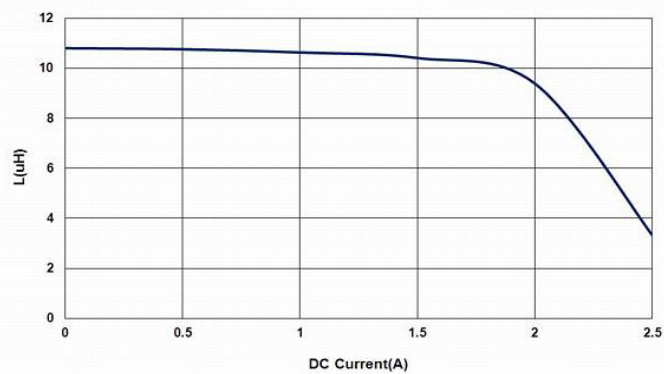
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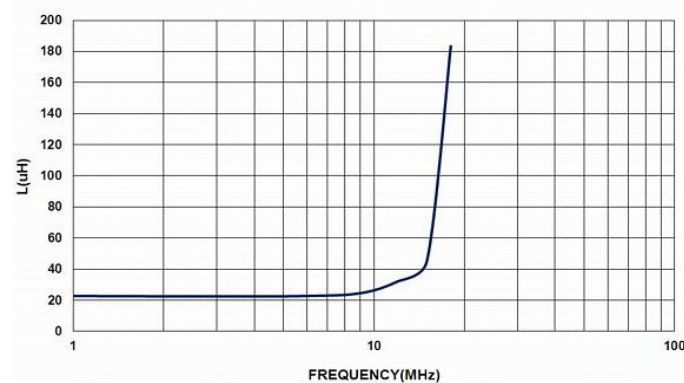
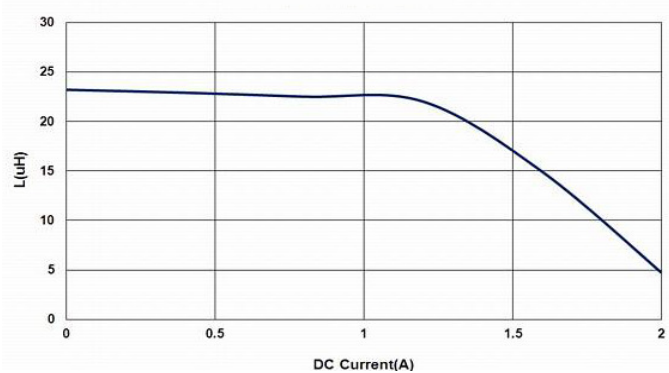
BPSS00050522 Series Specification

13 Graph:

BPSS00050522100□00



BPSS00050522220□00



BPSS00050522330□00

