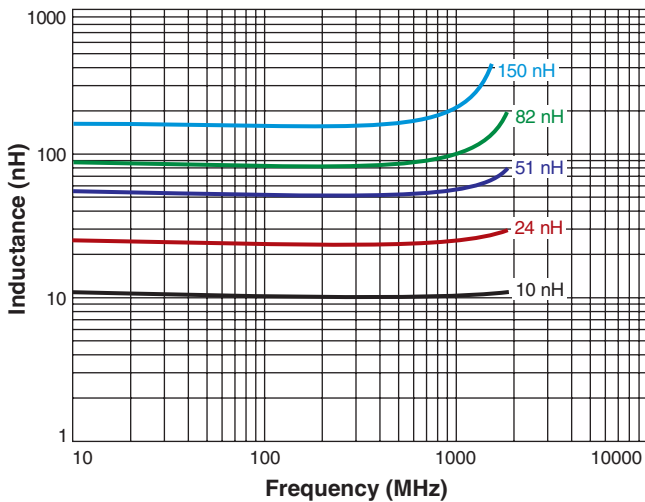


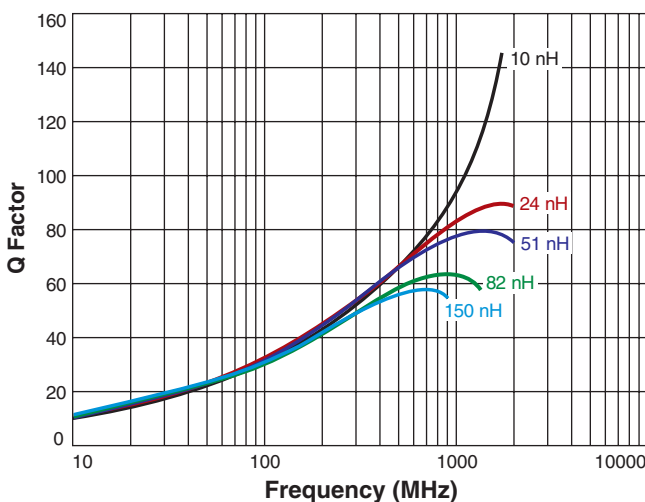
Chip Inductors for Critical Applications ST312RAG

- Higher Q and lower DCR than other 0603 inductors
- Highest SRF values – as high as 16 GHz
- 43 inductance values from 1.8 to 150 nH

Typical L vs Frequency



Typical Q vs Frequency



Core material Ceramic

Terminations Silver-palladium-platinum-glass frit. Other terminations available at additional cost.

Ambient temperature -40°C to +125°C with Irms current

Maximum part temperature +140°C (ambient + temp rise).

Storage temperature Component: -55°C to +140°C.

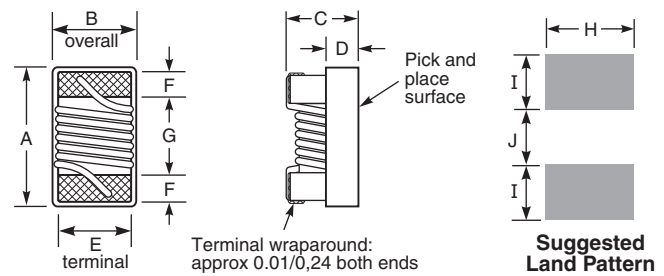
Tape and reel packaging: -55°C to +80°C

Resistance to soldering heat Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

Temperature Coefficient of Inductance (TCL) +25 to +125 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 mm thick, 4 mm pocket spacing



| A | B | C | D | E | F | G | H | I | J |
|-------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| max | min-max | max | | | | | | | |
| 0.069 | 0.034-0.043 | 0.037 | 0.015 | 0.029 | 0.013 | 0.038 | 0.040 | 0.027 | 0.028 |
| 1,75 | 0,86-1,09 | 0,94 | 0,38 | 0,74 | 0,33 | 0,96 | 1,02 | 0,69 | 0,71 |

Note: Dimensions are before optional solder application. For maximum overall dimensions including solder, add 0.003 in / 0,072 mm to **A** and 0.006 in / 0,15 mm to **C**.



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This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.

ST312RAG Series (0603)

| Part number ¹ | Inductance ² (nH) | Percent tolerance | L test freq (MHz) | Q min ³ at 250 MHz | 900 MHz | | 1.7 GHz | | SRF min ⁴ (GHz) | DCR max ⁵ (Ohms) | I _{max} (mA) | Color code |
|--------------------------|---------------------------------|----------------------|-------------------------|-------------------------------------|---------|--------------------|---------|--------------------|----------------------------------|-----------------------------------|--------------------------|---------------|
| | | | | | L typ | Q typ ³ | L typ | Q typ ³ | | | | |
| ST312RAG1N8JLZ | 1.8 | 5 | 250 | 17 | 1.77 | 40 | 1.77 | 65 | >5.00 | 0.035 | 800 | Black |
| ST312RAG2N2JLZ | 2.2 | 5 | 250 | 10 | 2.14 | 25 | 2.12 | 35 | >5.00 | 0.205 | 250 | Yellow |
| ST312RAG3N3_LZ | 3.3 | 5,2 | 250 | 35 | 3.28 | 67 | 3.32 | 104 | >5.00 | 0.030 | 800 | Blue |
| ST312RAG3N6_LZ | 3.6 | 5,2 | 250 | 32 | 3.59 | 70 | 3.62 | 116 | >5.00 | 0.033 | 800 | Red |
| ST312RAG3N9_LZ | 3.9 | 5,2 | 250 | 33 | 3.88 | 68 | 3.95 | 108 | >5.00 | 0.045 | 800 | Brown |
| ST312RAG4N3_LZ | 4.3 | 5,2 | 250 | 28 | 4.29 | 58 | 4.31 | 91 | >5.00 | 0.080 | 710 | Orange |
| ST312RAG4N7_LZ | 4.7 | 5,2 | 250 | 22 | 4.65 | 48 | 4.71 | 75 | >5.00 | 0.100 | 720 | Violet |
| ST312RAG5N1_LZ | 5.1 | 5,2 | 250 | 38 | 5.08 | 84 | 5.12 | 140 | >5.00 | 0.042 | 800 | Green |
| ST312RAG5N6_LZ | 5.6 | 5,2 | 250 | 43 | 5.6 | 87 | 5.73 | 145 | >5.00 | 0.042 | 800 | Black |
| ST312RAG6N0_LZ | 6.0 | 5,2 | 250 | 40 | 5.92 | 94 | 6.12 | 154 | 4.80 | 0.053 | 800 | White |
| ST312RAG6N8_LZ | 6.8 | 5,2 | 250 | 34 | 6.83 | 88 | 7.05 | 143 | 4.64 | 0.050 | 800 | Red |
| ST312RAG7N2_LZ | 7.2 | 5,2 | 250 | 36 | 7.25 | 96 | 7.38 | 139 | 4.32 | 0.080 | 800 | Green |
| ST312RAG7N5_LZ | 7.5 | 5,2 | 250 | 32 | 7.55 | 81 | 7.85 | 112 | 4.24 | 0.100 | 800 | Brown |
| ST312RAG8N2_LZ | 8.2 | 5,2 | 250 | 37 | 8.21 | 96 | 8.39 | 148 | 4.72 | 0.054 | 800 | Orange |
| ST312RAG8N7_LZ | 8.7 | 5,2 | 250 | 33 | 8.73 | 97 | 9.00 | 149 | 4.40 | 0.054 | 800 | Yellow |
| ST312RAG9N1_LZ | 9.1 | 5,2 | 250 | 38 | 9.18 | 76 | 9.64 | 109 | 4.08 | 0.054 | 800 | Black |
| ST312RAG9N5_LZ | 9.5 | 5,2 | 250 | 40 | 9.56 | 98 | 9.99 | 149 | 3.92 | 0.053 | 800 | Blue |
| ST312RAG10N_LZ | 10 | 5,2 | 250 | 38 | 10.16 | 90 | 10.64 | 142 | 3.44 | 0.054 | 800 | Orange |
| ST312RAG11N_LZ | 11 | 5,2 | 250 | 36 | 11.06 | 78 | 11.82 | 108 | 3.28 | 0.075 | 800 | Gray |
| ST312RAG12N_LZ | 12 | 5,2 | 250 | 32 | 12.26 | 69 | 13.20 | 91 | 3.28 | 0.110 | 750 | Yellow |
| ST312RAG15N_LZ | 15 | 5,2 | 250 | 36 | 15.41 | 83 | 17.20 | 124 | 2.88 | 0.085 | 800 | Green |
| ST312RAG16N_LZ | 16 | 5,2 | 250 | 32 | 16.37 | 77 | 18.70 | 116 | 2.80 | 0.095 | 790 | White |
| ST312RAG18N_LZ | 18 | 5,2 | 250 | 34 | 18.56 | 76 | 20.90 | 100 | 2.64 | 0.075 | 800 | Blue |
| ST312RAG22N_LZ | 22 | 5,2 | 250 | 30 | 22.7 | 77 | 25.90 | 88 | 2.52 | 0.140 | 600 | Violet |
| ST312RAG23N_LZ | 23 | 5,2 | 250 | 36 | 24.0 | 69 | 29.53 | 80 | 2.40 | 0.195 | 560 | Orange |
| ST312RAG24N_LZ | 24 | 5,2 | 250 | 43 | 24.9 | 77 | 28.9 | 91 | 2.36 | 0.085 | 800 | Black |
| ST312RAG27N_LZ | 27 | 5,2 | 250 | 34 | 28.4 | 74 | 34.0 | 84 | 2.24 | 0.150 | 620 | Gray |
| ST312RAG30N_LZ | 30 | 5,2 | 250 | 40 | 31.5 | 82 | 37.9 | 82 | 2.24 | 0.130 | 720 | Brown |
| ST312RAG33N_LZ | 33 | 5,2 | 250 | 38 | 34.9 | 76 | 42.9 | 80 | 2.16 | 0.170 | 560 | White |
| ST312RAG36N_LZ | 36 | 5,2 | 250 | 36 | 38.5 | 69 | 50.0 | 64 | 2.00 | 0.225 | 480 | Red |
| ST312RAG39N_LZ | 39 | 5,2 | 250 | 38 | 41.5 | 78 | 51.9 | 74 | 1.96 | 0.190 | 540 | Black |
| ST312RAG43N_LZ | 43 | 5,2 | 250 | 36 | 45.7 | 83 | 58.1 | 76 | 1.96 | 0.170 | 630 | Orange |
| ST312RAG47N_LZ | 47 | 5,2 | 200 | 39 | 50.6 | 77 | 66.9 | 72 | 1.84 | 0.270 | 440 | Brown |
| ST312RAG51N_LZ | 51 | 5,2 | 200 | 37 | 54.6 | 73 | 71.3 | 62 | 1.84 | 0.280 | 440 | Blue |
| ST312RAG56N_LZ | 56 | 5,2 | 200 | 36 | 60.3 | 74 | 79.9 | 56 | 1.76 | 0.30 | 420 | Red |
| ST312RAG68N_LZ | 68 | 5,2 | 200 | 37 | 75.5 | 73 | 113.3 | 49 | 1.60 | 0.33 | 400 | Orange |
| ST312RAG72N_LZ | 72 | 5,2 | 150 | 36 | 80.8 | 69 | — | — | 1.52 | 0.42 | 380 | Yellow |
| ST312RAG75N_LZ | 75 | 5,2 | 150 | 36 | 84.6 | 71 | — | — | 1.52 | 0.52 | 340 | Violet |
| ST312RAG82N_LZ | 82 | 5,2 | 150 | 36 | 94.0 | 62 | — | — | 1.44 | 0.46 | 350 | Green |
| ST312RAG91N_LZ | 91 | 5,2 | 150 | 36 | 103.0 | 64 | — | — | 1.32 | 0.58 | 310 | White |
| ST312RAGR10_LZ | 100 | 5,2 | 150 | 36 | 114.0 | 69 | — | — | 1.36 | 0.54 | 340 | Blue |
| ST312RAGR11_LZ | 110 | 5,2 | 150 | 35 | 126.2 | 63 | — | — | 1.28 | 0.58 | 310 | Violet |
| ST312RAGR12_LZ | 120 | 5,2 | 150 | 36 | 142.4 | 61 | — | — | 1.24 | 0.72 | 280 | Gray |
| ST312RAGR15_LZ | 150 | 5,2 | 150 | 36 | 188.8 | 57 | — | — | 1.08 | 0.82 | 260 | White |
| ST312RAGR18_LZ | 180 | 5,2 | 100 | 36 | 232.2 | 50 | — | — | 1.04 | 1.50 | 190 | Black |
| ST312RAGR20_LZ | 200 | 5,2 | 100 | 36 | 265.0 | 47 | — | — | 1.00 | 2.00 | 180 | Green |
| ST312RAGR21_LZ | 210 | 5,2 | 100 | 36 | 288.0 | 45 | — | — | 0.96 | 2.00 | 170 | Gray |
| ST312RAGR22_LZ | 220 | 5,2 | 100 | 35 | 315.0 | 41 | — | — | 0.88 | 2.00 | 170 | Brown |
| ST312RAGR25_LZ | 250 | 5,2 | 100 | 35 | — | — | — | — | 0.84 | 3.00 | 130 | Violet |
| ST312RAGR27_LZ | 270 | 5,2 | 100 | 35 | — | — | — | — | 0.84 | 2.25 | 160 | Red |
| ST312RAGR30_LZ | 300 | 5,2 | 100 | 35 | — | — | — | — | 0.79 | 2.40 | 170 | Green |
| ST312RAGR33_LZ | 330 | 5,2 | 100 | 36 | — | — | — | — | 0.74 | 3.60 | 130 | Blue |
| ST312RAGR36_LZ | 360 | 5,2 | 100 | 36 | — | — | — | — | 0.74 | 4.00 | 120 | Gray |
| ST312RAGR39_LZ | 390 | 5,2 | 100 | 36 | — | — | — | — | 0.70 | 4.00 | 120 | Yellow |

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

ST312RAGR39GLZ

Tolerance: G = 2% J = 5%

Termination: L = Silver-palladium-platinum-glass frit.

Special order:

S = Tin-lead (63/37) over silver-palladium-platinum-glass frit.

T = Tin-silver-copper (95.5/4/0.5) over silver-palladium-platinum-glass frit.

Testing: Z = Unscreened

H = Group A screening per Coilcraft CP-SA-10001

All screening performed to the document's latest revision

Custom screening also available

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

3. Q measured 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 CCF1232 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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This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.