

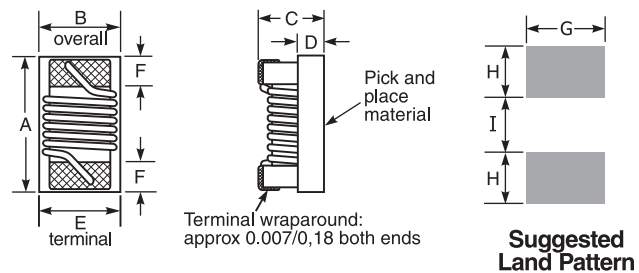
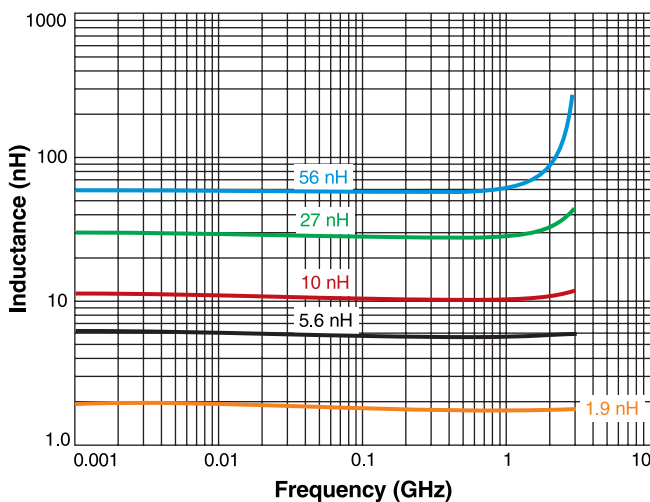
**NEW!**

# Chip Inductors for Critical Applications AR235RAQ

- 0402 ceramic wirewound chip inductor
- Up to 40% higher Q factor and 45% lower DCR than other 0402 series
- Very high SRF – as high as 28.8 GHz
- Tight inductance tolerance
- High temperature materials allow operation in ambient temperatures up to 155°C.
- Passes NASA low outgassing specifications

- Standard tin-lead (Sn-Pb) terminations ensures the best possible board adhesion. Note: Nickel barrier termination (tin-lead over tin over nickel over silver-platinum-glass frit, termination code P) is recommended for hand soldering applications.

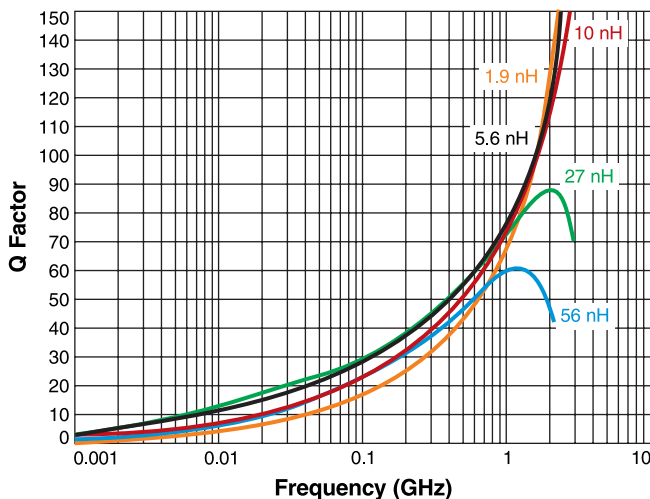
## Typical L vs Frequency



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.

A	B	C	D	E	F	G	H	I	
max	max	max	ref	ref	ref	ref	ref	ref	
0,044	0,031	0,026	0,010	0,018	0,006	0,026	0,014	0,024	inches
1,11	0,79	0,66	0,25	0,46	0,15	0,66	0,36	0,61	mm

## Typical Q vs Frequency



**Core material** Ceramic

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

**Weight** 0.7 – 1.3 mg

**Ambient temperature** -55°C to +125°C with Irms 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 +125 ppm/°C

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°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](#).

**Coilcraft CPS**

CRITICAL PRODUCTS & SERVICES

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Document AR1153-1 Revised 09/12/23

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.

# AR235RAQ 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
AR235RAQN80_PZ	0.8	<b>5</b>	18	54	62	110	>5000	25	600
AR235RAQN90_PZ	0.9	<b>5</b>	13	42	65	89	>5000	30	600
AR235RAQ1N0_PZ	1.0	<b>5</b>	14	41	66	91	>5000	45	350
AR235RAQ1N7_PZ	1.7	<b>5</b>	22	62	82	159	>5000	35	600
AR235RAQ1N8_PZ	1.8	<b>5</b>	21	63	81	153	>5000	35	600
AR235RAQ1N9_PZ	1.9	<b>5</b>	22	63	103	149	>5000	35	600
AR235RAQ2N0_PZ	2.0	<b>5,3</b>	26	60	93	127	>5000	35	600
AR235RAQ2N1_PZ	2.1	<b>5,3</b>	19	47	72	94	>5000	48	540
AR235RAQ2N2_PZ	2.2	<b>5,3</b>	17	43	65	92	>5000	90	280
AR235RAQ2N3_PZ	2.3	<b>5,3</b>	17	43	64	85	>5000	110	210
AR235RAQ2N8_PZ	2.8	5,3	21	57	86	130	>5000	37	600
AR235RAQ2N9_PZ	2.9	5,3	21	59	89	136	>5000	37	600
AR235RAQ3N0_PZ	3.0	<b>5,3,2</b>	25	61	92	142	>5000	37	600
AR235RAQ3N1_PZ	3.1	5,3,2	27	63	100	148	>5000	37	600
AR235RAQ3N2_PZ	3.2	5,3,2	27	65	108	154	>5000	37	600
AR235RAQ3N3_PZ	3.3	<b>5,3,2</b>	28	68	116	160	>5000	37	600
AR235RAQ3N4_PZ	3.4	5,3,2	27	66	108	156	>5000	46	600
AR235RAQ3N5_PZ	3.5	5,3,2	27	67	110	156	>5000	46	600
AR235RAQ3N6_PZ	3.6	<b>5,3,2</b>	28	68	112	157	>5000	46	600
AR235RAQ3N7_PZ	3.7	5,3,2	28	68	112	157	>5000	46	600
AR235RAQ3N8_PZ	3.8	5,3,2	27	69	113	158	>5000	46	600
AR235RAQ3N9_PZ	3.9	<b>5,3,2</b>	30	69	114	158	>5000	46	600
AR235RAQ4N0_PZ	4.0	5,3,2	30	70	114	158	>5000	46	600
AR235RAQ4N1_PZ	4.1	5,3,2	27	71	115	159	>5000	46	600
AR235RAQ4N2_PZ	4.2	5,3,2	29	71	116	159	>5000	46	600
AR235RAQ4N3_PZ	4.3	<b>5,3,2</b>	28	62	100	136	>5000	48	600
AR235RAQ4N4_PZ	4.4	5,3,2	26	64	102	139	>5000	48	600
AR235RAQ4N5_PZ	4.5	5,3,2	26	65	104	141	>5000	48	600
AR235RAQ4N6_PZ	4.6	5,3,2	29	66	106	143	>5000	48	600
AR235RAQ4N7_PZ	4.7	<b>5,3,2</b>	28	67	108	146	>5000	48	600
AR235RAQ4N8_PZ	4.8	5,3,2	25	67	109	146	>5000	48	600
AR235RAQ4N9_PZ	4.9	5,3,2	25	67	110	147	>5000	48	600
AR235RAQ5N0_PZ	5.0	5,3,2	25	68	111	149	>5000	48	600
AR235RAQ5N1_PZ	5.1	5,3,2	27	68	111	150	>5000	48	600
AR235RAQ5N2_PZ	5.2	5,3,2	24	68	112	151	>5000	48	600

Continued on next page

1. When ordering, please specify **tolerance** and **screening** codes:**AR235RAQ5N2JPZ****Tolerance:** G = 2% H = 3% J = 5%

(Table shows stock values and tolerances in bold.)

**Screening:** Z = Unscreened

H = Coilcraft CP-SA-10001 Group A

1 = EEE-INST-002 (Family 3) Level 1

2 = EEE-INST-002 (Family 3) Level 2

3 = EEE-INST-002 (Family 3) Level 3

4 = MIL-STD-981 (Family 50) Class B

5 = MIL-STD-981 (Family 50) Class S

F = ESCC3201 (F4 operational life performed at 90°C)

- Screening performed to the document's latest revision.
- Lot qualification (Group B) available.
- Custom testing also available.
- Country of origin restrictions available; prefix option G.

- Inductance is measured at 250 MHz on an Agilent 4287A (or equivalent) with a Coilcraft SMD-A test fixture using the listed correlation.
- Tolerances in bold are stocked for immediate shipment.
- Q is measured at 250 MHz on an Agilent 4991A (or equivalent) with an Agilent 16197A (or equivalent) test fixture.
- SRF is measured on an Agilent 8753ES (or equivalent) with a Coilcraft CCF1232 test fixture
- DCR is measured on a Keithley 580 Micro-ohmmeter (or equivalent) with a Coilcraft CCF858 test fixture.
- Maximum current that can be applied at 125°C.
- Electrical specifications at 25°C.

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



CRITICAL PRODUCTS &amp; SERVICES

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Document AR1153-2 Revised 09/12/23

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# AR235RAQ 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
AR235RAQ5N3_PZ	5.3	5,3,2	26	67	110	144	>5000	57	600
AR235RAQ5N4_PZ	5.4	5,3,2	26	68	111	145	>5000	57	600
AR235RAQ5N5_PZ	5.5	5,3,2	26	68	111	145	>5000	57	600
AR235RAQ5N6_PZ	5.6	<b>5,3,2</b>	29	69	112	146	>5000	57	600
AR235RAQ5N7_PZ	5.7	5,3,2	27	69	112	146	>5000	57	600
AR235RAQ5N8_PZ	5.8	5,3,2	27	70	112	146	>5000	57	600
AR235RAQ5N9_PZ	5.9	5,3,2	28	70	112	146	>5000	57	600
AR235RAQ6N0_PZ	6.0	5,3,2	27	71	112	146	>5000	57	600
AR235RAQ6N1_PZ	6.1	5,3,2	28	71	112	146	>5000	57	600
AR235RAQ6N2_PZ	6.2	<b>5,3,2</b>	30	71	112	146	>5000	57	600
AR235RAQ6N3_PZ	6.3	5,3,2	27	72	113	146	>5000	57	600
AR235RAQ6N4_PZ	6.4	5,3,2	28	73	113	146	>5000	57	600
AR235RAQ6N5_PZ	6.5	5,3,2	27	73	114	147	>5000	57	600
AR235RAQ6N6_PZ	6.6	5,3,2	27	68	109	130	>5000	63	600
AR235RAQ6N7_PZ	6.7	5,3,2	27	69	109	132	>5000	63	600
AR235RAQ6N8_PZ	6.8	<b>5,3,2</b>	29	69	110	138	>5000	63	600
AR235RAQ6N9_PZ	6.9	5,3,2	26	69	110	138	>5000	63	600
AR235RAQ7N0_PZ	7.0	5,3,2	26	69	110	138	>5000	63	600
AR235RAQ7N1_PZ	7.1	5,3,2	28	69	110	138	>5000	63	600
AR235RAQ7N2_PZ	7.2	5,3,2	29	70	111	139	>5000	63	600
AR235RAQ7N3_PZ	7.3	5,3,2	27	70	111	139	>5000	63	600
AR235RAQ7N4_PZ	7.4	5,3,2	26	70	111	140	>5000	63	600
AR235RAQ7N5_PZ	7.5	5,3,2	26	71	112	140	>5000	63	600
AR235RAQ7N6_PZ	7.6	5,3,2	27	72	113	141	>5000	63	600
AR235RAQ7N7_PZ	7.7	5,3,2	27	70	109	135	>5000	70	600
AR235RAQ7N8_PZ	7.8	5,3,2	27	70	110	136	>5000	70	600
AR235RAQ7N9_PZ	7.9	5,3,2	28	71	110	136	>5000	70	600
AR235RAQ8N0_PZ	8.0	5,3,2	27	71	111	137	>5000	70	600
AR235RAQ8N1_PZ	8.1	5,3,2	29	71	112	137	>5000	70	600
AR235RAQ8N2_PZ	8.2	<b>5,3,2</b>	30	72	113	138	>5000	70	600
AR235RAQ8N3_PZ	8.3	5,3,2	28	72	113	138	>5000	70	600
AR235RAQ8N4_PZ	8.4	5,3,2	28	72	114	139	>5000	70	600
AR235RAQ8N5_PZ	8.5	5,3,2	29	73	115	139	>5000	70	600
AR235RAQ8N6_PZ	8.6	5,3,2	30	73	115	140	>5000	70	600
AR235RAQ8N7_PZ	8.7	5,3,2	29	73	116	140	>5000	70	600

Continued on next page

1. When ordering, please specify **tolerance** and **screening** codes:**AR235RAQ8N7JPZ****Tolerance:** G = 2% H = 3% J = 5%

(Table shows stock values and tolerances in bold.)

**Screening:** Z = Unscreened

H = Coilcraft CP-SA-10001 Group A

1 = EEE-INST-002 (Family 3) Level 1

2 = EEE-INST-002 (Family 3) Level 2

3 = EEE-INST-002 (Family 3) Level 3

4 = MIL-STD-981 (Family 50) Class B

5 = MIL-STD-981 (Family 50) Class S

F = ESCC3201 (F4 operational life performed at 90°C)

• Screening performed to the document's latest revision.

• Lot qualification (Group B) available.

• Custom testing also available.

• Country of origin restrictions available; prefix options G.

2. Inductance is measured at 250 MHz on an Agilent 4287A (or equivalent) with a Coilcraft SMD-A test fixture using the listed correlation.

3. Tolerances in bold are stocked for immediate shipment.

4. Q is measured at 250 MHz on an Agilent 4991A (or equivalent) with an Agilent 16197A (or equivalent) test fixture.

5. SRF is measured on an Agilent 8753ES (or equivalent) with a Coilcraft CCF1232 test fixture

6. DCR is measured on a Keithley 580 Micro-ohmmeter (or equivalent) with 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 &amp; SERVICES

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Document AR1153-3 Revised 09/12/23

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# AR235RAQ 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
AR235RAQ8N8_PZ	8.8	5,3,2	29	74	116	141	>5000	70	600
AR235RAQ8N9_PZ	8.9	5,3,2	30	74	117	141	>5000	70	600
AR235RAQ9N0_PZ	9.0	5,3,2	30	75	117	142	>5000	70	600
AR235RAQ9N1_PZ	9.1	5,3,2	28	75	118	142	>5000	70	600
AR235RAQ9N2_PZ	9.2	5,3,2	29	75	118	142	>5000	70	600
AR235RAQ9N3_PZ	9.3	5,3,2	27	71	105	142	>5000	73	590
AR235RAQ9N4_PZ	9.4	5,3,2	26	72	106	143	>5000	73	590
AR235RAQ9N5_PZ	9.5	5,3,2	26	73	108	144	>5000	73	590
AR235RAQ9N6_PZ	9.6	5,3,2	27	74	109	145	>5000	73	590
AR235RAQ9N7_PZ	9.7	5,3,2	27	75	110	146	>5000	73	590
AR235RAQ9N8_PZ	9.8	5,3,2	27	76	112	147	>5000	73	590
AR235RAQ9N9_PZ	9.9	5,3,2	28	77	113	148	>5000	73	590
AR235RAQ10N_PZ	10	5,3,2	28	77	113	148	>5000	73	590
AR235RAQ11N_PZ	11	5,3,2	29	68	100	134	4300	80	560
AR235RAQ12N_PZ	12	<b>5,3,2</b>	29	69	98	100	>5000	80	560
AR235RAQ15N_PZ	15	<b>5,3,2</b>	29	70	100	110	>5000	115	460
AR235RAQ16N_PZ	16	5,3,2	27	68	97	102	4800	120	450
AR235RAQ18N_PZ	18	<b>5,3,2</b>	29	68	95	98	4500	138	435
AR235RAQ20N_PZ	20	5,3,2	27	67	90	95	4100	163	400
AR235RAQ22N_PZ	22	<b>5,3,2</b>	28	67	88	83	4000	180	375
AR235RAQ23N_PZ	23	5,3,2	28	68	89	—	4000	180	375
AR235RAQ24N_PZ	24	5,3,2	27	63	85	—	3900	185	375
AR235RAQ27N_PZ	27	<b>5,3,2</b>	28	65	83	71	3700	193	360
AR235RAQ30N_PZ	30	<b>5,3,2</b>	27	62	76	62	3400	245	315
AR235RAQ33N_PZ	33	<b>5,3,2</b>	27	62	76	—	3400	275	300
AR235RAQ36N_PZ	36	5,3,2	27	60	72	—	3300	320	270
AR235RAQ39N_PZ	39	<b>5,3,2</b>	27	60	68	—	3100	375	260
AR235RAQ43N_PZ	43	5,3,2	27	55	54	—	3100	400	250
AR235RAQ47N_PZ	47	<b>5,3,2</b>	26	55	54	—	2700	400	250
AR235RAQ51N_PZ	51	<b>5,3,2</b>	26	55	54	—	2700	432	240
AR235RAQ56N_PZ	56	5,3,2	27	54	—	—	2600	690	180
AR235RAQ62N_PZ	62	5,3,2	27	54	—	—	2400	756	170
AR235RAQ68N_PZ	68	<b>5,3,2</b>	26	54	—	—	2300	943	160
AR235RAQ72N_PZ	72	<b>5,3,2</b>	27	54	—	—	2300	787	165
AR235RAQ75N_PZ	75	5,3,2	27	54	—	—	2200	882	165
AR235RAQ82N_PZ	82	<b>5,3,2</b>	26	51	—	—	2300	1057	140
AR235RAQ91N_PZ	91	<b>5,3,2</b>	26	48	—	—	2300	1119	140

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

### AR235RAQ91NJPZ

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

(Table shows stock values and tolerances in bold.)

**Screening:** Z = Unscreened

H = Coilcraft CP-SA-10001 Group A

1 = EEE-INST-002 (Family 3) Level 1

2 = EEE-INST-002 (Family 3) Level 2

3 = EEE-INST-002 (Family 3) Level 3

4 = MIL-STD-981 (Family 50) Class B

5 = MIL-STD-981 (Family 50) Class S

F = ESCC3201 (F4 operational life performed at 90°C)

• Screening performed to the document's latest revision.

• Lot qualification (Group B) available.

• Custom testing also available.

• Country of origin restrictions available; prefix options G.

2. Inductance is measured at 250 MHz on an Agilent 4287A (or equivalent) with a Coilcraft SMD-A test fixture using the listed correlation.

3. Tolerances in bold are stocked for immediate shipment.

4. Q is measured at 250 MHz on an Agilent 4991A (or equivalent) with an Agilent 16197A (or equivalent) test fixture.

5. SRF is measured on an Agilent 8753ES (or equivalent) with a Coilcraft CCF1232 test fixture.

6. DCR is measured on a Keithley 580 Micro-ohmmeter (or equivalent) with 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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