

Electrical Specifications

0402 Multilayer Chip Inductors

Inductance (nH)	Tolerance	Quality Factor /min.	L/Q Freq. (MHz)	Q(Typical) Freq.(MHz)			Resistance DC/Max (Ohm)	Self Resonant Frequency /min. (GHz)	Current DC/Max (mA)
				100	500	800			
1.0	±0.3nH	8	100	11	33	37	0.12	10.0	300
1.2	±0.3nH	8	100	11	29	26	0.12	10.0	300
1.5	±0.3nH	8	100	12	29	40	0.13	6.00	300
1.8	±0.3nH	8	100	11	26	34	0.14	6.00	300
2.2	±0.3nH	8	100	11	26	36	0.16	6.00	300
2.7	±0.3nH	8	100	12	29	38	0.17	6.00	300
3.3	±0.3nH, ±10%	8	100	11	28	37	0.19	6.00	300
3.9	±0.3nH, ±10%	8	100	11	26	32	0.22	4.00	300
4.7	±0.3nH, ±10%	8	100	12	28	37	0.24	4.00	300
5.6	±0.3nH, ±10%	8	100	11	26	35	0.27	4.00	300
6.8	±5%, ±10%	8	100	11	26	34	0.32	3.90	300
8.2	±5%, ±10%	8	100	12	26	34	0.37	3.50	300
10	±5%, ±10%	8	100	11	25	31	0.42	3.20	300
12	±5%, ±10%	8	100	11	25	31	0.50	2.60	300
15	±5%, ±10%	8	100	11	24	30	0.55	2.30	300
18	±5%, ±10%	8	100	11	24	30	0.65	2.00	300
22	±5%, ±10%	8	100	12	24	30	0.80	1.60	300
27	±5%, ±10%	8	100	11	24	28	0.90	1.40	300
33	±5%, ±10%	8	100	12	23	26	1.00	1.20	200
39	±5%, ±10%	8	100	11	21	24	1.20	1.10	200
47	±5%, ±10%	8	100	11	21	23	1.30	0.90	200
56	±5%, ±10%	8	100	12	21	21	1.40	0.75	200
68	±5%, ±10%	8	100	11	19	19	1.40	0.75	180
82	±5%, ±10%	8	100	10	19	16	1.60	0.60	150
100	±5%, ±10%	8	100	10	18	-	1.60	0.60	100
120	±5%, ±10%	8	100	11	15	-	1.60	0.60	100

- Measuring Equipment : HP-4291B+16192A
- Storage Temperature :25±3℃; Humidity<80%RH

Electrical Specifications

0603 Multilayer Chip Inductors

Inductance (nH)	Tolerance	Quality Factor /min.	L/Q Freq. (MHz)	Q(Typical) Freq.(MHz)			Resistance DC/Max (Ohm)	Self Resonant Frequency /min. (GHz)	Current DC/Max (mA)
				100	500	800			
1.5	±0.3nH	8	100	14	34	47	0.10	6.0	1000
1.8	±0.3nH	8	100	17	40	55	0.10	6.0	1000
2.2	±0.3nH	8	100	15	38	49	0.10	6.0	1000
2.7	±0.3nH	8	100	14	37	48	0.10	6.0	1000
3.3	±0.3nH, ±10%	10	100	16	40	51	0.13	6.0	1000
3.9	±0.3nH, ±10%	10	100	14	36	48	0.15	6.0	1000
4.7	±0.3nH, ±10%	10	100	14	37	48	0.20	4.0	1000
5.6	±0.3nH, ±10%	10	100	14	36	46	0.23	4.0	600
6.8	±5%, ±10%	10	100	15	37	48	0.25	4.0	600
8.2	±5%, ±10%	10	100	16	39	50	0.28	3.5	600
10	±5%, ±10%	12	100	16	37	47	0.30	3.2	600
12	±5%, ±10%	12	100	15	36	45	0.35	2.6	600
15	±5%, ±10%	12	100	16	38	48	0.40	2.3	600
18	±5%, ±10%	12	100	17	38	47	0.45	2.0	600
22	±5%, ±10%	12	100	18	40	49	0.50	1.6	600
27	±5%, ±10%	12	100	18	40	47	0.55	1.4	600
33	±5%, ±10%	12	100	17	40	46	0.60	1.2	600
39	±5%, ±10%	12	100	19	40	46	0.65	1.1	500
47	±5%, ±10%	12	100	17	36	39	0.70	0.9	500
56	±5%, ±10%	12	100	18	36	37	0.75	0.9	500
68	±5%, ±10%	12	100	18	35	36	0.80	0.7	400
82	±5%, ±10%	12	100	18	33	29	0.85	0.6	300
100	±5%, ±10%	12	100	18	28	16	0.90	0.6	300
120	±5%, ±10%	8	50	19	28	17	1.00	0.5	300
150	±5%, ±10%	8	50	13	17	-	1.20	0.5	300
180	±5%, ±10%	8	50	13	16	-	1.30	0.4	300
220	±5%, ±10%	8	50	15	13	-	1.50	0.4	300

- Measuring Equipment : HP-4291B+16192A
- Storage Temperature :25±3□; Humidity <80%RH

Testing Condition and Requirements

Electrical Characteristics

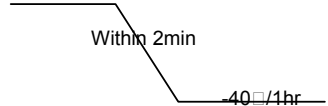
Test Items	Test Condition	Requirements
Inductance	a. Temperature: 25 ± 1 °C b. Relative Humidity: 45 to 85%RH c. Atmospheric Pressure: 86 to 106kpa d. Measuring equipment and fixture: 1608(0603) HP 4291+16192A 1005(0402) HP 4291+16193A	Within specified tolerance.
Q Value	a. Temperature: 25 ± 1 °C b. Relative Humidity: 45 to 85%RH c. Atmospheric Pressure: 86 to 106kpa d. Measuring equipment and fixture: 1608(0603) HP 4291+16192A 1005(0402) HP 4291+16193A	In accordance with electrical specification.
DC Resistance	a. Temperature: 25 ± 1 °C b. Relative Humidity: 45 to 85%RH c. Atmospheric Pressure: 86 to 106kpa Measuring equipment: HP 4338	In accordance with electrical specification.
Temperature Characteristics	a. Temperature range: -30 to $+85$ °C Reference temperature: 25 °C	Within specified tolerance.

Mechanical Characteristics

Item	Test Condition	Requirements
Appearance	Inductors shall be visually inspected for visible evidence of defect.	In accordance with specification.
Dimension	Dimension shall be measured with caliper or micrometer	In accordance with dimension specification.
Solderability	Immerse a test sample into a methanol solution containing rosin, preheat it at 150 to 180 °C for 3 to 5 seconds and immerse into molten solder of 260 ± 5 °C for 5 ± 1 seconds.	More than 75% of the terminal electrode part shall be covered with fresh solder.
Resistance to Soldering Heat	Immerse a test sample into a methanol solution containing resin, preheat it at 150 to 180 °C for 2 to 3 minutes and immerse into molten solder of 260 ± 5 °C for 10 ± 0.5 seconds so that both terminal electrodes are completely submerged.	No visible damage
Bending Strength	Solder the chip to test jig then apply a force in the direction shown in below. The soldering shall be done with the reflow method and shall be conducted with care so that the soldering is uniform and free of defects such as heat shock. 	No mechanical damage shall be observed.

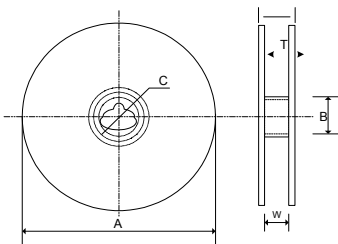
Testing Condition and Requirements

Reliability

Item	Test Condition	Requirements
Thermal Shock	Solder a test sample to printed circuit board, and conduct 100 cycles of test under the conditions shown as below. Cycle: 85°C/1hr  Within 2min 40°C/1hr	No visible damage Inductance variation within 10% Q variation within 20%
High Humidity State Life Test	Keep a test sample in an atmosphere with a temperature of 70±2°C, 90~95%RH for 500±12 hours. After the test, keep the test sample at a normal temperature for 1 to 2 hours, and then carry out measurement.	No visible damage. Inductance variation within 10%. Q variation within 20%.
High Humidity Load Life Test	Solder a test sample to printed circuit board then keep the test sample in an atmosphere with a temperature of 70±2°C, 90~95%RH for 500±12 hours while supplying the rated current. After the test, keep the test sample at a normal temperature for 1 to 2 hours, and then carry out measurement.	No visible damage. Inductance variation within 10%. Q variation within 20%.
High Temperature State Life Test	Keep a test sample in an atmosphere with a temperature of 85±2°C for 500±12 hours. After the test, keep the test sample at a normal temperature for 1 to 2 hours, and then carry out measurement.	No visible damage. Inductance variation within 10%. Q variation within 20%.
High Temperature Load	Solder a test sample to printed circuit board then keep the test sample in an atmosphere with a temperature of 85±2°C for 500±12 hours while supplying the rated current. After the test, keep the test sample at a normal temperature for 1 to 2 hours, and then carry out measurement.	No visible damage. Inductance variation within 10%. Q variation within 20%.

Packaging Specifications

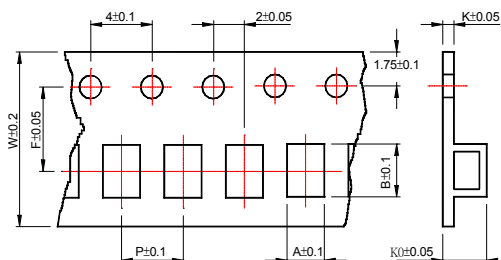
Reel Dimensions



Unit: mm

Series	A	B	C	D	PRS/Reel(EA)
CL02	178±1	60.2±0.5	13.0±0.50	13.2±1.50	10,000
CL03	178±1	60.0±0.5	13.0±0.20	9.00±0.5	4,000

Emboss Plastic Tape Specifications



Unit: mm

Series	A	B	K0	W	P	F	K
CL03	1.1	1.9	0.95	8	4	3.5	1.10
CL02	0.6	1.12	0.60	8	2	3.5	1.10

ity <80%RH