

**PRELIMINARY**

# Outgassing Compliant Chip Inductors AE413RAD

This robust version of Coilcraft's standard 1008HQ series features high temperature materials that pass NASA low outgassing specifications and allow operation in ambient

temperatures up to 155°C. The leach-resistant base metalization with tin-lead (Sn-Pb) terminations ensures the best possible board adhesion.

Part number <sup>1</sup>	Inductance <sup>3</sup> (nH)	Percent tolerance	Q min <sup>4</sup>	SRF min <sup>5</sup> (GHz)	DCR max <sup>6</sup> (Ohms)	I <sub>max</sub> (A)
AE413RAD3N0_SZ <sup>2</sup>	3.0 @ 50 MHz	5	70 @ 1500 MHz	>5.00	0.04	1.6
AE413RAD4N1_SZ	4.1 @ 50 MHz	5	75 @ 1500 MHz	>5.00	0.05	1.6
AE413RAD7N8_SZ <sup>2</sup>	7.8 @ 50 MHz	5	75 @ 500 MHz	3.80	0.05	1.6
AE413RAD10N_SZ	10 @ 50 MHz	5,2	60 @ 500 MHz	3.60	0.06	1.6
AE413RAD12N_SZ	12 @ 50 MHz	5,2	70 @ 500 MHz	2.80	0.06	1.5
AE413RAD18N_SZ	18 @ 50 MHz	5,2	62 @ 350 MHz	2.70	0.07	1.4
AE413RAD22N_SZ	22 @ 50 MHz	5,2	62 @ 350 MHz	2.05	0.07	1.4
AE413RAD33N_SZ	33 @ 50 MHz	5,2	75 @ 350 MHz	1.70	0.09	1.3
AE413RAD39N_SZ	39 @ 50 MHz	5,2	75 @ 350 MHz	1.30	0.09	1.3
AE413RAD47N_SZ	47 @ 50 MHz	5,2,1	75 @ 350 MHz	1.45	0.12	1.2
AE413RAD56N_SZ	56 @ 50 MHz	5,2,1	75 @ 350 MHz	1.23	0.12	1.2
AE413RAD68N_SZ	68 @ 50 MHz	5,2,1	80 @ 350 MHz	1.15	0.13	1.1
AE413RAD82N_SZ	82 @ 50 MHz	5,2	80 @ 350 MHz	1.06	0.16	1.1
AE413RADR10_SZ	100 @ 50 MHz	5,2	62 @ 350 MHz	0.82	0.16	1.0

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

AE313RADR10J SZ

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

**Testing:** Z = COTS

H = Screening per Coilcraft CP-SA-10001

N = Screening per Coilcraft CP-SA-10003

C = Custom screening (please specify when ordering)

- Part is wound on low profile coilform.
- Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4286A impedance analyzer or equivalent with Coilcraft-provided correlation pieces.
- Q measured using an Agilent/HP 4291A with an Agilent/HP 16197A test fixture or equivalents.
- SRF measured using an Agilent/HP 8753ES network analyzer or equivalent and a Coilcraft SMD-D test fixture.
- DCR measured on a Keithley 580 micro-ohmmeter or equivalent and a Coilcraft CCF858 test fixture.
- Electrical specifications at 25°C.

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

**Core material** Ceramic

**Terminations** Tin-lead (63/37) over silver-platinum-glass frit

**Ambient temperature** -55°C to +125°C with I<sub>max</sub> current, +125°C to +155°C with derated current

**Storage temperature** Component: -55°C to +155°C.  
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** 2000/7" reel

Standard height parts: Plastic tape: 8 mm wide, 0.23 mm thick, 4 mm pocket spacing, 1.8 mm pocket depth

Low profile parts: Plastic tape: 8 mm wide, 0.3 mm thick, 4 mm pocket spacing, 1.6 mm pocket depth



CRITICAL PRODUCTS & SERVICES

These parts are preproduction products for electrical evaluation only.  
Specification subject to change without notice.

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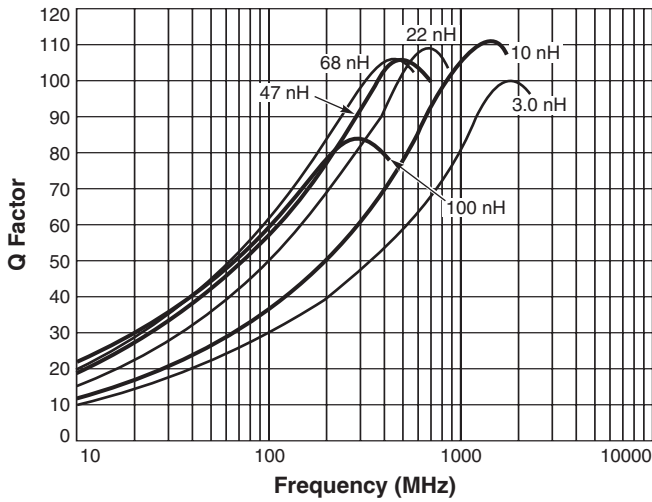
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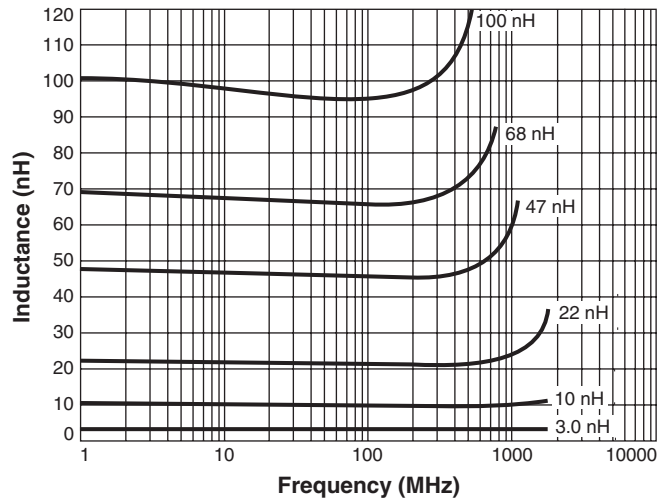
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# AE413RAD Series (1008)

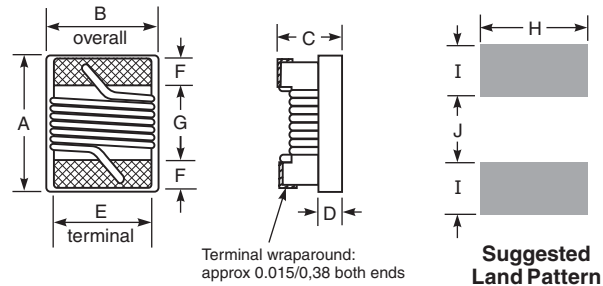
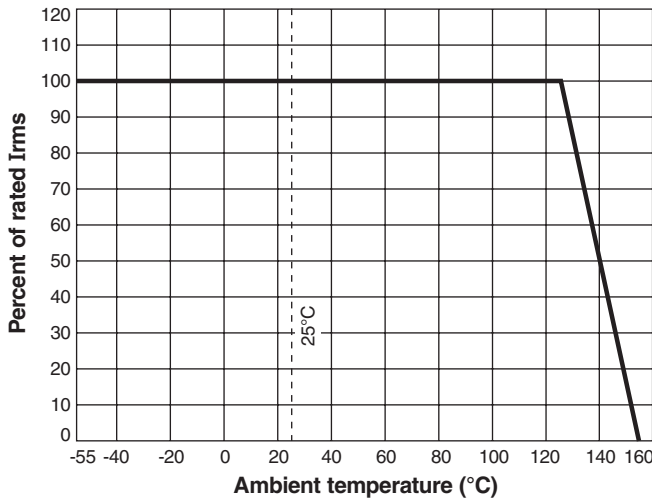
## Typical Q vs Frequency



## Typical L vs Frequency



## Current Derating



A	B	C	D	E	F	G	H	I	J
max	max	max*	ref						
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

\*Low profile parts: 0.050/1,27

All dimensions are without solder applied to the terminations. For maximum dimensions with solder, add 0.006 inches / 0,152 mm.