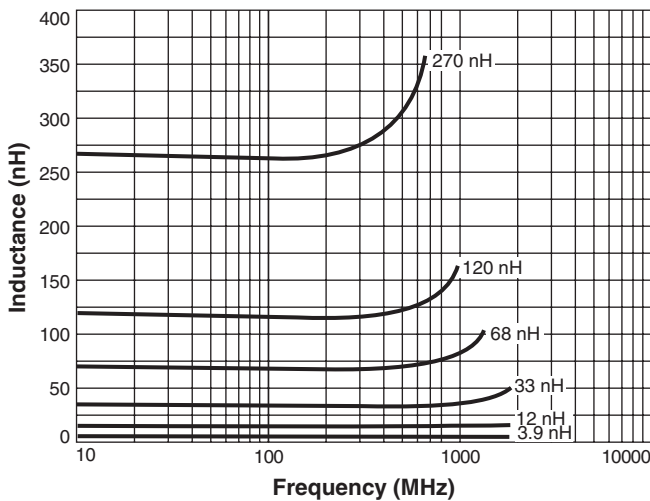


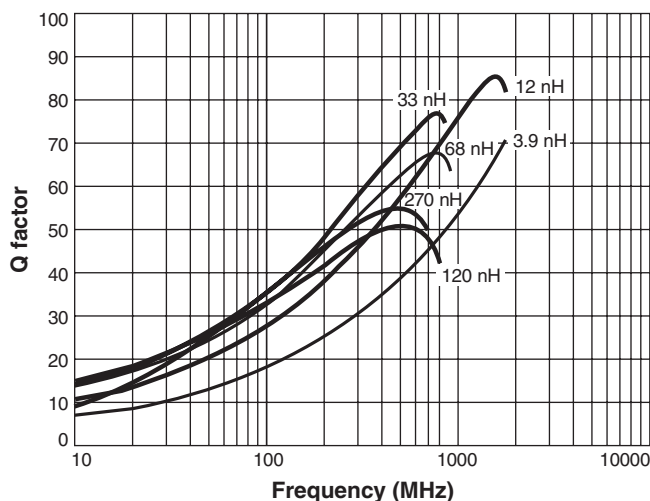
# Chip Inductors for Critical Applications ST312RAA

Small size, exceptional Q and high SRFs make these inductors ideal for high frequency applications where size is at a premium. They also have excellent DCR and current carrying characteristics.

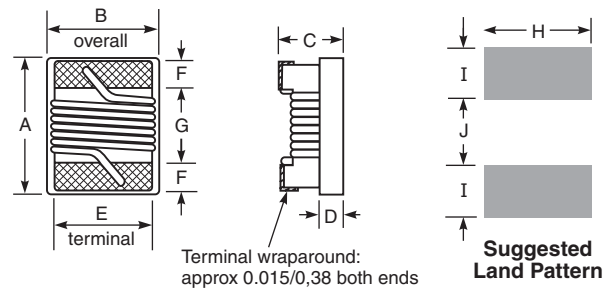
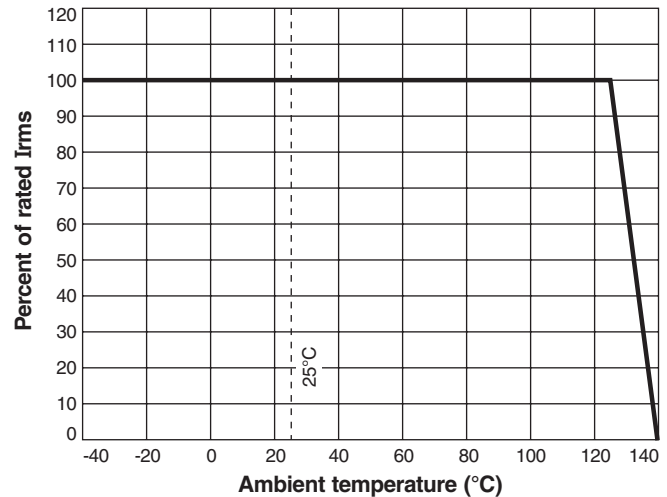
## Typical L vs Frequency



## Typical Q vs Frequency



## Current Derating



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

**Core material** Ceramic

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

**Ambient temperature**  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  with  $I_{\text{max}}$  current,  $+125^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$  with derated current

**Storage temperature** Component:  $-40^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$ .  
Packaging:  $-40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$

**Resistance to soldering heat** Max three 40 second reflows at  $+260^{\circ}\text{C}$ , parts cooled to room temperature between cycles

**Temperature Coefficient of Inductance (TCL)**  $+25$  to  $+155$  ppm/ $^{\circ}\text{C}$

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at  $<30^{\circ}\text{C}$  / 85% relative humidity)

**Packaging** 2000 per 7" reel Paper tape: 8 mm wide, 1.0 mm thick, 4 mm pocket spacing

# ST312RAA Series (0603)

Part number <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance	Q min <sup>3</sup>	900 MHz		1.7 GHz		SRF min <sup>4</sup> (GHz)	DCR max <sup>5</sup> (Ohms)	Imax (mA)	Color code
				L typ	Q typ	L typ	Q typ				
ST312RAA1N6JLZ	1.6 @ 250 MHz	5	26	1.67	49	1.65	63	>5.00	0.022	1800	Red
ST312RAA1N8JLZ	1.8 @ 250 MHz	5	21	1.83	35	1.86	50	>5.00	0.045	700	Black
ST312RAA2N2JLZ	2.2 @ 250 MHz	5	11	2.22	31	2.24	44	>5.00	0.240	100	Yellow
ST312RAA3N3_LZ	3.3 @ 250 MHz	5,2	35	3.31	75	3.38	88	>5.00	0.045	700	Blue
ST312RAA3N6_LZ	3.6 @ 250 MHz	5,2	18	3.72	53	3.71	65	>5.00	0.063	1160	Red
ST312RAA3N9_LZ	3.9 @ 250 MHz	5,2	20	3.95	49	3.96	67	>5.00	0.080	700	Brown
ST312RAA4N3_LZ	4.3 @ 250 MHz	5,2	29	4.32	50	4.33	70	>5.00	0.063	1160	Orange
ST312RAA4N7_LZ	4.7 @ 250 MHz	5,2	18	4.72	47	4.75	57	>5.00	0.116	700	Violet
ST312RAA5N1_LZ	5.1 @ 250 MHz	5,2	20	4.93	47	4.95	56	>5.00	0.140	700	Green
ST312RAA5N6_LZ	5.6 @ 250 MHz	5,2	25	5.77	63	6.05	80	4.76	0.075	700	Black
ST312RAA6N8_LZ	6.8 @ 250 MHz	5,2	28	6.75	60	7.10	81	4.66	0.110	700	Red
ST312RAA7N5_LZ	7.5 @ 250 MHz	5,2	23	7.70	60	7.82	65	4.32	0.106	800	Brown
ST312RAA8N2_LZ	8.2 @ 250 MHz	5,2	26	8.25	82	8.37	87	3.88	0.115	700	Orange
ST312RAA8N7_LZ	8.7 @ 250 MHz	5,2	27	8.86	62	9.32	58	3.68	0.109	700	Yellow
ST312RAA9N5_LZ	9.5 @ 250 MHz	5,2	22	9.70	59	9.92	61	4.10	0.135	700	Blue
ST312RAA10N_LZ	10 @ 250 MHz	5,2	28	10.0	66	10.6	83	3.86	0.130	700	Orange
ST312RAA11N_LZ	11 @ 250 MHz	5,2	26	11.0	53	11.5	56	3.64	0.130	700	Gray
ST312RAA12N_LZ	12 @ 250 MHz	5,2	29	12.3	72	13.5	83	3.22	0.130	700	Yellow
ST312RAA15N_LZ	15 @ 250 MHz	5,2	28	15.4	64	16.8	89	3.02	0.170	700	Green
ST312RAA16N_LZ	16 @ 250 MHz	5,2	29	16.2	55	17.3	52	3.04	0.170	700	White
ST312RAA18N_LZ	18 @ 250 MHz	5,2	29	18.7	70	21.4	69	2.68	0.170	700	Blue
ST312RAA22N_LZ	22 @ 250 MHz	5,2	31	22.8	73	26.1	71	2.38	0.190	700	Violet
ST312RAA23N_LZ	23 @ 250 MHz	5,2	39	24.1	71	28.0	67	2.38	0.190	700	Orange
ST312RAA24N_LZ	24 @ 250 MHz	5,2	36	24.5	45	28.7	39	2.38	0.190	700	Black
ST312RAA27N_LZ	27 @ 250 MHz	5,2	32	29.2	74	34.6	65	2.38	0.220	600	Gray
ST312RAA30N_LZ	30 @ 250 MHz	5,2	32	31.4	47	39.9	28	2.24	0.220	600	Brown
ST312RAA33N_LZ	33 @ 250 MHz	5,2	33	36.0	67	49.5	42	1.90	0.220	600	White
ST312RAA36N_LZ	36 @ 250 MHz	5,2	32	39.4	47	52.7	24	1.96	0.250	600	Red
ST312RAA39N_LZ	39 @ 250 MHz	5,2	36	42.7	60	60.2	40	1.74	0.250	600	Black
ST312RAA43N_LZ	43 @ 250 MHz	5,2	28	47.0	44	64.9	21	1.58	0.280	600	Orange
ST312RAA47N_LZ	47 @ 200 MHz	5,2	35	52.2	62	77.2	35	1.56	0.280	600	Brown
ST312RAA51N_LZ	51 @ 200 MHz	5,2	38	55.5	69	82.2	34	1.56	0.270	600	Blue
ST312RAA56N_LZ	56 @ 200 MHz	5,2	37	62.5	56	97.0	26	1.48	0.310	600	Red
ST312RAA68N_LZ	68 @ 200 MHz	5,2	35	80.5	54	168	21	1.38	0.340	600	Orange
ST312RAA72N_LZ	72 @ 200 MHz	5,2	35	82.0	53	135	20	1.36	0.490	400	Yellow
ST312RAA82N_LZ	82 @ 150 MHz	5,2	29	96.2	54	177	21	1.30	0.540	400	Green
ST312RAAR10_LZ	100 @ 150 MHz	5,2	28	124	49	—	—	1.14	0.580	400	Blue
ST312RAAR11_LZ	110 @ 150 MHz	5,2	30	138	43	—	—	1.08	0.610	300	Violet
ST312RAAR12_LZ	120 @ 150 MHz	5,2	28	166	39	—	—	1.02	0.650	300	Gray
ST312RAAR15_LZ	150 @ 150 MHz	5,2	28	250	25	—	—	0.90	0.915	280	White
ST312RAAR18_LZ	180 @ 100 MHz	5,2	25	305	22	—	—	0.82	1.25	240	Black
ST312RAAR20_LZ	200 @ 100 MHz	5,2	25	—	—	—	—	0.80	1.98	200	Green
ST312RAAR21_LZ	210 @ 100 MHz	5,2	26	—	—	—	—	0.78	2.06	200	Gray
ST312RAAR22_LZ	220 @ 100 MHz	5,2	26	—	—	—	—	0.76	2.10	200	Brown
ST312RAAR25_LZ	250 @ 100 MHz	5,2	24	—	—	—	—	0.74	3.55	120	Violet
ST312RAAR27_LZ	270 @ 100 MHz	5,2	26	—	—	—	—	0.70	2.30	170	Red
ST312RAAR33_LZ	330 @ 100 MHz	5,2	26	—	—	—	—	0.62	3.89	100	Blue
ST312RAAR39_LZ	390 @ 100 MHz	5,2	27	—	—	—	—	0.58	4.35	100	Yellow

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

ST312RAAR39J LZ

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

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

Special order: T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).

**Testing:** Z = COTS

H = Screening per Coilcraft CP-SA-10001

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

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

4. SRF measured using an Agilent/HP 8753ES network analyzer or equivalent and a Coilcraft SMD-D 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"