

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.

| Part number ¹ | Inductance ² (nH) | Percent tolerance | Q min ³ | SRF min ⁴ (MHz) | DCR max ⁵ (Ohms) | Imax (mA) |
|--------------------------|---------------------------------|----------------------|--------------------|-------------------------------|--------------------------------|--------------|
| ST413RAE100JLZ | 10 @ 50 MHz | 5 | 50 @ 500 MHz | 3000 | 0.08 | 1000 |
| ST413RAE120JLZ | 12 @ 50 MHz | 5 | 50 @ 500 MHz | 3000 | 0.09 | 1000 |
| ST413RAE150JLZ | 15 @ 50 MHz | 5 | 50 @ 500 MHz | 3000 | 0.14 | 1000 |
| ST413RAE180JLZ | 18 @ 50 MHz | 5 | 50 @ 350 MHz | 2500 | 0.11 | 1000 |
| ST413RAE220JLZ | 22 @ 50 MHz | 5,2,1 | 55 @ 350 MHz | 2000 | 0.12 | 1000 |
| ST413RAE270_LZ | 27 @ 50 MHz | 5,2,1 | 55 @ 350 MHz | 1500 | 0.13 | 1000 |
| ST413RAE330_LZ | 33 @ 50 MHz | 5,2,1 | 60 @ 350 MHz | 1500 | 0.14 | 1000 |
| ST413RAE390_LZ | 39 @ 50 MHz | 5,2,1 | 60 @ 350 MHz | 1500 | 0.15 | 1000 |
| ST413RAE470_LZ | 47 @ 50 MHz | 5,2,1 | 65 @ 350 MHz | 1350 | 0.16 | 1000 |
| ST413RAE560_LZ | 56 @ 50 MHz | 5,2,1 | 65 @ 350 MHz | 1150 | 0.18 | 1000 |
| ST413RAE680_LZ | 68 @ 50 MHz | 5,2,1 | 65 @ 350 MHz | 1050 | 0.20 | 1000 |
| ST413RAE820_LZ | 82 @ 50 MHz | 5,2,1 | 60 @ 350 MHz | 950 | 0.22 | 1000 |
| ST413RAE101_LZ | 100 @ 25 MHz | 5,2,1 | 60 @ 350 MHz | 950 | 0.56 | 650 |
| ST413RAE121_LZ | 120 @ 25 MHz | 5,2,1 | 60 @ 350 MHz | 900 | 0.63 | 650 |
| ST413RAE151_LZ | 150 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 850 | 0.70 | 580 |
| ST413RAE181_LZ | 180 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 700 | 0.77 | 620 |
| ST413RAE221_LZ | 220 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 600 | 0.84 | 500 |
| ST413RAE271_LZ | 270 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 550 | 0.91 | 500 |
| ST413RAE331_LZ | 330 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 500 | 1.05 | 450 |
| ST413RAE391_LZ | 390 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 465 | 1.12 | 470 |
| ST413RAE471_LZ | 470 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 425 | 1.19 | 470 |
| ST413RAE561_LZ | 560 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 415 | 1.33 | 400 |
| ST413RAE621_LZ | 620 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 375 | 1.40 | 300 |
| ST413RAE681_LZ | 680 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 340 | 1.47 | 400 |
| ST413RAE751_LZ | 750 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 330 | 1.54 | 360 |
| ST413RAE821_LZ | 820 @ 25 MHz | 5,2,1 | 45 @ 100 MHz | 325 | 1.61 | 400 |
| ST413RAE911_LZ | 910 @ 25 MHz | 5,2,1 | 35 @ 50 MHz | 305 | 1.68 | 380 |
| ST413RAE102_LZ | 1000 @ 25 MHz | 5,2,1 | 35 @ 50 MHz | 290 | 1.75 | 370 |

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

ST413RAE102JLZ

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

Termination: L = Silver-palladium-platinum glass frit.

Special order:

S = Tin-lead (63/37) over silver-platinum-glass frit.

T = Tin-silver-copper (95.5/4/0.5) over silver-platinum-glass frit.

Testing: Z = Unscreened

H = Group A screening per Coilcraft CP-SA-10001

All screening performed to the document's latest revision
Custom screening also available

- Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4286A impedance analyzer with Coilcraft-provided correlation pieces.
- Q measured using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.
- SRF measured using an Agilent/HP 8753D network analyzer and a Coilcraft SMD-D test fixture.
- DCR measured on a Cambridge Technology micro-ohmmeter and a Coilcraft CCF840 test fixture.
- Electrical specifications at 25°C.

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

Core material Ceramic

Terminations Silver-palladium-platinum-glass frit. Other terminations available at additional cost.

Ambient temperature -40°C to +125°C with I_{max} current

Maximum part temperature +140°C (ambient + temp rise).

Storage temperature Component: -55°C to +140°C.

Tape and reel 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 +155 ppm/°C

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30°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

COILCRAFT ACCURATE
PRECISION REPEATABLE
MEASUREMENTS
SEE WEB SITE **TEST FIXTURES**

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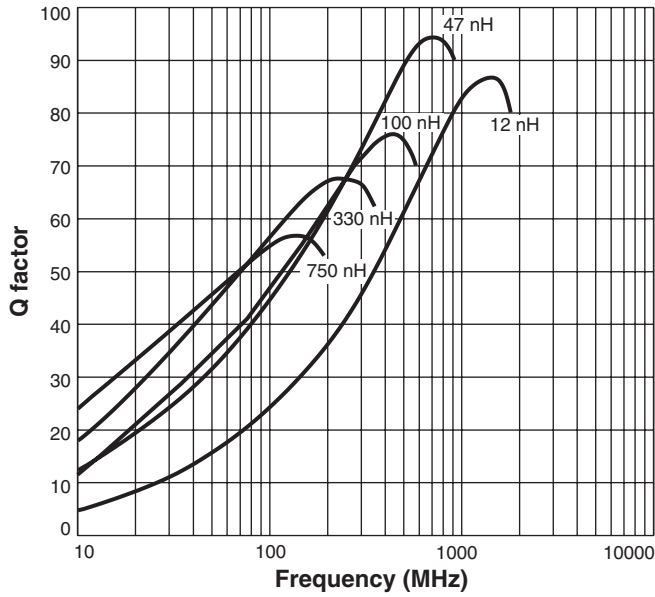
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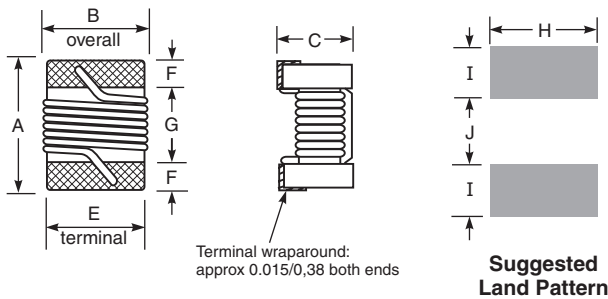
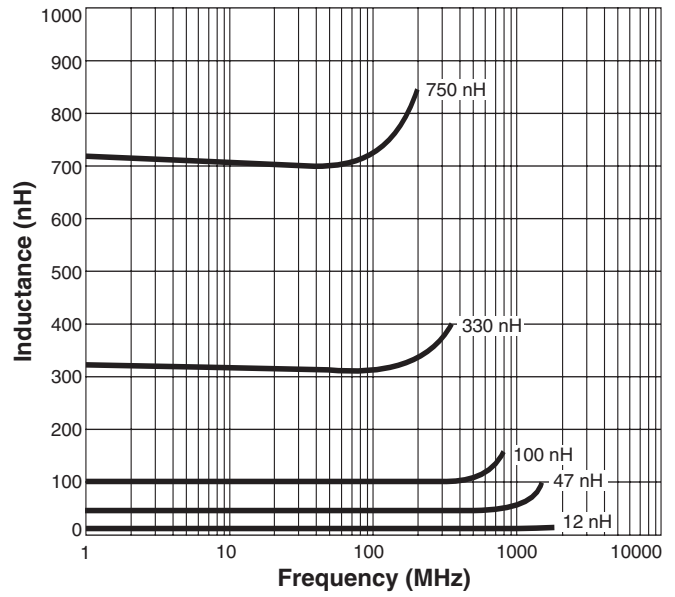
This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.

ST413RAE Series (1008)

Typical Q vs Frequency



Typical L vs Frequency



| A | B | C | E | F | G | H | I | J |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| max | max | max | | | | | | |
| 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 |
| inches | | | | | | | | |
| mm | | | | | | | | |

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.



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