

# Ferrite Chip Inductors - 0603AF



- Higher inductance values than ceramic 0603 inductors
- Ferrite construction for high current handling
- Heavier gauge wire for low DCR
- Inductance values from 15 nH to 10  $\mu$ H

Part number <sup>1</sup>	Inductance <sup>2</sup> $\pm 5\%$ (nH)	Q typ <sup>3</sup>	Impedance typ (Ohms)		SRF typ <sup>4</sup> (MHz)	DCR max <sup>5</sup> (Ohms)	Irms <sup>6</sup> (A)	Color code <sup>7</sup>
			100 MHz	500 MHz				
0603AF-15NXJE_	15 @ 7.9 MHz	13 @ 7.9 MHz	10	42	3500	0.023	2.1	Yellow
0603AF-33NXJE_	33 @ 7.9 MHz	13 @ 7.9 MHz	19	90	2300	0.028	1.9	Red
0603AF-39NXJE_	39 @ 7.9 MHz	13 @ 7.9 MHz	23	113	2200	0.115	1.0	Green
0603AF-47NXJE_	47 @ 7.9 MHz	13 @ 7.9 MHz	42	210	2250	0.052	1.7	White
0603AF-50NXJE_	50 @ 7.9 MHz	15 @ 7.9 MHz	31	149	1830	0.052	1.7	Violet
0603AF-68NXJE_	68 @ 7.9 MHz	15 @ 7.9 MHz	39	193	1500	0.150	0.88	Gray
0603AF-72NXJE_	72 @ 7.9 MHz	15 @ 7.9 MHz	60	385	1800	0.065	1.5	Blue
0603AF-85NXJE_	85 @ 7.9 MHz	15 @ 7.9 MHz	51	256	1600	0.065	1.5	Brown
0603AF-111XJE_	110 @ 7.9 MHz	15 @ 7.9 MHz	70	350	1230	0.060	1.6	Red
0603AF-121XJE_	120 @ 7.9 MHz	15 @ 7.9 MHz	76	410	1150	0.089	1.4	Black
0603AF-151XJE_	150 @ 7.9 MHz	15 @ 7.9 MHz	89	468	1050	0.093	1.5	Yellow
0603AF-201XJE_	200 @ 7.9 MHz	15 @ 7.9 MHz	120	685	880	0.115	1.4	Green
0603AF-241XJE_	240 @ 7.9 MHz	15 @ 7.9 MHz	140	810	900	0.120	0.85	Violet
0603AF-271XJE_	270 @ 7.9 MHz	15 @ 7.9 MHz	173	1023	750	0.220	0.68	Brown
0603AF-361XJE_	360 @ 7.9 MHz	15 @ 7.9 MHz	210	1310	700	0.210	0.65	Blue
0603AF-391XJE_	390 @ 7.9 MHz	15 @ 7.9 MHz	240	1565	700	0.300	0.64	Black
0603AF-421XJE_	420 @ 7.9 MHz	11 @ 7.9 MHz	250	1925	685	0.330	0.61	Red
0603AF-471XJE_	470 @ 7.9 MHz	15 @ 7.9 MHz	306	2253	575	0.370	0.61	Orange
0603AF-561XJE_	560 @ 7.9 MHz	16 @ 7.9 MHz	371	3180	515	0.490	0.53	Blue
0603AF-601XJE_	600 @ 7.9 MHz	16 @ 7.9 MHz	372	2778	540	0.552	0.51	Blue
0603AF-681XJE_	680 @ 7.9 MHz	16 @ 7.9 MHz	420	3620	530	0.460	0.49	Orange
0603AF-821XJE_	820 @ 7.9 MHz	16 @ 7.9 MHz	507	3300	325	0.580	0.42	Green
0603AF-102XJE_	1000 @ 7.9 MHz	17 @ 7.9 MHz	663	9823	400	0.840	0.40	Black
0603AF-152XJE_	1500 @ 7.9 MHz	17 @ 7.9 MHz	944	17,830	330	1.30	0.28	Orange
0603AF-222XJE_	2200 @ 7.9 MHz	16 @ 7.9 MHz	5220	129	85	1.10	0.32	Red
0603AF-472XJE_	4700 @ 7.9 MHz	16 @ 7.9 MHz	2100	220	60	1.50	0.26	Yellow
0603AF-103XJE_	10,000 @ 2.5 MHz	12 @ 2.5 MHz	1400	150	40	4.50	0.18	Gray

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

## 0603AF-102XJEW

**Termination: E** = Halogen free component. RoHS compliant silver-palladium-platinum-glass frit terminations.

Special order:

**R** = RoHS compliant matte tin over nickel over silver-platinum-glass frit

**Q** = RoHS tin-silver-copper (95.5/4/0.5) or

**P** = non-RoHS tin-lead (63/37).

**Packaging: W** = 7" machine-ready reel. EIA-481 punched paper tape (2000 parts per full reel).

**U** = Less than full reel. In tape, but not machine ready. To have a leader and trailer added (\$25 charge), use code letter W instead.

2. Inductance measured at 0.1 Vrms, using Coilcraft SMD-A fixture in Agilent/HP 4286A impedance analyzer with Coilcraft-provided correlation pieces.

3. Q measured on Agilent/HP 4395A with Agilent/HP 16193 test fixture.

4. SRF measured using Agilent/HP 8753D network analyzer with Coilcraft SMD-D test fixture.

5. DCR measured on Cambridge Technology Micro-ohmmeter.

6. Current that causes a 15°C temperature rise from 25°C ambient. Because of their open construction, these parts will not saturate. This information is for reference only and does not represent absolute maximum ratings. [Click for temperature derating information.](#)

7. Each part is marked with a single dot. The color dots are not unique identifiers and correspond to multiple inductance values.

8. Electrical specifications at 25°C.

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



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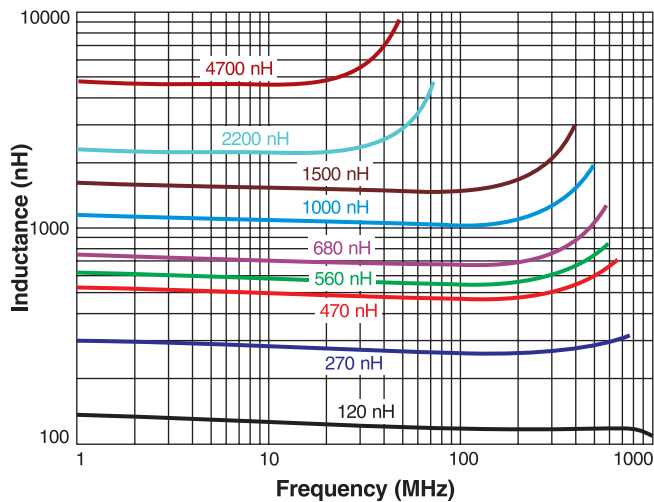
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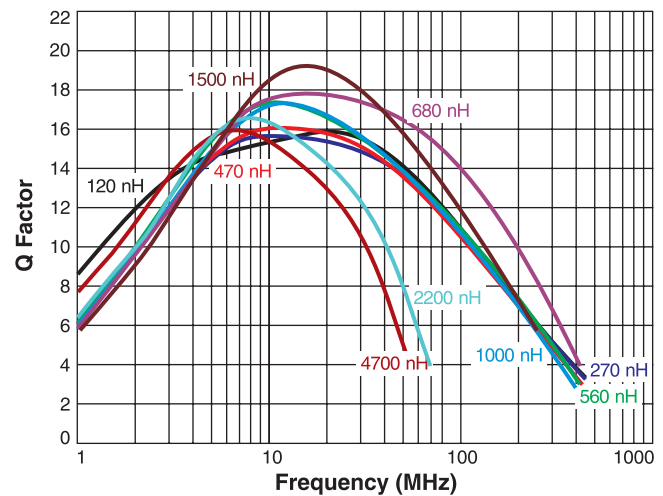


# Ferrite Chip Inductors – 0603AF Series

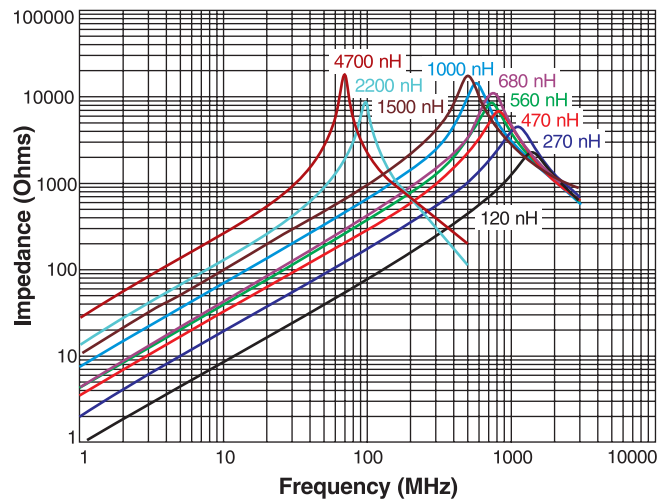
## Typical L vs Frequency



## Typical Q vs Frequency



## Typical Impedance vs Frequency



**Designer's Kit C439** contains 10 each of all values

**Core material** Ferrite

**Environmental** RoHS compliant, halogen free

**Terminations** RoHS compliant silver-palladium-platinum-glass frit. Other terminations available at additional cost

**Weight** 4.3 – 5.7 mg

**Ambient temperature** –40°C to +85°C with Irms current

**Maximum part temperature** +100°C (ambient + temp rise) [Derating](#).

**Storage temperature** Component: –40°C to +100°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)** +50 to +300 ppm/°C

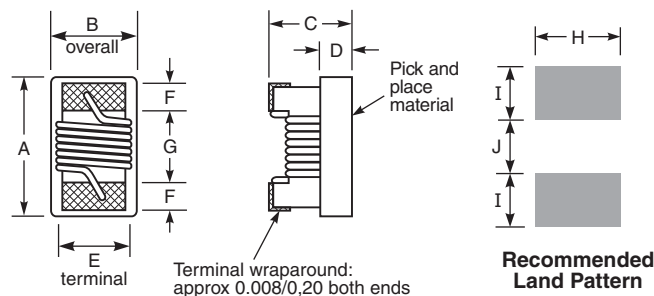
**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

One per billion hours / one billion hours, calculated per Telcordia SR-332

**Packaging** 2000 per 7" 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](#).



A	B	C	D	E	F	G	H	I	J
max	max	max	ref						
0.071	0.044	0.036	0.015	0.030	0.013	0.034	0.040	0.025	0.025
1.80	1.12	0.91	0.38	0.76	0.33	0.86	1.02	0.64	0.64

**Note:** Height dimension (C) is before optional solder application. For maximum height dimension including solder, add 0.006 in / 0.152 mm.



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## Coilcraft:

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<a href="#"><u>0603AF-241XJRU</u></a>	<a href="#"><u>0603AF-471XJRW</u></a>	<a href="#"><u>0603AF-33NXJRU</u></a>	<a href="#"><u>0603AF-271XJRW</u></a>	<a href="#"><u>0603AF-472XJRW</u></a>	<a href="#"><u>0603AF-271XJRU</u></a>
<a href="#"><u>0603AF-102XJRW</u></a>	<a href="#"><u>0603AF-821XJRU</u></a>	<a href="#"><u>0603AF-472XJRU</u></a>	<a href="#"><u>0603AF-821XJRW</u></a>	<a href="#"><u>0603AF-561XJRU</u></a>	<a href="#"><u>0603AF-103XJRW</u></a>
<a href="#"><u>0603AF-121XJRU</u></a>	<a href="#"><u>0603AF-15NXJRW</u></a>	<a href="#"><u>0603AF-471XJRU</u></a>	<a href="#"><u>0603AF-241XJRW</u></a>	<a href="#"><u>0603AF-121XJRW</u></a>	<a href="#"><u>0603AF-111XJRU</u></a>
<a href="#"><u>0603AF-15NXJRU</u></a>	<a href="#"><u>0603AF-222XJRU</u></a>	<a href="#"><u>0603AF-561XJRW</u></a>	<a href="#"><u>0603AF-111XJRW</u></a>	<a href="#"><u>0603AF-72NXJRU</u></a>	<a href="#"><u>0603AF-47NXJRW</u></a>
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