

SPECIFICATIONS

Customer	
Product Name	Common Mode Chokes
Sunlord Part Number	CWS0905H-Series
Customer Part Number	

New Released, Revised]

SPEC No.: CWS210012

Rev.	Effective Date	Changed Contents	Change reasons	Approved By
01	Mar.16, 2021	New release	/	Simei Yu

【 This SPEC is total 8 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:

1. Scope

This specification applies to CWS0905H-SERIES Common Mode Chokes

2. Product Description and Identification (Part Number)

- 1) Description
Common Mode Chokes, CWS0905H-102T, 1000±50% uH@100KHz, 5mV, 0.31Ω, 800mA
- 2) Product Identification (Part Number)

CWS 0905 H -102 T
 ① ② ③ ④ ⑤

① Type	
CWS	Common Mode Chokes

② External Dimensions (mm)
0905

③ Configuration	
H	Max. operating temperature

④ Inductance [uH]	
Example	Example
102	1000

⑤ Packing	
T	Tape Package

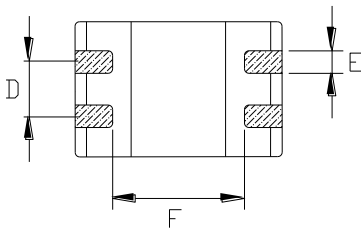
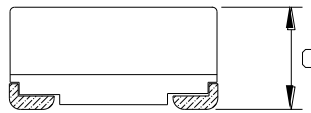
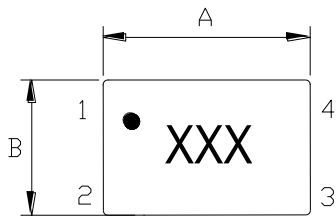
3. Electrical Characteristics

Please refer to Appendix A (Page 6)

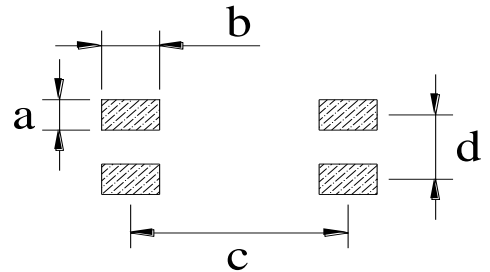
- 1) Operating temperature (Including self-generated heat): -40°C ~ +125°C
- 2) Storage temperature and humidity range (product with packing): 0°C ~ +40°C, RH 70% Max.

4. Shape and Dimensions

1. Dimensions and recommended PCB pattern for reflow soldering:



PAD Layout



Symbol	A	B	C	D	E	F	a	b	c	d
CWS0905H	9.20±0.3	6.00±0.3	5.00±0.3	2.54±0.3	1.00Ref	5.70Ref	1.20	2.00	7.50	2.54

Marking: " XXX ".

2. Material List

Symbol	Components	Material
a	Core	Ferrite core
b	Wire	Enamelled copper wire
c	Base	Plastic
d	Adhesive	Epoxy resin
e	Terminal	Sn/Ag/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°C
 - 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°C
 - b. Relative Humidity: 65±5%
 - c. Air Pressure: 86KPa to 106 KPa

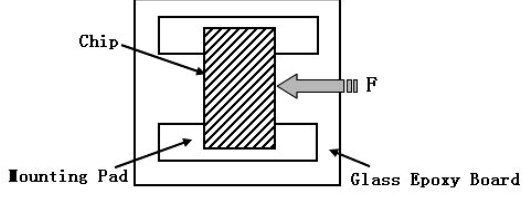
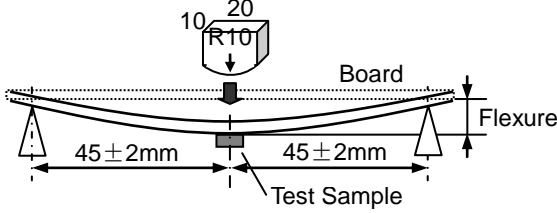
5.2 Visual Examination

- 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 Rated Current
 - a. Refer to Appendix A.
 - b. Test equipment: Agilent E3633A, NF ZM2355, R2M-2H3 or equivalent..
 - c. DC current (A) that will cause an approximate ΔT of 40 °C(reference ambient temperature is 25 °C)

5.4 Reliability Test

Item	Requirements	Test Methods and Remarks								
5.4.1 Terminal Strength	No removal or split of the termination or other defects shall occur.	① The test samples shall be soldered to the board by the reflow. Then apply force to X and Y directions. ② Applied force: 5N . ③ Keep time: 5s ④ Speed: 1.0 mm/s. 								
5.4.2 Resistance to Flexure	① No visible mechanical damage. ② Impedance change: within ±30%.	d. The test samples shall be soldered to the board by the reflow. Then apply force in the direction of the arrow. e. Flexure: 2mm f. Pressurizing Speed: 0.5mm/sec. g. Keep time: ≥ 5 sec. 								
5.4.3 Vibration	① No visible mechanical damage. ② Impedance change: within ±30%.	① The test samples shall be soldered to the board by the reflow. Then it shall be submitted to below test conditions. <table border="1" data-bbox="874 1848 1423 2042"> <tr> <td>Fre. Range</td> <td>10~55Hz</td> </tr> <tr> <td>Total Amplitude</td> <td>1.5mm(May not exceed acceleration 196 m/s²)</td> </tr> <tr> <td>Sweeping Method</td> <td>10Hz to 55Hz to 10Hz for 1 min.</td> </tr> <tr> <td>Time</td> <td>For 2 hours on each X,Y,Z axis.</td> </tr> </table> ② Recovery: At least 2 hours of recovery under the standard condition after the test, followed by the measurement within 24 hours.	Fre. 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.
Fre. 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.									

5.4.4 Solderability	95% or more of mounting terminal side shall be covered with fresh solder.	① The test samples shall be dipped in flux, and the immersed in molten solder. ② Solder Temperature: 240±5℃ ③ Keep time: 3±0.5s ④ Immersion depth: all sides of mounting terminal shall by immersed. ⑤ Flux: 25% Rosin and 75% ethanol in weight.															
5.4.5 Resistance to Soldering Heat	No visible mechanical damage. Impedance change : within ± 30%.	① The test sample shall be exposed to reflow oven as below. <table border="1" data-bbox="879 409 1337 477"> <tr> <td>230±5℃</td> <td>40s</td> </tr> <tr> <td>Peak tem. at 260±5℃</td> <td>5s</td> </tr> </table> ② Reflow time: 2times. ③ Recovery: At least 2 hours of recovery under the standard condition after the test , followed by the measurement within 24 hours.	230±5℃	40s	Peak tem. at 260±5℃	5s											
230±5℃	40s																
Peak tem. at 260±5℃	5s																
5.4.6 Thermal Shock	① No visible mechanical damage. ② Impedance change : within ± 30%.	① The test samples shall be soldered to the board by the reflow. Then it shall be placed at specified temperature for specified time by step 1 to step 4 as shown in below table in sequence. <table border="1" data-bbox="879 745 1423 974"> <thead> <tr> <th>Step</th> <th>Temperature(℃)</th> <th>Duration(min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25</td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room temperature</td> <td>Within 3</td> </tr> <tr> <td>3</td> <td>+85</td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room temperature</td> <td>Within 3</td> </tr> </tbody> </table> ② Number of cycle: 100cycles. ③ Recovery: At least 2 hours of recovery under the standard condition after the test , followed by the measurement within 24 hours.	Step	Temperature(℃)	Duration(min)	1	-25	30±3	2	Room temperature	Within 3	3	+85	30±3	4	Room temperature	Within 3
Step	Temperature(℃)	Duration(min)															
1	-25	30±3															
2	Room temperature	Within 3															
3	+85	30±3															
4	Room temperature	Within 3															
5.4.7 Damp heat	① No visible mechanical damage. ② Impedance change : within ± 30%	① The test samples shall be soldered to the board by the reflow. Then it shall be submitted to below test conditions. <table border="1" data-bbox="879 1200 1337 1301"> <tr> <td>Temperature</td> <td>60±2℃</td> </tr> <tr> <td>Humidity</td> <td>90~95%RH</td> </tr> <tr> <td>Time</td> <td>96hour</td> </tr> </table> ② Recovery: At least 2 hours of recovery under the standard condition after the test , followed by the measurement within 24 hours.	Temperature	60±2℃	Humidity	90~95%RH	Time	96hour									
Temperature	60±2℃																
Humidity	90~95%RH																
Time	96hour																

Item	Requirements	Test Methods and Remarks								
5.4.8 Loading Under Damp Heat	① No visible mechanical damage. ② Impedance change : within ± 30%	① The test samples shall be soldered to the board by the reflow. Then it shall be submitted to below test conditions. <table border="1" data-bbox="879 1592 1337 1722"> <tr> <td>Temperature</td> <td>60±2℃</td> </tr> <tr> <td>Humidity</td> <td>90~95%RH</td> </tr> <tr> <td>Applied current</td> <td>Rated current</td> </tr> <tr> <td>Time</td> <td>96hour</td> </tr> </table> ② Recovery: At least 2 hours of recovery under the standard condition after the test , followed by the measurement within 24 hours.	Temperature	60±2℃	Humidity	90~95%RH	Applied current	Rated current	Time	96hour
Temperature	60±2℃									
Humidity	90~95%RH									
Applied current	Rated current									
Time	96hour									
5.4.9 Resistance to Low Temperature	① No visible mechanical damage. ② Impedance change : within ± 30%	① The test samples shall be soldered to the board by the reflow. Then it shall be submitted to below test conditions. <table border="1" data-bbox="879 1917 1337 1984"> <tr> <td>Temperature</td> <td>-25±3℃</td> </tr> <tr> <td>Time</td> <td>96hour</td> </tr> </table> ② Recovery: At least 2 hours of recovery under the standard condition after the test , followed by the measurement within 24 hours.	Temperature	-25±3℃	Time	96hour				
Temperature	-25±3℃									
Time	96hour									

<p>5.4.10 Resistance to High Temperature</p>	<p>① No visible mechanical damage. ② Impedance change : within $\pm 30\%$.</p>	<p>① The test samples shall be submitted to below test conditions.</p> <table border="1" data-bbox="876 174 1335 241"> <tr> <td>Temperature</td> <td>85\pm3$^{\circ}$C</td> </tr> <tr> <td>Time</td> <td>96hour</td> </tr> </table> <p>② Recovery: At least 2 hours of recovery under the standard condition after the test , followed by the measurement within 24 hours.</p>	Temperature	85 \pm 3 $^{\circ}$ C	Time	96hour		
Temperature	85 \pm 3 $^{\circ}$ C							
Time	96hour							
<p>5.4.11 Loading at High Temperature (Life Test)</p>	<p>① No visible mechanical damage. ② Impedance change : within $\pm 30\%$.</p>	<p>① The test samples shall be soldered to the board by the reflow. Then it shall be submitted to below test conditions.</p> <table border="1" data-bbox="876 436 1335 539"> <tr> <td>Temperature</td> <td>85\pm3$^{\circ}$C</td> </tr> <tr> <td>Applied current</td> <td>Rated current</td> </tr> <tr> <td>Time</td> <td>96hour</td> </tr> </table> <p>② Recovery: At least 2 hours of recovery under the standard condition after the test , followed by the measurement within 24 hours.</p>	Temperature	85 \pm 3 $^{\circ}$ C	Applied current	Rated current	Time	96hour
Temperature	85 \pm 3 $^{\circ}$ C							
Applied current	Rated current							
Time	96hour							

6. Packaging

6.1 Tape Carrier Packaging:

Packaging code: T

(1) Tape carrier packaging are specified in attached figure Fig.6.1-1~2

(2) Tape carrier packaging quantity:

a. Reel Drawings (Unit: mm)

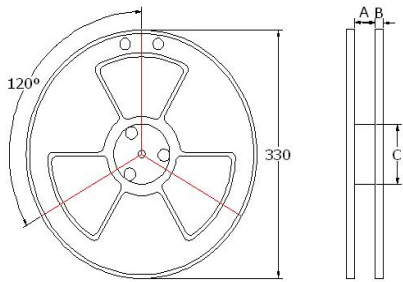
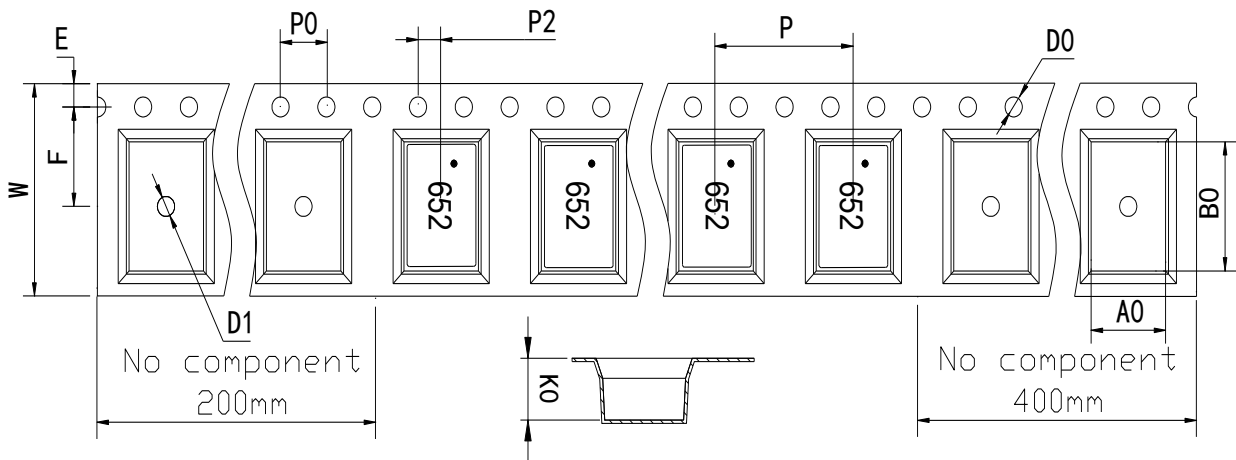


Fig.6.1-1

c. Taping Dimensions (Unit: mm)



Type	Tape dimensions (mm)										
	W	P	P0	P2	D0	D1	E	F	A0	B0	K0
CWS0905H	16	12	4.0	2.0	1.5	1.5	1.75	7.5	6.3	9.6	5.3

Fig.6.1-2

Type	Standard Quantity		
	Reel(Pcs)	Middle Carton(Pcs)	Big Carton(Pcs)
CWS0905H	1000	3000	15000

c. Peeling off force: 10gf to 130gf in the direction show below.

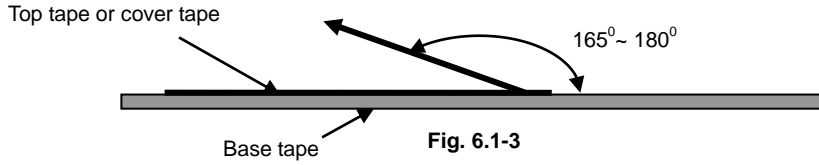
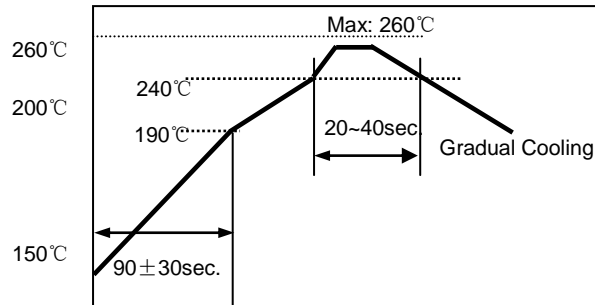


Fig. 6.1-3

7. Recommended Soldering Technologies

7.1 Re-flowing Profile:

- △ 1~2 °C/sec. Ramp
- △ Pre-heating: 150~190°C/90±30 sec.
- △ Time above 240°C: 20~40sec
- △ Peak temperature: 260°C 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°C)

Part Number	Inductance	Inductance Test Condition	DCR Max	Rated Current Max	Leakage Inductance Typ	Maximum Impedance Typ.
Units	uH		Ω	mA	nH	Ω
Symbol	L	-				Z _{com}
Test Condition		-			1MHz, 1mA	
CWS0905H-100T	10±30%	1KHz, 100mV	0.08	1600	55	920
CWS0905H-100T-S	10±30%	1KHz, 100mV	0.08	1600	850	920
CWS0905H-250T	25±30%	1KHz, 100mV	0.12	1000	60	2800
CWS0905H-250T-S	25±30%	1KHz, 100mV	0.12	1000	1500	2800
CWS0905H-400T	40±30%	1KHz, 100mV	0.25	900	80	3100
CWS0905H-400T-S	40±30%	1KHz, 100mV	0.25	900	2250	3100
CWS0905H-510T	51±30%	1KHz, 100mV	0.16	1000	85	5500
CWS0905H-510T-S	51±30%	1KHz, 100mV	0.16	1000	3150	5500
CWS0905H-251T	250±50%	100KHz, 5mV	0.13	1200	60	1800
CWS0905H-501T	500±50%	100KHz, 5mV	0.15	1000	75	3300
CWS0905H-102T	1000±50%	100KHz, 5mV	0.31	800	90	6000
CWS0905H-202T	2000±50%	100KHz, 5mV	0.42	600	130	9200
CWS0905H-472T	4700±50%	100KHz, 5mV	0.75	500	180	20000
CWS0905H-652T	6500±50%	10KHz, 50mV	0.95	400	280	18400
CWS0905H-103T	10000±50%	10KHz, 50mV	1.20	350	320	25000
CWS0905H-203T	20000±50%	10KHz, 50mV	2.60	200	490	50000

Note: "S" is divided winding, and others are parallel winding.

Rated Current: ΔT ≅ 40°C Typ

Curve:

