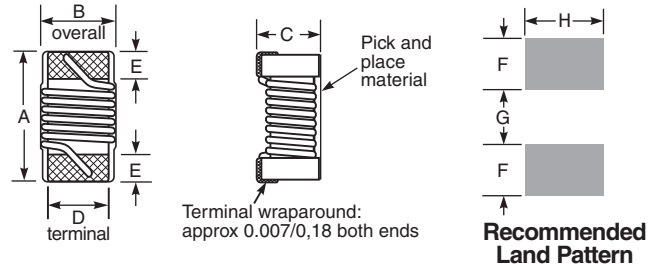




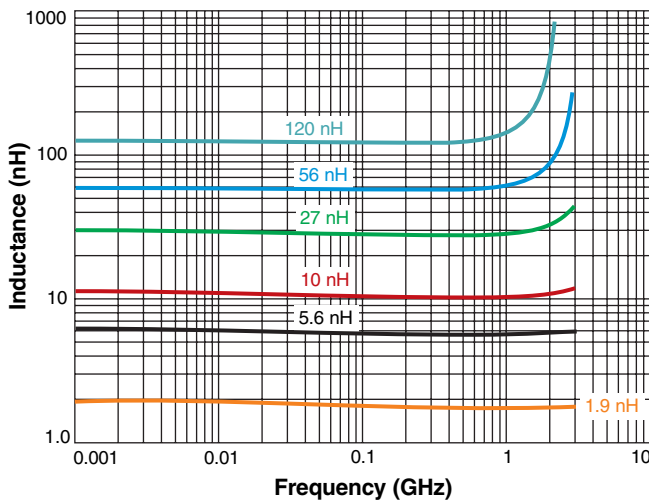
# Chip Inductors - 0402DC Series (1005)

- 0402 ceramic wirewound chip inductor
- 112 inductance values available from 0.8 nH to 120 nH, including 0.1 nH incremental steps from 2.8 nH to 10 nH
- Up to 40% higher Q factor and 45% lower DCR than other 0402 series
- Very high SRF – as high as 28.8 GHz
- Samples are available in **Coilcraft Designer's Kit C472-2**
- AEC-Q200 Grade 1 qualified (–40°C to +125°C ambient)

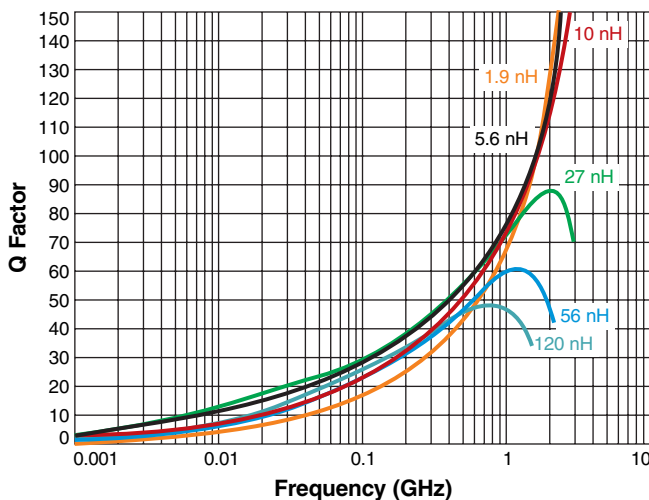


A max	B max	C max	D	E	F	G	H	
0.044	0.026	0.026	0.0185	0.006	0.014	0.024	0.026	inches
1,11	0,66	0,65	0,47	0,15	0,36	0,61	0,66	mm

## Typical L vs Frequency



## Typical Q vs Frequency



**Designer's Kit C472-2** contains 20 of each 2% part

**Core material** Ceramic

**Environmental** RoHS compliant without exemption, halogen free

**Terminations** RoHS compliant matte tin over nickel over silver-platinum-glass frit.

**Weight** 0.7 – 1.0 mg

**Ambient temperature** –40°C to +125°C with Irms current

**Maximum part temperature** +140°C (ambient + temp rise).

**Storage temperature** Component: –40°C to +140°C.

Tape and reel packaging: –40°C to +80°C

**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Temperature Coefficient of Inductance (TCL)** +25 to +125 ppm/°C

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Mean Time Between Failures (MTBF)** 1 billion hours

**Packaging** 2000 or 10,000 per 7" reel; Paper tape: 8 mm wide, 0.66 mm thick, 2 mm pocket spacing

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).



# 0402DC Series (1005)

Part number <sup>1</sup>	L <sup>2</sup> (nH)	Percent tolerance <sup>3</sup>	900 MHz Q typ <sup>4</sup>	1.7 GHz Q typ <sup>4</sup>	2.4 GHz Q typ <sup>4</sup>	SRF typ <sup>5</sup> (GHz)	DCR max <sup>6</sup> (mOhms)	I <sub>rms</sub> (mA)		
								25°C <sup>7</sup>	85°C <sup>8</sup>	125°C <sup>9</sup>
0402DC-N80X_R_	0.8	<b>5</b>	54	62	110	28.80	25.0	2800	1300	1100
0402DC-N90X_R_	0.9	<b>5</b>	42	65	89	27.00	30.0	2300	980	800
0402DC-1N0X_R_	1.0	<b>5</b>	41	66	91	26.20	45.0	1700	640	460
0402DC-1N2X_R_	1.2	<b>5</b>	27	40	51	25.20	125.0	980	260	140
0402DC-1N7X_R_	1.7	<b>5</b>	62	82	159	18.00	35.0	2100	1300	1100
0402DC-1N8X_R_	1.8	<b>5</b>	63	81	153	17.00	35.0	2100	1300	1100
0402DC-1N9X_R_	1.9	<b>5</b>	63	103	149	16.80	35.0	2000	1300	1100
0402DC-2N0X_R_	2.0	<b>5,3</b>	60	93	127	15.60	35.0	2000	1300	1100
0402DC-2N1X_R_	2.1	<b>5,3</b>	47	72	94	15.80	48.0	1700	890	720
0402DC-2N2X_R_	2.2	<b>5,3</b>	43	65	92	16.00	90.0	1200	550	370
0402DC-2N3X_R_	2.3	<b>5,3</b>	43	64	85	15.80	110.0	1000	440	280
0402DC-2N4X_R_	2.4	<b>5,3</b>	40	60	80	16.10	170.0	850	320	180
0402DC-2N5X_R_	2.5	<b>5,3</b>	31	45	59	16.00	210.0	750	260	140
0402DC-2N8X_R_	2.8	5,3	57	86	130	16.80	37.0	2100	1300	1100
0402DC-2N9X_R_	2.9	5,3	59	89	136	16.29	37.0	2100	1300	1100
0402DC-3N0X_R_	3.0	<b>5,3,2</b>	61	92	142	15.78	37.0	2100	1300	1100
0402DC-3N1X_R_	3.1	5,3,2	63	100	148	15.26	37.0	2100	1300	1100
0402DC-3N2X_R_	3.2	5,3,2	65	108	154	14.75	37.0	2100	1300	1100
0402DC-3N3X_R_	3.3	<b>5,3,2</b>	68	116	160	14.24	37.0	2100	1300	1100
0402DC-3N4X_R_	3.4	5,3,2	66	108	156	13.73	46.0	2050	1300	1050
0402DC-3N5X_R_	3.5	5,3,2	67	110	156	13.71	46.0	2050	1300	1050
0402DC-3N6X_R_	3.6	<b>5,3,2</b>	68	112	157	13.45	46.0	2050	1300	1050
0402DC-3N7X_R_	3.7	5,3,2	68	112	157	13.18	46.0	2050	1300	1050
0402DC-3N8X_R_	3.8	5,3,2	69	113	158	12.92	46.0	2050	1300	1050
0402DC-3N9X_R_	3.9	<b>5,3,2</b>	69	114	158	12.65	46.0	2050	1300	1050
0402DC-4N0X_R_	4.0	5,3,2	70	114	158	12.39	46.0	2050	1300	1050
0402DC-4N1X_R_	4.1	5,3,2	71	115	159	12.13	46.0	2050	1300	1050
0402DC-4N2X_R_	4.2	5,3,2	71	116	159	11.87	46.0	2050	1300	1050
0402DC-4N3X_R_	4.3	<b>5,3,2</b>	62	100	136	13.80	48.0	1850	1300	960
0402DC-4N4X_R_	4.4	5,3,2	64	102	139	13.55	48.0	1850	1300	960
0402DC-4N5X_R_	4.5	5,3,2	65	104	141	13.28	48.0	1850	1300	960
0402DC-4N6X_R_	4.6	5,3,2	66	106	143	13.00	48.0	1850	1300	960
0402DC-4N7X_R_	4.7	<b>5,3,2</b>	67	108	146	12.70	48.0	1850	1300	960
0402DC-4N8X_R_	4.8	5,3,2	67	109	146	12.45	48.0	1850	1300	960
0402DC-4N9X_R_	4.9	5,3,2	67	110	147	12.30	48.0	1850	1300	960
0402DC-5N0X_R_	5.0	5,3,2	68	111	149	12.15	48.0	1850	1300	960
0402DC-5N1X_R_	5.1	5,3,2	68	111	150	12.00	48.0	1850	1300	960
0402DC-5N2X_R_	5.2	5,3,2	68	112	151	11.90	48.0	1850	1300	960
0402DC-5N3X_R_	5.3	5,3,2	67	110	144	11.90	57.0	1800	1300	920
0402DC-5N4X_R_	5.4	5,3,2	68	111	145	11.60	57.0	1800	1300	920
0402DC-5N5X_R_	5.5	5,3,2	68	111	145	11.30	57.0	1800	1300	920
0402DC-5N6X_R_	5.6	<b>5,3,2</b>	69	112	146	11.00	57.0	1800	1300	920
0402DC-5N7X_R_	5.7	5,3,2	69	112	146	12.70	57.0	1800	1300	920
0402DC-5N8X_R_	5.8	5,3,2	70	112	146	12.40	57.0	1800	1300	920
0402DC-5N9X_R_	5.9	5,3,2	70	112	146	12.10	57.0	1800	1300	920

Continued on next page

1. When ordering, please specify **tolerance** and **packaging** codes:

0402DC-R12XJRW

**Tolerance:** G = 2% H = 3% J = 5%

(Table shows stock values and tolerances in bold.)

**Packaging:** W = 7" machine-ready reel. EIA-481 punched paper tape (2000 parts per full reel).

U = Less than full reel. In tape, but not machine ready. To have a leader and trailer added (\$25 charge), use code letter W instead.

Y = 7" machine-ready reel. EIA-481 punched paper tape. Factory order only, not stocked (10000 parts per full reel).

2. Inductance measured at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4287 impedance analyzer with Coilcraft-provided correlation pieces.

3. Tolerances in bold are stocked for immediate shipment.

4. Q measured using an Agilent/HP 4991A with an Agilent/HP 16197 test fixture.

5. SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.

6. DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.

7. Current that cause 15°C rise at 25°C.

8. Maximum current that can be applied at 85°C.

9. Maximum current that can be applied at 125°C.

10. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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# 0402DC Series (1005)

Part number <sup>1</sup>	L <sup>2</sup> (nH)	Percent tolerance <sup>3</sup>	900 MHz Q typ <sup>4</sup>	1.7 GHz Q typ <sup>4</sup>	2.4 GHz Q typ <sup>4</sup>	SRF typ <sup>5</sup> (GHz)	DCR max <sup>6</sup> (mOhms)	I <sub>rms</sub> (mA)		
								25°C <sup>7</sup>	85°C <sup>8</sup>	125°C <sup>9</sup>
0402DC-6N0X_R_	6.0	5,3,2	71	112	146	9.80	57.0	1800	1300	920
0402DC-6N1X_R_	6.1	5,3,2	71	112	146	9.50	57.0	1800	1300	920
0402DC-6N2X_R_	6.2	<b>5,3,2</b>	71	112	146	9.20	57.0	1800	1300	920
0402DC-6N3X_R_	6.3	5,3,2	72	113	146	8.90	57.0	1800	1300	920
0402DC-6N4X_R_	6.4	5,3,2	73	113	146	8.60	57.0	1800	1300	920
0402DC-6N5X_R_	6.5	5,3,2	73	114	147	8.30	57.0	1800	1300	920
0402DC-6N6X_R_	6.6	5,3,2	68	109	130	10.65	63.0	1650	1300	860
0402DC-6N7X_R_	6.7	5,3,2	69	109	132	10.40	63.0	1650	1300	860
0402DC-6N8X_R_	6.8	<b>5,3,2</b>	69	110	138	10.15	63.0	1650	1300	860
0402DC-6N9X_R_	6.9	5,3,2	69	110	138	9.90	63.0	1650	1300	860
0402DC-7N0X_R_	7.0	5,3,2	69	110	138	9.65	63.0	1650	1300	860
0402DC-7N1X_R_	7.1	5,3,2	69	110	138	9.40	63.0	1650	1300	860
0402DC-7N2X_R_	7.2	5,3,2	70	111	139	9.15	63.0	1650	1300	860
0402DC-7N3X_R_	7.3	5,3,2	70	111	139	8.90	63.0	1650	1300	860
0402DC-7N4X_R_	7.4	5,3,2	70	111	140	8.65	63.0	1650	1300	860
0402DC-7N5X_R_	7.5	5,3,2	71	112	140	8.40	63.0	1650	1300	860
0402DC-7N6X_R_	7.6	5,3,2	72	113	141	8.15	63.0	1650	1300	860
0402DC-7N7X_R_	7.7	5,3,2	70	109	135	9.00	70.0	1600	1300	830
0402DC-7N8X_R_	7.8	5,3,2	70	110	136	8.87	70.0	1600	1300	830
0402DC-7N9X_R_	7.9	5,3,2	71	110	136	8.74	70.0	1600	1300	830
0402DC-8N0X_R_	8.0	5,3,2	71	111	137	8.60	70.0	1600	1300	830
0402DC-8N1X_R_	8.1	5,3,2	71	112	137	8.47	70.0	1600	1300	830
0402DC-8N2X_R_	8.2	<b>5,3,2</b>	72	113	138	8.33	70.0	1600	1300	830
0402DC-8N3X_R_	8.3	5,3,2	72	113	138	8.21	70.0	1600	1300	830
0402DC-8N4X_R_	8.4	5,3,2	72	114	139	8.07	70.0	1600	1300	830
0402DC-8N5X_R_	8.5	5,3,2	73	115	139	7.94	70.0	1600	1300	830
0402DC-8N6X_R_	8.6	5,3,2	73	115	140	7.81	70.0	1600	1300	830
0402DC-8N7X_R_	8.7	5,3,2	73	116	140	7.68	70.0	1600	1300	830
0402DC-8N8X_R_	8.8	5,3,2	74	116	141	7.54	70.0	1600	1300	830
0402DC-8N9X_R_	8.9	5,3,2	74	117	141	7.41	70.0	1600	1300	830
0402DC-9N0X_R_	9.0	5,3,2	75	117	142	7.28	70.0	1600	1300	830
0402DC-9N1X_R_	9.1	5,3,2	75	118	142	7.15	70.0	1600	1300	830
0402DC-9N2X_R_	9.2	5,3,2	75	118	142	7.01	70.0	1600	1300	830
0402DC-9N3X_R_	9.3	5,3,2	71	105	142	8.24	73.0	1500	1300	790
0402DC-9N4X_R_	9.4	5,3,2	72	106	143	8.12	73.0	1400	1300	790
0402DC-9N5X_R_	9.5	5,3,2	73	108	144	8.00	73.0	1400	1300	790
0402DC-9N6X_R_	9.6	5,3,2	74	109	145	7.88	73.0	1400	1300	790
0402DC-9N7X_R_	9.7	5,3,2	75	110	146	7.75	73.0	1400	1300	790
0402DC-9N8X_R_	9.8	5,3,2	76	112	147	7.63	73.0	1400	1300	790
0402DC-9N9X_R_	9.9	5,3,2	77	113	148	7.51	73.0	1400	1300	790
0402DC-10NX_R_	10	5,3,2	77	113	148	7.39	73.0	1500	1300	790
0402DC-11NX_R_	11	5,3,2	68	100	134	5.28	78.2	1450	1300	750
0402DC-12NX_R_	12	<b>5,3,2</b>	69	98	100	6.59	81.3	1450	1300	750
0402DC-15NX_R_	15	<b>5,3,2</b>	70	100	110	6.20	115.0	1200	1050	620
0402DC-16NX_R_	16	5,3,2	68	97	102	5.95	120.0	1200	1050	600

Continued on next page

1. When ordering, please specify **tolerance** and **packaging** codes:**0402DC-R12XJRW****Tolerance:** G = 2% H = 3% J = 5%

(Table shows stock values and tolerances in bold.)

**Packaging:** W = 7" machine-ready reel. EIA-481 punched paper tape (2000 parts per full reel).

U = Less than full reel. In tape, but not machine ready. To have a leader and trailer added (\$25 charge), use code letter W instead.

Y = 7" machine-ready reel. EIA-481 punched paper tape. Factory order only, not stocked (10000 parts per full reel).

2. Inductance measured at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4287 impedance analyzer with Coilcraft-provided correlation pieces.

3. Tolerances in bold are stocked for immediate shipment.

4. Q measured using an Agilent/HP 4991A with an Agilent/HP 16197 test fixture.

5. SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.

6. DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.

7. Current that cause 40°C rise at 25°C.

8. Maximum current that can be applied at 85°C.

9. Maximum current that can be applied at 125°C.

10. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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# 0402DC Series (1005)

Part number <sup>1</sup>	L <sup>2</sup> (nH)	Percent tolerance <sup>3</sup>	900 MHz Q typ <sup>4</sup>	1.7 GHz Q typ <sup>4</sup>	2.4 GHz Q typ <sup>4</sup>	SRF typ <sup>5</sup> (GHz)	DCR max <sup>6</sup> (mOhms)	I <sub>rms</sub> (mA)		
								25°C <sup>7</sup>	85°C <sup>8</sup>	125°C <sup>9</sup>
0402DC-18NX_R_	18	<b>5,3,2</b>	68	95	98	5.59	137.9	1100	1000	580
0402DC-20NX_R_	20	5,3,2	67	90	95	5.11	162.7	1000	900	530
0402DC-22NX_R_	22	<b>5,3,2</b>	67	88	83	4.95	190.0	970	870	500
0402DC-23NX_R_	23	5,3,2	68	89	—	4.98	176.5	970	870	500
0402DC-24NX_R_	24	5,3,2	63	85	—	4.82	185.0	960	870	500
0402DC-27NX_R_	27	<b>5,3,2</b>	65	83	71	4.52	192.9	920	830	480
0402DC-30NX_R_	30	<b>5,3,2</b>	62	76	62	4.15	245	810	760	420
0402DC-33NX_R_	33	<b>5,3,2</b>	62	76	—	4.18	288	780	700	400
0402DC-36NX_R_	36	5,3,2	60	72	—	4.02	320	700	630	360
0402DC-39NX_R_	39	<b>5,3,2</b>	60	68	—	3.86	375	670	600	350
0402DC-43NX_R_	43	5,3,2	55	54	—	3.82	430	640	580	330
0402DC-47NX_R_	47	<b>5,3,2</b>	55	54	—	3.36	427	640	580	330
0402DC-51NX_R_	51	<b>5,3,2</b>	55	54	—	3.35	432	620	560	320
0402DC-56NX_R_	56	5,3,2	54	—	—	3.21	690	460	410	240
0402DC-62NX_R_	62	5,3,2	54	—	—	3.00	756	440	400	230
0402DC-68NX_R_	68	<b>5,3,2</b>	54	—	—	2.80	943	400	360	210
0402DC-72NX_R_	72	<b>5,3,2</b>	54	—	—	2.83	787	430	390	220
0402DC-75NX_R_	75	5,3,2	54	—	—	2.75	882	410	370	220
0402DC-82NX_R_	82	<b>5,3,2</b>	51	—	—	2.86	1057	370	330	190
0402DC-91NX_R_	91	<b>5,3,2</b>	48	—	—	2.82	1119	360	330	190
0402DC-R10X_R_	100	<b>5,3,2</b>	51	—	—	2.38	1507	310	290	160
0402DC-R12X_R_	120	<b>5,3,2</b>	46	—	—	2.20	1600	300	270	160

1. When ordering, please specify **tolerance** and **packaging** codes:

**0402DC-R12XJRW**

**Tolerance:** G = 2% H = 3% J = 5%

(Table shows stock values and tolerances in bold.)

**Packaging:** W = 7" machine-ready reel. EIA-481 punched paper tape (2000 parts per full reel).

U = Less than full reel. In tape, but not machine ready. To have a leader and trailer added (\$25 charge), use code letter W instead.

Y = 7" machine-ready reel. EIA-481 punched paper tape. Factory order only, not stocked (10000 parts per full reel).

2. Inductance measured at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4287 impedance analyzer with Coilcraft-provided correlation pieces.

3. Tolerances in bold are stocked for immediate shipment.

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5. SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.

6. DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.

7. Current that cause 40°C rise at 25°C.

8. Maximum current that can be applied at 85°C.

9. Maximum current that can be applied at 125°C.

10. Electrical specifications at 25°C

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