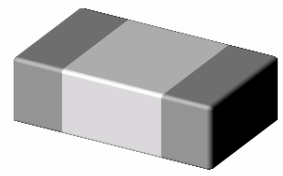
Chilisin Electronics Singapore Pte Ltd

SMD Multi-Layers Ceramic Inductors, CLH Series



Feature:

Our range of Multilayer Ceramic Chips Inductors offers various sizes.

Which are specially designs for High frequency products, which are compact and highly dense with component.

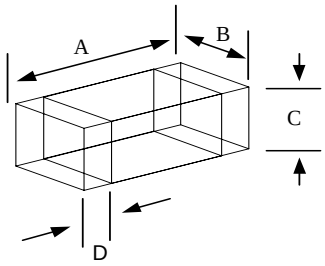
Its Provide excellent Q factor and high SRF characteristics.

Ordering Code:

CLH - 1005 - T - 8N2 - K - □

- Type
- Size
- Tape & Reel
- Inductance
- Tolerance ± 10%
- N = No Lead / S = Std

Dimension in mm:



Units : mm (inches)

Part Number	A	B	C	D	Inductance
CLH-1005 (0402)	1.0 ± 0.15 (0.039±0.006)	0.50 ± 0.15 (0.0196 ± 0.006)	0.50 ± 0.15 (0.0196 ± 0.006)	0.25 ± 0.15 (0.98±0.006)	1.0nH to 100nH
CLH-1608 (0603)	1.6 ± 0.2 (0.063±0.008)	0.80 ± 0.15 (0.031 ± 0.006)	0.80 ± 0.15 (0.031 ± 0.006)	0.3 ± 0.2 (0.012±0.008)	1.0nH to 180nH
CLH-2012 (0805)	2.00 ± 0.2 (0.079±0.0008)	1.25 ± 0.2 (0.049 ± 0.008)	0.9 ± 0.2 (0.0354 ± 0.008)	0.5 ± 0.3 (0.020±0.012)	1.0nH to 330nH

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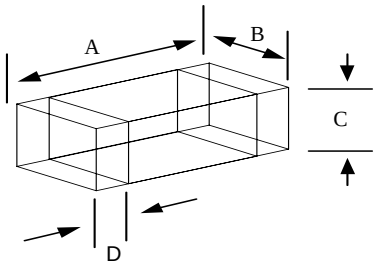

A	1.0 ± 0.10 mm
B	0.5 ± 0.10 mm
C	0.5 ± 0.10 mm
D	0.23 ± 0.10 mm

Electrical:

Part Number	L (nH)	Tol. ±%	Q		Test Freq. MHz	SRF MHz min	DCR Ω max	IDC mA max
			min 100MHz	Typ. 800MHz				
CLH-1005-T-1N0-S-N	1.0	S	8	28	100	10000	0.10	300
CLH-1005-T-1N2-S-N	1.2	S	8	28	100	10000	0.10	300
CLH-1005-T-1N5-S-N	1.5	S	8	28	100	9000	0.10	300
CLH-1005-T-1N8-S-N	1.8	S	8	28	100	8700	0.10	300
CLH-1005-T-2N2-S-N	2.2	S	8	29	100	8100	0.12	300
CLH-1005-T-2N7-S-N	2.7	S	8	30	100	7700	0.12	300
CLH-1005-T-3N3-☐-N	3.3	K/S	8	30	100	6300	0.15	300
CLH-1005-T-3N9-☐-N	3.9	K/S	8	31	100	6100	0.15	300
CLH-1005-T-4N7-☐-N	4.7	K/S	8	31	100	5400	0.18	300
CLH-1005-T-5N6-☐-N	5.6	K/S	8	31	100	5100	0.20	300
CLH-1005-T-6N8-☐-N	6.8	J/K	8	33	100	4550	0.25	300
CLH-1005-T-8N2-☐-N	8.2	J/K	8	32	100	4100	0.25	300
CLH-1005-T-10N-☐-N	10	J/K	8	32	100	3900	0.30	300
CLH-1005-T-12N-☐-N	12	J/K	8	31	100	3000	0.30	300
CLH-1005-T-15N-☐-N	15	J/K	8	30	100	2600	0.40	300
CLH-1005-T-18N-☐-N	18	J/K	8	29	100	2350	0.50	300
CLH-1005-T-22N-☐-N	22	J/K	8	28	100	2200	0.60	300
CLH-1005-T-27N-☐-N	27	J/K	8	27	100	1900	0.70	300
CLH-1005-T-33N-☐-N	33	J/K	8	25	100	1700	1.20	200
CLH-1005-T-39N-☐-N	39	J/K	8	25	100	1600	1.30	200
CLH-1005-T-47N-☐-N	47	J/K	8	22	100	1300	1.30	200
CLH-1005-T-56N-☐-N	56	J/K	8	21	100	1250	2.00	200
CLH-1005-T-68N-☐-N	68	J/K	8	15	100	1000	2.20	100
CLH-1005-T-82N-☐-N	82	J/K	8	13	100	900	2.50	100
CLH-1005-T-R10-☐-N	100	J/K	8	10	100	850	2.50	100

Tolerance : S = ± 0.3nH, K = ± 10% , J = ± 5% , G = ± 2%
Test Equipment : Aiglent E4991A and Fixture Aiglent 16197A for “L” and “Q”
: SRF : HP8753D / RDC : HP4338B or CH502BC

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Electrical:

Part Number	L (uH)	Test Freq. MHz	Tol. ± %	Q min		Q Typical			SRF MHz min	DCR Ω max	IDC mA max
				50 MHz	100 MHz	300 MHz	500 MHz	800. MHz			
CLH-1608-T-1N0-S-N	1.0	100	S		8			60	10000	0.10	500
CLH-1608-T-1N2-S-N	1.2	100	S		8			60	10000	0.10	500
CLH-1608-T-1N5-S-N	1.5	100	S		8			57	8000	0.10	500
CLH-1608-T-1N8-S-N	1.8	100	S		8			51	8000	0.10	500
CLH-1608-T-2N2-S-N	2.2	100	S		8			46	7200	0.10	500
CLH-1608-T-2N7-S-N	2.7	100	S		8			46	6200	0.10	500
CLH-1608-T-3N3-☐-N	3.3	100	S/K		10			47	5200	0.12	500
CLH-1608-T-3N9-☐-N	3.9	100	S/K		10			47	5000	0.14	500
CLH-1608-T-4N7-☐-N	4.7	100	S/K		10			41	4750	0.16	500
CLH-1608-T-5N6-☐-N	5.6	100	S/K		10			41	4100	0.18	500
CLH-1608-T-6N8-☐-N	6.8	100	K/J		10			44	3750	0.22	500
CLH-1608-T-8N2-☐-N	8.2	100	K/J		10			44	3300	0.24	500
CLH-1608-T-10N-☐-N	10	100	K/J		12			45	3000	0.26	300
CLH-1608-T-12N-☐-N	12	100	K/J		12			46	2600	0.28	300
CLH-1608-T-15N-☐-N	15	100	K/J		12			48	2500	0.32	300
CLH-1608-T-18N-☐-N	18	100	K/J		12			48	2400	0.35	300
CLH-1608-T-22N-☐-N	22	100	K/J		12			45	2000	0.40	300
CLH-1608-T-27N-☐-N	27	100	K/J		12			43	1900	0.45	300
CLH-1608-T-33N-☐-N	33	100	K/J		12			39	1600	0.55	300
CLH-1608-T-39N-☐-N	39	100	K/J		12		37		1400	0.60	300
CLH-1608-T-47N-☐-N	47	100	K/J		12		35		1300	0.70	300
CLH-1608-T-56N-☐-N	56	100	K/J		12		32		1100	0.75	300
CLH-1608-T-62N-☐-N	62	100	K/J		12		34		1050	0.85	300
CLH-1608-T-68N-☐-N	68	100	K/J		12		34		1050	0.85	300
CLH-1608-T-82N-☐-N	82	100	K/J		12		32		900	1.10	300
CLH-1608-T-R10-☐-N	100	100	K/J		12		20		770	1.20	300
CLH-1608-T-R12-☐-N	120	50	K/J	8		20			850	2.30	300
CLH-1608-T-R15-☐-N	150	50	K/J	8		16			550	2.40	300
CLH-1608-T-R18-☐-N	180	50	K/J	8		16			520	2.70	300

Tolerance : S = ± 0.3nH, K = ± 10% , J = ± 5% , G = ± 2%
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Electrical:

Part Number	L (uH)	Test Freq. MHz	Tol. ± %	Q min 50 MHz	Q min 100 MHz	Q Typical 300 MHz	Q Typical 500 MHz	Q Typical 800 MHz	SRF MHz min	DCR Ω max	IDC mA Max
CLH-2012-T-1N0-S-N	1.0	100	S		10		13	40	>6000	0.10	300
CLH-2012-T-1N2-S-N	1.2	100	S		10		13	40	>6000	0.10	300
CLH-2012-T-1N5-S-N	1.5	100	S		10		13	40	>6000	0.10	300
CLH-2012-T-1N8-S-N	1.8	100	S		10		13	45	>6000	0.10	300
CLH-2012-T-2N2-S-N	2.2	100	S		10		13	48	>6000	0.10	300
CLH-2012-T-2N7-S-N	2.7	100	S		12		13	48	>6000	0.10	300
CLH-2012T--3N3-☐-N	3.3	100	S/K		12		15	56	>6000	0.13	300
CLH-2012-T-3N9-☐-N	3.9	100	S/K		12		15	54	5400	0.15	300
CLH-2012-T-4N7-☐-N	4.7	100	S/K		12		15	50	4500	0.20	300
CLH-2012-T-5N6-☐-N	5.6	100	S/K		12		15	53	4000	0.23	300
CLH-2012-T-6N8-☐-N	6.8	100	J/K		15		15	51	3600	0.25	300
CLH-2012-T-8N2-☐-N	8.2	100	J/K		15		15	53	3000	0.28	300
CLH-2012-T-10N-☐-N	10	100	J/K		15		16	45	2500	0.30	300
CLH-2012-T-12N-☐-N	12	100	J/K		15		16	48	2450	0.35	300
CLH-2012-T-15N-☐-N	15	100	J/K		15		17	48	2000	0.40	300
CLH-2012-T-18N-☐-N	18	100	J/K		15		17	43	1750	0.45	300
CLH-2012-T-22N-☐-N	22	100	J/K		15		17	40	1700	0.50	300
CLH-2012-T-27N-☐-N	27	100	J/K		15		18	38	1550	0.55	300
CLH-2012-T-33N-☐-N	33	100	J/K		15		19	35	1350	0.60	300
CLH-2012-T-39N-☐-N	39	100	J/K		18		21	37	1300	0.65	300
CLH-2012-T-47N-☐-N	47	100	J/K		18		21	38	1200	0.70	300
CLH-2012-T-56N-☐-N	56	100	J/K		18		21	31	1150	0.75	300
CLH-2012-T-68N-☐-N	68	100	J/K		18		21	28	1000	0.80	300
CLH-2012-T-82N-☐-N	82	100	J/K		18		22	16	850	0.90	300
CLH-2012-T-R10-☐-N	100	100	J/K		18		23		730	1.00	300
CLH-2012-T-R12-☐-N	120	50	J/K	13		16	22		650	1.20	300
CLH-2012-T-R15-☐-N	150	50	J/K	13		16	22		550	1.40	300
CLH-2012-T-R18-☐-N	180	50	J/K	13		16	23		500	1.80	300
CLH-2012-T-R22-☐-N	220	50	J/K	12		14	20		450	2.00	300
CLH-2012-T-R27-☐-N	270	50	J/K	12		14	20		400	2.50	200
CLH-2012-T-R33-☐-N	330	50	J/K	12		14	22		380	3.00	200

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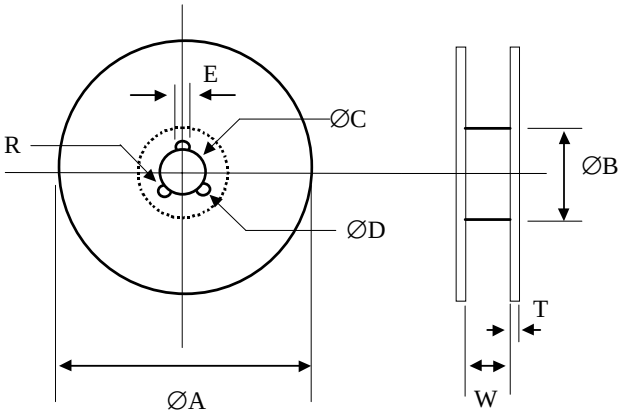
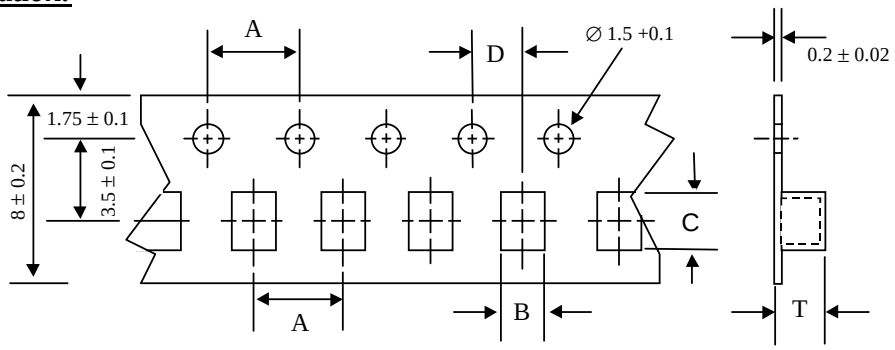
Reel Dimensions:



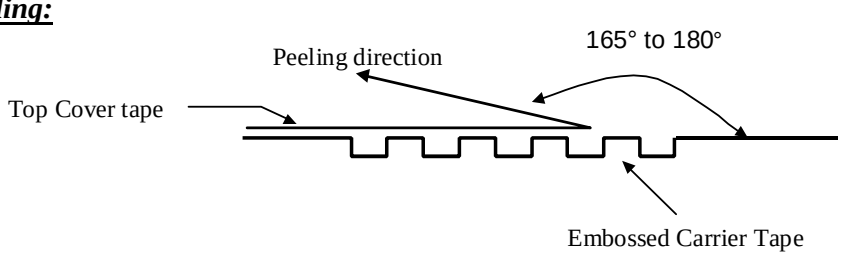
ØA	ØB	ØC	ØD	E	W	T	R
178 ±2	60 ± 1	13.0 ± 0.5	21.0 ± 0.8	2.0 ± 0.5	10.0 ± 1.0	2.0 ± 0.5	1.0

Tape Specification:

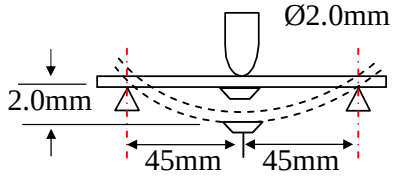


Type	A	B	C	D	T
CLH – 1005	2.0 ± 0.1	0.6 ± 0.1	1.1 ± 0.1	1.0 ± 0.1	Max 1.0
CLH - 1608	4.0 ± 0.1	1.0 ± 0.1	1.8 ± 0.1	2.0 ± 0.1	Max 1.3
CLH - 2012	4.0 ± 0.1	1.6 ± 0.1	2.4 ± 0.1	2.0 ± 0.1	Max 1.3

Tape peeling:



Reliability Test (Mechanical Performances):

No.	Item	Specification	Test Condition
1.	Solderability	More than 90% of the terminal Electrode shall be coved with fresh solder	Pre heat = 150°C Pre heat Time = 1 minute Solder = Sn/Ag3.0/Cu0.5 (Pb –Free) Solder Temperature = 245°C ± 5°C Immersion Time = 4 ± 1 Sec
2.	Resistance to Soldering Heat	The chips shall not crack. More than 75% of the terminal Electrode Shall be cover with solder	Pre Heat = 150°C Pre heat Time = 1 minute Solder = Sn/Ag3.0/Cu0.5 (Pb –Free) Solder Temperature = 260°C ± 5°C Immersion Time = 10 ± 1 Sec
3.	Bending Strength	The Ferrite and Terminal Electrode shall not be damage When force are applied per test Condition on the right	Test device shall be solder to substrate Substrate Dimension = 100mmx40mmx1.6mm Deflection = 2.0mm Duration = 30Sec.  For 1005 Substrate size 100mmx40mmx0.8mm
4.	Vibration		Test Device shall be soldered on the substrate Oscillation Freq.= 10 to 55 to 10Hz for 1 min Amplitude = 1.5mm Time = 2hrs for each axis (X,Y&Z) total 6 hrs

Environmental Performances:

<table>
<tr><th>No.</th><th>Item</th><th>Specification</th><th>Test Condition</th></tr>
<tr><td>5.</td><td>Temperature Cycle</td><td rowspan="4">Appearance No damage
Impedance within ±20%
Of the initial value</td><td>One Cycle
<table>
<tr><th>Step</th><th>Temperate</th><th>Time (min)</th></tr>
<tr><td>1</td><td>-55°C</td><td>30</td></tr>
<tr><td>2</td><td>25°C</td><td>3</td></tr>
<tr><td>3</td><td>125°C</td><td>30</td></tr>
<tr><td>4</td><td>25°C</td><td>3</td></tr>
</table>
Total 100 Cycles
Measured after exposure in room condition = 24hrs</td></tr>
<tr><td>6</td><td>Humidity Resistance</td><td>Temperature: +40°C ± 2°C
Humidity: 90% to 95%
Time 1000 ± 12 Hours
Measured after exposure in room condition = 24hrs</td></tr>
<tr><td>7</td><td>High Temperature Resistance</td><td>Temperature = 125°C ± 3°C
Relative Humidity = 0%
Applied Current = Rated Current as state
Time = 1000 hrs ± 12 hrs
Measure after exposure in room Condition = 24hrs</td></tr>
<tr><td>8.</td><td>Low Temperature Resistance</td><td>Temperature = -55°C ± 3°C
Relative Humidity = 0%
Time = 1000 hrs ± 12 hrs
Measure after exposure in room Condition = 24hrs</td></tr>
</table>