Chip Inductors for Critical Applications ST312RAK

- Very low profile – only 60% of the height of our other 0603 inductor series
- Excellent Q, low DCR and very high SRF

Part number[1]	Inductance[2] (nH)	Percent tolerance[3]	Q min[4]	900 MHz L typ	900 MHz Q typ[4]	1.7 GHz L typ	1.7 GHz Q typ[4]	SRF min[5] (GHz)	DCR max[6] (Ohms)	Imax (mA)
ST312RAK1N0JR_	1.0	5	20	0.98	39	0.99	58	5	0.045	800
ST312RAK2N0JR_	2.0	5	28	1.98	46	1.98	70	5	0.034	800
ST312RAK2N3JR_	2.3	5	25	2.10	50	2.13	74	5	0.046	800
ST312RAK2N4JR_	2.4	5	20	2.27	55	2.28	81	5	0.052	800
ST312RAK2N5JR_	2.5	5	21	2.48	52	2.50	77	5	0.060	800
ST312RAK3N0_R_	3.0	5,2	21	2.96	57	2.97	82	5	0.039	800
ST312RAK3N3_R_	3.3	5,2	24	3.27	60	3.33	83	5	0.039	800
ST312RAK3N6_R_	3.6	5,2	26	3.58	69	3.63	95	5	0.044	800
ST312RAK3N9_R_	3.9	5,2	32	3.87	68	3.95	90	5	0.050	800
ST312RAK4N3_R_	4.3	5,2	27	4.26	58	4.34	84	5	0.076	800
ST312RAK4N7_R_	4.7	5,2	24	4.66	50	4.75	70	4.4	0.120	640
ST312RAK5N1_R_	5.1	5,2	23	5.12	68	5.18	93	4.4	0.050	800
ST312RAK5N6_R_	5.6	5,2	29	5.60	67	5.73	90	4.0	0.058	800
ST312RAK6N8_R_	6.8	5,2	22	6.78	60	7.00	81	3.6	0.080	700
ST312RAK7N2_R_	7.2	5,2	31	7.19	65	7.44	88	3.6	0.047	800
ST312RAK8N2_R_	8.2	5,2	28	8.18	60	8.46	78	3.4	0.075	800
ST312RAK9N5_R_	9.5	5,2	27	9.52	63	9.92	80	3.1	0.092	700
ST312RAK10N_R_	10	5,2	32	10.0	67	10.4	85	3.1	0.075	800
ST312RAK11N_R_	11	5,2	28	11.0	66	11.5	86	3.2	0.110	750
ST312RAK12N_R_	12	5,2	29	12.0	68	12.7	85	2.8	0.130	620
ST312RAK15N_R_	15	5,2	26	15.2	65	16.1	80	2.6	0.145	580
ST312RAK16N_R_	16	5,2	29	16.3	63	17.5	76	2.4	0.175	500
ST312RAK18N_R_	18	5,2	28	18.1	66	19.2	80	2.3	0.200	500
ST312RAK20N_R_	20	5,2	28	20.2	67	21.6	80	2.3	0.175	500
ST312RAK22N_R_	22	5,2	29	22.4	60	24.3	70	2.2	0.220	480
ST312RAK24N_R_	24	5,2	25	24.4	61	26.5	72	2.1	0.240	460
ST312RAK27N_R_	27	5,2	29	27.4	62	29.8	75	2	0.270	440
ST312RAK30N_R_	30	5,2	24	30.5	62	33.9	73	1.9	0.330	400
ST312RAK33N_R_	33	5,2	28	34.0	55	39.1	61	1.7	0.330	400
ST312RAK36N_R_	36	5,2	28	37.2	61	42.3	63	1.8	0.335	440
ST312RAK39N_R_	39	5,2	28	40.3	60	45.3	65	1.8	0.400	380
ST312RAK43N_R_	43	5,2	28	44.5	57	51.3	60	1.6	0.440	380
ST312RAK47N_R_	47	5,2	28	48.2	55	57.8	57	1.5	0.540	340
ST312RAK51N_R_	51	5,2	28	53.0	55	63.2	55	1.4	0.570	310

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

ST312RAK51NGRZ

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

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.

Screening: **Z** = Unscreened
H = Group A screening per Coilcraft CP-SA-10001
- 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 or F.

2. Inductance measured at 250 MHz, 0.1 Vrms, 0 Adc using Coilcraft SMD-A fixture in Agilent/HP 4287A impedance analyzer.
3. Tolerances in bold are stocked for immediate shipment.
4. Q measured using Agilent/HP4291A with Agilent/HP 16193 test fixture.
5. SRF measured using Agilent/HP 8722ES network analyzer and Coilcraft SMD-D test fixture.
6. DCR measured on Cambridge Technology micro-ohmmeter and Coilcraft CCF858 test fixture.
7. Electrical specifications at 25°C.

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

Coilcraft CPS
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

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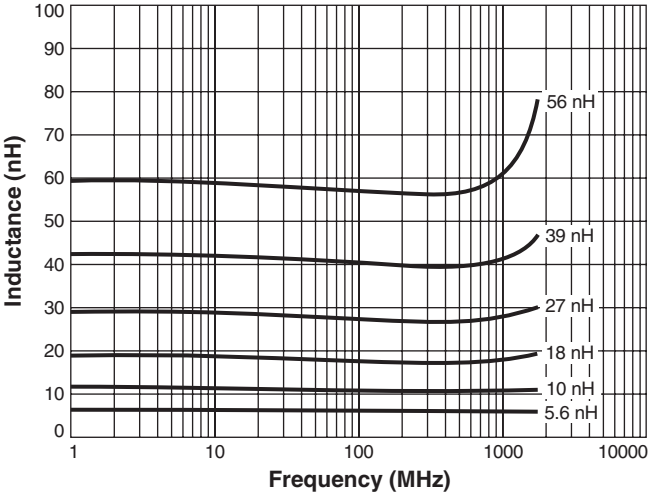
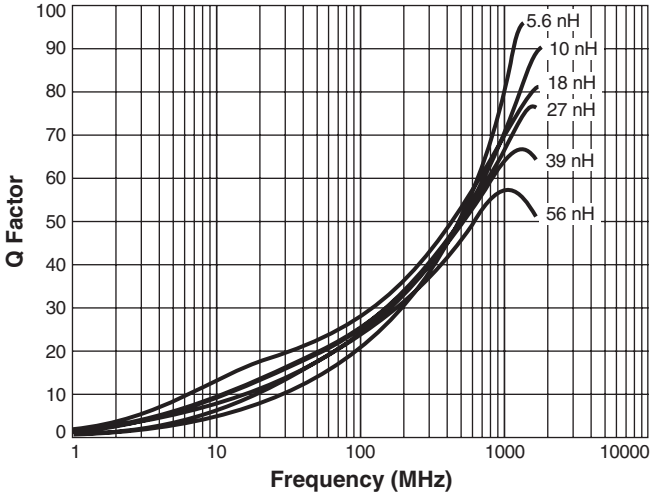
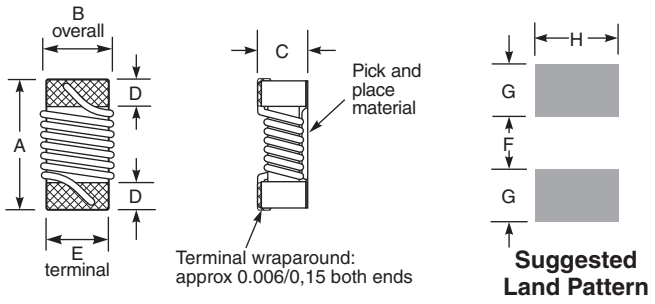
Inductors for Critical Applications

Typical L vs Frequency



Typical Q vs Frequency





Amax	Bmax	Cmax	D	E	F	G	H	
0.064	0.033	0.024	0.013	0.030	0.025	0.025	0.040	inches
1,63	0,84	0,61	0,33	0,76	0,64	0,64	1,02	mm

Note: Height dimension (C) is before optional solder application. For maximum height dimension including solder, add 0.006 in / 0,152 mm.

Core material Ceramic

Terminations Matte tin over nickel over silver-platinum glass frit. Other terminations available at additional cost.

Weight 1.4 – 2.3 mg

Ambient temperature –40°C to +125°C with Irms current

Maximum part temperature +140°C (ambient + temp rise).

Storage temperature Component: –55°C to +140°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 2000/7″reel; Paper tape: 8 mm wide, 0.68 mm thick, 4 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

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

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

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