

CLH Series



The CLH Series is a type of ceramic chip inductor produced using the multilayer technology. The series provides excellent Q factor and SRF characteristics and is suitable for high frequency applications.

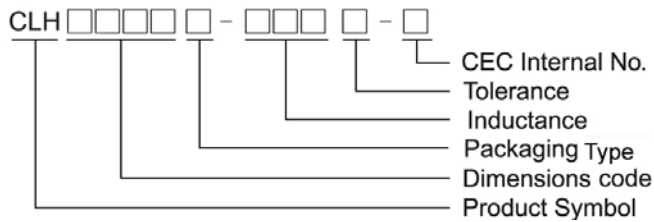
Features

- RoHS compliant
- Excellent Q factor and SRF characteristics
- Small size of 1005/1608 is suitable for small portable devices
- Supports operating frequency up to 6GHz with nominal inductance values from 1.0nH to 470nH.

Applications

- RF resonance and impedance matching circuit
- RF and wireless communication
- Information technology equipment, computers, telecommunications, radar detectors, automotive electronics, cellular phones, pagers, PDAs, keyless remote systems
- L-C filter configurations

Product Identification



- Packing Type: T: Taping B: Bulk
- Product series identification:

CLH0603-F: Top side half mark.

CLH1005-S: Top side full mark.

CLH1608-S: Top side full mark.

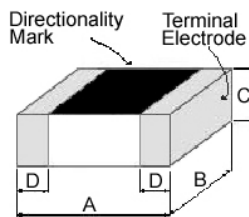
Shape and Dimensions

CLH0603-F Series

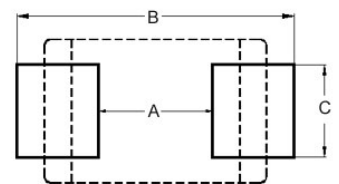


CLH1005-S Series

CLH1608-S Series



Recommended Pattern



Dimensions in mm

TYPE	A	B	C	D
0603	0.6±0.03	0.3±0.03	0.3±0.03	0.15±0.05
1005	1.0±0.10	0.5±0.10	0.5±0.10	0.25±0.10
1608	1.6±0.15	0.8±0.15	0.8±0.15	0.3±0.2

Dimensions in mm

TYPE	A	B	C
CLH0603	0.3	0.75 ~ 1.05	0.3
CLH1005	0.4	1.2 ~ 1.4	0.5
CLH1608	0.7 ~ 0.8	1.8 ~ 2.0	0.6 ~ 0.8

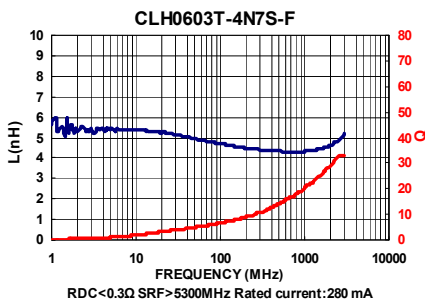
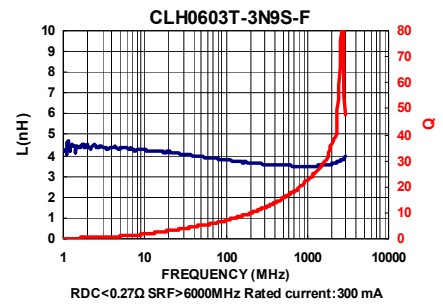
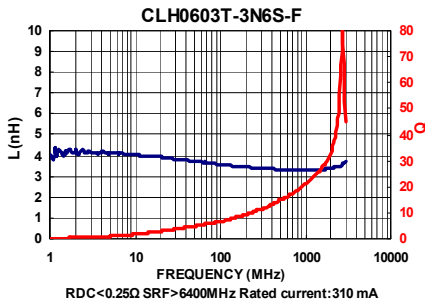
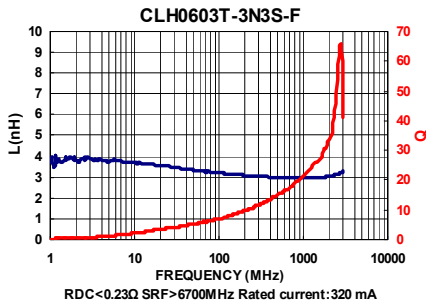
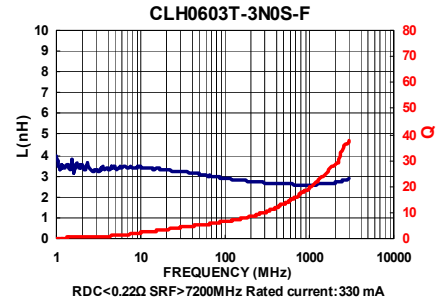
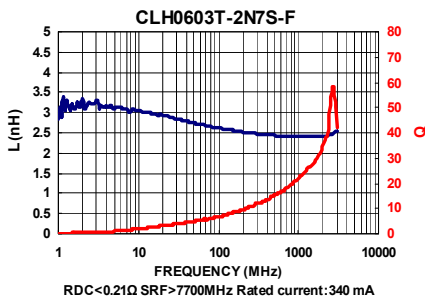
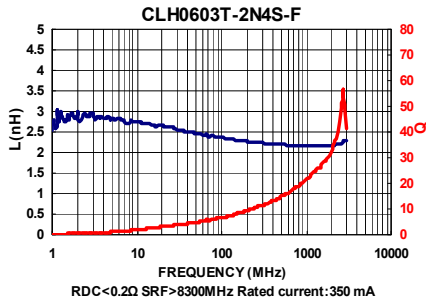
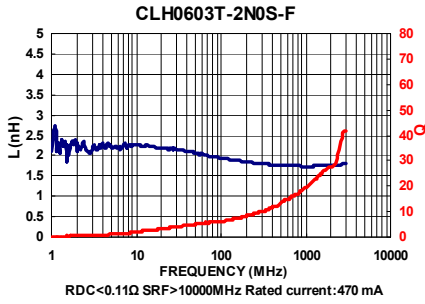
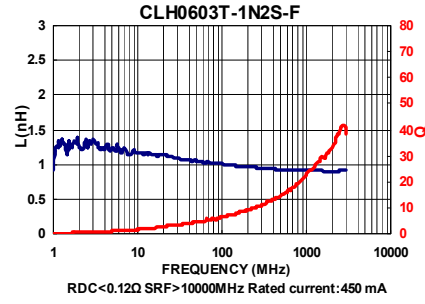
Electrical Characteristics

Part Number	Inductance (nH)	Tolerance (±%)	Test Frequency (MHz)	Q Min	SRF (MHz) Min	RDC (Ω) Max	Rated Current (mA) Max
CLH0603T-1N0□-F	1.0	±0.3nH	100	4	>10000	0.11	470
CLH0603T-1N2□-F	1.2	±0.3nH	100	4	>10000	0.12	450
CLH0603T-1N5□-F	1.5	±0.3nH	100	4	>10000	0.13	430
CLH0603T-1N8□-F	1.8	±0.3nH	100	4	>10000	0.16	390
CLH0603T-2N0□-F	2.0	±0.3nH	100	4	>10000	0.17	380
CLH0603T-2N2□-F	2.2	±0.3nH	100	4	8800	0.19	360
CLH0603T-2N4□-F	2.4	±0.3nH	100	4	8300	0.20	350
CLH0603T-2N7□-F	2.7	±0.3nH	100	4	7700	0.21	340
CLH0603T-3N0□-F	3.0	±0.3nH	100	4	7200	0.22	330
CLH0603T-3N3□-F	3.3	±0.3nH	100	4	6700	0.23	320
CLH0603T-3N6□-F	3.6	±0.3nH	100	4	6400	0.25	310
CLH0603T-3N9□-F	3.9	±0.3nH	100	4	6000	0.27	300
CLH0603T-4N3□-F	4.3	±0.3nH	100	4	5700	0.30	280
CLH0603T-4N7□-F	4.7	±0.3nH	100	4	5300	0.30	280
CLH0603T-5N1□-F	5.1	±0.3nH	100	4	5000	0.33	270
CLH0603T-5N6□-F	5.6	±0.3nH	100	4	4600	0.36	260
CLH0603T-6N2□-F	6.2	±0.3nH	100	4	4200	0.38	250
CLH0603T-6N8□-F	6.8	5	100	4	3900	0.39	250
CLH0603T-7N5□-F	7.5	5	100	4	3600	0.41	240
CLH0603T-8N2□-F	8.2	5	100	4	3400	0.45	230
CLH0603T-9N1□-F	9.1	5	100	4	3200	0.48	220
CLH0603T-10N□-F	10	5	100	4	2900	0.51	220
CLH0603T-12N□-F	12	5	100	4	2700	0.68	190
CLH0603T-15N□-F	15	5	100	4	2300	0.71	180
CLH0603T-18N□-F	18	5	100	4	2100	0.81	170
CLH0603T-22N□-F	22	5	100	4	1800	1.00	150
CLH0603T-27N□-F	27	5	100	4	1800	1.35	120
CLH0603T-33N□-F	33	5	100	4	1700	1.47	110
CLH0603T-39N□-F	39	5	100	4	1500	1.72	100
CLH0603T-47N□-F	47	5	100	4	1300	1.90	100
CLH0603T-56N□-F	56	5	100	4	1100	2.27	80
CLH0603T-68N□-F	68	5	100	4	1100	2.66	80
CLH0603T-82N□-F	82	5	100	4	1000	3.37	70
CLH0603T-R10□-F	100	5	100	4	900	3.74	60

Note: When ordering, please specify tolerance code. Tolerance : S=±0.3nH , J=±5%

- Operating temperature range - 55°C ~ 125°C(Including self - temperature rise)
- Rate Current :Applied the current to coils, the temperature rise shall not be more than 30°C
- Residual impedance of short chip : 0.19nH
- Measure Equipment :
 - L & Q : Agilent E4991A+Agilent 16197A
 - SRF : Agilent E4991A or HP19196C
 - RDC : HP4338B or CHEN HWA 502

Test Instruments : Agilent E4991A Material/Impedance Analyzer



Please be sure to request approval specifications that provide further details of the products. Kindly note that the content of these specifications are subject to change or may be discontinued without advance notice. Please contact our sales department before ordering.

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Electrical Characteristics

Part Number	Inductance (nH)	Tolerance (±%)	Test Frequency (MHz)	Q Min	SRF (MHz) Typ.	RDC (Ω) Max	IDC (mA) Max
CLH1005T-1N0□-S	1.0	±0.3nH	100	8	10000	0.07	400
CLH1005T-1N1□-S	1.1	±0.3nH	100	8	10000	0.07	400
CLH1005T-1N2□-S	1.2	±0.3nH	100	8	10000	0.09	400
CLH1005T-1N3□-S	1.3	±0.3nH	100	8	9000	0.10	400
CLH1005T-1N5□-S	1.5	±0.3nH	100	8	9000	0.10	400
CLH1005T-1N6□-S	1.6	±0.3nH	100	8	8700	0.10	400
CLH1005T-1N8□-S	1.8	±0.3nH	100	8	8700	0.10	400
CLH1005T-2N0□-S	2.0	±0.3nH	100	8	8100	0.10	400
CLH1005T-2N2□-S	2.2	±0.3nH	100	8	8100	0.12	400
CLH1005T-2N4□-S	2.4	±0.3nH	100	8	7700	0.15	400
CLH1005T-2N7□-S	2.7	±0.3nH	100	8	7700	0.15	400
CLH1005T-3N0□-S	3.0	±0.3nH	100	8	6300	0.15	400
CLH1005T-3N3□-S	3.3	±0.3nH/10	100	8	6300	0.15	400
CLH1005T-3N6□-S	3.6	±0.3nH/10	100	8	6100	0.15	400
CLH1005T-3N9□-S	3.9	±0.3nH/10	100	8	6100	0.18	400
CLH1005T-4N3□-S	4.3	±0.3nH/10	100	8	6000	0.18	400
CLH1005T-4N7□-S	4.7	±0.3nH/10	100	8	6000	0.18	400
CLH1005T-5N0□-S	5.0	±0.3nH/10	100	8	5100	0.20	400
CLH1005T-5N1□-S	5.1	±0.3nH/10	100	8	5300	0.20	400
CLH1005T-5N6□-S	5.6	±0.3nH/10	100	8	5100	0.20	400
CLH1005T-6N8□-S	6.8	5 / 10	100	8	4550	0.24	400
CLH1005T-8N0□-S	8.0	5 / 10	100	8	4100	0.30	300
CLH1005T-8N2□-S	8.2	5 / 10	100	8	4100	0.24	300
CLH1005T-9N1□-S	9.1	5 / 10	100	8	3900	0.26	300
CLH1005T-10N□-S	10	5 / 10	100	8	3900	0.26	300
CLH1005T-12N□-S	12	5 / 10	100	8	3000	0.40	300
CLH1005T-15N□-S	15	5 / 10	100	8	2800	0.50	300
CLH1005T-18N□-S	18	5 / 10	100	8	2500	0.55	300
CLH1005T-22N□-S	22	5 / 10	100	8	2200	0.70	300
CLH1005T-24N□-S	24	5 / 10	100	8	2100	0.70	300
CLH1005T-27N□-S	27	5 / 10	100	8	2000	0.80	300
CLH1005T-33N□-S	33	5 / 10	100	8	1800	0.9	200
CLH1005T-39N□-S	39	5 / 10	100	8	1600	1.0	150
CLH1005T-47N□-S	47	5 / 10	100	8	1400	1.2	150
CLH1005T-56N□-S	56	5 / 10	100	8	1300	1.3	150
CLH1005T-68N□-S	68	5 / 10	100	8	1100	1.5	100

Note: When ordering, please specify tolerance code. Tolerance : S=±0.3nH , J=±5% , K=±10%

- Operating temperature range - 55°C ~ 125°C(Including self - temperature rise)
- IDC : Applied the current to coils, the inductance shall be less than 10% initial value
- Measure Equipment :
 L & Q : Agilent E4991A+Agilent 16197A
 SRF : HP8753D
 RDC : HP4338B or CHEN HWA 502

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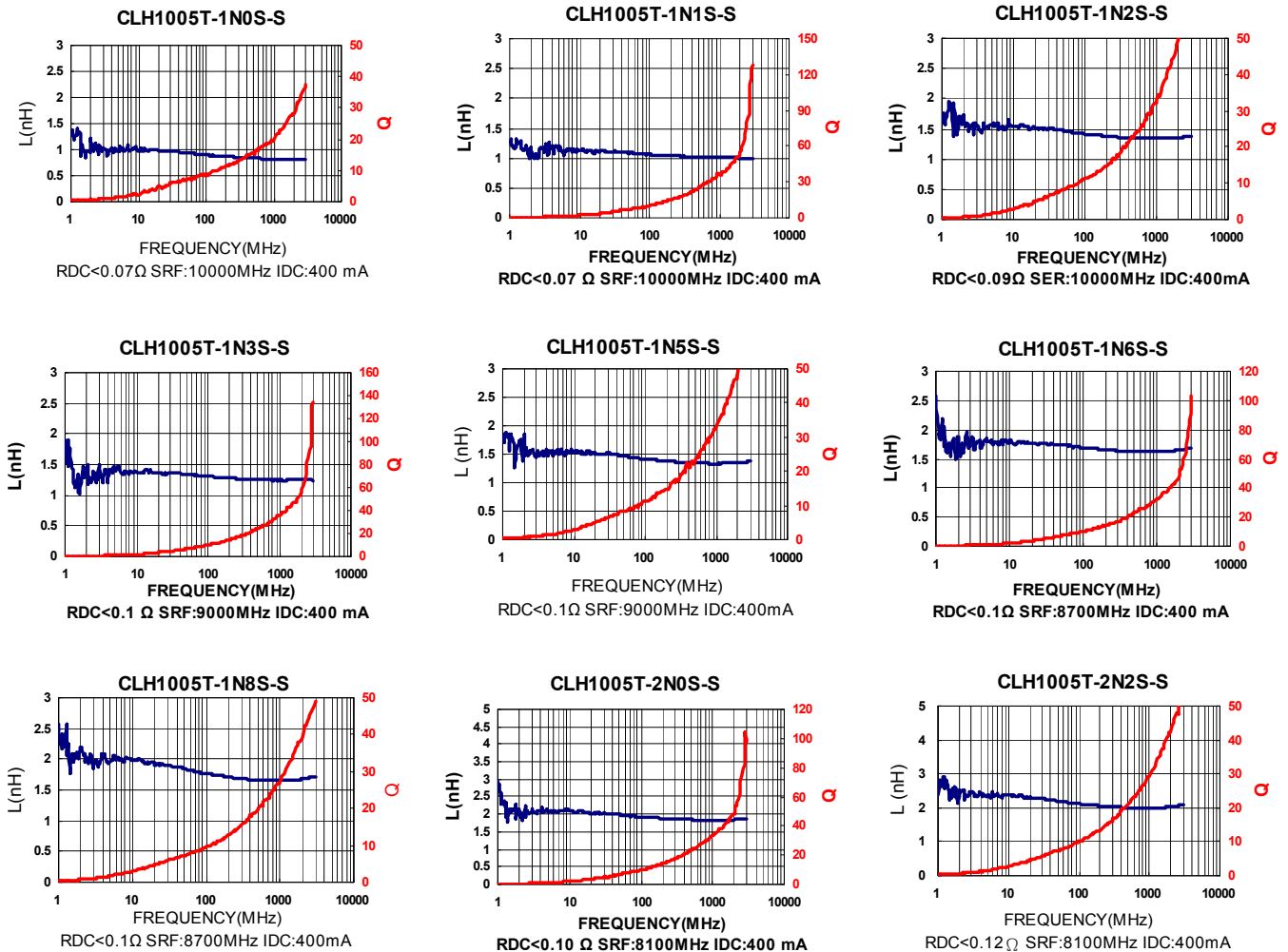
Electrical Characteristics

Part Number	Inductance (nH)	Tolerance (±%)	Test Frequency (MHz)	Q Min	SRF (MHz) Typ.	RDC (Ω) Max	IDC (mA) Max
CLH1005T-75N□-S	75	5 / 10	100	8	1080	1.5	100
CLH1005T-82N□-S	82	5 / 10	100	8	1000	1.6	100
CLH1005T-R10□-S	100	5 / 10	100	8	900	2.0	100
CLH1005T-R12□-S	120	5 / 10	100	8	800	2.2	100
CLH1005T-R15□-S	150	5 / 10	100	8	700	3.5	100
CLH1005T-R18□-S	180	5 / 10	100	8	600	3.8	100
CLH1005T-R22□-S	220	5 / 10	100	8	500	4.2	100
CLH1005T-R27□-S	270	5 / 10	100	8	500	4.8	100

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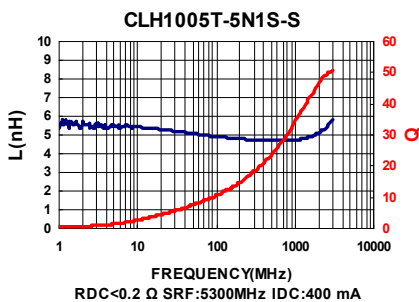
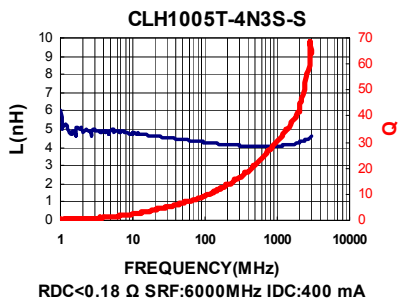
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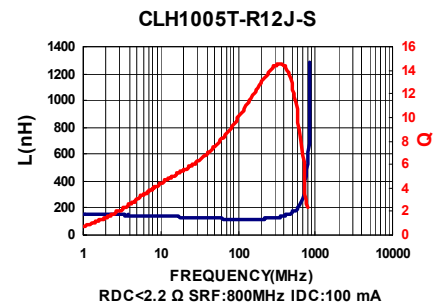
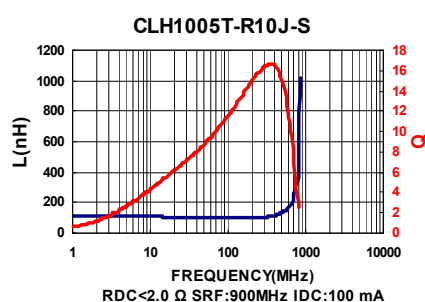
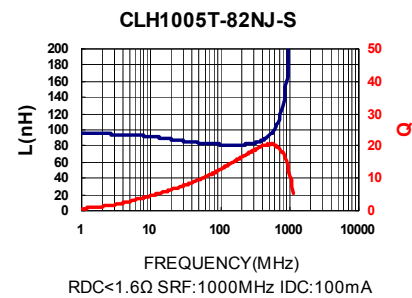
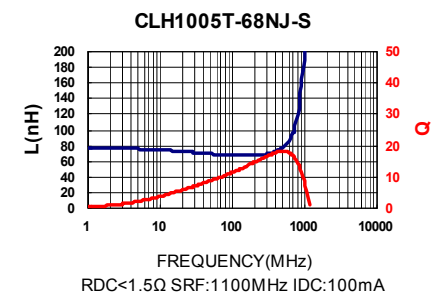
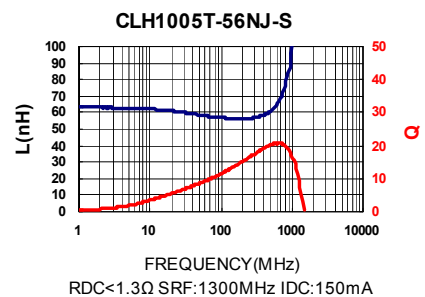
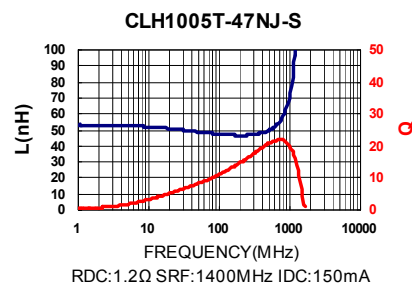
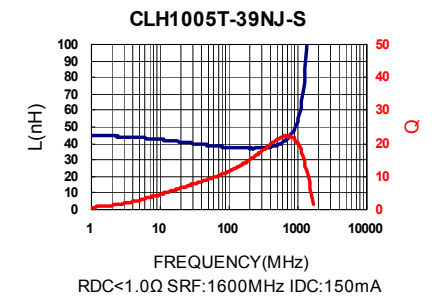
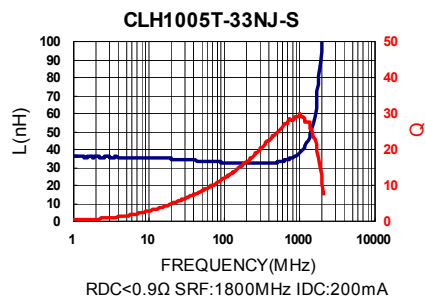
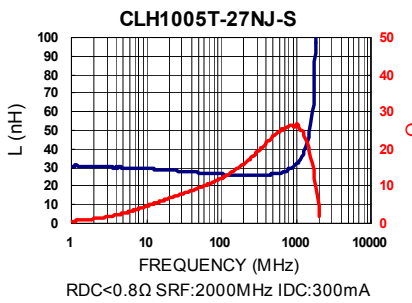
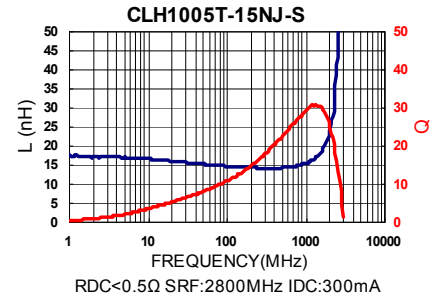
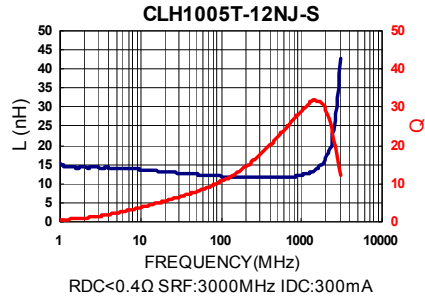
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Test Instruments : Agilent E4991A Material/Impedance Analyzer



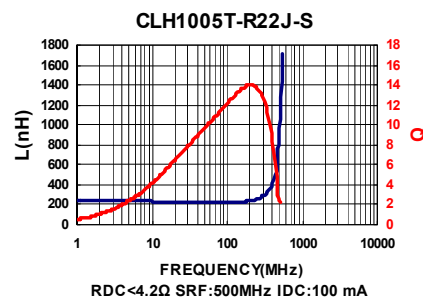
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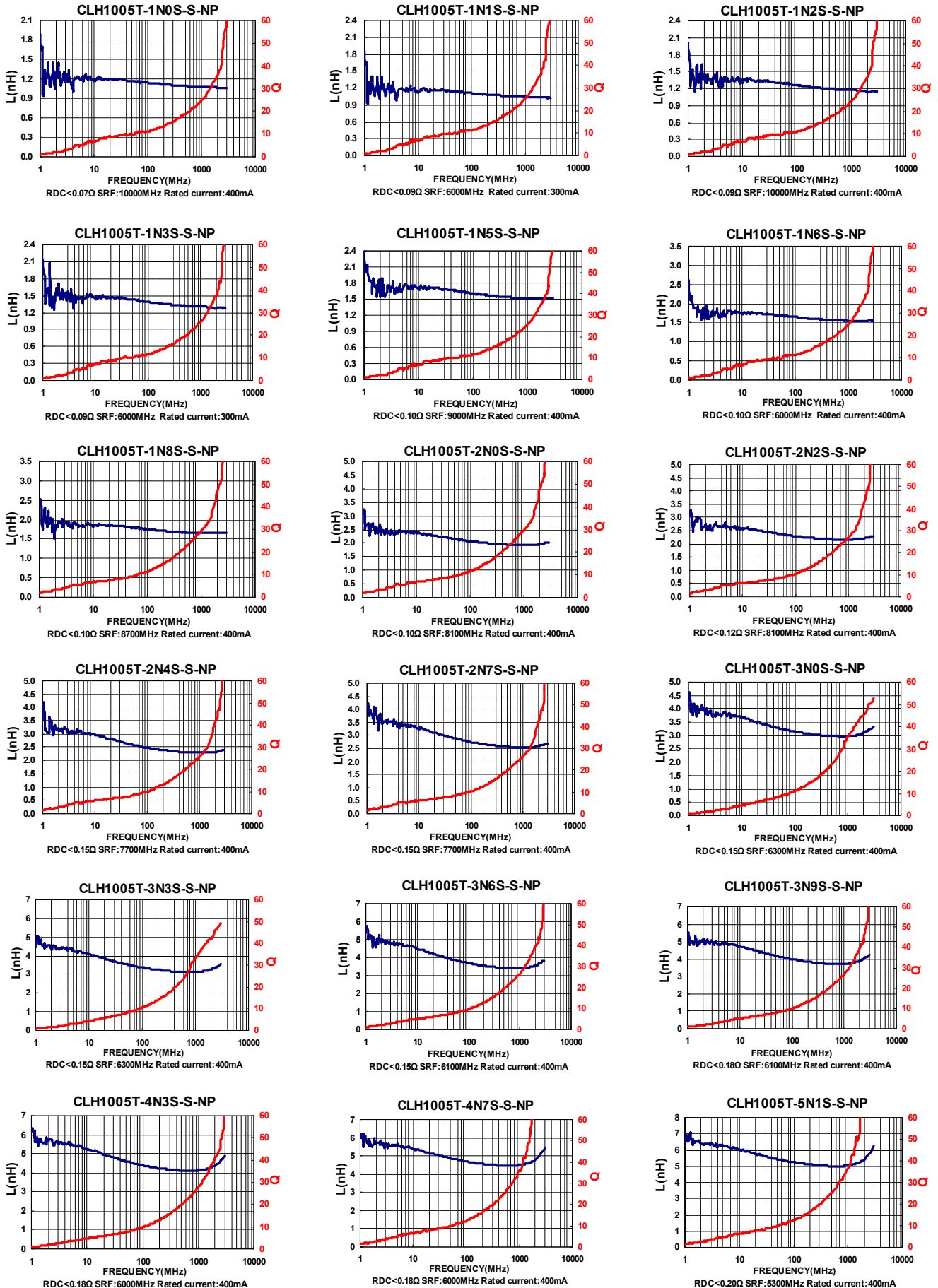
Electrical Characteristics

Part Number	Inductance (nH)	Tolerance (±%)	Test Frequency (MHz)	Q Min	SRF (MHz) Typ.	RDC (Ω) Max	Rated Current (mA) Max
CLH1005T-1N0□-S-NP	1.0	±0.2nH/±0.3nH	100	8	10000	0.07	400
CLH1005T-1N1□-S-NP	1.1	±0.3nH	100	8	6000	0.09	300
CLH1005T-1N2□-S-NP	1.2	±0.2nH/±0.3nH	100	8	10000	0.09	400
CLH1005T-1N3□-S-NP	1.3	±0.3nH	100	8	6000	0.09	300
CLH1005T-1N5□-S-NP	1.5	±0.3nH	100	8	9000	0.10	400
CLH1005T-1N6□-S-NP	1.6	±0.3nH	100	8	6000	0.10	400
CLH1005T-1N8□-S-NP	1.8	±0.3nH	100	8	8700	0.10	400
CLH1005T-2N0□-S-NP	2.0	±0.3nH	100	8	8100	0.10	400
CLH1005T-2N2□-S-NP	2.2	±0.3nH	100	8	8100	0.12	400
CLH1005T-2N4□-S-NP	2.4	±0.3nH	100	8	7700	0.15	400
CLH1005T-2N7□-S-NP	2.7	±0.3nH	100	8	7700	0.15	400
CLH1005T-3N0□-S-NP	3.0	±0.3nH	100	8	6300	0.15	400
CLH1005T-3N3□-S-NP	3.3	±0.3nH	100	8	6300	0.15	400
CLH1005T-3N6□-S-NP	3.6	±0.3nH	100	8	6100	0.15	400
CLH1005T-3N9□-S-NP	3.9	±0.3nH	100	8	6100	0.18	400
CLH1005T-4N3□-S-NP	4.3	±0.3nH	100	8	6000	0.18	400
CLH1005T-4N7□-S-NP	4.7	±0.3nH	100	8	6000	0.18	400
CLH1005T-5N1□-S-NP	5.1	±0.3nH	100	8	5300	0.20	400
CLH1005T-5N6□-S-NP	5.6	±0.3nH	100	8	5100	0.20	400
CLH1005T-6N2□-S-NP	6.2	±0.3nH/5/10	100	8	4500	0.22	400
CLH1005T-6N8□-S-NP	6.8	5 / 10	100	8	4550	0.24	400
CLH1005T-7N5□-S-NP	7.5	5 / 10	100	8	4200	0.24	300
CLH1005T-8N2□-S-NP	8.2	5 / 10	100	8	4100	0.24	300
CLH1005T-9N1□-S-NP	9.1	5 / 10	100	8	3900	0.26	300
CLH1005T-10N□-S-NP	10	5 / 10	100	8	3900	0.26	300
CLH1005T-12N□-S-NP	12	5 / 10	100	8	3000	0.28	300
CLH1005T-15N□-S-NP	15	5 / 10	100	8	2500	0.32	300
CLH1005T-18N□-S-NP	18	5 / 10	100	8	2200	0.36	300
CLH1005T-22N□-S-NP	22	5 / 10	100	8	1900	0.42	300
CLH1005T-27N□-S-NP	27	5 / 10	100	8	1700	0.46	300
CLH1005T-33N□-S-NP	33	5 / 10	100	8	1600	0.58	200
CLH1005T-39N□-S-NP	39	5 / 10	100	8	1200	0.65	200
CLH1005T-47N□-S-NP	47	5 / 10	100	8	1000	0.72	200
CLH1005T-56N□-S-NP	56	5 / 10	100	8	800	0.82	200
CLH1005T-68N□-S-NP	68	5 / 10	100	8	800	0.92	180
CLH1005T-82N□-S-NP	82	5 / 10	100	8	700	1.20	150

Note: When ordering, please specify tolerance code. Tolerance : C=±0.2nH , S=±0.3nH , J=±5% , K=±10%

- Operating temperature range - 55°C ~ 125°C(Including self - temperature rise)
- Rate Current : Applied the current to coils, the temperature rise shall not be more than 30°C
- Measure Equipment :
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 SRF : HP8753D
 RDC : HP4338B or CHEN HWA 502

Test Instruments : Agilent E4991A Material/Impedance Analyzer



Please be sure to request approval specifications that provide further details of the products. Kindly note that the content of these specifications are subject to change or may be discontinued without advance notice. Please contact our sales department before ordering.

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Electrical Characteristics

Part Number	Inductance (nH)	Tolerance (±%)	Test Frequency (MHz)	Q Min	SRF (MHz) Typ.	RDC (Ω) Max	IDC (mA) Max
CLH1608T-1N0S-S	1.0	±0.3nH	100	8	10000	0.10	600
CLH1608T-1N2S-S	1.2	±0.3nH	100	8	10000	0.10	600
CLH1608T-1N5S-S	1.5	±0.3nH	100	8	8000	0.10	600
CLH1608T-1N6S-S	1.6	±0.3nH	100	8	8000	0.10	600
CLH1608T-1N8S-S	1.8	±0.3nH	100	8	8000	0.10	600
CLH1608T-2N2S-S	2.2	±0.3nH	100	8	7200	0.10	600
CLH1608T-2N7S-S	2.7	±0.3nH	100	10	6200	0.10	600
CLH1608T-3N0S-S	3.0	±0.3nH	100	10	5200	0.12	600
CLH1608T-3N3□-S	3.3	±0.3nH/10	100	10	5200	0.12	600
CLH1608T-3N6S-S	3.6	±0.3nH	100	10	5000	0.14	600
CLH1608T-3N9□-S	3.9	±0.3nH/10	100	10	5000	0.14	600
CLH1608T-4N3□-S	4.3	±0.3nH/10	100	10	4750	0.16	600
CLH1608T-4N7□-S	4.7	±0.3nH /10	100	10	4750	0.16	600
CLH1608T-5N1□-S	5.1	±0.3nH /10	100	10	4100	0.18	600
CLH1608T-5N6□-S	5.6	±0.3nH/10	100	10	4100	0.18	600
CLH1608T-6N2□-S	6.2	5 / 10	100	10	3750	0.22	600
CLH1608T-6N8□-S	6.8	5 / 10	100	10	3750	0.22	600
CLH1608T-7N5□-S	7.5	5 / 10	100	10	3300	0.24	600
CLH1608T-8N2□-S	8.2	5 / 10	100	10	3300	0.24	600
CLH1608T-10N□-S	10	5 / 10	100	12	3000	0.26	600
CLH1608T-12N□-S	12	5 / 10	100	12	2600	0.28	600
CLH1608T-15N□-S	15	5 / 10	100	12	2500	0.32	600
CLH1608T-16N□-S	16	5 / 10	100	12	2400	0.35	600
CLH1608T-18N□-S	18	5 / 10	100	12	2400	0.35	600
CLH1608T-22N□-S	22	5 / 10	100	12	2000	0.40	500
CLH1608T-27N□-S	27	5 / 10	100	12	1900	0.45	500
CLH1608T-33N□-S	33	5 / 10	100	12	1600	0.55	400
CLH1608T-39N□-S	39	5 / 10	100	12	1400	0.60	400
CLH1608T-47N□-S	47	5 / 10	100	12	1300	0.70	400
CLH1608T-56N□-S	56	5 / 10	100	12	1100	0.75	400
CLH1608T-62N□-S	62	5 / 10	100	12	1050	0.85	400
CLH1608T-68N□-S	68	5 / 10	100	12	1050	0.85	400
CLH1608T-75N□-S	75	5 / 10	100	12	900	1.00	300
CLH1608T-82N□-S	82	5 / 10	100	12	900	1.00	300
CLH1608T-R10□-S	100	5 / 10	100	12	770	1.20	300
CLH1608T-R12□-S	120	5 / 10	50	8	650	1.30	300
CLH1608T-R15□-S	150	5 / 10	50	8	550	1.70	250
CLH1608T-R18□-S	180	5 / 10	50	8	520	1.90	250
CLH1608T-R22□-S	220	5 / 10	50	8	500	2.00	250
CLH1608T-R27□-S	270	5 / 10	50	8	470	2.20	150
CLH1608T-R33□-S	330	5 / 10	50	8	320	2.80	100
CLH1608T-R39□-S	390	5 / 10	50	8	300	3.00	100

Note: When ordering, please specify tolerance code. Tolerance : S=±0.3nH , J=±5% , K=±10%

- Operating temperature range - 55°C ~ 125°C(Including self - temperature rise)
- IDC : Applied the current to coils, the inductance shall be less than 10% initial value
- Measure Equipment :
 L & Q : Agilent E4991A+Agilent 16197A
 SRF : HP8753D
 RDC : HP4338B or CHEN HWA 502

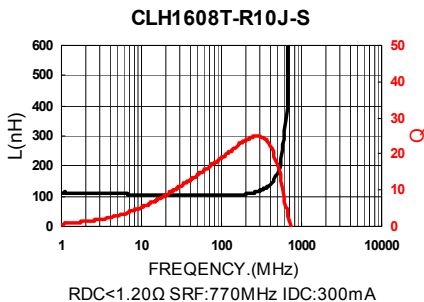
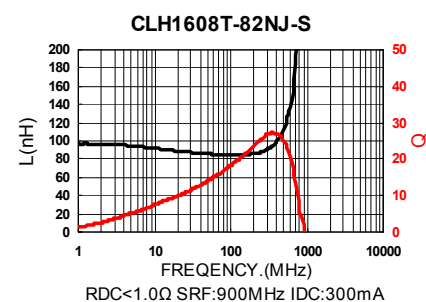
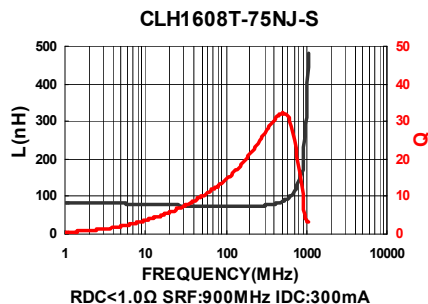
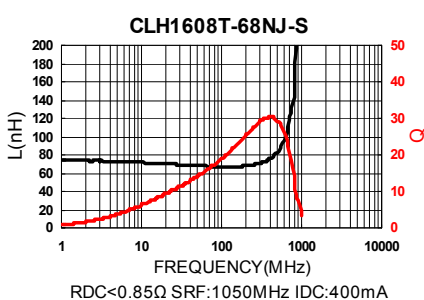
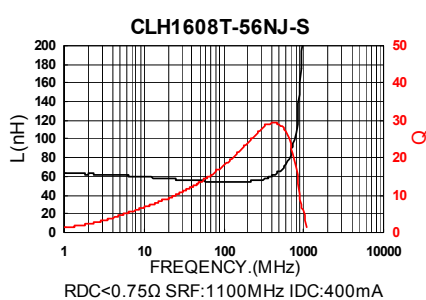
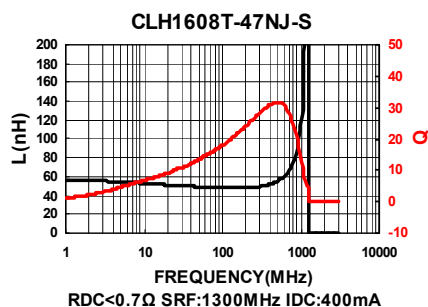
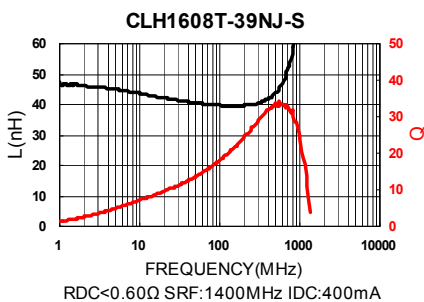
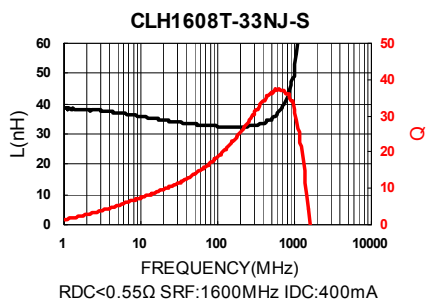
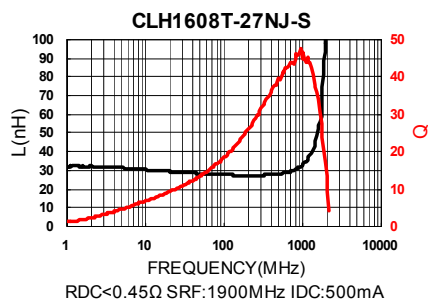
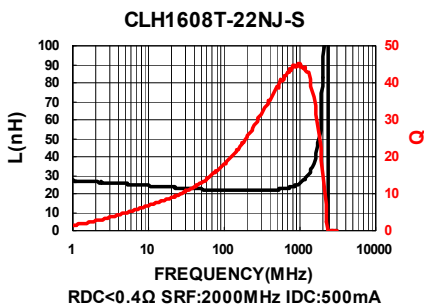
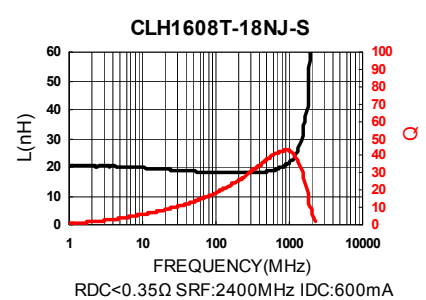
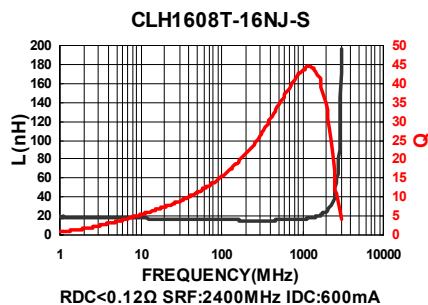
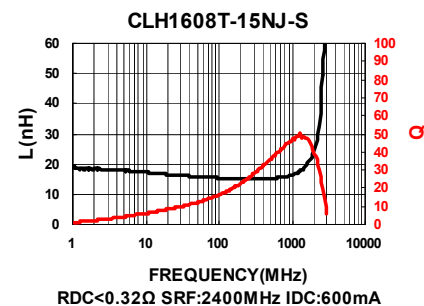
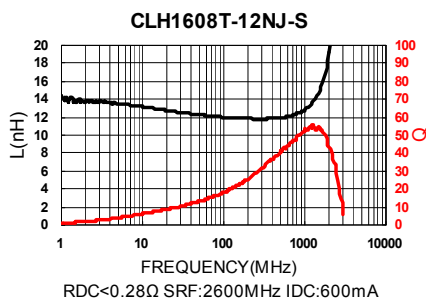
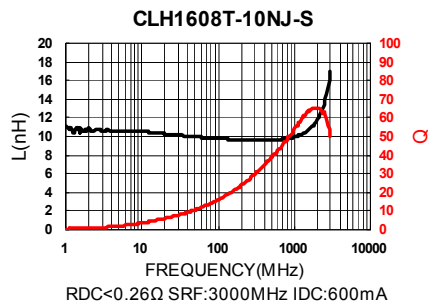
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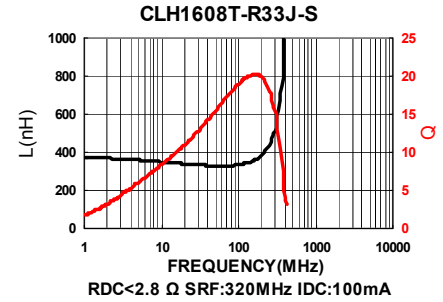
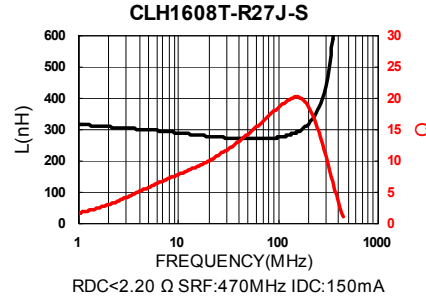
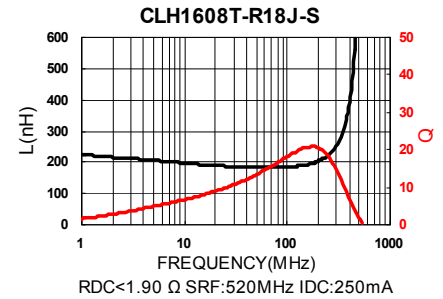
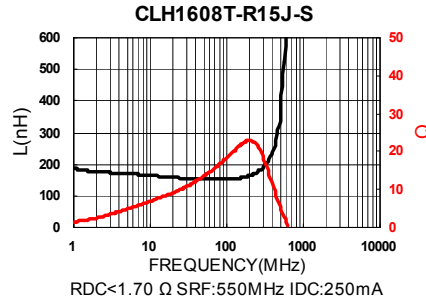
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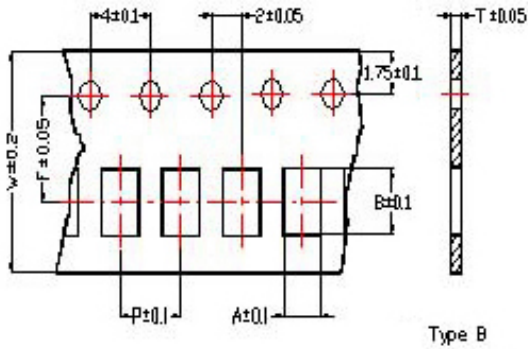


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Packaging Specifications

Tape Dimensions

Figure A



Tape Material

Figure A

Carrier Tape: Polycarbonate (Tape A)
 Carrier Tape: Paper (Tape B)
 Cover Tape: Polystyrene



Figure B

Carrier tape : Paper
 Cover tape : Polyethylene



Reel Dimensions



Dimensions in mm

TYPE	Tape Dimensions							Tape Material	Reel Dimensions				Quantity PCS / Reel
	A	B	T	W	P	F	A		B	C	D		
CLH0603	0.37	0.67	0.42	8	2	3.5	A	B	180	60	13	1.5	15000
CLH1005	0.62	1.12	0.60	8	2	3.5	A	A	178	60	12	1.5	10000
CLH1608	1.00	1.80	0.95	8	4	3.5	A	A	178	60	12	1.5	4000

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