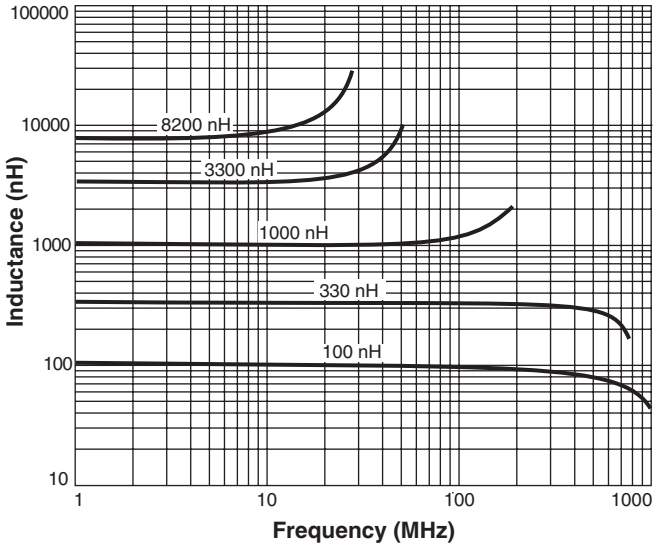
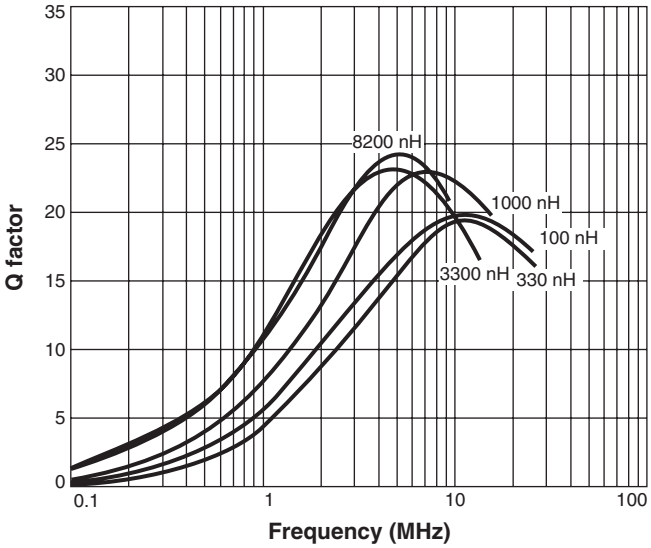
# Chip Inductors – 0603LS (1608)

- Higher inductance values than other 0603 inductors
- Ferrite construction for high current handling
- Inductance values: 47 nH – 22 µH; 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

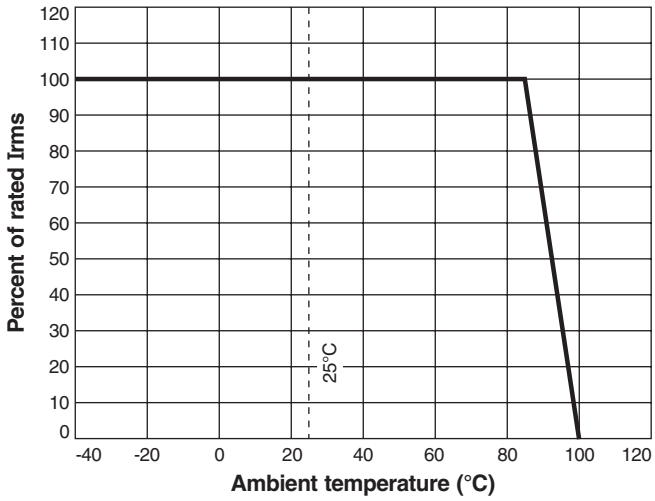
**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**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** Only pure water or alcohol recommended

## Irms Derating




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# Chip Inductors – 0603LS Series

**S-Parameter files**
ON OUR WEB SITE

**SPICE models**
ON OUR WEB SITE

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

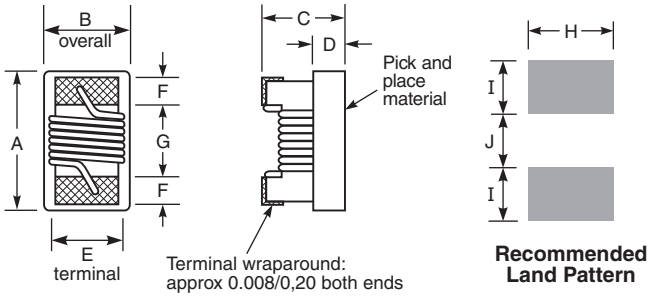
1. When ordering, specify **tolerance, termination** and **packaging** codes:

**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.

2. Inductance measured at 0.1 Vrms, using Coilcraft SMD-A fixture in Agilent/HP 4286A impedance analyzer with Coilcraft-provided correlation pieces.
3. Q measured on Agilent/HP 4395A with Agilent/HP 16193 test fixture.
4. SRF measured using Agilent/HP 8753D network analyzer with Coilcraft SMD-D test fixture.
5. DCR measured on Cambridge Technology Micro-ohmmeter.
6. Current that causes a 15°C temperature rise from 25°C ambient. Because of their open construction, these parts will not saturate.
7. 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.

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Document 264-2 Revised 01/18/12

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