



# Chip Inductors - 0201DS Series (0603)

- 0201 size; world's smallest wirewound inductor
- 52 inductance values from 0.5 to 14 nH

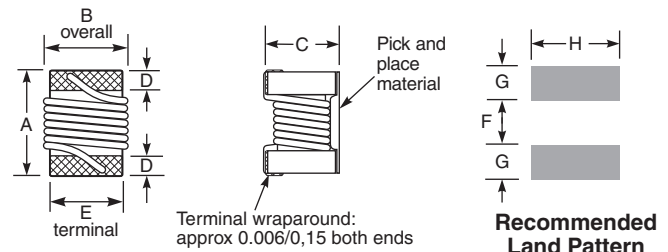
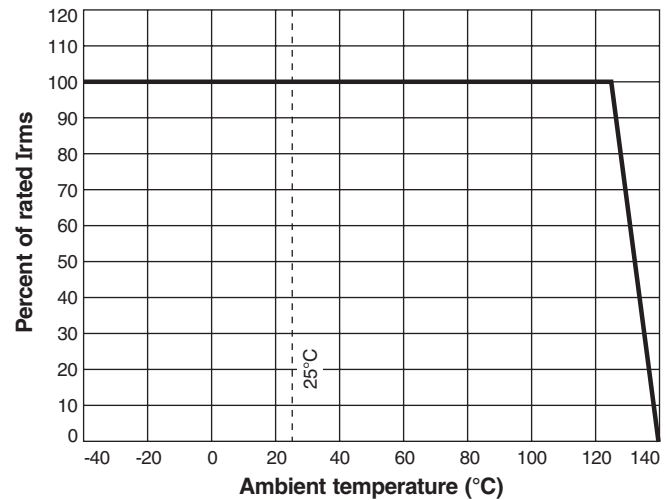
## Typical Q vs Frequency



## Typical L vs Frequency



## Irms Derating



| A max | B max | C max  | D     | E     | F     | G     | H     |        |
|-------|-------|--------|-------|-------|-------|-------|-------|--------|
| 0.023 | 0.018 | 0.0177 | 0.004 | 0.015 | 0.009 | 0.007 | 0.018 | inches |
| 0,58  | 0,46  | 0,45   | 0,10  | 0,38  | 0,23  | 0,18  | 0,46  | mm     |

**Designer's Kits C425A and B** contain 20 of each value

**Core material** Ceramic

**Environmental** RoHS compliant, halogen free

**Terminations** RoHS compliant matte tin over nickel over silver.

**Weight** 0.14 – 0.23 mg

**Ambient temperature**  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  with Irms current,  $+125^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$  with derated current

**Storage temperature** Component:  $-40^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$ .

Tape and reel packaging:  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$

**Resistance to soldering heat** Max three 40 second reflows at  $+260^{\circ}\text{C}$ , parts cooled to room temperature between cycles

**Temperature Coefficient of Inductance (TCL)**  $+25$  to  $+125$  ppm/ $^{\circ}\text{C}$

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at  $<30^{\circ}\text{C}$  / 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, 0.6 mm thick, 2 mm pocket spacing

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



# 0201DS Chip Inductor Series (0603)

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>(nH) | Percent<br>tolerance | 900 MHz |                    | 1.7 GHz |                    | SRF typ <sup>4</sup><br>(GHz) | DCR max <sup>5</sup><br>(Ohms) | I <sub>rms</sub> <sup>6</sup><br>(mA) |
|--------------------------|---------------------------------|----------------------|---------|--------------------|---------|--------------------|-------------------------------|--------------------------------|---------------------------------------|
|                          |                                 |                      | L typ   | Q typ <sup>3</sup> | L typ   | Q typ <sup>3</sup> |                               |                                |                                       |
| 0201DS-0N5XKE_           | 0.5                             | 10                   | 0.50    | 29                 | 0.49    | 43                 | 23.5                          | 0.020                          | 1250                                  |
| 0201DS-0N6XKE_           | 0.6                             | 10                   | 0.58    | 31                 | 0.58    | 51                 | 24.5                          | 0.030                          | 1000                                  |
| 0201DS-1N2XJE_           | 1.2                             | 5                    | 1.16    | 42                 | 1.16    | 60                 | 17.9                          | 0.042                          | 870                                   |
| 0201DS-1N3XJE_           | 1.3                             | 5                    | 1.24    | 38                 | 1.24    | 57                 | 17.6                          | 0.048                          | 820                                   |
| 0201DS-1N4XJE_           | 1.4                             | 5                    | 1.35    | 27                 | 1.34    | 37                 | 17.0                          | 0.080                          | 630                                   |
| 0201DS-1N5XJE_           | 1.5                             | 5                    | 1.47    | 28                 | 1.47    | 40                 | 17.0                          | 0.090                          | 600                                   |
| 0201DS-2N2XJE_           | 2.2                             | 5                    | 2.23    | 32                 | 2.23    | 32                 | 16.7                          | 0.070                          | 700                                   |
| 0201DS-2N3XJE_           | 2.3                             | 5                    | 2.28    | 45                 | 2.28    | 64                 | 16.5                          | 0.070                          | 670                                   |
| 0201DS-2N4XJE_           | 2.4                             | 5                    | 2.36    | 35                 | 2.36    | 53                 | 13.0                          | 0.082                          | 620                                   |
| 0201DS-2N5XJE_           | 2.5                             | 5                    | 2.50    | 31                 | 2.49    | 44                 | 12.5                          | 0.165                          | 440                                   |
| 0201DS-3N3XJE_           | 3.3                             | 5                    | 3.31    | 42                 | 3.32    | 62                 | 12.8                          | 0.080                          | 630                                   |
| 0201DS-3N4XJE_           | 3.4                             | 5                    | 3.38    | 42                 | 3.42    | 62                 | 12.7                          | 0.080                          | 630                                   |
| 0201DS-3N5XJE_           | 3.5                             | 5                    | 3.41    | 44                 | 3.45    | 64                 | 12.4                          | 0.080                          | 630                                   |
| 0201DS-3N6XJE_           | 3.6                             | 5                    | 3.53    | 40                 | 3.57    | 61                 | 12.5                          | 0.105                          | 550                                   |
| 0201DS-3N7XJE_           | 3.7                             | 5                    | 3.65    | 39                 | 3.66    | 58                 | 10.6                          | 0.105                          | 550                                   |
| 0201DS-3N8XJE_           | 3.8                             | 5                    | 3.81    | 38                 | 3.81    | 60                 | 10.2                          | 0.180                          | 420                                   |
| 0201DS-3N9XJE_           | 3.9                             | 5                    | 3.89    | 35                 | 3.89    | 50                 | 11.2                          | 0.240                          | 360                                   |
| 0201DS-4N8XJE_           | 4.8                             | 5                    | 4.83    | 34                 | 4.83    | 50                 | 11.0                          | 0.096                          | 570                                   |
| 0201DS-4N9XJE_           | 4.9                             | 5                    | 4.72    | 33                 | 4.71    | 52                 | 11.7                          | 0.130                          | 510                                   |
| 0201DS-5N0XJE_           | 5.0                             | 5                    | 4.90    | 34                 | 4.90    | 54                 | 11.5                          | 0.130                          | 510                                   |
| 0201DS-5N1XJE_           | 5.1                             | 5                    | 4.96    | 35                 | 4.96    | 54                 | 11.1                          | 0.130                          | 510                                   |
| 0201DS-5N2XJE_           | 5.2                             | 5                    | 5.21    | 36                 | 5.21    | 55                 | 10.0                          | 0.170                          | 430                                   |
| 0201DS-5N3XJE_           | 5.3                             | 5                    | 5.15    | 36                 | 5.15    | 57                 | 10.6                          | 0.130                          | 510                                   |
| 0201DS-5N4XJE_           | 5.4                             | 5                    | 5.30    | 36                 | 5.31    | 56                 | 10.2                          | 0.130                          | 510                                   |
| 0201DS-5N5XJE_           | 5.5                             | 5                    | 5.49    | 35                 | 5.49    | 50                 | 9.5                           | 0.285                          | 330                                   |
| 0201DS-6N7XJE_           | 6.7                             | 5                    | 6.71    | 40                 | 6.72    | 59                 | 6.8                           | 0.150                          | 460                                   |
| 0201DS-6N8XJE_           | 6.8                             | 5                    | 6.52    | 35                 | 6.52    | 52                 | 9.5                           | 1.150                          | 460                                   |
| 0201DS-6N9XJE_           | 6.9                             | 5                    | 6.70    | 36                 | 6.73    | 54                 | 9.3                           | 0.150                          | 460                                   |
| 0201DS-7N0XJE_           | 7.0                             | 5                    | 6.97    | 39                 | 6.97    | 60                 | 6.7                           | 0.210                          | 390                                   |
| 0201DS-7N1XJE_           | 7.1                             | 5                    | 6.91    | 36                 | 6.90    | 54                 | 9.5                           | 0.250                          | 390                                   |
| 0201DS-7N2XJE_           | 7.2                             | 5                    | 6.97    | 36                 | 6.97    | 55                 | 9.4                           | 0.250                          | 390                                   |
| 0201DS-7N3XJE_           | 7.3                             | 5                    | 7.05    | 37                 | 7.04    | 56                 | 9.3                           | 0.250                          | 390                                   |
| 0201DS-7N4XJE_           | 7.4                             | 5                    | 7.29    | 40                 | 7.30    | 61                 | 9.1                           | 0.250                          | 390                                   |
| 0201DS-7N5XJE_           | 7.5                             | 5                    | 7.44    | 36                 | 7.46    | 50                 | 6.8                           | 0.340                          | 300                                   |
| 0201DS-7N6XJE_           | 7.6                             | 5                    | 7.32    | 39                 | 7.31    | 59                 | 9.3                           | 0.300                          | 340                                   |
| 0201DS-7N7XJE_           | 7.7                             | 5                    | 7.38    | 39                 | 7.37    | 60                 | 9.2                           | 0.300                          | 340                                   |
| 0201DS-7N8XJE_           | 7.8                             | 5                    | 7.49    | 38                 | 7.49    | 58                 | 9.2                           | 0.300                          | 340                                   |
| 0201DS-7N9XJE_           | 7.9                             | 5                    | 7.56    | 38                 | 7.56    | 58                 | 9.1                           | 0.300                          | 340                                   |
| 0201DS-8N0XJE_           | 8.0                             | 5                    | 7.65    | 35                 | 7.68    | 53                 | 9.2                           | 0.300                          | 340                                   |
| 0201DS-8N1XJE_           | 8.1                             | 5                    | 7.74    | 37                 | 7.75    | 59                 | 9.1                           | 0.300                          | 340                                   |
| 0201DS-8N2XJE_           | 8.2                             | 5                    | 8.14    | 37                 | 8.22    | 53                 | 6.4                           | 0.270                          | 340                                   |
| 0201DS-8N3XJE_           | 8.3                             | 5                    | 7.93    | 36                 | 7.95    | 57                 | 8.9                           | 0.300                          | 340                                   |
| 0201DS-8N4XJE_           | 8.4                             | 5                    | 8.03    | 35                 | 8.04    | 55                 | 8.9                           | 0.350                          | 300                                   |
| 0201DS-8N5XJE_           | 8.5                             | 5                    | 8.11    | 35                 | 8.13    | 55                 | 8.9                           | 0.350                          | 300                                   |
| 0201DS-8N7XJE_           | 8.7                             | 5                    | 8.68    | 38                 | 8.74    | 59                 | 6.3                           | 0.350                          | 300                                   |
| 0201DS-9N0XJE_           | 9.0                             | 5                    | 9.02    | 42                 | 9.04    | 63                 | 6.4                           | 0.350                          | 300                                   |
| 0201DS-9N4XJE_           | 9.4                             | 5                    | 9.38    | 36                 | 9.39    | 51                 | 6.4                           | 0.400                          | 280                                   |
| 0201DS-9N6XJE_           | 9.6                             | 5                    | 9.62    | 38                 | 9.64    | 53                 | 6.2                           | 0.400                          | 280                                   |
| 0201DS-11NXJE_           | 11.0                            | 5                    | 11.11   | 40                 | 11.15   | 62                 | 5.7                           | 0.400                          | 280                                   |
| 0201DS-12NXJE_           | 12.0                            | 5                    | 12.15   | 39                 | 12.20   | 56                 | 5.6                           | 0.360                          | 300                                   |
| 0201DS-13NXJE_           | 13.0                            | 5                    | 13.12   | 38                 | 13.22   | 52                 | 6.7                           | 0.440                          | 270                                   |
| 0201DS-14NXJE_           | 14.0                            | 5                    | 14.13   | 37                 | 14.37   | 51                 | 5.1                           | 0.440                          | 270                                   |

1. When ordering, please specify **packaging** code:

**0201DS-14NXJEW**

**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 measured at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4286 impedance analyzer with Coilcraft-provided correlation pieces.

3. Q measured using an Agilent/HP 4291A with an Agilent/HP 16197 test fixture.

4. SRF measured using an Agilent/HP 8722ES network analyzer and a test fixture with a 0.010" air gap.

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.

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



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