

Outgassing Compliant Chip Inductors AR235RAA

- Exceptionally high Q factors
- Outstanding self-resonant frequency
- 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.

Core material Ceramic

Terminations Tin-lead (63/37) over tin over nickel over silver-platinum-glass frit. Other terminations are also available.

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

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

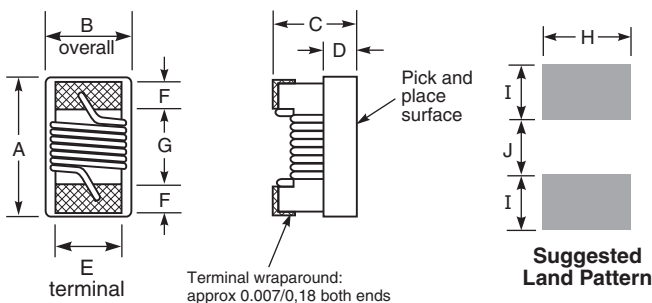
Storage temperature Component: -55°C to +155°C.
Packaging: -55°C to +80°C

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)

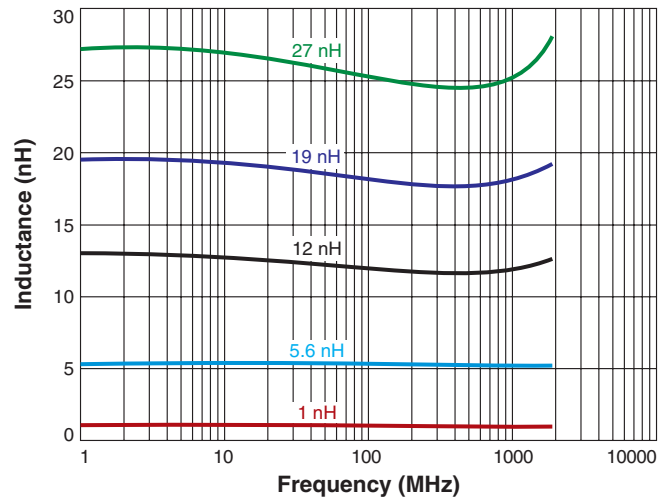
Enhanced crush-resistant packaging 2000 per 7" reel
Paper tape: 8 mm wide, 0.68 mm thick, 2 mm pocket spacing



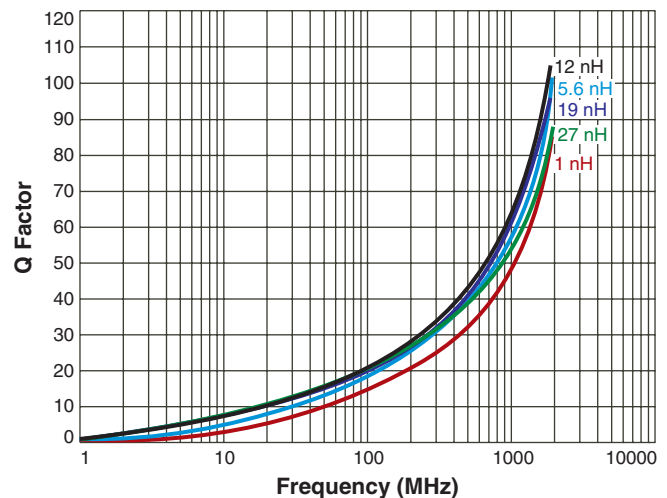
A	B	C	D	E	F	G	H	I	J
max	max	max	ref						
0.047	0.025	0.026	0.010	0.020	0.009	0.022	0.026	0.014	0.018
1,19	0,64	0,66	0,25	0,51	0,23	0,56	0,66	0,36	0,46

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.

Typical L vs Frequency



Typical Q vs Frequency



AR235RAA Series (0402)

Part number ¹	Inductance ² (nH)	Percent tolerance	Q min ³	900 MHz		1.7 GHz		SRF min ⁵ (GHz)	DCR max ⁶ (Ohms)	I _{max} (mA)
				L typ	Q typ ⁴	L typ	Q typ ⁴			
AR235RAA1N0JPZ	1.0	5	20	1.02	77	1.02	69	>5.00	0.045	600
AR235RAA1N2JPZ ⁷	1.2	5	12	1.17	28	1.17	38	>5.00	0.050	600
AR235RAA1N8JPZ	1.8	5	20	1.78	54	1.78	75	>5.00	0.070	600
AR235RAA1N9JPZ	1.9	5	20	1.72	68	1.74	82	>5.00	0.070	600
AR235RAA2N0_PZ	2.0	5,2	20	1.93	54	1.93	75	>5.00	0.070	600
AR235RAA2N2_PZ	2.2	5,2	20	2.19	59	2.23	100	>5.00	0.070	600
AR235RAA2N4_PZ ⁷	2.4	5,2	20	2.24	51	2.27	68	>5.00	0.068	600
AR235RAA2N7_PZ ⁷	2.7	5,2,1	16	2.58	42	2.60	61	>5.00	0.120	425
AR235RAA3N3_PZ	3.3	5,2,1	20	3.10	65	3.12	87	>5.00	0.066	600
AR235RAA3N6_PZ	3.6	5,2,1	20	3.56	45	3.62	71	>5.00	0.066	600
AR235RAA3N9_PZ	3.9	5,2,1	20	3.89	50	4.00	75	>5.00	0.066	600
AR235RAA4N3_PZ ⁷	4.3	5,2,1	20	4.19	47	4.30	71	>5.00	0.091	600
AR235RAA4N7_PZ ⁷	4.7	5,2,1	20	4.55	48	4.68	68	4.77	0.130	600
AR235RAA5N1_PZ	5.1	5,2,1	20	5.15	56	5.25	82	4.80	0.083	600
AR235RAA5N6_PZ	5.6	5,2,1	20	5.16	54	5.28	81	4.80	0.083	600
AR235RAA6N2_PZ	6.2	5,2,1	20	6.16	52	6.37	76	4.80	0.083	600
AR235RAA6N8_PZ	6.8	5,2,1	20	6.56	63	6.93	78	4.80	0.083	600
AR235RAA7N5_PZ	7.5	5,2,1	22	7.91	60	8.22	88	4.80	0.104	600
AR235RAA8N2_PZ	8.2	5,2,1	22	8.50	57	8.85	84	4.40	0.104	600
AR235RAA8N7_PZ ⁷	8.7	5,2,1	20	8.78	54	9.21	73	3.80	0.195	480
AR235RAA9N0_PZ	9.0	5,2,1	22	9.07	62	9.53	78	4.66	0.100	600
AR235RAA9N5_PZ ⁷	9.5	5,2,1	20	9.42	54	9.98	69	3.48	0.195	480
AR235RAA10N_PZ ⁷	10.0	5,2,1	21	9.8	50	10.10	67	3.68	0.195	480
AR235RAA11N_PZ	11.0	5,2,1	24	10.7	52	11.20	78	3.48	0.120	580
AR235RAA12N_PZ	12.0	5,2,1	24	11.9	53	12.70	71	3.60	0.120	580

Continued on next page

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

AR235RAA12NGPZ

Tolerance: F = 1% G = 2% J = 5%**Termination:** See **Notes about terminations**

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

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

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

A = Gold over nickel over moly-mag

L = Silver-palladium-platinum-glass frit

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.

• Testing T and U have been replaced with more detailed codes 4, 5, and 1, 2, 3, respectively. Codes T and U can still be used, if necessary. 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 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. Part is not compliant with MIL-STD-981 Family 50, Class S due to wire gauge.

8. Electrical specifications at 25°C.

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

Notes about terminations

For hand soldering applications, the nickel barrier termination (tin-lead over tin over nickel over silver-platinum-glass frit, termination code P) is recommended. Exposed gold or tin in the terminations migrates into the solder.



CRITICAL PRODUCTS & SERVICES

1102 Silver Lake Road
Cary, IL 60013
Phone 800-981-0363Fax 847-639-1508
Email cps@coilcraft.com
www.coilcraft-cps.com

Document AR198-2 Revised 01/23/23

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.

AR235RAA Series (0402)

Part number ¹	Inductance ² (nH)	Percent tolerance	Q min ³	900 MHz		1.7 GHz		SRF min ⁵ (GHz)	DCR max ⁶ (Ohms)	I _{max} (mA)
				L typ	Q typ ⁴	L typ	Q typ ⁴			
AR235RAA13N_PZ ⁷	13.0	5,2,1	20	13.4	51	14.63	57	3.28	0.210	440
AR235RAA15N_PZ ⁷	15.0	5,2,1	22	14.6	55	15.50	77	3.10	0.172	500
AR235RAA16N_PZ ⁷	16.0	5,2,1	23	16.6	46	18.86	47	3.05	0.220	480
AR235RAA18N_PZ ⁷	18.0	5,2,1	24	18.3	57	20.28	62	2.68	0.230	420
AR235RAA19N_PZ ⁷	19.0	5,2,1	24	19.1	50	21.10	67	3.00	0.202	460
AR235RAA20N_PZ ⁷	20.0	5,2,1	24	20.7	52	23.66	53	2.90	0.250	400
AR235RAA22N_PZ ⁷	22.0	5,2,1	24	23.2	53	26.75	53	2.80	0.300	380
AR235RAA23N_PZ ⁷	23.0	5,2,1	24	23.8	49	26.90	64	2.72	0.300	400
AR235RAA24N_PZ ⁷	24.0	5,2,1	24	25.1	51	29.50	50	2.60	0.300	390
AR235RAA27N_PZ ⁷	27.0	5,2,1	24	28.7	49	33.50	63	2.48	0.298	380
AR235RAA30N_PZ ⁷	30.0	5,2,1	24	31.1	46	38.50	39	2.35	0.300	340
AR235RAA33N_PZ ⁷	33.0	5,2,1	20	34.9	31	41.74	32	2.30	0.300	340
AR235RAA36N_PZ ⁷	36.0	5,2,1	24	39.5	44	48.40	53	2.20	0.440	310
AR235RAA39N_PZ ⁷	39.0	5,3,2	24	41.7	47	50.23	45	2.10	0.550	200
AR235RAA40N_PZ ⁷	40.0	5,2,1	24	39.0	44	47.40	33	2.24	0.440	290
AR235RAA47N_PZ ⁷	47.0	5,2,1	20	50.0	38	—	—	2.10	0.83	150

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

AR235RAA47NGPZ

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

Termination: See **Notes about terminations**

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

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

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

A = Gold over nickel over moly-mag

L = Silver-palladium-platinum-glass frit

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.
- Testing T and U have been replaced with more detailed codes 4, 5, and 1, 2, 3, respectively. Codes T and U can still be used, if necessary. 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 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. Part is not compliant with MIL-STD-981 Family 50, Class S due to wire gauge.

8. Electrical specifications at 25°C.

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

Notes about terminations

For hand soldering applications, the nickel barrier termination (tin-lead over tin over nickel over silver-platinum-glass frit, termination code P) is recommended. Exposed gold or tin in the terminations migrates into the solder.



CRITICAL PRODUCTS & SERVICES

© Coilcraft, Inc. 2023

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

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

Document AR198-2 Revised 01/23/23

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.