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

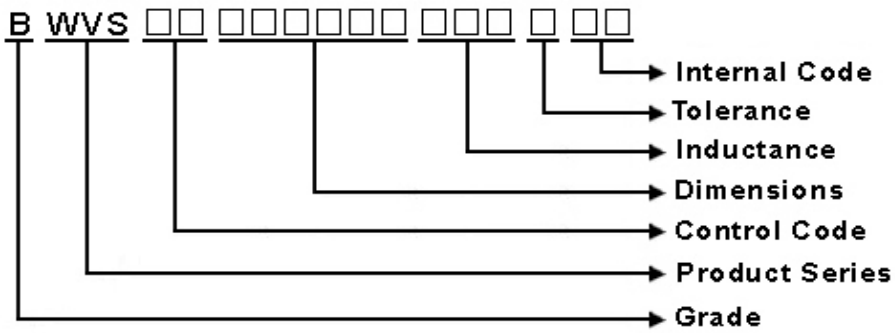
Product Information

Series	L (mm)	W(mm)	T (mm)	Inductance (μH)
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	

BWVS00808040 Series Specification

1 Scope: This specification applies to Wire Wound Power Inductors

2 Part Numbering:



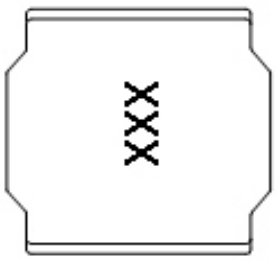
3 Rating:

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

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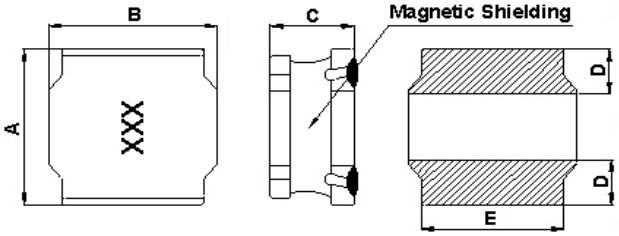
6 Configuration and Dimensions:



Dimensions in mm

TYPE	808040
A	8.0±0.2
B	8.0±0.2
C	$4.0^{+0.2}_{-0.3}$
D	2.3±0.3
E	6.3 typ.

Net Weight (grms)

SIZE CODE	Net Weight (grms)
808040	0.992 (typ).

7 Electrical Characteristics:

Part No.	Inductance (uH)	Test Freq.	RDC (mΩ)±30%	Isat(A) Typ.(Max)	Irms(A) Typ.(Max)	Tolerance (±%)	Marking
BWVS00808040R90□00	0.9	100kHz,1V	7	13.8(12.42)	8.05(7.24)	30	R90
BWVS008080401R0□00	1.0	100kHz,1V	7.5	13.0(11.70)	7.95(7.15)	30	1R0
BWVS008080401R4□00	1.4	100kHz,1V	9	10.8(9.72)	7.80(7.02)	30	1R4
BWVS008080401R5□00	1.5	100kHz,1V	9.5	10.0(9.00)	7.70(6.93)	20,30	1R5
BWVS008080402R0□00	2.0	100kHz,1V	11	9.60(8.64)	7.40(6.66)	20,30	2R0
BWVS008080402R2□00	2.2	100kHz,1V	11.5	9.20(8.28)	7.20(6.48)	20,30	2R2
BWVS008080402R5□00	2.5	100kHz,1V	13	8.20(7.38)	6.30(5.67)	20,30	2R5
BWVS008080403R3□00	3.3	100kHz,1V	15	7.50(6.75)	6.00(5.40)	20,30	3R3
BWVS008080403R6□00	3.6	100kHz,1V	18	7.00(6.30)	5.50(4.90)	20,30	3R6
BWVS008080403R9□00	3.9	100kHz,1V	18	6.10(5.40)	5.50(4.90)	20,30	3R9
BWVS008080404R7□00	4.7	100kHz,1V	18	6.00(5.40)	5.50(4.95)	20,30	4R7
BWVS008080405R6□00	5.6	100kHz,1V	23	5.70(5.13)	5.20(4.68)	20,30	5R6
BWVS008080406R8□00	6.8	100kHz,1V	25	5.40(4.86)	5.10(4.59)	20,30	6R8
BWVS00808040100□00	10	100kHz,1V	38	4.30(3.87)	3.80(3.42)	20,30	100
BWVS00808040120□00	12	100kHz,1V	45	3.80(3.42)	3.50(3.15)	20,30	120
BWVS00808040150□00	15	100kHz,1V	50	3.60(3.24)	3.20(2.88)	20,30	150
BWVS00808040180□00	18	100kHz,1V	68	3.10(2.79)	2.70(2.43)	20,30	180
BWVS00808040220□00	22	100kHz,1V	80	2.80(2.52)	2.60(2.34)	20,30	220
BWVS00808040330□00	33	100kHz,1V	110	2.30(2.07)	2.00(1.80)	20,30	330
BWVS00808040470□00	47	100kHz,1V	160	1.90(1.71)	1.75(1.57)	20,30	470
BWVS00808040510□00	51	100kHz,1V	180	1.90(1.71)	1.70(1.53)	20,30	510
BWVS00808040680□00	68	100kHz,1V	240	1.70(1.53)	1.45(1.30)	20,30	680
BWVS00808040101□00	100	100kHz,1V	340	1.40(1.26)	1.10(0.99)	20,30	101
BWVS00808040121□00	120	100kHz,1V	425	1.10(0.99)	1.00(0.90)	20,30	121
BWVS00808040151□00	150	100kHz,1V	480	1.00(0.90)	0.90(0.81)	20,30	151

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.

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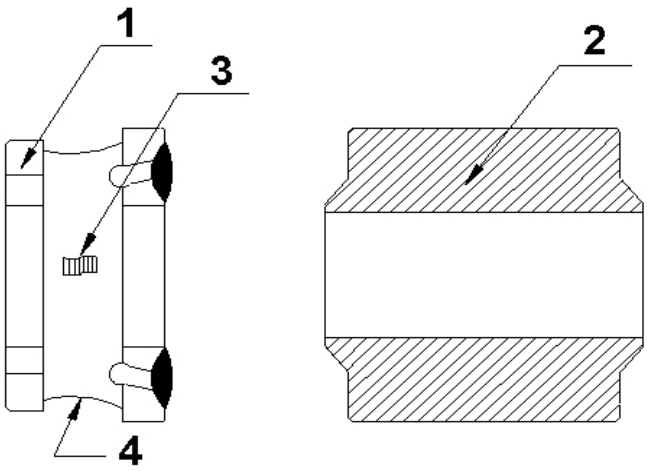
Part No.	Inductance (uH)	Test Freq.	RDC (mΩ)±30%	Isat(A) Typ.(Max)	Irms(A) Typ.(Max)	Tolerance (±%)	Marking
BWVS00808040181□00	180	100kHz,1V	650	0.98(0.88)	0.70(0.63)	20,30	181
BWVS00808040221□00	220	100kHz,1V	670	0.94(0.84)	0.60(0.54)	20,30	221
BWVS00808040271□00	270	100kHz,1V	900	0.83(0.74)	0.55(0.49)	20,30	271
BWVS00808040331□00	330	100kHz,1V	1600	0.80(0.72)	0.46(0.41)	20,30	331
BWVS00808040471□00	470	100kHz,1V	1800	0.70(0.63)	0.40(0.36)	20,30	471
BWVS00808040821□00	820	100kHz,1V	2800	0.40(0.36)	0.38(0.34)	20,30	821
BWVS00808040102□00	1000	100kHz,1V	4100	0.46(0.41)	0.29(0.26)	20,30	102

BWVS00808040 Series Specification

8 BWVS00808040 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

BWVS00808040 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℃±10℃/1min to 2min solder Temperature:245℃±5℃ Immersion Time:4s±1s
1-1-3	Resistance to Soldering Heat	Appearance:No damage	Solder:Sn/Ag3.0/Cu0.5 per-Heating:150℃±10℃/1min to 2min solder Temperature:260℃±5℃ Immersion Time:10s±1s

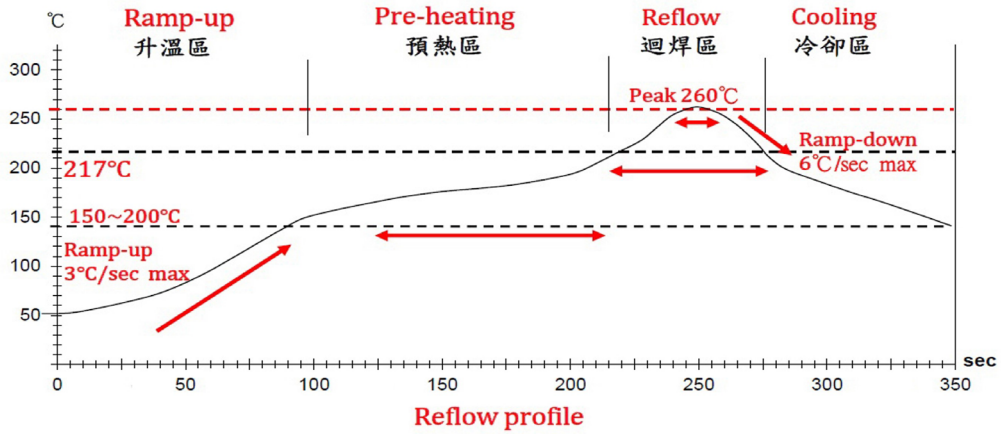
1-2.Environmental Performance

No	Item	Specification	Test Method
1-2-1	Heat Resistance	Appearance: No damage Inductance Change:within±10%	Temperature:125℃±3℃ Time:1000hrs Then measured after exposure in the room Condition for 24h±2h
1-2-2	Cold Resistance		Temperature: -55℃±3℃ Time:1000hrs Then measured after exposure in the room Condition for 24h±2h
1-2-3	Humidity		Temperature: 40℃±2℃ 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:

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

BWVS00808040 Series Specification



Reflow profile

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℃	150℃ ~ 200℃	Above 217℃	260±5℃	Peak Temp.~150℃
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 :

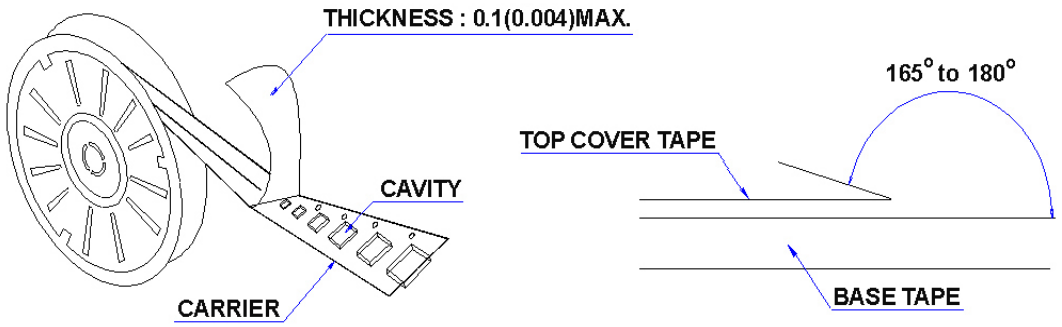
1. **Re-flow possible times : within 2 times**
2. **Nitrogen adopted is recommended while in re-flow**
3. **Products can only be soldered with reflow**

BWVS00808040 Series Specification

10 Packaging:

10.1 Packaging -Cover Tape

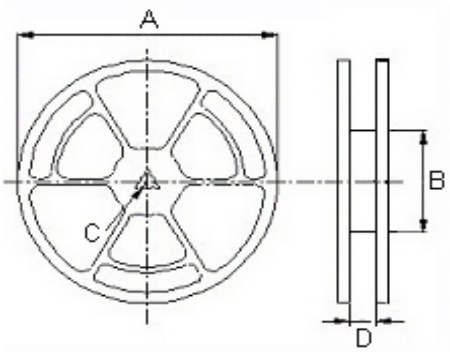
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
808040	1000

10.3 Reel Dimensions



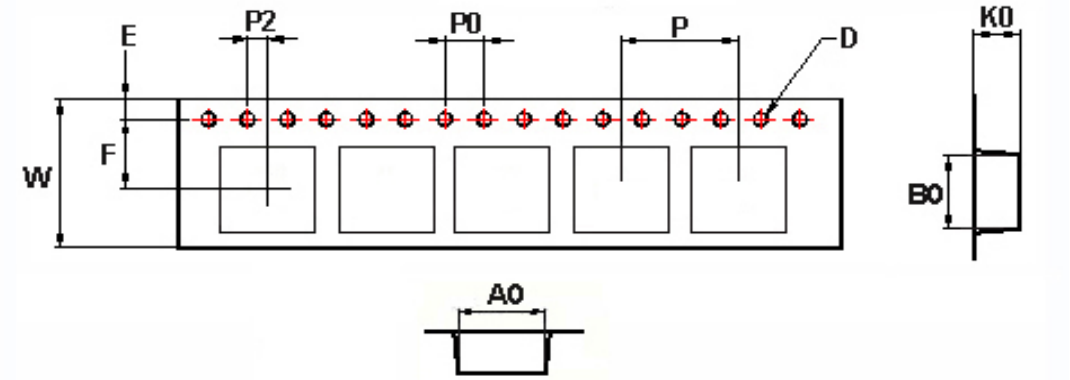
Dimensions in mm

TYPE	A	B	C	D
808040	330	100	13	16

BWVS00808040 Series Specification

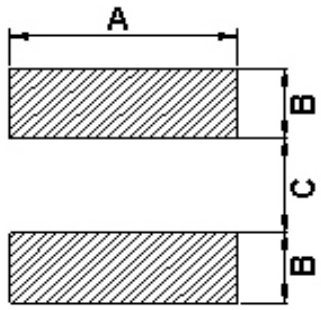
10 Packaging:

10.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	F	W	P	P0	P2
808040	8.25	8.25	4.15	1.55	1.75	7.5	16	12	4	2

11 Recommended Land Pattern:



Dimensions in mm

TYPE	A	B	C
808040	7.5	2.5	3.4

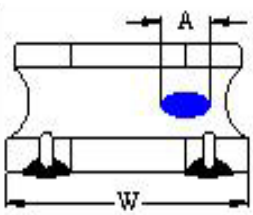
12 Note:

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.

BWVS00808040 Series Specification

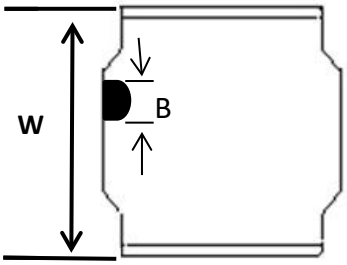
12 Note:

7. Void Appearance tolerance Limit



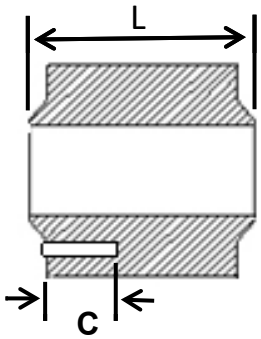
Exposed wire tolerance limit of coating resin part on product side.
The unilateral should be no more than two holes.

A≦ W/2	GOOD
A> W/2	NG



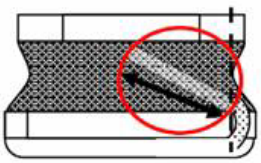
The appearance standard pf the chipping size in top side.

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.

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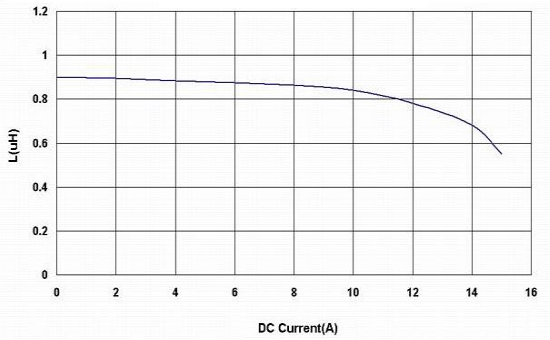
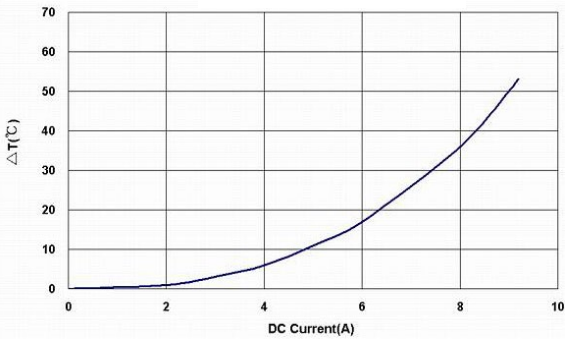
13 Graph: BWVS00808040 Series Graph

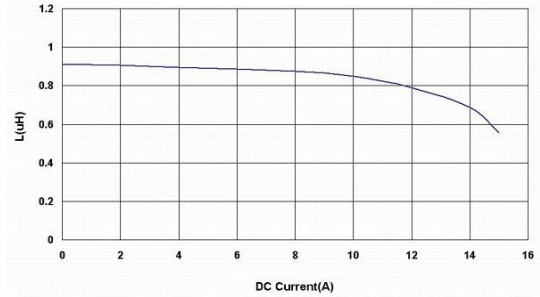
BWVS00808040R90□00



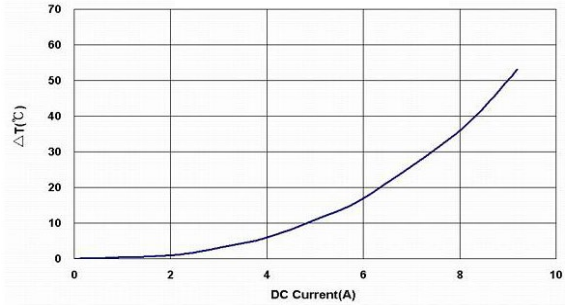
BWVS00808040R90□00



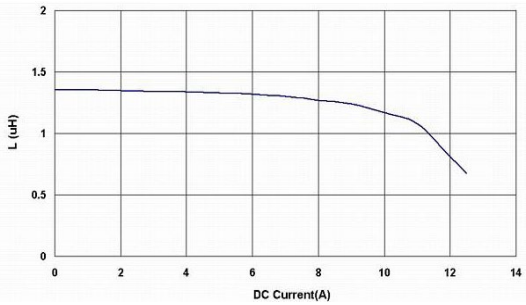
BWVS008080401R0□00



BWVS008080401R0□00



BWVS008080401R4□00



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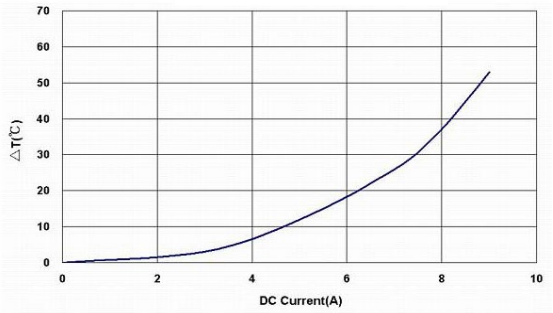

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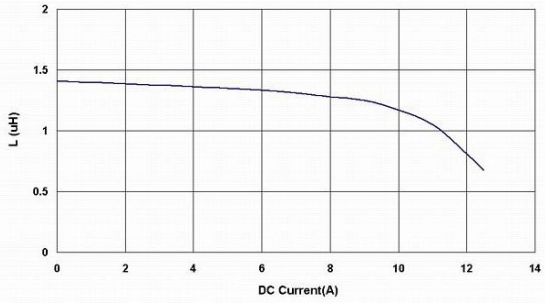

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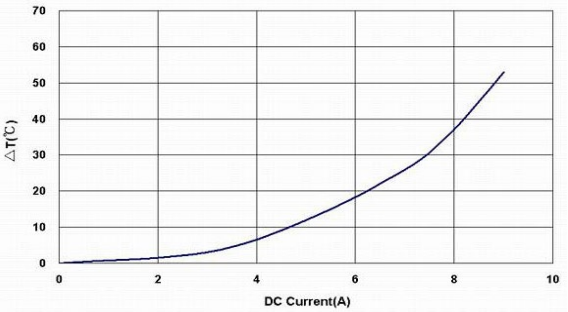

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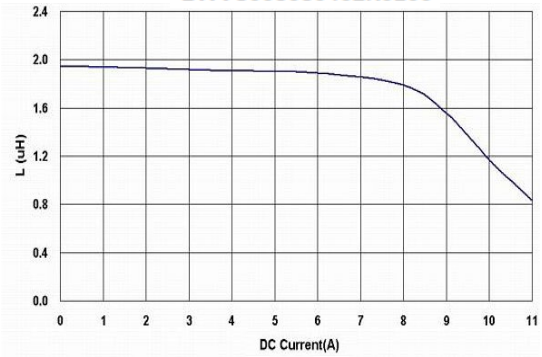
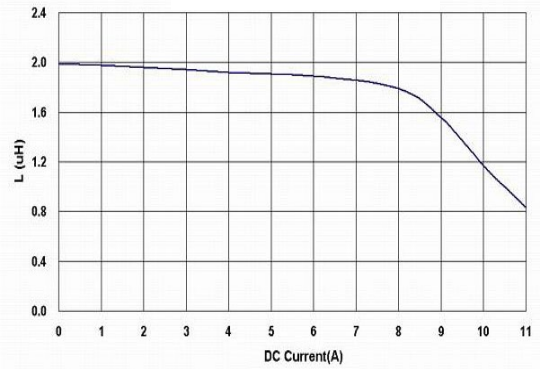
BWVS008080402R0□00



BWVS008080402R0□00

BWVS008080402R2□00



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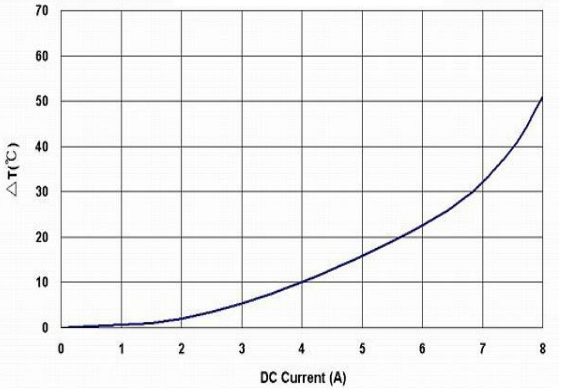

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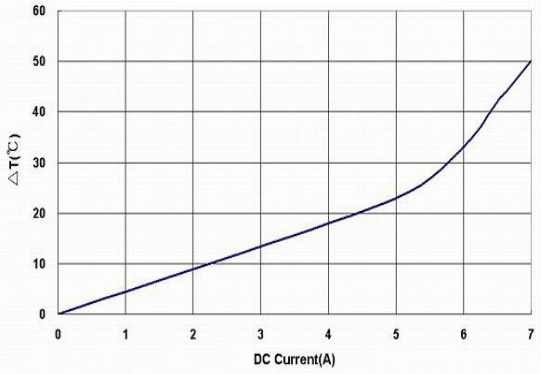
BWVS008080402R5□00



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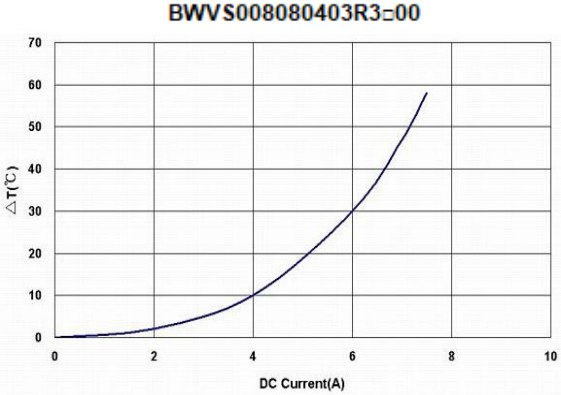
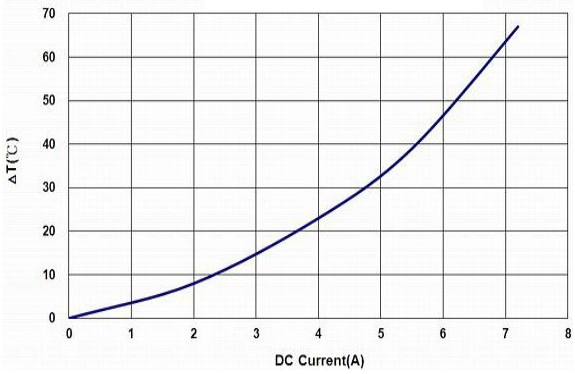
BWVS008080403R3□00



BWVS00808040 Series Specification

BWVS008080403R9□00

BWVS008080403R9□00



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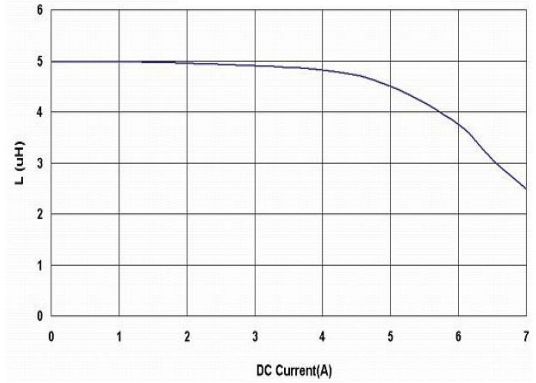

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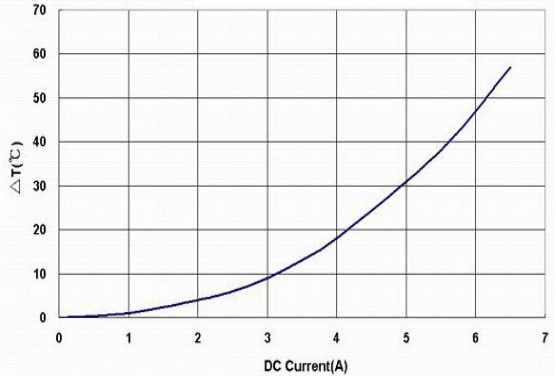

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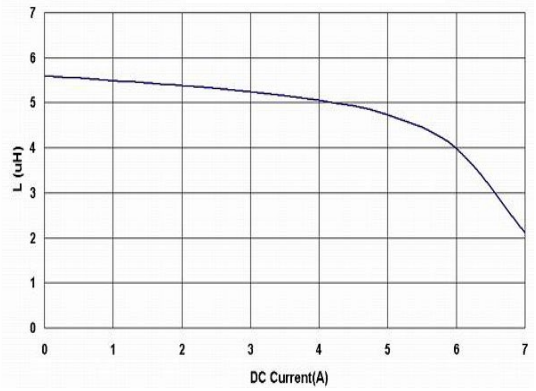

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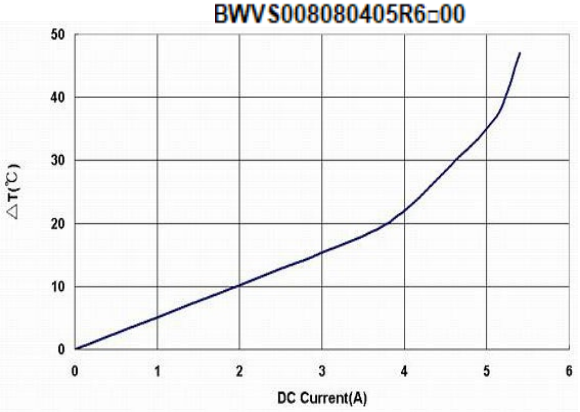

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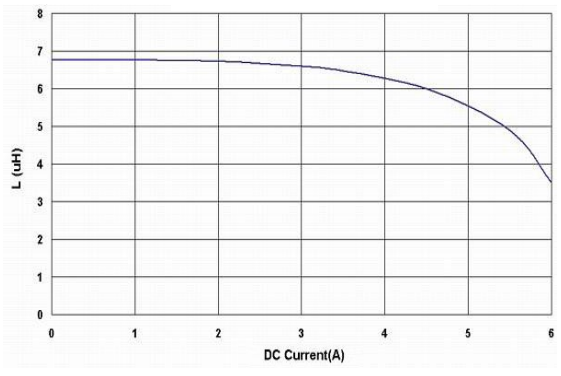

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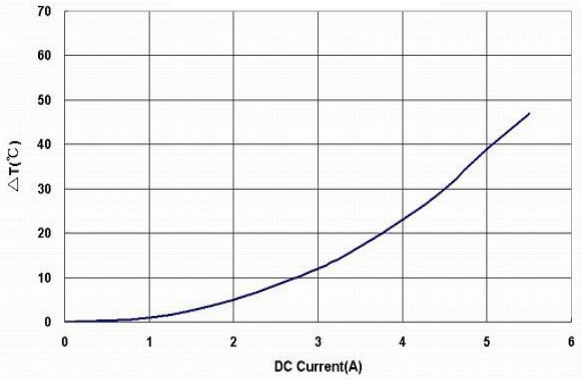
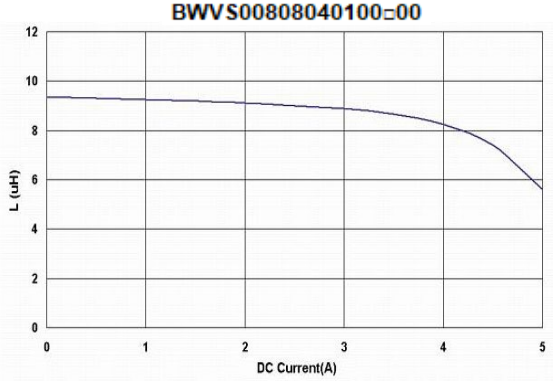


BWVS00808040 Series Specification

BWVS00808040100□00



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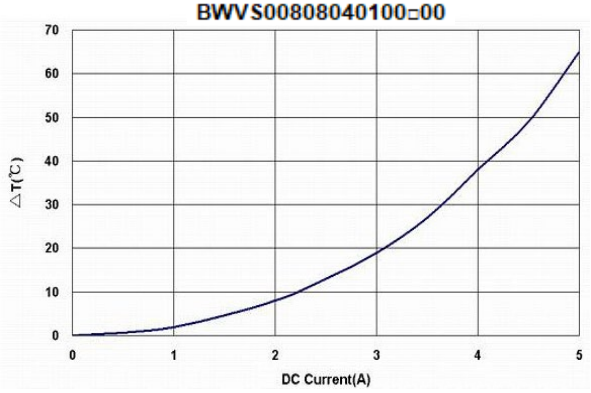

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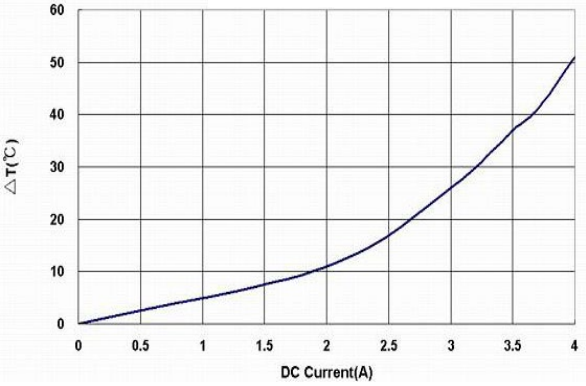

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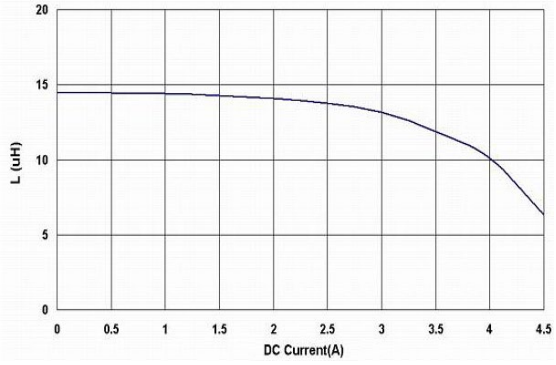

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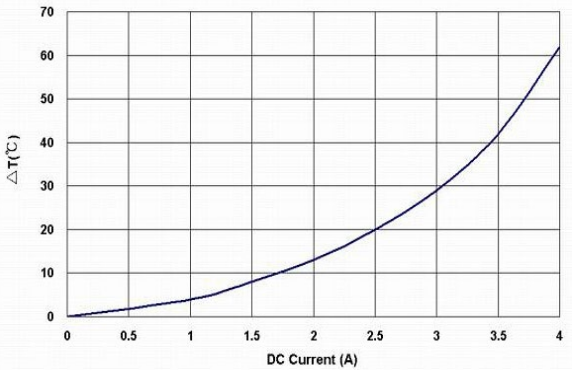

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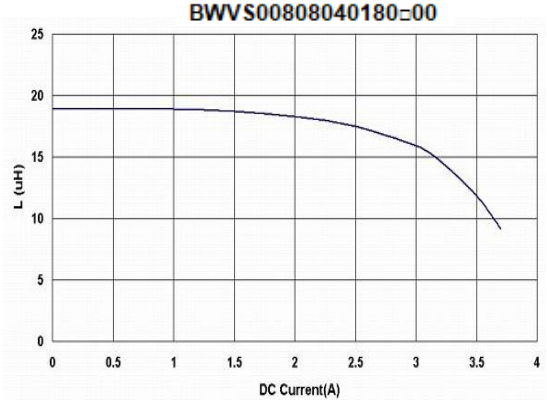

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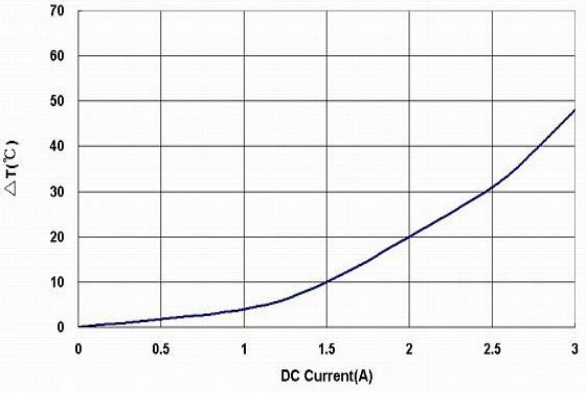

BWVS00808040 Series Specification

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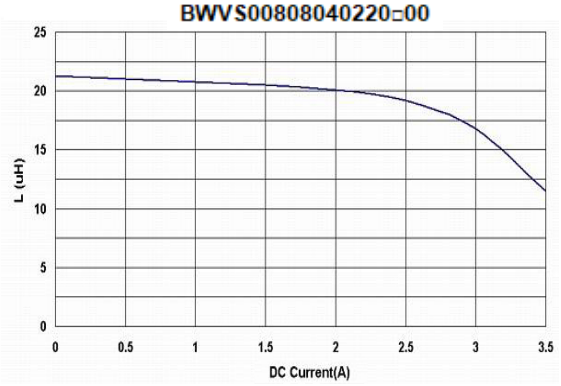

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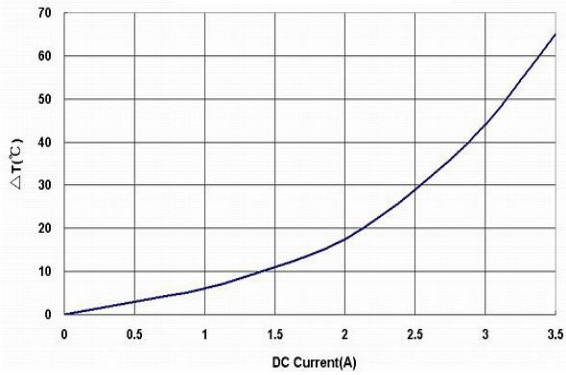

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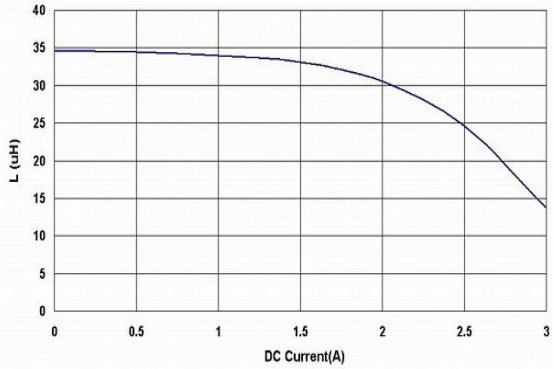

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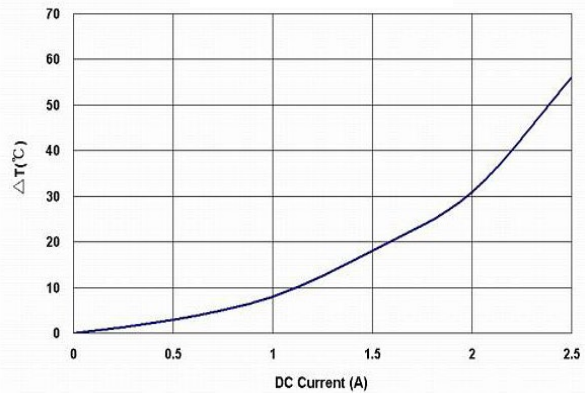

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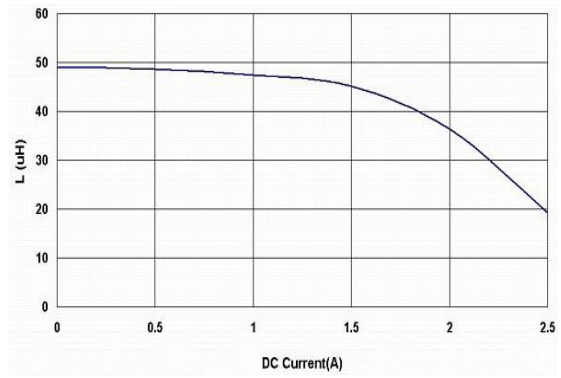

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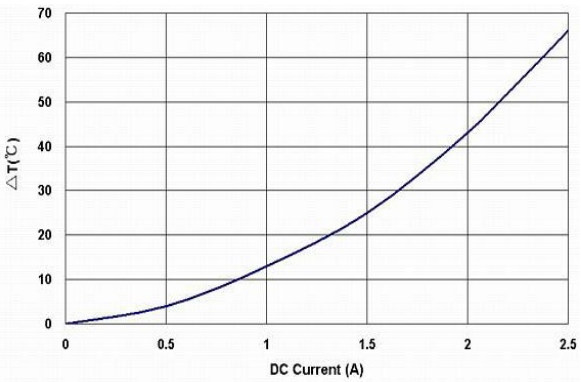

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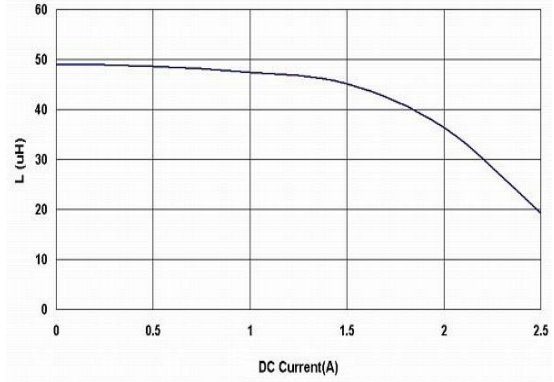

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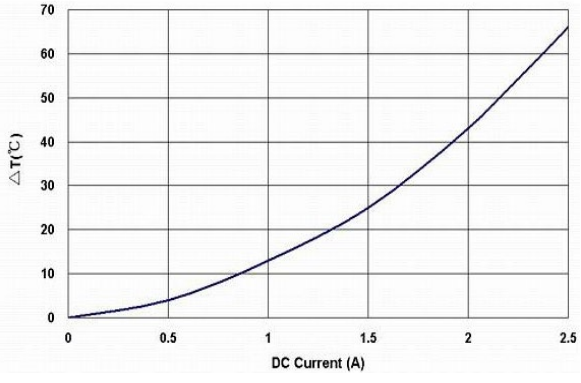

BWVS00808040 Series Specification

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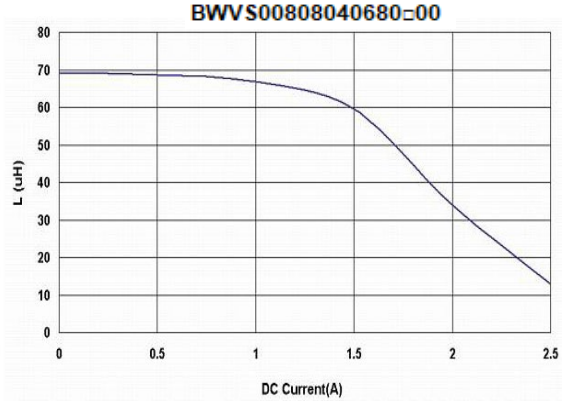

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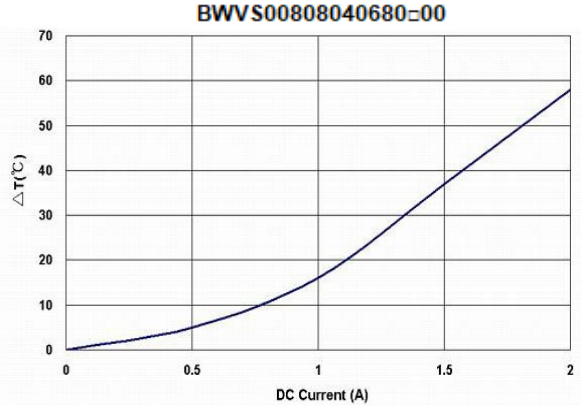

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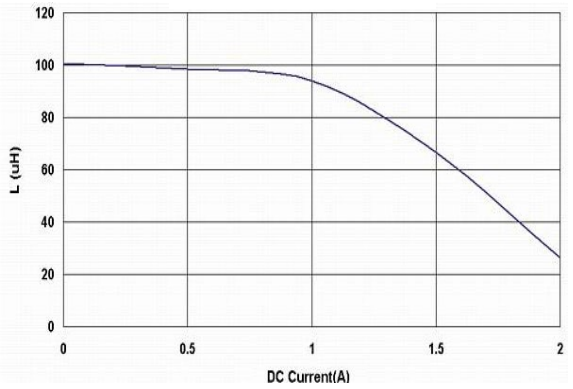

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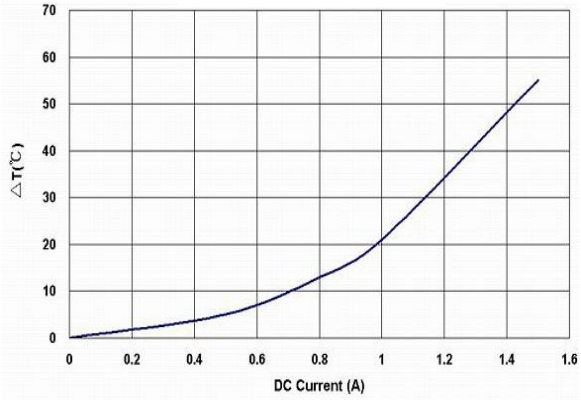

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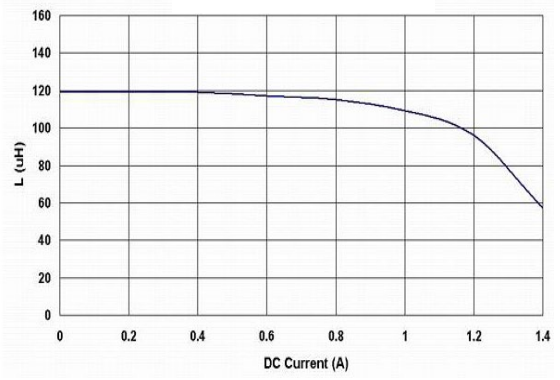

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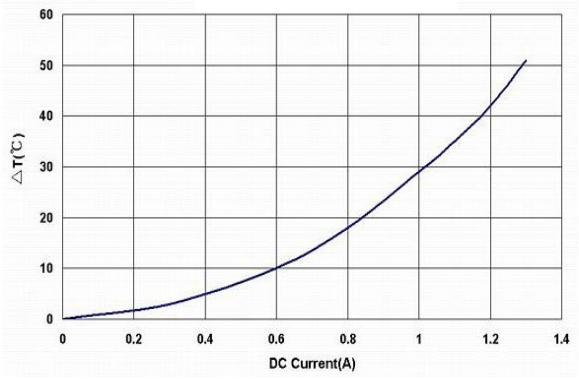

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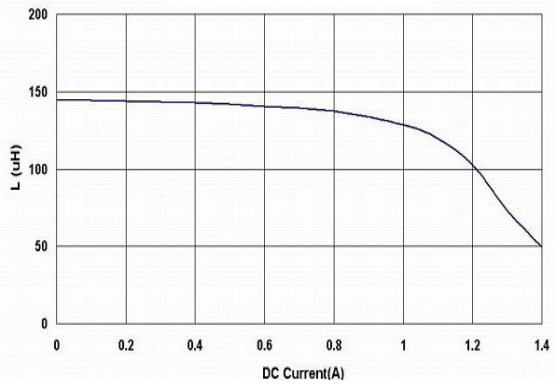

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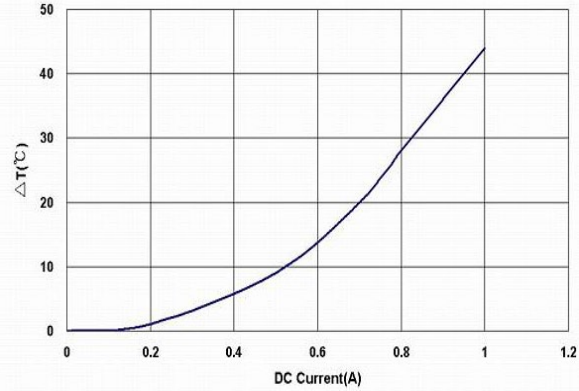

BWVS00808040 Series Specification

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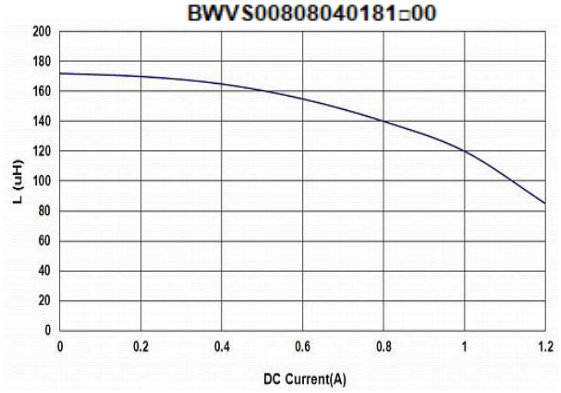

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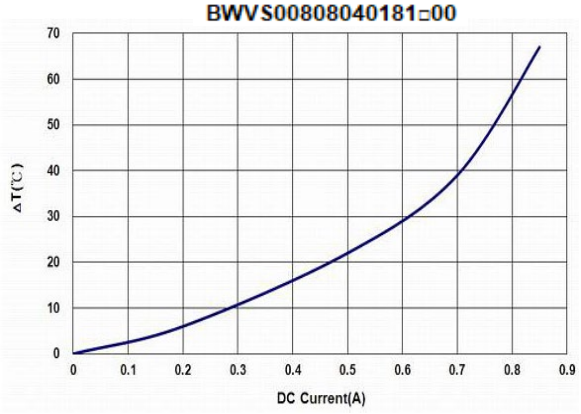

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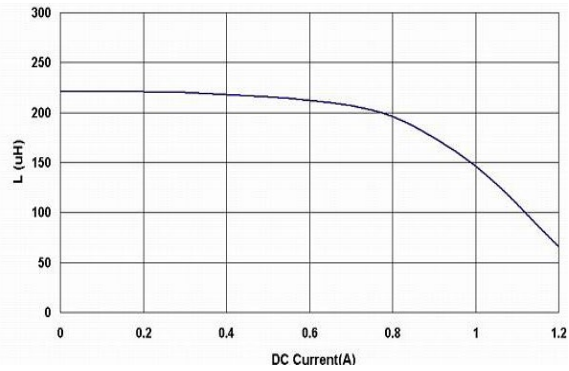

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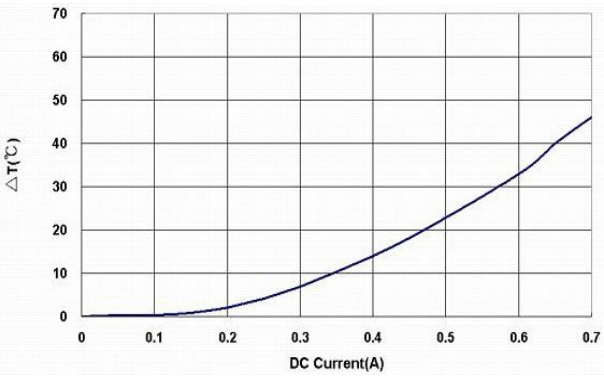

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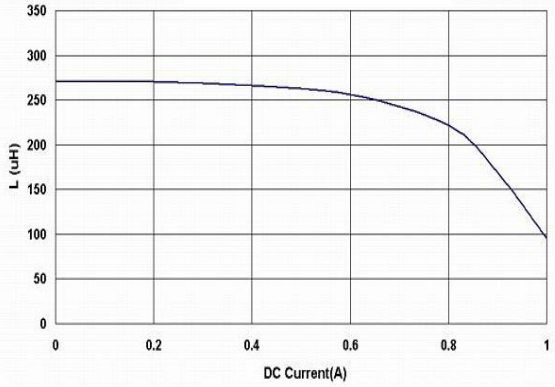

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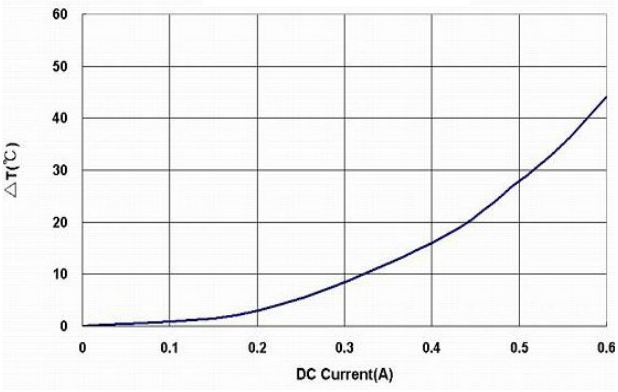

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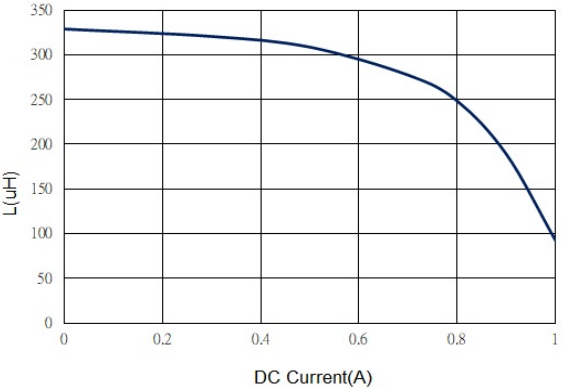

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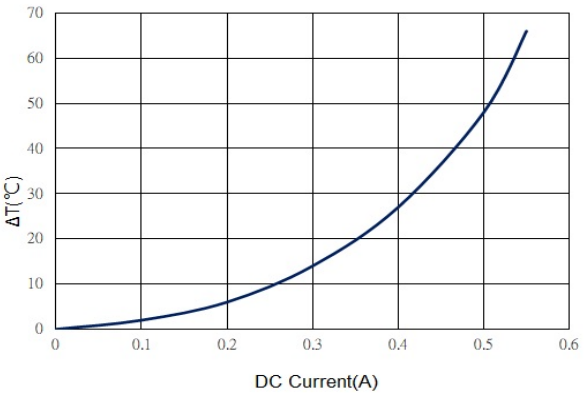

BWVS00808040 Series Specification

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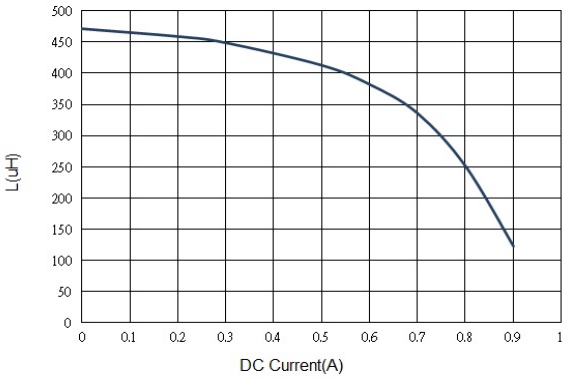

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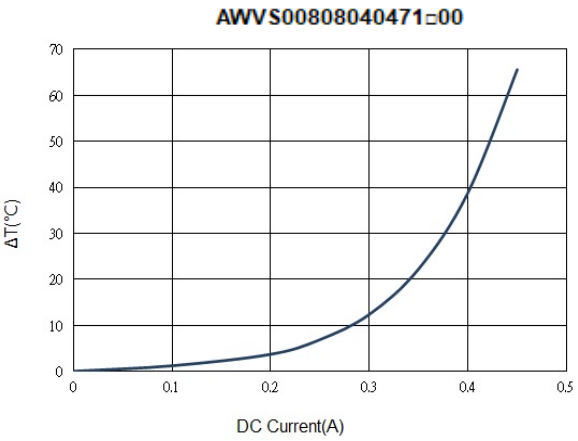

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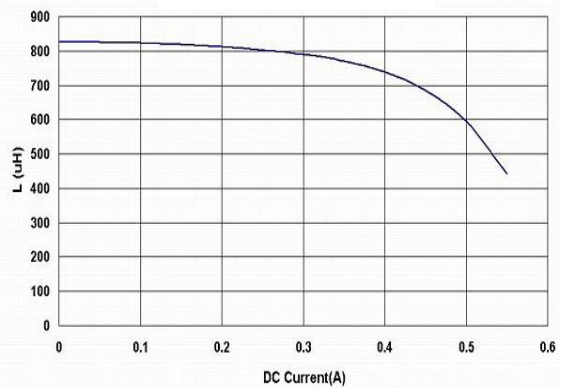

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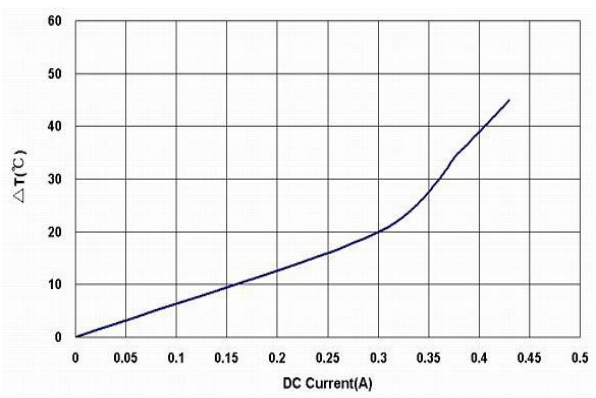

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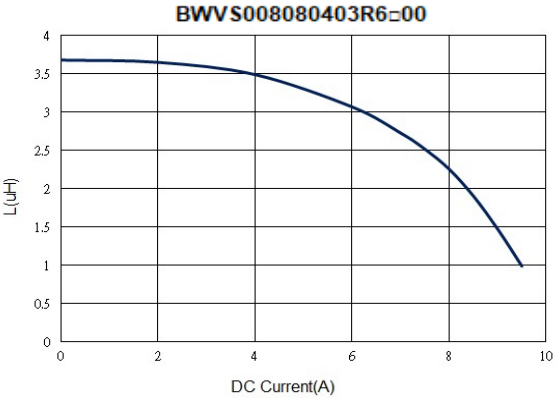

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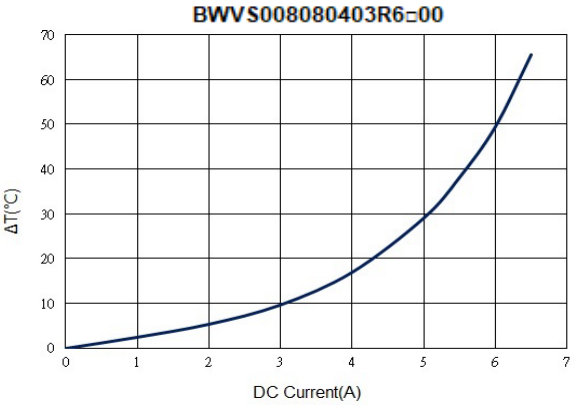

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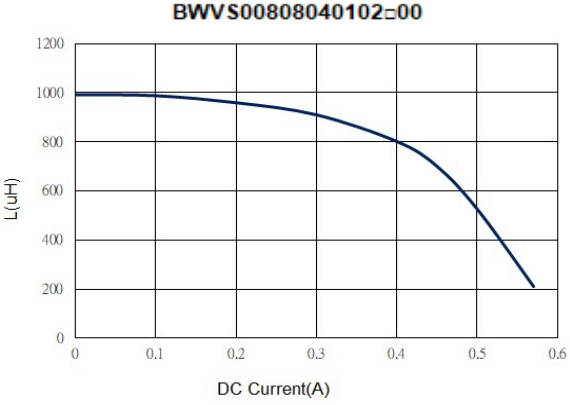

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