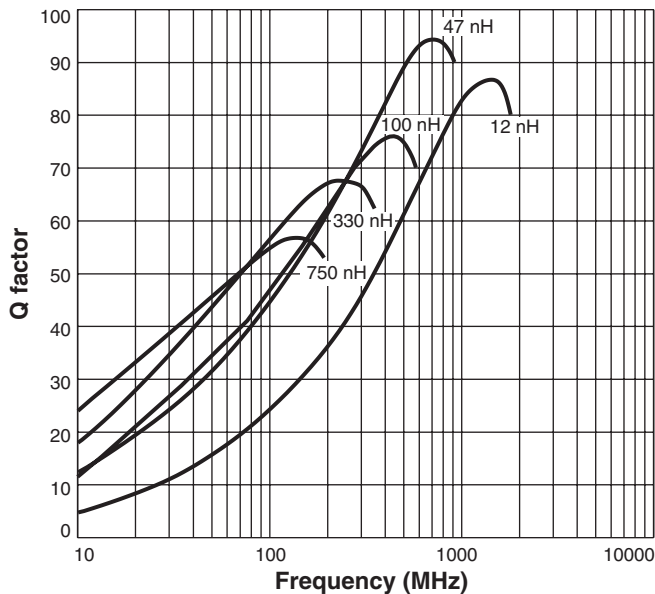


# Chip Inductors for Critical Applications ST413RAE

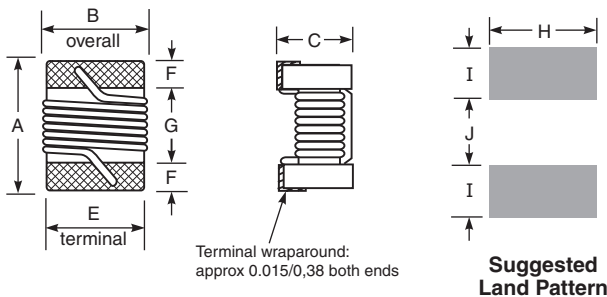
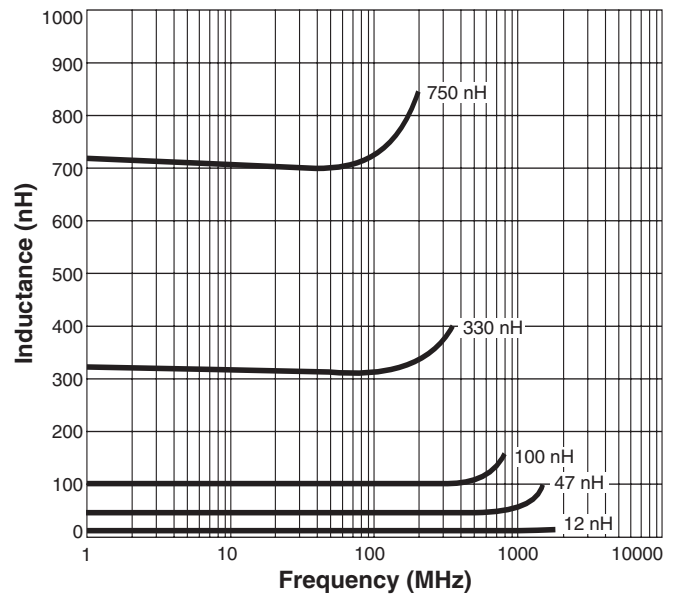
These chip inductors have been designed especially for high frequency applications. Their ceramic construction delivers the highest possible SRF and excellent Q values.

The non-magnetic coilform also ensures the utmost in thermal stability, predictability and batch consistency.

## Typical Q vs Frequency



## Typical L vs Frequency



A max	B max	C max	E	F	G	H	I	J
0.105	0.095	0.070	0.080	0.020	0.060	0.100	0.040	0.050
2,67	2,41	1,78	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.

**Core material** Ceramic

**Terminations** Matte tin over nickel over silver-platinum glass frit. Other terminations available at additional cost.

**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)

**Packaging** 2000 per 7" reel Plastic tape: 8 mm wide, 0.23 mm thick, 4 mm pocket spacing, 1.8 mm pocket depth

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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.

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MEASUREMENTS  
SEE WEB SITE **TEST FIXTURES**

# ST413RAE 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)
ST413RAE100JRZ	10 @ 50 MHz	5	50 @ 500 MHz	3000	0.08	1000
ST413RAE120JRZ	12 @ 50 MHz	5	50 @ 500 MHz	3000	0.09	1000
ST413RAE150JRZ	15 @ 50 MHz	5	50 @ 500 MHz	3000	0.14	1000
ST413RAE180JRZ	18 @ 50 MHz	5	50 @ 350 MHz	2500	0.11	1000
ST413RAE220JRZ	22 @ 50 MHz	5,2,1	55 @ 350 MHz	2000	0.12	1000
ST413RAE270_RZ	27 @ 50 MHz	5,2,1	55 @ 350 MHz	1500	0.13	1000
ST413RAE330_RZ	33 @ 50 MHz	5,2,1	60 @ 350 MHz	1500	0.14	1000
ST413RAE390_RZ	39 @ 50 MHz	5,2,1	60 @ 350 MHz	1500	0.15	1000
ST413RAE470_RZ	47 @ 50 MHz	5,2,1	65 @ 350 MHz	1350	0.16	1000
ST413RAE560_RZ	56 @ 50 MHz	5,2,1	65 @ 350 MHz	1150	0.18	1000
ST413RAE680_RZ	68 @ 50 MHz	5,2,1	65 @ 350 MHz	1050	0.20	1000
ST413RAE820_RZ	82 @ 50 MHz	5,2,1	60 @ 350 MHz	950	0.22	1000
ST413RAE101_RZ	100 @ 25 MHz	5,2,1	60 @ 350 MHz	950	0.56	650
ST413RAE121_RZ	120 @ 25 MHz	5,2,1	60 @ 350 MHz	900	0.63	650
ST413RAE151_RZ	150 @ 25 MHz	5,2,1	45 @ 100 MHz	850	0.70	580
ST413RAE181_RZ	180 @ 25 MHz	5,2,1	45 @ 100 MHz	700	0.77	620
ST413RAE221_RZ	220 @ 25 MHz	5,2,1	45 @ 100 MHz	600	0.84	500
ST413RAE271_RZ	270 @ 25 MHz	5,2,1	45 @ 100 MHz	550	0.91	500
ST413RAE331_RZ	330 @ 25 MHz	5,2,1	45 @ 100 MHz	500	1.05	450
ST413RAE391_RZ	390 @ 25 MHz	5,2,1	45 @ 100 MHz	465	1.12	470
ST413RAE471_RZ	470 @ 25 MHz	5,2,1	45 @ 100 MHz	425	1.19	470
ST413RAE561_RZ	560 @ 25 MHz	5,2,1	45 @ 100 MHz	415	1.33	400
ST413RAE621_RZ	620 @ 25 MHz	5,2,1	45 @ 100 MHz	375	1.40	300
ST413RAE681_RZ	680 @ 25 MHz	5,2,1	45 @ 100 MHz	340	1.47	400
ST413RAE751_RZ	750 @ 25 MHz	5,2,1	45 @ 100 MHz	330	1.54	360
ST413RAE821_RZ	820 @ 25 MHz	5,2,1	45 @ 100 MHz	325	1.61	400
ST413RAE911_RZ	910 @ 25 MHz	5,2,1	35 @ 50 MHz	305	1.68	380
ST413RAE102_RZ	1000 @ 25 MHz	5,2,1	35 @ 50 MHz	290	1.75	370

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

ST413RAE102JRZ

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

**Termination:** R = Matte tin over nickel over silver-platinum glass frit.

**Special order:**

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.

L = Silver-palladium-platinum glass frit.

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 = Coilcraft CP-SA-10001 Group A

- Screening performed to the document's latest revision.
- Lot qualification (Group B) available.
- Custom testing also available.

2. Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4286A impedance analyzer with Coilcraft-provided correlation pieces.

3. Q measured using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.

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

5. DCR measured on a Cambridge Technology micro-ohmmeter and a Coilcraft CCF840 test fixture.

6. Electrical specifications at 25°C.

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



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