



**THE DATASHEET OF**  
**0603AF-103XJEW**



# 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-15NXJR_	15 @ 7.9 MHz	13 @ 7.9 MHz	10	42	3500	0.023	2.1	Yellow
0603AF-33NXJR_	33 @ 7.9 MHz	13 @ 7.9 MHz	19	90	2300	0.028	1.9	Red
0603AF-39NXJR_	39 @ 7.9 MHz	13 @ 7.9 MHz	23	113	2200	0.115	1.0	Green
0603AF-47NXJR_	47 @ 7.9 MHz	13 @ 7.9 MHz	42	210	2250	0.052	1.7	White
0603AF-50NXJR_	50 @ 7.9 MHz	15 @ 7.9 MHz	31	149	1830	0.052	1.7	Violet
0603AF-68NXJR_	68 @ 7.9 MHz	15 @ 7.9 MHz	39	193	1500	0.150	0.88	Gray
0603AF-72NXJR_	72 @ 7.9 MHz	15 @ 7.9 MHz	60	385	1800	0.065	1.5	Blue
0603AF-85NXJR_	85 @ 7.9 MHz	15 @ 7.9 MHz	51	256	1600	0.065	1.5	Brown
0603AF-111XJR_	110 @ 7.9 MHz	15 @ 7.9 MHz	70	350	1230	0.060	1.6	Red
0603AF-121XJR_	120 @ 7.9 MHz	15 @ 7.9 MHz	76	410	1150	0.089	1.4	Black
0603AF-151XJR_	150 @ 7.9 MHz	15 @ 7.9 MHz	89	468	1050	0.093	1.5	Yellow
0603AF-201XJR_	200 @ 7.9 MHz	15 @ 7.9 MHz	120	685	880	0.115	1.4	Green
0603AF-241XJR_	240 @ 7.9 MHz	15 @ 7.9 MHz	140	810	900	0.120	0.85	Violet
0603AF-271XJR_	270 @ 7.9 MHz	15 @ 7.9 MHz	173	1023	750	0.220	0.68	Brown
0603AF-361XJR_	360 @ 7.9 MHz	15 @ 7.9 MHz	210	1310	700	0.210	0.65	Blue
0603AF-391XJR_	390 @ 7.9 MHz	15 @ 7.9 MHz	240	1565	700	0.300	0.64	Black
0603AF-421XJR_	420 @ 7.9 MHz	11 @ 7.9 MHz	250	1925	685	0.330	0.61	Red
0603AF-471XJR_	470 @ 7.9 MHz	15 @ 7.9 MHz	306	2253	575	0.370	0.61	Orange
0603AF-561XJR_	560 @ 7.9 MHz	16 @ 7.9 MHz	371	3180	515	0.490	0.53	Blue
0603AF-601XJR_	600 @ 7.9 MHz	16 @ 7.9 MHz	372	2778	540	0.552	0.51	Blue
0603AF-681XJR_	680 @ 7.9 MHz	16 @ 7.9 MHz	420	3620	530	0.460	0.49	Orange
0603AF-821XJR_	820 @ 7.9 MHz	16 @ 7.9 MHz	507	3300	325	0.580	0.42	Green
0603AF-102XJR_	1000 @ 7.9 MHz	17 @ 7.9 MHz	663	9823	400	0.840	0.40	Black
0603AF-152XJR_	1500 @ 7.9 MHz	17 @ 7.9 MHz	944	17,830	330	1.30	0.28	Orange
0603AF-222XJR_	2200 @ 7.9 MHz	16 @ 7.9 MHz	5220	129	85	1.10	0.32	Red
0603AF-472XJR_	4700 @ 7.9 MHz	16 @ 7.9 MHz	2100	220	60	1.50	0.26	Yellow
0603AF-103XJR_	10000 @ 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-102XJRW**

**Termination:** R = RoHS matte Sn over Ni over Ag-Pt-glass frit.

**Special order:**

**Q** = RoHS Sn/Ag/Cu (95.5/4.0/0.5)

**P** = Not RoHS Sn/Pb (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 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.

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

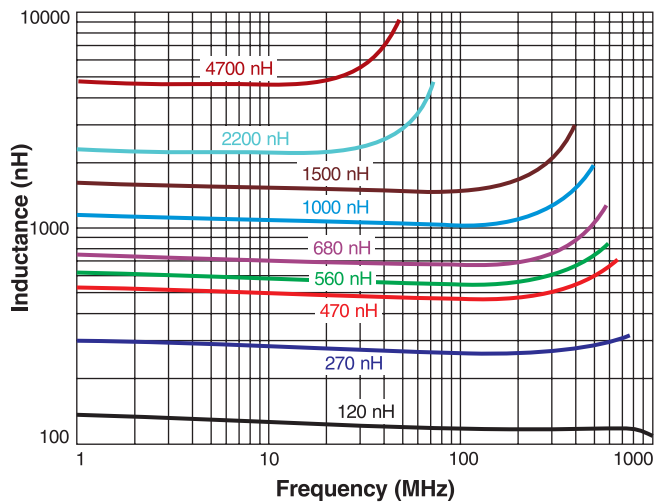
8. Electrical specifications at 25°C.

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

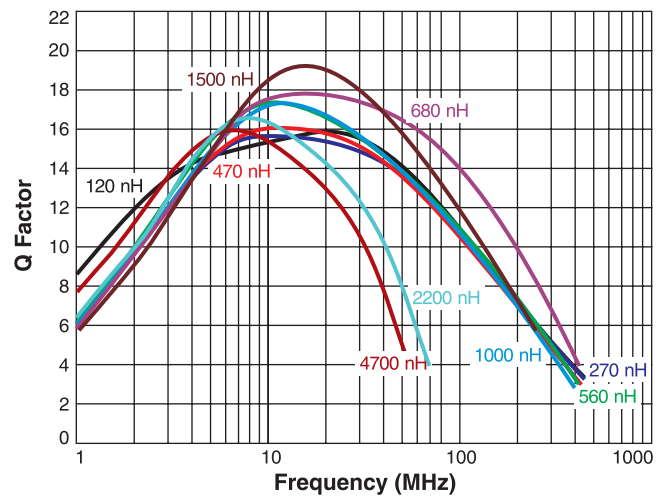


# Ferrite Chip Inductors – 0603AF Series

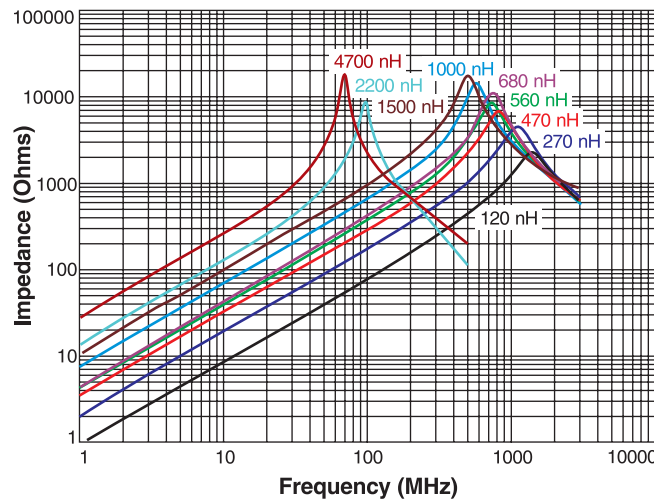
## Typical L vs Frequency



## 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 matte Sn over Ni over Ag-Pt-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)

**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

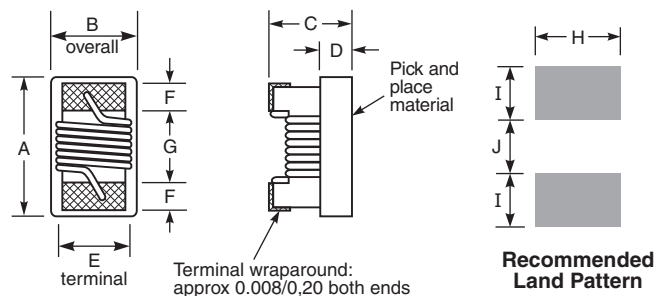
**Temperature Coefficient of Inductance (TCL)** +50 to +300 ppm/°C

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

**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](#).



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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