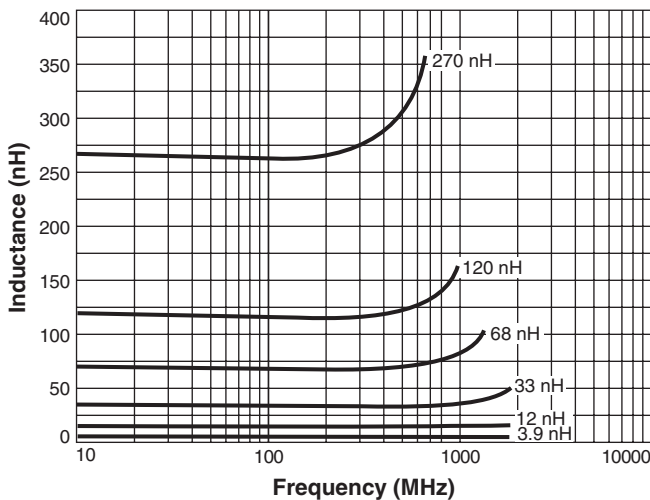


High-Reliability Chip Inductors ML312RAA

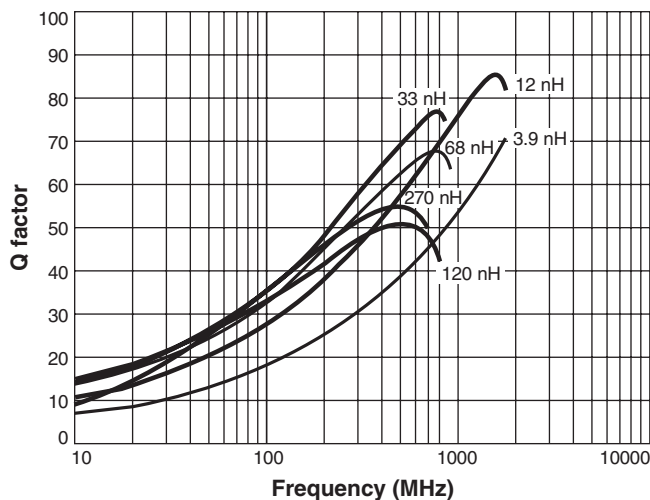
Small size, exceptional Q and high SRFs make these inductors ideal for high frequency applications where size is at a premium. They also have excellent DCR and current carrying characteristics.

This robust version of Coilcraft's standard 0603CS series features high temperature materials that allow operation in ambient temperatures up to 155°C.

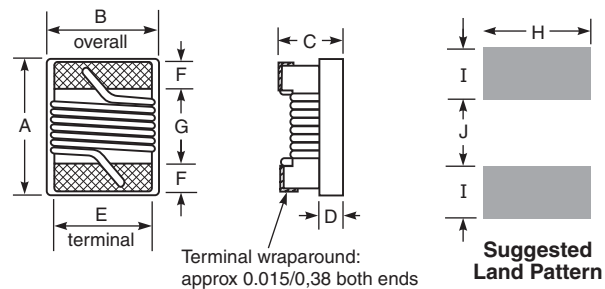
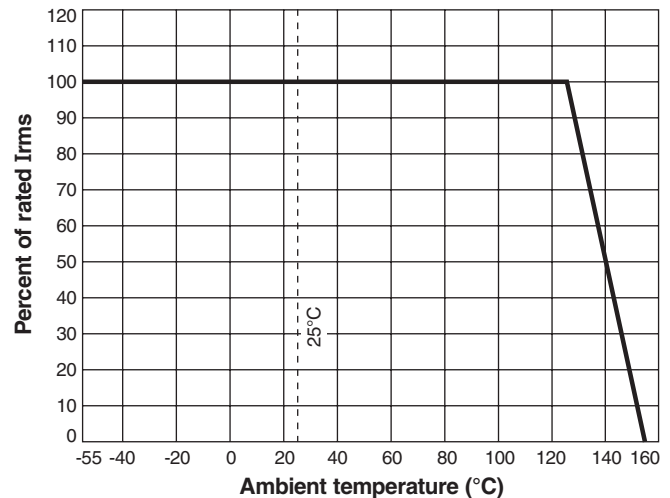
Typical L vs Frequency



Typical Q vs Frequency



Current 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 |

Core material Ceramic

Terminations Silver-palladium-platinum-glass frit

Ambient temperature -55°C to +125°C with I_{max} current, +125°C to +155°C with derated current

Storage temperature Component: -55°C to +155°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) +25 to +155 ppm/°C

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

Enhanced crush-resistant packaging 2000 per 7" reel
Paper tape: 8 mm wide, 1.0 mm thick, 4 mm pocket spacing

ML312RAA Series (0603)

| Part number ¹ | Inductance ² (nH) | Percent tolerance | Q min ³ | 900 MHz | | 1.7 GHz | | SRF min ⁴ (MHz) | DCR max ⁵ (Ohms) | Imax (mA) | Color code |
|--------------------------|---------------------------------|----------------------|-----------------------|---------|-------|---------|-------|----------------------------------|-----------------------------------|--------------|---------------|
| | | | | L typ | Q typ | L typ | Q typ | | | | |
| ML312RAA1N6JLZ | 1.6 @ 250 MHz | 5 | 26 | 1.67 | 49 | 1.65 | 63 | >5000 | 0.022 | 1800 | Red |
| ML312RAA1N8JLZ | 1.8 @ 250 MHz | 5 | 21 | 1.83 | 35 | 1.86 | 50 | >5000 | 0.045 | 700 | Black |
| ML312RAA2N2JLZ | 2.2 @ 250 MHz | 5 | 11 | 2.22 | 31 | 2.24 | 44 | >5000 | 0.240 | 100 | Yellow |
| ML312RAA3N3_LZ | 3.3 @ 250 MHz | 5,2 | 35 | 3.31 | 75 | 3.38 | 88 | >5000 | 0.045 | 700 | Blue |
| ML312RAA3N6_LZ | 3.6 @ 250 MHz | 5,2 | 18 | 3.72 | 53 | 3.71 | 65 | >5000 | 0.063 | 1160 | Red |
| ML312RAA3N9_LZ | 3.9 @ 250 MHz | 5,2 | 20 | 3.95 | 49 | 3.96 | 67 | >5000 | 0.080 | 700 | Brown |
| ML312RAA4N3_LZ | 4.3 @ 250 MHz | 5,2 | 29 | 4.32 | 50 | 4.33 | 70 | >5000 | 0.063 | 1160 | Orange |
| ML312RAA4N7_LZ | 4.7 @ 250 MHz | 5,2 | 18 | 4.72 | 47 | 4.75 | 57 | >5000 | 0.116 | 700 | Violet |
| ML312RAA5N1_LZ | 5.1 @ 250 MHz | 5,2 | 20 | 4.93 | 47 | 4.95 | 56 | >5000 | 0.140 | 700 | Green |
| ML312RAA5N6_LZ | 5.6 @ 250 MHz | 5,2 | 25 | 5.77 | 63 | 6.05 | 80 | 4760 | 0.075 | 700 | Black |
| ML312RAA6N8_LZ | 6.8 @ 250 MHz | 5,2 | 28 | 6.75 | 60 | 7.10 | 81 | 4660 | 0.110 | 700 | Red |
| ML312RAA7N5_LZ | 7.5 @ 250 MHz | 5,2 | 23 | 7.70 | 60 | 7.82 | 65 | 4320 | 0.106 | 800 | Brown |
| ML312RAA8N2_LZ | 8.2 @ 250 MHz | 5,2 | 26 | 8.25 | 82 | 8.37 | 87 | 3880 | 0.115 | 700 | Orange |
| ML312RAA8N7_LZ | 8.7 @ 250 MHz | 5,2 | 27 | 8.86 | 62 | 9.32 | 58 | 3680 | 0.109 | 700 | Yellow |
| ML312RAA9N5_LZ | 9.5 @ 250 MHz | 5,2 | 22 | 9.70 | 59 | 9.92 | 61 | 4100 | 0.135 | 700 | Blue |
| ML312RAA10N_LZ | 10 @ 250 MHz | 5,2 | 28 | 10.0 | 66 | 10.6 | 83 | 3860 | 0.130 | 700 | Orange |
| ML312RAA11N_LZ | 11 @ 250 MHz | 5,2 | 26 | 11.0 | 53 | 11.5 | 56 | 3640 | 0.130 | 700 | Gray |
| ML312RAA12N_LZ | 12 @ 250 MHz | 5,2 | 29 | 12.3 | 72 | 13.5 | 83 | 3220 | 0.130 | 700 | Yellow |
| ML312RAA15N_LZ | 15 @ 250 MHz | 5,2 | 28 | 15.4 | 64 | 16.8 | 89 | 3020 | 0.170 | 700 | Green |
| ML312RAA16N_LZ | 16 @ 250 MHz | 5,2 | 29 | 16.2 | 55 | 17.3 | 52 | 3040 | 0.170 | 700 | White |
| ML312RAA18N_LZ | 18 @ 250 MHz | 5,2 | 29 | 18.7 | 70 | 21.4 | 69 | 2680 | 0.170 | 700 | Blue |
| ML312RAA22N_LZ | 22 @ 250 MHz | 5,2 | 31 | 22.8 | 73 | 26.1 | 71 | 2380 | 0.190 | 700 | Violet |
| ML312RAA23N_LZ | 23 @ 250 MHz | 5,2 | 39 | 24.1 | 71 | 28.0 | 67 | 2380 | 0.190 | 700 | Orange |
| ML312RAA24N_LZ | 24 @ 250 MHz | 5,2 | 36 | 24.5 | 45 | 28.7 | 39 | 2380 | 0.190 | 700 | Black |
| ML312RAA27N_LZ | 27 @ 250 MHz | 5,2 | 32 | 29.2 | 74 | 34.6 | 65 | 2380 | 0.220 | 600 | Gray |
| ML312RAA30N_LZ | 30 @ 250 MHz | 5,2 | 32 | 31.4 | 47 | 39.9 | 28 | 2240 | 0.220 | 600 | Brown |
| ML312RAA33N_LZ | 33 @ 250 MHz | 5,2 | 33 | 36.0 | 67 | 49.5 | 42 | 1900 | 0.220 | 600 | White |
| ML312RAA36N_LZ | 36 @ 250 MHz | 5,2 | 32 | 39.4 | 47 | 52.7 | 24 | 1960 | 0.250 | 600 | Red |
| ML312RAA39N_LZ | 39 @ 250 MHz | 5,2 | 36 | 42.7 | 60 | 60.2 | 40 | 1740 | 0.250 | 600 | Black |
| ML312RAA43N_LZ | 43 @ 250 MHz | 5,2 | 28 | 47.0 | 44 | 64.9 | 21 | 1580 | 0.280 | 600 | Orange |
| ML312RAA47N_LZ | 47 @ 200 MHz | 5,2 | 35 | 52.2 | 62 | 77.2 | 35 | 1560 | 0.280 | 600 | Brown |
| ML312RAA51N_LZ | 51 @ 200 MHz | 5,2 | 38 | 55.5 | 69 | 82.2 | 34 | 1560 | 0.270 | 600 | Blue |
| ML312RAA56N_LZ | 56 @ 200 MHz | 5,2 | 37 | 62.5 | 56 | 97 | 26 | 1480 | 0.310 | 600 | Red |
| ML312RAA68N_LZ | 68 @ 200 MHz | 5,2 | 35 | 80.5 | 54 | 168 | 21 | 1380 | 0.340 | 600 | Orange |
| ML312RAA72N_LZ | 72 @ 200 MHz | 5,2 | 35 | 82.0 | 53 | 135 | 20 | 1360 | 0.490 | 400 | Yellow |
| ML312RAA82N_LZ | 82 @ 150 MHz | 5,2 | 29 | 96.2 | 54 | 177 | 21 | 1300 | 0.540 | 400 | Green |
| ML312RAAR10_LZ | 100 @ 150 MHz | 5,2 | 28 | 124 | 49 | — | — | 1140 | 0.580 | 400 | Blue |
| ML312RAAR11_LZ | 110 @ 150 MHz | 5,2 | 30 | 138 | 43 | — | — | 1080 | 0.610 | 300 | Violet |
| ML312RAAR12_LZ | 120 @ 150 MHz | 5,2 | 28 | 166 | 39 | — | — | 1020 | 0.650 | 300 | Gray |
| ML312RAAR15_LZ | 150 @ 150 MHz | 5,2 | 28 | 250 | 25 | — | — | 900 | 0.915 | 280 | White |
| ML312RAAR18_LZ | 180 @ 100 MHz | 5,2 | 25 | 305 | 22 | — | — | 820 | 1.25 | 240 | Black |
| ML312RAAR20_LZ | 200 @ 100 MHz | 5,2 | 25 | — | — | — | — | 800 | 1.98 | 200 | Green |
| ML312RAAR21_LZ | 210 @ 100 MHz | 5,2 | 26 | — | — | — | — | 780 | 2.06 | 200 | Gray |
| ML312RAAR22_LZ | 220 @ 100 MHz | 5,2 | 26 | — | — | — | — | 760 | 2.10 | 200 | Brown |
| ML312RAAR25_LZ | 250 @ 100 MHz | 5,2 | 24 | — | — | — | — | 740 | 3.55 | 120 | Violet |
| ML312RAAR27_LZ | 270 @ 100 MHz | 5,2 | 26 | — | — | — | — | 700 | 2.30 | 170 | Red |
| ML312RAAR33_LZ | 330 @ 100 MHz | 5,2 | 26 | — | — | — | — | 620 | 3.89 | 100 | Blue |
| ML312RAAR39_LZ | 390 @ 100 MHz | 5,2 | 27 | — | — | — | — | 580 | 4.35 | 100 | Yellow |

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

ML312RAAR39JLZ

Tolerance: G= 2% J= 5%

Testing: Z = COTS

H = Screening per Coilcraft CP-SA-10001

N = Screening per Coilcraft CP-SA-10003

C = Custom screening (please specify when ordering)

2. Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4286 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 16197 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"