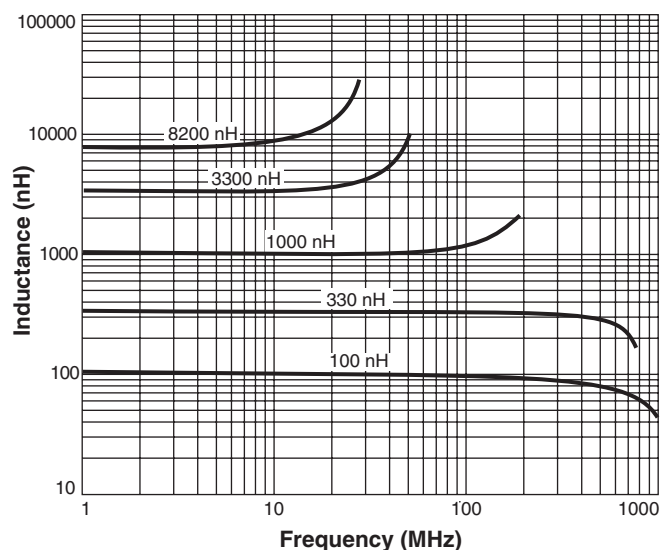




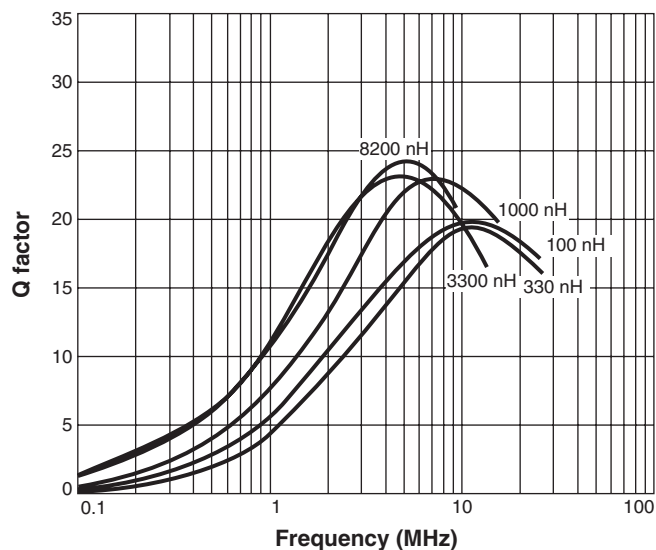
# Chip Inductors – 0603LS (1608)

- Higher inductance values than other 0603 inductors
- Ferrite construction for high current handling
- Inductance values: 47 nH – 22  $\mu$ H; 5% and 2% tolerance

## Typical L vs Frequency



## Typical Q vs Frequency



**Designer's Kit C347** contains 10 each of all 5% values

**Core material** Ceramic/Ferrite

**Environmental** RoHS compliant, halogen free optional

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

**Weight** 4.8 – 6.2 mg

**Ambient temperature** –40°C to +85°C with Irms current, +85°C to +100°C with derated current

**Storage temperature** Component: –40°C to +100°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)** +50 to +150 ppm/°C

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

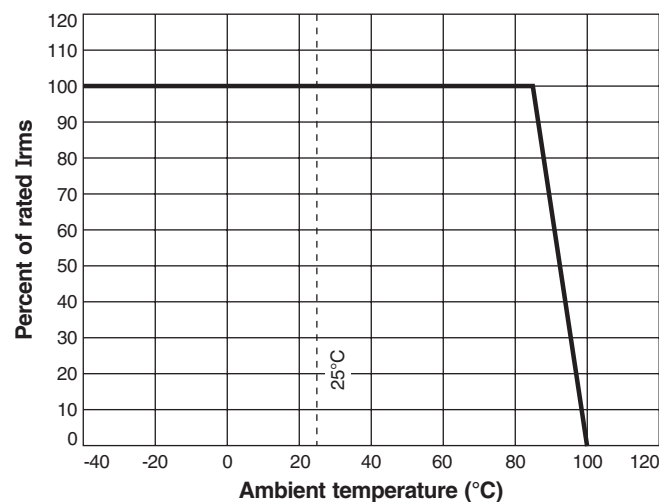
**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

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

**Packaging** 2000 per 7" reel. Plastic tape: 8 mm wide, 0.23 mm thick, 4 mm pocket spacing, 1.17 mm pocket depth

**PCB washing** Tested with pure water or alcohol only. For other solvents, see Doc787\_PCB\_Washing.pdf.

## Irms Derating





# Chip Inductors – 0603LS Series

**S-Parameter files**

ON OUR WEB SITE

**SPICE models**

ON OUR WEB SITE

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>(nH) | Percent<br>tolerance | Q min <sup>3</sup> | SRF min <sup>4</sup><br>(MHz) | DCR max <sup>5</sup><br>(Ohms) | Irms <sup>6</sup><br>(A) | Color<br>code | Overall<br>width |
|--------------------------|---------------------------------|----------------------|--------------------|-------------------------------|--------------------------------|--------------------------|---------------|------------------|
| 0603LS-47NX_L_           | 47 @ 7.9 MHz                    | <b>5,2</b>           | 12 @ 7.9 MHz       | 1500                          | 0.075                          | 1.40                     | Black         | B1               |
| 0603LS-51NX_L_           | 51 @ 7.9 MHz                    | <b>5,2</b>           | 12 @ 7.9 MHz       | 1400                          | 0.075                          | 1.00                     | Violet        | B1               |
| 0603LS-72NX_L_           | 72 @ 7.9 MHz                    | <b>5,2</b>           | 12 @ 7.9 MHz       | 1400                          | 0.12                           | 1.40                     | Brown         | B1               |
| 0603LS-101X_L_           | 100 @ 7.9 MHz                   | <b>5,2</b>           | 12 @ 7.9 MHz       | 1150                          | 0.13                           | 1.40                     | Red           | B1               |
| 0603LS-121X_L_           | 120 @ 7.9 MHz                   | <b>5,2</b>           | 12 @ 7.9 MHz       | 1100                          | 0.15                           | 1.40                     | Orange        | B1               |
| 0603LS-151X_L_           | 150 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 1050                          | 0.15                           | 1.30                     | Yellow        | B1               |
| 0603LS-181X_L_           | 180 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 950                           | 0.15                           | 1.30                     | Green         | B1               |
| 0603LS-241X_L_           | 240 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 800                           | 0.16                           | 0.95                     | Violet        | B1               |
| 0603LS-271X_L_           | 270 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 775                           | 0.30                           | 0.71                     | Gray          | B1               |
| 0603LS-331X_L_           | 330 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 725                           | 0.46                           | 0.56                     | White         | B1               |
| 0603LS-391X_L_           | 390 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 620                           | 0.51                           | 0.50                     | Black         | B1               |
| 0603LS-471X_L_           | 470 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 540                           | 0.62                           | 0.42                     | Brown         | B1               |
| 0603LS-561X_L_           | 560 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 525                           | 0.44                           | 0.55                     | Red           | B1               |
| 0603LS-681X_L_           | 680 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 260                           | 0.52                           | 0.47                     | Orange        | B2               |
| 0603LS-781X_L_           | 780 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 460                           | 0.83                           | 0.39                     | Yellow        | B1               |
| 0603LS-821X_L_           | 820 @ 7.9 MHz                   | <b>5,2</b>           | 15 @ 7.9 MHz       | 410                           | 0.69                           | 0.40                     | Green         | B2               |
| 0603LS-102X_L_           | 1000 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 190                           | 0.81                           | 0.40                     | Blue          | B2               |
| 0603LS-122X_L_           | 1200 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 160                           | 0.87                           | 0.37                     | Violet        | B2               |
| 0603LS-152X_L_           | 1500 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 100                           | 0.96                           | 0.35                     | Gray          | B2               |
| 0603LS-182X_L_           | 1800 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 80                            | 1.1                            | 0.35                     | White         | B2               |
| 0603LS-222X_L_           | 2200 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 68                            | 1.2                            | 0.32                     | Black         | B2               |
| 0603LS-272X_L_           | 2700 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 60                            | 1.5                            | 0.28                     | Brown         | B2               |
| 0603LS-332X_L_           | 3300 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 42                            | 1.5                            | 0.28                     | Red           | B2               |
| 0603LS-392X_L_           | 3900 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 40                            | 1.6                            | 0.28                     | Orange        | B2               |
| 0603LS-472X_L_           | 4700 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 34                            | 2.1                            | 0.26                     | Yellow        | B2               |
| 0603LS-562X_L_           | 5600 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 32                            | 2.6                            | 0.24                     | Green         | B2               |
| 0603LS-682X_L_           | 6800 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 31                            | 3.1                            | 0.20                     | Black         | B2               |
| 0603LS-782X_L_           | 7800 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 28                            | 3.5                            | 0.20                     | Blue          | B2               |
| 0603LS-822X_L_           | 8200 @ 7.9 MHz                  | <b>5,2</b>           | 15 @ 7.9 MHz       | 26                            | 3.6                            | 0.19                     | Violet        | B2               |
| 0603LS-103X_L_           | 10,000 @ 2.5 MHz                | <b>5,2</b>           | 12 @ 2.5 MHz       | 25                            | 4.8                            | 0.18                     | Gray          | B2               |
| 0603LS-153X_L_           | 15,000 @ 2.5 MHz                | <b>5,2</b>           | 20 @ 2.5 MHz       | 23                            | 7.1                            | 0.17                     | White         | B2               |
| 0603LS-183X_L_           | 18,000 @ 2.5 MHz                | <b>5,2</b>           | 20 @ 2.5 MHz       | 22                            | 7.6                            | 0.16                     | Brown         | B2               |
| 0603LS-223X_L_           | 22,000 @ 2.5 MHz                | <b>5,2</b>           | 22 @ 2.5 MHz       | 19                            | 8.81                           | 0.13                     | Black         | B2               |

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

**0603LS-822XJLC**

**Tolerance:** G = 2% J = 5% (Table shows stock tolerances in bold.)

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

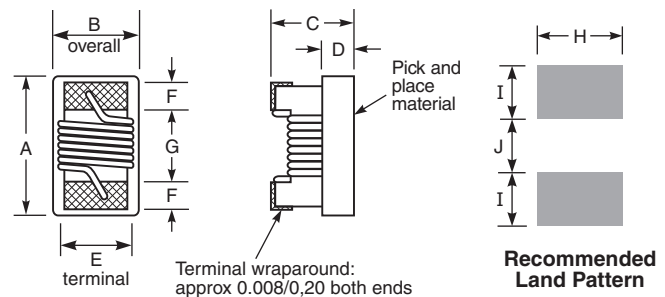
E = Halogen free component. RoHS compliant silver-palladium-platinum-glass frit terminations.  
Special order: T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).

**Packaging:** 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.

- Inductance measured at 0.1 Vrms, using Coilcraft SMD-A fixture in Agilent/HP 4286A impedance analyzer with Coilcraft-provided correlation pieces.
- Q measured on Agilent/HP 4395A with Agilent/HP 16193 test fixture.
- SRF measured using Agilent/HP 8753D network analyzer with Coilcraft SMD-D test fixture.
- DCR measured on Cambridge Technology Micro-ohmmeter.
- Current that causes a 15°C temperature rise from 25°C ambient. Because of their open construction, these parts will not saturate.
- Electrical specifications at 25°C.

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



| A max | B    | C max | D ref | E     | F     | G     | H     | I     | J            |
|-------|------|-------|-------|-------|-------|-------|-------|-------|--------------|
| 0.071 | See  | 0.044 | 0.015 | 0.030 | 0.013 | 0.034 | 0.040 | 0.025 | 0.025 inches |
| 1,80  | note | 1,12  | 0,38  | 0,76  | 0,33  | 0,86  | 1,02  | 0,64  | 0,64 mm      |

**Note:** B1 = 0.040 ±0.004 in / 1,016 ±0,102 mm  
B2 = 0.046 ±0.004 in / 1,169 ±0,102 mm

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