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 –65°C to +125°C with Imax current

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

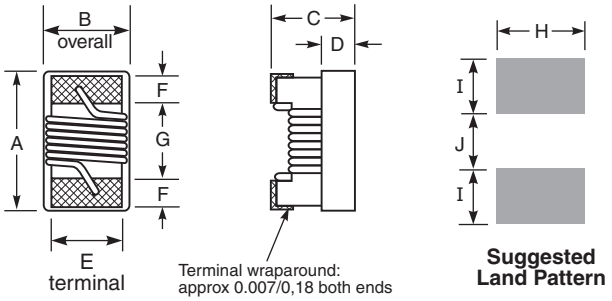
Storage temperature Component: –65°C to +155°C.
Tape and reel packaging: –55°C to +80°C

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)

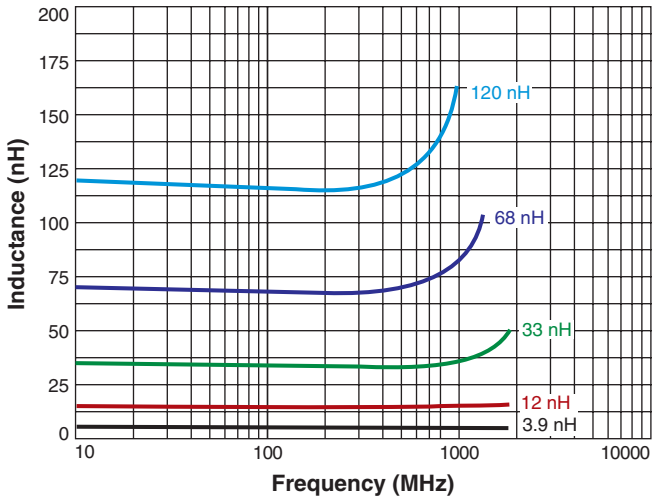
Enhanced crush-resistant packaging 2000 per 7″ reel
Paper tape: 8 mm wide, 1.0 mm thick, 4 mm pocket spacing



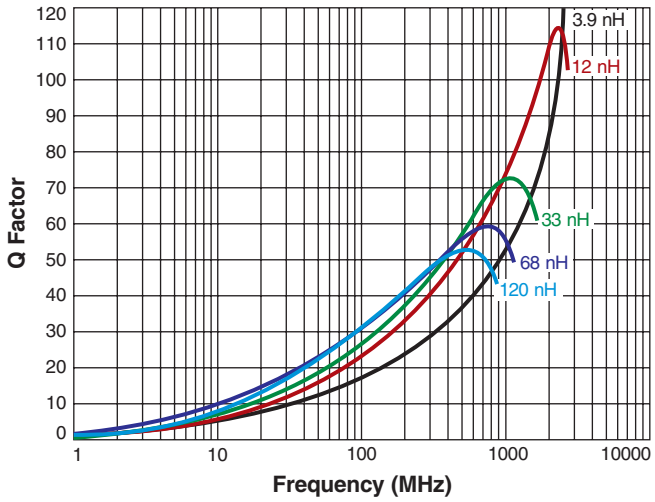
A max	B max	C max	D ref	E	F	G	H	I	J
0.071	0.044	0.040	0.015	0.030	0.013	0.034	0.040	0.025	0.025
1,80	1,12	1,02	0,38	0,76	0,33	0,86	1,02	0,64	0,64

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



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Document AR195-1 Revised 09/23/21

AR312RAA Series (0603)

Part number[1]	Inductance[2] (nH)	Percent tolerance	Q min[3]	900 MHz L typ	900 MHz Q typ	1.7 GHz L typ	1.7 GHz Q typ	SRF min[4] (MHz)	DCR max[5] (Ohms)	Imax (mA)
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.

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Document AR195-2 Revised 09/23/21

AR312RAA Series (0603)

Part number[1]	Inductance[2] (nH)	Percent tolerance	Q min[3]	900 MHz L typ	900 MHz Q typ	1.7 GHz L typ	1.7 GHz Q typ	SRF min[4] (MHz)	DCR max[5] (Ohms)	Imax (mA)
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

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

AR312RAAR27JSZ

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