



# 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
- 52 inductance values from 1.0 to 220 nH



**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, +125°C to +140°C with derated current  
**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 with pure water or alcohol only. For other solvents, see Doc787\_PCB\_Washing.pdf

	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.

## Current Derating



## Typical Q vs Frequency



## Typical L vs Frequency



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# 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 <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance <sup>3</sup>	Test freq (MHz)	900 MHz		1.7 GHz		SRF typ <sup>5</sup> (GHz)	DCR max <sup>6</sup> (Ohms)	Irms <sup>7</sup> (mA)
				L typ	Q typ <sup>4</sup>	L typ	Q typ <sup>4</sup>			
0402HP-1N0XJL_	1.0	<b>5</b>	250	0.97	46	0.99	72	16.0	0.030	2300
0402HP-2N0XJL_	2.0	<b>5</b>	250	1.96	58	1.98	85	15.2	0.038	2100
0402HP-2N2XJL_	2.2	<b>5</b>	250	2.17	60	2.17	86	15.1	0.038	2100
0402HP-2N4X_L_	2.4	<b>5,3,2</b>	250	2.37	60	2.38	83	14.0	0.042	2000
0402HP-2N7X_L_	2.7	<b>5,3,2</b>	250	2.66	62	2.68	85	13.0	0.085	1500
0402HP-3N3X_L_	3.3	<b>5,3,2</b>	250	3.26	66	3.28	95	12.8	0.045	1700
0402HP-3N6X_L_	3.6	<b>5,3,2</b>	250	3.56	65	3.58	94	11.7	0.045	1700
0402HP-3N9X_L_	3.9	<b>5,3,2</b>	250	3.87	64	3.91	98	9.50	0.045	1700
0402HP-4N3X_L_	4.3	<b>5,3,2</b>	250	4.26	63	4.33	90	7.15	0.050	1600
0402HP-4N7X_L_	4.7	<b>5,3,2</b>	250	4.67	58	4.74	83	6.85	0.075	1500
0402HP-5N1X_L_	5.1	<b>5,3,2</b>	250	5.07	54	5.16	76	6.80	0.125	1200
0402HP-5N6X_L_	5.6	<b>5,3,2</b>	250	5.56	73	5.66	105	6.50	0.055	1600
0402HP-6N2X_L_	6.2	<b>5,3,2</b>	250	6.18	73	6.25	100	5.80	0.055	1600
0402HP-6N8X_L_	6.8	<b>5,3,2</b>	250	6.78	68	6.97	94	5.80	0.070	1500
0402HP-7N5X_L_	7.5	<b>5,3,2</b>	250	7.49	60	7.77	82	5.40	0.100	1400
0402HP-8N2X_L_	8.2	<b>5,3,2</b>	250	8.10	68	8.40	95	5.40	0.065	1500
0402HP-8N7X_L_	8.7	<b>5,3,2</b>	250	8.73	66	9.04	95	5.00	0.070	1500
0402HP-9N0X_L_	9.0	<b>5,3,2</b>	250	8.99	67	9.21	92	5.00	0.080	1400
0402HP-9N5X_L_	9.5	<b>5,3,2</b>	250	9.52	64	9.97	90	4.70	0.090	1400
0402HP-10NX_L_	10	<b>5,3,2</b>	250	9.98	62	10.4	90	4.70	0.110	1300
0402HP-11NX_L_	11	<b>5,3,2</b>	250	11.0	68	11.6	98	4.70	0.065	1400
0402HP-12NX_L_	12	<b>5,3,2</b>	250	12.0	66	12.6	100	4.40	0.100	1200
0402HP-13NX_L_	13	<b>5,3,2</b>	250	13.1	62	13.9	82	4.20	0.155	870
0402HP-15NX_L_	15	<b>5,3,2</b>	250	15.1	62	16.0	85	3.90	0.115	1100
0402HP-16NX_L_	16	<b>5,3,2</b>	250	16.2	57	17.3	77	3.70	0.150	850
0402HP-18NX_L_	18	<b>5,3,2</b>	250	18.2	58	19.5	74	3.55	0.120	900
0402HP-19NX_L_	19	<b>5,3,2</b>	250	19.2	61	20.7	88	3.50	0.145	850
0402HP-20NX_L_	20	<b>5,3,2</b>	250	20.3	58	22.0	76	3.50	0.185	780
0402HP-21NX_L_	21	<b>5,3,2</b>	250	21.3	48	23.2	62	1.70	0.460	450
0402HP-22NX_L_	22	<b>5,3,2</b>	250	22.3	60	24.4	74	3.30	0.160	800
0402HP-23NX_L_	23	<b>5,3,2</b>	250	23.3	60	25.5	77	3.30	0.160	800
0402HP-24NX_L_	24	<b>5,3,2</b>	250	24.5	55	27.1	71	3.15	0.210	700
0402HP-25NX_L_	25	<b>5,3,2</b>	250	25.5	57	28.3	73	3.15	0.260	700
0402HP-26NX_L_	26	<b>5,3,2</b>	250	26.6	56	29.3	74	3.15	0.290	700
0402HP-27NX_L_	27	<b>5,3,2</b>	250	27.3	62	29.5	86	3.20	0.350	450
0402HP-30NX_L_	30	<b>5,3,2</b>	250	30.8	61	35.0	87	2.90	0.350	450
0402HP-33NX_L_	33	<b>5,3,2</b>	250	34.0	61	38.3	80	2.80	0.330	490
0402HP-36NX_L_	36	<b>5,3,2</b>	250	37.1	59	42.2	76	2.80	0.390	480
0402HP-37NX_L_	37	<b>5,3,2</b>	250	38.2	57	44.0	72	2.70	0.480	470
0402HP-39NX_L_	39	<b>5,3,2</b>	250	40.5	56	47.0	84	2.60	0.430	450
0402HP-40NX_L_	40	<b>5,3,2</b>	250	41.3	56	47.4	75	2.60	0.430	450
0402HP-43NX_L_	43	<b>5,3,2</b>	250	45.0	52	54.1	68	2.50	0.520	450
0402HP-47NX_L_	47	<b>5,3,2</b>	250	49.0	48	58.9	62	2.40	0.580	420
0402HP-51NX_L_	51	<b>5,3,2</b>	250	49.1	52	58.8	59	2.30	0.700	360
0402HPH-56NX_L_	56	<b>5,3,2</b>	250	58.8	56	72.2	64	2.07	0.900	330
0402HPH-68NX_L_	68	<b>5,3,2</b>	250	72.2	56	91.4	64	1.84	1.00	320
0402HPH-82NX_L_	82	<b>5,3,2</b>	250	89.7	52	—	—	1.75	1.10	315
0402HPH-R10X_L_	100	<b>5,3,2</b>	250	—	—	—	—	1.58	1.20	310
0402HPH-R12X_L_	120	<b>5,3,2</b>	250	—	—	—	—	1.25	1.20	310
0402HPH-R15X_L_	150	<b>5,3,2</b>	100	—	—	—	—	1.14	2.0	240
0402HPH-R18X_L_	180	<b>5,3,2</b>	100	—	—	—	—	1.08	2.1	240
0402HPH-R22X_L_	220	<b>5,3,2</b>	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.

8. Electrical specifications at 25°C.  
Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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