

# High-Reliability Air Core Inductors

MS350RAT  
MS394RAT



- High Q over a wide range of frequencies
- 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

**Weight** MS350RAT: 6 mg – 18 mg; MS394RAT: 14 mg – 30 mg

**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.

Tape and reel packaging: –55°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**

**MS350RAT:** 500 per 7" reel Plastic tape: 8 mm wide, 0.3 mm thick, 4 mm pocket spacing, 1.5 mm pocket depth

**MS394RAT:** 500 per 7" reel Plastic tape: 12 mm wide, 0.3 mm thick, 4 mm pocket spacing, 1.6 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)
MS350RAT1N7KSZ	2	1.65	10	100	>5.0	4.0	1.6
MS350RAT2N6JSZ	3	2.55	5	100	>5.0	5.0	1.6
MS350RAT3N9_SZ	4	3.85	5,2	100	>5.0	6.0	1.6
MS350RAT5N4_SZ	5	5.40	5,2	100	>5.0	8.0	1.6
MS394RAT5N6_SZ	6	5.60	5,2	100	>5.0	9.0	1.6
MS394RAT7N2_SZ	7	7.15	5,2	100	>5.0	10	1.6
MS394RAT8N8_SZ	8	8.80	5,2	100	>5.0	12	1.6
MS394RAT9N9_SZ	9	9.85	5,2	100	>5.0	13	1.6
MS394RAT13N_SZ	10	12.55	5,2	100	4.6	14	1.6

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

MS394RAT13NGSZ

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

2. Inductance measured at 800 MHz on an Agilent/HP 4286A or equivalent with a Coilcraft SMD-A test fixture and correlation.
3. Q measured at 800 MHz on an Agilent/HP 4291A or equivalent with a 16193A test fixture or equivalent.
4. SRF measured on an Agilent/HP 8753ES 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.

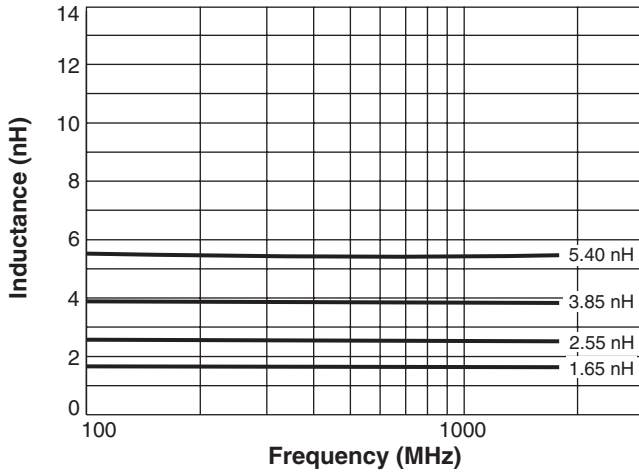
Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



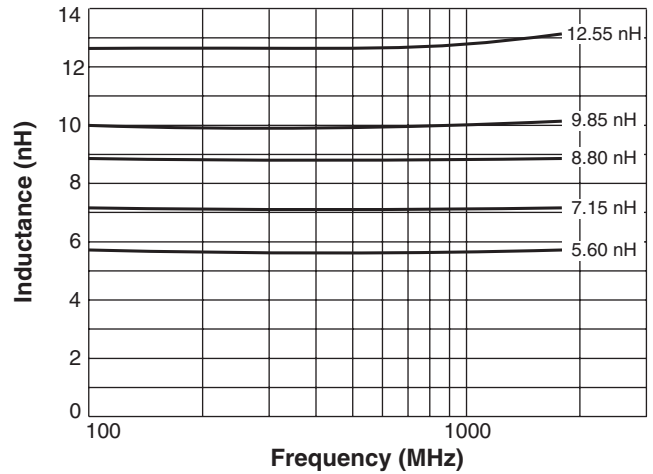
**S-Parameter files**  
ON OUR WEB SITE  
**SPICE models**  
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# MS350RAT/MS394RAT Air Core Inductors

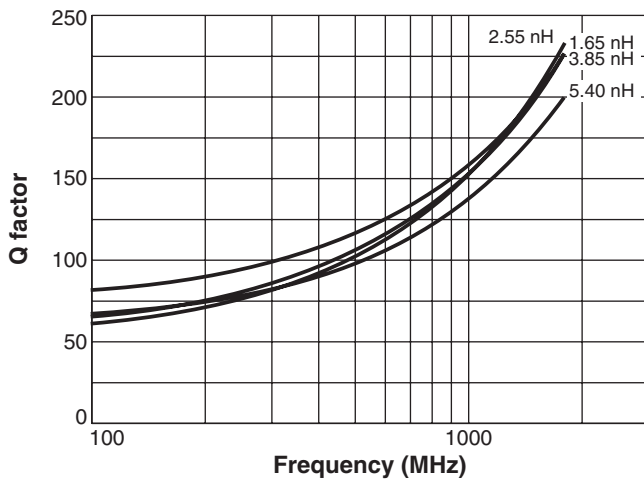
## L vs Frequency – MS350RAT Series



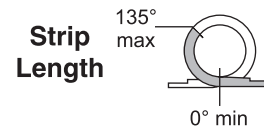
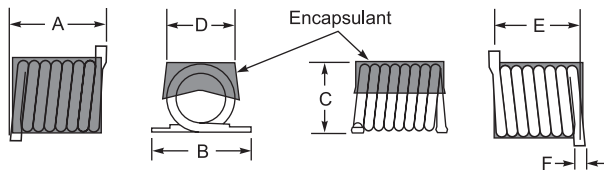
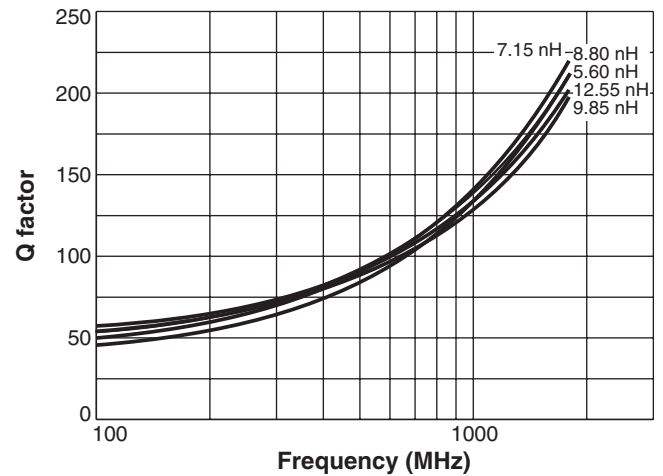
## L vs Frequency – MS394RAT Series



## Q vs Frequency – MS350RAT Series



## Q vs Frequency – MS394RAT Series



Size	A max	B max	C max	D	E	F max
350	0.095 2,41	0.135 3,43	0.060 1,52	0.055 ±0.010 1,40 ±0,25	0.072 ±0.010 1,83 ±0,25	0.020 0,51
394	0.165 4,19	0.135 3,43	0.062 1,58	0.055 ±0.010 1,40 ±0,25	0.144 ±0.012 3,66 ±0,30	0.020 0,51

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

### Suggested Land Patterns

