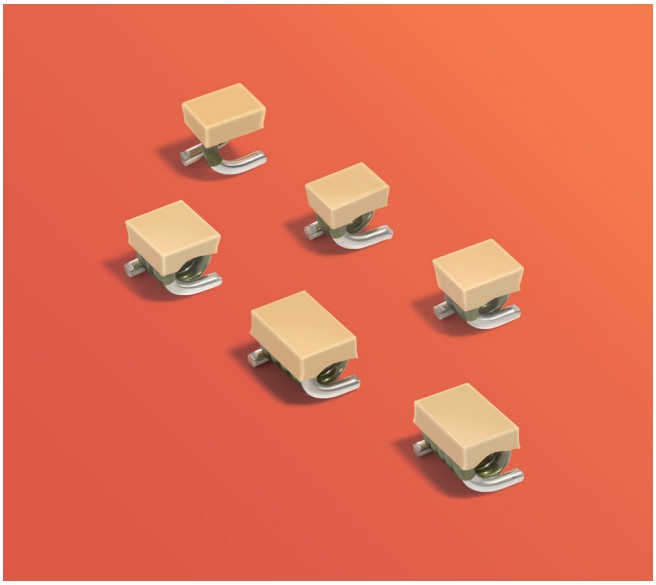
High-Current Air Core Inductors AE513RAT



- Low DCR and excellent current handling capability
- Excellent current handling
- Overmold provides a flat surface for pick and place
- Solder coated leads ensure reliable soldering

Terminations Tin-lead (63/37) over copper

Ambient temperature –55°C to +125°C with Imax current

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

Storage temperature Component: –55°C to +155°C. Tape and reel packaging: –40°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) +5 to +70 ppm/°C

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30°C / 85% relative humidity)

Mean Time Between Failures (MTBF) 1 billion hours

Packaging See dimensions

PCB washing Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

Part number[1]	Inductance[2] ±5% (nH)	Q[2] min	SRF min[3] (GHz)	DCR max[4] (mOhm)	Imax (A)
AE513RAT3N7_S_	3.7	100	>5.0	2.0	7.0
AE513RAT6N6_S_	6.6	100	3.4	2.0	7.0
AE513RAT12N_S_	12.0	140	2.0	2.0	7.0
AE513RAT18N_S_	17.5	140	1.9	2.0	7.0
AE513RAT22N_S_	22.0	160	2.1	2.5	7.0
AE513RAT30N_S_	30.0	160	1.6	3.0	7.0

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

AE513RAT30NJSZ

Tolerance: **G** = 2% **J** = 5%
Termination: **S** = Tin-lead (63/37) over copper
T = Tin-silver-copper (95.5/4/0.5) over copper
L = Tin-silver (96.5/3.5) over copper
Screening: **Z** = Unscreened
H = Coilcraft CP-SA-10001 Group A
F = ESCC3201 (F4 operational life performed at 90°C)
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.
- Screening not available for parts with 2% tolerance.
- 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.

2. L and Q measured at 150 MHz, 0.1 Vrms, 0 A using an Agilent/HP 4291A impedance analyzer with an Agilent/HP 16193A test fixture.
3. SRF measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture.
4. DCR measured using a micro-ohmmeter.
5. Electrical specifications at 25°C.

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

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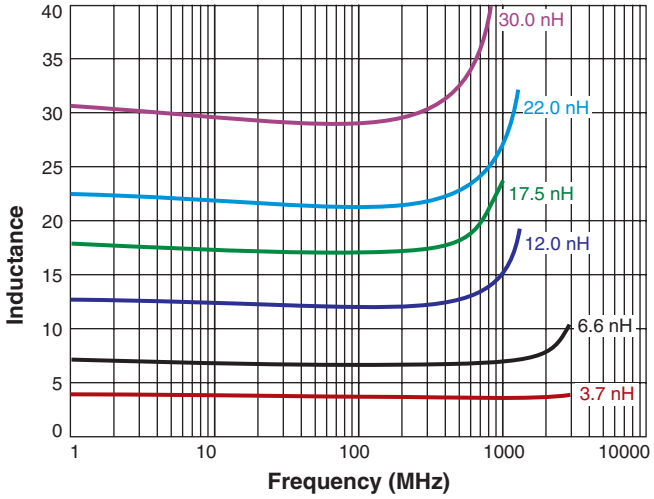
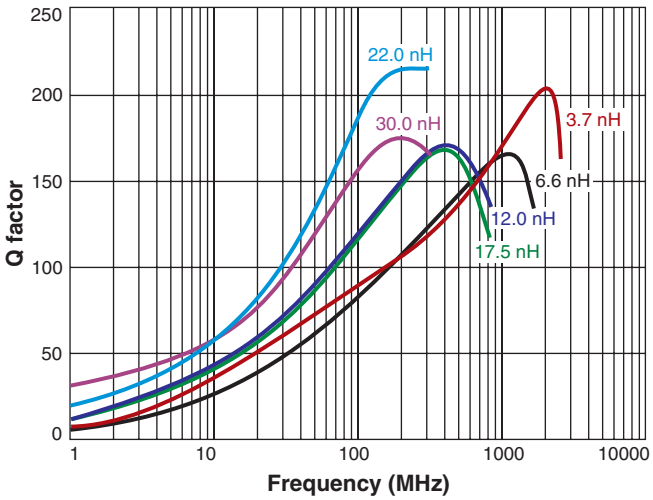
High-Current Air Core Inductors

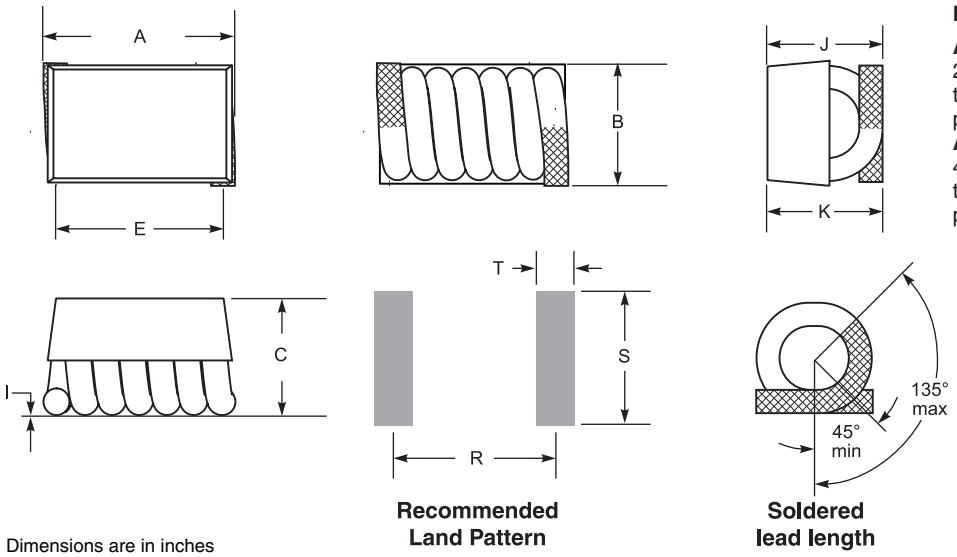
L vs Frequency



Q vs Frequency



Dimensions



Recommended Land Pattern

Soldered lead length

Dimensions are in inches

Packaging

AE513RAT3N7 – AE513RAT18N
250/7″reel; 1000/13″ reel Plastic tape: 16 mm wide, 0.35 mm thick, 12 mm pocket spacing, 4.9 mm pocket depth

AE513RAT22N, AE513RAT30N
400/7″reel; 1500/13″ reel Plastic tape: 16 mm wide, 0.5 mm thick, 16 mm pocket spacing, 5.26 mm pocket depth

Part L Code	A*		B		C		E		I**	J-K	Land Pattern			Weight (mg)
	Nom	Max	Nom	Max	Nom	Max	Nom	Max	±0.004	Max	R	S	T	
-3N7	0.175	0.185	0.215	0.225	0.200	0.210	0.135	0.145	0.005	0.008	0.180	0.230	0.060	70
-6N6	0.165	0.175	0.205	0.215	0.185	0.195	0.125	0.135	0.005	0.008	0.180	0.230	0.060	170
-12N	0.185	0.195	0.205	0.215	0.185	0.195	0.145	0.160	0.005	0.008	0.205	0.230	0.060	270
-18N	0.220	0.230	0.210	0.220	0.190	0.195	0.175	0.180	0.005	0.008	0.235	0.230	0.060	370
-22N	0.295	0.315	0.200	0.220	0.185	0.200	0.255	0.270	0.005	0.008	0.255	0.230	0.060	470
-30N	0.295	0.315	0.200	0.220	0.185	0.200	0.255	0.270	0.005	0.008	0.255	0.230	0.060	570

* “A” dimension is the absolute part length
** “I” dimension is referenced from the coil belly to the smallest of the J/K dimensions

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