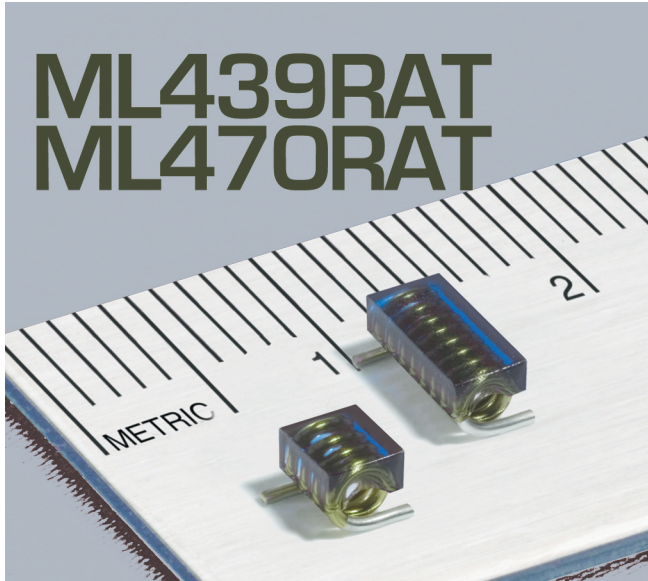


# High-Reliability Air Core Inductors ML439RAT ML470RAT



- Small air core inductors feature high Q and tight tolerances
- High temperature materials allow operation in ambient temperatures up to 155°C.

**Terminations** Tin-silver over copper.

**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: -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)

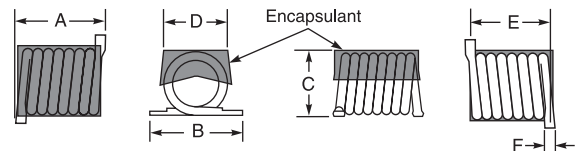
**Enhanced crush-resistant packaging**

**ML439RAT:** 700/7" reel Plastic tape: 12 mm wide, 0.32 mm thick, 8 mm pocket spacing, 3.3 mm pocket depth

**ML470RAT:** 500/7" reel Plastic tape: 16 mm wide, 0.28 mm thick, 8 mm pocket spacing, 3.4 mm pocket depth

**PCB washing** Only pure water or alcohol recommended

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 (mg)
ML439RAT2N5KLZ	1	2.5	10	145	12.5	1.1	4	31
ML439RAT5N0_LZ	2	5.0	5,2	140	6.5	1.8	4	42
ML439RAT8N0_LZ	3	8.0	5,2	140	5.0	2.6	4	52
ML439RAT13N_LZ	4	12.5	5,2	137	3.3	3.4	4	65
ML439RAT19N_LZ	5	18.5	5,2	132	2.5	3.9	4	78
ML470RAT18N_LZ	6	17.5	5,2	100	2.2	4.5	4	100
ML470RAT22N_LZ	7	22.0	5,2	102	2.1	5.2	4	110
ML470RAT28N_LZ	8	28.0	5,2	105	1.8	6.0	4	118
ML470RAT36N_LZ	9	35.5	5,2	112	1.5	6.8	4	133
ML470RAT43N_LZ	10	43.0	5,2	106	1.2	7.9	4	147



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

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

ML470RAT43NGLZ

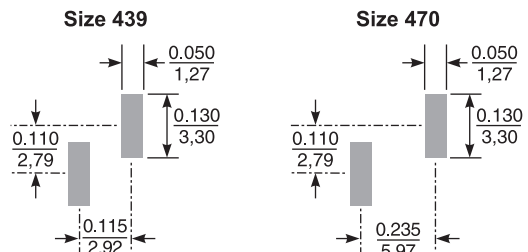
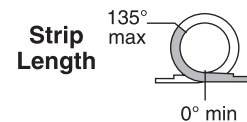
**Tolerance:** G = 2% J = 5%

**Testing:** Z = COTS

H = Screening per Coilcraft CP-SA-10001

N = Screening per Coilcraft CP-SA-10003

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.



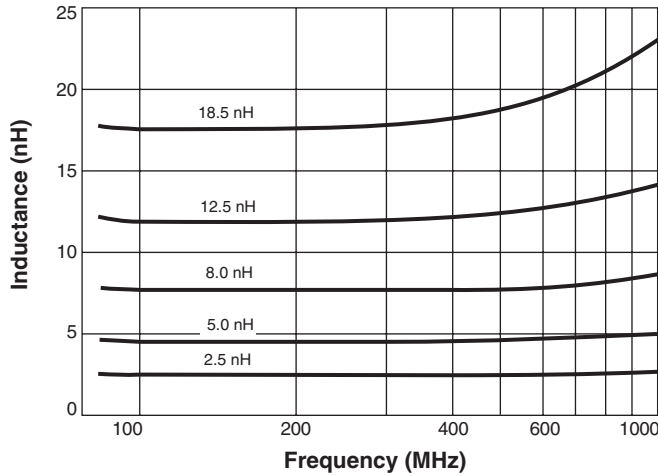
**Suggested Land Patterns**

Dimensions are in  $\frac{\text{inches}}{\text{mm}}$

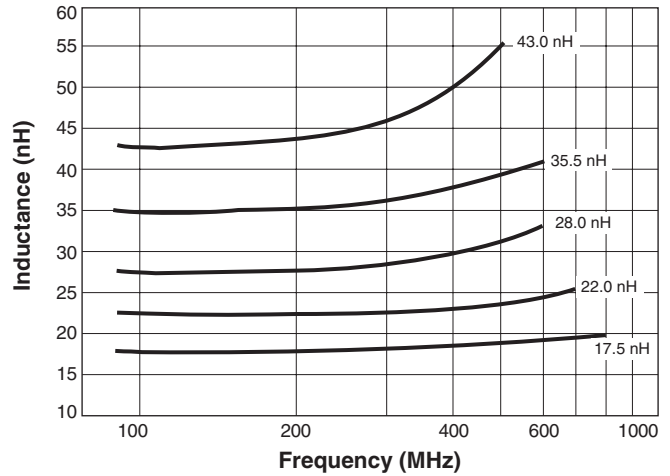
**S-Parameter files**  
ON OUR WEB SITE  
**SPICE models**  
ON OUR WEB SITE

# ML439RAT/ML470RAT Air Core Inductors

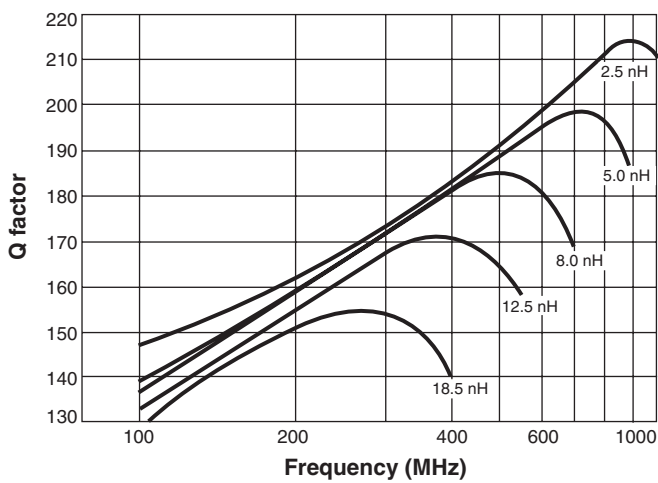
L vs Frequency – ML439RAT



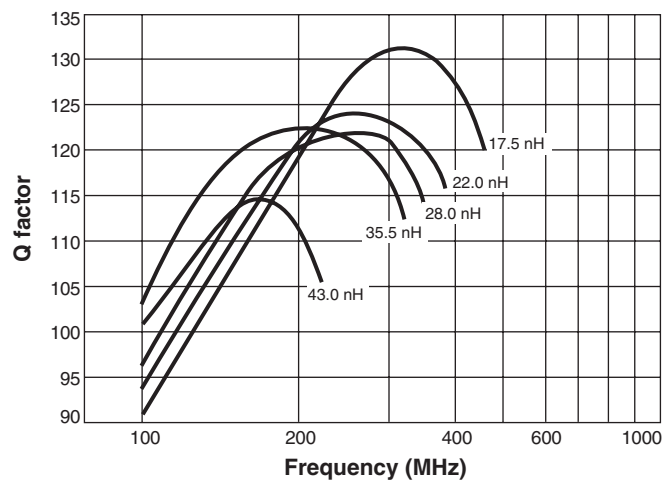
L vs Frequency – ML470RAT



Q vs Frequency – ML439RAT



Q vs Frequency – ML470RAT



## Typical Current Derating

