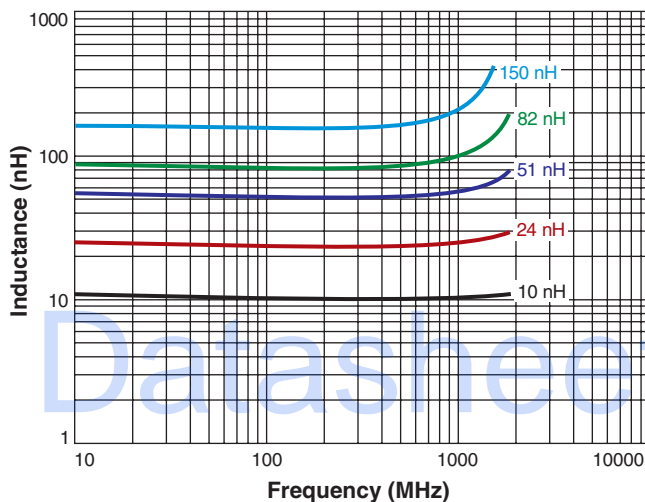


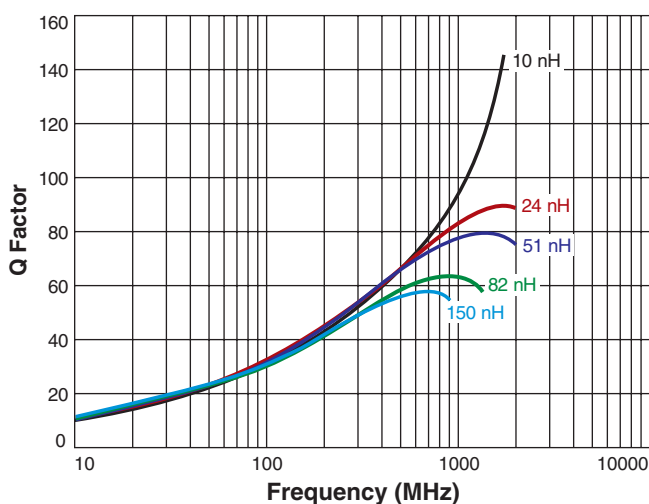
# Chip Inductors for Critical Applications ST312RAG

- Higher Q and lower DCR than other 0603 inductors
- Highest SRF values – as high as 16 GHz
- 43 inductance values from 1.8 to 150 nH

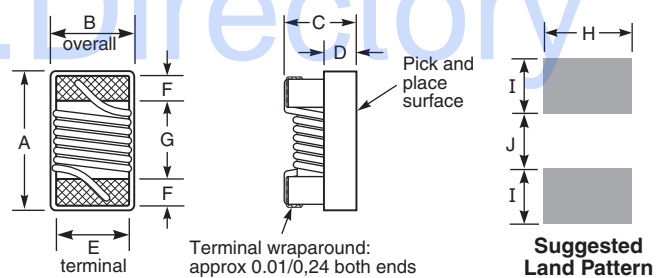
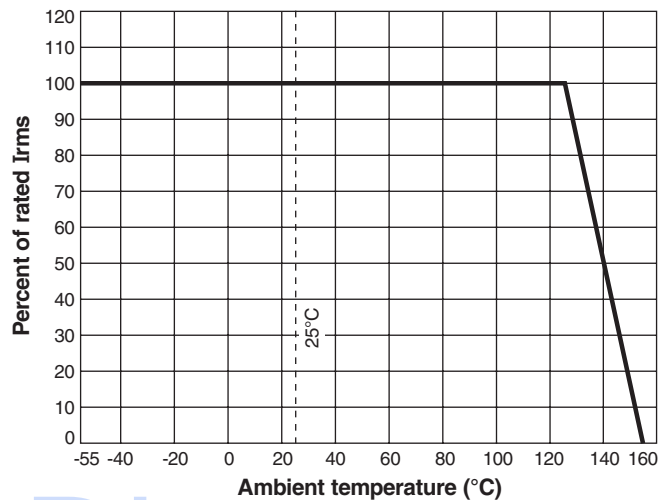
## Typical L vs Frequency



## Typical Q vs Frequency



## Current Derating



A	B	C	D	E	F	G	H	I	J
max	min-max	max							
0.069	0.034-0.043	0.034	0.015	0.029	0.013	0.038	0.040	0.027	0.028
1,75	0,86-1,09	0,86	0,38	0,74	0,33	0,96	1,02	0,69	0,71

Note: Dimensions are before optional 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.

**Core material** Ceramic

**Terminations** Silver-palladium-platinum-glass frit. Other terminations available at additional cost.

**Ambient temperature** -40°C to +125°C with Irms current, +125°C to +140°C with derated current

**Storage temperature** Component: -55°C to +125°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 per 7" reel Paper tape: 8 mm wide, 1 mm thick, 4 mm pocket spacing

# ST312RAG Series (0603)

Part number <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance	L test freq (MHz)	Q min <sup>3</sup> at 250 MHz	900 MHz		1.7 GHz		SRF min <sup>4</sup> (GHz)	DCR max <sup>5</sup> (Ohms)	I <sub>max</sub> (mA)	Color code
					L typ	Q typ <sup>3</sup>	L typ	Q typ <sup>3</sup>				
ST312RAG1N8JLZ	1.8	5	250	17	1.77	40	1.77	65	>5.00	0.035	800	Black
ST312RAG3N3_LZ	3.3	5,2	250	35	3.28	67	3.32	104	>5.00	0.030	800	Blue
ST312RAG3N6_LZ	3.6	5,2	250	32	3.59	70	3.62	116	>5.00	0.033	800	Red
ST312RAG3N9_LZ	3.9	5,2	250	33	3.88	68	3.95	108	>5.00	0.045	800	Brown
ST312RAG4N3_LZ	4.3	5,2	250	28	4.29	58	4.31	91	>5.00	0.080	710	Orange
ST312RAG4N7_LZ	4.7	5,2	250	22	4.65	48	4.71	75	>5.00	0.100	720	Violet
ST312RAG5N1_LZ	5.1	5,2	250	38	5.08	84	5.12	140	>5.00	0.042	800	Green
ST312RAG5N6_LZ	5.6	5,2	250	43	5.6	87	5.73	145	>5.00	0.042	800	Black
ST312RAG6N0_LZ	6.0	5,2	250	40	5.92	94	6.12	154	4.80	0.053	800	White
ST312RAG6N8_LZ	6.8	5,2	250	34	6.83	88	7.05	143	4.64	0.050	800	Red
ST312RAG7N2_LZ	7.2	5,2	250	36	7.25	96	7.38	139	4.32	0.080	800	Green
ST312RAG7N5_LZ	7.5	5,2	250	32	7.55	81	7.85	112	4.24	0.100	800	Brown
ST312RAG8N2_LZ	8.2	5,2	250	37	8.21	96	8.39	148	4.72	0.054	800	Orange
ST312RAG8N7_LZ	8.7	5,2	250	33	8.73	97	9.00	149	4.40	0.054	800	Yellow
ST312RAG9N1_LZ	9.1	5,2	250	38	9.18	76	9.64	109	4.08	0.054	800	Black
ST312RAG9N5_LZ	9.5	5,2	250	40	9.56	98	9.99	149	3.92	0.053	800	Blue
ST312RAG10N_LZ	10	5,2	250	38	10.16	90	10.64	142	3.44	0.054	800	Orange
ST312RAG11N_LZ	11	5,2	250	36	11.06	78	11.82	108	3.28	0.075	800	Gray
ST312RAG12N_LZ	12	5,2	250	32	12.26	69	13.20	91	3.28	0.110	750	Yellow
ST312RAG15N_LZ	15	5,2	250	36	15.41	83	17.20	124	2.88	0.085	800	Green
ST312RAG16N_LZ	16	5,2	250	32	16.37	77	18.70	116	2.80	0.095	790	White
ST312RAG18N_LZ	18	5,2	250	34	18.56	76	20.90	100	2.64	0.075	800	Blue
ST312RAG22N_LZ	22	5,2	250	30	22.7	77	25.90	88	2.52	0.140	600	Violet
ST312RAG23N_LZ	23	5,2	250	36	24.0	69	29.53	80	2.40	0.195	560	Orange
ST312RAG24N_LZ	24	5,2	250	43	24.9	77	28.9	91	2.36	0.085	800	Black
ST312RAG27N_LZ	27	5,2	250	34	28.4	74	34.0	84	2.24	0.150	620	Gray
ST312RAG30N_LZ	30	5,2	250	40	31.5	82	37.9	82	2.24	0.130	720	Brown
ST312RAG33N_LZ	33	5,2	250	38	34.9	76	42.9	80	2.16	0.170	560	White
ST312RAG36N_LZ	36	5,2	250	36	38.5	69	50.0	64	2.00	0.225	480	Red
ST312RAG39N_LZ	39	5,2	250	38	41.5	78	51.9	74	1.96	0.190	540	Black
ST312RAG43N_LZ	43	5,2	250	36	45.7	83	58.1	76	1.96	0.170	630	Orange
ST312RAG47N_LZ	47	5,2	200	39	50.6	77	66.9	72	1.84	0.270	440	Brown
ST312RAG51N_LZ	51	5,2	200	37	54.6	73	71.3	62	1.84	0.280	440	Blue
ST312RAG56N_LZ	56	5,2	200	36	60.3	74	79.9	56	1.76	0.30	420	Red
ST312RAG68N_LZ	68	5,2	200	37	75.5	73	113.3	49	1.60	0.33	400	Orange
ST312RAG72N_LZ	72	5,2	150	36	80.8	69	—	—	1.52	0.42	380	Yellow
ST312RAG75N_LZ	75	5,2	150	36	84.6	71	—	—	1.52	0.52	340	Violet
ST312RAG82N_LZ	82	5,2	150	36	94.0	62	—	—	1.44	0.46	350	Green
ST312RAG91N_LZ	91	5,2	150	36	103.0	64	—	—	1.32	0.58	310	White
ST312RAGR10_LZ	100	5,2	150	36	114.0	69	—	—	1.36	0.54	340	Blue
ST312RAGR11_LZ	110	5,2	150	35	126.2	63	—	—	1.28	0.58	310	Violet
ST312RAGR12_LZ	120	5,2	150	36	142.4	61	—	—	1.24	0.72	280	Gray
ST312RAGR15_LZ	150	5,2	150	36	188.8	57	—	—	1.08	0.82	260	White

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

ST312RAGR39GLZ

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

**Termination:** L = RoHS compliant silver-palladium-platinum-glass frit.

**Special order:**

**S** = Tin-lead (63/37) over silver-palladium-platinum-glass frit.

**T** = Tin-silver-copper (95.5/4/0.5) over silver-palladium-platinum-glass frit.

**Testing:** Z = COTS

**H** = Screening per Coilcraft CP-SA-10001

2. Inductance measured at 250 MHz using a Coilcraft SMD-A test fixture and Coilcraft-provided correlation pieces with an Agilent/HP 4286A impedance analyzer or equivalent.

3. Q measured using an Agilent/HP 4291A with an Agilent/HP 16197A test fixture or equivalents.

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

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

6. Electrical specifications at 25°C.

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



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

Document ST537-2 Revised 07/16/12

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