

# 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  $I_{max}$  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**

**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

Part number <sup>1</sup>	Turns	$L^2$ (nH)	Percent tol	$Q^3$ min	SRF min <sup>4</sup> (GHz)	DCR max <sup>5</sup> (mOhm)	$I_{max}$ (A)	Weight max (mg)
MS439RAT2N5K5Z	1	2.5	10	145	>5.0	1.1	4	48
MS439RAT5N0_SZ	2	5.0	5,2	140	>5.0	1.8	4	63
MS439RAT8N0_SZ	3	8.0	5,2	140	5.0	2.6	4	78
MS439RAT13N_SZ	4	12.5	5,2	137	3.3	3.4	4	82
MS439RAT19N_SZ	5	18.5	5,2	132	2.5	3.9	4	95
MS470RAT18N_SZ	6	17.5	5,2	100	2.2	4.5	4	128
MS470RAT22N_SZ	7	22.0	5,2	102	2.1	5.2	4	143
MS470RAT28N_SZ	8	28.0	5,2	105	1.8	6.0	4	151
MS470RAT36N_SZ	9	35.5	5,2	112	1.5	6.8	4	169
MS470RAT43N_SZ	10	43.0	5,2	106	1.2	7.9	4	188

1. When ordering, please specify **tolerance** code:

MS470RAT43N**GSZ**

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

- Inductance measured at 150 MHz on an Agilent/HP 4286A or equivalent with a Coilcraft SMD-A test fixture and correlation.
- Q measured at 150 MHz on an Agilent/HP 4291A or equivalent with a 16193A test fixture or equivalent.
- 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
- DCR measured on a Keithley 580 Micro-Ohmmeter or equivalent.
- Electrical specifications at 25°C.

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

**Coilcraft** CPS  
CRITICAL PRODUCTS & SERVICES

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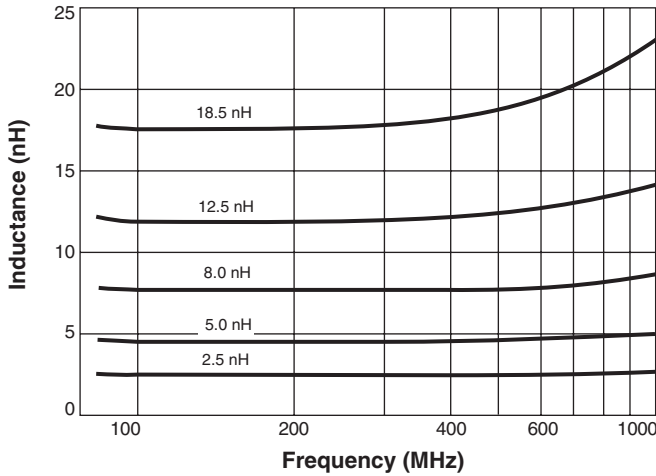
Fax 847-639-1508  
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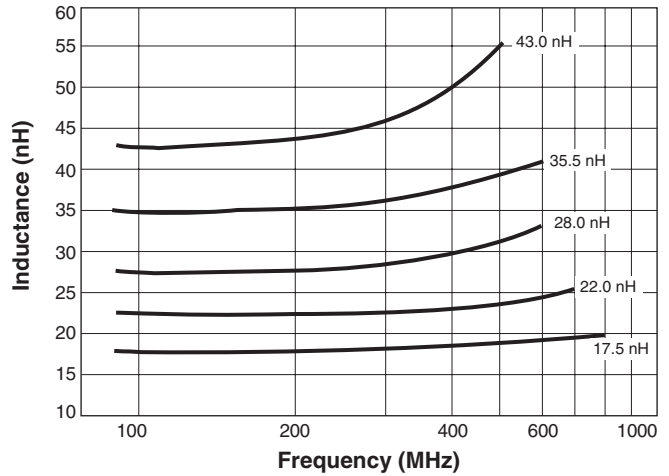
This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.

# MS439RAT/MS470RAT Air Core Inductors

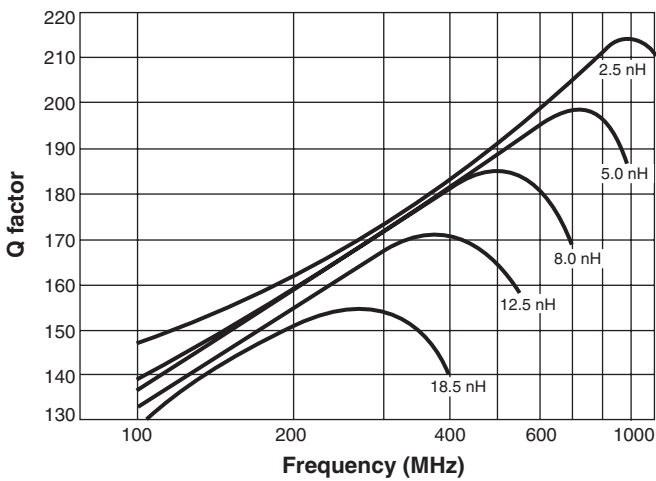
## L vs Frequency – MS439RAT



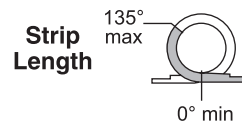
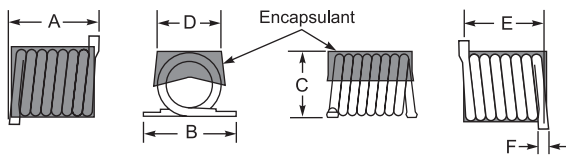
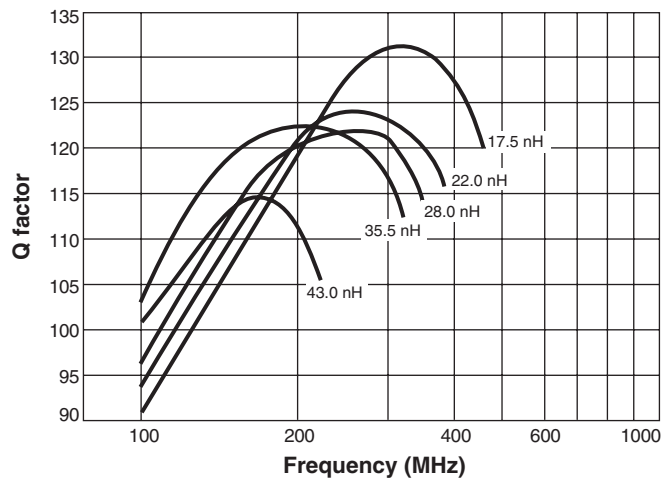
## L vs Frequency – MS470RAT



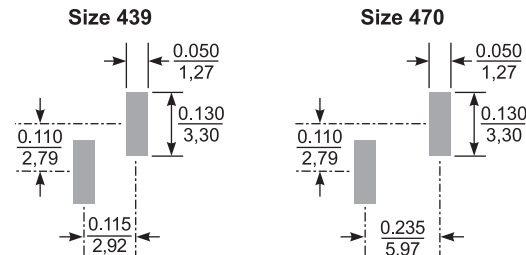
## Q vs Frequency – MS439RAT



## Q vs Frequency – MS470RAT



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  $\frac{\text{inches}}{\text{mm}}$

Suggested Land Patterns



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