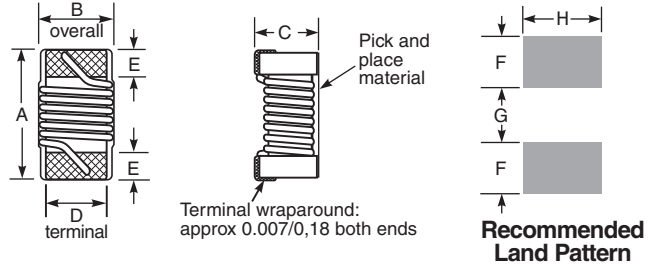




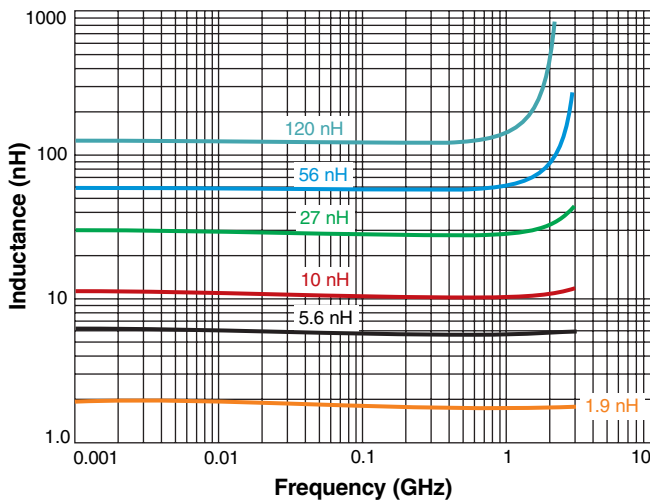
# Chip Inductors - 0402DC Series (1005)

- 0402 ceramic wirewound chip inductor
- 112 inductance values available from 0.8 nH to 120 nH, including 0.1nH 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



**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-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

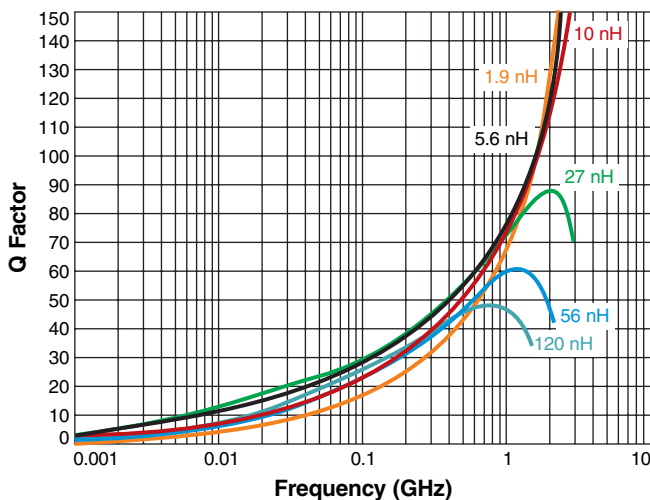
**Temperature Coefficient of Inductance (TCL)** +25 to +125 ppm/°C

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

**Packaging** 2000 or 10,000 per 7" reel; Paper tape: 8 mm wide, 0.68 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](#).

## Typical Q vs Frequency





# 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). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).

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

U = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from U to W.

- Inductance measured at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4287 impedance analyzer with Coilcraft-provided correlation pieces.
- Tolerances in bold are stocked for immediate shipment.
- Q measured using an Agilent/HP 4991A with an Agilent/HP 16197 test fixture.
- SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.
- DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.
- Current that causes a 40°C rise at 25°C ambient.
- Maximum current that can be applied at 85°C.
- Maximum current that can be applied at 125°C.
- 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). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).

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

U = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from U to W.

- Inductance measured at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4287 impedance analyzer with Coilcraft-provided correlation pieces.
- Tolerances in bold are stocked for immediate shipment.
- Q measured using an Agilent/HP 4991A with an Agilent/HP 16197 test fixture.
- SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.
- DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.
- Current that causes a 40°C rise at 25°C ambient.
- Maximum current that can be applied at 85°C.
- Maximum current that can be applied at 125°C.
- 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). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).

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

U = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from U to W.

- Inductance measured at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4287 impedance analyzer with Coilcraft-provided correlation pieces.
  - Tolerances in bold are stocked for immediate shipment.
  - Q measured using an Agilent/HP 4991A with an Agilent/HP 16197 test fixture.
  - SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.
  - DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.
  - Current that causes a 40°C rise at 25°C ambient.
  - Maximum current that can be applied at 85°C.
  - Maximum current that can be applied at 125°C.
  - Electrical specifications at 25°C
- Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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