

EMI Common Mode Choke



BWCU Series



Overview

An EMI common mode choke (CMC) for power lines is a passive component specifically designed to suppress electromagnetic interference (EMI) in power supply circuits. A full series of common mode choke is designed for excellent noise attenuation with compact sizing for use in wide range of applications. Both standard series and custom designs are available.

Benefits

1. EMI/RFI Suppression
2. Improved Signal Integrity
3. Effectively suppresses noise over a wide frequency spectrum, including low-frequency and high-frequency EMI.
4. Common mode chokes are compact and suitable for applications where space is limited.

Applications

1. USB line for personal computers and peripheral
2. IEEE 1394 line for personal computers, DVC, STB
3. LVDS, panel line for liquid display panels, graph card, etc

Product Information

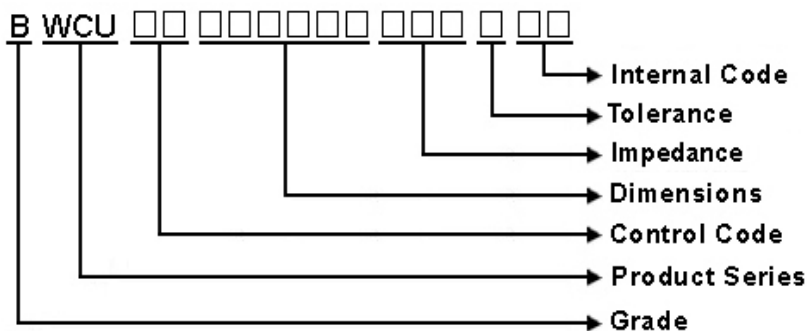
Series	Size Code (JIS/EIA)	Impedance (Ω)
BWCU	1608/0603	22 ~ 2200
	2012/0805	
	1210/0504	
	3216/1206	
	2520/1008	
	3225/1210	



BWCU00252012 _ 3P Series Specification

1 Scope: This specification applies to BWCU Wire Wound Common Mode Choke Coil

2 Part Numbering:



3 Rating:

Operating Temperature: - 40°C ~ 105°C
(Including self - temperature rise)

Storage Temperature: - 40°C ~ 105°C
(The storage temperature range is for after the assembly)

4 Marking:

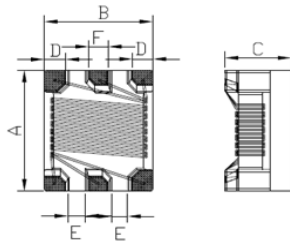
No Marking

5 Standard Testing Condition

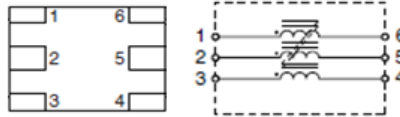
	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35°C)	20±2°C
Humidity	Ordinary Humidity(25 to 85% RH)	60 to 70 % RH

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6 Configuration and Dimensions and Unit Weight:



NO Polarity Equivalent circuit



TYPE	A	B	C	D	E	F
252012	2.5±0.2	2.0±0.2	1.25±0.2	0.55	0.3	0.35

7 Electrical Characteristics:

Part No.	Z (Ω)	RDC (Ω)Max.	IDC (mA)	Rated Voltage (Vdc)	Insulation Resistance (MΩ)(min)	Tolerance	Test Freq. (MHz)
BWCU00252012670□3P	67	0.16	500	20	10	M	100
BWCU00252012161□3P	160	0.21	500	20	10	M	100
BWCU00252012241□3P	240	0.33	500	20	10	T,M	100
BWCU00252012501□3P	500	0.43	300	20	10	T,M	100
BWCU00252012801□3P	800	1.6	150	20	10	M,Y	100

NOTE: □-tolerance =Y±25% / T±30% / M±20%

1.Operating temperature range - 4 0 °C ~ 1 0 5 °C(Including self - temperature rise)

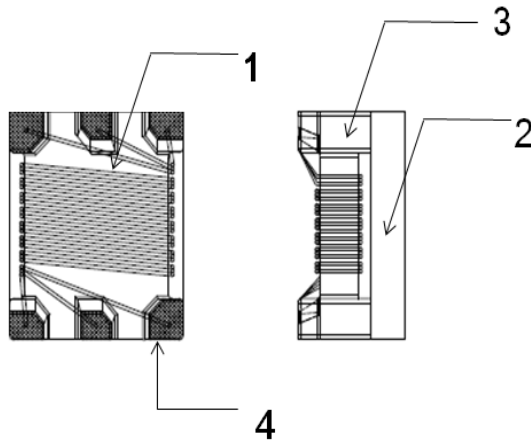
2.RDC: SINGLE WIRE TEST VALUE

3.IDC for Inductance drop 10% from its value without current.

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8.1 Construction:

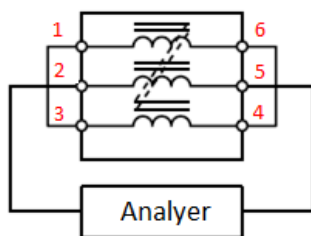


8.2 Material List:

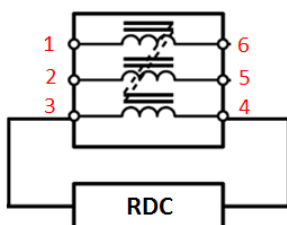
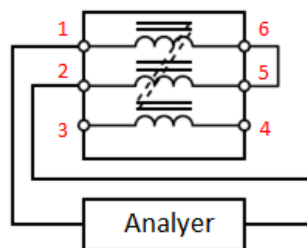
NO	PART	DESCRIPTION
1	WIRE	Grade 180
2	COVER SHEET	FERRITE CORE
3	CORE	FERRITE CORE
4	TERMINAL	Ag/Ni/Sn

9 Schematic diagram

Common mode



Differential mode



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10 Common Mode Choke / RELIABILITY TEST

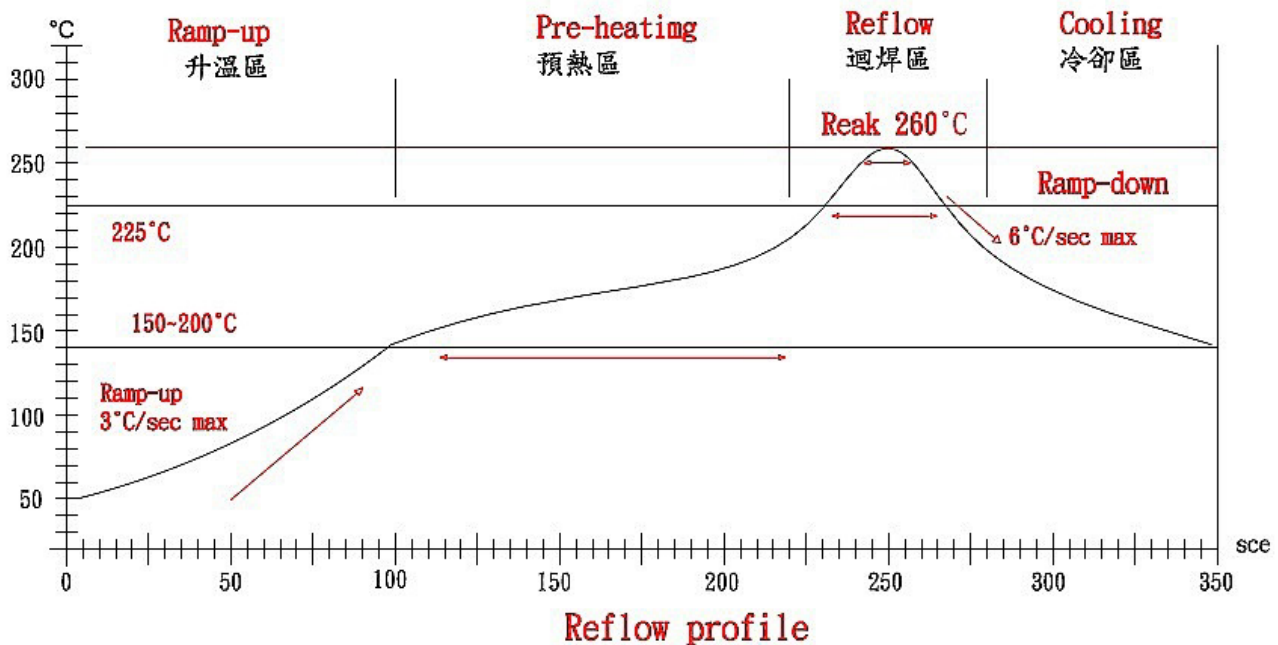
1-1.Environmental Performance

No		Item	Specification	Test Method		
1-1-1		Temperature Cycle	Appearance: No Damage Impedance: within±20% of initial value	One cycle:		
				Step	Temperature (°C)	Time (min)
				1	-40±3	30
				2	25±2	3
				3	105±3	30
4	25±2	3				
				Total: 5 cycles		
				Measured After Exposure in The Room Condition For 1hrs		
1-1-2		High Temperature Resistance		Temperature: 105±3℃ Time: 1000Hrs Measured After Exposure In The Room Condition For 1Hrs		
1-1-3		Low Temperature Resistance		Temperature: -40±3℃ Time: 1000Hrs Measured After Exposure In The Room Condition For 1Hrs		
1-1-4		Humidity Load Life		Temperature: 40±2℃ Relative Humidity: 90~95% Load: Allowed DC Current Time: 96Hrs		

1-2.Mechanical Performance

No	Item	Specification	Test Method
1-2-1	Resistance To Soldering Heat	Appearance: No Damage	1. The device should be reflow soldered on PCB (peak $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 10 seconds) 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Test time: 6 minutes
1-2-2	Solder ability	The electrodes shall be at least 95% covered with new solder coating	1. Pre-Heating: 150°C , 1min. 2. Solder Composition: Sn/Ag3.0/Cu0.5 3. Solder Temperature: $245\pm 5^{\circ}\text{C}$. 4. Immersion Time: 4 ± 1 sec.
1-2-3	Common Adhesion (Push Test)	1 Lbs. For CMM11 2 Lbs. For other	The device should be reflow soldered ($245\pm 5^{\circ}\text{C}$ For 10 seconds) to a tinned copper substrate. A force gauge should be applied to the side of the component. The device must withstand a minimum force of 2 pounds without a failure of the termination attached to component

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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	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:

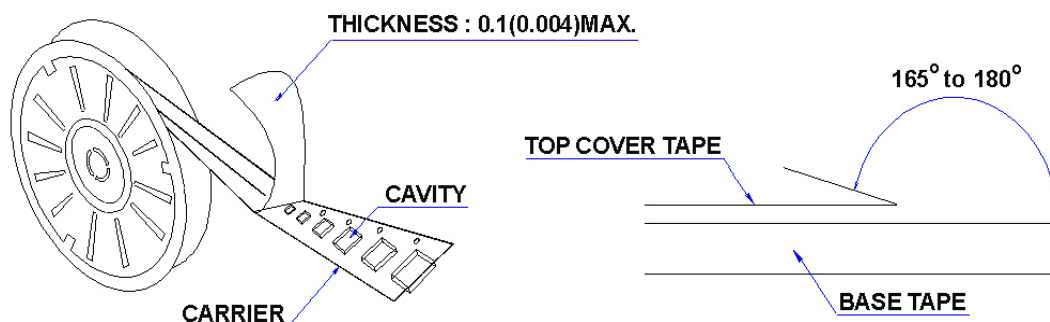
- 1.Re-flow possible times : within 3 times
- 2.Nitrogen adopted is recommends while in re-flow
- 3.Products can only be soldered with reflow

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11 Packaging:

10.1 Packaging -Cover Tape

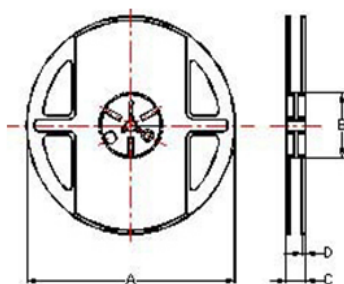
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



11.2 Packaging Quantity

TYPE	PCS/REEL
252012	2000

11.3 Reel Dimensions



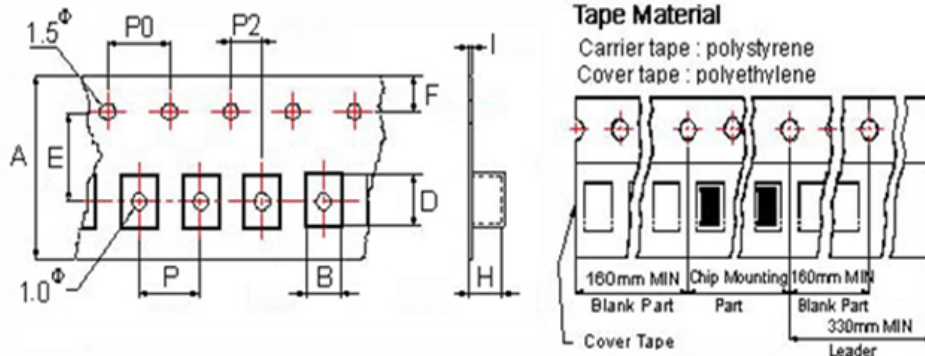
Dimensions in mm

TYPE	A	B	C	D
252012	178	60	11.75	1.4

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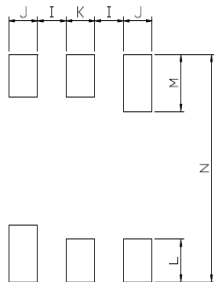
11 Packaging:

10.4 Tape Dimensions in mm



TYPE	A	B	D	E	F	H	I	P	P0	P2
252012	8	2.2	2.65	3.5	1.75	1.32	0.24	4	4	2

12 Recommended Land Pattern:



Dimensions

TYPE	1(in/mm)	J(in/mm)	K(in/mm)	L(in/mm)	M(in/mm)	N(in/mm)
252012	0.011/0.3	0.023/0.6	0.013/0.35	0.019/0.5	0.025/0.65	0.114/2.9

12 Note:

1. Please make sure that your product is 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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13 Graph:

