



# Chip Inductors – 1206CS Series (3216)

- High SRF and excellent Q values
- Tight tolerances, many values at 1%
- 31 inductance values from 3.3 to 1200 nH

Request free evaluation samples by contacting Coilcraft or visiting [www.coilcraft.com](http://www.coilcraft.com).

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>(nH) | Percent tolerance <sup>3</sup> | Q min <sup>4</sup> | SRF min <sup>5</sup><br>(MHz) | DCR max <sup>6</sup><br>(Ohms) | Irms <sup>7</sup><br>(mA) |
|--------------------------|---------------------------------|--------------------------------|--------------------|-------------------------------|--------------------------------|---------------------------|
| 1206CS-030X_L_           | 3.3 @ 100 MHz                   | <b>5</b>                       | 30 @ 300 MHz       | 6200                          | 0.050                          | 1000                      |
| 1206CS-060X_L_           | 6.8 @ 100 MHz                   | <b>5</b>                       | 30 @ 300 MHz       | 5500                          | 0.070                          | 1000                      |
| 1206CS-100X_L_           | 10 @ 100 MHz                    | <b>5</b>                       | 40 @ 300 MHz       | 4000                          | 0.080                          | 1000                      |
| 1206CS-120X_L_           | 12 @ 100 MHz                    | <b>5,2</b>                     | 40 @ 300 MHz       | 3200                          | 0.080                          | 1000                      |
| 1206CS-150X_L_           | 15 @ 100 MHz                    | <b>5,2</b>                     | 40 @ 300 MHz       | 3200                          | 0.100                          | 1000                      |
| 1206CS-180X_L_           | 18 @ 100 MHz                    | <b>5,2</b>                     | 50 @ 300 MHz       | 2800                          | 0.100                          | 1000                      |
| 1206CS-220X_L_           | 22 @ 100 MHz                    | <b>5,2</b>                     | 50 @ 300 MHz       | 2200                          | 0.100                          | 1000                      |
| 1206CS-270X_L_           | 27 @ 100 MHz                    | <b>5,2</b>                     | 50 @ 300 MHz       | 1800                          | 0.110                          | 1000                      |
| 1206CS-330X_L_           | 33 @ 100 MHz                    | <b>5,2</b>                     | 55 @ 300 MHz       | 1800                          | 0.110                          | 1000                      |
| 1206CS-390X_L_           | 39 @ 100 MHz                    | <b>5,2</b>                     | 55 @ 300 MHz       | 1800                          | 0.120                          | 1000                      |
| 1206CS-470X_L_           | 47 @ 100 MHz                    | <b>5,2</b>                     | 55 @ 300 MHz       | 1500                          | 0.130                          | 1000                      |
| 1206CS-560X_L_           | 56 @ 100 MHz                    | <b>5,2,1</b>                   | 55 @ 300 MHz       | 1450                          | 0.140                          | 1000                      |
| 1206CS-680X_L_           | 68 @ 100 MHz                    | <b>5,2,1</b>                   | 55 @ 300 MHz       | 1200                          | 0.260                          | 900                       |
| 1206CS-820X_L_           | 82 @ 100 MHz                    | <b>5,2,1</b>                   | 55 @ 300 MHz       | 1200                          | 0.210                          | 900                       |
| 1206CS-101X_L_           | 100 @ 100 MHz                   | <b>5,2,1</b>                   | 55 @ 300 MHz       | 1100                          | 0.260                          | 850                       |
| 1206CS-121X_L_           | 120 @ 100 MHz                   | <b>5,2,1</b>                   | 60 @ 300 MHz       | 1100                          | 0.260                          | 800                       |
| 1206CS-151X_L_           | 150 @ 100 MHz                   | <b>5,2,1</b>                   | 60 @ 300 MHz       | 950                           | 0.310                          | 750                       |
| 1206CS-181X_L_           | 180 @ 50 MHz                    | <b>5,2,1</b>                   | 60 @ 300 MHz       | 900                           | 0.430                          | 700                       |
| 1206CS-221X_L_           | 220 @ 50 MHz                    | <b>5,2,1</b>                   | 60 @ 300 MHz       | 760                           | 0.500                          | 670                       |
| 1206CS-271X_L_           | 270 @ 50 MHz                    | <b>5,2,1</b>                   | 55 @ 300 MHz       | 730                           | 0.560                          | 630                       |
| 1206CS-331X_L_           | 330 @ 50 MHz                    | <b>5,2,1</b>                   | 45 @ 150 MHz       | 650                           | 0.620                          | 590                       |
| 1206CS-391X_L_           | 390 @ 50 MHz                    | <b>5,2,1</b>                   | 45 @ 150 MHz       | 600                           | 0.750                          | 530                       |
| 1206CS-471X_L_           | 470 @ 50 MHz                    | <b>5,2,1</b>                   | 45 @ 150 MHz       | 550                           | 1.30                           | 490                       |
| 1206CS-561X_L_           | 560 @ 35 MHz                    | <b>5,2,1</b>                   | 45 @ 150 MHz       | 470                           | 1.34                           | 460                       |
| 1206CS-621X_L_           | 620 @ 35 MHz                    | <b>5,2,1</b>                   | 45 @ 150 MHz       | 470                           | 1.58                           | 460                       |
| 1206CS-681X_L_           | 680 @ 35 MHz                    | <b>5,2,1</b>                   | 45 @ 150 MHz       | 450                           | 1.58                           | 430                       |
| 1206CS-751X_L_           | 750 @ 35 MHz                    | <b>5,2,1</b>                   | 45 @ 150 MHz       | 440                           | 2.25                           | 320                       |
| 1206CS-821X_L_           | 820 @ 35 MHz                    | <b>5,2,1</b>                   | 45 @ 150 MHz       | 420                           | 1.82                           | 400                       |
| 1206CS-911X_L_           | 910 @ 35 MHz                    | <b>5,2,1</b>                   | 45 @ 150 MHz       | 410                           | 2.95                           | 310                       |
| 1206CS-102X_L_           | 1000 @ 35 MHz                   | <b>5,2,1</b>                   | 45 @ 150 MHz       | 400                           | 2.80                           | 320                       |
| 1206CS-122X_L_           | 1200 @ 35 MHz                   | <b>5,2,1</b>                   | 45 @ 150 MHz       | 380                           | 3.20                           | 300                       |

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

1206CS-122X J L C

**Tolerance:** F = 1% G = 2% J = 5%

(Table shows stock tolerances in bold.)

**Termination:** L = RoHS compliant silver-palladium-platinum-glass frit.  
Special order: T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).

**Packaging:** C = 7" machine-ready reel. EIA-481 embossed plastic tape (2000 parts per full reel).  
B = Less than full reel. In tape, but not machine ready.  
To have a leader and trailer added (\$25 charge), use code letter C instead.  
D = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (7500 parts per full reel).

2. Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4286A impedance analyzer with Coilcraft-provided correlation pieces.

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. SRF measured using an Agilent/HP 8720D network analyzer and a Coilcraft SMD-D test fixture.

6. DCR measured on a Cambridge Technology Micro-ohmmeter and a Coilcraft CCF840 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.  
Refer to Doc 174 "Color Coding" for the explanation of color dots.

**COILCRAFT** ACCURATE  
**PRECISION** REPEATABLE  
MEASUREMENTS  
SEE INDEX **TEST FIXTURES**

**Coilcraft**<sup>®</sup>

Specifications subject to change without notice.  
Please check our website for latest information.

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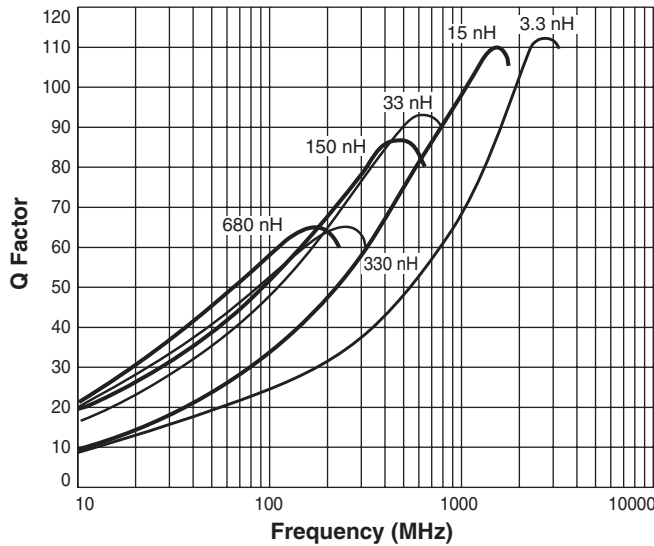
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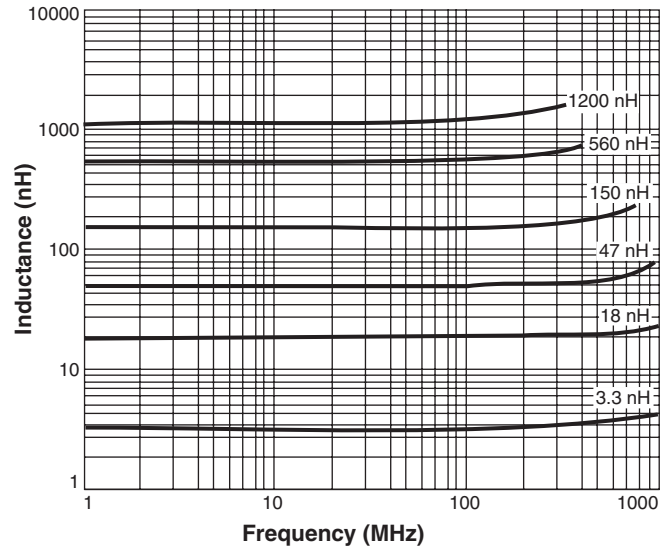


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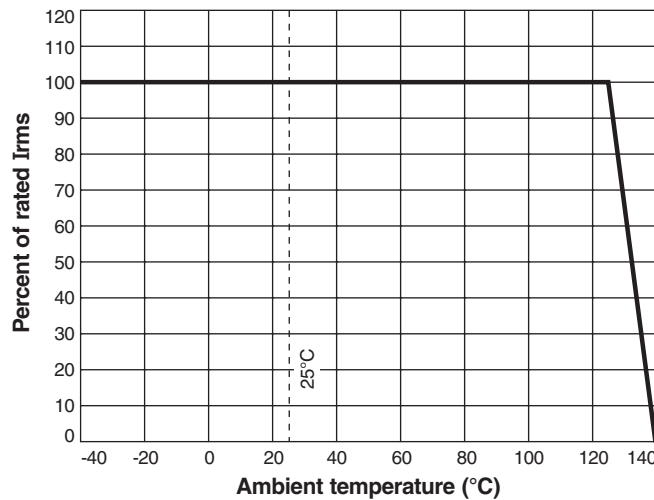
## Typical Q vs Frequency



## Typical L vs Frequency



## Irms Derating



Designer's Kit C320 contains 10 each of all values

**Core material** Ceramic

**Terminations** RoHS compliant silver-palladium-platinum-glass frit. Other terminations available at additional cost.

**Weight** 19.5 – 23.0 mg

**Ambient temperature** -40°C to +125°C with I<sub>rms</sub> current, +125°C to +140°C with derated current

**Storage temperature** Component: -40°C to +140°C. 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

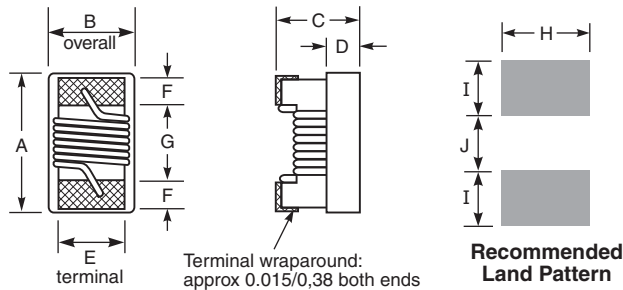
**Temperature Coefficient of Inductance (TCL)** +25 to +125 ppm/°C

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Mean Time Between Failures (MTBF)** 1 billion hours

**Packaging** 2000 per 7" reel; 7500 per 13" reel. Plastic tape: 8 mm wide, 0.3 mm thick, 4 mm pocket spacing, 1.6 mm pocket depth

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



| A max | B max | C max | D ref | E     | F     | G     | H     | I     | J     |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.140 | 0.085 | 0.060 | 0.020 | 0.056 | 0.020 | 0.080 | 0.076 | 0.040 | 0.070 |
| 3,56  | 2,16  | 1,52  | 0,51  | 1,42  | 0,51  | 2,03  | 1,93  | 1,02  | 1,78  |



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