SPECIFICATIONS

Customer	
Product Name	**Wire Wound Chip Common Mode Choke Coil**
Sunlord Part Number	**CWS5025C Series**
Customer Part Number	

[☒New Released, ☐Revised] **SPEC No.: CWS01220001**

Rev.	Effective Date	Changed Contents	Change reasons	Approved By
01	Mar.17,2022	New release	/	Simei Yu

【This SPEC is total 7 pages including specifications and appendix.】

【ROHS Compliant Parts】

Approved By	Checked By	Issued By

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【For Customer approval Only】 Date:_____

Qualification Status: ☐ Full ☐ Restricted ☐ Rejected

Approved By	Verified By	Re-checked By	Checked By

Comments:

_____

Caution：

All products listed in this specification are developed, designed and intended for use in general electronics equipment. The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require especially high reliability, or whose failure, malfunction or trouble might directly cause damage to society, person, or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below. Please contact us for more details if you intend to use our products in the following applications.

1. Aircraft equipment
2. Aerospace equipment
3. Undersea equipment
4. nuclear control equipment
5. military equipment
6. Power plant equipment
7. Medical equipment
8. Transportation equipment (automobiles, trains, ships,etc.)
9. Traffic signal equipment
10. Disaster prevention / crime prevention equipment
11. Data-processing equipment
12. Applications of similar complexity or with reliability requirements comparable to the applications listed in the above

1. Scope

This specification applies to CWS5025C-SERIES wire wound chip common mode choke coil

2. Product Description and Identification (Part Number)

1) Description

Wire Wound Chip Common Mode Choke Coil

2) Product Identification (Part Number)

CWS	5025	C	-101	T
①	②	③	④	⑤

①Type	
CWS	Wire Wound Chip Common Mode Choke Coil

②External Dimensions (mm)
4.8*5.0*2.5

③Configuration	
C	CType

④Nominal Impedance [Ω]	
Example	Nominal Value
101	100Typ.

⑤Packing	
T	Tape Package

3. Electrical Characteristics

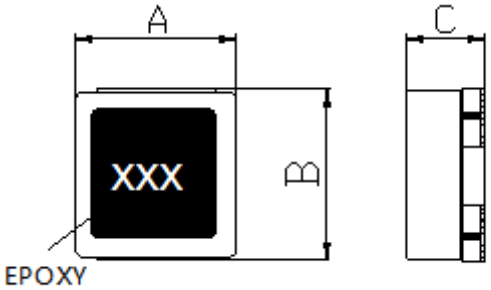
Please refer to **Appendix A**（Page 7）

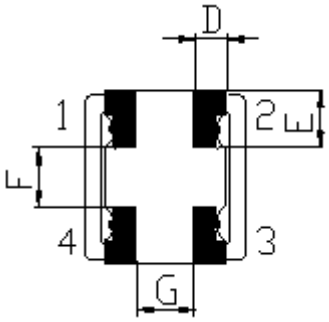
1) Operating temperature (Including self-generated heat): -40℃~+125℃

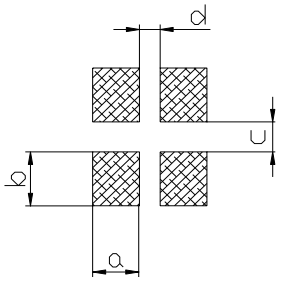
2) Storage temperature and humidity range (product with taping): 0℃~+40℃, RH 70% Max.

4. Shape and Dimensions

1) Dimensions and recommended PCB pattern for reflow soldering:







Pad layout

Unit: mm

Symbol	A	B	C	D	E	F	G	a	b	c	d
SPEC.	4.8±0.3	5.0±0.3	2.5Max	1.25Ref	1.7Ref.	1.6Ref.	1.0Ref.	1.8	2.4	1.2	0.8

2) Structure and Components

Symbol	Components	Material
a	Core	Ferrite
b	Wire	Enamelled copper wire
c	Adhesive	Epoxy resin
d	Terminal	Sn/Cu

5. Test and Measurement Procedures

5.1 Test Conditions

5.1.1 Unless otherwise specified, the standard atmospheric conditions for measurement/test as:

a. Ambient Temperature: 20±15℃

b. Relative Humidity: 65±20%

c. Air Pressure: 86 KPa to 106 KPa

5.1.2 If any doubt on the results, measurements/tests should be made within the following limits:

a. Ambient Temperature: 20±2℃

b. Relative Humidity: 65±5%

c. Air Pressure: 86KPa to 106 KPa

5.2 Visual Examination

a. Inspection Equipment: 20 X magnifier

5.3 Electrical Test

5.3.1 DC Resistance (DCR)

a. Refer to **Appendix A**.

b. Test equipment (Analyzer): HIOKI3540 or equivalent.

5.3.2 Inductance (L)

a. Refer to **Appendix A**.

b. Test equipment: WK3260B equivalent.

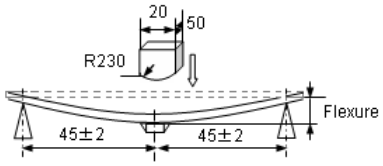
5.3.3 Rated Current

a. Refer to Appendix A.

b. Test equipment: Agilent E3633A, NF ZM2355, R2M-2H3 or equivalent..

c. Definition of Rated Current (Ir): With the condition of the DC current pass, compare to the temperature rise by 40℃, the smaller is Rated Current.(reference environment temperature:25℃)

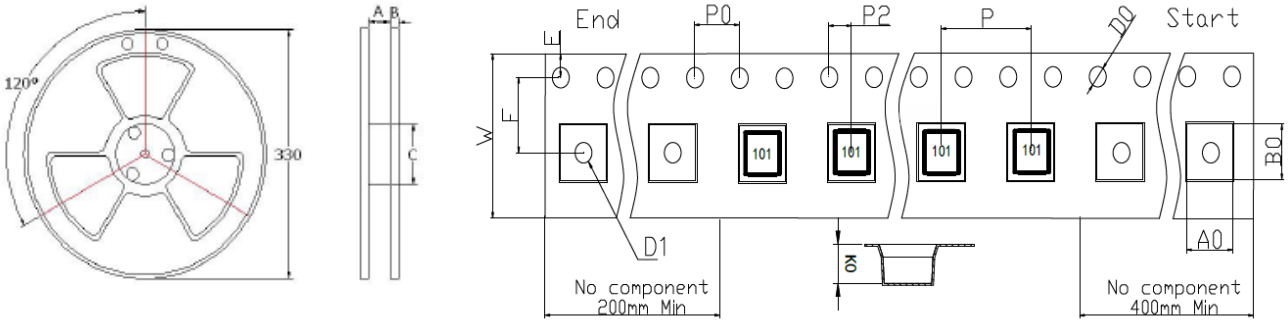
5.4 Reliability Test

Item	Requirements	Test Methods and Remarks
6.4.1 Terminal Strength	No removal or split of the termination or other defects shall occur.	① The test samples shall be soldered to the test board by reflow, then apply pull force to X and Y directions. ② Applied force: 10 N. ③ Keep time: 10±1s 
6.4.2 Resistance to Flexure	No visible mechanical damage.	① The test samples shall be soldered to the test board. Then apply a force in the direction shown as below test conditions. ② Flexure: 2.0mm. ③ Pressurizing Speed: 0.5mm/s. ④ Keep time: 5s 
6.4.3 Vibration	No visible mechanical damage. ΔZ/Z≦30%	① The test samples shall be soldered to the test board. Then it shall be submitted to below test conditions. Freq. Range: 10~55Hz Total Amplitude: 1.5mm(May not exceed acceleration 196 m/s^2) Sweeping Method: 10Hz to 55Hz to 10Hz for 1 min. Time: For 2 hours on each X, Y, Z axis. ② Recovery: At least 2 hours of recovery under the standard condition after the test, followed by the measurement within 24 hours.
Item	**Requirements**	**Test Methods and Remarks**
6.4.4 Solderability	At least 95% of terminal electrode is covered by new solder.	① Solder temperature: 235±5℃ ② Keep time: 2±0.5s ③ Immersion depth: Up to 0.5mm from terminal root.
6.4.5 Resistance to Soldering Heat	① No visible mechanical damage. ② ΔZ/Z≦30%.	① Solder temperature: 260±5℃. ② Keep time:3±1s ③ Recovery: 1 to 2 hours recovery under the standard condition after the test.

<table>
<tr><td>6.4.6
Thermal Shock</td><td>① No visible mechanical damage.
② ΔZ/Z≦30%.</td><td>① The test samples shall be placed at specified temperature for specified time by step 1 to step 4 as shown in below table in sequence.
<table>
<tr><th>Step</th><th>Temperature(℃)</th><th>Duration(min)</th></tr>
<tr><td>1</td><td>-40</td><td>30±3</td></tr>
<tr><td>2</td><td>Room temperature</td><td>Within 3</td></tr>
<tr><td>3</td><td>+125</td><td>30±3</td></tr>
<tr><td>4</td><td>Room temperature</td><td>Within 3</td></tr>
</table>
② Number of cycle: 20 cycles.
③ Recovery: 1 to 2 hours recovery under the standard condition after removal from the test chamber.</td></tr>
<tr><td>6.4.7
Humidity test Reference</td><td>① No visible mechanical damage.
② ΔZ/Z≦30%.</td><td>①Dry oven at a temperature of 40° ±5°C for 24 hours.
② The test samples shall be submitted to below test conditions.
<table>
<tr><td>Temperature</td><td>60±3℃</td></tr>
<tr><td>Humidity</td><td>85±3%RH</td></tr>
<tr><td>Time</td><td>96±2hours</td></tr>
</table>
③ Recovery: 1 to 2 hours recovery under the standard condition after removal from the test chamber.</td></tr>
<tr><td>6.4.8
Resistance to Low Temperature</td><td>① No visible mechanical damage.
② ΔZ/Z≦30%</td><td>① The test samples shall be submitted to below test conditions.
<table>
<tr><td>Temperature</td><td>-40±3℃</td></tr>
<tr><td>Time</td><td>96±2hour</td></tr>
</table>
② Recovery: 1 to 2 hours recovery under the standard condition after removal from the test chamber.</td></tr>
<tr><td>6.4.9
Resistance to High Temperature</td><td>① No visible mechanical damage.
② ΔZ/Z≦30%.</td><td>① The test samples shall be submitted to below test conditions.
<table>
<tr><td>Temperature</td><td>125±3℃</td></tr>
<tr><td>Time</td><td>96±2hour</td></tr>
</table>
② Recovery: 1 to 2 hours recovery under the standard condition after removal from the test chamber.</td></tr>
</table>

6. Packaging

6.1 Reel and Taping Dimensions:



Type	Reel dimensions (mm)			Tape dimensions (mm)									
	A	B	C	W	P	P0	P2	D0	E	F	A0	B0	K0
CWS5025C Series	12.5	2.3	100	12	8.0	4	2	1.5	1.75	5.5	5.4	5.4	2.8

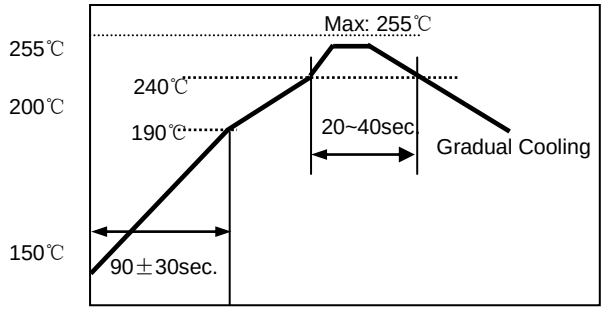
6.2 Packaging Quantity:

Type	Standard Quantity		
	Reel(Pcs)	Middle Carton(Pcs)	Big Carton(Pcs)
CWS5025C	2500	7500	37500

7. Recommended Soldering Technologies

7.1 Re-flowing Profile:

△ 1~2 ℃/sec. Ramp
△ Pre-heating: 150~190℃/90±30 sec.
△ Time above 240℃: 20~40sec
△ Peak temperature: 255℃ Max./5sec;
△ Solder paste: Sn/3.0Ag/0.5Cu
△ Max.2 times for Re-flowing



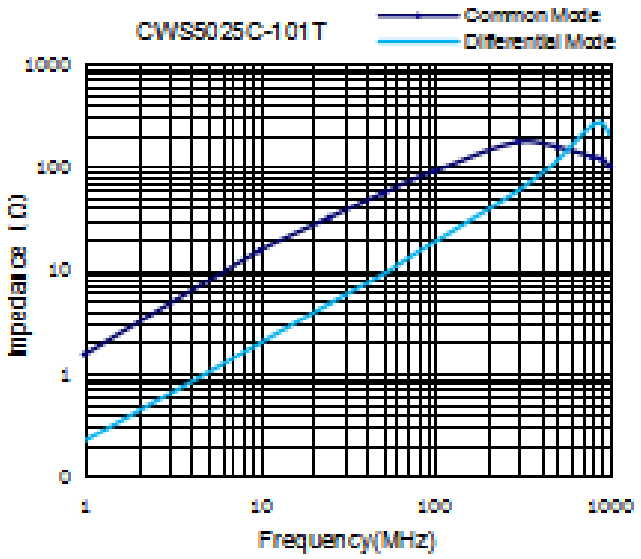
8. Supplier Information

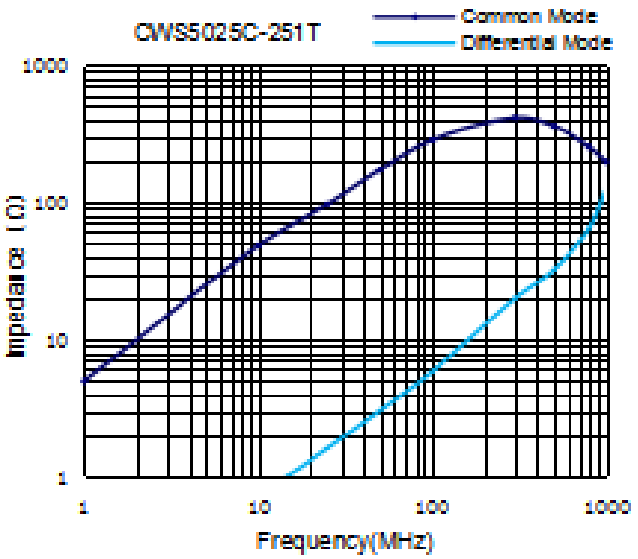
a) Supplier:
Shenzhen Sunlord Electronics Co., Ltd.
b) Manufacturer:
Shenzhen Sunlord Electronics Co., Ltd.
c) Manufacturing Address:
Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China
Zip: 518110

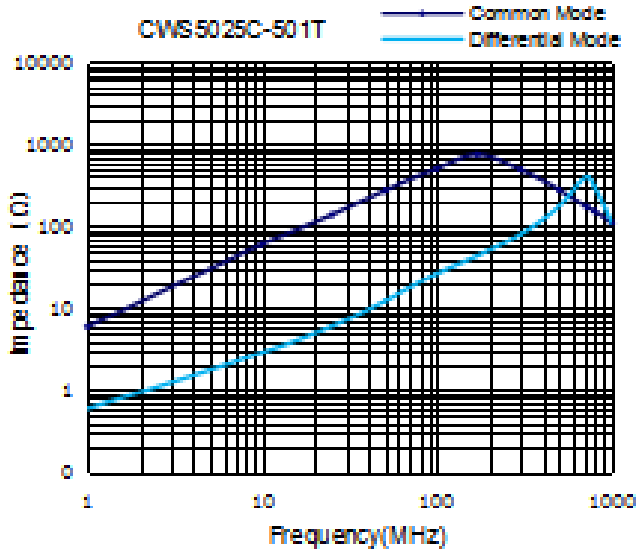
Appendix A: Electrical Characteristics (@ 25℃)

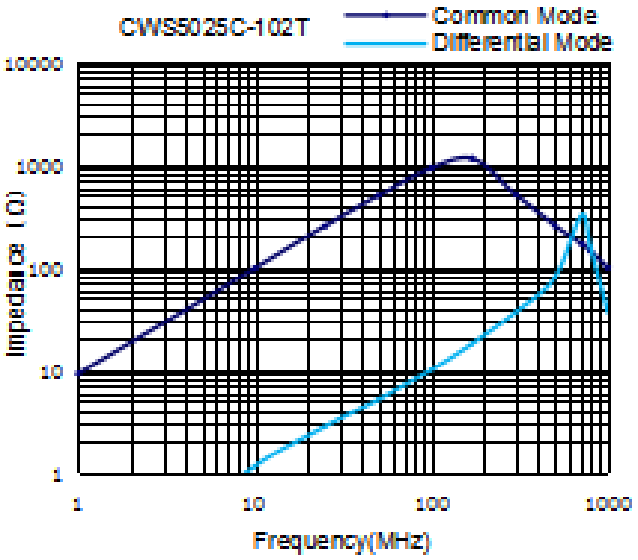
Part Number	Impedance Typ.	Max. DC Resistance	Rated Current Typ.	Rated Voltage Max	Withstand Voltage	Insulation Resistance Min
Units	Ω	(mΩ)±25%	mA	V	V	MΩ
Symbol	Z_{com}	-				
Test Condition	100MHz	-				
CWS5025C-101T	100	9	6500	50	125	10
CWS5025C-251T	250	14	5000	50	125	10
CWS5025C-501T	500	19	4000	50	125	10
CWS5025C-102T	1000	24	2000	50	125	10
CWS5025C-142T	1400	40	1500	50	125	10

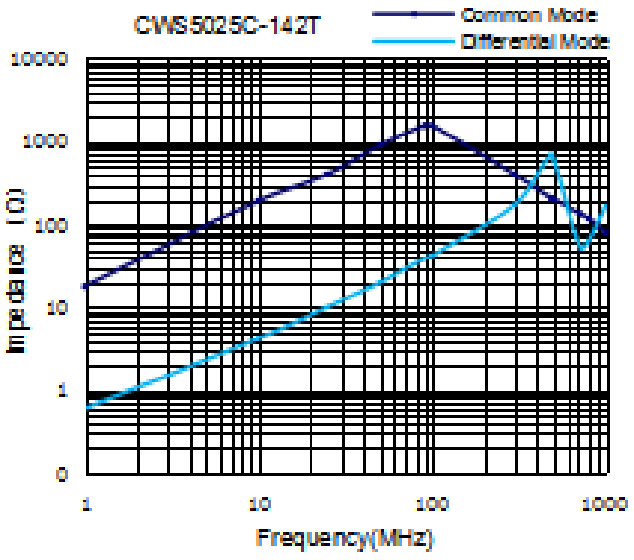
Curve:


CWS5025C-101T
Common Mode
Differential Mode
Impedance (Ω)
Frequency(MHz)


CWS5025C-251T
Common Mode
Differential Mode
Impedance (Ω)
Frequency(MHz)


CWS5025C-501T
Common Mode
Differential Mode
Impedance (Ω)
Frequency(MHz)


CWS5025C-102T
Common Mode
Differential Mode
Impedance (Ω)
Frequency(MHz)


CWS5025C-142T
Common Mode
Differential Mode
Impedance (Ω)
Frequency(MHz)