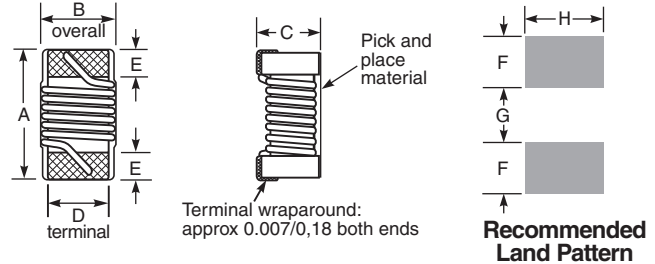


**NEW!**

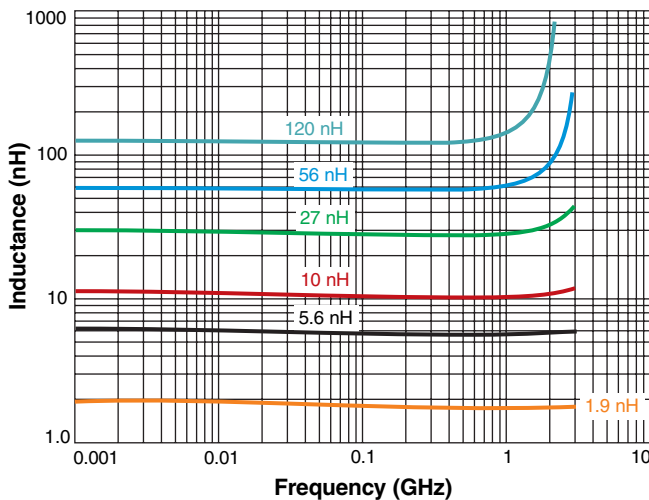
# Chip Inductors for Critical Applications ST235RAQ

- 0402 ceramic wirewound chip inductor
- 112 inductance values available from 0.8 nH to 120 nH, including 0.1 nH incremental steps from 2.8 nH to 10 nH
- Up to 40% higher Q factor and 45% lower DCR than other 0402 series
- Very high SRF – as high as 28.8 GHz



A max	B max	C max	D	E	F	G	H	
0.044	0.026	0.026	0.0185	0.006	0.014	0.024	0.026	inches
1,11	0,66	0,66	0,47	0,15	0,36	0,61	0,66	mm

## Typical L vs Frequency



**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.

**Core material** Ceramic

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

**Weight** 0.7 – 1.0 mg

**Ambient temperature**  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  with Irms current

**Maximum part temperature**  $+140^{\circ}\text{C}$  (ambient + temp rise).

**Storage temperature** Component:  $-55^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$ .

Tape and reel packaging:  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$

**Resistance to soldering heat** Max three 40 second reflows at

$+260^{\circ}\text{C}$ , parts cooled to room temperature between cycles

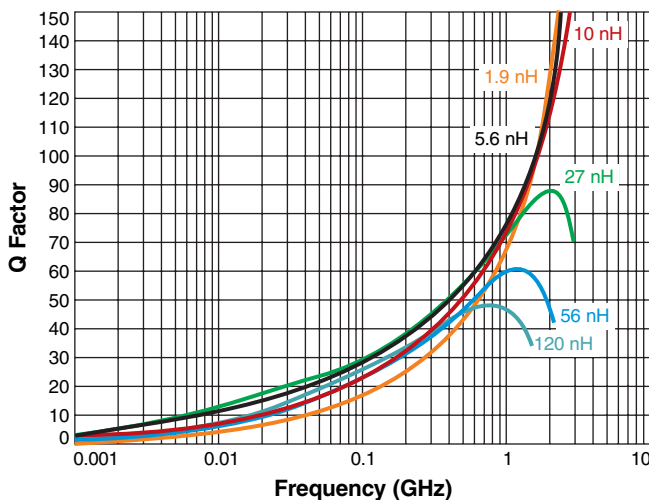
**Temperature Coefficient of Inductance (TCL)**  $+25$  to  $+125$  ppm/ $^{\circ}\text{C}$

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at  $<30^{\circ}\text{C}$  / 85% relative humidity)

**Packaging** 2000 or 10,000 per 7" reel; Paper tape: 8 mm wide, 0.66 mm thick, 2 mm pocket spacing

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).

## Typical Q vs Frequency



**Coilcraft CPS**  
CRITICAL PRODUCTS & SERVICES

1102 Silver Lake Road  
Cary, IL 60013  
Phone 800-981-0363

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Fax 847-639-1508  
Email [cps@coilcraft.com](mailto:cps@coilcraft.com)  
[www.coilcraft-cps.com](http://www.coilcraft-cps.com)

Document ST1153-1 Revised 06/28/21

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.

# ST235RAQ Series (1005)

Part number <sup>1</sup>	L <sup>2</sup> (nH)	Percent tolerance <sup>3</sup>	250 MHz Q min <sup>4</sup>	900 MHz Q typ <sup>4</sup>	1.7 GHz Q typ <sup>4</sup>	2.4 GHz Q typ <sup>4</sup>	SRF min <sup>5</sup> (MHz)	DCR max <sup>6</sup> (mOhms)	I <sub>max</sub> <sup>7</sup> (mA) 125°C
ST235RAQN80_RZ	0.8	<b>5</b>	18	54	62	110	>5000	25	600
ST235RAQN90_RZ	0.9	<b>5</b>	13	42	65	89	>5000	30	600
ST235RAQ1N0_RZ	1.0	<b>5</b>	14	41	66	91	>5000	45	460
ST235RAQ1N2_RZ	1.2	<b>5</b>	8	27	40	51	>5000	125	140
ST235RAQ1N7_RZ	1.7	<b>5</b>	22	62	82	159	>5000	35	600
ST235RAQ1N8_RZ	1.8	<b>5</b>	21	63	81	153	>5000	35	600
ST235RAQ1N9_RZ	1.9	<b>5</b>	22	63	103	149	>5000	35	600
ST235RAQ2N0_RZ	2.0	<b>5,3</b>	26	60	93	127	>5000	35	600
ST235RAQ2N1_RZ	2.1	<b>5,3</b>	19	47	72	94	>5000	48	600
ST235RAQ2N2_RZ	2.2	<b>5,3</b>	17	43	65	92	>5000	90	370
ST235RAQ2N3_RZ	2.3	<b>5,3</b>	17	43	64	85	>5000	110	280
ST235RAQ2N4_RZ	2.4	<b>5,3</b>	12	40	60	80	>5000	170	180
ST235RAQ2N5_RZ	2.5	<b>5,3</b>	11	31	45	59	>5000	210	140
ST235RAQ2N8_RZ	2.8	5,3	21	57	86	130	>5000	37	600
ST235RAQ2N9_RZ	2.9	5,3	21	59	89	136	>5000	37	600
ST235RAQ3N0_RZ	3.0	<b>5,3,2</b>	25	61	92	142	>5000	37	600
ST235RAQ3N1_RZ	3.1	5,3,2	27	63	100	148	>5000	37	600
ST235RAQ3N2_RZ	3.2	5,3,2	27	65	108	154	>5000	37	600
ST235RAQ3N3_RZ	3.3	<b>5,3,2</b>	28	68	116	160	>5000	37	600
ST235RAQ3N4_RZ	3.4	5,3,2	27	66	108	156	>5000	46	600
ST235RAQ3N5_RZ	3.5	5,3,2	27	67	110	156	>5000	46	600
ST235RAQ3N6_RZ	3.6	<b>5,3,2</b>	28	68	112	157	>5000	46	600
ST235RAQ3N7_RZ	3.7	5,3,2	28	68	112	157	>5000	46	600
ST235RAQ3N8_RZ	3.8	5,3,2	27	69	113	158	>5000	46	600
ST235RAQ3N9_RZ	3.9	<b>5,3,2</b>	30	69	114	158	>5000	46	600
ST235RAQ4N0_RZ	4.0	5,3,2	30	70	114	158	>5000	46	600
ST235RAQ4N1_RZ	4.1	5,3,2	27	71	115	159	>5000	46	600
ST235RAQ4N2_RZ	4.2	5,3,2	29	71	116	159	>5000	46	600
ST235RAQ4N3_RZ	4.3	<b>5,3,2</b>	28	62	100	136	>5000	48	600
ST235RAQ4N4_RZ	4.4	5,3,2	26	64	102	139	>5000	48	600
ST235RAQ4N5_RZ	4.5	5,3,2	26	65	104	141	>5000	48	600
ST235RAQ4N6_RZ	4.6	5,3,2	29	66	106	143	>5000	48	600
ST235RAQ4N7_RZ	4.7	<b>5,3,2</b>	28	67	108	146	>5000	48	600
ST235RAQ4N8_RZ	4.8	5,3,2	25	67	109	146	>5000	48	600
ST235RAQ4N9_RZ	4.9	5,3,2	25	67	110	147	>5000	48	600
ST235RAQ5N0_RZ	5.0	5,3,2	25	68	111	149	>5000	48	600
ST235RAQ5N1_RZ	5.1	5,3,2	27	68	111	150	>5000	48	600
ST235RAQ5N2_RZ	5.2	5,3,2	24	68	112	151	>5000	48	600
ST235RAQ5N3_RZ	5.3	5,3,2	26	67	110	144	>5000	57	600
ST235RAQ5N4_RZ	5.4	5,3,2	26	68	111	145	>5000	57	600
ST235RAQ5N5_RZ	5.5	5,3,2	26	68	111	145	>5000	57	600
ST235RAQ5N6_RZ	5.6	<b>5,3,2</b>	29	69	112	146	>5000	57	600
ST235RAQ5N7_RZ	5.7	5,3,2	27	69	112	146	>5000	57	600
ST235RAQ5N8_RZ	5.8	5,3,2	27	70	112	146	>5000	57	600
ST235RAQ5N9_RZ	5.9	5,3,2	28	70	112	146	>5000	57	600

Continued on next page

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

ST235RAQ5N9JRZ

**Tolerance:** G = 2% H = 3% J = 5%

(Table shows stock values and tolerances in bold.)

**Termination:** R = Matte tin over nickel 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

**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 at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4287 impedance analyzer with Coilcraft-provided correlation pieces.

3. Tolerances in bold are stocked for immediate shipment.

4. Q measured using an Agilent/HP 4991A with an Agilent/HP 16197 test fixture.

5. SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.

6. DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.

7. Maximum current that can be applied at 125°C.

8. Electrical specifications at 25°C.

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



CRITICAL PRODUCTS & SERVICES

1102 Silver Lake Road  
Cary, IL 60013  
Phone 800-981-0363

Fax 847-639-1508  
Email cps@coilcraft.com  
www.coilcraft-cps.com

Document ST1153-2 Revised 06/28/21

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# ST235RAQ Series (1005)

Part number <sup>1</sup>	L <sup>2</sup> (nH)	Percent tolerance <sup>3</sup>	250 MHz Q min <sup>4</sup>	900 MHz Q typ <sup>4</sup>	1.7 GHz Q typ <sup>4</sup>	2.4 GHz Q typ <sup>4</sup>	SRF min <sup>5</sup> (MHz)	DCR max <sup>6</sup> (mOhms)	I <sub>max</sub> <sup>7</sup> (mA) 125°C
ST235RAQ6N0_RZ	6.0	5,3,2	27	71	112	146	>5000	57	600
ST235RAQ6N1_RZ	6.1	5,3,2	28	71	112	146	>5000	57	600
ST235RAQ6N2_RZ	6.2	<b>5,3,2</b>	30	71	112	146	>5000	57	600
ST235RAQ6N3_RZ	6.3	5,3,2	27	72	113	146	>5000	57	600
ST235RAQ6N4_RZ	6.4	5,3,2	28	73	113	146	>5000	57	600
ST235RAQ6N5_RZ	6.5	5,3,2	27	73	114	147	>5000	57	600
ST235RAQ6N6_RZ	6.6	5,3,2	27	68	109	130	>5000	63	600
ST235RAQ6N7_RZ	6.7	5,3,2	27	69	109	132	>5000	63	600
ST235RAQ6N8_RZ	6.8	<b>5,3,2</b>	29	69	110	138	>5000	63	600
ST235RAQ6N9_RZ	6.9	5,3,2	26	69	110	138	>5000	63	600
ST235RAQ7N0_RZ	7.0	5,3,2	26	69	110	138	>5000	63	600
ST235RAQ7N1_RZ	7.1	5,3,2	28	69	110	138	>5000	63	600
ST235RAQ7N2_RZ	7.2	5,3,2	29	70	111	139	>5000	63	600
ST235RAQ7N3_RZ	7.3	5,3,2	27	70	111	139	>5000	63	600
ST235RAQ7N4_RZ	7.4	5,3,2	26	70	111	140	>5000	63	600
ST235RAQ7N5_RZ	7.5	5,3,2	26	71	112	140	>5000	63	600
ST235RAQ7N6_RZ	7.6	5,3,2	27	72	113	141	>5000	63	600
ST235RAQ7N7_RZ	7.7	5,3,2	27	70	109	135	>5000	70	600
ST235RAQ7N8_RZ	7.8	5,3,2	27	70	110	136	>5000	70	600
ST235RAQ7N9_RZ	7.9	5,3,2	28	71	110	136	>5000	70	600
ST235RAQ8N0_RZ	8.0	5,3,2	27	71	111	137	>5000	70	600
ST235RAQ8N1_RZ	8.1	5,3,2	29	71	112	137	>5000	70	600
ST235RAQ8N2_RZ	8.2	<b>5,3,2</b>	30	72	113	138	>5000	70	600
ST235RAQ8N3_RZ	8.3	5,3,2	28	72	113	138	>5000	70	600
ST235RAQ8N4_RZ	8.4	5,3,2	28	72	114	139	>5000	70	600
ST235RAQ8N5_RZ	8.5	5,3,2	29	73	115	139	>5000	70	600
ST235RAQ8N6_RZ	8.6	5,3,2	30	73	115	140	>5000	70	600
ST235RAQ8N7_RZ	8.7	5,3,2	29	73	116	140	>5000	70	600
ST235RAQ8N8_RZ	8.8	5,3,2	29	74	116	141	>5000	70	600
ST235RAQ8N9_RZ	8.9	5,3,2	30	74	117	141	>5000	70	600
ST235RAQ9N0_RZ	9.0	5,3,2	30	75	117	142	>5000	70	600
ST235RAQ9N1_RZ	9.1	5,3,2	28	75	118	142	>5000	70	600
ST235RAQ9N2_RZ	9.2	5,3,2	29	75	118	142	>5000	70	600
ST235RAQ9N3_RZ	9.3	5,3,2	27	71	105	142	>5000	73	600
ST235RAQ9N4_RZ	9.4	5,3,2	26	72	106	143	>5000	73	600
ST235RAQ9N5_RZ	9.5	5,3,2	26	73	108	144	>5000	73	600
ST235RAQ9N6_RZ	9.6	5,3,2	27	74	109	145	>5000	73	600
ST235RAQ9N7_RZ	9.7	5,3,2	27	75	110	146	>5000	73	600
ST235RAQ9N8_RZ	9.8	5,3,2	27	76	112	147	>5000	73	600
ST235RAQ9N9_RZ	9.9	5,3,2	28	77	113	148	>5000	73	600
ST235RAQ10N_RZ	10	5,3,2	28	77	113	148	>5000	73	600
ST235RAQ11N_RZ	11	5,3,2	29	68	100	134	4300	80	600
ST235RAQ12N_RZ	12	<b>5,3,2</b>	29	69	98	100	>5000	80	600
ST235RAQ15N_RZ	15	<b>5,3,2</b>	29	70	100	110	>5000	115	600
ST235RAQ16N_RZ	16	5,3,2	27	68	97	102	4800	120	600

Continued on next page

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

### ST235RAQ16NJRZ

**Tolerance:** G = 2% H = 3% J = 5%

(Table shows stock values and tolerances in bold.)

**Termination:** R = Matte tin over nickel 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

**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 at 250 MHz using a Coilcraft SMD-F fixture in an Agilent/HP 4287 impedance analyzer with Coilcraft-provided correlation pieces.

3. Tolerances in bold are stocked for immediate shipment.

4. Q measured using an Agilent/HP 4991A with an Agilent/HP 16197 test fixture.

5. SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.

6. DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.

7. Maximum current that can be applied at 125°C.

8. Electrical specifications at 25°C.

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



CRITICAL PRODUCTS & SERVICES

1102 Silver Lake Road  
Cary, IL 60013  
Phone 800-981-0363

Fax 847-639-1508  
Email cps@coilcraft.com  
www.coilcraft-cps.com

Document ST1153-3 Revised 06/28/21

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# ST235RAQ Series (1005)

Part number <sup>1</sup>	L <sup>2</sup> (nH)	Percent tolerance <sup>3</sup>	250 MHz Q min <sup>4</sup>	900 MHz Q typ <sup>4</sup>	1.7 GHz Q typ <sup>4</sup>	2.4 GHz Q typ <sup>4</sup>	SRF min <sup>5</sup> (MHz)	DCR max <sup>6</sup> (mOhms)	I <sub>max</sub> <sup>7</sup> (mA) 125°C
ST235RAQ18N_RZ	18	<b>5,3,2</b>	29	68	95	98	4500	138	580
ST235RAQ20N_RZ	20	5,3,2	27	67	90	95	4100	163	530
ST235RAQ22N_RZ	22	<b>5,3,2</b>	28	67	88	83	4000	180	500
ST235RAQ23N_RZ	23	5,3,2	28	68	89	—	4000	180	500
ST235RAQ24N_RZ	24	5,3,2	27	63	85	—	3900	185	500
ST235RAQ27N_RZ	27	<b>5,3,2</b>	28	65	83	71	3700	193	480
ST235RAQ30N_RZ	30	<b>5,3,2</b>	27	62	76	62	3400	245	420
ST235RAQ33N_RZ	33	<b>5,3,2</b>	27	62	76	—	3400	275	400
ST235RAQ36N_RZ	36	5,3,2	27	60	72	—	3300	320	360
ST235RAQ39N_RZ	39	<b>5,3,2</b>	27	60	68	—	3100	375	350
ST235RAQ43N_RZ	43	5,3,2	27	55	54	—	3100	400	330
ST235RAQ47N_RZ	47	<b>5,3,2</b>	26	55	54	—	2700	400	330
ST235RAQ51N_RZ	51	<b>5,3,2</b>	26	55	54	—	2700	432	320
ST235RAQ56N_RZ	56	5,3,2	27	54	—	—	2600	690	240
ST235RAQ62N_RZ	62	5,3,2	27	54	—	—	2400	756	230
ST235RAQ68N_RZ	68	<b>5,3,2</b>	26	54	—	—	2300	943	210
ST235RAQ72N_RZ	72	<b>5,3,2</b>	27	54	—	—	2300	787	220
ST235RAQ75N_RZ	75	5,3,2	27	54	—	—	2200	882	220
ST235RAQ82N_RZ	82	<b>5,3,2</b>	26	51	—	—	2300	1057	190
ST235RAQ91N_RZ	91	<b>5,3,2</b>	26	48	—	—	2300	1119	190
ST235RAQR10_RZ	100	<b>5,3,2</b>	26	51	—	—	2000	1507	160
ST235RAQR12_RZ	120	<b>5,3,2</b>	26	46	—	—	1800	1600	160

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

**ST235RAQR12JRZ**

**Tolerance:** G = 2% H = 3% J = 5%

(Table shows stock values and tolerances in bold.)

**Termination:** R = Matte tin over nickel 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

**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

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3. Tolerances in bold are stocked for immediate shipment.

4. Q measured using an Agilent/HP 4991A with an Agilent/HP 16197 test fixture.

5. SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.

6. DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.

7. Maximum current that can be applied at 125°C.

8. Electrical specifications at 25°C.

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



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Document ST1153-4 Revised 06/28/21

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