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 ① 0905 ② H ③ -102 ④ T ⑤

①Type	
CWS	Common Mode Chokes

②External Dimensions (mm)
0905

③Configuration	
H	Max.operating temperature

④Inductance [uH]	
Example	Example
102	1000

⑤Packing	
T	Tape Package

3. Electrical Characteristics

Please refer to **Appendix A**（Page 6）

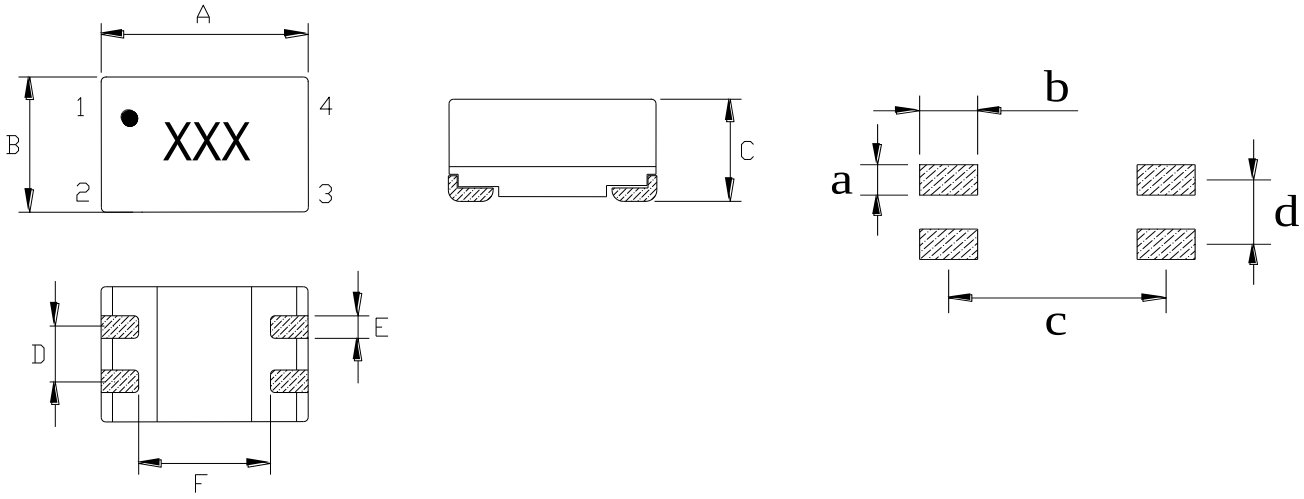
1) Operating temperature (Including self-generated heat): -40℃~+125℃

2) Storage temperature and humidity range (product with packing): 0℃~+40℃, 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℃
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

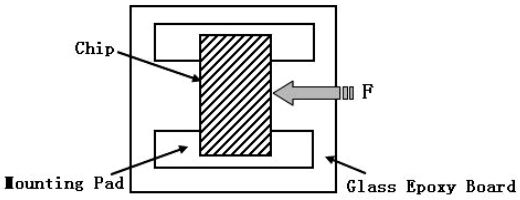
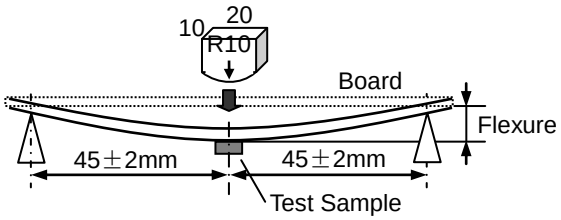
5.3.1 DC Resistance (DCR)

a. Refer to **Appendix A**.
b. Test equipment (Analyzer): HIOKI3540 or equivalent.

5.3.2 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

<table>
<tr><th>Item</th><th>Requirements</th><th>Test Methods and Remarks</th></tr>
<tr><td>5.4.1
Terminal Strength</td><td>No removal or split of the termination or other defects shall occur.</td><td>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.
  </td></tr>
<tr><td>5.4.2
Resistance
to Flexure</td><td>① No visible mechanical damage.
② Impedance change: within ±30%.</td><td>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.
  </td></tr>
<tr><td>5.4.3
Vibration</td><td>① No visible mechanical damage.
② Impedance change: within ±30%.</td><td>① The test samples shall be soldered to the board by the reflow. Then it shall be submitted to below test conditions.
<table><tr><td>Fre. Range</td><td>10~55Hz</td></tr><tr><td>Total Amplitude</td><td>1.5mm(May not exceed acceleration 196 m/s^2)</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.</td></tr>
</table>

<table>
<tr><td>5.4.4
Solderability</td><td>95% or more of mounting terminal side shall be covered with fresh solder.</td><td>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.</td></tr>
<tr><td>5.4.5
Resistance to Soldering Heat</td><td>. No visible mechanical damage.
. Impedance change : within ± 30%.</td><td>① The test sample shall be exposed to reflow oven as below.<table><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.</td></tr>
<tr><td>5.4.6
Thermal Shock</td><td>① No visible mechanical damage.
② Impedance change : within ± 30%.</td><td>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><tr><th>Step</th><th>Temperature(℃)</th><th>Duration(min)</th></tr><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></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.</td></tr>
<tr><td>5.4.7
Damp heat</td><td>① No visible mechanical damage.
② Impedance change : within ± 30%</td><td>① The test samples shall be soldered to the board by the reflow. Then it shall be submitted to below test conditions.<table><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.</td></tr>
</table>

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><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.
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><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.

5.4.10 Resistance to High Temperature	① No visible mechanical damage. ② Impedance change : within ± 30%.	① The test samples shall be submitted to below test conditions. Temperature: 85±3℃ Time: 96hour ② Recovery: At least 2 hours of recovery under the standard condition after the test , followed by the measurement within 24 hours.
5.4.11 Loading at High Temperature (Life Test)	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. Temperature: 85±3℃ Applied current: Rated current Time: 96hour ② Recovery: At least 2 hours of recovery under the standard condition after the test , followed by the measurement within 24 hours.

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)

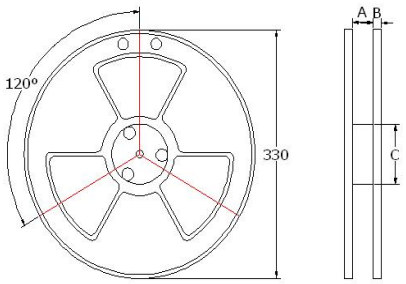
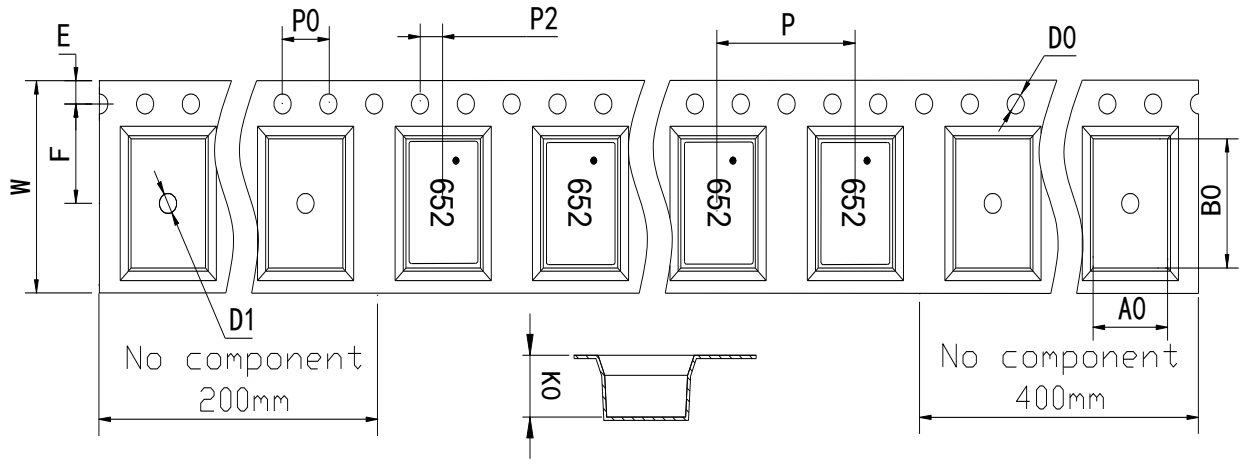


Fig.6.1-1

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.

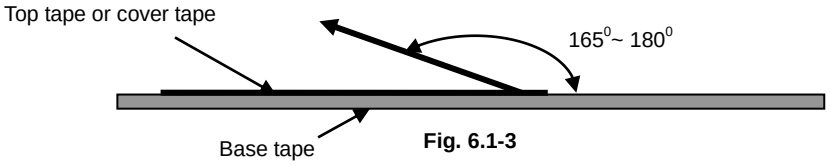


Fig. 6.1-3

7. Recommended Soldering Technologies

7.1 Re-flowing Profile:

△ 1~2 ℃/sec. Ramp

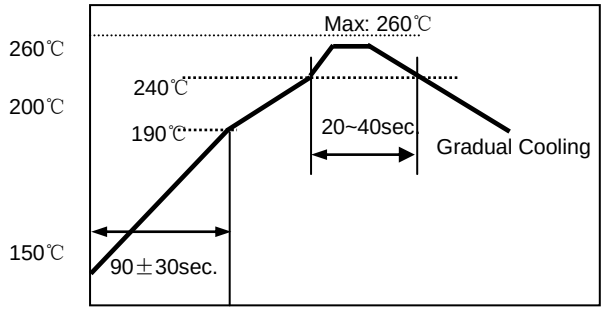
△ Pre-heating: 150~190℃/90±30 sec.

△ Time above 240℃: 20~40sec

△ Peak temperature: 260℃ 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

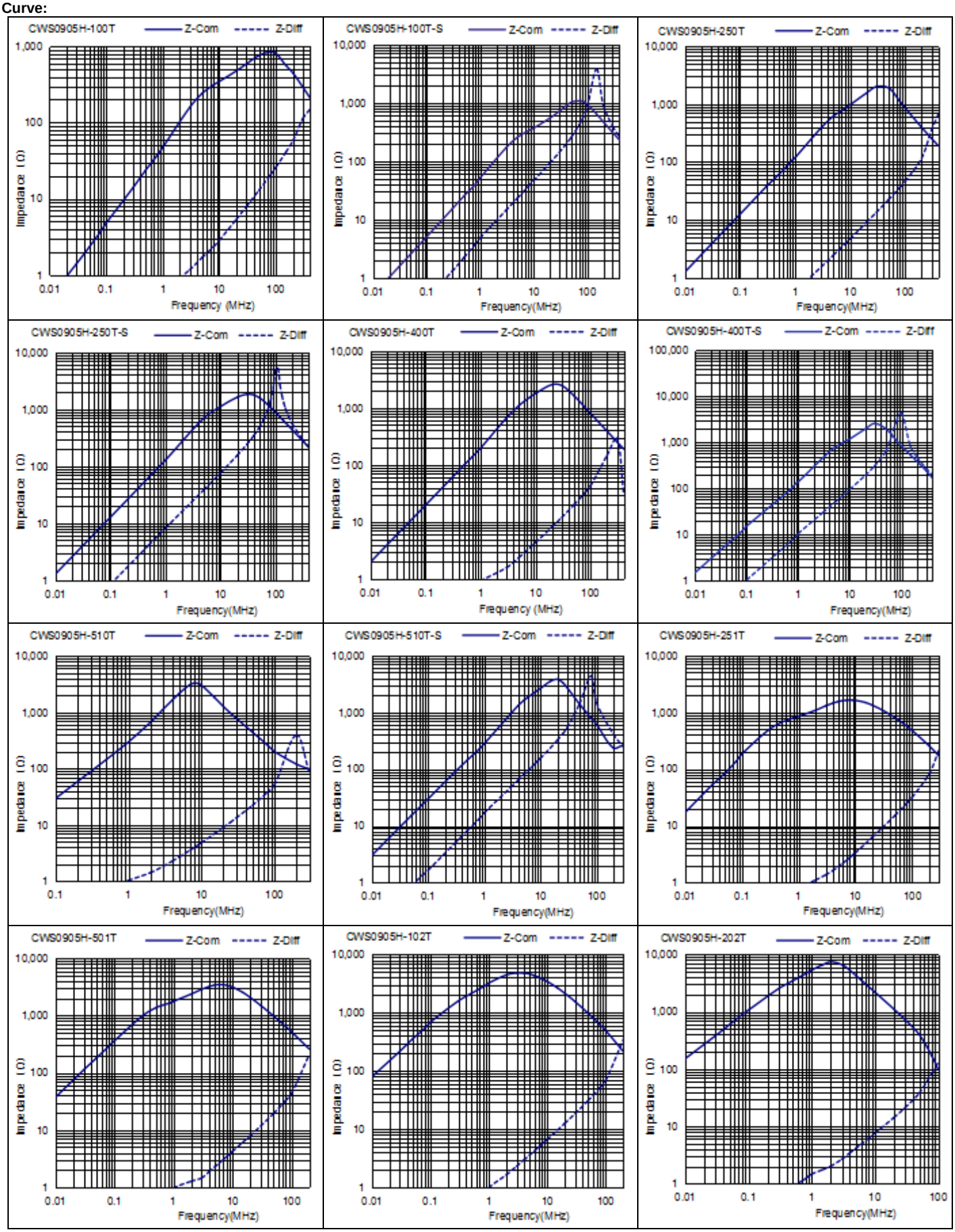
Appendix A: Electrical Characteristics(@ 25℃)

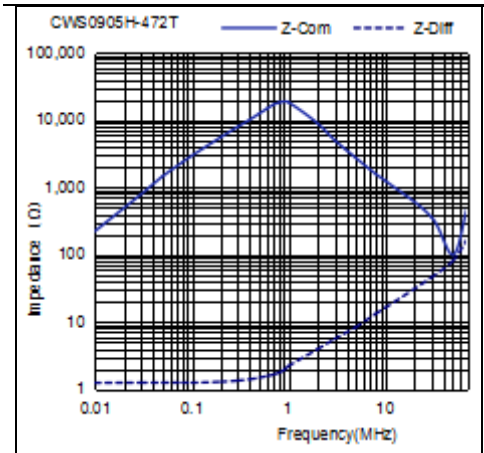
Part Number	Inductance	Inductance Test Condition	DCR Max	Rated Current Max	Leakage Inductance Typ	Maximum Impedance Typ.
Units	uH		Ω	mA	nH	Ω
Symbol	L	-				Z_{com}
Test Condition		-			1MHz, 1mA	
CWS0905H-100T	10±30%	1KHz, 100mV	0.08	1600	55	920
CWS0905H-100T-S	10±30%	1KHz, 100mV	0.08	1600	850	920
CWS0905H-250T	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

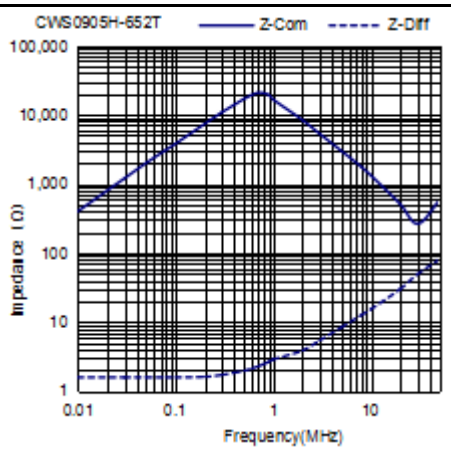
Note: "S" is divided winding, and others are parallel winding.

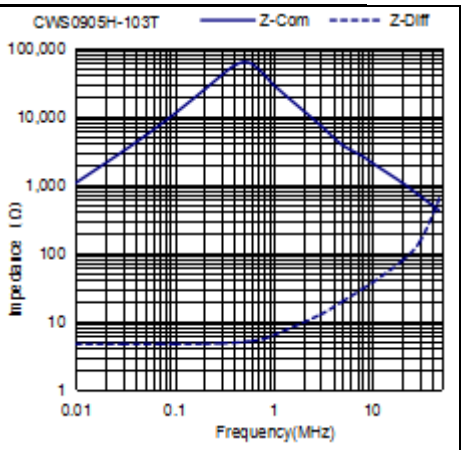
Rated Current：△T≦40℃Typ

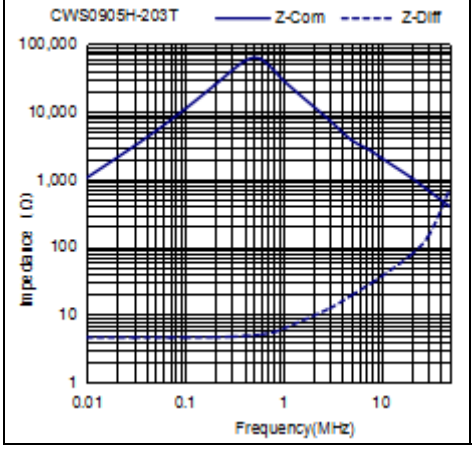
Curve:


CWS0905H-100T
Z-Com
Z-Diff
Impedance (Ω)
Frequency (MHz)
CWS0905H-100T-S
CWS0905H-250T
CWS0905H-250T-S
CWS0905H-400T
CWS0905H-400T-S
CWS0905H-510T
CWS0905H-510T-S
CWS0905H-251T
CWS0905H-501T
CWS0905H-102T
CWS0905H-202T


CWS0905H-472T
Z-Com
Z-Diff
100,000
10,000
1,000
100
10
1
Impedance (Ω)
0.01
0.1
1
10
Frequency(MHz)


CWS0905H-652T
Z-Com
Z-Diff
100,000
10,000
1,000
100
10
1
Impedance (Ω)
0.01
0.1
1
10
Frequency(MHz)


CWS0905H-103T
Z-Com
Z-Diff
100,000
10,000
1,000
100
10
1
Impedance (Ω)
0.01
0.1
1
10
Frequency(MHz)


CWS0905H-203T
Z-Com
Z-Diff
100,000
10,000
1,000
100
10
1
Impedance (Ω)
0.01
0.1
1
10
Frequency(MHz)

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