

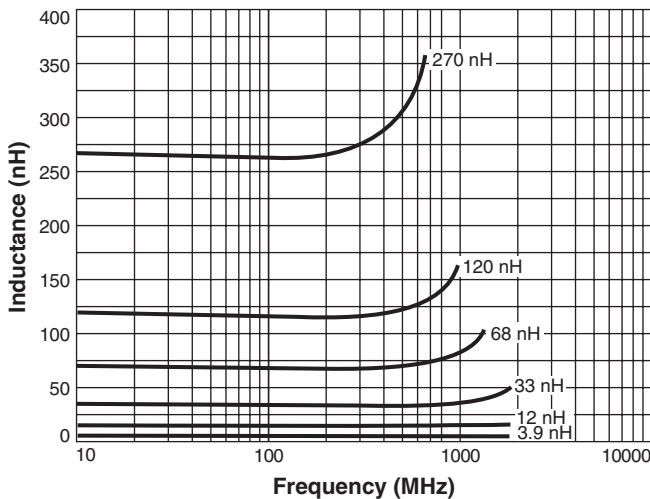
**PRELIMINARY**

# Chip Inductors - M0603CS Series (1608)

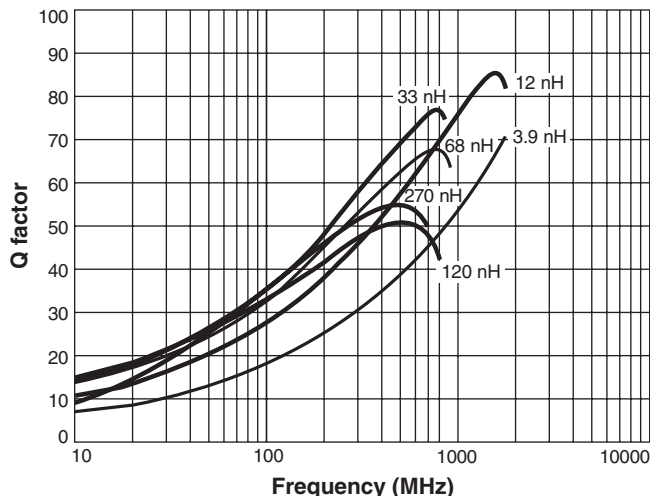
Small size, exceptional Q and high SRFs make these inductors ideal for high frequency applications where size is at a premium. They also have excellent DCR and current carrying characteristics.

This robust version of Coilcraft's standard 0603CS series features a high temperature encapsulant that allows operation in ambient temperatures up to 155°C and a leach-resistant base metalization with 63/37 tin-lead terminations that ensures the best possible board adhesion.

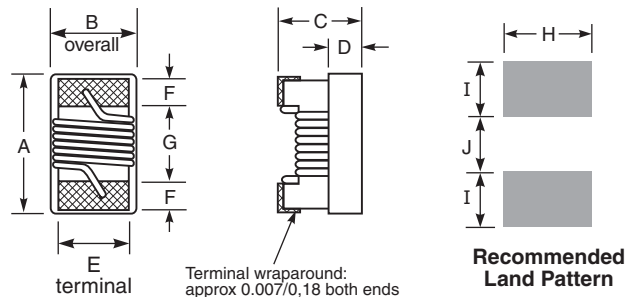
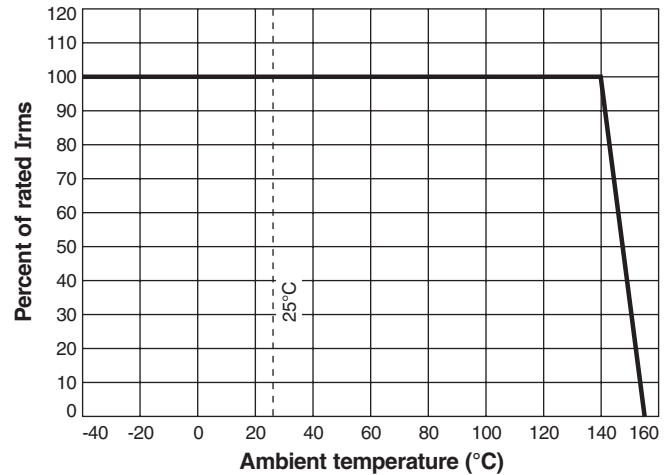
## Typical L vs Frequency



## Typical Q vs Frequency



## Irms 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** Tin-lead (63/37) over silver-palladium-platinum-glass frit

**Ambient temperature** -55°C to +140°C with I<sub>rms</sub> current, +140°C to +155°C with derated current

**Storage temperature** Component: -55°C to +155°C.  
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)

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



These parts are preproduction products for electrical evaluation only.  
Specification subject to change without notice.

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**PRELIMINARY****M0603CS Series (1608)**

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> (MHz)	DCR max <sup>5</sup> (Ohms)	Irms <sup>6</sup> (mA)	Color code
				L typ	Q typ	L typ	Q typ				
M0603CS-1N6X_	1.6 @ 250 MHz	5	24	1.67	49	1.65	63	12500	0.030	700	Red
M0603CS-1N8X_	1.8 @ 250 MHz	5	16	1.83	35	1.86	50	12500	0.045	700	Black
M0603CS-2N2X_	2.2 @ 250 MHz	5	13	2.22	31	2.24	44	12500	0.250	100	Yellow
M0603CS-3N3X_	3.3 @ 250 MHz	5,2	35	3.31	75	3.38	88	5900	0.045	700	Blue
M0603CS-3N6X_	3.6 @ 250 MHz	5,2	22	3.72	53	3.71	65	5900	0.063	700	Red
M0603CS-3N9X_	3.9 @ 250 MHz	5,2	22	3.95	49	3.96	67	6900	0.080	700	Brown
M0603CS-4N3X_	4.3 @ 250 MHz	5,2	22	4.32	50	4.33	70	5900	0.063	700	Orange
M0603CS-4N7X_	4.7 @ 250 MHz	5,2	20	4.72	47	4.75	57	5800	0.116	700	Violet
M0603CS-5N1X_	5.1 @ 250 MHz	5,2	20	4.93	47	4.95	56	5700	0.140	700	Green
M0603CS-5N6X_	5.6 @ 250 MHz	5,2	26	5.77	63	6.05	80	4760	0.075	700	Black
M0603CS-6N8X_	6.8 @ 250 MHz	5,2	27	6.75	60	7.10	81	5800	0.110	700	Red
M0603CS-7N5X_	7.5 @ 250 MHz	5,2	28	7.70	60	7.82	65	4800	0.106	700	Brown
M0603CS-8N2X_	8.2 @ 250 MHz	5,2	30	8.25	82	8.37	87	4200	0.115	700	Orange
M0603CS-8N7X_	8.7 @ 250 MHz	5,2	28	8.86	62	9.32	58	4600	0.109	700	Yellow
M0603CS-9N5X_	9.5 @ 250 MHz	5,2	28	9.7	59	9.92	61	5400	0.135	700	Blue
M0603CS-10NX_	10 @ 250 MHz	5,2	31	10.0	66	10.6	83	4800	0.130	700	Orange
M0603CS-11NX_	11 @ 250 MHz	5,2	30	11.0	53	11.5	56	4000	0.130	700	Gray
M0603CS-12NX_	12 @ 250 MHz	5,2	35	12.3	72	13.5	83	4000	0.130	700	Yellow
M0603CS-15NX_	15 @ 250 MHz	5,2	35	15.4	64	16.8	89	4000	0.170	700	Green
M0603CS-16NX_	16 @ 250 MHz	5,2	34	16.2	55	17.3	52	3300	0.170	700	White
M0603CS-18NX_	18 @ 250 MHz	5,2	35	18.7	70	21.4	69	3100	0.170	700	Blue
M0603CS-22NX_	22 @ 250 MHz	5,2	38	22.8	73	26.1	71	3000	0.190	700	Violet
M0603CS-23NX_	23 @ 250 MHz	5,2	38	24.1	71	28.0	67	2850	0.190	700	Orange
M0603CS-24NX_	24 @ 250 MHz	5,2	36	24.5	45	28.7	39	2650	0.190	700	Black
M0603CS-27NX_	27 @ 250 MHz	5,2	40	29.2	74	34.6	65	2800	0.220	600	Gray
M0603CS-30NX_	30 @ 250 MHz	5,2	37	31.4	47	39.9	28	2250	0.220	600	Brown
M0603CS-33NX_	33 @ 250 MHz	5,2	40	36.0	67	49.5	42	2300	0.220	600	White
M0603CS-36NX_	36 @ 250 MHz	5,2	37	39.4	47	52.7	24	2080	0.250	600	Red
M0603CS-39NX_	39 @ 250 MHz	5,2	40	42.7	60	60.2	40	2200	0.250	600	Black
M0603CS-43NX_	43 @ 250 MHz	5,2	38	47.0	44	64.9	21	2000	0.280	600	Orange
M0603CS-47NX_	47 @ 200 MHz	5,2	38	52.2	62	77.2	35	2000	0.280	600	Brown
M0603CS-51NX_	51 @ 200 MHz	5,2	35	55.5	69	82.2	34	1900	0.270	600	Blue
M0603CS-56NX_	56 @ 200 MHz	5,2	38	62.5	56	97.0	26	1900	0.310	600	Red
M0603CS-68NX_	68 @ 200 MHz	5,2	37	80.5	54	168	21	1700	0.340	600	Orange
M0603CS-72NX_	72 @ 150 MHz	5,2	34	82.0	53	135	20	1700	0.490	400	Yellow
M0603CS-82NX_	82 @ 150 MHz	5,2	34	96.2	54	177	21	1700	0.540	400	Green
M0603CS-R10X_	100 @ 150 MHz	5,2	34	124	49	—	—	1400	0.580	400	Blue
M0603CS-R11X_	110 @ 150 MHz	5,2	32	138	43	—	—	1350	0.610	300	Violet
M0603CS-R12X_	120 @ 150 MHz	5,2	32	166	39	—	—	1300	0.650	300	Gray
M0603CS-R15X_	150 @ 150 MHz	5,2	28	250	25	—	—	990	0.920	280	White
M0603CS-R18X_	180 @ 100 MHz	5,2	25	305	22	—	—	990	1.25	240	Black
M0603CS-R20X_	200 @ 100 MHz	5,2	25	—	—	—	—	900	1.98	200	Green
M0603CS-R21X_	210 @ 100 MHz	5,2	27	—	—	—	—	895	2.06	200	Gray
M0603CS-R22X_	220 @ 100 MHz	5,2	25	—	—	—	—	900	2.10	200	Brown
M0603CS-R25X_	250 @ 100 MHz	5,2	25	—	—	—	—	822	3.55	120	Violet
M0603CS-R27X_	270 @ 100 MHz	5,2	24	—	—	—	—	900	2.30	170	Red
M0603CS-R33X_	330 @ 100 MHz	5,2	25	—	—	—	—	900	3.89	100	Blue
M0603CS-R39X_	390 @ 100 MHz	5,2	25	—	—	—	—	900	4.35	100	Yellow

1. When ordering, please specify **tolerance** code:

↓  
**M0603CS-R39X J**

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

- Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4286 impedance analyzer with Coilcraft-provided correlation pieces.
  - Q measured at the same frequency as inductance using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.
  - SRF measured using an Agilent/HP 8720D network analyzer and a Coilcraft SMD-D test fixture.
  - DCR measured on a Cambridge Technology micro-ohmmeter and a Coilcraft CCF858 test fixture.
  - Current that causes a 15°C temperature rise from 25°C ambient.
  - Electrical specifications at 25°C.
- Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



**Critical Products**

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