ISO9001 & ISO14001 & TS16949 **CHILISIN ELECTRONICS CORP.**

Halogen Free & RoHs Compliance

SPECIFICATION FOR APPROVAL

CUSTOMER： Eltech

CUSTOMER P/N：

OUR DWG No：

QUANTITY： 0 Pcs. **DATE：** 2014/06/03

ITEM： CLH1005T-5N1S-S

SPECIFICATION ACCEPTED BY:	
COMPONENT ENGINEER	
ELECTRICAL ENGINEER	
MECHANICAL ENGINEER	
APPROVED	
REJECTED	

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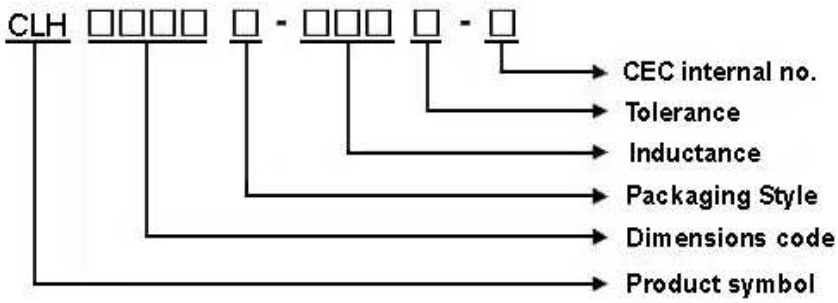
CLH1005T Series Specification

1 Scope:

This specification applies to Multilayer ceramic chip inductors

2 Part Numbering: Product Identification



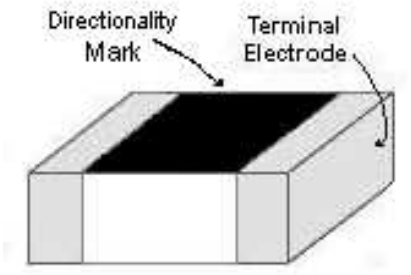
3 Rating:

Operating Temperature: －５５℃～１２５℃**(Including self - temperature rise)**

Storage Temperature: －５５℃～１２５℃**(after PCB)**

－５℃～４０℃**,Humidity** ４０%～７０%**(before PCB)**

4 Marking:

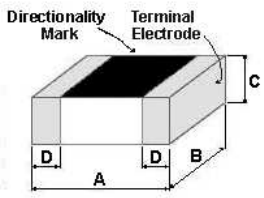


5 Standard Testing Condition

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

CLH1005T Series Specification

6 Configuration and Dimensions:



Dimensions in mm

TYPE	CLH1005
A	1.00±0.10
B	0.50±0.10
C	0.50±0.10
D	0.25±0.10

7 ELECTRICAL CHARACTERISTICS :

Part No.	Inductance (nH)	L,Q Test Freq.	Q Min.	SRF (MHz)Typ.	RDC (Ω)Max.	IDC (mA)Max.	Tolerance
CLH1005T-1N0□-S	1	100 MHz,200 mV	8	10000	0.1	400	C,S
CLH1005T-1N2□-S	1.2	100 MHz,200 mV	8	10000	0.1	400	C,S
CLH1005T-1N5□-S	1.5	100 MHz,200 mV	8	9000	0.1	400	C,S
CLH1005T-1N8□-S	1.8	100 MHz,200 mV	8	8700	0.1	400	C,S
CLH1005T-2N0□-S	2	100 MHz,200 mV	8	8100	0.15	400	C,S
CLH1005T-2N2□-S	2.2	100 MHz,200 mV	8	8100	0.15	400	C,S
CLH1005T-2N4□-S	2.4	100 MHz,200 mV	8	7700	0.15	400	C,S
CLH1005T-2N7□-S	2.7	100 MHz,200 mV	8	7700	0.15	400	C,S
CLH1005T-3N0□-S	3	100 MHz,200 mV	8	6300	0.15	400	C,S
CLH1005T-3N3□-S	3.3	100 MHz,200 mV	8	6300	0.15	400	C,S,K
CLH1005T-3N6□-S	3.6	100 MHz,200 mV	8	6100	0.15	400	C,S,K
CLH1005T-3N9□-S	3.9	100 MHz,200 mV	8	6100	0.2	400	C,S,K
CLH1005T-4N3□-S	4.3	100 MHz,200 mV	8	5400	0.2	400	S,K
CLH1005T-4N7□-S	4.7	100 MHz,200 mV	8	5400	0.2	400	S,K
CLH1005T-5N1□-S	5.1	100 MHz,200 mV	8	5100	0.2	400	S,K
CLH1005T-5N6□-S	5.6	100 MHz,200 mV	8	5100	0.2	400	C,S,K,J
CLH1005T-6N8□-S	6.8	100 MHz,200 mV	8	4550	0.25	400	S,J,K
CLH1005T-8N2□-S	8.2	100 MHz,200 mV	8	4100	0.3	300	S,J,K
CLH1005T-10N□-S	10	100 MHz,200 mV	8	3900	0.35	300	J,K
CLH1005T-12N□-S	12	100 MHz,200 mV	8	3000	0.4	300	J,K
CLH1005T-15N□-S	15	100 MHz,200 mV	8	2800	0.5	300	J,K
CLH1005T-18N□-S	18	100 MHz,200 mV	8	2500	0.55	300	J,K
CLH1005T-22N□-S	22	100 MHz,200 mV	8	2200	0.7	300	J,K
CLH1005T-27N□-S	27	100 MHz,200 mV	8	2000	0.8	300	J,K
CLH1005T-33N□-S	33	100 MHz,200 mV	8	1800	0.9	200	J,K

NOTE: □-tolerance J=±5% / K=±10% / C=±0.2nH / S=±0.3nH

1.Operating temperature range －５５℃～１２５℃(Including self - temperature rise)

2.IDC:Applied the current to coils, the inductance shall be less than 10% initial value.

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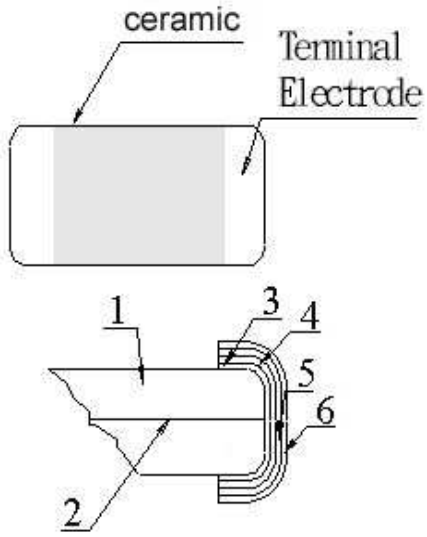
CLH1005T Series Specification

Part No.	Inductance (nH)	L,Q Test Freq.	Q Min.	SRF (MHz)Typ.	RDC (Ω)Max.	IDC (mA)Max.	Tolerance
CLH1005T-39N□-S	39	100 MHz,200 mV	8	1600	1	150	J,K
CLH1005T-47N□-S	47	100 MHz,200 mV	8	1400	1.2	150	J,K
CLH1005T-56N□-S	56	100 MHz,200 mV	8	1300	1.3	150	J,K
CLH1005T-68N□-S	68	100 MHz,200 mV	8	1100	1.5	100	J,K
CLH1005T-82N□-S	82	100 MHz,200 mV	8	1000	1.6	100	J,K
CLH1005T-R10□-S	100	100 MHz,200 mV	8	900	2	100	J,K

CLH1005T Series Specification

8 CLH1005T Series

8.1 Construction:



8.2 Material List:

NO	PART	MATERIAL
1	**Main Substance**	Al2O3-B2O3-SiO2
2	**Silver electrode**	**Ag**
3	**Silver electrode**	**Ag**
4	**Cu plating**	**Cu**
5	**Ni plating**	**Ni**
6	**Sn plating**	**Sn**

CLH1005T Series Specification

9 Reliability Of Ceramic Multilayer Chip Inductor For High Freq.

1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Flexure Strength	The forces applied on the right conditions must not damage the terminal electrode and the ferrite	Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 30sec *For 100505, substrate dimension is 100x40x0.8mm
1-1-2	Vibration		Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-3	Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 260±5℃ Immersion Time: 10±1sec
1-1-4	Solder ability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245±5℃(Pb-Free) Immersion Time: 4±1sec

1-2.Environmental Performance

No	Item	Specification	Test Method
1-2-1	Temperature Cycle	Appearance: No damage Inductance:within±10% of initial value Q change:within±30% of initial value	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
1-2-2	Humidity Resistance		Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-3	High Temperature Resistance		Temperature: 125±3℃ Relative Humidity: 20% Applied Current: Rated Current / Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-4	Low Temperature Resistance		Temperature: -55±3℃ Relative Humidity: 0% / Time: 1000hrs Measured after exposure in the room condition for 24hrs

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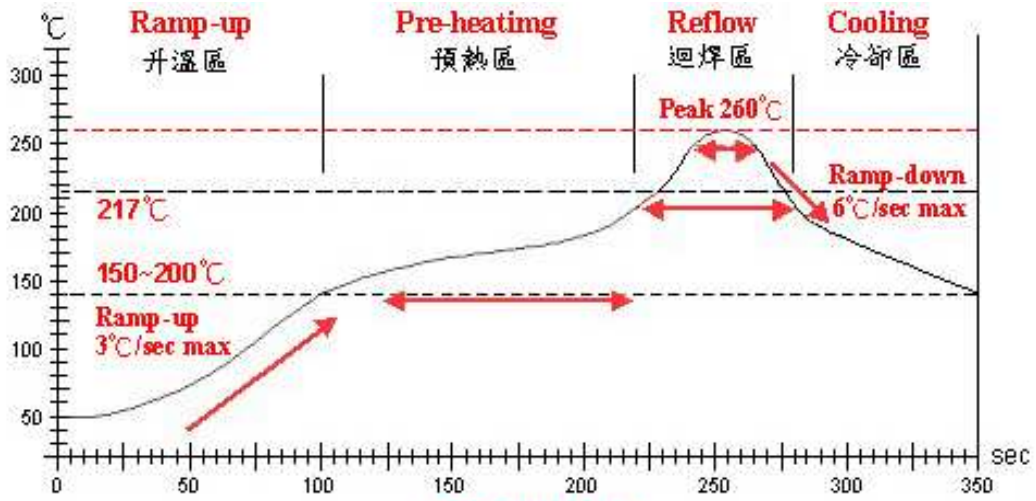
CLH1005T Series Specification



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-heatimg	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp.scope	R.T.~150℃	150℃~200℃	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

CLH1005T Series Specification

10 TEST DATA FOR PREPRODUCTION SAMPLES

QF-1419

DESCRIPTION: CLH1005T-5N1S-S

MEAS. Item		L (nH)	Q Min.	SRF (MHz)Typ.	RDC (Ω)Max.	A m/m	B m/m	C m/m	D m/m			
Spec	Customer	5.1±0.3										
	Suggest		8		0.20	1.0±0.1	0.5±0.1	0.5±0.1	0.25±0.1			
Test Freq.		200mV 100MHz	200mV 100MHz									
1		4.92	10.5		0.124	1.03	0.52	0.49	0.26			
2		5.12	10.8		0.115	1.03	0.51	0.52	0.28			
3		4.93	11.2		0.117	1.03	0.51	0.51	0.26			
4		4.99	10.3		0.127	1.04	0.52	0.52	0.25			
5		5.1	10.4		0.124	1.02	0.52	0.49	0.24			
6		5.12	11.2		0.122	1.04	0.53	0.49	0.27			
7		4.98	11.1		0.118	1.02	0.51	0.49	0.25			
8		5.13	10.5		0.115	1.05	0.52	0.51	0.23			
9		5.12	11.1		0.116	1.02	0.52	0.52	0.26			
10		5.12	11.5		0.123	1.04	0.52	0.51	0.21			
11												
12												
13												
14												
15												
$\overline{X}$		5.053	10.86		0.1201	1.032	0.518	0.505	0.251			
R		0.21	1.2		0.012	0.03	0.02	0.03	0.07			
CUSTOMER												
SAMPLE												

TEST INSTRUMENT:

Agilent E4991A+ Agilent 16197 FOR L,Q

CHEN HWA 502BC / HP4338B FOR RDC

Agilent E4991A+Agilent 16197&HP8753D FOR SRF

APPEARANCE AND DIMENSIONS :

SPEC : MEET ITEM 6.

TEST METHOD : VISUAL INSPECTION AND MEASURED WITH SILDE CALIPERS.

TESTING CONDITIONS :

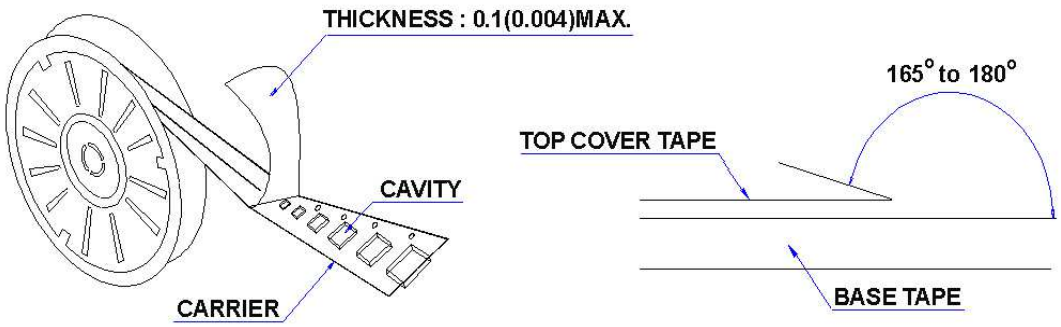
	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature (15 to 35℃)	20 ± 2 ℃
Humidity	Ordinary Humidity (25 to 85 %RH)	60 to 70 %RH

CLH1005T Series Specification

11 PACKAGING

11.1 Packaging -Cover tape

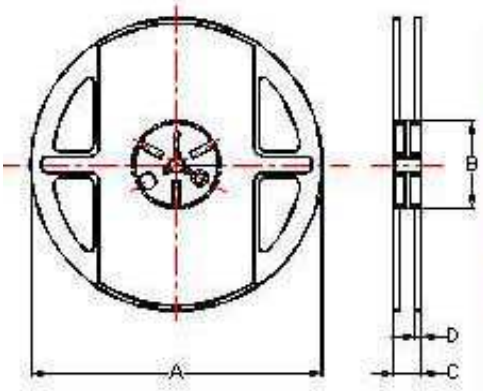
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



11.2 Packaging Quantity

TYPE	BULK	PCS/REEL
CLH1005	✓	10000
CLH1608	✓	4000
CLH2012(09)	✓	4000
CLH2012(12)	✓	3000

11.3 Reel Dimensions



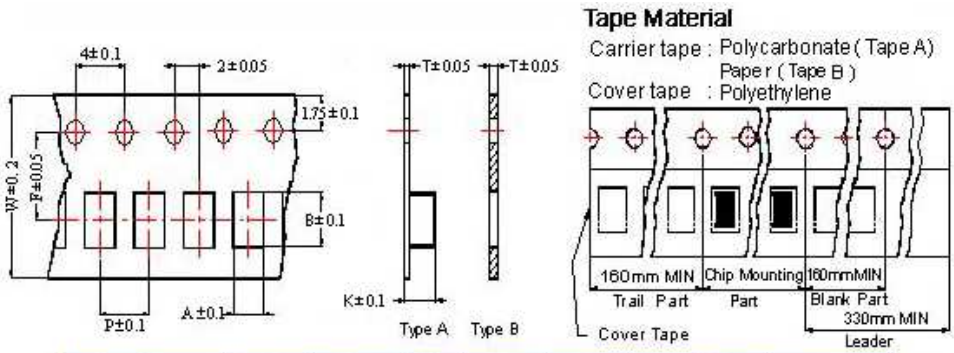
Reel Dimensions : m/m

TYPE	A	B	C	D
CLH1005	178	60	12	1.5
CLH1608	178	60	12	1.5
CLH2012(09)	178	60	12	1.5
CLH2012(12)	178	60	12	1.5

CLH1005T Series Specification

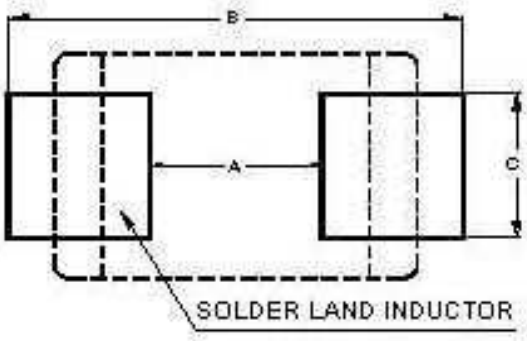
11 PACKAGING

11.4 Tape Dimensions in mm



TYPE	A	B	T	W	P	F	K	Tape Typ.
CLH1005	0.65	1.12	0.60	8	2	3.5		B
CLH1608	1.00	1.80	0.95	8	4	3.5		B
CLH2012(09)	1.58	2.42	0.95	8	4	3.5		B
CLH2012(12)	1.35	2.25	0.22	8	4	3.5	1.35	A

12 Recommended Pattern



Dimensions in mm

TYPE	A	B	C
CLH1005	0.4	1.2 ~ 1.4	0.5
CLH1608	0.7 ~ 0.8	1.8 ~ 2.0	0.6 ~ 0.8
CLH2012(09)	1.0 ~ 1.2	2.6 ~ 4.0	1.0 ~ 1.2
CLH2012(12)	1.0 ~ 1.2	2.6 ~ 4.0	1.0 ~ 1.2

13 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.

CLH1005T Series Specification

14 Curve: