

# Chip Inductors for Critical Applications ST312RAM

- Higher inductance values than ceramic 0603 inductors
- Heavier gauge wire for low DCR
- Ferrite construction for high current handling
- Inductance values from 15 nH to 10  $\mu$ H

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>$\pm 5\%$ (nH) | Q min <sup>3</sup> | Impedance typ (Ohms) |         | SRF min <sup>4</sup><br>(MHz) | DCR max <sup>5</sup><br>(Ohms) | I <sub>max</sub><br>(A) | Color<br>code |
|--------------------------|---|--------------------|----------------------|---------|-------------------------------|--------------------------------|-------------------------|---------------|
|                          |   |                    | 100 MHz              | 500 MHz |                               |                                |                         |               |
| ST312RAM15NJRZ           | 15 @ 7.9 MHz                              | 10 @ 7.9 MHz       | 10                   | 42      | 2800                          | 0.023                          | 1.2                     | Yellow        |
| ST312RAM33NJRZ           | 33 @ 7.9 MHz                              | 10 @ 7.9 MHz       | 19                   | 90      | 1840                          | 0.028                          | 1.2                     | Red           |
| ST312RAM39NJRZ           | 39 @ 7.9 MHz                              | 13 @ 7.9 MHz       | 23                   | 113     | 2200                          | 0.115                          | 0.60                    | Green         |
| ST312RAM47NJRZ           | 47 @ 7.9 MHz                              | 13 @ 7.9 MHz       | 42                   | 210     | 2250                          | 0.052                          | 1.1                     | White         |
| ST312RAM50NJRZ           | 50 @ 7.9 MHz                              | 15 @ 7.9 MHz       | 31                   | 149     | 1830                          | 0.052                          | 1.1                     | Violet        |
| ST312RAM68NJRZ           | 68 @ 7.9 MHz                              | 15 @ 7.9 MHz       | 39                   | 193     | 1500                          | 0.150                          | 0.50                    | Gray          |
| ST312RAM72NJRZ           | 72 @ 7.9 MHz                              | 15 @ 7.9 MHz       | 60                   | 385     | 1800                          | 0.065                          | 1.0                     | Blue          |
| ST312RAM85NJRZ           | 85 @ 7.9 MHz                              | 15 @ 7.9 MHz       | 51                   | 256     | 1600                          | 0.065                          | 1.0                     | Brown         |
| ST312RAM111JRZ           | 110 @ 7.9 MHz                             | 12 @ 7.9 MHz       | 70                   | 350     | 980                           | 0.060                          | 1.1                     | Red           |
| ST312RAM121JRZ           | 120 @ 7.9 MHz                             | 12 @ 7.9 MHz       | 76                   | 410     | 920                           | 0.089                          | 0.90                    | Black         |
| ST312RAM151JRZ           | 150 @ 7.9 MHz                             | 15 @ 7.9 MHz       | 89                   | 468     | 1050                          | 0.093                          | 0.85                    | Yellow        |
| ST312RAM201JRZ           | 200 @ 7.9 MHz                             | 15 @ 7.9 MHz       | 120                  | 685     | 880                           | 0.115                          | 0.80                    | Green         |
| ST312RAM241JRZ           | 240 @ 7.9 MHz                             | 12 @ 7.9 MHz       | 140                  | 810     | 720                           | 0.120                          | 0.70                    | Violet        |
| ST312RAM271JRZ           | 270 @ 7.9 MHz                             | 12 @ 7.9 MHz       | 173                  | 1023    | 600                           | 0.220                          | 0.55                    | Brown         |
| ST312RAM361JRZ           | 360 @ 7.9 MHz                             | 15 @ 7.9 MHz       | 210                  | 1310    | 700                           | 0.210                          | 0.55                    | Blue          |
| ST312RAM391JRZ           | 390 @ 7.9 MHz                             | 15 @ 7.9 MHz       | 240                  | 1565    | 700                           | 0.300                          | 0.50                    | Black         |
| ST312RAM421JRZ           | 420 @ 7.9 MHz                             | 11 @ 7.9 MHz       | 250                  | 1925    | 685                           | 0.330                          | 0.50                    | Red           |
| ST312RAM471JRZ           | 470 @ 7.9 MHz                             | 12 @ 7.9 MHz       | 306                  | 2253    | 460                           | 0.370                          | 0.48                    | Orange        |
| ST312RAM561JRZ           | 560 @ 7.9 MHz                             | 12 @ 7.9 MHz       | 371                  | 3180    | 400                           | 0.490                          | 0.42                    | Blue          |
| ST312RAM601JRZ           | 600 @ 7.9 MHz                             | 16 @ 7.9 MHz       | 372                  | 2778    | 540                           | 0.552                          | 0.36                    | Blue          |
| ST312RAM681JRZ           | 680 @ 7.9 MHz                             | 12 @ 7.9 MHz       | 420                  | 3620    | 420                           | 0.460                          | 0.36                    | Orange        |
| ST312RAM821JRZ           | 820 @ 7.9 MHz                             | 12 @ 7.9 MHz       | 507                  | 3300    | 260                           | 0.580                          | 0.34                    | Green         |
| ST312RAM102JRZ           | 1000 @ 7.9 MHz                            | 13 @ 7.9 MHz       | 663                  | 9823    | 320                           | 0.840                          | 0.32                    | Black         |
| ST312RAM152JRZ           | 1500 @ 7.9 MHz                            | 17 @ 7.9 MHz       | 944                  | 17,830  | 330                           | 1.3                            | 0.22                    | Orange        |
| ST312RAM222JRZ           | 2200 @ 7.9 MHz                            | 12 @ 2.5 MHz       | 5220                 | 129     | 65                            | 1.1                            | 0.25                    | Red           |
| ST312RAM472JRZ           | 4700 @ 7.9 MHz                            | 12 @ 7.9 MHz       | 2100                 | 220     | 45                            | 1.5                            | 0.22                    | Yellow        |
| ST312RAM103JRZ           | 10000 @ 2.5 MHz                           | 9 @ 2.5 MHz        | 1400                 | 150     | 30                            | 4.5                            | 0.10                    | Gray          |

1. When ordering, please specify **termination** and **screening** codes:

### ST312RAM103JRZ

**Termination:** R = Matte tin over nickel over silver-platinum-glass frit.

**Special order:**

Q = Tin-silver-copper (95.5/4/0.5) over tin over nickel over silver-platinum-glass frit or

P = Tin-lead (63/37) over tin over nickel over silver-platinum-glass frit.

**Screening:** Z = Unscreened

H = Coilcraft CP-SA-10001 Group A

- Screening performed to the document's latest revision.
- Lot qualification (Group B) available.
- Custom testing also available.
- Country of origin restrictions available; prefix options G or F.

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

3. Q measured at the same frequency as inductance using an Agilent/HP 4291A with an Agilent/HP 16197A test fixture or equivalents.

4. SRF measured using an Agilent/HP 8753ES network analyzer or equivalent and a Coilcraft SMD-D test fixture.

5. DCR measured on a Keithley 580 micro-ohmmeter or equivalent and a Coilcraft CCF1010 test fixture.

6. Electrical specifications at 25°C.

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



CRITICAL PRODUCTS & SERVICES

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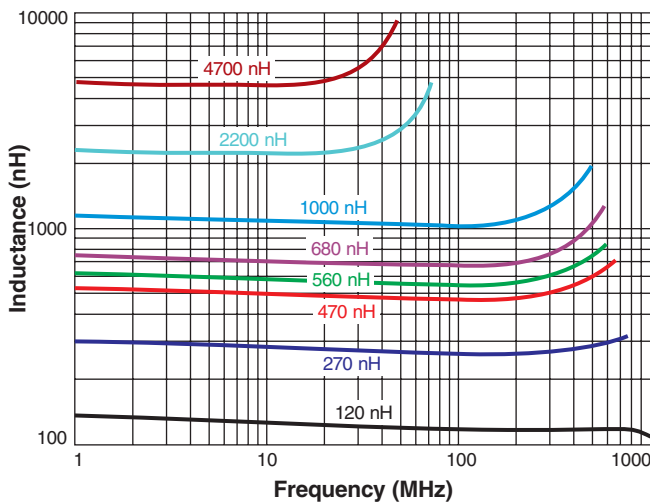
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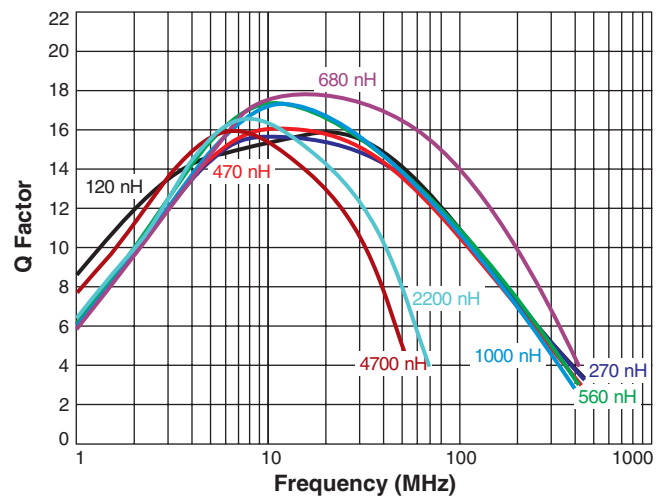
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# ST312RAM Series (0603)

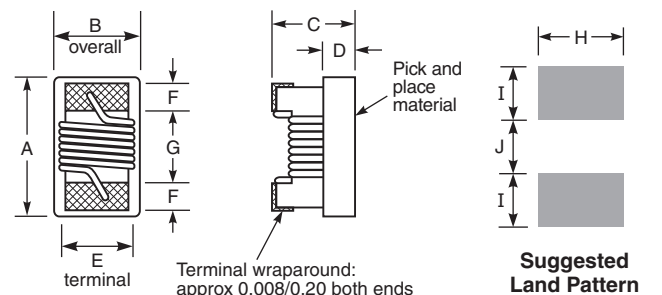
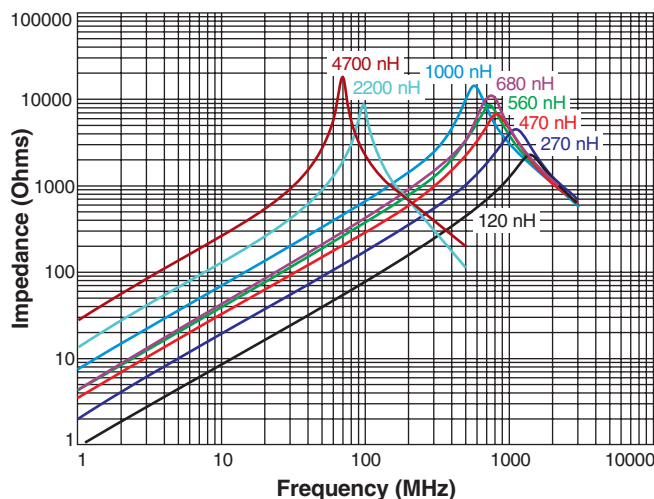
## Typical L vs Frequency



## Typical Q vs Frequency



## Typical Impedance vs Frequency



| A     | B     | C     | D     | E     | F     | G     | H     | I     | J     |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| max   | max   | max   | ref   |       |       |       |       |       |       |
| 0,071 | 0,044 | 0,036 | 0,015 | 0,030 | 0,013 | 0,034 | 0,040 | 0,025 | 0,025 |
| 1,80  | 1,12  | 0,91  | 0,38  | 0,76  | 0,33  | 0,86  | 1,02  | 0,64  | 0,64  |

Note: Dimensions are before optional solder application. For maximum overall dimensions including solder, add 0.0025 in / 0,064 mm to B and 0.006 in / 0,15 mm to A and C.

**Core material** Ferrite

**Terminations** Matte tin over nickel over silver-platinum-glass frit.

**Weight** 4.3 – 5.7 mg

**Ambient temperature** -40°C to +85°C with Irms current

**Maximum part temperature** +100°C (ambient + temp rise).

**Storage temperature** Component: -55°C to +100°C.

Packaging: -55°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 +300 ppm/°C

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

**Packaging** 2000 per 7" reel; Paper tape: 8 mm wide, 1.0 mm thick, 4 mm pocket spacing



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