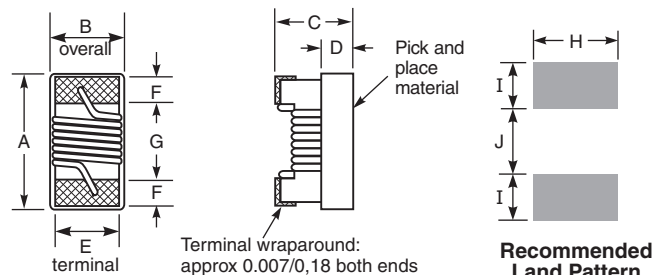




Chip Inductors - 0402HP Series (1005)

- 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



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

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

| D | 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 |

Note: Height dimension (C) is before optional solder application. For maximum height dimension including solder, add 0.006 in / 0,152 mm.

Core material Ceramic

Environmental RoHS compliant, halogen free optional

Terminations RoHS compliant 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)

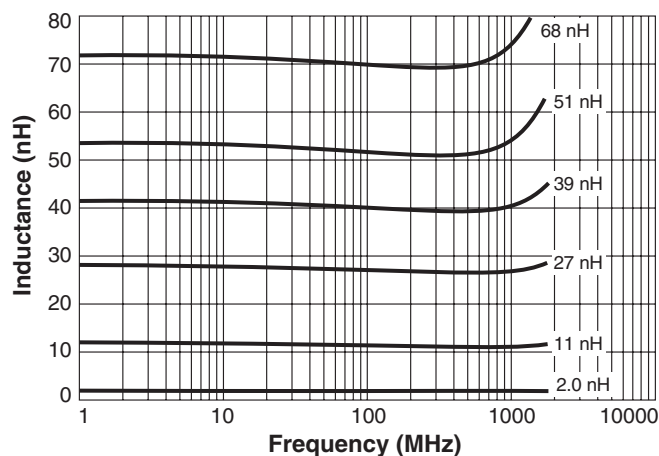
Failures in Time (FIT) / Mean Time Between Failures (MTBF)

One per billion hours / one billion hours, calculated per Telcordia SR-332

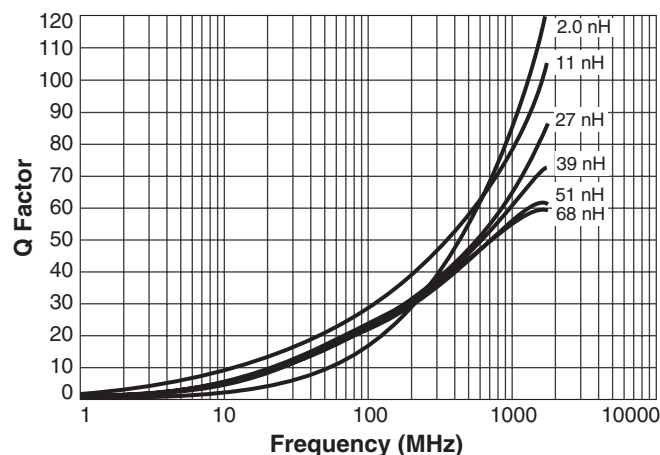
Packaging 2000 or 5000 per 7" reel. Paper tape: 8 mm wide, 0.66 mm thick, 2 mm pocket spacing

PCB washing Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787_PCB_Washing.pdf](#).

Typical L vs Frequency



Typical Q vs Frequency



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Document 526-1 Revised 06/18/15

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This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.



0402HP Series (1005)

Designer's Kits C403A and B contain 20 each of 5% values
Designer's Kits C403A-2 and B-2 contain 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-1N0XJL | 1.0 | 5 | 250 | 0.97 | 46 | 0.99 | 72 | 16.0 | 0.030 | 2300 |
| 0402HP-2N0XJL | 2.0 | 5 | 250 | 1.96 | 58 | 1.98 | 85 | 15.2 | 0.038 | 2100 |
| 0402HP-2N2XJL | 2.2 | 5 | 250 | 2.17 | 60 | 2.17 | 86 | 15.1 | 0.038 | 2100 |
| 0402HP-2N4X L | 2.4 | 5,3,2 | 250 | 2.37 | 60 | 2.38 | 83 | 14.0 | 0.042 | 2000 |
| 0402HP-2N7X L | 2.7 | 5,3,2 | 250 | 2.66 | 62 | 2.68 | 85 | 13.0 | 0.085 | 1500 |
| 0402HP-3N3X L | 3.3 | 5,3,2 | 250 | 3.26 | 66 | 3.28 | 95 | 12.8 | 0.045 | 1700 |
| 0402HP-3N6X L | 3.6 | 5,3,2 | 250 | 3.56 | 65 | 3.58 | 94 | 11.7 | 0.045 | 1700 |
| 0402HP-3N9X L | 3.9 | 5,3,2 | 250 | 3.87 | 64 | 3.91 | 98 | 9.50 | 0.045 | 1700 |
| 0402HP-4N3X L | 4.3 | 5,3,2 | 250 | 4.26 | 63 | 4.33 | 90 | 7.15 | 0.050 | 1600 |
| 0402HP-4N7X L | 4.7 | 5,3,2 | 250 | 4.67 | 58 | 4.74 | 83 | 6.85 | 0.075 | 1500 |
| 0402HP-5N1X L | 5.1 | 5,3,2 | 250 | 5.07 | 54 | 5.16 | 76 | 6.80 | 0.125 | 1200 |
| 0402HP-5N6X L | 5.6 | 5,3,2 | 250 | 5.56 | 73 | 5.66 | 105 | 6.50 | 0.055 | 1600 |
| 0402HP-6N2X L | 6.2 | 5,3,2 | 250 | 6.18 | 73 | 6.25 | 100 | 5.80 | 0.055 | 1600 |
| 0402HP-6N8X L | 6.8 | 5,3,2 | 250 | 6.78 | 68 | 6.97 | 94 | 5.80 | 0.070 | 1500 |
| 0402HP-7N5X L | 7.5 | 5,3,2 | 250 | 7.49 | 60 | 7.77 | 82 | 5.40 | 0.100 | 1400 |
| 0402HP-8N2X L | 8.2 | 5,3,2 | 250 | 8.10 | 68 | 8.40 | 95 | 5.40 | 0.065 | 1500 |
| 0402HP-8N7X L | 8.7 | 5,3,2 | 250 | 8.73 | 66 | 9.04 | 95 | 5.00 | 0.070 | 1500 |
| 0402HP-9N0X L | 9.0 | 5,3,2 | 250 | 8.99 | 67 | 9.21 | 92 | 5.00 | 0.080 | 1400 |
| 0402HP-9N5X L | 9.5 | 5,3,2 | 250 | 9.52 | 64 | 9.97 | 90 | 4.70 | 0.090 | 1400 |
| 0402HP-10NX L | 10 | 5,3,2 | 250 | 9.98 | 62 | 10.4 | 90 | 4.70 | 0.110 | 1300 |
| 0402HP-11NX L | 11 | 5,3,2 | 250 | 11.0 | 68 | 11.6 | 98 | 4.70 | 0.065 | 1400 |
| 0402HP-12NX L | 12 | 5,3,2 | 250 | 12.0 | 66 | 12.6 | 100 | 4.40 | 0.100 | 1200 |
| 0402HP-13NX L | 13 | 5,3,2 | 250 | 13.1 | 62 | 13.9 | 82 | 4.20 | 0.155 | 870 |
| 0402HP-15NX L | 15 | 5,3,2 | 250 | 15.1 | 62 | 16.0 | 85 | 3.90 | 0.115 | 1100 |
| 0402HP-16NX L | 16 | 5,3,2 | 250 | 16.2 | 57 | 17.3 | 77 | 3.70 | 0.150 | 850 |
| 0402HP-17NX L | 17 | 5,3,2 | 250 | 17.2 | 51 | 18.7 | 64 | 3.70 | 0.230 | 650 |
| 0402HP-18NX L | 18 | 5,3,2 | 250 | 18.2 | 58 | 19.5 | 74 | 3.55 | 0.120 | 900 |
| 0402HP-19NX L | 19 | 5,3,2 | 250 | 19.2 | 61 | 20.7 | 88 | 3.50 | 0.145 | 850 |
| 0402HP-20NX L | 20 | 5,3,2 | 250 | 20.3 | 58 | 22.0 | 76 | 3.50 | 0.185 | 780 |
| 0402HP-21NX L | 21 | 5,3,2 | 250 | 21.3 | 48 | 23.2 | 62 | 1.70 | 0.460 | 450 |
| 0402HP-22NX L | 22 | 5,3,2 | 250 | 22.3 | 60 | 24.4 | 74 | 3.30 | 0.160 | 800 |
| 0402HP-23NX L | 23 | 5,3,2 | 250 | 23.3 | 60 | 25.5 | 77 | 3.30 | 0.160 | 800 |
| 0402HP-24NX L | 24 | 5,3,2 | 250 | 24.5 | 55 | 27.1 | 71 | 3.15 | 0.210 | 700 |
| 0402HP-25NX L | 25 | 5,3,2 | 250 | 25.5 | 57 | 28.3 | 73 | 3.15 | 0.260 | 700 |
| 0402HP-26NX L | 26 | 5,3,2 | 250 | 26.6 | 56 | 29.3 | 74 | 3.15 | 0.290 | 700 |
| 0402HP-27NX L | 27 | 5,3,2 | 250 | 27.3 | 62 | 29.5 | 86 | 3.20 | 0.350 | 450 |
| 0402HP-30NX L | 30 | 5,3,2 | 250 | 30.8 | 61 | 35.0 | 87 | 2.90 | 0.350 | 450 |
| 0402HP-33NX L | 33 | 5,3,2 | 250 | 34.0 | 61 | 38.3 | 80 | 2.80 | 0.330 | 490 |
| 0402HP-36NX L | 36 | 5,3,2 | 250 | 37.1 | 59 | 42.2 | 76 | 2.80 | 0.390 | 480 |
| 0402HP-37NX L | 37 | 5,3,2 | 250 | 38.2 | 57 | 44.0 | 72 | 2.70 | 0.480 | 470 |
| 0402HP-39NX L | 39 | 5,3,2 | 250 | 40.5 | 56 | 47.0 | 84 | 2.60 | 0.430 | 450 |
| 0402HP-40NX L | 40 | 5,3,2 | 250 | 41.3 | 56 | 47.4 | 75 | 2.60 | 0.430 | 450 |
| 0402HP-43NX L | 43 | 5,3,2 | 250 | 45.0 | 52 | 54.1 | 68 | 2.50 | 0.520 | 450 |
| 0402HP-47NX L | 47 | 5,3,2 | 250 | 49.0 | 48 | 58.9 | 62 | 2.40 | 0.580 | 420 |
| 0402HP-51NX L | 51 | 5,3,2 | 250 | 49.1 | 52 | 58.8 | 59 | 2.30 | 0.700 | 360 |
| 0402HPH-56NX L | 56 | 5,3,2 | 250 | 58.8 | 56 | 72.2 | 64 | 2.07 | 0.900 | 330 |
| 0402HPH-68NX L | 68 | 5,3,2 | 250 | 72.2 | 56 | 91.4 | 64 | 1.84 | 1.00 | 320 |
| 0402HPH-82NX L | 82 | 5,3,2 | 250 | 89.7 | 52 | — | — | 1.75 | 1.10 | 315 |
| 0402HPH-R10X L | 100 | 5,3,2 | 250 | — | — | — | — | 1.58 | 1.20 | 310 |
| 0402HPH-R12X L | 120 | 5,3,2 | 250 | — | — | — | — | 1.25 | 1.20 | 310 |
| 0402HPH-R15X L | 150 | 5,3,2 | 100 | — | — | — | — | 1.14 | 2.0 | 240 |
| 0402HPH-R16X L | 160 | 5,3,2 | 100 | — | — | — | — | 1.65 | 2.0 | 240 |
| 0402HPH-R18X L | 180 | 5,3,2 | 100 | — | — | — | — | 1.08 | 2.1 | 240 |
| 0402HPH-R22X L | 220 | 5,3,2 | 100 | — | — | — | — | 0.96 | 3.1 | 160 |

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

0402HP-82NXJLW

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

(Table shows stock tolerances in bold.)

Termination: L = RoHS compliant silver-palladium-platinum-glass frit.

E = Halogen free component. RoHS compliant silver-palladium-platinum-glass frit terminations.
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).

Q = 7" machine-ready reel. EIA-481 punched paper tape (5000 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 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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Document 526-2 Revised 06/18/15

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