

Power Inductor



BPSC 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. No thermal aging

Applications

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

Product Information

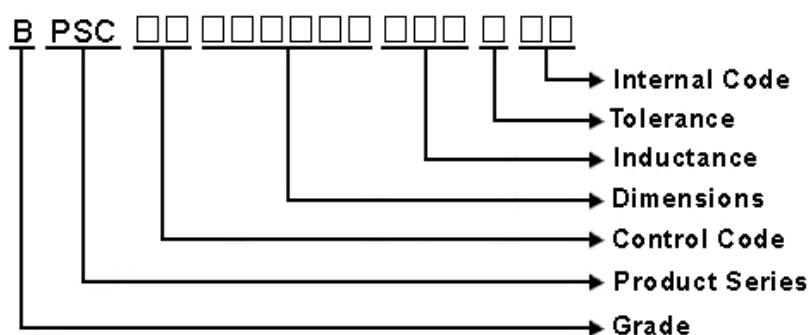
Series	L (mm)	W(mm)	T (mm)	Inductance (μH)
BPSC	3.2	3.2	1.55	0.47 ~ 3300
	3.2	3.2	2.0	
	4.0	4.0	1.2	
	4.0	4.0	1.8	
	4.0	4.0	3.0	
	4.7	4.7	2.0	
	4.7	4.7	3.0	
	4.7	4.7	4.0	
	5.7	5.7	2.0	
	5.7	5.7	3.0	
	6.7	6.7	3.0	
	7.3	7.3	3.4	
	7.0	7.0	4.0	
	7.3	7.3	4.5	
	8.3	8.3	4.5	
	10.3	10.5	3.1	
	10.3	10.5	4.0	
	10.3	10.5	5.1	
	12.5	12.5	4.5	
	12.5	12.5	6.0	
	12.5	12.5	8.0	
	12.0	12.0	10.0	



BPSC00040412 Series Specification

1 Scope: This specification applies to SMD Shielded Power Inductors

2 Part Numbering:



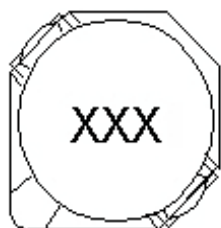
3 Rating:

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

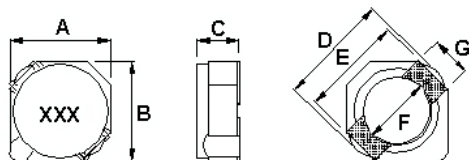
Marking color : Black

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:



Dimensions in mm

TYPE	A	B	C	D	E	F	G
040412	4 Max.	4 Max.	1.2 Max.	5.2 Max.	4.4	2.8	1.1

7 Electrical Characteristics:

Part No.	Inductance (μ H)	Test Freq.	RDC (Ω)Max.	Isat (A)	Irms (A)	Tolerance	Marking
BPSC00040412R60□HP	0.6	100kHz, 1V	0.059	2.9	1.8	T	R60
BPSC000404121R2□HP	1.2	100kHz, 1V	0.082	2	1.7	T	1R2
BPSC000404121R5□HP	1.5	100kHz, 1V	0.104	1.85	1.45	T	1R5
BPSC000404122R2□HP	2.2	100kHz, 1V	0.143	1.6	1.15	T	2R2
BPSC000404123R3□HP	3.3	100kHz, 1V	0.182	1.25	0.95	T	3R3
BPSC000404124R7□HP	4.7	100kHz, 1V	0.2	1.2	0.9	T	4R7
BPSC000404126R8□HP	6.8	100kHz, 1V	0.377	0.85	0.7	T	6R8
BPSC00040412100□HP	10	100kHz, 1V	0.413	0.8	0.6	M,T	100
BPSC00040412120□HP	12	100kHz, 1V	0.585	0.64	0.48	M,T	120
BPSC00040412150□HP	15	100kHz, 1V	0.653	0.58	0.45	M,T	150
BPSC00040412180□HP	18	100kHz, 1V	0.888	0.52	0.4	M,T	180
BPSC00040412220□HP	22	100kHz, 1V	0.925	0.53	0.33	M,T	220

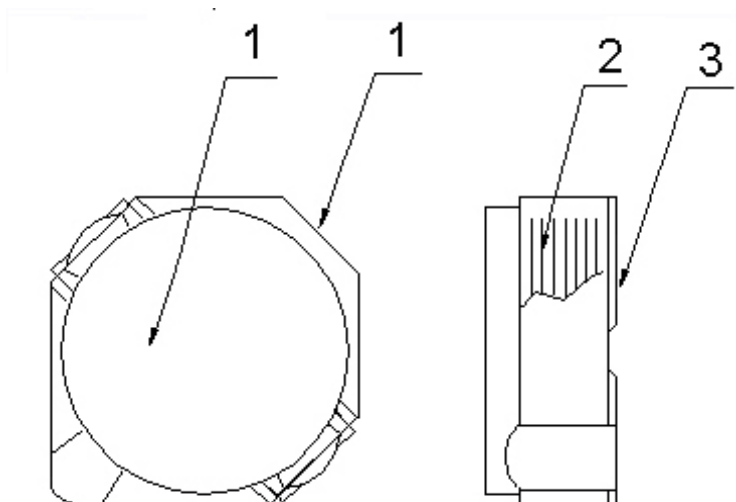
NOTE: □-tolerance M=±20% / T=±30%

1. Operating temperature range - 3 0 °C ~ 1 0 0 °C(Including self - temperature rise)
2. Isat for Inductance drop 35% from its value without current.
3. Irms for a 40°C temperature rise from 25°C ambient.
4. RDC test method: place testing device to the 2 solder ends of winding and test the value.

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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

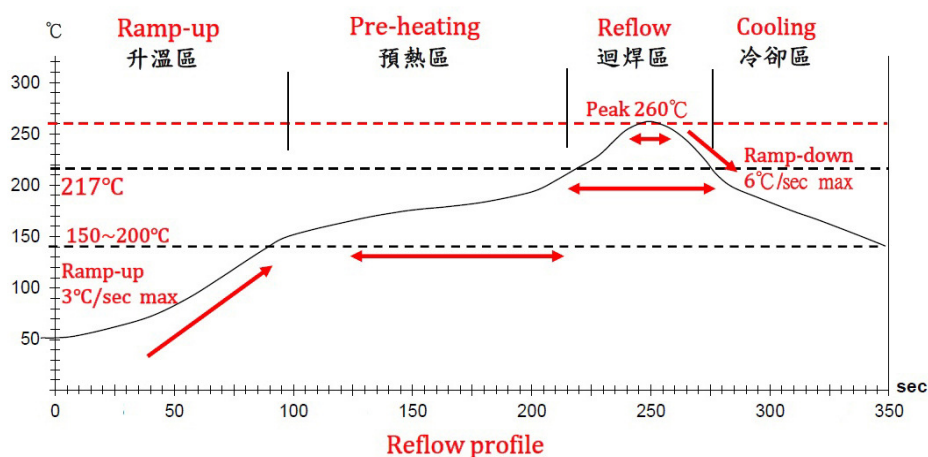
No	Item	Specification	Test Method
1-1-1	Vibration	Appearance: No damage L change: within $\pm 10\%$	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-2	Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150 $^{\circ}\text{C}$, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260 $\pm 5^{\circ}\text{C}$ Immersion Time: 10 ± 1 sec
1-1-3	Solderability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150 $^{\circ}\text{C}$, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 245 $\pm 5^{\circ}\text{C}$ 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 L change: within±10%	10 cycles (Air to Air) 1 cycles shall consist of: 30 minutes exposure to −55 °C 30 minutes exposure to 130 °C 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 (°C)</th><th>Time (min)</th></tr><tr><td>1</td><td>-30±3</td><td>30</td></tr><tr><td>2</td><td>25±2</td><td>3</td></tr><tr><td>3</td><td>100±3</td><td>30</td></tr><tr><td>4</td><td>25±2</td><td>3</td></tr></table> Total: 10cycles Measured after exposure in the room condition for 24hrs	Step	Temperature (°C)	Time (min)	1	-30±3	30	2	25±2	3	3	100±3	30	4	25±2	3
Step	Temperature (°C)		Time (min)															
1	-30±3		30															
2	25±2		3															
3	100±3	30																
4	25±2	3																
1-2-3	Humidity Resistance	Temperature: 40±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±3°C Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs																
1-2-5	Low Temperature Resistance	Temperature: -30±3°C 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

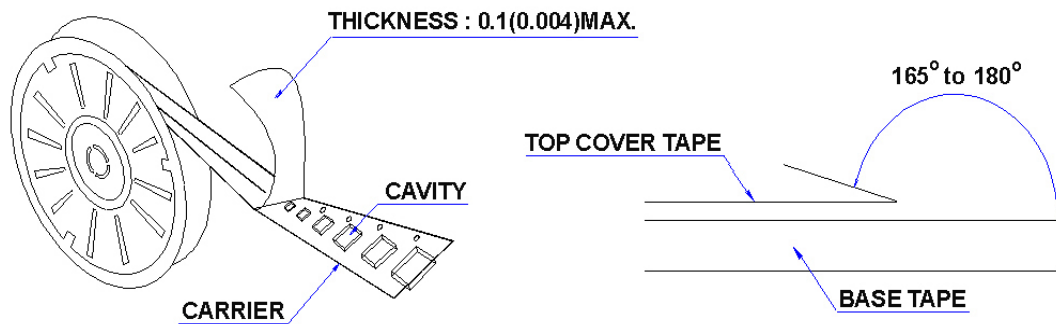
管制項目 Item.	升温區 Ramp-up	預熱區 Pre-heating	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp.scope	R.T ~ 150°C	150°C ~ 200°C	217°C	260±5°C	Peak Temp.~150°C
標準時間 Time spec.	—	60 ~ 180 sec	60 ~ 150 sec	20 ~ 40 sec	—
實際時間 Time result	—	75 ~ 100 sec	90 ~ 120 sec	20 ~ 35 sec	—

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11 Packaging:

11.1 Packaging -Cover Tape

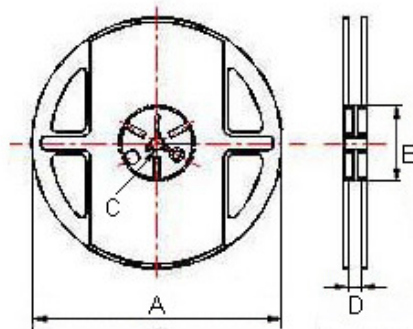
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



11.2 Packaging Quantity

TYPE	PCS/REEL
040412	1000

11.3 Reel Dimensions



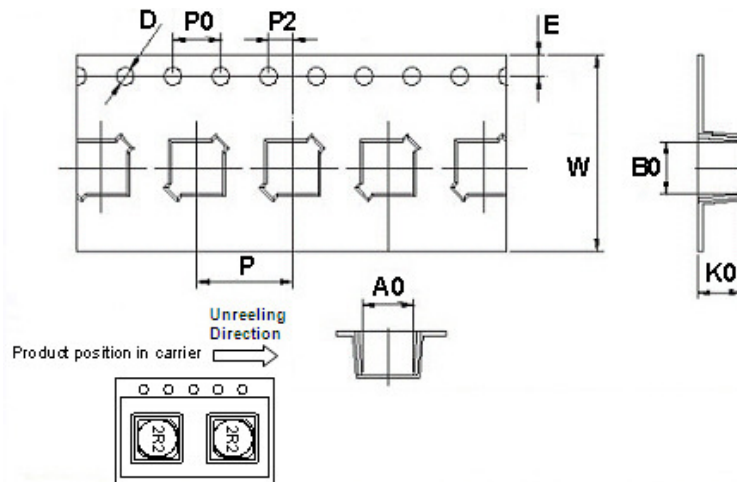
Dimensions in mm

TYPE	A	B	C	D
040412	178	60	13	13.2

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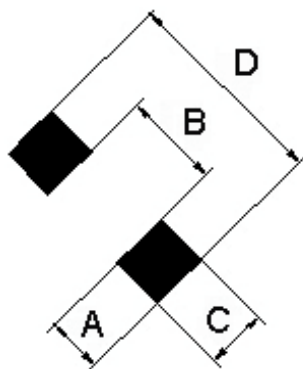
11 Packaging:

11.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	W	P	P0	P2
040412	4.2	4.2	1.5	1.55	1.75	12	8	4	2

12 Recommended Land Pattern:



Dimensions in mm

TYPE	A	B	C	D
040412	1.4	2.4	1.5	5.2

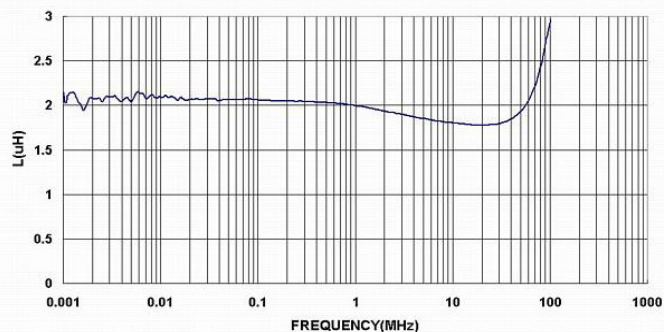
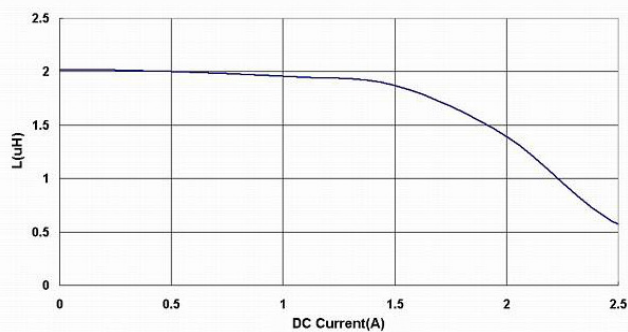
13 Note:

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.

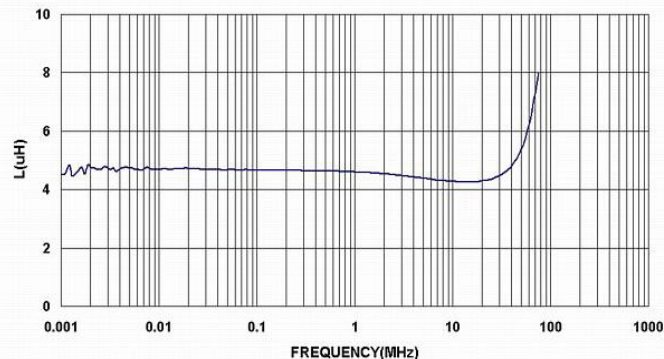
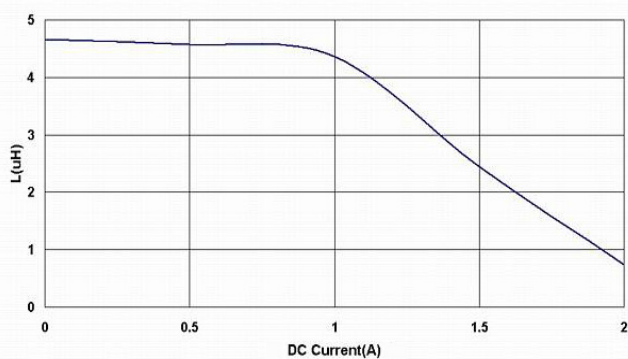
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14 Graph:

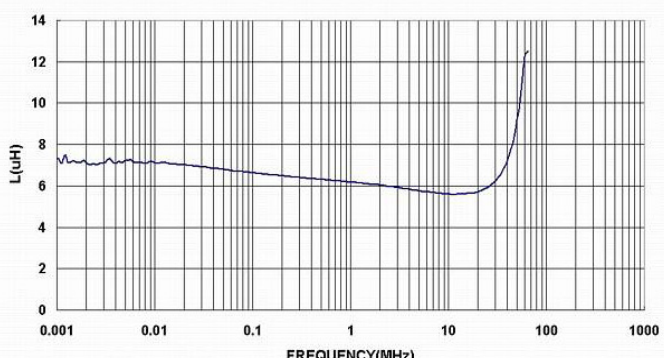
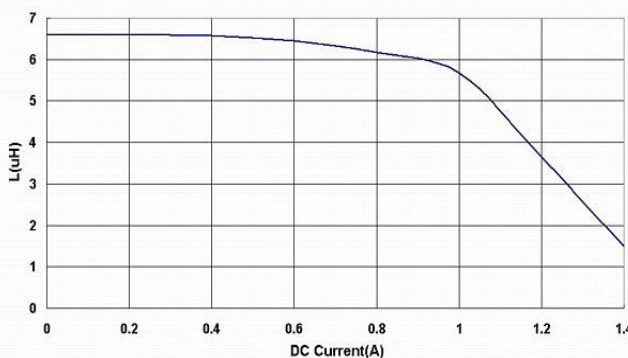
BPSC000404122R2□HP



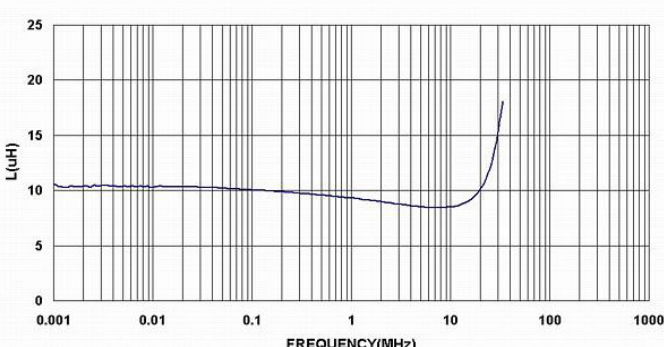
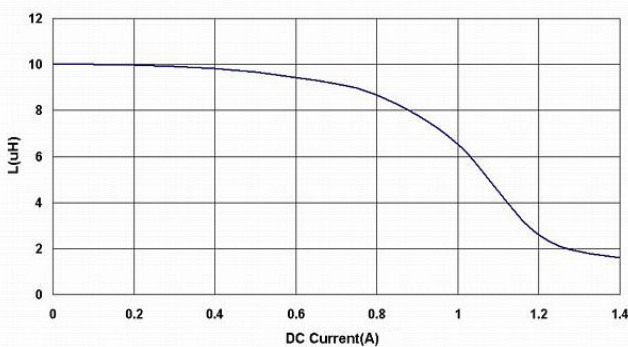
BPSC000404124R7□HP



BPSC000404126R8□HP



BPSC00040412100□HP



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14 Graph:

BPSC00040412220□HP

