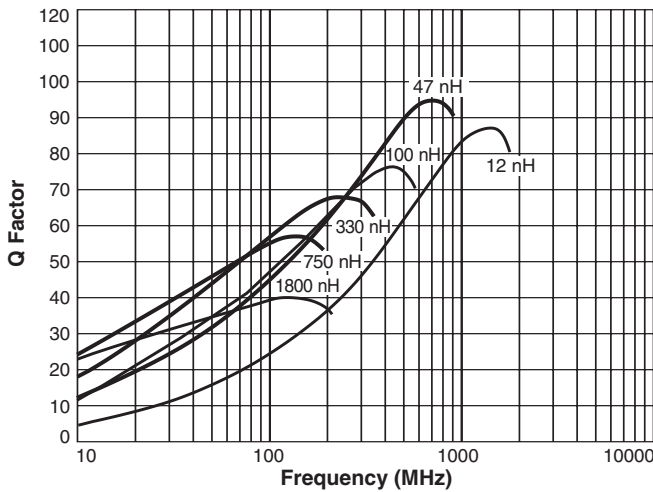


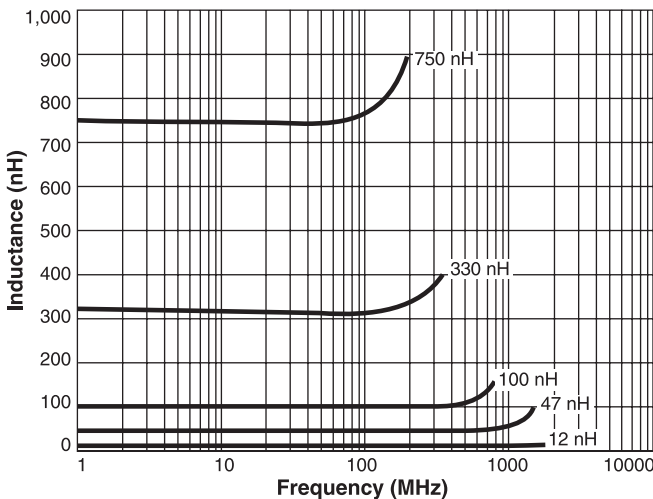
# Chip Inductors for Critical Applications ST413RAA

- High SRF and excellent Q values
- Tight tolerances, many values at 1%
- 39 inductance values from 10 nH to 8.2  $\mu$ H

## Typical Q vs Frequency



## Typical L vs Frequency



**Core material** Ceramic

**Terminations** Matte tin over nickel over silver-platinum glass frit

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

**Maximum part temperature**  $+140^{\circ}\text{C}$  (ambient + temp rise).

**Storage temperature** Component:  $-55^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$ .

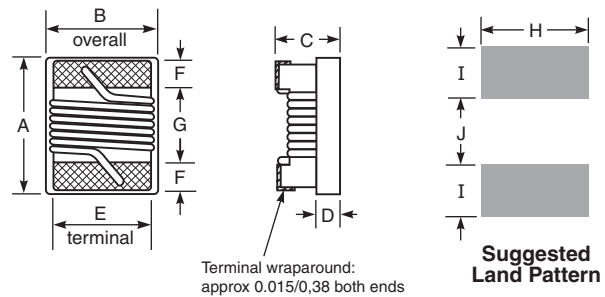
Tape and reel packaging:  $-55^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$

**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)

**Enhanced crush-resistant packaging** 2000 per 7" reel  
Plastic tape: 8 mm wide, 0.3 mm thick, 4 mm pocket spacing, 2.0 mm pocket depth



A max	B max	C max	D ref	E	F	G	H	I	J
0.115	0.110	0.080	0.020	0.080	0.020	0.060	0.100	0.040	0.050
2,92	2,79	2,03	0,51	2,03	0,51	1,52	2,54	1,02	1,27

Note: Dimensions are before optional solder application. For maximum overall dimensions including solder, add 0.0025 in / 0,064 mm to **B** and 0.006 in / 0,15 mm to **A** and **C**.



CRITICAL PRODUCTS & SERVICES

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This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.

# ST413RAA Series (1008)

Part number <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance	Q min <sup>3</sup>	SRF min <sup>4</sup> (MHz)	DCR max <sup>5</sup> (Ohms)	Imax (mA)	Color code <sup>6</sup>
ST413RAA100_RZ	10 @ 50 MHz	5,2	44 @ 500 MHz	3060	0.08	900	Black
ST413RAA120_RZ	12 @ 50 MHz	5,2	45 @ 500 MHz	2680	0.09	900	Red
ST413RAA150_RZ	15 @ 50 MHz	5,2	50 @ 500 MHz	2220	0.13	850	Orange
ST413RAA180_RZ	18 @ 50 MHz	5,2,1	50 @ 350 MHz	2200	0.11	900	Yellow
ST413RAA220_RZ	22 @ 50 MHz	5,2,1	55 @ 350 MHz	2100	0.12	900	Blue
ST413RAA270_RZ	27 @ 50 MHz	5,2	55 @ 350 MHz	1380	0.13	900	Black
ST413RAA330_RZ	33 @ 50 MHz	5,2	60 @ 350 MHz	1600	0.14	850	Orange
ST413RAA390_RZ	39 @ 50 MHz	5,2	60 @ 350 MHz	1420	0.15	850	Violet
ST413RAA470_RZ	47 @ 50 MHz	5,2,1	65 @ 350 MHz	1420	0.16	820	Red
ST413RAA560_RZ	56 @ 50 MHz	5,2,1	60 @ 350 MHz	1140	0.18	780	Yellow
ST413RAA680_RZ	68 @ 50 MHz	5,2,1	46 @ 100 MHz	1140	0.20	710	Gray
ST413RAA820_RZ	82 @ 50 MHz	5,2,1	48 @ 100 MHz	940	0.22	710	Red
ST413RAA101_RZ	100 @ 25 MHz	5,2,1	37 @ 100 MHz	900	0.56	440	Violet
ST413RAA121_RZ	120 @ 25 MHz	5,2,1	40 @ 100 MHz	840	0.63	410	White
ST413RAA151_RZ	150 @ 25 MHz	5,2,1	40 @ 100 MHz	740	0.70	400	Red
ST413RAA181_RZ	180 @ 25 MHz	5,2,1	38 @ 100 MHz	680	0.77	390	Orange
ST413RAA221_RZ	220 @ 25 MHz	5,2,1	40 @ 100 MHz	580	0.84	370	Green
ST413RAA271_RZ	270 @ 25 MHz	5,2,1	45 @ 100 MHz	540	0.91	330	White
ST413RAA331_RZ	330 @ 25 MHz	5,2,1	45 @ 100 MHz	500	1.05	330	Orange
ST413RAA391_RZ	390 @ 25 MHz	5,2,1	45 @ 100 MHz	480	1.12	310	Blue
ST413RAA471_RZ	470 @ 25 MHz	5,2,1	45 @ 100 MHz	400	1.19	280	Black
ST413RAA561_RZ	560 @ 25 MHz	5,2,1	40 @ 100 MHz	360	1.33	280	Green
ST413RAA621_RZ	620 @ 25 MHz	5,2,1	45 @ 100 MHz	360	1.40	270	Blue
ST413RAA681_RZ	680 @ 25 MHz	5,2,1	45 @ 100 MHz	345	1.47	270	Gray
ST413RAA751_RZ	750 @ 25 MHz	5,2,1	45 @ 100 MHz	335	1.54	270	Black
ST413RAA821_RZ	820 @ 25 MHz	5,2,1	45 @ 100 MHz	310	1.61	250	Brown
ST413RAA911_RZ	910 @ 25 MHz	5,2,1	35 @ 50 MHz	280	1.68	250	Red
ST413RAA102_RZ	1000 @ 25 MHz	5,2,1	34 @ 50 MHz	280	1.75	230	Yellow
ST413RAA122_RZ	1200 @ 7.9 MHz	5,2	32 @ 50 MHz	220	2.0	230	Blue
ST413RAA152_RZ	1500 @ 7.9 MHz	5,2	28 @ 50 MHz	180	2.3	220	Gray
ST413RAA182_RZ	1800 @ 7.9 MHz	5,2	28 @ 50 MHz	160	2.6	210	Brown
ST413RAA222_RZ	2200 @ 7.9 MHz	5,2	19 @ 7.9 MHz	150	2.8	190	Orange
ST413RAA272_RZ	2700 @ 7.9 MHz	5,2	20 @ 7.9 MHz	110	3.2	180	Green
ST413RAA332_RZ	3300 @ 7.9 MHz	5,2	20 @ 7.9 MHz	110	3.4	160	Violet
ST413RAA392_RZ	3900 @ 7.9 MHz	5,2	20 @ 7.9 MHz	85	3.6	160	Gray
ST413RAA472_RZ	4700 @ 7.9 MHz	5,2	13 @ 2.5 MHz	75	4.0	160	White
ST413RAA562JRZ	5600 @ 7.9 MHz	5	14 @ 2.5 MHz	20	4.0	150	Black
ST413RAA682JRZ	6800 @ 7.9 MHz	5	14 @ 2.5 MHz	40	4.9	150	Brown
ST413RAA822JRZ	8200 @ 2.5 MHz	5	14 @ 2.5 MHz	25	6.5	110	Red

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

ST413RAA102GRZ

**Tolerance:** F = 1% G = 2% J = 5%

**Termination:** R = Matte tin over nickel over silver-platinum glass frit  
 A = Gold over nickel over moly-mag  
 L = Silver-palladium-platinum glass frit.  
 P = Tin-lead (63/37) over tin over nickel over silver-platinum-glass frit.  
 Q = Tin-silver-copper (95.5/4/0.5) over tin over nickel over silver-platinum-glass frit.  
 C = Tin-lead (63/37) over gold over nickel over moly-mag  
 F = Tin-silver-copper (95.5/4/0.5) over gold over nickel over moly-mag  
 S = Tin-lead (63/37) over silver-platinum-glass frit.  
 T = Tin-silver-copper (95.5/4/0.5) over silver-platinum glass frit.

**Screening:** Z = Unscreened

- H = Group A screening per Coilcraft CP-SA-10001
- Screening performed to the document's latest revision.
  - Lot qualification (Group B) available.
  - Country of origin restrictions available; prefix options G or F.

2. Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4286A impedance analyzer or equivalent with Coilcraft-provided correlation pieces.
3. Q measured using an Agilent/HP 4291A with an Agilent/HP 16197A test fixture or equivalents.
4. SRF measured using an Agilent/HP 8753ES network analyzer or equivalent and a Coilcraft CCF1502 test fixture.
5. DCR measured on a Keithley 580 micro-ohmmeter or equivalent and a Coilcraft CCF859 test fixture.
6. Current production parts are marked with one dot. Prior production parts were marked with three dots. Part marking does not indicate polarity
7. Electrical specifications at 25°C.
- Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.