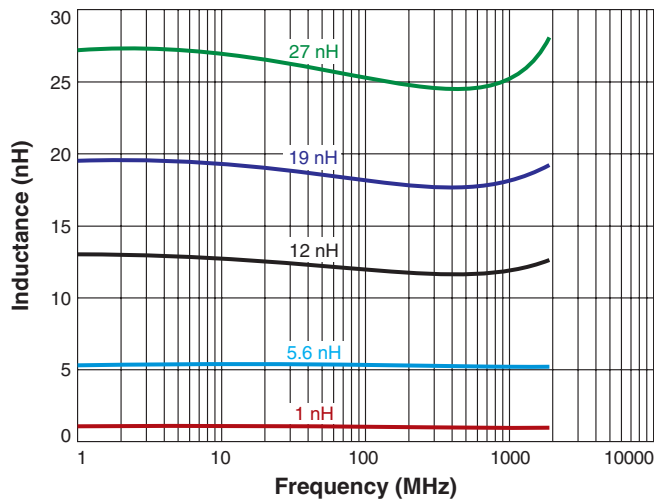


# High-Reliability Chip Inductors MS235RAA

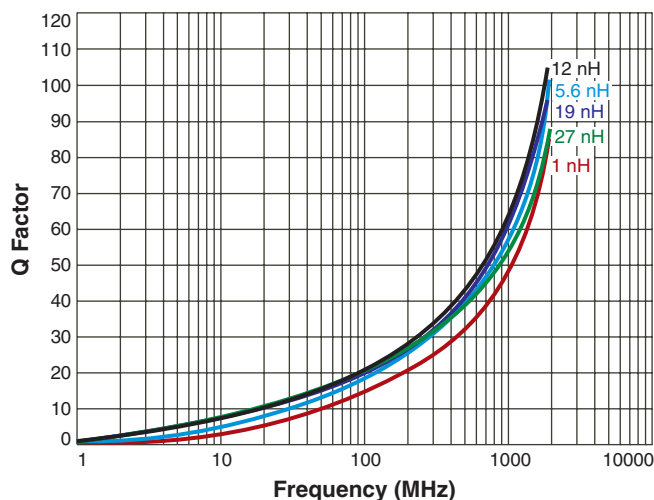
This 0402 size chip inductor series shares all of the characteristics of Coilcraft's other ceramic inductors: exceptionally high Q factors, especially at use frequencies; outstanding self-resonant frequency; tight inductance tolerance; and excellent batch-to-batch consistency.

This robust version of Coilcraft's standard 0402CS 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-palladium-platinum-glass frit

**Ambient temperature** -55°C to +125°C with  $I_{max}$  current

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

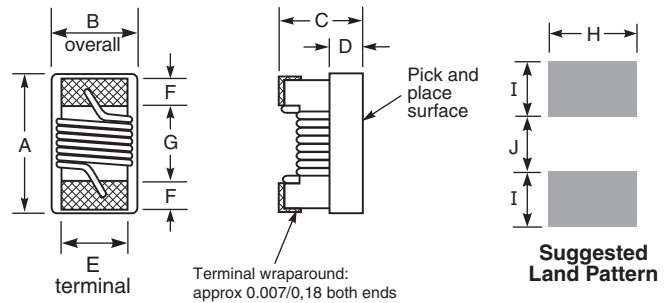
**Storage temperature** Component: -55°C to +155°C.  
Tape and reel packaging: -55°C to +80°C

**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 +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, 0.68 mm thick, 2 mm pocket spacing



A max	B max	C max	D ref	E	F	G	H	I	J
0.047	0.025	0.026	0.010	0.020	0.009	0.022	0.026	0.014	0.018
1,19	0,64	0,66	0,25	0,51	0,23	0,56	0,66	0,36	0,46

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**.

**Coilcraft CPS**  
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Document MS198-1 Revised 09/10/18

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.

# MS235RAA Series (0402)

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>5</sup> (GHz)	DCR max <sup>6</sup> (Ohms)	Imax (mA)
				L typ	Q typ <sup>4</sup>	L typ	Q typ <sup>4</sup>			
MS235RAA1N0JSZ	1.0	5	20	1.02	77	1.02	69	>5.00	0.045	600
MS235RAA1N8JSZ	1.8	5	20	1.78	54	1.78	75	>5.00	0.070	600
MS235RAA1N9JSZ	1.9	5	20	1.72	68	1.74	82	>5.00	0.070	600
MS235RAA2N0_SZ	2.0	5,2	20	1.93	54	1.93	75	>5.00	0.070	600
MS235RAA2N2_SZ	2.2	5,2	20	2.19	59	2.23	100	>5.00	0.070	600
MS235RAA2N4_SZ	2.4	5,2	20	2.24	51	2.27	68	>5.00	0.068	600
MS235RAA3N3_SZ	3.3	5,2,1	20	3.10	65	3.12	87	>5.00	0.066	600
MS235RAA3N6_SZ	3.6	5,2,1	20	3.56	45	3.62	71	>5.00	0.066	600
MS235RAA3N9_SZ	3.9	5,2,1	20	3.89	50	4.00	75	>5.00	0.066	600
MS235RAA4N3_SZ	4.3	5,2,1	20	4.19	47	4.30	71	>5.00	0.091	600
MS235RAA4N7_SZ	4.7	5,2,1	20	4.55	48	4.68	68	4.77	0.130	600
MS235RAA5N1_SZ	5.1	5,2,1	20	5.15	56	5.25	82	4.80	0.083	600
MS235RAA5N6_SZ	5.6	5,2,1	20	5.16	54	5.28	81	4.80	0.083	600
MS235RAA6N2_SZ	6.2	5,2,1	20	6.16	52	6.37	76	4.80	0.083	600
MS235RAA6N8_SZ	6.8	5,2,1	20	6.56	63	6.93	78	4.80	0.083	600
MS235RAA7N5_SZ	7.5	5,2,1	22	7.91	60	8.22	88	4.80	0.104	600
MS235RAA8N2_SZ	8.2	5,2,1	22	8.50	57	8.85	84	4.40	0.104	600
MS235RAA8N7_SZ	8.7	5,2,1	20	8.78	54	9.21	73	3.80	0.195	480
MS235RAA9N0_SZ	9.0	5,2,1	22	9.07	62	9.53	78	4.66	0.100	600
MS235RAA9N5_SZ	9.5	5,2,1	20	9.42	54	9.98	69	3.48	0.195	480
MS235RAA10N_SZ	10.0	5,2,1	21	9.8	50	10.10	67	3.68	0.195	480
MS235RAA11N_SZ	11.0	5,2,1	24	10.7	52	11.20	78	3.48	0.120	580
MS235RAA12N_SZ	12.0	5,2,1	24	11.9	53	12.70	71	3.60	0.120	580
MS235RAA13N_SZ	13.0	5,2,1	20	13.4	51	14.63	57	3.28	0.210	440
MS235RAA15N_SZ	15.0	5,2,1	22	14.6	55	15.50	77	3.10	0.172	500
MS235RAA16N_SZ	16.0	5,2,1	23	16.6	46	18.86	47	3.05	0.220	480
MS235RAA18N_SZ	18.0	5,2,1	24	18.3	57	20.28	62	2.68	0.230	420
MS235RAA19N_SZ	19.0	5,2,1	24	19.1	50	21.10	67	3.00	0.202	460
MS235RAA20N_SZ	20.0	5,2,1	24	20.7	52	23.66	53	2.90	0.250	400
MS235RAA22N_SZ	22.0	5,2,1	24	23.2	53	26.75	53	2.80	0.300	380
MS235RAA23N_SZ	23.0	5,2,1	24	23.8	49	26.90	64	2.72	0.300	400
MS235RAA24N_SZ	24.0	5,2,1	24	25.1	51	29.50	50	2.60	0.300	390
MS235RAA27N_SZ	27.0	5,2,1	24	28.7	49	33.50	63	2.48	0.298	380
MS235RAA30N_SZ	30.0	5,2,1	24	31.1	46	38.50	39	2.35	0.300	340
MS235RAA33N_SZ	33.0	5,2,1	20	34.9	31	41.74	32	2.30	0.300	340
MS235RAA36N_SZ	36.0	5,2,1	24	39.5	44	48.40	53	2.20	0.440	310
MS235RAA40N_SZ	40.0	5,2,1	24	39.0	44	47.40	33	2.24	0.440	290

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

MS235RAAR10GSZ

**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 at 250 MHz using a Coilcraft SMD-F test fixture and Coilcraft-provided correlation pieces with an Agilent/HP 4286A impedance analyzer or equivalent.

3. Q measured at 250 MHz using an Agilent/HP 4291A with an Agilent/HP 16197A test fixture or equivalents.

4. Q measured using an Agilent/HP 4291A with an Agilent/HP 16197A test fixture or equivalents.

5. SRF measured using an Agilent/HP 8753ES network analyzer and a Coilcraft CCF1232 test fixture.

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

7. Electrical specifications at 25°C.

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



CRITICAL PRODUCTS & SERVICES

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Document MS198-2 Revised 09/10/18