# Power Inductor

## BWVF Series

### Overview

BWVF series are an automatic assembly constructed power inductor,
is shielded with magnetic resin and suitable for portable DC-DC converter application

### Benefits

1. Shielded with magnetic resin
2. Various package size and wide inductance range
3. Optimize electrical characteristics by using different ferrite core figures

### Applications

1. Smartphones, tablets and wearable devices, Game consoles
2. DSC, camcorders ●
3. AP Routers, STBs
4. LCD TVs, monitors and panels
5. DC/DC converters

### Product Information

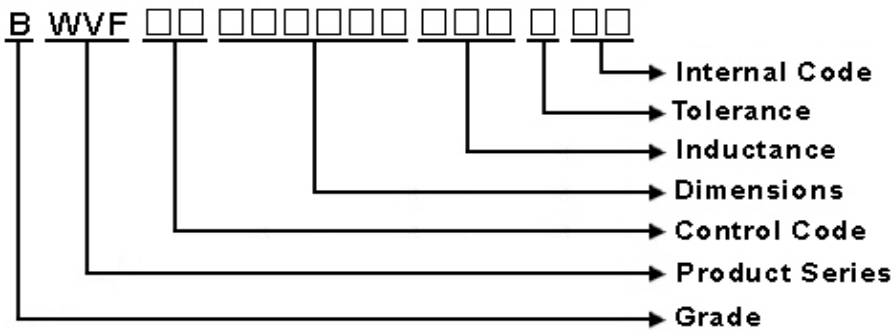
| Series | L (mm) | W(mm) | T (mm) | Inductance (μH) |
|---|---|---|---|---|
| BWVF | 2.0 | 1.6 | 1.2 | 0.24 ~ 330 |
| | 2.0 | 1.6 | 1.2 | |
| | 2.5 | 2.0 | 1.02 | |
| | 2.5 | 2.0 | 1.2 | |
| | 3.0 | 3.0 | 1.02 | |
| | 3.0 | 3.0 | 1.2 | |
| | 3.0 | 3.0 | 1.5 | |
| | 4.0 | 4.0 | 1.2 | |
| | 4.0 | 4.0 | 1.5 | |
| | 4.0 | 4.0 | 1.9 | |
| | 4.0 | 4.0 | 2.6 | |
| | 5.0 | 5.0 | 2.0 | |
| | 6.0 | 6.0 | 2.0 | |
| | 6.0 | 6.0 | 2.8 | |
| | 8.0 | 8.0 | 3.7~4.2 | |



# BWVF00606020 Series Specification

## 1 Scope: This specification applies to Wire Wound Power Inductors

## 2 Part Numbering:



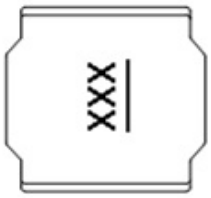

## 3 Rating:

Operating Temperature: - 5 5℃ ~ 1 2 5℃(Including self - temperature rise)

Storage Temperature: - 4 0℃ ~ 1 0 5℃

(The storage temperature range is for after the assembly)

## 4 Marking:




**Ex Marking : 100**

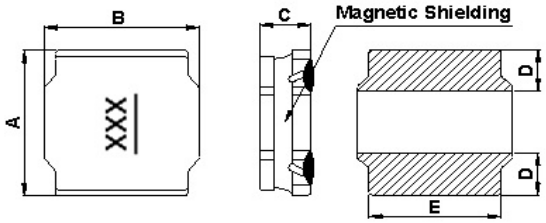
**Marking color : Black**

## 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 |

# BWVF00606020 Series Specification

## 6 Configuration and Dimensions:




Dimensions in mm

| TYPE | 606020 |
|---|---|
| A | 6.0±0.2 |
| B | 6.0±0.2 |
| C | 2.0±0.2 |
| D | 1.7±0.3 |
| E | 5.0 typ. |

Net Weight (grms)

| SIZE CODE | Net Weight (grms) |
|---|---|
| 606020 | 0.281 (typ). |

## 7 Electrical Characteristics:

| Part No. | Inductance (uH) | Test Freq. | RDC (mΩ)±30% | Isat(A) Typ.(Max) | Irms(A) Typ.(Max) | Tolerance (±%) | Marking |
|---|---|---|---|---|---|---|---|
| BWVF006060204R7□00 | 4.7 | 100kHz,1V | 58 | 3.0(2.70) | 2.3(2.07) | 20,30 | 4R7 |
| BWVF00606020100□00 | 10 | 100kHz,1V | 130 | 2.1(1.89) | 1.6(1.44) | 20,30 | 100 |
| BWVF00606020150□00 | 15 | 100kHz,1V | 195 | 1.6(1.44) | 1.3(1.17) | 20,30 | 150 |
| BWVF00606020220□00 | 22 | 100kHz,1V | 260 | 1.3(1.17) | 1.1(0.99) | 20,30 | 220 |
| BWVF00606020470□00 | 47 | 100kHz,1V | 510 | 0.9(0.80) | 0.8(0.72) | 20,30 | 470 |

**NOTE: □-tolerance M=±20% / T=±30%**

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

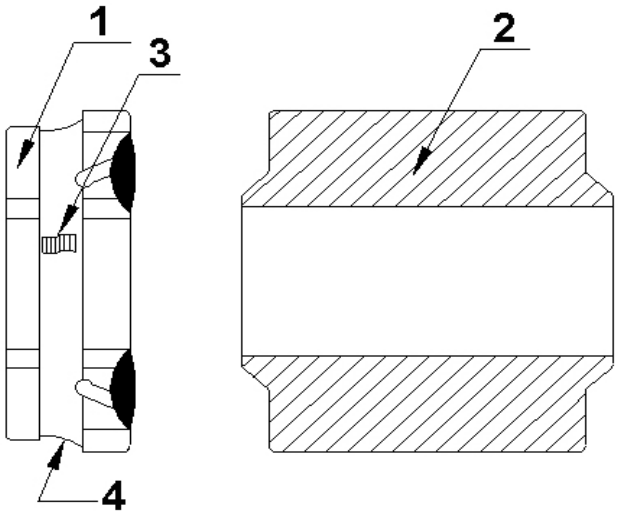
2.Isat for Inductance drop 30% from its value without current.

3.Irms for a 40℃ temperature rise from 25℃ ambient.

# BWVF00606020 Series Specification

## 8 BWVF00606020 Series

### 8.1 Construction:




### 8.2 Material List:

| NO | Part | Material |
|---|---|---|
| 1 | Core | Ferrite |
| 2 | Terminal | Ag/Ni/Sn |
| 3 | Wire | Copper(180℃) |
| 4 | Epoxy | Magnetic powder resin |

# BWVF00606020 Series Specification

## 9 Reliability Of Wire Wound Power Inductors

### 1-1.Mechanical Performance

| No | Item | Specification | Test Method |
|---|---|---|---|
| 1-1-1 | Vibration | Chip coil shall not be damaged after tested as test method | Oscillation Frequency:10Hz to 55 Hz to 10 Hz for 1 min<br>Total Amplitude:1.5mm<br>Testing Time:A period of 2 hours in each of 3 mutually perpendicular directions(Total 6 hours) |
| 1-1-2 | Solderability | The wetting area of the electrode shall be at least 95% covered with new solder coating | Solder:Sn/Ag3.0/Cu0.5<br>per-Heating:150℃±10℃/1min to 2min<br>solder Temperature:245℃±5℃<br>Immersion Time:4s±1s |
| 1-1-3 | Resistance to Soldering Heat | Appearance:No damage | Solder:Sn/Ag3.0/Cu0.5<br>per-Heating:150℃±10℃/1min to 2min<br>solder Temperature:260℃±5℃<br>Immersion Time:10s±1s |

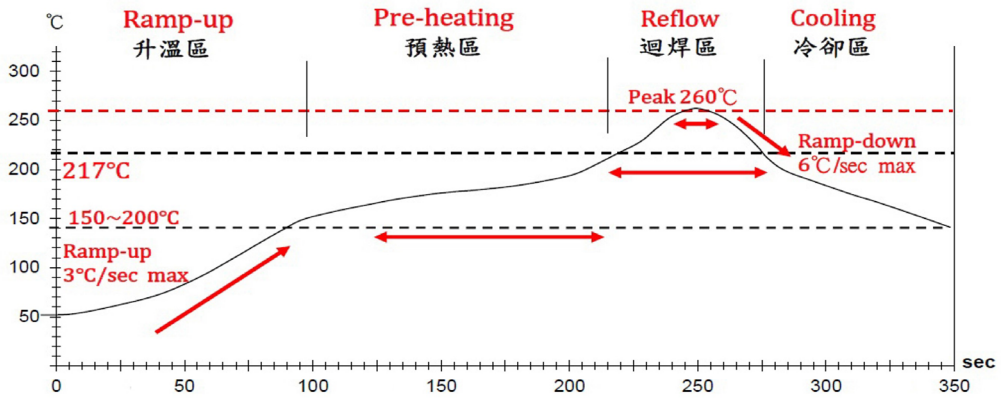
### 1-2.Environmental Performance

| No | Item | Specification | Test Method |
|---|---|---|---|
| 1-2-1 | Heat Resistance | Appearance: No damage<br>Inductance Change:within±10% | Temperature:125℃±3℃<br>Time:1000hrs<br>Then measured after exposure in the room Condition for 24h±2h |
| 1-2-2 | Cold Resistance | | Temperature: -55℃±3℃<br>Time:1000hrs<br>Then measured after exposure in the room Condition for 24h±2h |
| 1-2-3 | Humidity | | Temperature: 40℃±2℃<br>Humidity:90%(RH) to 95%(RH)<br>Time:1000hrs<br>Then measures after exposure in the room Condition for 24h±2h |
| 1-2-4 | Temperature Cycle | | One cycle: |

| Step | Temperature (℃) | Time (min) |
|---|---|---|
| 1 | -55±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

# BWVF00606020 Series Specification



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℃ | Above 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 | – |

**NOTE :**

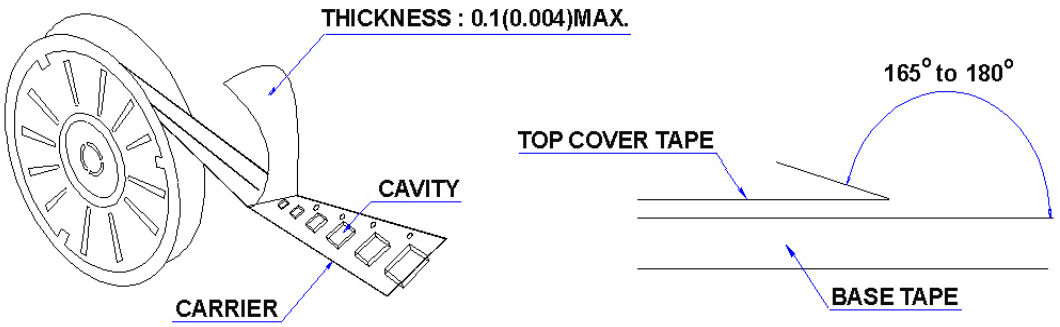
1. **Re-flow possible times : within 2 times**
2. **Nitrogen adopted is recommended while in re-flow**
3. **Products can only be soldered with reflow**

# BWVF00606020 Series Specification

## 10 Packaging:

### 10.1 Packaging -Cover tape

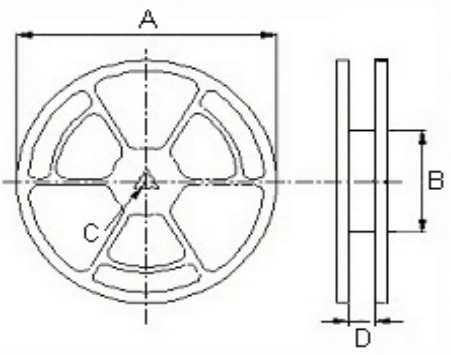
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.




### 10.2 Packaging Quantity

| TYPE | PCS/REEL |
|---|---|
| 606020 | 2000 |

### 10.3 Reel Dimensions



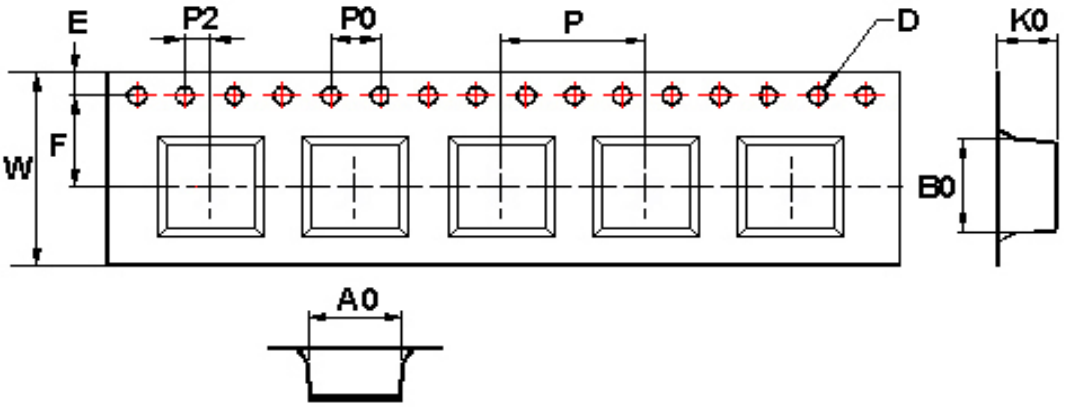

Dimensions in mm

| TYPE | A | B | C | D |
|---|---|---|---|---|
| 606020 | 330 | 100 | 13 | 13.4 |

# BWVF00606020 Series Specification

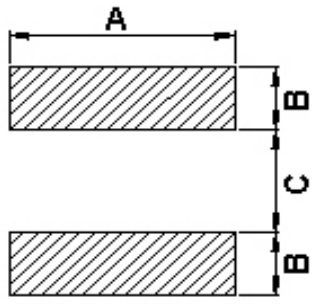
## 10 Packaging:

### 10.4 Tape Dimensions in mm




| TYPE | A0 | B0 | K0 | D | E | F | W | P | P0 | P2 |
|---|---|---|---|---|---|---|---|---|---|---|
| 606020 | 6.25 | 6.25 | 2.20 | 1.55 | 1.75 | 5.5 | 12 | 8 | 4 | 2 |

## 11 Recommended Land Pattern:




Dimensions in mm

| TYPE | A | B | C |
|---|---|---|---|
| 606020 | 5.7 | 1.7 | 2.8 |

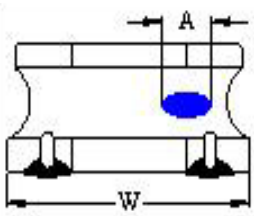
## 12 Note:

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. The storage period is less than 12 months. Be sure to follow the storage conditions (Temperature: 5 to 40°C, Humidity: 10 to 75% RH or less).
   If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
5. Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
6. The moisture sensitivity level (MSL) of products is classified as level 1.

# BWVF00606020 Series Specification

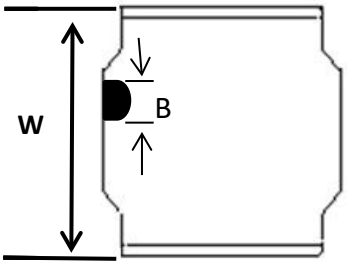
## 12 Note:

7. Void Appearance tolerance Limit



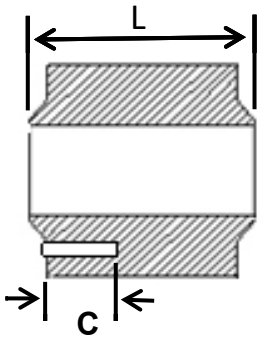

**Exposed wire tolerance limit of coating resin part on product side.**
The unilateral should be no more than two holes.

| | |
|---|---|
| A≦ W/2 | GOOD |
| A> W/2 | NG |



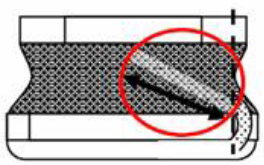

**The appearance standard pf the chipping size in top side.**

| | |
|---|---|
| B≦ W/8 | GOOD |
| B> W/8 | NG |




**Electrode appearance criterion for exposed wire.**

| | |
|---|---|
| C≦ L/4 | GOOD |
| C> L/4 | NG |



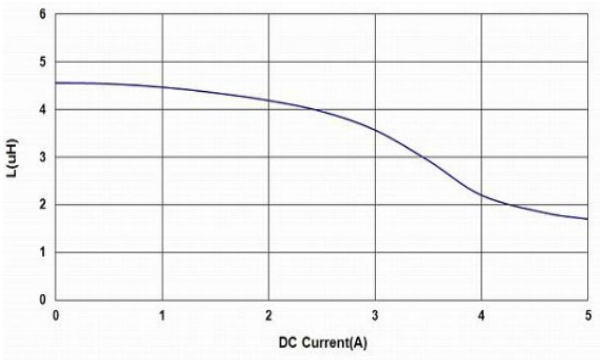
**External appearance criterion for exposed wire**

Exposed end of the winding wire at the side should be acceptable.

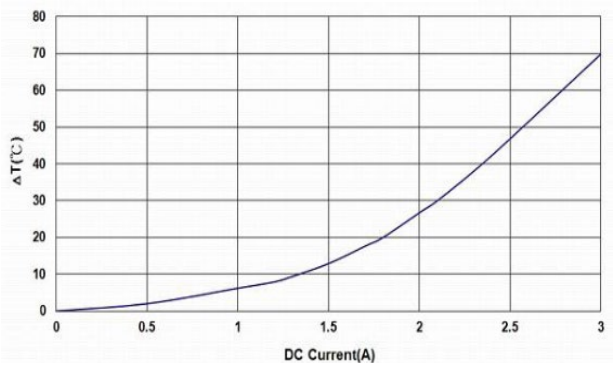
# BWVF00606020 Series Specification

## 13 Graph: BWVF00606020 Series Graph

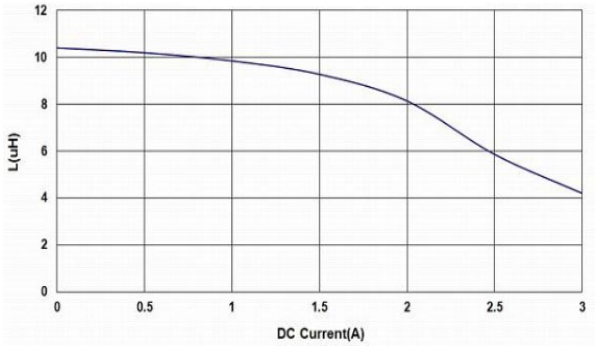
BWVF006060204R7□00



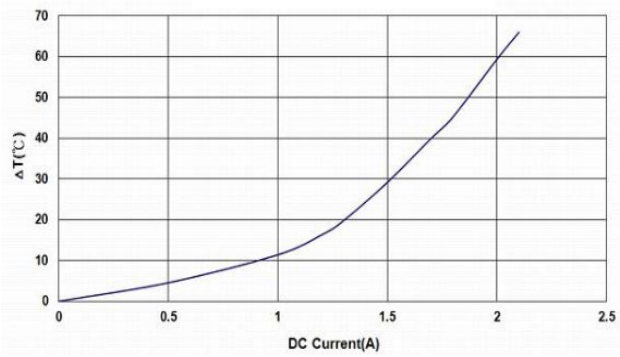

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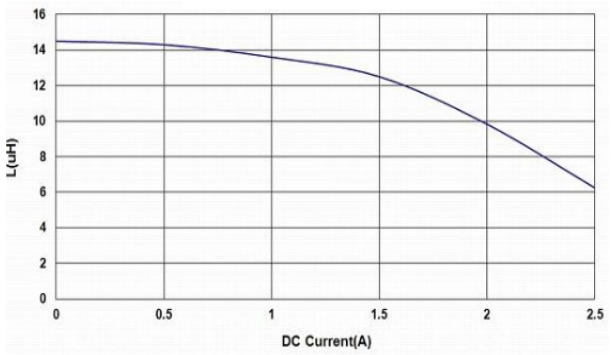

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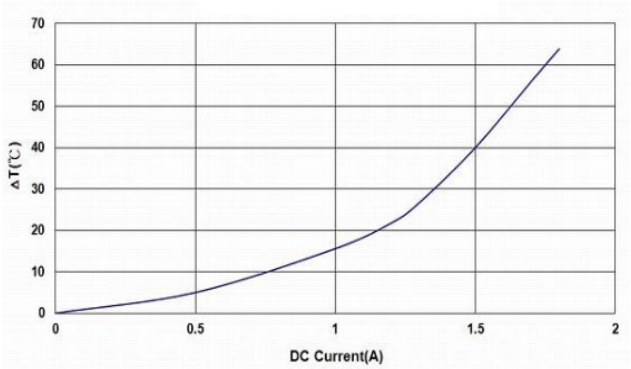

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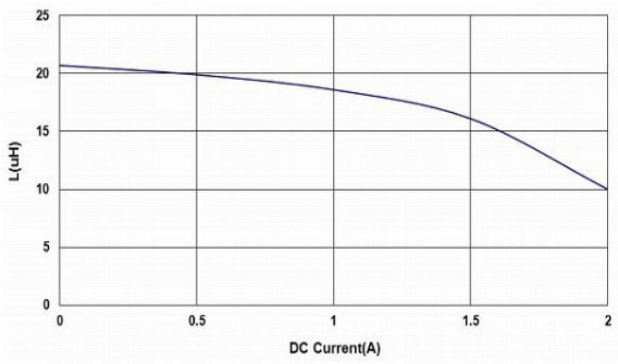

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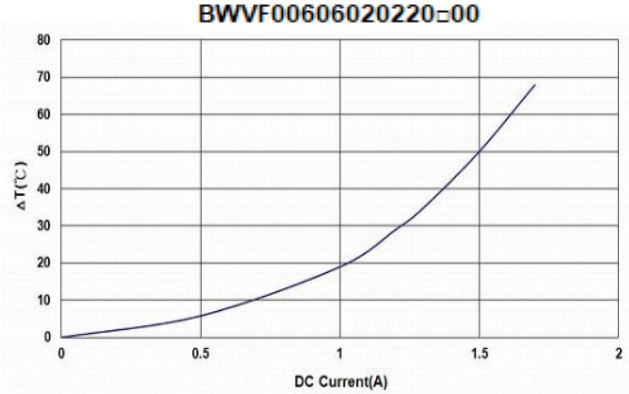

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# BWVF00606020 Series Specification

