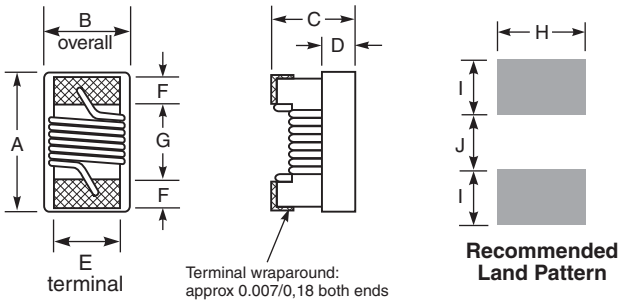
# Chip Inductors - 0402CS Series (1005)

Continuing in our long tradition of innovation and leadership, Coilcraft introduced the industry's first 0402 wirewound inductor.

This series shares all of the characteristics of Coilcraft's other ceramic inductors: exceptionally high Q factors, especially at use frequencies; outstanding self-resonant frequency; tight inductance tolerance; and excellent batch-to-batch consistency.

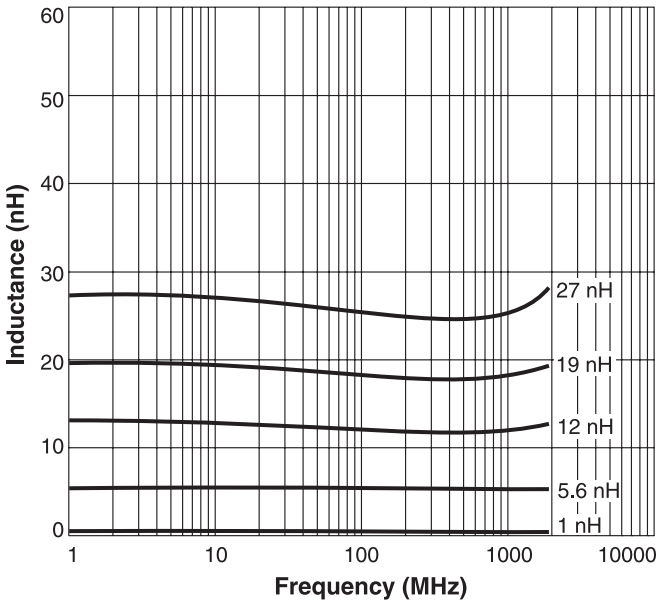
These parts are compliant with RoHS lead free standards and compatible with 260°C soldering.



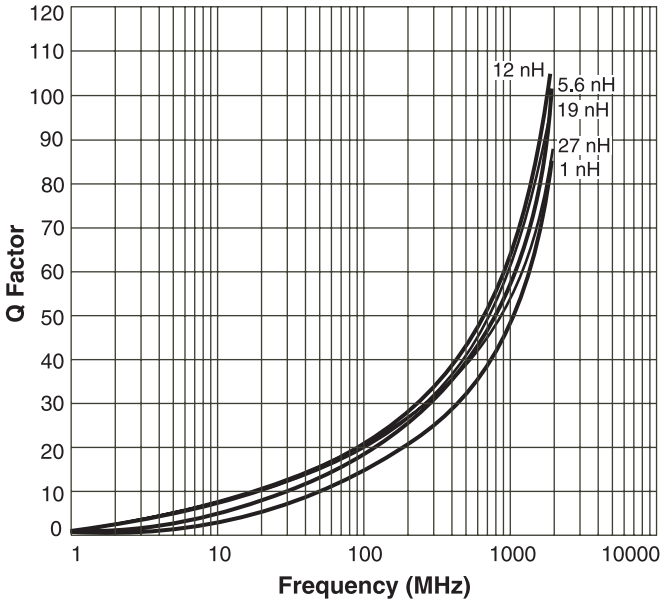

| A max | B max | C max | D ref | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|
| 0.047 | 0.025 | 0.026 | 0.010 | 0.020 | 0.009 | 0.022 | 0.026 | 0.014 | 0.018 |
| 1,19 | 0,64 | 0,66 | 0,25 | 0,51 | 0,23 | 0,56 | 0,66 | 0,36 | 0,46 |

**Weight:** 0.8 – 1.0 mg
**Tape and reel:** 2000/7″ reel 8 mm tape width
For packaging data see Tape and Reel Specifications section.

## Typical L vs Frequency




## Typical Q vs Frequency





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# 0402CS Series (1005)

**S-Parameter files**
ON OUR WEB SITE OR CD

**SPICE models**
ON OUR WEB SITE OR CD

| Part number[1] | Inductance[2] (nH) | Percent tolerance[3] | 900 MHz L typ | 900 MHz Q typ[4] | 1.7 GHz L typ | 1.7 GHz Q typ[4] | SRF min[5] (GHz) | DCR max[6] (Ohms) | Irms[7] (mA) |
|---|---|---|---|---|---|---|---|---|---|
| 0402CS-1N0X_L_ | 1.0 | 10,**5** | 1.02 | 77 | 1.02 | 69 | 12.70 | 0.045 | 1360 |
| 0402CS-1N9X_L_ | 1.9 | 10,**5** | 1.72 | 68 | 1.74 | 82 | 11.30 | 0.070 | 1040 |
| 0402CS-2N0X_L_ | 2.0 | 10,**5** | 1.93 | 54 | 1.93 | 75 | 11.10 | 0.070 | 1040 |
| 0402CS-2N2X_L_ | 2.2 | 10,**5** | 2.19 | 59 | 2.23 | 100 | 10.80 | 0.070 | 960 |
| 0402CS-2N4X_L_ | 2.4 | 10,**5** | 2.24 | 51 | 2.27 | 68 | 10.50 | 0.068 | 790 |
| 0402CS-2N7X_L_ | 2.7 | 10,**5** | 2.58 | 42 | 2.60 | 61 | 10.40 | 0.120 | 640 |
| 0402CS-3N3X_L_ | 3.3 | 10,**5,2** | 3.10 | 65 | 3.12 | 87 | 7.00 | 0.066 | 840 |
| 0402CS-3N6X_L_ | 3.6 | 10,**5,2** | 3.56 | 45 | 3.62 | 71 | 6.80 | 0.066 | 840 |
| 0402CS-3N9X_L_ | 3.9 | 10,**5,2** | 3.89 | 50 | 4.00 | 75 | 6.00 | 0.066 | 840 |
| 0402CS-4N3X_L_ | 4.3 | 10,**5,2** | 4.19 | 47 | 4.30 | 71 | 6.00 | 0.091 | 700 |
| 0402CS-4N7X_L_ | 4.7 | 10,**5,2** | 4.55 | 48 | 4.68 | 68 | 4.77 | 0.130 | 640 |
| 0402CS-5N1X_L_ | 5.1 | 10,**5,2** | 5.15 | 56 | 5.25 | 82 | 4.80 | 0.083 | 800 |
| 0402CS-5N6X_L_ | 5.6 | 10,**5,2** | 5.16 | 54 | 5.28 | 81 | 4.80 | 0.083 | 760 |
| 0402CS-6N2X_L_ | 6.2 | 10,**5,2** | 6.16 | 52 | 6.37 | 76 | 4.80 | 0.083 | 760 |
| 0402CS-6N8X_L_ | 6.8 | 10,**5,2** | 6.56 | 63 | 6.93 | 78 | 4.80 | 0.083 | 680 |
| 0402CS-7N5X_L_ | 7.5 | 10,**5,2** | 7.91 | 60 | 8.22 | 88 | 4.80 | 0.10 | 680 |
| 0402CS-8N2X_L_ | 8.2 | 10,**5,2** | 8.50 | 57 | 8.85 | 84 | 4.40 | 0.10 | 680 |
| 0402CS-8N7X_L_ | 8.7 | 10,**5,2** | 8.78 | 54 | 9.21 | 73 | 4.10 | 0.20 | 480 |
| 0402CS-9N0X_L_ | 9.0 | 10,**5,2** | 9.07 | 62 | 9.53 | 78 | 4.16 | 0.10 | 680 |
| 0402CS-9N5X_L_ | 9.5 | 10,**5,2** | 9.42 | 54 | 9.98 | 69 | 4.00 | 0.20 | 480 |
| 0402CS-10NX_L_ | 10.0 | 10,**5,2** | 9.8 | 50 | 10.10 | 67 | 3.90 | 0.20 | 480 |
| 0402CS-11NX_L_ | 11.0 | 10,**5,2** | 10.7 | 52 | 11.20 | 78 | 3.68 | 0.12 | 640 |
| 0402CS-12NX_L_ | 12.0 | 10,**5,2** | 11.9 | 53 | 12.70 | 71 | 3.60 | 0.12 | 640 |
| 0402CS-13NX_L_ | 13.0 | 10,**5,2** | 13.4 | 51 | 14.63 | 57 | 3.45 | 0.21 | 440 |
| 0402CS-15NX_L_ | 15.0 | 10,**5,2** | 14.6 | 55 | 15.50 | 77 | 3.28 | 0.17 | 560 |
| 0402CS-16NX_L_ | 16.0 | 10,**5,2** | 16.6 | 46 | 18.86 | 47 | 3.10 | 0.22 | 560 |
| 0402CS-18NX_L_ | 18.0 | 10,**5,2** | 18.3 | 57 | 20.28 | 62 | 3.10 | 0.23 | 420 |
| 0402CS-19NX_L_ | 19.0 | 10,**5,2** | 19.1 | 50 | 21.10 | 67 | 3.04 | 0.20 | 480 |
| 0402CS-20NX_L_ | 20.0 | 10,**5,2** | 20.7 | 52 | 23.66 | 53 | 3.00 | 0.25 | 420 |
| 0402CS-22NX_L_ | 22.0 | 10,**5,2** | 23.2 | 53 | 26.75 | 53 | 2.80 | 0.30 | 400 |
| 0402CS-23NX_L_ | 23.0 | 10,**5,2** | 23.8 | 49 | 26.90 | 64 | 2.72 | 0.30 | 400 |
| 0402CS-24NX_L_ | 24.0 | 10,**5,2** | 25.1 | 51 | 29.50 | 50 | 2.70 | 0.30 | 400 |
| 0402CS-27NX_L_ | 27.0 | 10,**5,2** | 28.7 | 49 | 33.50 | 63 | 2.48 | 0.30 | 400 |
| 0402CS-30NX_L_ | 30.0 | 10,**5,2** | 31.1 | 46 | 38.50 | 39 | 2.35 | 0.30 | 400 |
| 0402CS-33NX_L_ | 33.0 | 10,**5,2** | 34.9 | 31 | 41.74 | 32 | 2.35 | 0.30 | 400 |
| 0402CS-36NX_L_ | 36.0 | 10,**5,2** | 39.5 | 44 | 48.40 | 53 | 2.32 | 0.44 | 320 |
| 0402CS-39NX_L_ | 39.0 | 10,**5,2** | 41.7 | 47 | 50.23 | 45 | 2.10 | 0.55 | 200 |
| 0402CS-40NX_L_ | 40.0 | 10,**5,2** | 39.0 | 44 | 47.40 | 33 | 2.24 | 0.44 | 320 |
| 0402CS-43NX_L_ | 43.0 | 10,**5,2** | 45.8 | 46 | 61.55 | 34 | 2.03 | 0.81 | 100 |
| 0402CS-47NX_L_ | 47.0 | 10,**5,2** | 50.0 | 38 | – | – | 2.10 | 0.83 | 150 |
| 0402CS-51NX_L_ | 51.0 | 10,**5,2** | 56.6 | 40 | – | – | 1.75 | 0.82 | 100 |
| 0402CS-56NX_L_ | 56.0 | 10,**5,2** | 62.8 | 42 | – | – | 1.76 | 0.97 | 100 |
| 0402CS-68NX_L_ | 68.0 | 10,**5,2** | 78.2 | 36 | – | – | 1.62 | 1.12 | 100 |
| 0402CS-82NX_L_ | 82.0 | 10,5,2 | – | – | – | – | 1.26 | 1.55 | 50 |
| 0402CS-R10X_L_ | 100.0 | 10,5,2 | – | – | – | – | 1.16 | 2.00 | 30 |

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

**0402CS-68NX J L W**

**Tolerance:** **G** = 2% **J** = 5% **K** = 10%
(Table shows stock 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.

2. Inductance measured at 250 MHz using a Coilcraft SMD-F test fixture and Coilcraft-provided correlation pieces with an Agilent/HP 4286 impedance analyzer.
3. Tolerances in bold are stocked for immediate shipment.
4. Q measured using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.
5. For SRF >6 GHz, measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture. For SRF ≤6 GHz, measured using an Agilent/HP 8753D network analyzer and a Coilcraft SMD-D test fixture.
6. DCR measured on a micro-ohmmeter.
7. Average current for a 15°C rise above 25°C ambient.
8. Operating temperature range -40°C to +125°C.
9. Electrical specifications at 25°C.

See Qualification Standards section for environmental and test data.



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