

# Outgassing Compliant Air Core Inductors AE439RAT AE470RAT



- High temperature materials allow operation in ambient temperatures up to 155°C.
- Passes NASA low outgassing specifications
- Tin-lead (Sn-Pb) terminations ensures the best possible board adhesion

**Terminations** Tin-lead (63/37) over copper

**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.

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)

**Enhanced crush-resistant packaging**

**AE439RAT:** 700/7" reel Plastic tape: 12 mm wide, 0.32 mm thick, 8 mm pocket spacing, 3.3 mm pocket depth

**AE470RAT:** 500/7" reel Plastic tape: 16 mm wide, 0.28 mm thick, 8 mm pocket spacing, 3.4 mm pocket depth

Part number <sup>1</sup>	Turns	L <sup>2</sup> (nH)	Percent tol	Q <sup>3</sup> min	SRF min <sup>4</sup> (GHz)	DCR max <sup>5</sup> (mOhm)	I <sub>max</sub> (A)	Weight max (mg)
AE439RAT2N5KSZ	1	2.5	10	145	>5.0	1.1	4	48
AE439RAT5N0_SZ	2	5.0	5,2	140	>5.0	1.8	4	63
AE439RAT8N0_SZ	3	8.0	5,2	140	5.0	2.6	4	78
AE439RAT13N_SZ	4	12.5	5,2	137	3.3	3.4	4	82
AE439RAT19N_SZ	5	18.5	5,2	132	2.5	3.9	4	95
AE470RAT18N_SZ	6	17.5	5,2	100	2.2	4.5	4	128
AE470RAT22N_SZ	7	22.0	5,2	102	2.1	5.2	4	143
AE470RAT28N_SZ	8	28.0	5,2	105	1.8	6.0	4	151
AE470RAT36N_SZ	9	35.5	5,2	112	1.5	6.8	4	169
AE470RAT43N_SZ	10	43.0	5,2	106	1.2	7.9	4	188

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

AE470RAT43NGSZ

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

**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

F = ESCC3201 (F4 operational life performed at 90°C)

• 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 options G.

2. Inductance measured at 150 MHz on an Agilent/HP 4286A or equivalent with a Coilcraft SMD-A test fixture and correlation.

3. Q measured at 150 MHz on an Agilent/HP 4291A or equivalent with a 16193A test fixture or equivalent.

4. SRF measured on an Agilent/HP 8753ES network analyzer or equivalent with a Coilcraft CCF1268 test fixture. Parts with SRF >5 GHz are verified to >5 GHz in screening

5. DCR measured on a Keithley 580 Micro-Ohmmeter or equivalent.

6. Electrical specifications at 25°C.

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



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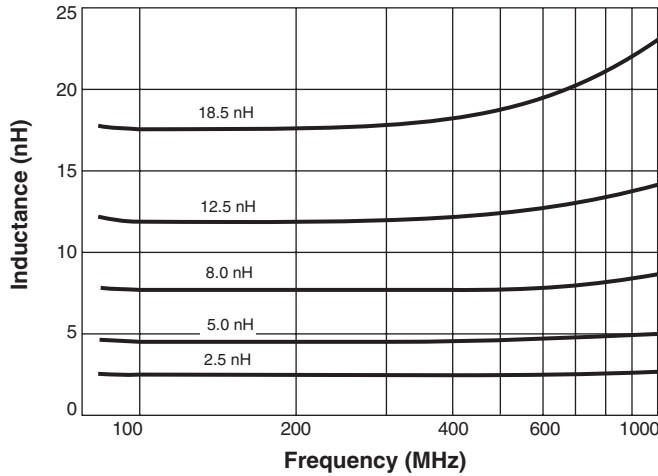
Document AE107-1 Revised 01/15/21

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.

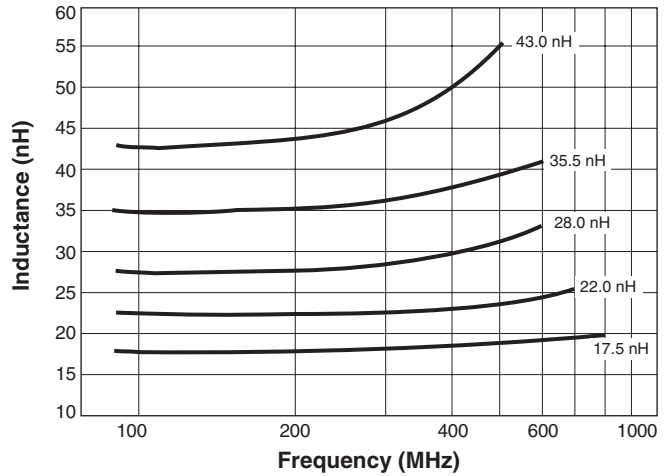
**S-Parameter files**  
ON OUR WEB SITE  
**SPICE models**  
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# AE439RAT/AE470RAT Air Core Inductors

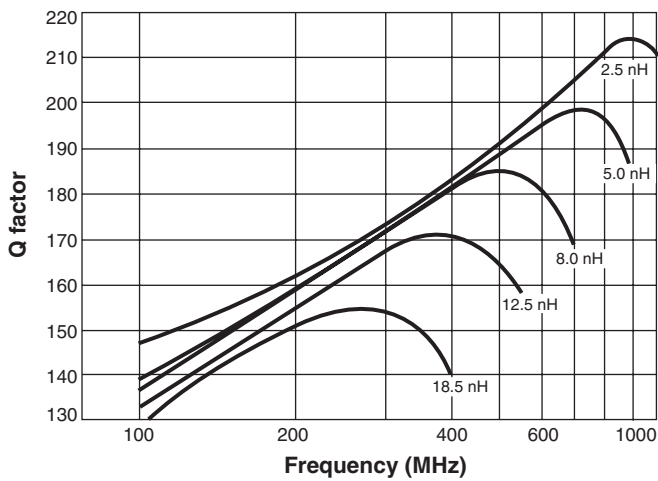
## L vs Frequency – AE439RAT



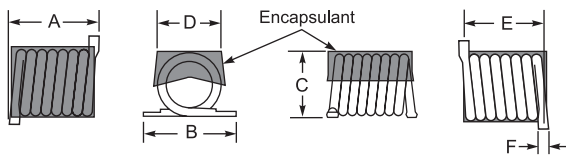
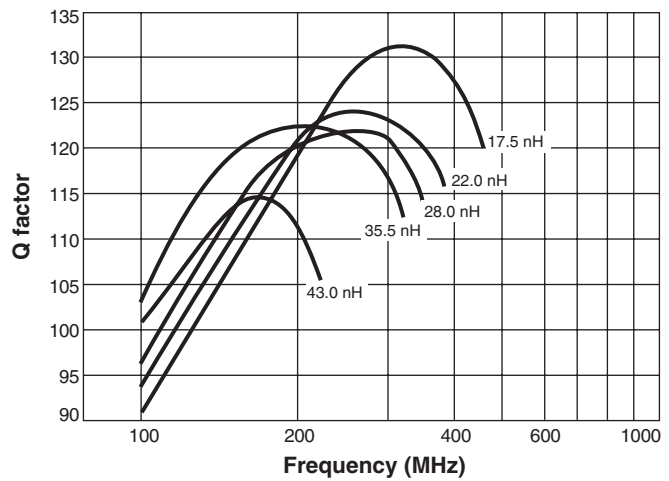
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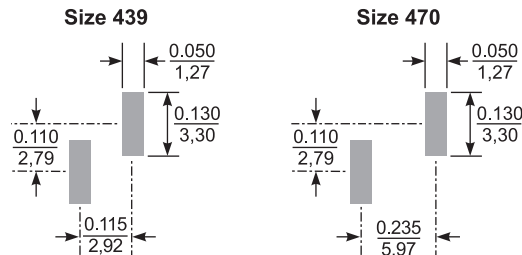
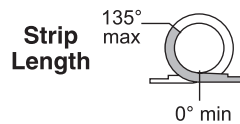
## Q vs Frequency – AE439RAT



## Q vs Frequency – AE470RAT



Size	A max	B max	C max	D	E	F max
439	0.155 3,94	0.175 4,45	0.124 3,15	0.110 ±0.010 2,79 ±0,25	0.115 ±0.010 2,92 ±0,25	0.029 0,74
470	0.270 6,86	0.175 4,45	0.124 3,15	0.110 ±0.010 2,79 ±0,25	0.230 ±0.015 5,84 ±0,38	0.029 0,74



Dimensions are in inches/mm

### Suggested Land Patterns

