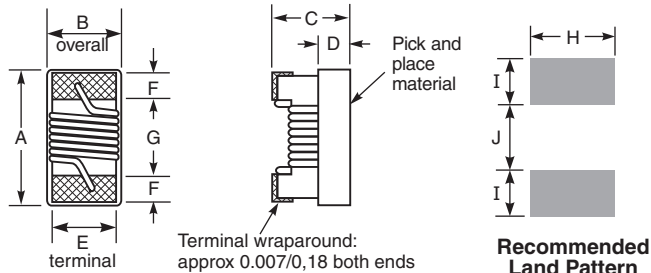




Chip Inductors - 0402HP Series (1005)

- Higher Q and lower DCR than other 0402 inductors
- Very high SRF values – as high as 16 GHz
- Excellent current handling capability – up to 2300 mA
- 54 inductance values from 1.0 to 220 nH



Core material Ceramic
Environmental RoHS compliant, halogen free
Terminations Silver-palladium-platinum-glass frit. Other terminations available at additional cost.
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)
Failures in Time (FIT) / Mean Time Between Failures (MTBF) One per billion hours / one billion hours, calculated per Telcordia SR-332
Packaging 2000 or 5000 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](#).

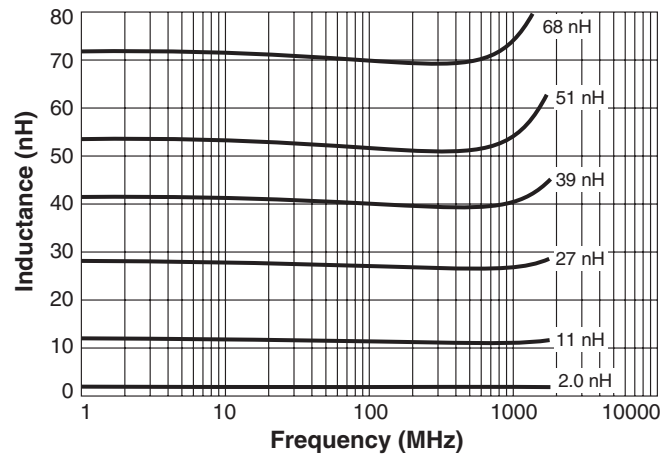
| | A max ² | B (min – max) | C max ³ | |
|--------|--------------------|---------------|--------------------|--------|
| 0402HP | 0.043 | 0.020 – 0.028 | 0.024 | inches |
| | 1,09 | 0,51 – 0,71 | 0,61 | mm |

| | A max ² | B | C max ³ | |
|---------|--------------------|--------------|--------------------|--------|
| 0402HPH | 0.044 | 0.026 ±0.002 | 0.026 | inches |
| | 1,12 | 0,66 ±0,051 | 0,66 | mm |

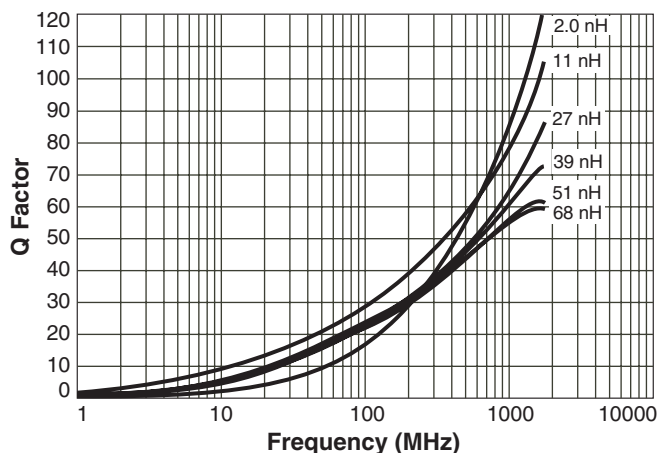
| D ref | E | F | G | H | I | J | |
|-------|-------|-------|-------|-------|-------|-------|--------|
| 0.010 | 0.020 | 0.008 | 0.024 | 0.026 | 0.014 | 0.020 | inches |
| 0,25 | 0,51 | 0,20 | 0,61 | 0,66 | 0,36 | 0,51 | mm |

- Notes:**
1. Unless otherwise indicated, all dimensions are nominal.
 2. Length dimension (A) is before optional solder application. Maximum dimension including solder is 0.045 in / 1.143 mm.
 3. Height dimension (C) is before optional solder application. For maximum height dimension including solder, add 0.006 in / 0.152 mm.

Typical L vs Frequency



Typical Q vs Frequency





0402HP Series (1005)

Designer's Kit C403 contains 20 each of 5% values
Designer's Kit C403-2 contains 20 each of 2% values

| Part number ¹ | Inductance ² (nH) | Percent tolerance ³ | Test freq (MHz) | 900 MHz | | 1.7 GHz | | SRF typ ⁵ (GHz) | DCR max ⁶ (Ohms) | Irms ⁷ (mA) |
|--------------------------|---------------------------------|-----------------------------------|--------------------|---------|--------------------|---------|--------------------|-------------------------------|--------------------------------|---------------------------|
| | | | | L typ | Q typ ⁴ | L typ | Q typ ⁴ | | | |
| 0402HP-1N0XJE | 1.0 | 5 | 250 | 0.97 | 46 | 0.99 | 72 | 16.0 | 0.030 | 2300 |
| 0402HP-2N0XJE | 2.0 | 5 | 250 | 1.96 | 58 | 1.98 | 85 | 15.2 | 0.038 | 2100 |
| 0402HP-2N2XJE | 2.2 | 5 | 250 | 2.17 | 60 | 2.17 | 86 | 15.1 | 0.038 | 2100 |
| 0402HP-2N4XE | 2.4 | 5,3,2 | 250 | 2.37 | 60 | 2.38 | 83 | 14.0 | 0.042 | 2000 |
| 0402HP-2N7XE | 2.7 | 5,3,2 | 250 | 2.66 | 62 | 2.68 | 85 | 13.0 | 0.085 | 1500 |
| 0402HP-3N3XE | 3.3 | 5,3,2 | 250 | 3.26 | 66 | 3.28 | 95 | 12.8 | 0.045 | 1700 |
| 0402HP-3N6XE | 3.6 | 5,3,2 | 250 | 3.56 | 65 | 3.58 | 94 | 11.7 | 0.045 | 1700 |
| 0402HP-3N9XE | 3.9 | 5,3,2 | 250 | 3.87 | 64 | 3.91 | 98 | 9.50 | 0.045 | 1700 |
| 0402HP-4N3XE | 4.3 | 5,3,2 | 250 | 4.26 | 63 | 4.33 | 90 | 7.15 | 0.050 | 1600 |
| 0402HP-4N7XE | 4.7 | 5,3,2 | 250 | 4.67 | 58 | 4.74 | 83 | 6.85 | 0.075 | 1500 |
| 0402HP-5N1XE | 5.1 | 5,3,2 | 250 | 5.07 | 54 | 5.16 | 76 | 6.80 | 0.125 | 1200 |
| 0402HP-5N6XE | 5.6 | 5,3,2 | 250 | 5.56 | 73 | 5.66 | 105 | 6.50 | 0.055 | 1600 |
| 0402HP-6N2XE | 6.2 | 5,3,2 | 250 | 6.18 | 73 | 6.25 | 100 | 5.80 | 0.055 | 1600 |
| 0402HP-6N8XE | 6.8 | 5,3,2 | 250 | 6.78 | 68 | 6.97 | 94 | 5.80 | 0.070 | 1500 |
| 0402HP-7N5XE | 7.5 | 5,3,2 | 250 | 7.49 | 60 | 7.77 | 82 | 5.40 | 0.100 | 1400 |
| 0402HP-8N2XE | 8.2 | 5,3,2 | 250 | 8.10 | 68 | 8.40 | 95 | 5.40 | 0.065 | 1500 |
| 0402HP-8N7XE | 8.7 | 5,3,2 | 250 | 8.73 | 66 | 9.04 | 95 | 5.00 | 0.070 | 1500 |
| 0402HP-9N0XE | 9.0 | 5,3,2 | 250 | 8.99 | 67 | 9.21 | 92 | 5.00 | 0.080 | 1400 |
| 0402HP-9N5XE | 9.5 | 5,3,2 | 250 | 9.52 | 64 | 9.97 | 90 | 4.70 | 0.090 | 1400 |
| 0402HP-10NXE | 10 | 5,3,2 | 250 | 9.98 | 62 | 10.4 | 90 | 4.70 | 0.110 | 1300 |
| 0402HP-11NXE | 11 | 5,3,2 | 250 | 11.0 | 68 | 11.6 | 98 | 4.70 | 0.065 | 1400 |
| 0402HP-12NXE | 12 | 5,3,2 | 250 | 12.0 | 66 | 12.6 | 100 | 4.40 | 0.100 | 1200 |
| 0402HP-13NXE | 13 | 5,3,2 | 250 | 13.1 | 62 | 13.9 | 82 | 4.20 | 0.155 | 870 |
| 0402HP-15NXE | 15 | 5,3,2 | 250 | 15.1 | 62 | 16.0 | 85 | 3.90 | 0.115 | 1100 |
| 0402HP-16NXE | 16 | 5,3,2 | 250 | 16.2 | 57 | 17.3 | 77 | 3.70 | 0.150 | 850 |
| 0402HP-17NXE | 17 | 5,3,2 | 250 | 17.2 | 51 | 18.7 | 64 | 3.70 | 0.230 | 650 |
| 0402HP-18NXE | 18 | 5,3,2 | 250 | 18.2 | 58 | 19.5 | 74 | 3.55 | 0.120 | 900 |
| 0402HP-19NXE | 19 | 5,3,2 | 250 | 19.2 | 61 | 20.7 | 88 | 3.50 | 0.145 | 850 |
| 0402HP-20NXE | 20 | 5,3,2 | 250 | 20.3 | 58 | 22.0 | 76 | 3.50 | 0.185 | 780 |
| 0402HP-21NXE | 21 | 5,3,2 | 250 | 21.3 | 48 | 23.2 | 62 | 1.70 | 0.460 | 450 |
| 0402HP-22NXE | 22 | 5,3,2 | 250 | 22.3 | 60 | 24.4 | 74 | 3.30 | 0.160 | 800 |
| 0402HP-23NXE | 23 | 5,3,2 | 250 | 23.3 | 60 | 25.5 | 77 | 3.30 | 0.160 | 800 |
| 0402HP-24NXE | 24 | 5,3,2 | 250 | 24.5 | 55 | 27.1 | 71 | 3.15 | 0.210 | 700 |
| 0402HP-25NXE | 25 | 5,3,2 | 250 | 25.5 | 57 | 28.3 | 73 | 3.15 | 0.260 | 700 |
| 0402HP-26NXE | 26 | 5,3,2 | 250 | 26.6 | 56 | 29.3 | 74 | 3.15 | 0.290 | 700 |
| 0402HP-27NXE | 27 | 5,3,2 | 250 | 27.3 | 62 | 29.5 | 86 | 3.20 | 0.350 | 450 |
| 0402HP-30NXE | 30 | 5,3,2 | 250 | 30.8 | 61 | 35.0 | 87 | 2.90 | 0.350 | 450 |
| 0402HP-33NXE | 33 | 5,3,2 | 250 | 34.0 | 61 | 38.3 | 80 | 2.80 | 0.330 | 490 |
| 0402HP-36NXE | 36 | 5,3,2 | 250 | 37.1 | 59 | 42.2 | 76 | 2.80 | 0.390 | 480 |
| 0402HP-37NXE | 37 | 5,3,2 | 250 | 38.2 | 57 | 44.0 | 72 | 2.70 | 0.480 | 470 |
| 0402HP-39NXE | 39 | 5,3,2 | 250 | 40.5 | 56 | 47.0 | 84 | 2.60 | 0.430 | 450 |
| 0402HP-40NXE | 40 | 5,3,2 | 250 | 41.3 | 56 | 47.4 | 75 | 2.60 | 0.430 | 450 |
| 0402HP-43NXE | 43 | 5,3,2 | 250 | 45.0 | 52 | 54.1 | 68 | 2.50 | 0.520 | 450 |
| 0402HP-47NXE | 47 | 5,3,2 | 250 | 49.0 | 48 | 58.9 | 62 | 2.40 | 0.580 | 420 |
| 0402HP-51NXE | 51 | 5,3,2 | 250 | 49.1 | 52 | 58.8 | 59 | 2.30 | 0.700 | 360 |
| 0402HPH-56NXE | 56 | 5,3,2 | 250 | 58.8 | 56 | 72.2 | 64 | 2.07 | 0.900 | 330 |
| 0402HPH-68NXE | 68 | 5,3,2 | 250 | 72.2 | 56 | 91.4 | 64 | 1.84 | 1.00 | 320 |
| 0402HPH-82NXE | 82 | 5,3,2 | 250 | 89.7 | 52 | - | - | 1.75 | 1.10 | 315 |
| 0402HPH-R10XE | 100 | 5,3,2 | 250 | - | - | - | - | 1.58 | 1.20 | 310 |
| 0402HPH-R12XE | 120 | 5,3,2 | 250 | - | - | - | - | 1.25 | 1.20 | 310 |
| 0402HPH-R15XE | 150 | 5,3,2 | 100 | - | - | - | - | 1.14 | 2.0 | 240 |
| 0402HPH-R16XE | 160 | 5,3,2 | 100 | - | - | - | - | 1.65 | 2.0 | 240 |
| 0402HPH-R18XE | 180 | 5,3,2 | 100 | - | - | - | - | 1.08 | 2.1 | 240 |
| 0402HPH-R22XE | 220 | 5,3,2 | 100 | - | - | - | - | 0.96 | 3.1 | 160 |

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

- 0402HP-82NXJEW**
- Tolerance:** G = 2% H = 3% J = 5%
(Table shows stock tolerances in bold.)
- Termination:** E = Halogen free component. RoHS compliant silver-palladium-platinum-glass frit terminations.
L = RoHS compliant, not halogen-free. Silver-palladium-platinum-glass frit terminations.
R = RoHS compliant matte tin over nickel over silver-platinum-glass frit.
Special order: T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).
- 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).
Q = 7" machine-ready reel. EIA-481 punched paper tape (5000 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).
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.

2. Inductance measured at test frequency using a Coilcraft SMD-F fixture in an Agilent/HP 4286 impedance analyzer with Coilcraft-provided correlation pieces.
3. Tolerances in bold are stocked for immediate shipment.
4. Q measured using an Agilent/HP 4287A 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 causes a 15°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.
8. Electrical specifications at 25°C.
Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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