

# Power Inductor



## BWVS Series



### Overview

BWVS 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. Low profile, miniature package size and wide inductance range
3. Low DCR and high rated current

### 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

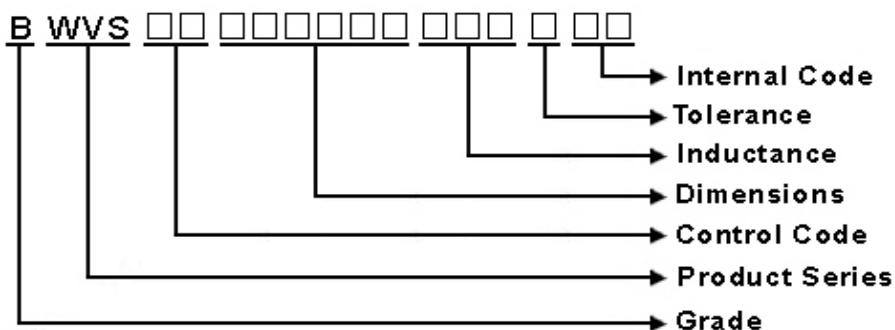
Series	L_(mm)	W(mm)	T_(mm)	Inductance ( $\mu$ H)
BWVS	3.2	2.5	1.5	0.22 ~ 1200
	3.2	2.5	1.5	
	4.0	4.0	1.2	
	4.0	4.0	1.5~2.0	
	4.0	4.0	2.6	
	5.0	5.0	1.7~2.2	
	5.0	5.0	4.0	
	5.0	5.0	3.7~4.2	
	6.0	6.0	1.7~2.2	
	6.0	6.0	2.5~3.0	
	6.0	6.0	4.2~4.7	
	6.0	6.0	4.5	
	8.0	8.0	3.7~4.2	
	8.0	8.0	4.0	



# **BWVS00404018 Series Specification**

**1 | Scope:** This specification applies to Wire Wound Power Inductors

## 2 ||Part Numbering:



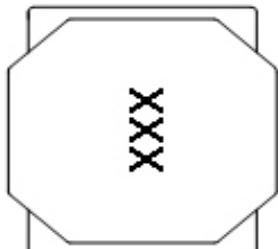
3 || Rating:

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

Storage Temperature: - 40 °C ~ 105 °C

(The storage temperature range is for after the assembly)

## 4 || Marking:



**Ex Marking : 100**

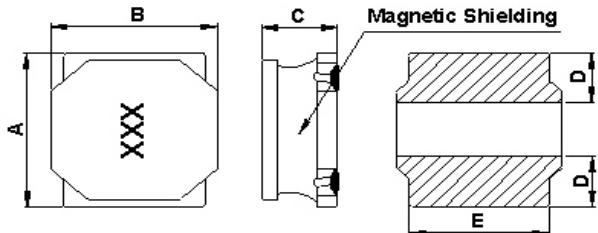
**Marking color : Black**

## 5 || Standard Testing Condition

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35°C)	20 to 30°C
Humidity	Ordinary Humidity(25 to 85% RH)	50 to 80 %RH

## BWVS00404018 Series Specification

### 6 Configuration and Dimensions:



Dimensions in mm

TYPE	404018
A	4.0 $\pm$ 0.2
B	4.0 $\pm$ 0.2
C	1.8 $^{+0.2}_{-0.3}$
D	1.3 $\pm$ 0.3
E	3.6 typ.

Net Weight (grms)

SIZE CODE	Net Weight (grms)
404018	0.112 (typ).

### 7 Electrical Characteristics:

Part No.	Inductance (uH)	Test Freq.	RDC (mΩ) $\pm$ 20%	Isat(A) Typ.(Max)	Irms(A) Typ.(Max)	Tolerance (±%)	Marking
BWVS004040181R000	1.0	100kHz,1V	32	4.10(3.69)	2.80(2.52)	20,30	1R0
BWVS004040181R5000	1.5	100kHz,1V	40	3.30(2.97)	2.60(2.34)	20,30	1R5
BWVS004040181R8000	1.8	100kHz,1V	55	2.80(2.50)	2.50(2.20)	20,30	1R8
BWVS004040182R2000	2.2	100kHz,1V	60	2.80(2.52)	2.50(2.25)	20,30	2R2
BWVS004040182R3000	2.3	100kHz,1V	60	2.80(2.52)	2.50(2.25)	20,30	2R3
BWVS004040183R3000	3.3	100kHz,1V	70	2.20(1.98)	2.10(1.89)	20,30	3R3
BWVS004040183R6000	3.6	100kHz,1V	75	2.10(1.89)	1.90(1.71)	20,30	3R6
BWVS004040183R9000	3.9	100kHz,1V	75	2.10(1.89)	1.90(1.71)	20,30	3R9
BWVS004040184R7000	4.7	100kHz,1V	90	2.00(1.80)	1.70(1.53)	20,30	4R7
BWVS004040186R8000	6.8	100kHz,1V	110	1.60(1.44)	1.50(1.35)	20,30	6R8
BWVS004040188R2000	8.2	100kHz,1V	155	1.50(1.30)	1.30(1.10)	20,30	8R2
BWVS00404018100000	10	100kHz,1V	170	1.40(1.26)	1.20(1.08)	20,30	100
BWVS00404018120000	12	100kHz,1V	240	1.20(1.08)	1.05(0.94)	20,30	120
BWVS00404018150000	15	100kHz,1V	250	1.00(0.90)	1.00(0.90)	20,30	150
BWVS00404018180000	18	100kHz,1V	340	0.94(0.84)	0.91(0.82)	20,30	180
BWVS00404018220000	22	100kHz,1V	350	0.90(0.81)	0.85(0.76)	20,30	220
BWVS00404018330000	33	100kHz,1V	530	0.80(0.72)	0.70(0.63)	20,30	330
BWVS00404018470000	47	100kHz,1V	720	0.70(0.63)	0.56(0.50)	20,30	470
BWVS00404018680000	68	100kHz,1V	1000	0.56(0.50)	0.45(0.40)	20,30	680
BWVS00404018101000	100	100kHz,1V	1500	0.46(0.41)	0.38(0.34)	20,30	101
BWVS00404018121000	120	100kHz,1V	1600	0.38(0.34)	0.36(0.32)	20,30	121
BWVS00404018151000	150	100kHz,1V	2500	0.35(0.31)	0.30(0.27)	20,30	151
BWVS00404018221000	220	100kHz,1V	4000	0.28(0.25)	0.23(0.20)	20,30	221

NOTE: □-tolerance M=±20% / T=±30%

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

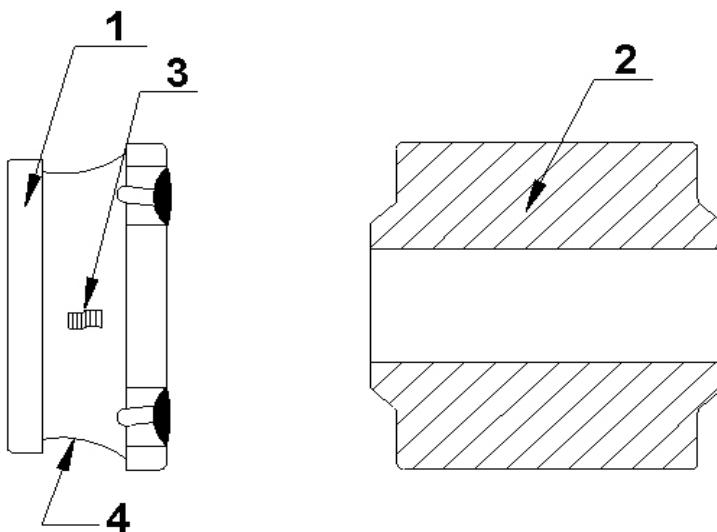
2.Isat for Inductance drop 30% from its value without current.

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

## BWVS00404018 Series Specification

### 8 | BWVS00404018 Series

#### 8.1 Construction:



#### 8.2 Material List:

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

## BWVS00404018 Series Specification

### 9 Reliability Of Wire Wound Power Inductors

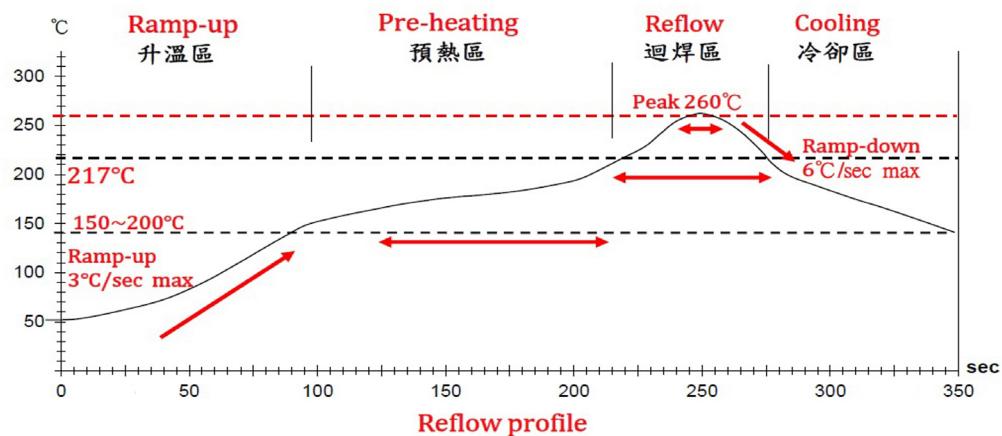
#### 1-1.Mechanical Performance

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 Total Amplitude:1.5mm 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 per-Heating:150°C±10°C/1min to 2min solder Temperature:245°C±5°C Immersion Time:4s±1s
1-1-3	Resistance to Soldering Heat	Appearance:No damage	Solder:Sn/Ag3.0/Cu0.5 per-Heating:150°C±10°C/1min to 2min solder Temperature:260°C±5°C Immersion Time:10s±1s

#### 1-2.Environmental Performance

No	Item	Specification	Test Method															
1-2-1	Heat Resistance	Appearance: No damage Inductance Change:within±10%	Temperature:125°C±3°C Time:1000hrs Then measured after exposure in the room Condition for 24h±2h															
1-2-2	Cold Resistance		Temperature: -55°C±3°C Time:1000hrs Then measured after exposure in the room Condition for 24h±2h															
1-2-3	Humidity		Temperature: 40°C±2°C Humidity:90%(RH) to 95%(RH) Time:1000hrs Then measures after exposure in the room Condition for 24h±2h															
1-2-4	Temperature Cycle		One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55±3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25±2</td> <td>3</td> </tr> <tr> <td>3</td> <td>125±3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25±2</td> <td>3</td> </tr> </tbody> </table> Total: 100cycles Measured after exposure in the room condition for 24hrs	Step	Temperature (°C)	Time (min)	1	-55±3	30	2	25±2	3	3	125±3	30	4	25±2	3
Step	Temperature (°C)	Time (min)																
1	-55±3	30																
2	25±2	3																
3	125±3	30																
4	25±2	3																

## BWVS00404018 Series Specification



### 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	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 :

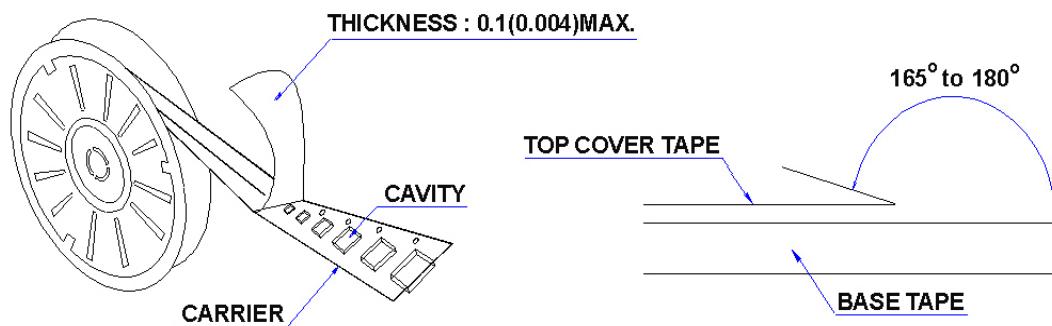
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow
3. Products can only be soldered with reflow

## BWVS00404018 Series Specification

### 10 | Packaging:

#### 10.1 Packaging -Cover Tape

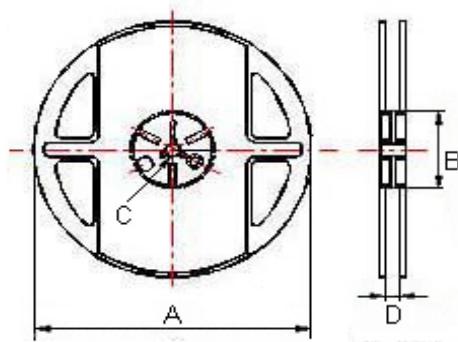
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



#### 10.2 Packaging Quantity

TYPE	PCS/REEL
404018	800

#### 10.3 Reel Dimensions



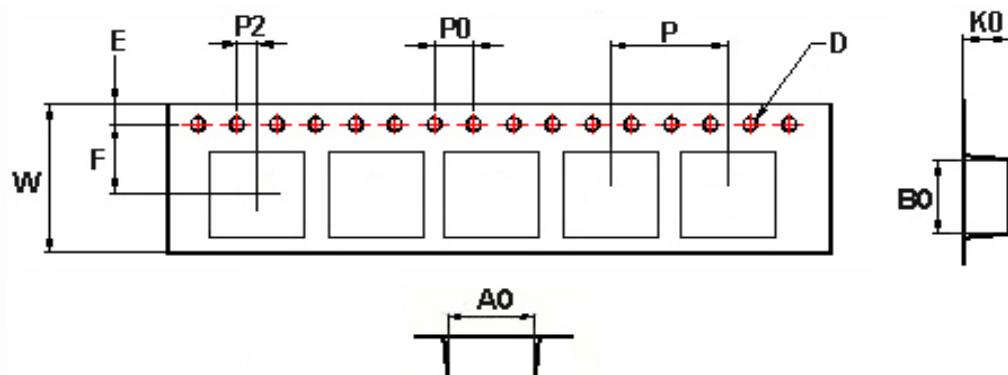
Dimensions in mm

TYPE	A	B	C	D
404018	178	60	13	13.2

## BWVS00404018 Series Specification

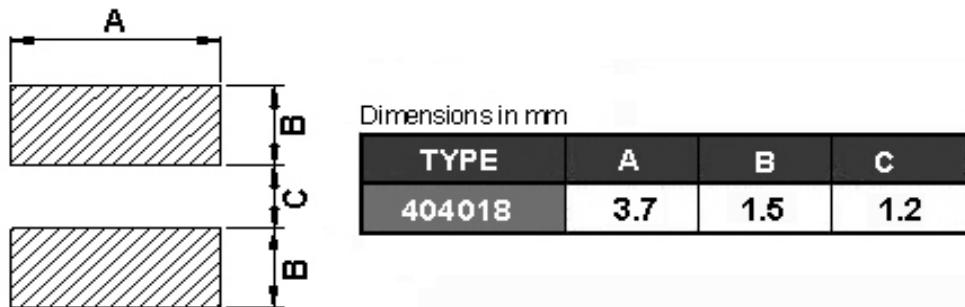
### 10 Packaging:

#### 10.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	F	W	P	P0	P2
404018	4.25	4.25	2.1	1.55	1.75	5.5	12	8	4	2

### 11 Recommended Land Pattern:



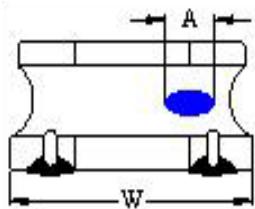
### 12 Note:

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. 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.

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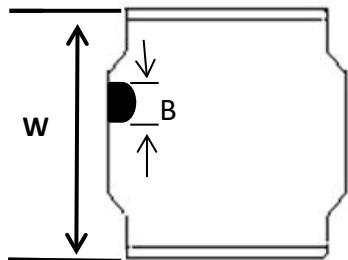
### 12 Note:

7. Void Appearance tolerance Limit



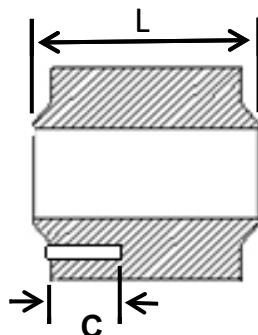
**Exposed wire tolerance limit of coating resin part on product side.**  
The unilateral should be no more than two holes.

$A \leq W/2$  GOOD  
 $A > W/2$  NG



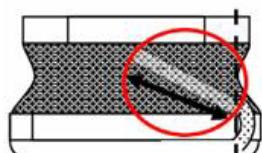
**The appearance standard pf the chipping size in top side.**

$B \leq W/8$  GOOD  
 $B > W/8$  NG



**Electrode appearance criterion for exposed wire.**

$C \leq L/4$  GOOD  
 $C > L/4$  NG

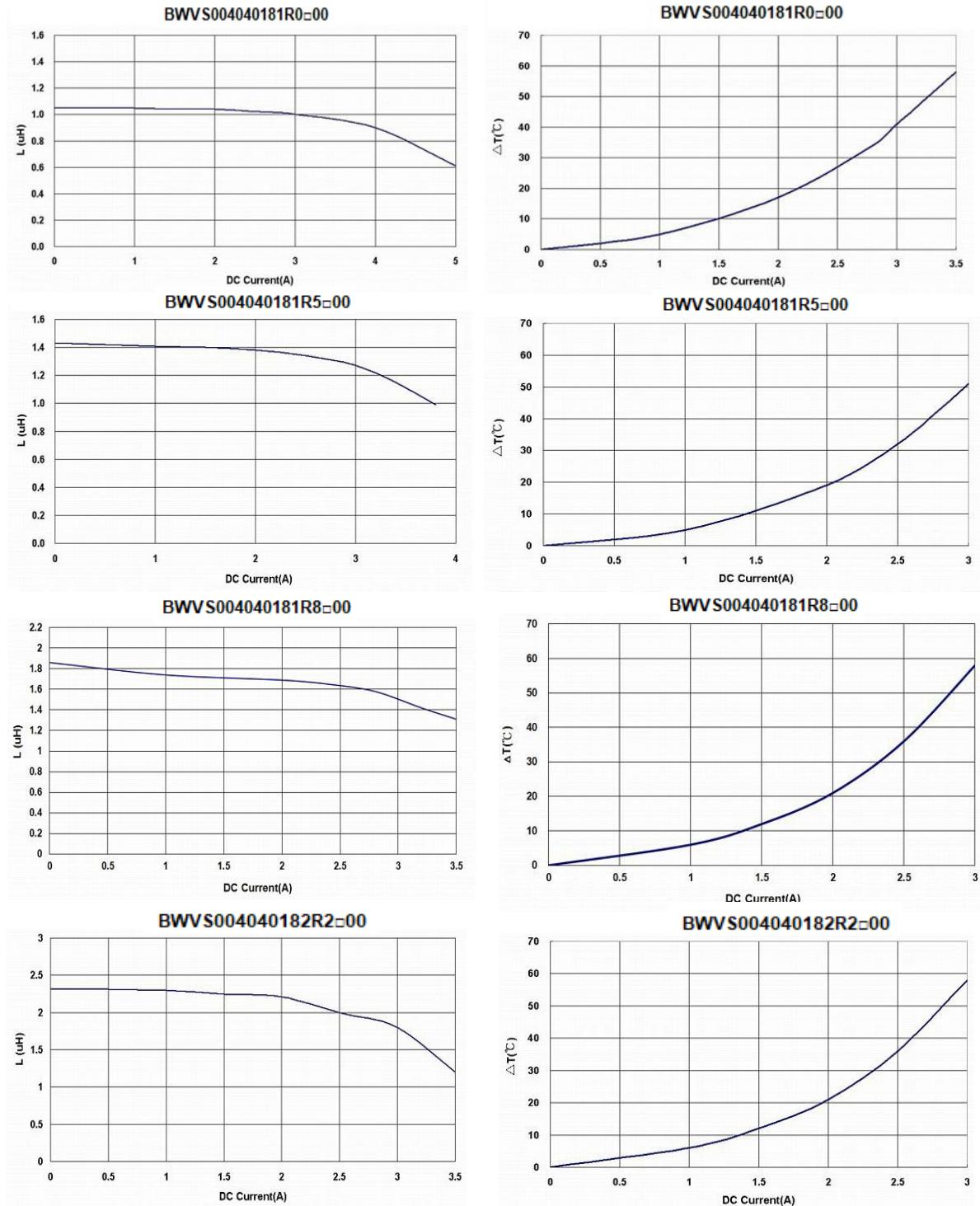


**External appearance criterion for exposed wire**

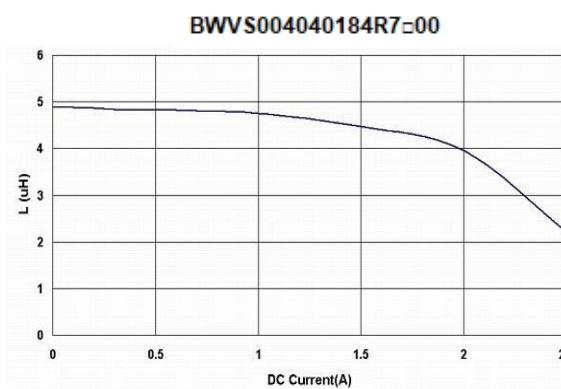
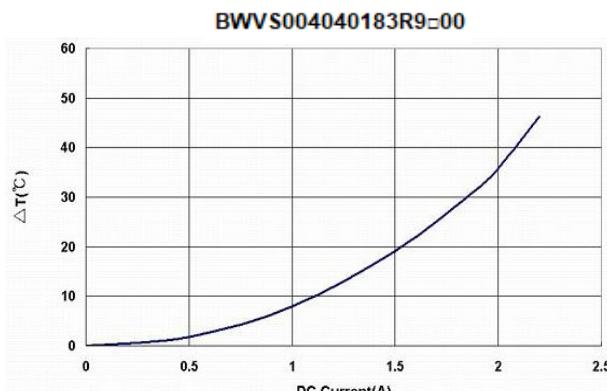
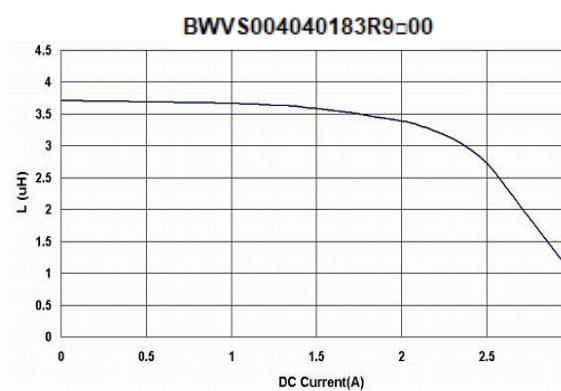
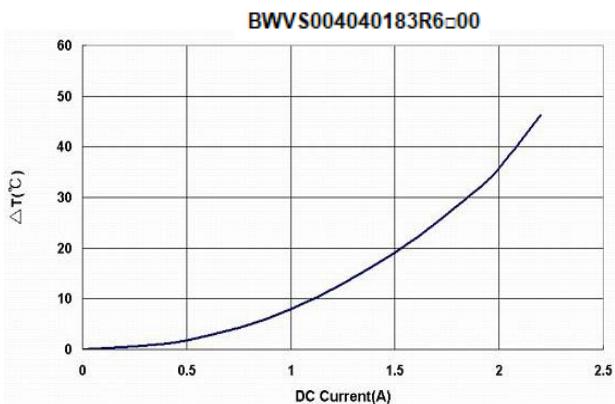
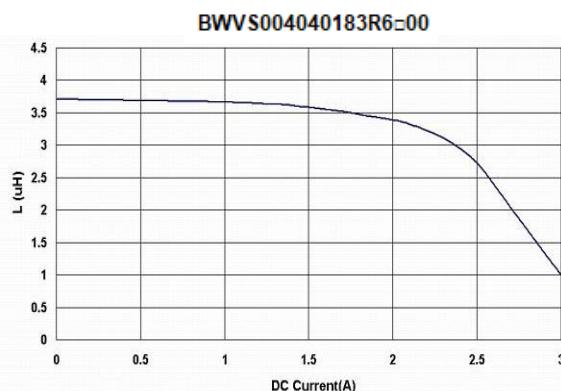
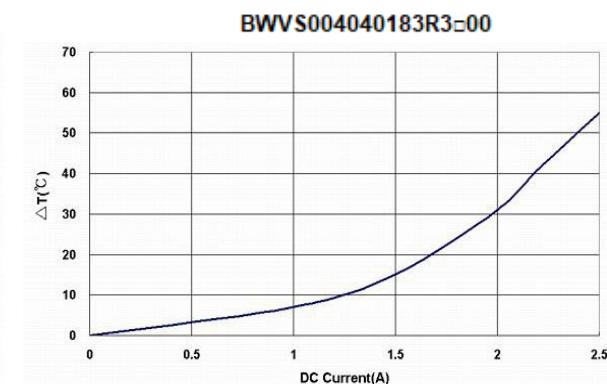
Exposed end of the winding wire at the side should be acceptable.

## BWVS00404018 Series Specification

### 13 Graph: BWVS00404018 Series Graph

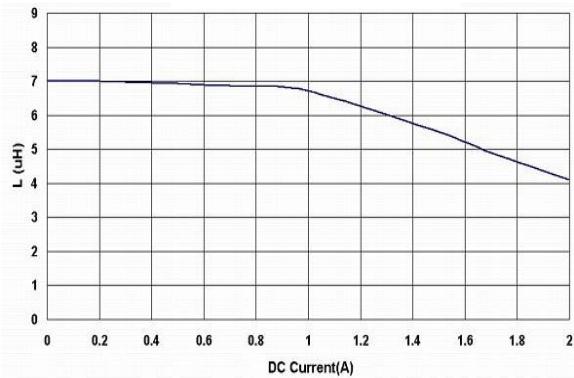


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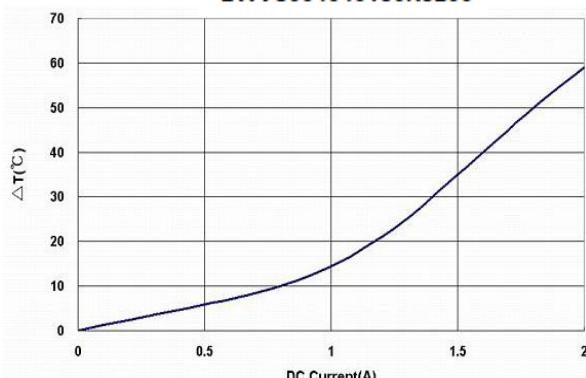


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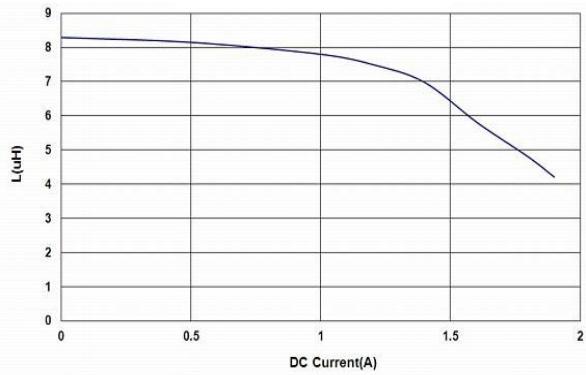
**BWVS004040186R8±00**



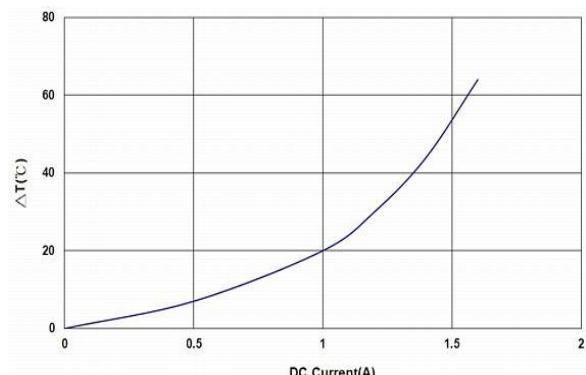
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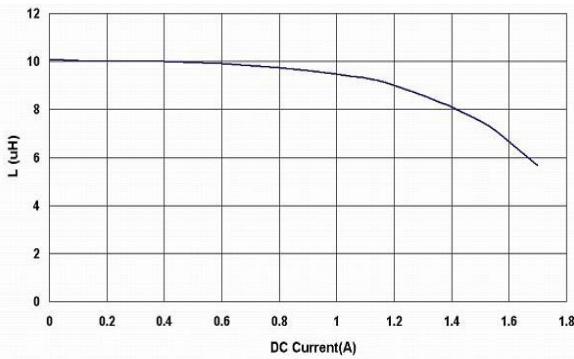
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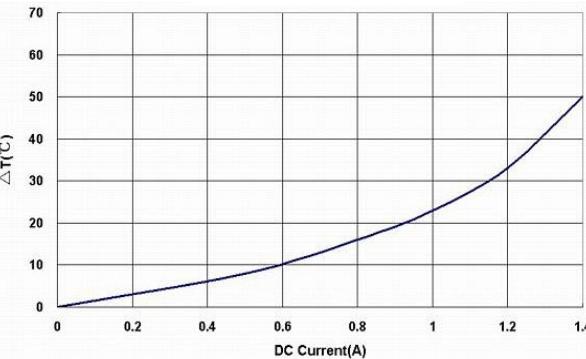
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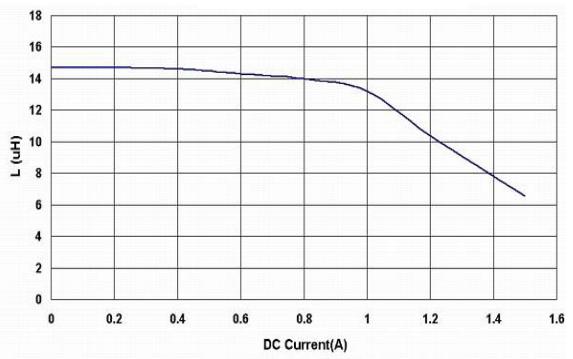
**BWVS00404018100±00**



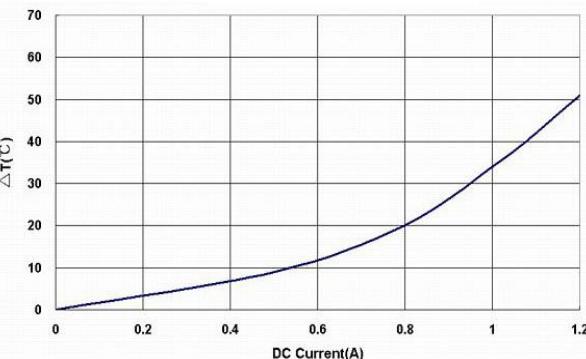
**BWVS00404018100±00**



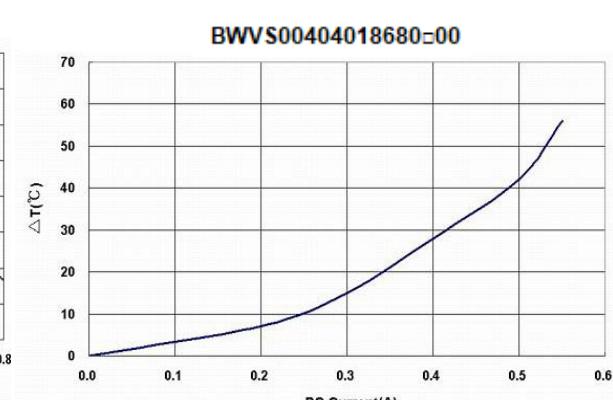
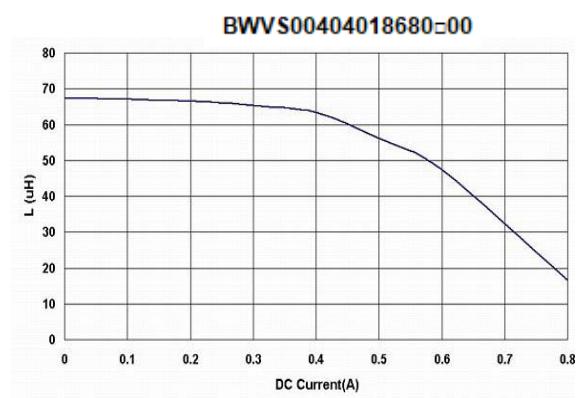
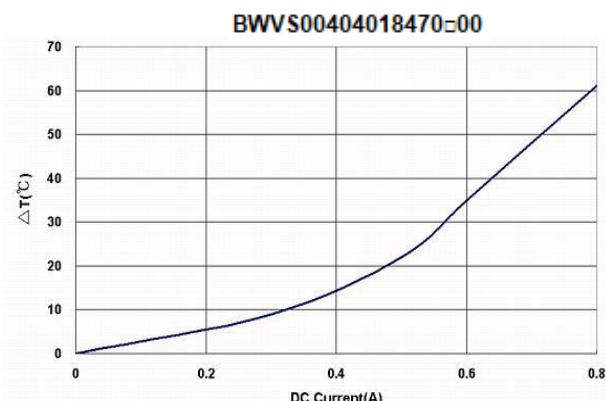
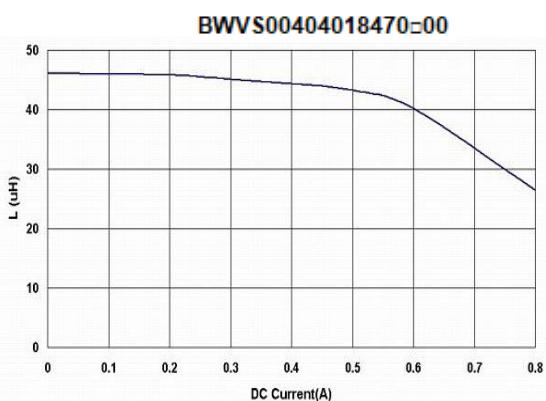
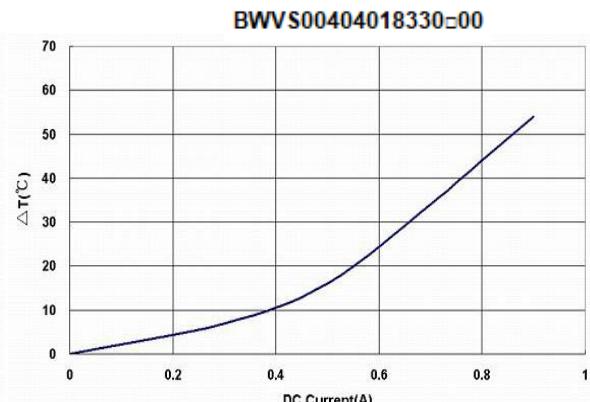
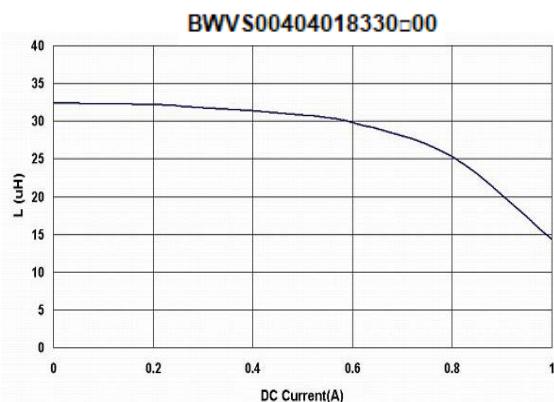
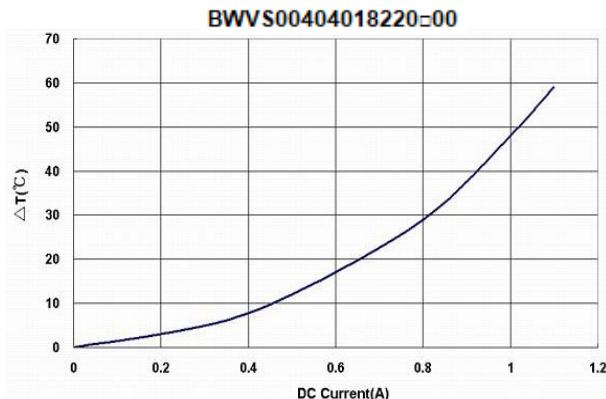
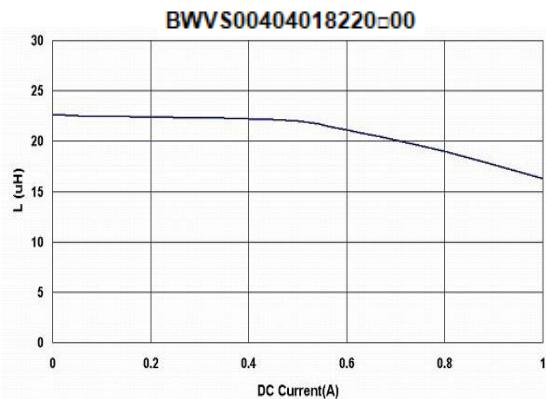
**BWVS00404018150±00**



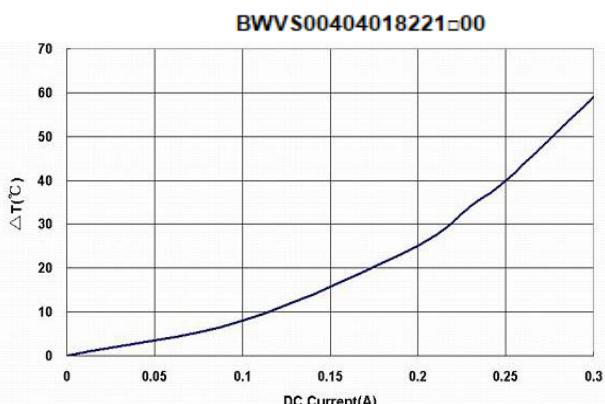
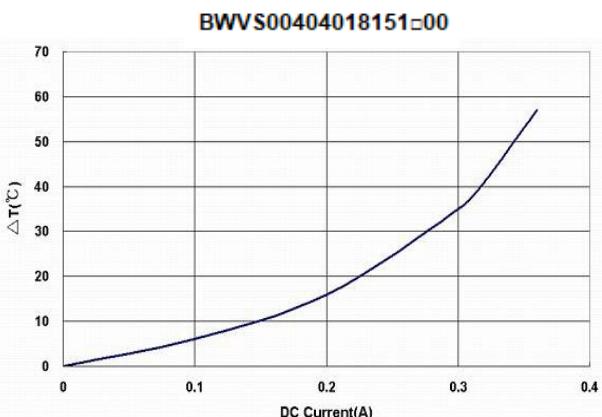
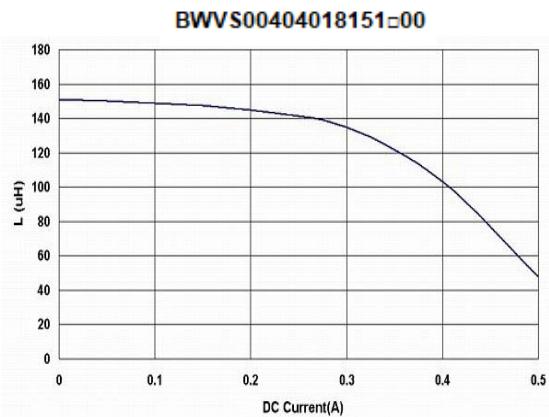
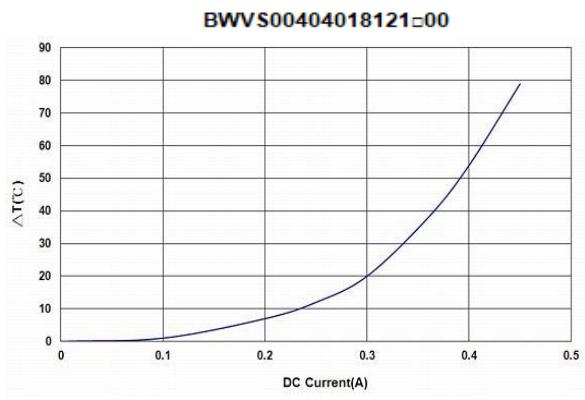
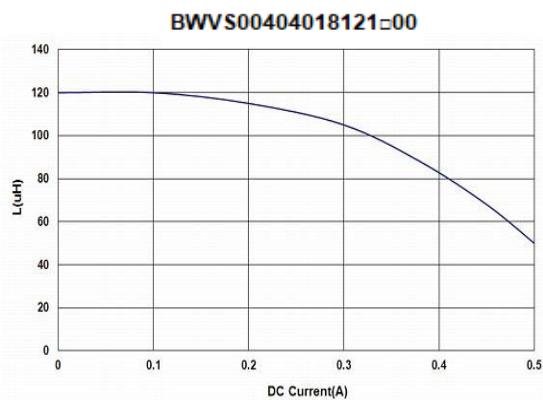
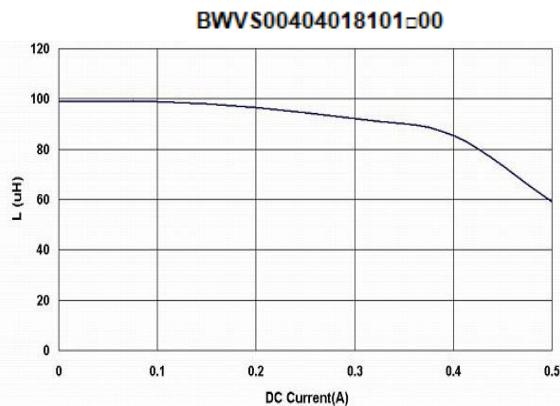
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## BWVS00404018 Series Specification

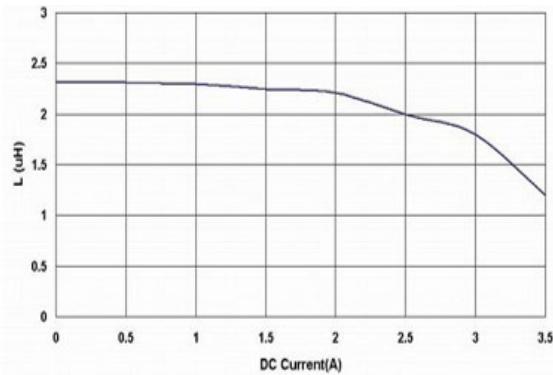


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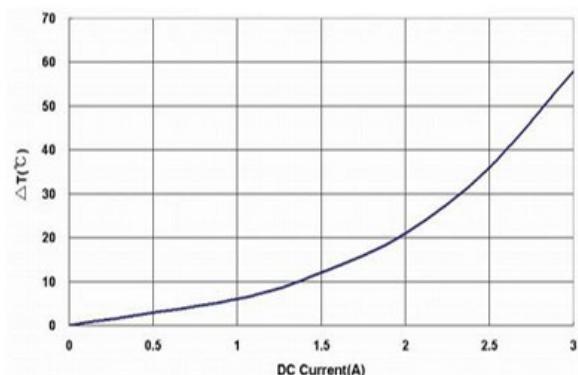


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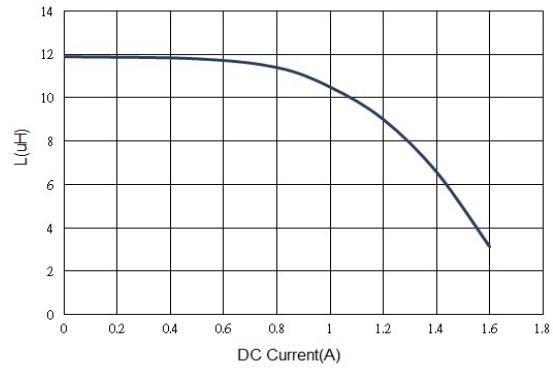
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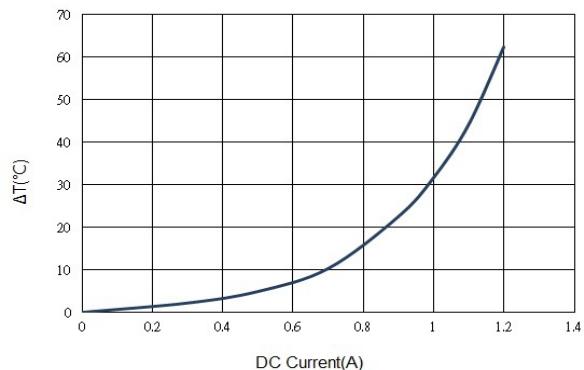
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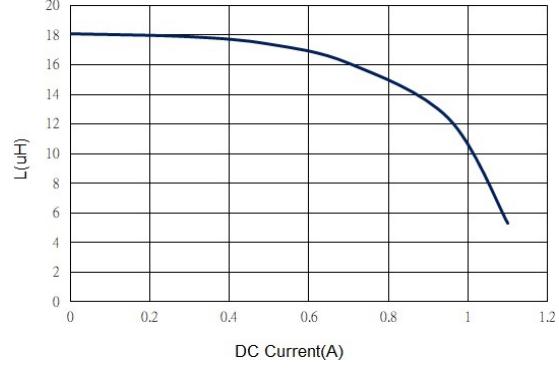
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**BWVS00404018120□00**



**BWVS00404018180□00**



**BWVS00404018180□00**

