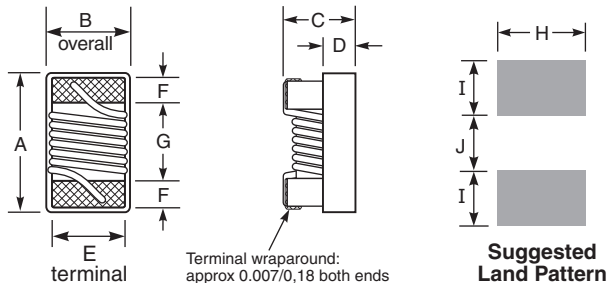


# Chip Inductors for Critical Applications ST235RAG

- Higher Q and lower DCR than other 0402 inductors
- Very high SRF values – as high as 16 GHz
- Excellent current handling capability – up to 2300 mA
- 52 inductance values from 1.0 to 220 nH



	A max	B	C max	
1–51 nH	0.045	0.020 – 0.028	0.024	inches
	1,14	0,51 – 0,71	0,61	mm

	A max	B	C max	
56–220 nH	0.044	0.020 – 0.028	0.026	inches
	1,12	0,51 – 0,71	0,66	mm

D	E	F	G	H	I	J	
0.010	0.020	0.008	0.024	0.026	0.014	0.020	inches
0,25	0,51	0,20	0,61	0,66	0,36	0,51	mm

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** Ceramic

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

**Weight** 0.65 – 1.3 mg

**Ambient temperature** –40°C to +125°C with I<sub>max</sub> current

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

**Storage temperature** Component: –55°C to +140°C.

Packaging: –55°C to +80°C

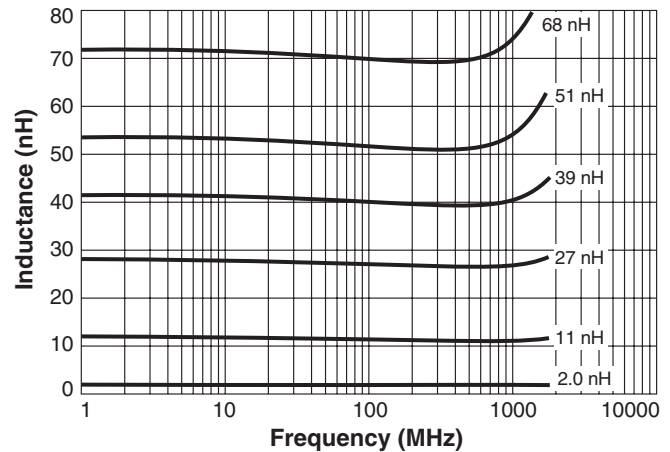
**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Temperature Coefficient of Inductance (TCL)** +25 to +125 ppm/°C

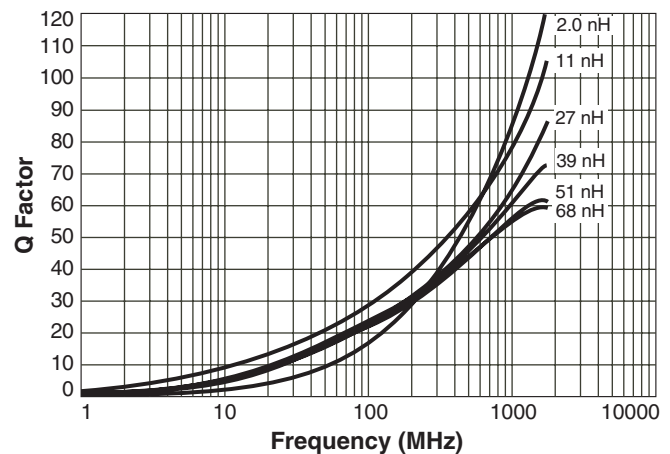
**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Packaging** 2000 per 7" reel Paper tape: 8 mm wide, 0.66 mm thick, 2 mm pocket spacing

## Typical L vs Frequency



## Typical Q vs Frequency



# ST235RAG Series (0402)

Part number <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance	Test freq (MHz)	Q min at test freq	900 MHz		1.7 GHz		SRF min <sup>4</sup> (GHz)	DCR max <sup>5</sup> (Ohms)	Imax (mA)
					L typ	Q typ <sup>3</sup>	L typ	Q typ <sup>3</sup>			
ST235RAG1N0JRZ	1.0	5	250	18	0.97	46	0.99	72	>5.00	0.030	700
ST235RAG2N0JRZ	2.0	5	250	21	1.96	58	1.98	85	>5.00	0.038	700
ST235RAG2N2JRZ	2.2	5	250	24	2.17	60	2.17	86	>5.00	0.038	700
ST235RAG2N4_RZ	2.4	5,2	250	26	2.37	60	2.38	83	>5.00	0.042	700
ST235RAG2N7_RZ	2.7	5,2	250	18	2.66	62	2.68	85	>5.00	0.090	510
ST235RAG3N3_RZ	3.3	5,2	250	26	3.26	66	3.28	95	>5.00	0.045	700
ST235RAG3N6_RZ	3.6	5,2	250	31	3.56	65	3.58	94	>5.00	0.045	700
ST235RAG3N9_RZ	3.9	5,2	250	31	3.87	64	3.91	98	>5.00	0.045	700
ST235RAG4N3_RZ	4.3	5,2	250	25	4.26	63	4.33	90	>5.00	0.055	700
ST235RAG4N7_RZ	4.7	5,2	250	24	4.67	58	4.74	83	>5.00	0.085	700
ST235RAG5N1_RZ	5.1	5,2	250	18	5.07	54	5.16	76	>5.00	0.125	510
ST235RAG5N6_RZ	5.6	5,2	250	29	5.56	73	5.66	105	>5.00	0.055	700
ST235RAG6N2_RZ	6.2	5,2	250	27	6.18	73	6.25	100	>4.20	0.055	700
ST235RAG6N8_RZ	6.8	5,2	250	27	6.78	68	6.97	94	>4.00	0.070	700
ST235RAG7N5_RZ	7.5	5,2	250	23	7.49	60	7.77	82	3.80	0.100	690
ST235RAG8N2_RZ	8.2	5,2	250	27	8.10	68	8.40	95	3.80	0.065	700
ST235RAG8N7_RZ	8.7	5,2	250	26	8.73	66	9.04	95	3.40	0.070	700
ST235RAG9N0_RZ	9.0	5,2	250	30	8.99	67	9.21	92	3.60	0.080	700
ST235RAG9N5_RZ	9.5	5,2	250	25	9.52	64	9.97	90	3.40	0.090	700
ST235RAG10N_RZ	10	5,2	250	24	9.98	62	10.4	90	3.20	0.110	700
ST235RAG11N_RZ	11	5,2	250	27	11.0	68	11.6	98	3.20	0.092	700
ST235RAG12N_RZ	12	5,2	250	27	12.0	66	12.6	100	3.00	0.100	700
ST235RAG13N_RZ	13	5,2	250	23	13.1	62	13.9	82	2.95	0.155	600
ST235RAG15N_RZ	15	5,2	250	25	15.1	62	16.0	85	2.70	0.115	700
ST235RAG16N_RZ	16	5,2	250	26	16.2	57	17.3	77	2.55	0.150	580
ST235RAG18N_RZ	18	5,2	250	25	18.2	58	19.5	74	2.40	0.125	650
ST235RAG19N_RZ	19	5,2	250	25	19.2	61	20.7	88	2.20	0.150	600
ST235RAG20N_RZ	20	5,2	250	24	20.3	58	22.0	76	2.15	0.185	520
ST235RAG21N_RZ	21	5,2	250	24	21.3	48	23.2	62	2.20	0.460	340
ST235RAG22N_RZ	22	5,2	250	26	22.3	60	24.4	74	1.80	0.165	570

Continued on next page

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

**ST235RAG22NGRZ**

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

**Termination:** R = Matte tin over nickel over silver-platinum glass frit  
 A = Gold over nickel over moly-mag  
 L = Silver-palladium-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.  
 C = Tin-lead (63/37) over gold over nickel over moly-mag  
 F = Tin-silver-copper (95.5/4/0.5) over gold over nickel over moly-mag  
 S = Tin-lead (63/37) over silver-platinum-glass frit.  
 T = Tin-silver-copper (95.5/4/0.5) over silver-platinum glass frit.

**Screening:** Z = Unscreened

H = Coilcraft CP-SA-10001 Group A  
 • Screening performed to the document's latest revision.  
 • Custom testing also available.  
 • Country of origin restrictions available; prefix options G or F.

2. Inductance measured at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4286 impedance analyzer with Coilcraft-provided correlation pieces.

3. Q measured using an Agilent/HP 4287A with an Agilent/HP 16197 test fixture.

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

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

6. Electrical specifications at 25°C.

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



CRITICAL PRODUCTS &amp; SERVICES

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Document ST526-2 Revised 02/05/21

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.

# ST235RAG Series (0402)

Part number <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance	Test freq (MHz)	Q min at test freq	900 MHz		1.7 GHz		SRF min <sup>4</sup> (GHz)	DCR max <sup>5</sup> (Ohms)	Imax (mA)
					L typ	Q typ <sup>3</sup>	L typ	Q typ <sup>3</sup>			
ST235RAG23N_RZ	23	5,2	250	25	23.3	60	25.5	77	1.75	0.165	520
ST235RAG24N_RZ	24	5,2	250	25	24.5	55	27.1	71	1.75	0.210	480
ST235RAG25N_RZ	25	5,2	250	24	25.5	57	28.3	73	1.75	0.260	440
ST235RAG26N_RZ	26	5,2	250	24	26.6	56	29.3	74	1.75	0.290	440
ST235RAG27N_RZ	27	5,2	250	24	27.3	62	29.5	86	1.75	0.350	340
ST235RAG30N_RZ	30	5,2	250	25	30.8	61	35.0	87	1.75	0.350	340
ST235RAG33N_RZ	33	5,2	250	25	34.0	61	38.3	80	1.65	0.310	340
ST235RAG36N_RZ	36	5,2	250	25	37.1	59	42.2	76	1.65	0.390	320
ST235RAG37N_RZ	37	5,2	250	25	38.2	57	44.0	72	1.65	0.480	300
ST235RAG39N_RZ	39	5,2	250	25	40.5	56	47.0	84	1.65	0.420	320
ST235RAG40N_RZ	40	5,2	250	24	41.3	56	47.4	75	1.65	0.420	320
ST235RAG43N_RZ	43	5,2	250	24	45.0	52	54.1	68	1.60	0.520	290
ST235RAG47N_RZ	47	5,2	250	24	49.0	48	58.9	62	1.60	0.580	270
ST235RAG51N_RZ	51	5,2	250	24	49.1	52	58.8	59	1.65	0.700	240
ST235RAG56N_RZ	56	5,2	250	23	58.8	56	72.2	64	1.65	0.900	250
ST235RAG68N_RZ	68	5,2	250	24	72.2	56	91.4	64	1.60	1.00	230
ST235RAG82N_RZ	82	5,2	250	24	89.7	52	—	—	1.60	1.10	200
ST235RAGR10_RZ	100	5,2	250	26	—	—	—	—	1.40	1.20	180
ST235RAGR12JRZ	120	5	250	26	—	—	—	—	1.40	1.20	170
ST235RAGR15JRZ	150	5	100	20	—	—	—	—	1.40	2.0	160
ST235RAGR18JRZ	180	5	100	20	—	—	—	—	1.40	2.1	150
ST235RAGR22JRZ	220	5	100	21	—	—	—	—	1.40	3.1	150

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

**ST235RAGR22JRZ**

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

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

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C = Tin-lead (63/37) over gold over nickel over moly-mag

F = Tin-silver-copper (95.5/4/0.5) over gold over nickel over moly-mag

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

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

**Screening:** Z = Unscreened

H = Coilcraft CP-SA-10001 Group A

• Screening performed to the document's latest revision.

• Custom testing also available.

• Country of origin restrictions available; prefix options G or F.

2. Inductance measured at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4286 impedance analyzer with Coilcraft-provided correlation pieces.

3. Q measured using an Agilent/HP 4287A with an Agilent/HP 16197 test fixture.

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5. DCR measured on a micro-ohmmeter 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.