

**HIGH CURRENT**

# Chip Inductors – 0603HC (1608)



With their high current ratings and ultra-small size, these chip inductors are ideal for today's high frequency, low voltage applications like mobile phones. They feature continuous current ratings up to 2.4 Amps DC and

will handle transient currents up to 50% higher. At low inductance values, their Q factors are also higher than our 0603CS Series.

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>(nH) | Percent tolerance <sup>3</sup> | Q min <sup>4</sup> | 900 MHz |       | 1.7 GHz |       | SRF min <sup>5</sup><br>(MHz) | DCR max <sup>6</sup><br>(Ohms) | Irms <sup>7</sup><br>(A) | Color code |
|--------------------------|---------------------------------|--------------------------------|--------------------|---------|-------|---------|-------|-------------------------------|--------------------------------|--------------------------|------------|
|                          |                                 |                                |                    | L typ   | Q typ | L typ   | Q typ |                               |                                |                          |            |
| 0603HC-1N6XJL_           | 1.6                             | <b>5</b>                       | 24                 | 1.67    | 49    | 1.65    | 63    | 12500                         | 0.030                          | 2.4                      | Black      |
| 0603HC-3N6XJL_           | 3.6                             | <b>5</b>                       | 24                 | 3.65    | 70    | 3.75    | 90    | 5900                          | 0.048                          | 2.3                      | Brown      |
| 0603HC-3N9XJL_           | 3.9                             | <b>5</b>                       | 25                 | 3.74    | 70    | 3.90    | 90    | 5900                          | 0.054                          | 2.2                      | Red        |
| 0603HC-6N8XJL_           | 6.8                             | <b>5</b>                       | 35                 | 6.72    | 70    | 7.10    | 75    | 5800                          | 0.054                          | 2.1                      | Orange     |
| 0603HC-7N5XJL_           | 7.5                             | <b>5</b>                       | 38                 | 7.33    | 70    | 7.90    | 68    | 3700                          | 0.059                          | 2.1                      | Yellow     |
| 0603HC-10NX_L_           | 10                              | <b>5,2</b>                     | 38                 | 9.70    | 73    | 10.5    | 57    | 3700                          | 0.071                          | 2.0                      | Green      |
| 0603HC-12NX_L_           | 12                              | <b>5,2</b>                     | 38                 | 12.3    | 68    | 14.5    | 41    | 3000                          | 0.075                          | 2.0                      | Blue       |
| 0603HC-15NX_L_           | 15                              | <b>5,2</b>                     | 38                 | 15.5    | 65    | 17.6    | 40    | 2800                          | 0.080                          | 1.9                      | Violet     |
| 0603HC-18NX_L_           | 18                              | <b>5,2</b>                     | 40                 | 19.5    | 62    | 25.0    | 40    | 2800                          | 0.099                          | 1.9                      | Gray       |
| 0603HC-22NX_L_           | 22                              | <b>5,2</b>                     | 42                 | 24.0    | 61    | 31.5    | 26    | 2400                          | 0.099                          | 1.8                      | White      |
| 0603HC-24NX_L_           | 24                              | <b>5,2</b>                     | 42                 | 25.8    | 55    | 35.0    | 21    | 2400                          | 0.105                          | 1.8                      | Black      |
| 0603HC-33NXJL_           | 33                              | <b>5</b>                       | 47                 | 34.3    | 50    | —       | —     | 1900                          | 0.175                          | 0.95                     | Brown      |
| 0603HC-47NXJL_           | 47                              | <b>5</b>                       | 40                 | 49.5    | 45    | —       | —     | 1530                          | 0.195                          | 0.85                     | Red        |

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

**0603HC-24NXJLW**

**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:** **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.

- Inductance measured at 250 MHz using Coilcraft SMD-A fixture in Agilent/HP 4286 impedance analyzer with Coilcraft-provided correlation pieces.
  - Tolerances in bold are stocked for immediate shipment.
  - Q measured at 250 MHz using Agilent/HP 4291A with Agilent/HP 16193 test fixture.
  - SRF measured using Agilent/HP 8720D network analyzer and Coilcraft SMD-D test fixture.
  - DCR measured on micro-ohmmeter and Coilcraft CCF858 test fixture.
  - Current that causes a 20°C temperature rise from 25°C ambient.
  - Electrical specifications at 25°C.
- Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

**Designer's Kit C339** contains 10 of each of all 5% parts

**Core material** Ceramic

**Environmental** RoHS compliant, halogen free optional

**Terminations** RoHS compliant silver-palladium-platinum-glass frit.

**Weight** 3.3 – 3.7 mg

**Ambient temperature** –40°C to +125°C with Irms current, +125°C to +145°C with derated current

**Storage temperature** Component: –40°C to +145°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, 1.0 mm thick, 4 mm pocket spacing

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

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Document 218-1 Revised 09/30/13

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## 0603HC (1608) Chip Inductors

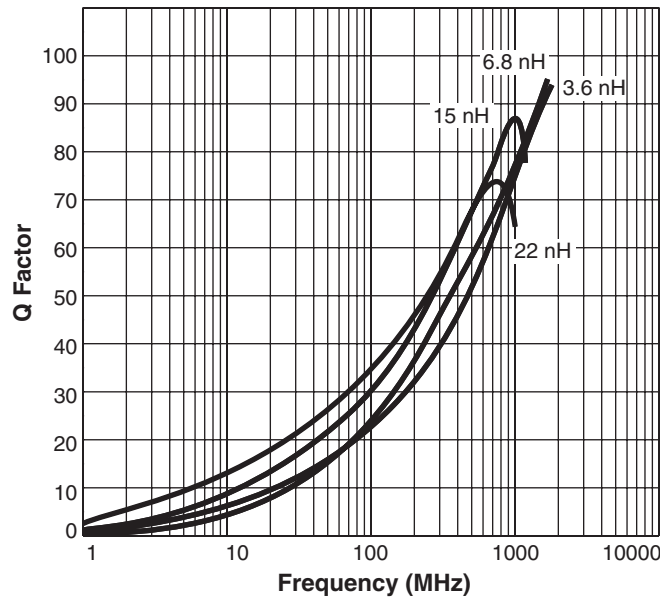
**S-Parameter files**

ON OUR WEB SITE

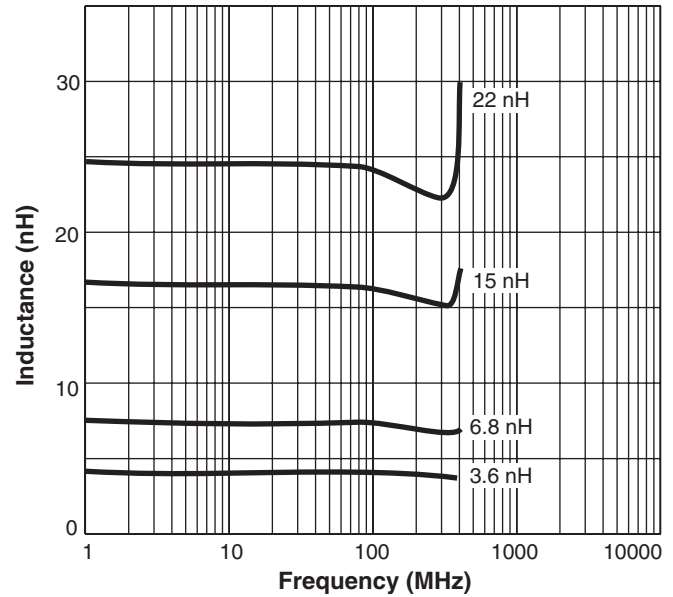
**SPICE models**

ON OUR WEB SITE

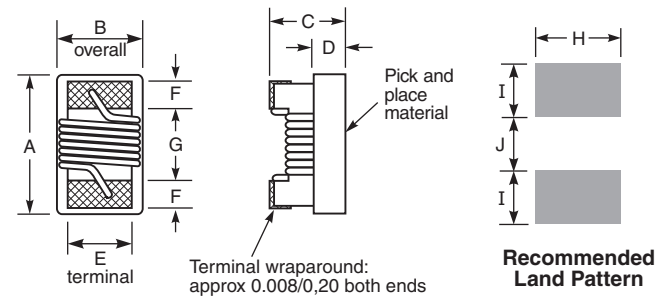
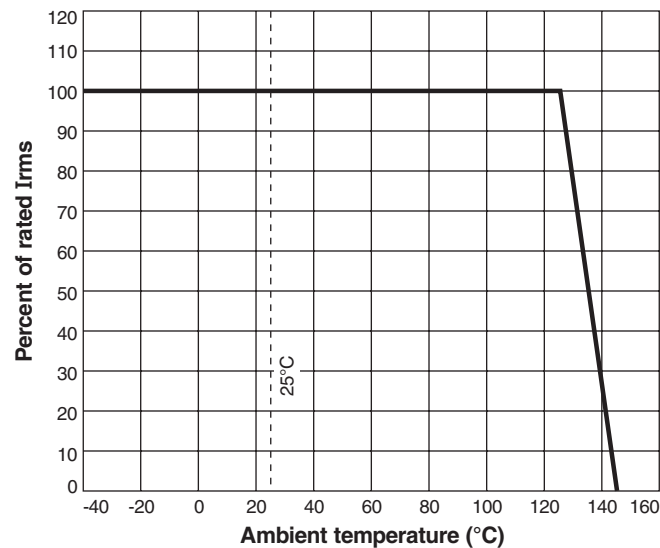
### Typical Q vs Frequency



### Typical L vs Frequency



### Irms Derating



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

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

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

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