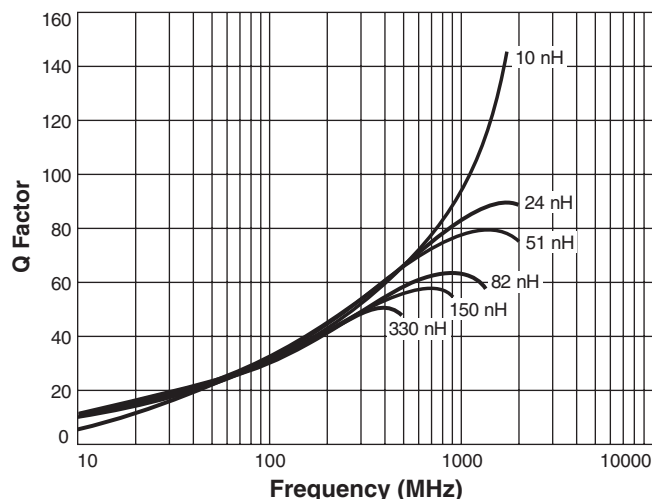




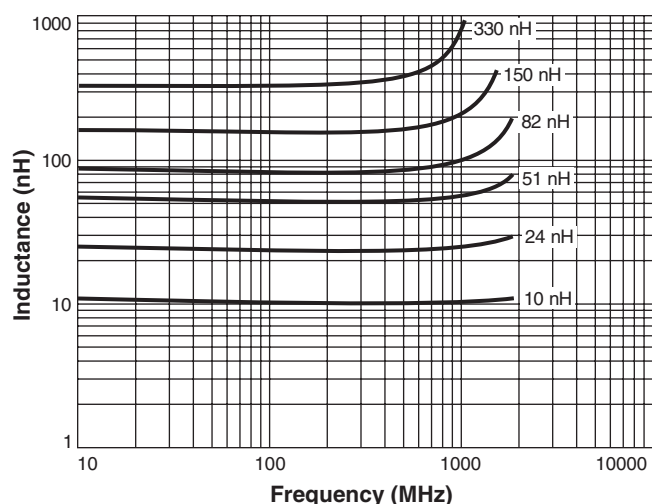
# Chip Inductors – 0603HP Series (1608)

- Higher Q and lower DCR than other 0603 inductors
- Highest SRF values – as high as 16 GHz
- Excellent current handling capability – up to 2100 mA
- 54 inductance values from 1.8 to 390 nH

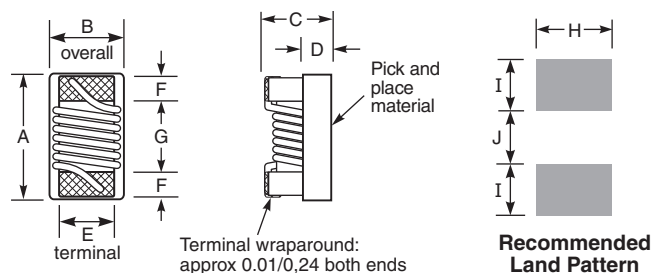
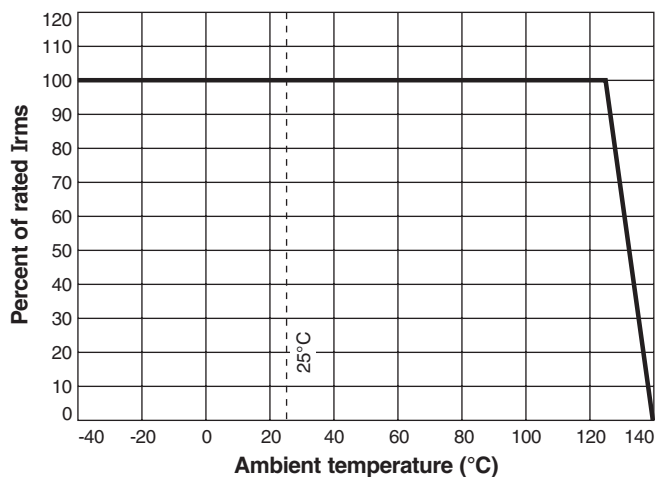
## Typical Q vs Frequency



## Typical L vs Frequency



## Current Derating



| A     | B           | C     | D     | E     | F     | G     | H     | I     | J     |
|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| max   | (min-max)   | max   |       |       |       |       |       |       |       |
| 0.069 | 0.034-0.043 | 0.037 | 0.015 | 0.029 | 0.013 | 0.038 | 0.040 | 0.027 | 0.028 |
| 1.75  | 0.86-1.09   | 0.94  | 0.38  | 0.74  | 0.33  | 0.96  | 1.02  | 0.69  | 0.71  |

**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** 2.0 – 3.2 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 per 7" reel. Paper tape: 8 mm wide, 1 mm thick, 4 mm pocket spacing

**PCB washing** Only pure water or alcohol recommended



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Document 537-1 Revised 05/02/12

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



# 0603HP Series (1608)

Designer's Kits C406A and B contain 10 each of all 5% values  
 Designer's Kits C406A-2 and B-2 contain 10 each of all 2% values

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>(nH) | Percent<br>tol | L test<br>freq<br>(MHz) | Q typ<br>at<br>250 MHz | 900 MHz |                    | 1.7 GHz |                    | SRF<br>typ <sup>4</sup><br>(GHz) | DCR<br>max <sup>5</sup><br>(Ohms) | Irms <sup>6</sup><br>(mA) | Color<br>code |
|--------------------------|---------------------------------|----------------|-------------------------|------------------------|---------|--------------------|---------|--------------------|----------------------------------|-----------------------------------|---------------------------|---------------|
|                          |                                 |                |                         |                        | L typ   | Q typ <sup>3</sup> | L typ   | Q typ <sup>3</sup> |                                  |                                   |                           |               |
| 0603HP-1N8XJL_           | 1.8                             | <b>5</b>       | 250                     | 23                     | 1.77    | 40                 | 1.77    | 65                 | 16.0                             | 0.033                             | 2100                      | Black         |
| 0603HP-2N2XJL_           | 2.2                             | <b>5</b>       | 250                     | 13                     | 2.14    | 25                 | 2.12    | 35                 | 15.0                             | 0.180                             | 900                       | Yellow        |
| 0603HP-3N3X_L_           | 3.3                             | <b>5,3,2</b>   | 250                     | 32                     | 3.28    | 67                 | 3.32    | 104                | 9.60                             | 0.024                             | 1900                      | Blue          |
| 0603HP-3N6X_L_           | 3.6                             | <b>5,3,2</b>   | 250                     | 40                     | 3.59    | 70                 | 3.62    | 116                | 9.70                             | 0.031                             | 1900                      | Red           |
| 0603HP-3N9X_L_           | 3.9                             | <b>5,3,2</b>   | 250                     | 35                     | 3.88    | 68                 | 3.95    | 108                | 7.50                             | 0.039                             | 1600                      | Brown         |
| 0603HP-4N3X_L_           | 4.3                             | <b>5,3,2</b>   | 250                     | 30                     | 4.29    | 58                 | 4.31    | 91                 | 7.50                             | 0.080                             | 1300                      | Orange        |
| 0603HP-4N7X_L_           | 4.7                             | <b>5,3,2</b>   | 250                     | 26                     | 4.65    | 48                 | 4.71    | 75                 | 7.90                             | 0.100                             | 1100                      | Violet        |
| 0603HP-5N1X_L_           | 5.1                             | <b>5,3,2</b>   | 250                     | 40                     | 5.08    | 84                 | 5.12    | 140                | 8.90                             | 0.036                             | 1700                      | Green         |
| 0603HP-5N6X_L_           | 5.6                             | <b>5,3,2</b>   | 250                     | 48                     | 5.60    | 87                 | 5.73    | 145                | 6.60                             | 0.036                             | 1700                      | Black         |
| 0603HP-6N0X_L_           | 6.0                             | <b>5,3,2</b>   | 250                     | 49                     | 5.92    | 94                 | 6.12    | 154                | 6.00                             | 0.036                             | 1700                      | White         |
| 0603HP-6N8X_L_           | 6.8                             | <b>5,3,2</b>   | 250                     | 42                     | 6.83    | 88                 | 7.05    | 143                | 5.80                             | 0.042                             | 1400                      | Red           |
| 0603HP-7N2X_L_           | 7.2                             | <b>5,3,2</b>   | 250                     | 48                     | 7.25    | 96                 | 7.38    | 139                | 5.40                             | 0.052                             | 1400                      | Green         |
| 0603HP-7N5X_L_           | 7.5                             | <b>5,3,2</b>   | 250                     | 41                     | 7.55    | 81                 | 7.85    | 112                | 5.30                             | 0.080                             | 1300                      | Brown         |
| 0603HP-8N2X_L_           | 8.2                             | <b>5,3,2</b>   | 250                     | 46                     | 8.21    | 96                 | 8.39    | 148                | 5.90                             | 0.054                             | 1400                      | Orange        |
| 0603HP-8N7X_L_           | 8.7                             | <b>5,3,2</b>   | 250                     | 46                     | 8.73    | 97                 | 9.00    | 149                | 5.50                             | 0.054                             | 1400                      | Yellow        |
| 0603HP-9N1X_L_           | 9.1                             | <b>5,3,2</b>   | 250                     | 40                     | 9.18    | 76                 | 9.64    | 109                | 5.10                             | 0.037                             | 1400                      | Black         |
| 0603HP-9N5X_L_           | 9.5                             | <b>5,3,2</b>   | 250                     | 49                     | 9.56    | 98                 | 9.99    | 149                | 4.90                             | 0.053                             | 1400                      | Blue          |
| 0603HP-10NX_L_           | 10                              | <b>5,3,2</b>   | 250                     | 49                     | 10.16   | 90                 | 10.64   | 142                | 4.30                             | 0.048                             | 1400                      | Orange        |
| 0603HP-11NX_L_           | 11                              | <b>5,3,2</b>   | 250                     | 41                     | 11.06   | 78                 | 11.82   | 108                | 4.10                             | 0.042                             | 1400                      | Gray          |
| 0603HP-12NX_L_           | 12                              | <b>5,3,2</b>   | 250                     | 37                     | 12.26   | 69                 | 13.20   | 91                 | 4.10                             | 0.088                             | 1100                      | Yellow        |
| 0603HP-15NX_L_           | 15                              | <b>5,3,2</b>   | 250                     | 48                     | 15.41   | 83                 | 17.20   | 124                | 3.60                             | 0.078                             | 1200                      | Green         |
| 0603HP-16NX_L_           | 16                              | <b>5,3,2</b>   | 250                     | 45                     | 16.37   | 77                 | 18.70   | 116                | 3.50                             | 0.085                             | 1100                      | White         |
| 0603HP-18NX_L_           | 18                              | <b>5,3,2</b>   | 250                     | 41                     | 18.56   | 76                 | 20.90   | 100                | 3.30                             | 0.066                             | 1200                      | Blue          |
| 0603HP-22NX_L_           | 22                              | <b>5,3,2</b>   | 250                     | 44                     | 22.77   | 77                 | 25.90   | 88                 | 3.15                             | 0.140                             | 850                       | Violet        |
| 0603HP-23NX_L_           | 23                              | <b>5,3,2</b>   | 250                     | 40                     | 24.0    | 69                 | 29.53   | 80                 | 3.00                             | 0.150                             | 850                       | Orange        |
| 0603HP-24NX_L_           | 24                              | <b>5,3,2</b>   | 250                     | 42                     | 24.9    | 77                 | 28.90   | 91                 | 2.95                             | 0.074                             | 1100                      | Black         |
| 0603HP-27NX_L_           | 27                              | <b>5,3,2</b>   | 250                     | 44                     | 28.4    | 74                 | 34.00   | 84                 | 2.80                             | 0.150                             | 780                       | Gray          |
| 0603HP-30NX_L_           | 30                              | <b>5,3,2</b>   | 250                     | 49                     | 31.5    | 82                 | 37.90   | 82                 | 2.80                             | 0.130                             | 920                       | Brown         |
| 0603HP-33NX_L_           | 33                              | <b>5,3,2</b>   | 250                     | 45                     | 34.9    | 76                 | 42.90   | 80                 | 2.70                             | 0.170                             | 680                       | White         |
| 0603HP-36NX_L_           | 36                              | <b>5,3,2</b>   | 250                     | 44                     | 38.5    | 69                 | 50.00   | 64                 | 2.50                             | 0.225                             | 720                       | Red           |
| 0603HP-39NX_L_           | 39                              | <b>5,3,2</b>   | 250                     | 48                     | 41.5    | 78                 | 51.90   | 74                 | 2.45                             | 0.19                              | 680                       | Black         |
| 0603HP-43NX_L_           | 43                              | <b>5,3,2</b>   | 250                     | 45                     | 45.7    | 83                 | 58.10   | 76                 | 2.45                             | 0.17                              | 810                       | Orange        |
| 0603HP-47NX_L_           | 47                              | <b>5,3,2</b>   | 200                     | 47                     | 50.6    | 77                 | 66.90   | 72                 | 2.30                             | 0.24                              | 680                       | Brown         |
| 0603HP-51NX_L_           | 51                              | <b>5,3,2</b>   | 200                     | 49                     | 54.6    | 73                 | 71.30   | 62                 | 2.30                             | 0.28                              | 660                       | Blue          |
| 0603HP-56NX_L_           | 56                              | <b>5,3,2</b>   | 200                     | 50                     | 60.3    | 74                 | 79.90   | 56                 | 2.20                             | 0.30                              | 610                       | Red           |
| 0603HP-68NX_L_           | 68                              | <b>5,3,2</b>   | 200                     | 46                     | 75.5    | 73                 | 113.3   | 49                 | 2.00                             | 0.33                              | 600                       | Orange        |
| 0603HP-72NX_L_           | 72                              | <b>5,3,2</b>   | 150                     | 46                     | 80.8    | 69                 | —       | —                  | 1.90                             | 0.42                              | 550                       | Yellow        |
| 0603HP-75NX_L_           | 75                              | <b>5,3,2</b>   | 150                     | 46                     | 84.6    | 71                 | —       | —                  | 1.90                             | 0.52                              | 500                       | Violet        |
| 0603HP-82NX_L_           | 82                              | <b>5,3,2</b>   | 150                     | 45                     | 94.0    | 62                 | —       | —                  | 1.80                             | 0.46                              | 510                       | Green         |
| 0603HP-91NX_L_           | 91                              | <b>5,3,2</b>   | 150                     | 45                     | 103.0   | 64                 | —       | —                  | 1.65                             | 0.58                              | 440                       | White         |
| 0603HP-R10X_L_           | 100                             | <b>5,3,2</b>   | 150                     | 49                     | 114.0   | 69                 | —       | —                  | 1.70                             | 0.54                              | 470                       | Blue          |
| 0603HP-R11X_L_           | 110                             | <b>5,3,2</b>   | 150                     | 47                     | 126.2   | 63                 | —       | —                  | 1.60                             | 0.58                              | 440                       | Violet        |
| 0603HP-R12X_L_           | 120                             | <b>5,3,2</b>   | 150                     | 47                     | 142.4   | 61                 | —       | —                  | 1.55                             | 0.72                              | 420                       | Gray          |
| 0603HP-R15X_L_           | 150                             | <b>5,3,2</b>   | 150                     | 47                     | 188.8   | 57                 | —       | —                  | 1.35                             | 0.82                              | 390                       | White         |
| 0603HP-R18X_L_           | 180                             | <b>5,3,2</b>   | 100                     | 48                     | 232.2   | 50                 | —       | —                  | 1.30                             | 1.50                              | 310                       | Black         |
| 0603HP-R20X_L_           | 200                             | <b>5,3,2</b>   | 100                     | 47                     | 265.0   | 47                 | —       | —                  | 1.25                             | 2.00                              | 280                       | Green         |
| 0603HP-R21X_L_           | 210                             | <b>5,3,2</b>   | 100                     | 48                     | 288.0   | 45                 | —       | —                  | 1.20                             | 2.00                              | 280                       | Gray          |
| 0603HP-R22X_L_           | 220                             | <b>5,3,2</b>   | 100                     | 47                     | 315.0   | 41                 | —       | —                  | 1.10                             | 2.00                              | 280                       | Brown         |
| 0603HP-R25X_L_           | 250                             | <b>5,3,2</b>   | 100                     | 45                     | —       | —                  | —       | —                  | 1.05                             | 3.00                              | 240                       | Violet        |
| 0603HP-R27X_L_           | 270                             | <b>5,3,2</b>   | 100                     | 46                     | —       | —                  | —       | —                  | 1.05                             | 2.25                              | 260                       | Red           |
| 0603HP-R30X_L_           | 300                             | <b>5,3,2</b>   | 100                     | 47                     | —       | —                  | —       | —                  | 0.99                             | 2.80                              | 220                       | Green         |
| 0603HP-R33X_L_           | 330                             | <b>5,3,2</b>   | 100                     | 46                     | —       | —                  | —       | —                  | 0.93                             | 3.60                              | 180                       | Blue          |
| 0603HP-R36X_L_           | 360                             | <b>5,3,2</b>   | 100                     | 47                     | —       | —                  | —       | —                  | 0.93                             | 4.00                              | 170                       | Gray          |
| 0603HP-R39X_L_           | 390                             | <b>5,3,2</b>   | 100                     | 47                     | —       | —                  | —       | —                  | 0.88                             | 4.00                              | 170                       | Yellow        |

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

**0603HP-R39XJLW**

**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).

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 tested at listed frequency using an Agilent/HP 4286A impedance analyzer with a Coilcraft SMD-A fixture and Coilcraft-provided correlation pieces.

3. Q measured using an Agilent/HP 16197 test fixture in an Agilent/HP 4291 impedance analyzer.

4. SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.

5. DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.

6. Current that causes a 15°C temperature rise from 25°C ambient.

7. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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Document 537-2 Revised 05/02/12

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