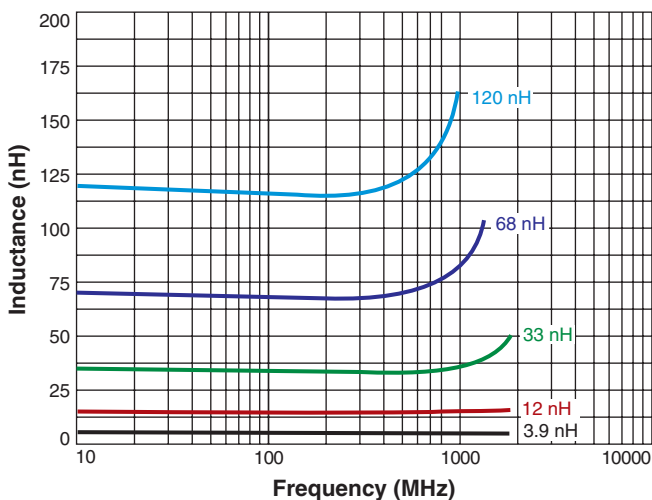


# High-Reliability Chip Inductors MS312RAA

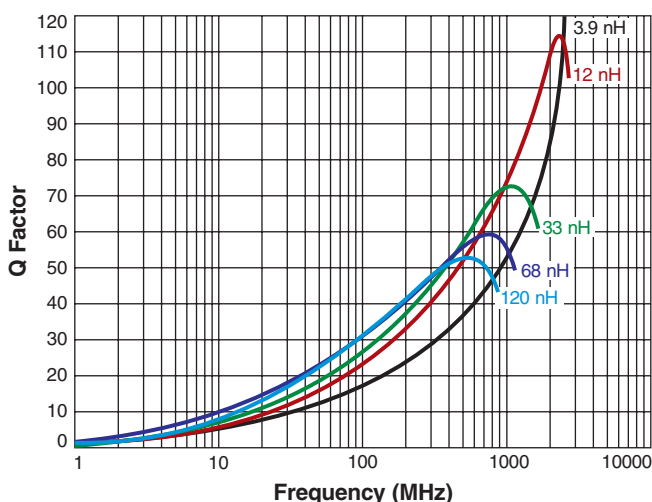
Small size, exceptional Q and high SRFs make these inductors ideal for high frequency applications where size is at a premium. They also have excellent DCR and current carrying characteristics.

This robust version of Coilcraft's standard 0603CS series features high temperature materials that allow operation in ambient temperatures up to 155°C and a leach-resistant base metalization with tin-lead (Sn-Pb) terminations that ensures the best possible board adhesion.

## Typical L vs Frequency



## Typical Q vs Frequency



**Core material** Ceramic

**Terminations** Tin-lead (63/37) over silver-platinum-glass frit

**Ambient temperature** -55°C to +125°C with I<sub>max</sub> current

**Maximum part temperature** +155°C (ambient + temp rise)

**Storage temperature** Component: -65°C to +155°C.

Packaging: -55°C to +80°C

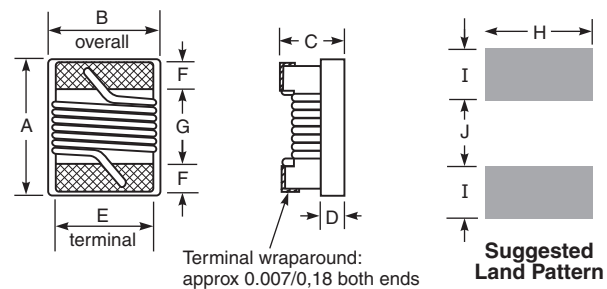
**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**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



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: Dimensions are before 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.

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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.

# MS312RAA Series (0603)

Part number <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance	Q min <sup>3</sup>	900 MHz		1.7 GHz		SRF min <sup>4</sup> (MHz)	DCR max <sup>5</sup> (Ohms)	I <sub>max</sub> (mA)	Color code
				L typ	Q typ	L typ	Q typ				
MS312RAA1N6JSZ	1.6 @ 250 MHz	5	26	1.67	49	1.65	63	>5000	0.022	700	Red
MS312RAA1N8JSZ	1.8 @ 250 MHz	5	21	1.83	35	1.86	50	>5000	0.045	700	Black
MS312RAA3N3_SZ	3.3 @ 250 MHz	5,2	35	3.31	75	3.38	88	>5000	0.045	700	Blue
MS312RAA3N6_SZ	3.6 @ 250 MHz	5,2	18	3.72	53	3.71	65	>5000	0.063	700	Red
MS312RAA3N9_SZ	3.9 @ 250 MHz	5,2	20	3.95	49	3.96	67	>5000	0.080	700	Brown
MS312RAA4N3_SZ	4.3 @ 250 MHz	5,2	29	4.32	50	4.33	70	>5000	0.063	700	Orange
MS312RAA4N7_SZ	4.7 @ 250 MHz	5,2	18	4.72	47	4.75	57	>5000	0.116	605	Violet
MS312RAA5N1_SZ	5.1 @ 250 MHz	5,2	20	4.93	47	4.95	56	>5000	0.140	510	Green
MS312RAA5N6_SZ	5.6 @ 250 MHz	5,2,1	25	5.77	63	6.05	80	4760	0.075	700	Black
MS312RAA6N8_SZ	6.8 @ 250 MHz	5,2,1	28	6.75	60	7.10	81	4660	0.110	700	Red
MS312RAA7N5_SZ	7.5 @ 250 MHz	5,2,1	23	7.70	60	7.82	65	4320	0.106	700	Brown
MS312RAA8N2_SZ	8.2 @ 250 MHz	5,2,1	26	8.25	82	8.37	87	3880	0.115	700	Orange
MS312RAA8N7_SZ	8.7 @ 250 MHz	5,2,1	27	8.86	62	9.32	58	3680	0.109	700	Yellow
MS312RAA9N5_SZ	9.5 @ 250 MHz	5,2,1	22	9.70	59	9.92	61	4100	0.135	700	Blue
MS312RAA10N_SZ	10 @ 250 MHz	5,2,1	28	10.0	66	10.6	83	3860	0.130	700	Orange
MS312RAA11N_SZ	11 @ 250 MHz	5,2,1	26	11.0	53	11.5	56	3640	0.130	700	Gray
MS312RAA12N_SZ	12 @ 250 MHz	5,2,1	29	12.3	72	13.5	83	3220	0.130	620	Yellow
MS312RAA15N_SZ	15 @ 250 MHz	5,2,1	28	15.4	64	16.8	89	3020	0.170	600	Green
MS312RAA16N_SZ	16 @ 250 MHz	5,2,1	29	16.2	55	17.3	52	3040	0.170	600	White
MS312RAA18N_SZ	18 @ 250 MHz	5,2,1	29	18.7	70	21.4	69	2680	0.170	600	Blue
MS312RAA22N_SZ	22 @ 250 MHz	5,2,1	31	22.8	73	26.1	71	2380	0.190	560	Violet
MS312RAA23N_SZ	23 @ 250 MHz	5,2,1	39	24.1	71	28.0	67	2380	0.190	560	Orange
MS312RAA24N_SZ	24 @ 250 MHz	5,2,1	36	24.5	45	28.7	39	2380	0.190	560	Black
MS312RAA27N_SZ	27 @ 250 MHz	5,2,1	32	29.2	74	34.6	65	2380	0.220	530	Gray
MS312RAA30N_SZ	30 @ 250 MHz	5,2,1	32	31.4	47	39.9	28	2240	0.220	500	Brown
MS312RAA33N_SZ	33 @ 250 MHz	5,2,1	33	36.0	67	49.5	42	1900	0.220	500	White
MS312RAA36N_SZ	36 @ 250 MHz	5,2,1	32	39.4	47	52.7	24	1960	0.250	460	Red
MS312RAA39N_SZ	39 @ 250 MHz	5,2,1	36	42.7	60	60.2	40	1740	0.250	460	Black
MS312RAA43N_SZ	43 @ 250 MHz	5,2,1	28	47.0	44	64.9	21	1580	0.280	440	Orange
MS312RAA47N_SZ	47 @ 200 MHz	5,2,1	35	52.2	62	77.2	35	1560	0.280	440	Brown
MS312RAA51N_SZ	51 @ 200 MHz	5,2,1	38	55.5	69	82.2	34	1560	0.300	420	Blue
MS312RAA56N_SZ	56 @ 200 MHz	5,2,1	37	62.5	56	97.0	26	1480	0.310	420	Red
MS312RAA68N_SZ	68 @ 200 MHz	5,2,1	35	80.5	54	168	21	1380	0.340	410	Orange
MS312RAA72N_SZ	72 @ 150 MHz	5,2,1	35	82.0	53	135	20	1360	0.490	340	Yellow
MS312RAA82N_SZ	82 @ 150 MHz	5,2,1	29	96.2	54	177	21	1300	0.540	340	Green
MS312RAAR10_SZ	100 @ 150 MHz	5,2,1	28	124	49	—	—	1140	0.580	310	Blue
MS312RAAR11_SZ	110 @ 150 MHz	5,2,1	30	138	43	—	—	1080	0.610	310	Violet
MS312RAAR12_SZ	120 @ 150 MHz	5,2,1	28	166	39	—	—	1020	0.650	270	Gray
MS312RAAR15_SZ	150 @ 150 MHz	5,2,1	28	250	25	—	—	900	0.915	250	White
MS312RAAR18_SZ	180 @ 100 MHz	5,2,1	25	305	22	—	—	820	1.25	210	Black

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

**MS312RAAR39JSZ**

**Tolerance:** F = 1% G = 2% J = 5%

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

**Special order:**

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

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

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

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 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 and a Coilcraft CCF1232 test fixture.

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

6. Electrical specifications at 25°C.

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



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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.