

Outgassing Compliant Chip Inductors AR312RAA

- Exceptional Q and high SRFs
- DCR and current carrying characteristics
- 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.

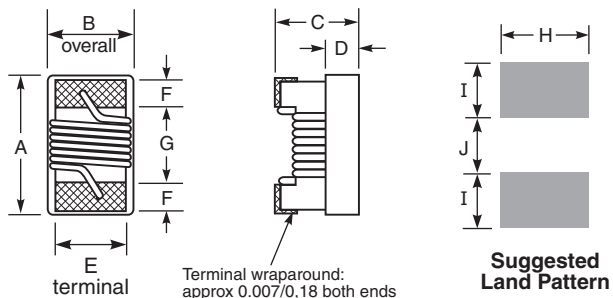
Tape and reel packaging: -55°C to +80°C

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)

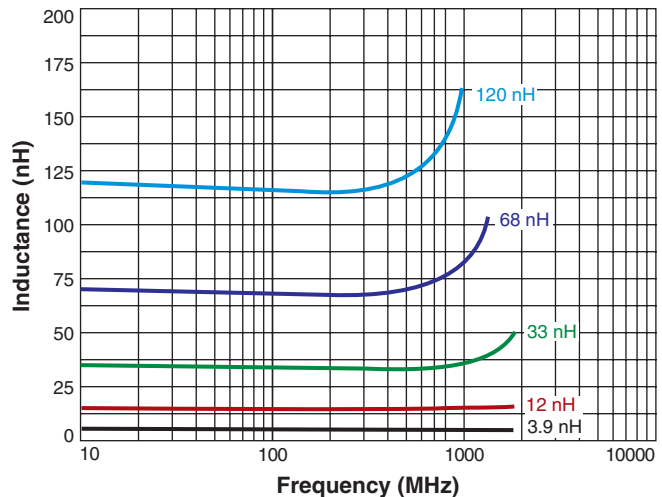
Enhanced crush-resistant packaging 2000 per 7" reel
Paper tape: 8 mm wide, 1.0 mm thick, 4 mm pocket spacing



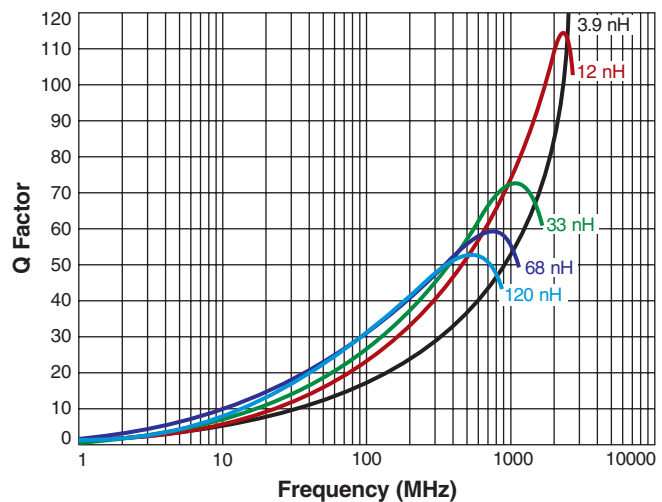
A	B	C	D	E	F	G	H	I	J
max	max	max	ref						
0,071	0,044	0,040	0,015	0,030	0,013	0,034	0,040	0,025	0,025
1,80	1,12	1,02	0,38	0,76	0,33	0,86	1,02	0,64	0,64

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



AR312RAA Series (0603)

Part number ¹	Inductance ² (nH)	Percent tolerance	Q min ³	900 MHz		1.7 GHz		SRF min ⁴ (MHz)	DCR max ⁵ (Ohms)	I _{max} (mA)
				L typ	Q typ	L typ	Q typ			
AR312RAA1N6JPZ	1.6 @ 250 MHz	5	26	1.67	49	1.65	63	>5000	0.022	700
AR312RAA1N8JPZ	1.8 @ 250 MHz	5	21	1.83	35	1.86	50	>5000	0.045	700
AR312RAA3N3_PZ	3.3 @ 250 MHz	5,2	35	3.31	75	3.38	88	>5000	0.045	700
AR312RAA3N6_PZ	3.6 @ 250 MHz	5,2	18	3.72	53	3.71	65	>5000	0.063	700
AR312RAA3N9_PZ	3.9 @ 250 MHz	5,2	20	3.95	49	3.96	67	>5000	0.080	700
AR312RAA4N3_PZ	4.3 @ 250 MHz	5,2	29	4.32	50	4.33	70	>5000	0.063	700
AR312RAA4N7_PZ ⁶	4.7 @ 250 MHz	5,2	18	4.72	47	4.75	57	>5000	0.116	605
AR312RAA5N1_PZ ⁶	5.1 @ 250 MHz	5,2	20	4.93	47	4.95	56	>5000	0.140	510
AR312RAA5N6_PZ	5.6 @ 250 MHz	5,2,1	25	5.77	63	6.05	80	4760	0.075	700
AR312RAA6N8_PZ	6.8 @ 250 MHz	5,2,1	28	6.75	60	7.10	81	4660	0.110	700
AR312RAA7N5_PZ	7.5 @ 250 MHz	5,2,1	23	7.70	60	7.82	65	4320	0.106	700
AR312RAA8N2_PZ	8.2 @ 250 MHz	5,2,1	26	8.25	82	8.37	87	3880	0.115	700
AR312RAA8N7_PZ	8.7 @ 250 MHz	5,2,1	27	8.86	62	9.32	58	3680	0.109	700
AR312RAA9N5_PZ	9.5 @ 250 MHz	5,2,1	22	9.70	59	9.92	61	4100	0.135	700
AR312RAA10N_PZ	10 @ 250 MHz	5,2,1	28	10.0	66	10.6	83	3860	0.130	700
AR312RAA11N_PZ	11 @ 250 MHz	5,2,1	26	11.0	53	11.5	56	3640	0.130	700
AR312RAA12N_PZ	12 @ 250 MHz	5,2,1	29	12.3	72	13.5	83	3220	0.130	620
AR312RAA15N_PZ	15 @ 250 MHz	5,2,1	28	15.4	64	16.8	89	3020	0.170	600
AR312RAA16N_PZ	16 @ 250 MHz	5,2,1	29	16.2	55	17.3	52	3040	0.170	600
AR312RAA18N_PZ	18 @ 250 MHz	5,2,1	29	18.7	70	21.4	69	2680	0.170	600
AR312RAA22N_PZ	22 @ 250 MHz	5,2,1	31	22.8	73	26.1	71	2380	0.190	560
AR312RAA23N_PZ	23 @ 250 MHz	5,2,1	39	24.1	71	28.0	67	2380	0.190	560
AR312RAA24N_PZ	24 @ 250 MHz	5,2,1	36	24.5	45	28.7	39	2380	0.190	560
AR312RAA27N_PZ	27 @ 250 MHz	5,2,1	32	29.2	74	34.6	65	2380	0.220	530

Continued on next page

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

AR312RAAR27JSZ

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

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

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

• 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 option G or F.

2. Inductance measured using a Coilcraft SMD-A test fixture and Coilcraft-provided correlation pieces with an Agilent/HP 4286A impedance analyzer or equivalent.

3. Q measured at the same frequency as inductance using an Agilent/HP 4291A with an Agilent/HP 16197A test fixture or equivalents.

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

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

6. Part is not compliant with MIL-STD-981 Family 50, Class S due to wire gauge

7. 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

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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.

AR312RAA Series (0603)

Part number ¹	Inductance ² (nH)	Percent tolerance	Q min ³	900 MHz		1.7 GHz		SRF min ⁴ (MHz)	DCR max ⁵ (Ohms)	I _{max} (mA)
				L typ	Q typ	L typ	Q typ			
AR312RAA30N_PZ	30 @ 250 MHz	5,2,1	32	31.4	47	39.9	28	2240	0.220	500
AR312RAA33N_PZ	33 @ 250 MHz	5,2,1	33	36.0	67	49.5	42	1900	0.220	500
AR312RAA36N_PZ	36 @ 250 MHz	5,2,1	32	39.4	47	52.7	24	1960	0.250	460
AR312RAA39N_PZ	39 @ 250 MHz	5,2,1	36	42.7	60	60.2	40	1740	0.250	460
AR312RAA43N_PZ	43 @ 250 MHz	5,2,1	28	47.0	44	64.9	21	1580	0.280	440
AR312RAA47N_PZ	47 @ 200 MHz	5,2,1	35	52.2	62	77.2	35	1560	0.280	440
AR312RAA51N_PZ	51 @ 200 MHz	5,2,1	38	55.5	69	82.2	34	1560	0.300	420
AR312RAA56N_PZ	56 @ 200 MHz	5,2,1	37	62.5	56	97	26	1480	0.310	420
AR312RAA68N_PZ	68 @ 200 MHz	5,2,1	35	80.5	54	168	21	1380	0.340	410
AR312RAA72N_PZ ⁶	72 @ 150 MHz	5,2,1	35	82.0	53	135	20	1360	0.490	340
AR312RAA82N_PZ ⁶	82 @ 150 MHz	5,2,1	29	96.2	54	177	21	1300	0.540	340
AR312RAAR10_PZ ⁶	100 @ 150 MHz	5,2,1	28	124	49	—	—	1140	0.580	310
AR312RAAR11_PZ ⁶	110 @ 150 MHz	5,2,1	30	138	43	—	—	1080	0.610	310
AR312RAAR12_PZ ⁶	120 @ 150 MHz	5,2,1	28	166	39	—	—	1020	0.650	270
AR312RAAR15_PZ ⁶	150 @ 150 MHz	5,2,1	28	250	25	—	—	900	0.915	250
AR312RAAR18_PZ ⁶	180 @ 100 MHz	5,2,1	25	305	22	—	—	820	1.25	210
AR312RAAR20_PZ ⁶	200 @ 100 MHz	5,2,1	25	—	—	—	—	800	1.98	170
AR312RAAR21_PZ ⁶	210 @ 100 MHz	5,2,1	27	—	—	—	—	780	2.06	160
AR312RAAR22_PZ ⁶	220 @ 100 MHz	5,2,1	25	—	—	—	—	760	2.10	160
AR312RAAR27_PZ ⁶	270 @ 100 MHz	5,2,1	26	—	—	—	—	700	2.30	150

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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.