PRELIMINARY

Aerospace Grade 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[1]	Inductance[3] (nH)	Percent tolerance	Q min[4]	SRF min[5] (GHz)	DCR max[6] (Ohms)	Imax (A)
AE413RAD3N0_SZ[2]	3.0 @ 50 MHz	5	70 @ 1500 MHz	8.10	0.04	1.6
AE413RAD4N1_SZ	4.1 @ 50 MHz	5	75 @ 1500 MHz	6.20	0.05	1.6
AE413RAD7N8_SZ[2]	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:

AE313RADR10JSZ

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

Testing:
- **Z** = Coilcraft Critical Products Environmental Stress Conditions Testing.
- **H** = Coilcraft Qual + Coilcraft Hi-Rel Burn-in
- **P** = Coilcraft Qual + MIL-STD-981 Class S Group A screening
- **N** = Coilcraft Qual + MIL-STD-981 Class B Group A screening
- **C** = Coilcraft Qual + MIL-STD-981 Class S Group A screening + MIL-STD-981 Class S Group B qualification
- **W** = Coilcraft Qual + MIL-STD-981 Class B Group A screening + MIL-STD-981 Class S Group B qualification

2. Part is wound on low profile coilform.
3. Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4286A impedance analyzer with Coilcraft-provided correlation pieces.
4. Q measured using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.
5. For SRF less than 6 GHz, measured using an Agilent/HP 8753D network analyzer and a Coilcraft SMD-D test fixture. For SRF greater than 6 GHz, measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.
6. DCR measured on a Cambridge Technology micro-ohmmeter and a Coilcraft CCF840 test fixture.
7. 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 Imax 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; 7500/13″ 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

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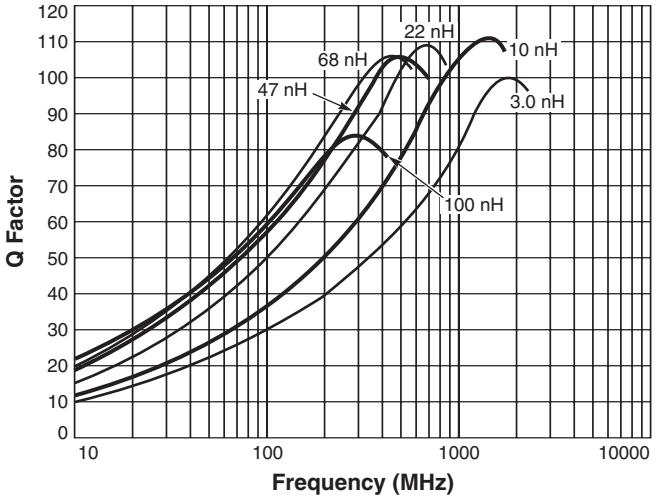
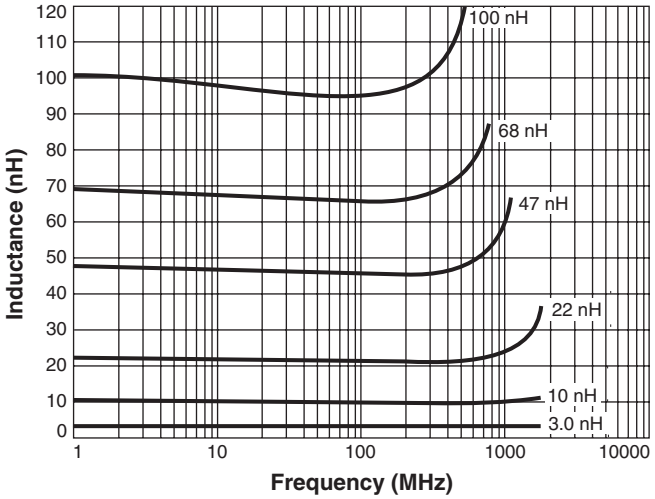
PRELIMINARY

AE413RAD Series (1008)

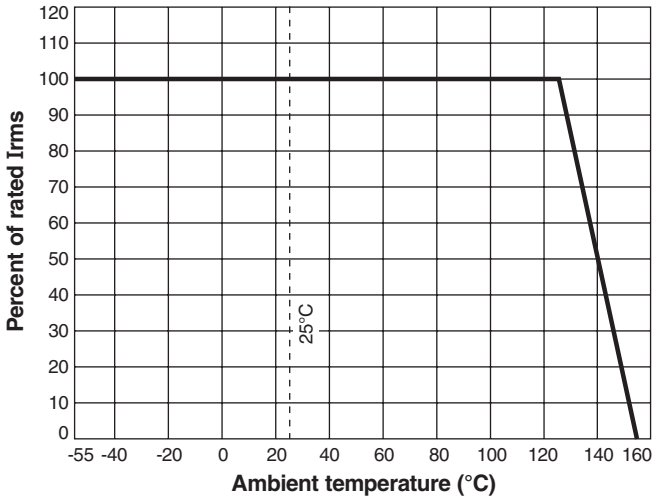
Typical Q vs Frequency

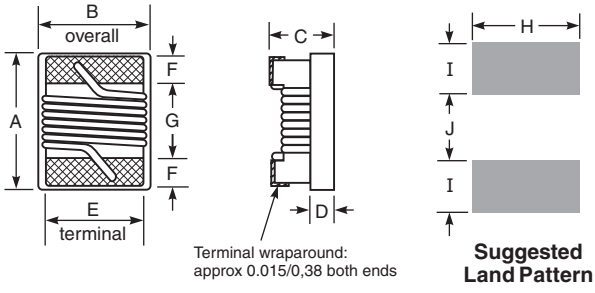


Typical L vs Frequency



Current Derating





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	inches
2,92	2,79	2,03	0,51	2,03	0,51	1,52	2,54	1,02	1,27	mm

*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.

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