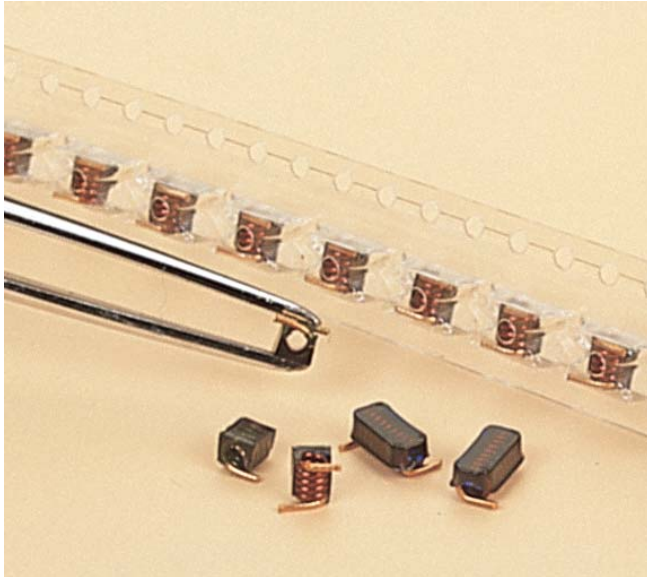


# High-Reliability Air Core Inductors MS439RAT MS470RAT



- Small air core inductors feature high Q and tight tolerance.
- High temperature materials allow operation in ambient temperatures up to 155°C.
- Tin-lead (Sn-Pb) terminations ensure 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, +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)

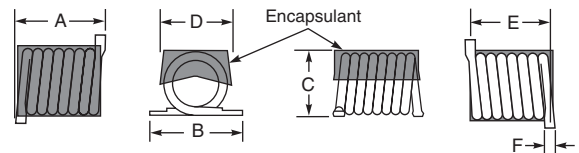
**Enhanced crush-resistant packaging**

**MS439RAT:** 700/7" reel Plastic tape: 12 mm wide, 0.32 mm thick, 8 mm pocket spacing, 3.3 mm pocket depth

**MS470RAT:** 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)
MS439RAT2N5K5Z	1	2.5	10	145	12.5	1.1	4	31
MS439RAT5N0_SZ	2	5.0	5,2	140	6.5	1.8	4	42
MS439RAT8N0_SZ	3	8.0	5,2	140	5.0	2.6	4	52
MS439RAT13N_SZ	4	12.5	5,2	137	3.3	3.4	4	65
MS439RAT19N_SZ	5	18.5	5,2	132	2.5	3.9	4	78
MS470RAT18N_SZ	6	17.5	5,2	100	2.2	4.5	4	100
MS470RAT22N_SZ	7	22.0	5,2	102	2.1	5.2	4	110
MS470RAT28N_SZ	8	28.0	5,2	105	1.8	6.0	4	118
MS470RAT36N_SZ	9	35.5	5,2	112	1.5	6.8	4	133
MS470RAT43N_SZ	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 3,94	0.175 4,45	0.124 3,15	0.125 ±0.010 3,18 ±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	0.125 ±0.010 3,18 ±0,25	0.230 ±0.015 5,84 ±0,38	0.029 0,74

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

MS470RAT43N **G** **SZ**

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

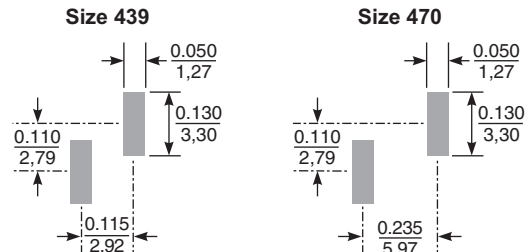
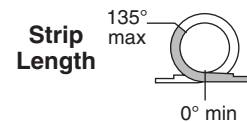
**Testing:** Z = COTS

H = Screening per Coilcraft CP-SA-10001

N = Screening per Coilcraft CP-SA-10003

C = Custom screening (please specify when ordering)

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 16193-A test fixture or equivalent.
  4. SRF measured on an Agilent/HP 8722 network analyzer or equivalent and a test fixture with an air gap.
  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.

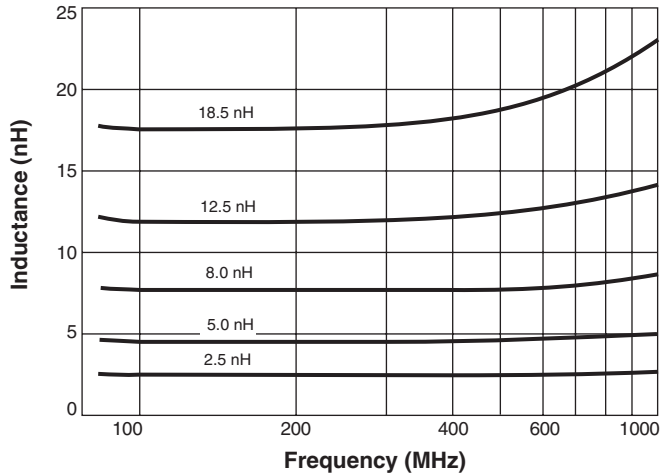


**Suggested Land Patterns**

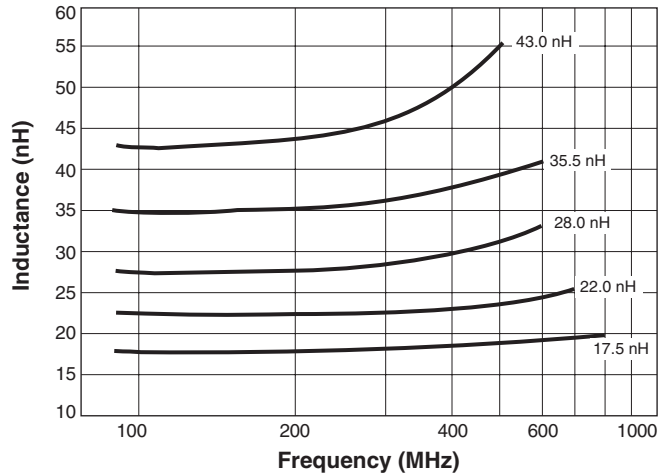
Dimensions are in  $\frac{\text{inches}}{\text{mm}}$

# MS439RAT/MS470RAT Air Core Inductors

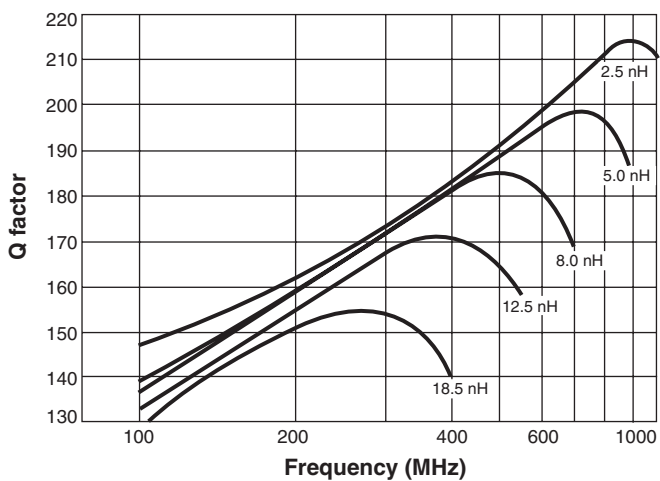
## L vs Frequency – MS439RAT



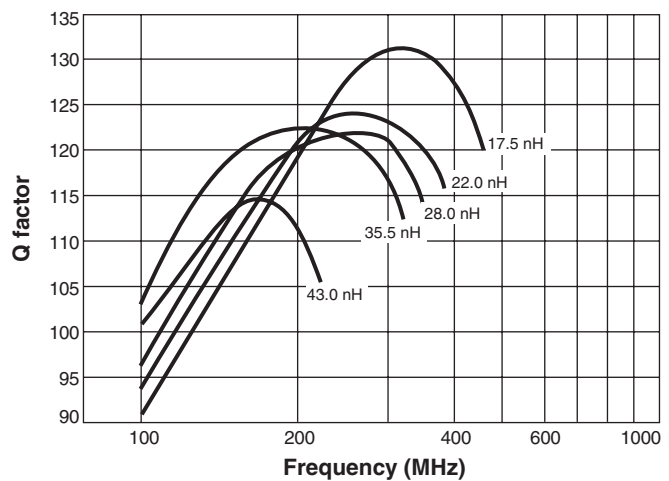
## L vs Frequency – MS470RAT



## Q vs Frequency – MS439RAT



## Q vs Frequency – MS470RAT



## Typical Current Derating

