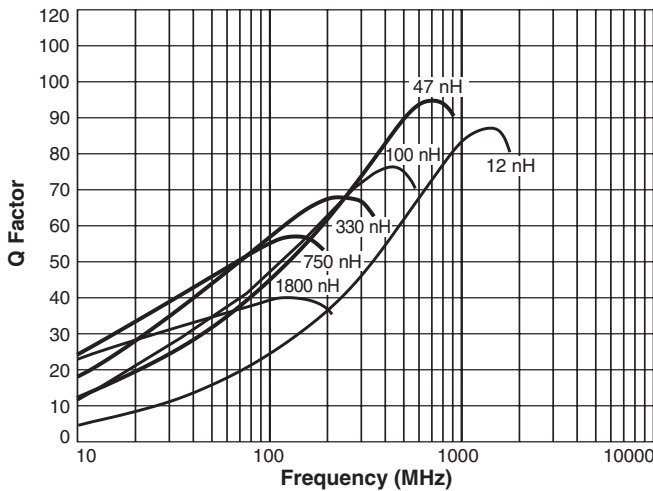


# Outgassing Compliant Chip Inductors AE413RAA

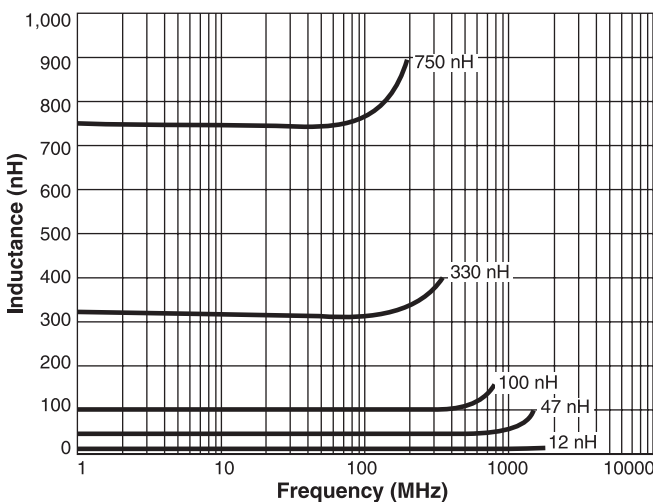
- High SRF and excellent Q values
- Tight tolerances, many values at 1%
- 28 inductance values from 10 nH to 1  $\mu$ H
- All parts are qualified and compliant with MIL-STD-981 Family 50, Class S

Features high temperature materials that pass NASA low outgassing specifications and allows operation in ambient temperatures up to 155°C. The standard tin-lead (Sn-Pb) terminations ensure the best possible board adhesion.

## Typical Q vs Frequency



## Typical L vs Frequency



**Core material** Ceramic

**Terminations** Tin-Lead (63/37) over tin over nickel over silver-platinum-glass-frit. Other terminations are also available.

**Ambient temperature** -55°C to +125°C with I<sub>max</sub> current

**Maximum part temperature** +155°C (ambient + temp rise)

**Storage temperature** Component: -55°C to +155°C.

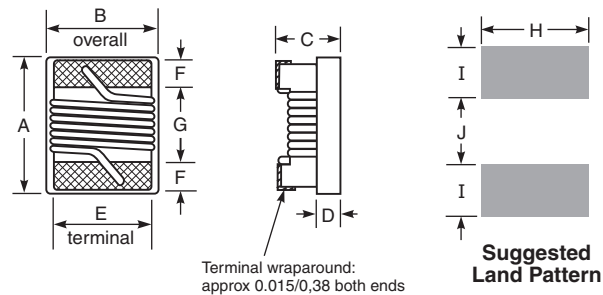
Tape and reel packaging: -55°C to +80°C

**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)

**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 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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Document AE101-1 Revised 06/30/23

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.

# AE413RAA 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)
AE413RAA100_PZ	10 @ 50 MHz	5,2	44 @ 500 MHz	3060	0.08	900
AE413RAA120_PZ	12 @ 50 MHz	5,2	45 @ 500 MHz	2680	0.09	900
AE413RAA150_PZ	15 @ 50 MHz	5,2	50 @ 500 MHz	2220	0.13	850
AE413RAA180_PZ	18 @ 50 MHz	5,2,1	50 @ 350 MHz	2200	0.11	900
AE413RAA220_PZ	22 @ 50 MHz	5,2,1	55 @ 350 MHz	2100	0.12	900
AE413RAA270_PZ	27 @ 50 MHz	5,2,1	55 @ 350 MHz	1380	0.13	900
AE413RAA330_PZ	33 @ 50 MHz	5,2,1	60 @ 350 MHz	1600	0.14	850
AE413RAA390_PZ	39 @ 50 MHz	5,2,1	60 @ 350 MHz	1420	0.15	850
AE413RAA470_PZ	47 @ 50 MHz	5,2,1	65 @ 350 MHz	1420	0.16	820
AE413RAA560_PZ	56 @ 50 MHz	5,2,1	60 @ 350 MHz	1140	0.18	780
AE413RAA680_PZ	68 @ 50 MHz	5,2,1	46 @ 100 MHz	1140	0.20	710
AE413RAA820_PZ	82 @ 50 MHz	5,2,1	48 @ 100 MHz	940	0.22	710
AE413RAA101_PZ	100 @ 25 MHz	5,2,1	37 @ 100 MHz	900	0.56	440
AE413RAA121_PZ	120 @ 25 MHz	5,2,1	40 @ 100 MHz	840	0.63	410
AE413RAA151_PZ	150 @ 25 MHz	5,2,1	40 @ 100 MHz	740	0.70	400
AE413RAA181_PZ	180 @ 25 MHz	5,2,1	38 @ 100 MHz	680	0.77	390
AE413RAA221_PZ	220 @ 25 MHz	5,2,1	40 @ 100 MHz	580	0.84	370
AE413RAA271_PZ	270 @ 25 MHz	5,2,1	45 @ 100 MHz	540	0.91	330
AE413RAA331_PZ	330 @ 25 MHz	5,2,1	45 @ 100 MHz	500	1.05	330
AE413RAA391_PZ	390 @ 25 MHz	5,2,1	45 @ 100 MHz	480	1.12	310
AE413RAA471_PZ	470 @ 25 MHz	5,2,1	45 @ 100 MHz	400	1.19	280
AE413RAA561_PZ	560 @ 25 MHz	5,2,1	40 @ 100 MHz	360	1.33	280
AE413RAA621_PZ	620 @ 25 MHz	5,2,1	45 @ 100 MHz	360	1.40	270
AE413RAA681_PZ	680 @ 25 MHz	5,2,1	45 @ 100 MHz	345	1.47	270
AE413RAA751_PZ	750 @ 25 MHz	5,2,1	45 @ 100 MHz	335	1.54	270
AE413RAA821_PZ	820 @ 25 MHz	5,2,1	45 @ 100 MHz	310	1.61	250
AE413RAA911_PZ	910 @ 25 MHz	5,2,1	35 @ 50 MHz	280	1.68	250
AE413RAA102_PZ	1000 @ 25 MHz	5,2,1	34 @ 50 MHz	280	1.75	230

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

AE413RAA102GPZ

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

**Termination:** P = Tin-lead (63/37) over tin over nickel over silver-platinum-glass frit.

C = Tin-lead (63/37) over gold over nickel over moly-mag.

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

A = Gold over nickel over moly-mag

L = Silver-palladium-platinum-glass frit

**Screening:** Z = Unscreened

H = Coilcraft CP-SA-10001 Group A

1 = EEE-INST-002 (Family 3) Level 1

2 = EEE-INST-002 (Family 3) Level 2

3 = EEE-INST-002 (Family 3) Level 3

4 = MIL-STD-981 (Family 50) Class B

5 = MIL-STD-981 (Family 50) Class S

• Screening performed to the document's latest revision.

• Lot qualification (Group B) available.

• Testing T and U have been replaced with more detailed codes 4, 5, and 1, 2, 3, respectively. Codes T and U can still be used, if necessary. Custom testing also available.

• Country of origin restrictions available; prefix option 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 CCF1297 test fixture.

5. DCR measured on a Keithley 580 micro-ohmmeter or equivalent and a Coilcraft CCF858 test fixture.

6. Electrical specifications at 25°C.

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



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Document AE101-2 Revised 06/30/23

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.