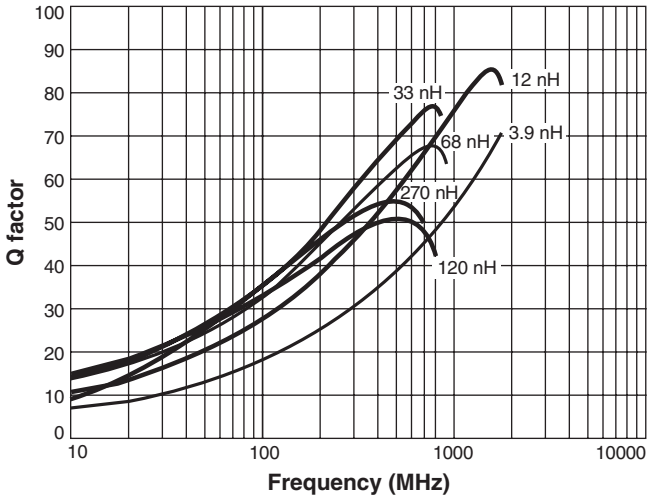
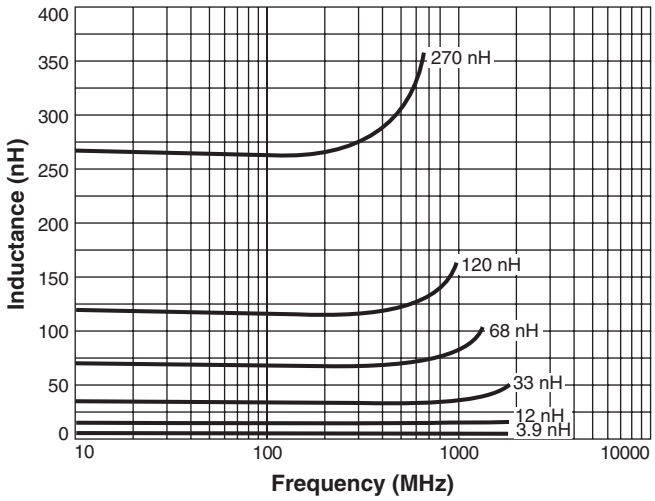
Chip Inductors – 0603CS (1608)

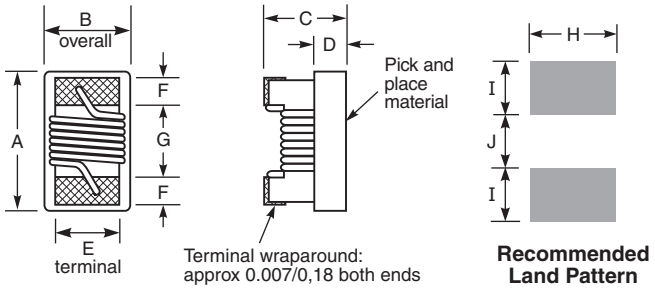
Ultra-small size, exceptional Q and high SRFs make these inductors ideal for high frequency applications where size is at a premium. They also have excellent DCR and current carrying characteristics.

Typical Q vs Frequency



Typical L vs Frequency





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	inches
1,80	1,12	1,02	0,38	0,76	0,33	0,86	1,02	0,64	0,64	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

Environmental RoHS compliant, halogen free

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

Weight 3.2 – 3.7 mg

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

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

Storage temperature Component: –40°C to +140°C. Tape and reel packaging: –40°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; 10000 per 13″ reel Paper tape: 8 mm wide, 1.0 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.

S-Parameter files
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SPICE models
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This product may not be used in medical or high risk applications without prior Coilcraft approval.
Specification subject to change without notice.
Please check web site for latest information.

Coilcraft
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0603CS Series (1608)

Designer's Kit C324 contains 10 each of all 5% values
Designer's Kit C324-2 contains 10 each of all 2% values

RoHS/ REACH COMPLIANT

Halogen Free

AEC Q200 +125°C

Part number[1]	Inductance[2] (nH)	Percent tolerance[3]	Q min[4]	900 MHz L typ	900 MHz Q typ	1.7 GHz L typ	1.7 GHz Q typ	SRF min[5] (GHz)	DCR max[6] (Ohms)	Irms[7] (mA)	Color dot[8]
0603CS-1N6XJR_	1.6 @ 250 MHz	**5**	24	1.67	49	1.65	63	12.5	0.030	700	Red
0603CS-1N8XJR_	1.8 @ 250 MHz	**5**	16	1.83	35	1.86	50	12.5	0.045	700	Black
0603CS-2N2XJR_	2.2 @ 250 MHz	**5**	13	2.22	31	2.24	44	12.5	0.250	100	Yellow
0603CS-3N3X_R_	3.3 @ 250 MHz	**5**,3,**2**	35	3.31	75	3.38	88	5.90	0.045	700	Blue
0603CS-3N6X_R_	3.6 @ 250 MHz	**5**,3,**2**	22	3.72	53	3.71	65	5.90	0.063	700	Red
0603CS-3N9X_R_	3.9 @ 250 MHz	**5**,3,**2**	22	3.95	49	3.96	67	6.90	0.080	700	Brown
0603CS-4N3X_R_	4.3 @ 250 MHz	**5**,3,**2**	22	4.32	50	4.33	70	5.90	0.063	700	Orange
0603CS-4N7X_R_	4.7 @ 250 MHz	**5**,3,**2**	20	4.72	47	4.75	57	5.80	0.116	700	Violet
0603CS-5N1X_R_	5.1 @ 250 MHz	**5**,3,**2**	20	4.93	47	4.95	56	5.70	0.140	700	Green
0603CS-5N6X_R_	5.6 @ 250 MHz	**5**,3,**2**	26	5.77	63	6.05	80	4.76	0.075	700	Black
0603CS-6N8X_R_	6.8 @ 250 MHz	**5**,3,**2**	27	6.75	60	7.10	81	5.80	0.110	700	Red
0603CS-7N5X_R_	7.5 @ 250 MHz	**5**,3,**2**	28	7.70	60	7.82	65	4.80	0.106	700	Brown
0603CS-8N2X_R_	8.2 @ 250 MHz	**5**,3,**2**	30	8.25	82	8.37	87	4.20	0.115	700	Orange
0603CS-8N7X_R_	8.7 @ 250 MHz	**5**,3,**2**	28	8.86	62	9.32	58	4.60	0.109	700	Yellow
0603CS-9N5X_R_	9.5 @ 250 MHz	**5**,3,**2**	28	9.7	59	9.92	61	5.40	0.135	700	Blue
0603CS-10NX_R_	10 @ 250 MHz	**5**,3,**2**	31	10.0	66	10.6	83	4.80	0.130	700	Orange
0603CS-11NX_R_	11 @ 250 MHz	**5**,3,**2**	30	11.0	53	11.5	56	4.00	0.130	700	Gray
0603CS-12NX_R_	12 @ 250 MHz	**5**,3,**2**	35	12.3	72	13.5	83	4.00	0.130	700	Yellow
0603CS-15NX_R_	15 @ 250 MHz	**5**,3,**2**	35	15.4	64	16.8	89	4.00	0.170	700	Green
0603CS-16NX_R_	16 @ 250 MHz	**5**,3,**2**	34	16.2	55	17.3	52	3.30	0.170	700	White
0603CS-18NX_R_	18 @ 250 MHz	**5**,3,**2**	35	18.7	70	21.4	69	3.10	0.170	700	Blue
0603CS-22NX_R_	22 @ 250 MHz	**5**,3,**2**	38	22.8	73	26.1	71	3.00	0.190	700	Violet
0603CS-23NX_R_	23 @ 250 MHz	**5**,3,**2**	38	24.1	71	28.0	67	2.85	0.190	700	Orange
0603CS-24NX_R_	24 @ 250 MHz	**5**,3,**2**	36	24.5	45	28.7	39	2.65	0.190	700	Black
0603CS-27NX_R_	27 @ 250 MHz	**5**,3,**2**	40	29.2	74	34.6	65	2.80	0.220	600	Gray
0603CS-30NX_R_	30 @ 250 MHz	**5**,3,**2**	37	31.4	47	39.9	28	2.25	0.220	600	Brown
0603CS-33NX_R_	33 @ 250 MHz	**5**,3,**2**	40	36.0	67	49.5	42	2.30	0.220	600	White
0603CS-36NX_R_	36 @ 250 MHz	**5**,3,**2**	37	39.4	47	52.7	24	2.08	0.250	600	Red
0603CS-39NX_R_	39 @ 250 MHz	**5**,3,**2**	40	42.7	60	60.2	40	2.20	0.250	600	Black
0603CS-43NX_R_	43 @ 250 MHz	**5**,3,**2**	38	47.0	44	64.9	21	2.00	0.280	600	Orange
0603CS-47NX_R_	47 @ 200 MHz	**5**,3,**2**	38	52.2	62	77.2	35	2.00	0.280	600	Brown
0603CS-51NX_R_	51 @ 200 MHz	**5**,3,**2**	35	55.5	69	82.2	34	1.90	0.270	600	Blue
0603CS-56NX_R_	56 @ 200 MHz	**5**,3,**2**	38	62.5	56	97.0	26	1.90	0.310	600	Red
0603CS-68NX_R_	68 @ 200 MHz	**5**,3,**2**	37	80.5	54	168	21	1.70	0.340	600	Orange
0603CS-72NX_R_	72 @ 150 MHz	**5**,3,**2**	34	82.0	53	135	20	1.70	0.490	400	Yellow
0603CS-82NX_R_	82 @ 150 MHz	**5**,3,**2**	34	96.2	54	177	21	1.70	0.540	400	Green
0603CS-R10X_R_	100 @ 150 MHz	**5**,3,**2**	34	124	49	—	—	1.40	0.580	400	Blue
0603CS-R11X_R_	110 @ 150 MHz	**5**,3,**2**	32	138	43	—	—	1.35	0.610	300	Violet
0603CS-R12X_R_	120 @ 150 MHz	**5**,3,**2**	32	166	39	—	—	1.30	0.650	300	Gray
0603CS-R15X_R_	150 @ 150 MHz	**5**,3,**2**	28	250	25	—	—	0.990	0.920	280	White
0603CS-R18X_R_	180 @ 100 MHz	**5**,3,**2**	25	305	22	—	—	0.990	1.25	240	Black
0603CS-R20X_R_	200 @ 100 MHz	**5**,3,**2**	25	—	—	—	—	0.900	1.98	200	Green
0603CS-R21X_R_	210 @ 100 MHz	**5**,3,**2**	27	—	—	—	—	0.895	2.06	200	Gray
0603CS-R22X_R_	220 @ 100 MHz	**5**,3,**2**	25	—	—	—	—	0.900	2.10	200	Brown
0603CS-R25X_R_	250 @ 100 MHz	**5**,3,**2**	25	—	—	—	—	0.822	3.55	120	Violet
0603CS-R27X_R_	270 @ 100 MHz	**5**,3,**2**	26	—	—	—	—	0.830	2.16	170	Red
0603CS-R33X_R_	330 @ 100 MHz	**5**,3,**2**	25	—	—	—	—	0.900	3.89	100	Blue
0603CS-R39X_R_	390 @ 100 MHz	**5**,3,**2**	25	—	—	—	—	0.780	4.35	100	Yellow

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

0603CS-R39XJRW

Tolerance: **G** = 2% **H** = 3% **J** = 5%
(Table shows stock tolerances in bold.)

Termination: **R** = RoHS compliant matte tin over nickel over silver-platinum-glass frit.
E = Halogen free component. RoHS compliant silver-palladium-platinum-glass frit. terminations.
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).

Packaging: **W** = 7″ machine-ready reel. EIA-481 punched paper tape (2000 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).
Y = 13″ machine-ready reel. EIA-481 punched paper tape. Factory order only, not stocked (10000 parts per full reel).
U = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from U to W.

2. Inductance measured using a Coilcraft SMD-A fixture in an Agilent/ HP 4286 impedance analyzer with Coilcraft-provided correlation pieces.
3. Tolerances in bold are stocked for immediate shipment.
4. Q measured at the same frequency as inductance using an Agilent/ HP 4291A with an Agilent/HP 16193 test fixture.
5. SRF measured using an Agilent/HP 8720D network analyzer and a Coilcraft SMD-D test fixture.
6. DCR measured on a Cambridge Technology micro-ohmmeter and a Coilcraft CCF858 test fixture.
7. Current that causes a 15°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.
8. Each part is marked with a single dot. The color dots are not unique identifiers and correspond to multiple inductance values.
9. Electrical specifications at 25°C.

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

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