# Power Inductor

## BPSF 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. Various package size and wide inductance range

### Applications

1. AP Routers, STBs
2. LCD TVs and monitors
3. Game consoles
4. LED lights
5. DC/DC converters

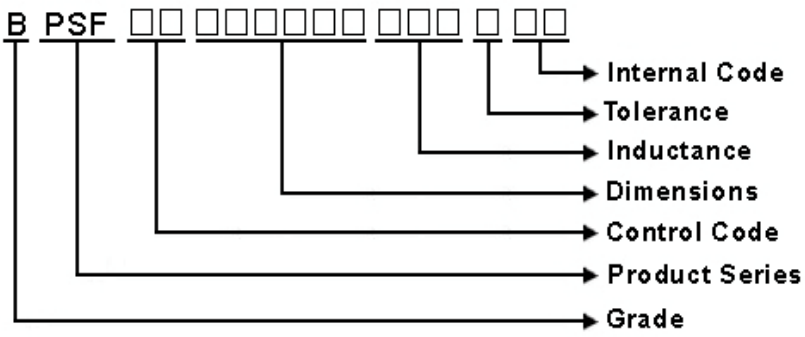
### Product Information

| Series | L (mm) | W(mm) | T (mm) | Inductance (μH) |
|---|---|---|---|---|
| BPSF | 6.0 | 6.0 | 2.8 | 1.2 ~ 1500 |
| | 7.0 | 7.0 | 2.8 | |
| | 7.0 | 7.0 | 30.0 | |
| | 7.0 | 7.0 | 3.2 | |
| | 7.0 | 7.0 | 4.5 | |
| | 7.0 | 7.0 | 5.5 | |
| | 10.1 | 10.1 | 4.5 | |
| | 10.1 | 10.1 | 5.8 | |
| | 12.5 | 12.5 | 5.5 | |
| | 12.5 | 12.5 | 6.5 | |
| | 12.5 | 12.5 | 7.5 | |

# BPSF00131355 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℃ to +40℃; 75% RH max.

## 4 Marking:


**Ex Marking : 100**

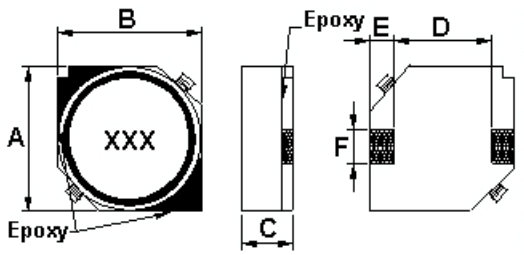
**Marking color : Black**

## 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 |

# BPSF00131355 Series Specification

## 6 Configuration and Dimensions and Unit Weight:




Dimensions in mm

| TYPE | 131355 |
|---|---|
| A | 12.5±0.3 |
| B | 12.5±0.3 |
| C | 5.5±0.3 |
| D | 8.5 typ |
| E | 2.0 typ |
| F | 3.0 typ |

### Net Weight (grms)

| SIZE CODE | Net Weight (grms) |
|---|---|
| 131355 | 4.8(Typ.) |

## 7 Electrical Characteristics:

| Part No. | Inductance (uH ) | Test Freq. | RDC (Ω) | Isat (A) | Irms (A)Max. | Tolerance (±%) | Marking |
|---|---|---|---|---|---|---|---|
| BPSF001313556R0□00 | 6 | 0.5V 1kHz | 0.0164±20% | 3.6 | 4.9 | 20 | 6R0 |
| BPSF00131355100□00 | 10 | 0.5V 1kHz | 0.0215±20% | 3.4 | 4.3 | 20 | 100 |
| BPSF00131355150□00 | 15 | 0.5V 1kHz | 0.0259±20% | 2.8 | 3.9 | 20 | 150 |
| BPSF00131355220□00 | 22 | 0.5V 1kHz | 0.0338±20% | 2.3 | 3.4 | 20 | 220 |
| BPSF00131355330□00 | 33 | 0.5V 1kHz | 0.0415±20% | 1.9 | 3.1 | 20 | 330 |
| BPSF00131355470□00 | 47 | 0.5V 1kHz | 0.0618±20% | 1.6 | 2.5 | 20 | 470 |
| BPSF00131355680□00 | 68 | 0.5V 1kHz | 0.0832±20% | 1.3 | 2.2 | 20 | 680 |
| BPSF00131355101□00 | 100 | 0.5V 1kHz | 0.117±20% | 1.1 | 1.8 | 20 | 101 |
| BPSF00131355151□00 | 150 | 0.5V 1kHz | 0.19±20% | 0.88 | 1.4 | 20 | 151 |
| BPSF00131355221□00 | 220 | 0.5V 1kHz | 0.27±20% | 0.72 | 1.2 | 20 | 221 |
| BPSF00131355331□00 | 330 | 0.5V 1kHz | 0.41±20% | 0.59 | 1 | 20 | 331 |
| BPSF00131355471□00 | 470 | 0.5V 1kHz | 0.52±20% | 0.49 | 0.88 | 20 | 471 |
| BPSF00131355681□00 | 680 | 0.5V 1kHz | 0.76±20% | 0.43 | 0.73 | 20 | 681 |
| BPSF00131355102□00 | 1000 | 0.5V 1kHz | 1.12±20% | 0.34 | 0.6 | 20 | 102 |
| BPSF00131355152□00 | 1500 | 0.5V 1kHz | 1.73±20% | 0.29 | 0.48 | 20 | 152 |

**NOTE: □-tolerance M=±20% / T=±30%**

1.Operating temperature range - 4 0℃ ~ 1 2 5℃(Including self - temperature rise)

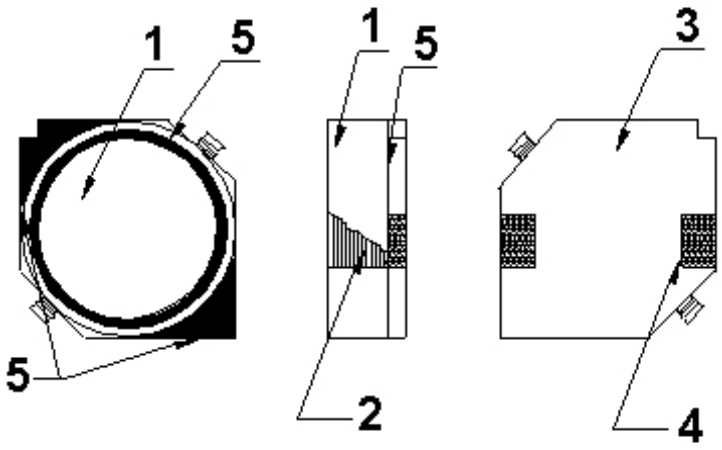
2.Isat for Inductance drop 10% from its value without current.

3.Irms for a 30℃ temperature rise from 25℃ ambient.

# BPSF00131355 Series Specification

## 8 BPSF00131355 Series

### 8.1 Construction:




### 8.2 Material List:

| No | Part | Material |
|---|---|---|
| 1 | CORE | FERRITE |
| 2 | WIRE | MAGNET WIRE |
| 3 | BASE | LCP |
| 4 | TERMINAL | |
| 5 | EPOXY | |

# BPSF00131355 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<br>Inductance:within±10% of initial value | Test device shall be soldered on the substrate<br>Oscillation Frequency: 10 to 55 to 10Hz for 1min<br>Amplitude: 1.5mm<br>Time: 2hrs for each axis (X, Y & Z), total 6hrs |
| 1-1-2 | Resistance to Soldering Heat | Appearance: No damage | Pre-heating: 150℃, 1min<br>Solder Composition: Sn/Ag3.0/Cu0.5<br>Solder Temperature: 260±5℃<br>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<br>Solder Composition: Sn/Ag3.0/Cu0.5<br>Solder Temperature: 245±5℃<br>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<br>Inductance:within±10% of initial value | 10 cycles (Air to Air) 1 cycles shall consist of:<br>30 minutes exposure to –55 ℃<br>30 minutes exposure to 125 ℃<br>15 seconds maximum transition between temperatures |
| 1-2-2 | Temperature Cycle | | One cycle: |

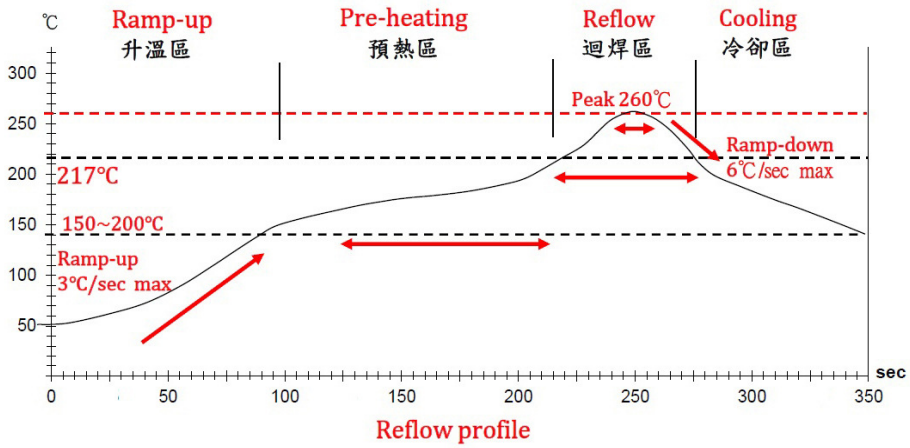
| Step | Temperature (℃) | Time (min) |
|---|---|---|
| 1 | -40±3 | 30 |
| 2 | 25±2 | 3 |
| 3 | 125±3 | 30 |
| 4 | 25±2 | 3 |

Total: 100cycles
Measured after exposure in the room condition for 24hrs

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

# BPSF00131355 Series Specification

## Reflow Soldering Profile



Reflow profile

**Lead-Free(LF)標準溫度分析範圍** **Refer to J-STD-020C**

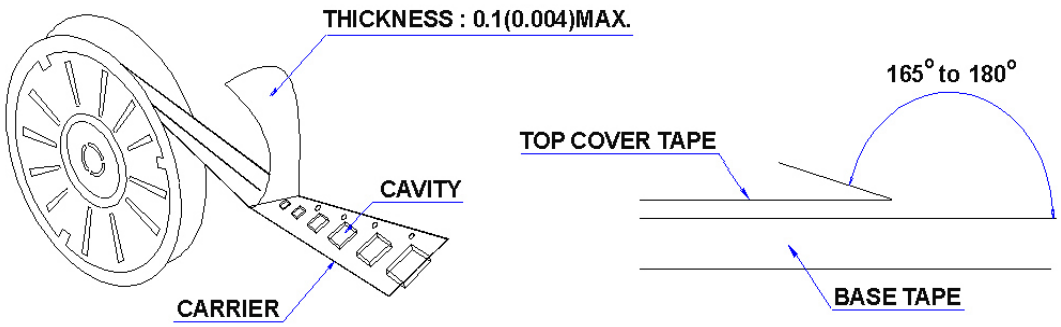
| 管制項目<br>Item. | 升溫區<br>Ramp-up | 預熱區<br>Pre-heating | 迴焊區<br>Reflow | Peak Temp | 冷卻區<br>Cooling |
|---|---|---|---|---|---|
| 溫度範圍<br>Temp.scope | R.T ~ 150℃ | 150℃ ~ 200℃ | 217℃ | 260±5℃ | Peak Temp.~150℃ |
| 標準時間<br>Time spec. | – | 60 ~ 180 sec | 60 ~ 150 sec | 20 ~ 40 sec | – |
| 實際時間<br>Time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

# BPSF00131355 Series Specification

## 10 Packaging:

### 10.1 Packaging -Cover Tape

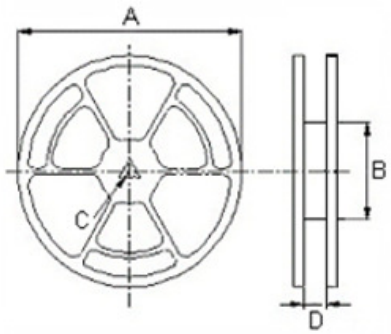
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.




### 10.2 Packaging Quantity

| TYPE | PCS/REEL |
|---|---|
| 131355 | 500 |

### 10.3 Reel Dimensions



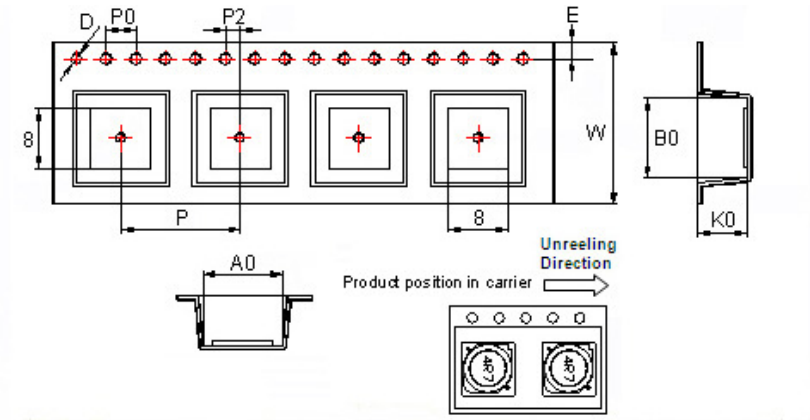

Dimensions in mm

| TYPE | A | B | C | D |
|---|---|---|---|---|
| 131355 | 330 | 100 | 13 | 24.4 |

# BPSF00131355 Series Specification

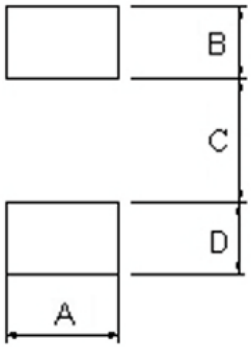
## 10 Packaging:

### 10.4 Tape Dimensions in mm




| TYPE | A0 | B0 | K0 | D | E | W | P | P0 | P2 |
|---|---|---|---|---|---|---|---|---|---|
| 131355 | 12.75 | 12.75 | 6 | 1.55 | 1.75 | 24 | 16 | 4 | 2 |

## 11 Recommended Land Pattern:




Dimensions in mm

| TYPE | A | B | C | D |
|---|---|---|---|---|
| 131355 | **3.2** | **2.5** | **8.6** | **2.5** |

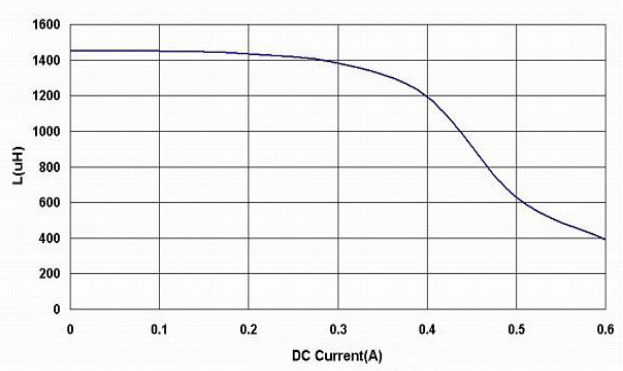
## 12 Note:

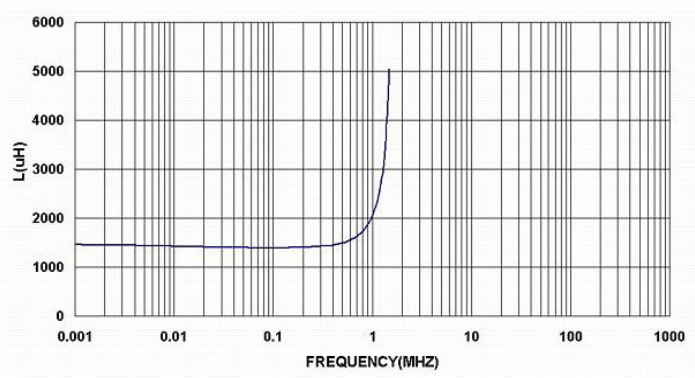
1. Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the 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.

# BPSF00131355 Series Specification

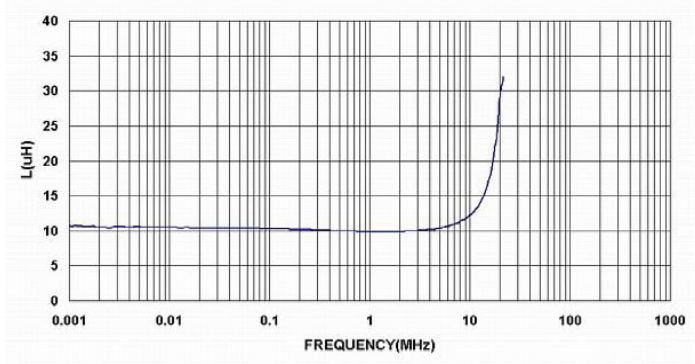
## 13 Graph:

BPSF001313556R0□00




BPSF00131355100□00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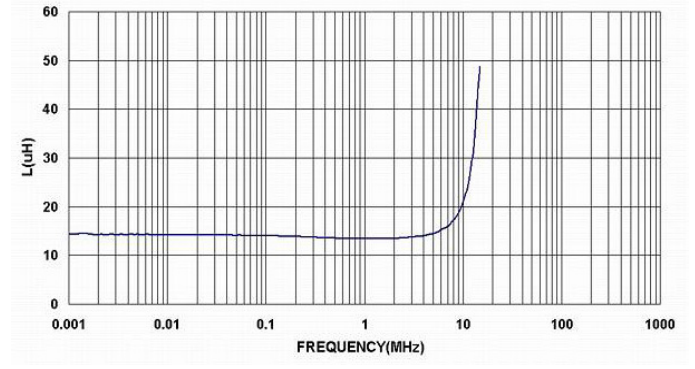
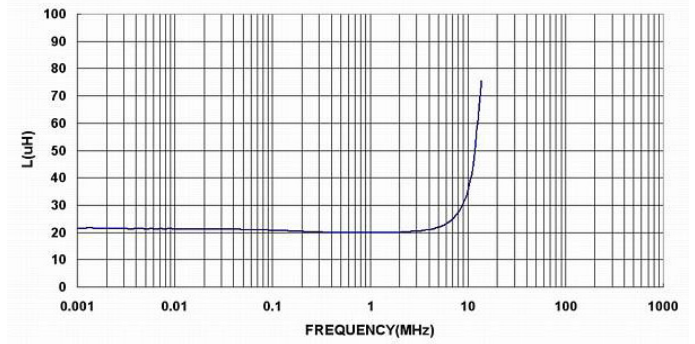


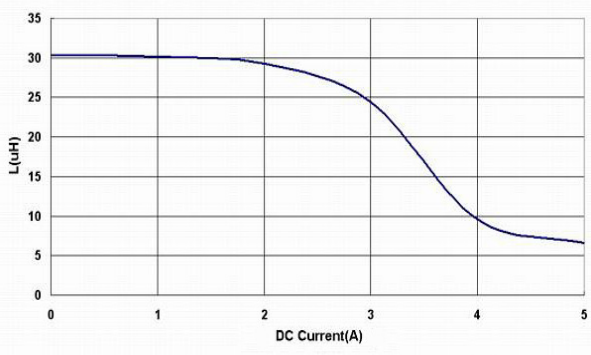

BPSF00131355220□00

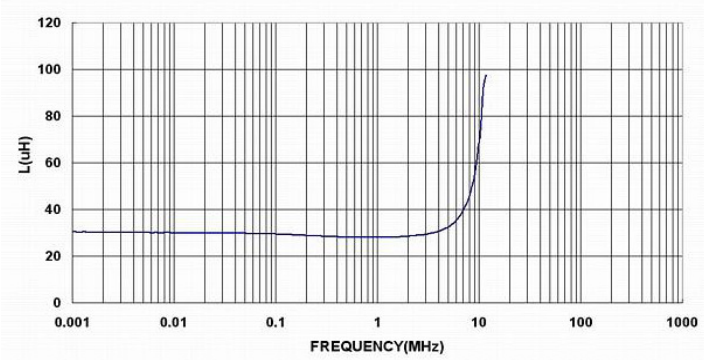



# BPSF00131355 Series Specification

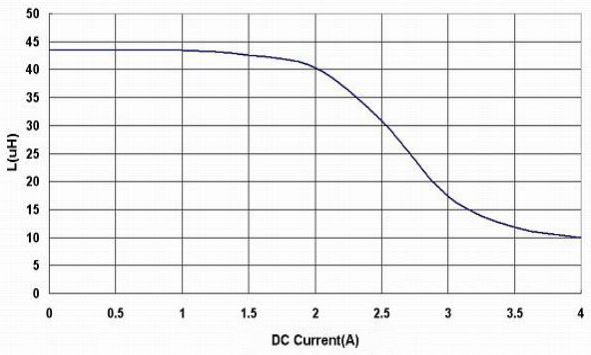
## 13 Graph:

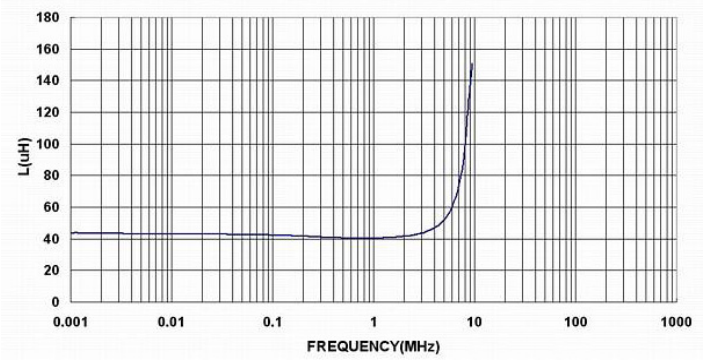
BPSF00131355330□00




BPSF00131355470□00

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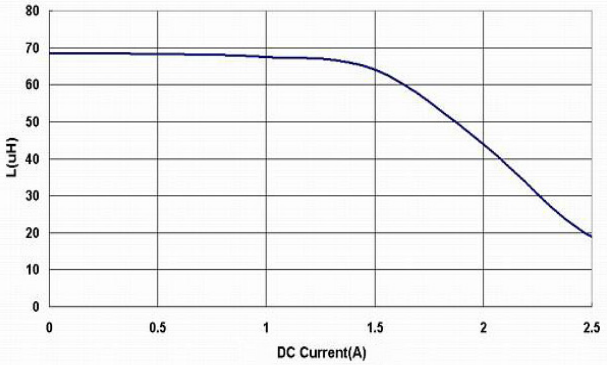


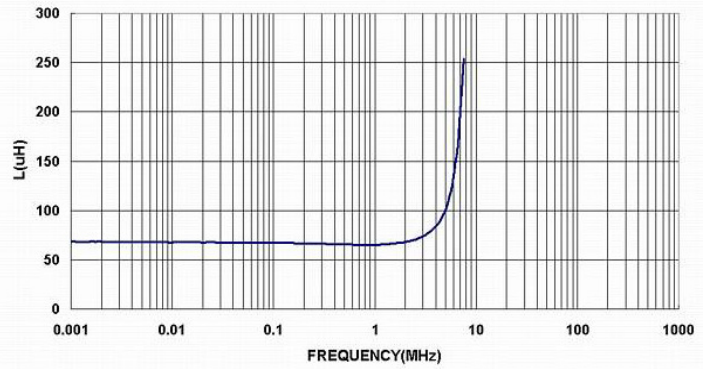


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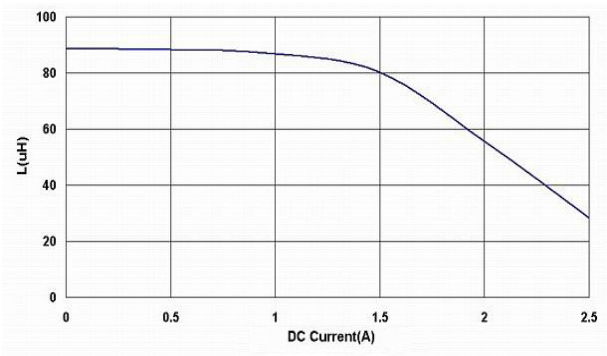
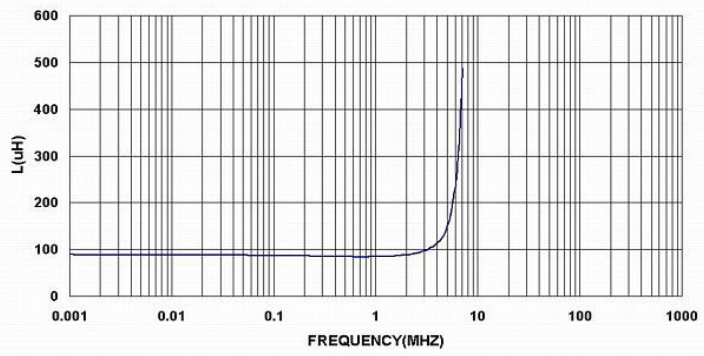
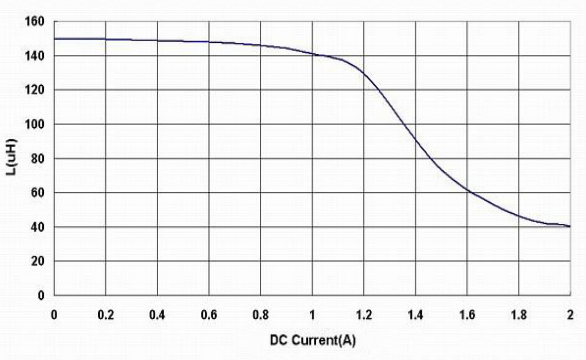


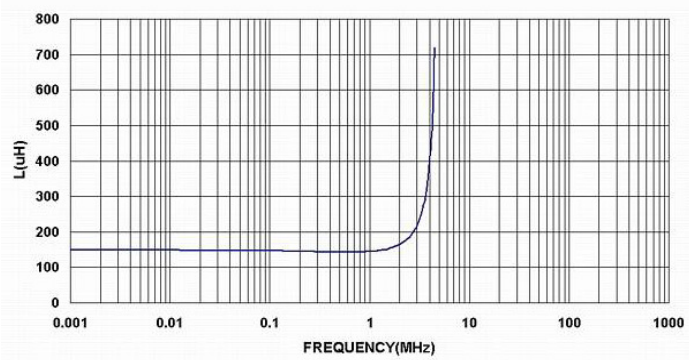



# BPSF00131355 Series Specification

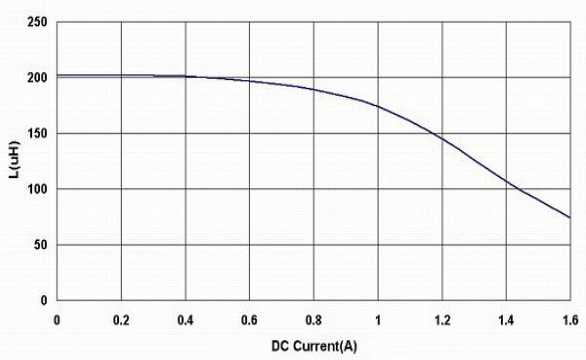
## 13 Graph:

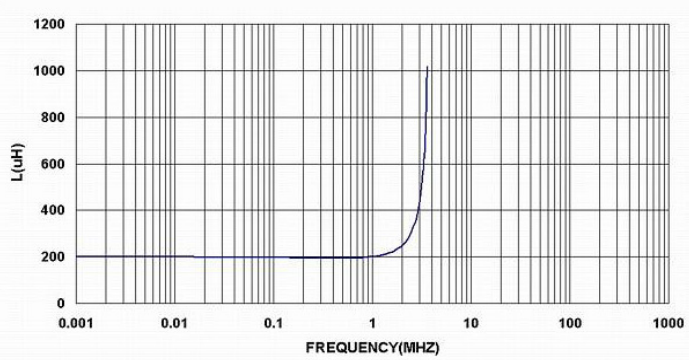
BPSF00131355151☐00




BPSF00131355221☐00

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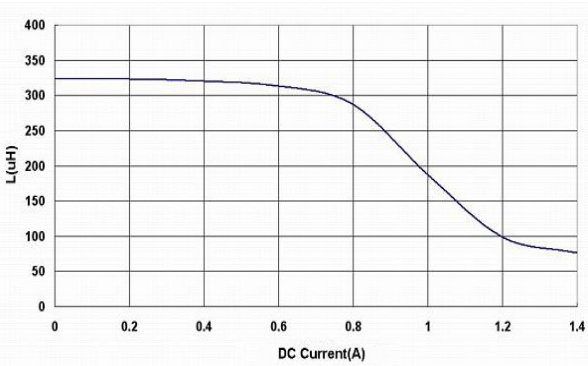


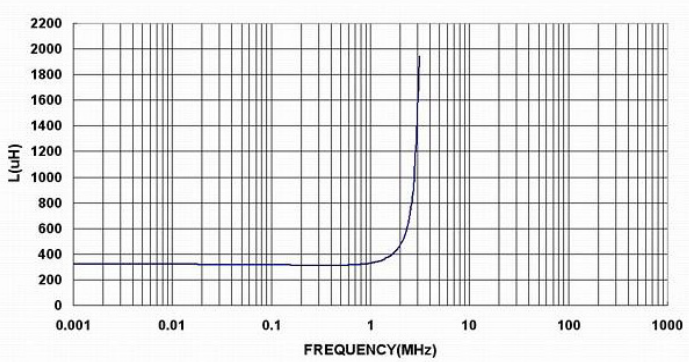


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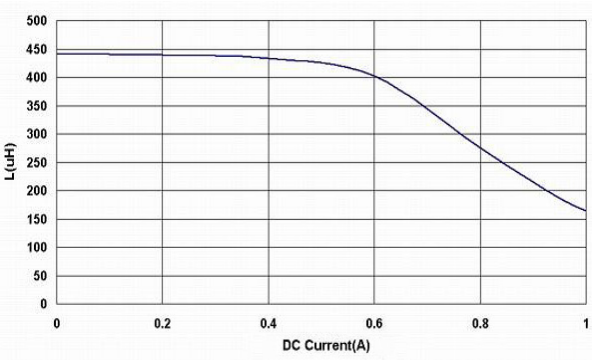
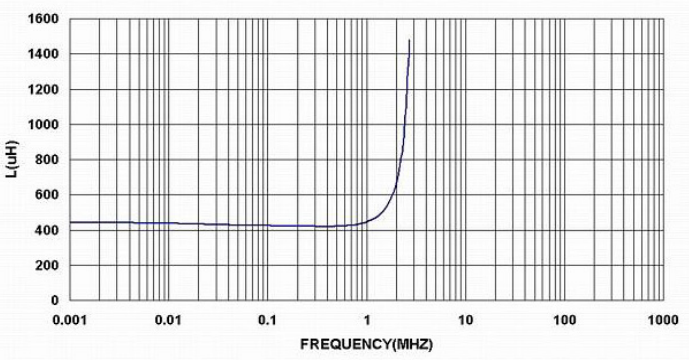
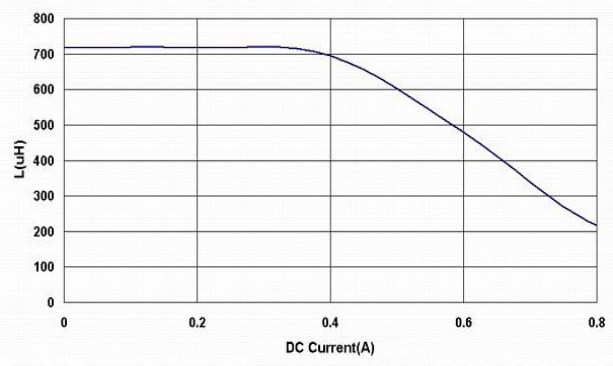


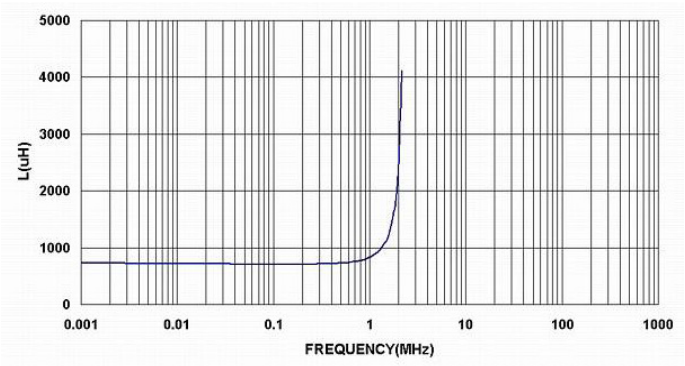



# BPSF00131355 Series Specification

## 13 Graph:

BPSF00131355681□00




BPSF00131355102□00