

# High-Reliability Air Core Inductors

MS561RAU  
MS615RAU  
MS643RAU



- Excellent Q factors – up to 194 at 100 MHz!
- Current handling as high as 57 Amps
- Inductance values from 22 to 257 nH
- Tin-lead (Sn-Pb) termination for the best possible board adhesion

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

**Ambient temperature** –55°C to +125°C with Irms current

**Maximum part temperature** +155°C (ambient + temp rise).

**Storage temperature** Component: –55°C to +155°C.  
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)

Part number <sup>1</sup>	Inductance <sup>2</sup> ±20% (nH)	Q <sup>3</sup> min	Q test freq (MHz)	SRF min <sup>4</sup> (MHz)	DCR (mOhm)		Irms (A) <sup>5</sup>		Weight (g)
					typ	max	20°C rise	40°C rise	
MS561RAU23NMSZ	23.5	70	100	720	1.05	1.20	18.0	26.0	0.49
MS561RAU46NMSZ	46.5	110	100	400	1.50	1.62	17.9	25.5	0.65
MS561RAU79NMSZ	79.0	110	50	400	1.95	2.11	17.8	25.0	0.82
MS561RAU111MSZ	111	120	50	360	2.53	2.73	15.7	22.0	0.98
MS561RAU141MSZ	146	110	50	350	3.08	3.33	14.1	19.3	1.23
MS615RAU22NMSZ	22.0	150	100	640	0.48	0.55	40.5	57.0	2.20
MS615RAU42NMSZ	42.0	160	50	440	0.70	0.77	38.0	52.0	2.70
MS615RAU66NMSZ	66.0	160	50	400	0.90	0.99	35.0	48.0	3.20
MS615RAU90NMSZ	90.0	140	50	320	1.10	1.21	33.0	45.0	3.70
MS615RAU111MSZ	117	140	50	320	1.30	1.43	32.0	44.0	4.20
MS643RAU33NMSZ	33	180	100	790	0.63	0.74	32.5	43.0	1.60
MS643RAU66NMSZ	66	150	50	370	0.90	1.00	31.5	42.5	2.30
MS643RAU111MSZ	108	150	50	300	1.20	1.34	31.0	42.0	3.10
MS643RAU151MSZ	155	150	50	280	1.44	1.60	29.4	39.7	3.60
MS643RAU201MSZ	202	150	50	255	1.70	1.82	26.3	35.8	4.40
MS643RAU251MSZ	257	150	50	245	1.94	2.15	24.9	34.5	5.00

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

**MS643RAU251MSZ**

**Screening:** Z = Unscreened

Y = Unscreened (SLDC Option A)

W = Unscreened (SLDC Option B)

H = Coilcraft CP-SA-10001 Group A

G = Coilcraft CP-SA-10001 Group A (SLDC Option A)

D = Coilcraft CP-SA-10001 Group A (SLDC Option B)

1/2/3 = EEE-INST-002 (Family 1) Level 1/2/3

4/5 = MIL-STD-981 (Family 04) Class B=4, Class S=5

F = ESCC3201 (F4 operational life performed at 105°C)

• Screening performed to the document's latest revision.

• 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.

2. Inductance measured at 1 MHz, 0.1 Vrms, 0 A using an Agilent/HP HP4291A impedance analyzer with an Agilent/HP 16193A test fixture or equivalents.

3. Q measured at specified frequency using an Agilent/HP 4291A impedance analyzer or equivalent and an Agilent 16092A (or equivalent) test fixture.

4. SRF measured using an Agilent/HP 8753 network analyzer or equivalent and a Coilcraft CCF1199 test fixture.

5. Current that causes the specified temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings

6. Electrical specifications at 25°C.

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



CRITICAL PRODUCTS & SERVICES

1102 Silver Lake Road  
Cary, IL 60013  
Phone 800-981-0363

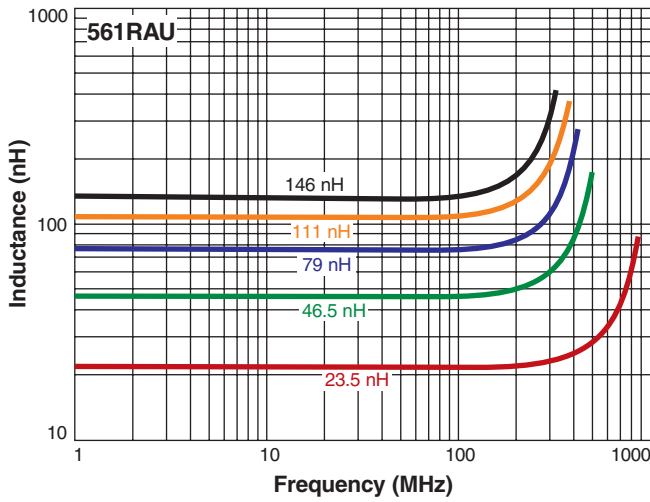
Fax 847-639-1508  
Email cps@coilcraft.com  
www.coilcraft-cps.com

Document MS893-1 Revised 12/20/23

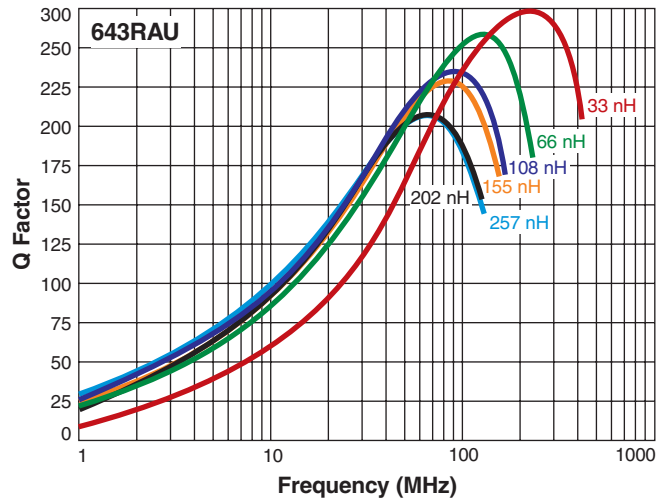
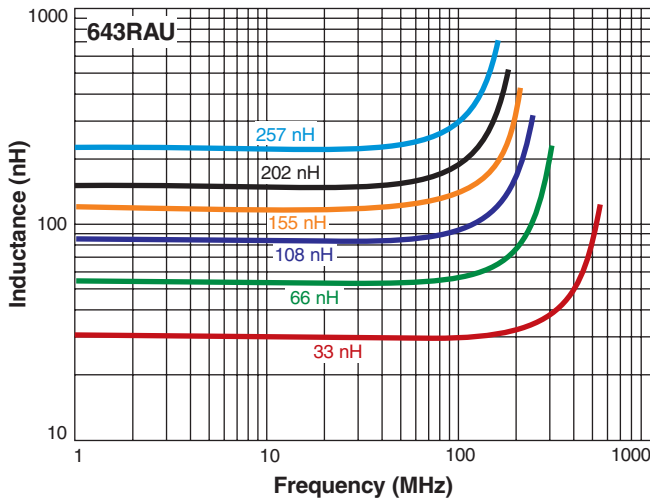
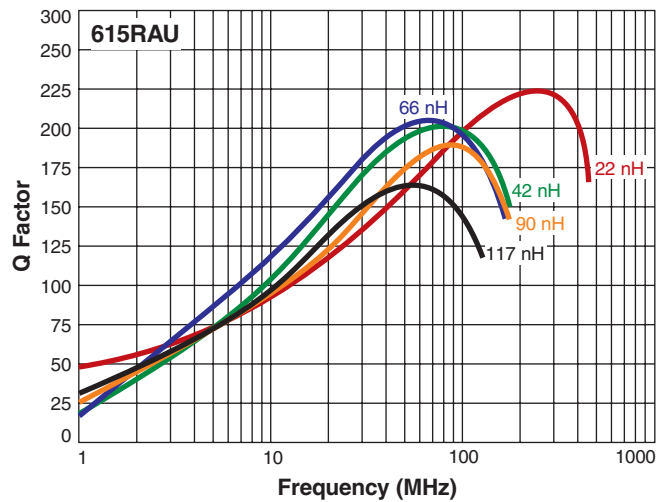
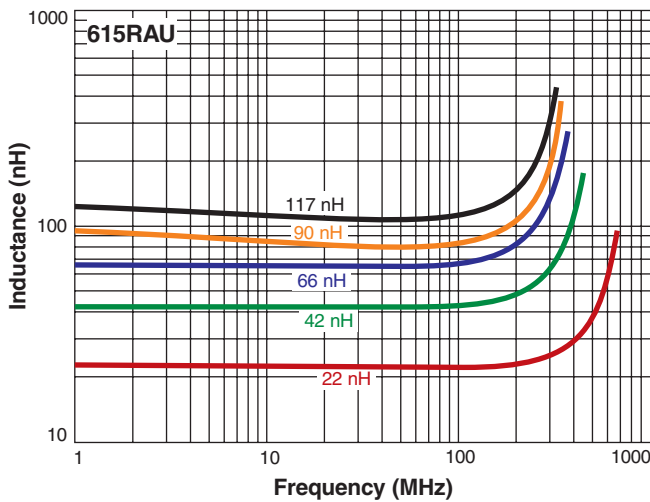
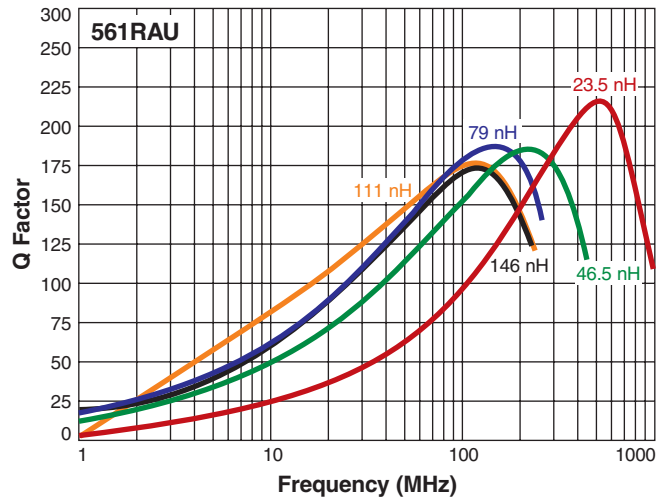
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# Air Core Inductors – MS561RAU, MS615RAU, MS643RAU

L vs Frequency



Q vs Frequency



1102 Silver Lake Road  
Cary, IL 60013  
Phone 800-981-0363

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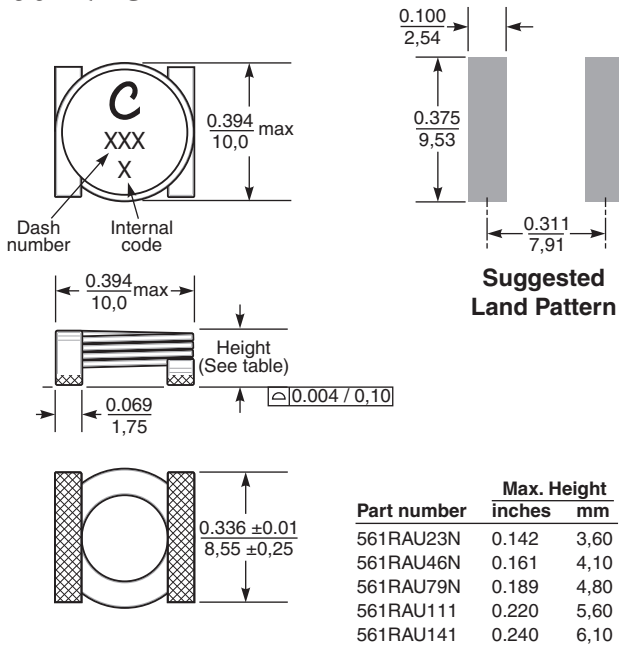
Fax 847-639-1508  
Email [cps@coilcraft.com](mailto:cps@coilcraft.com)  
[www.coilcraft-cps.com](http://www.coilcraft-cps.com)

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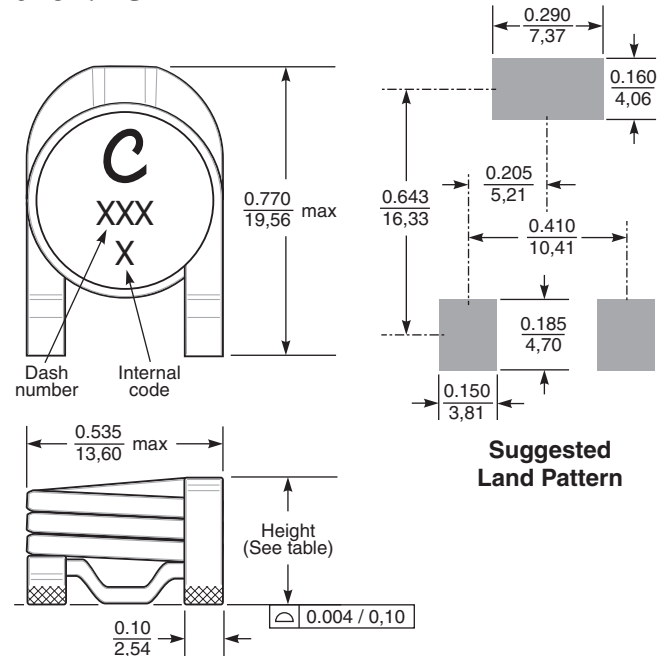
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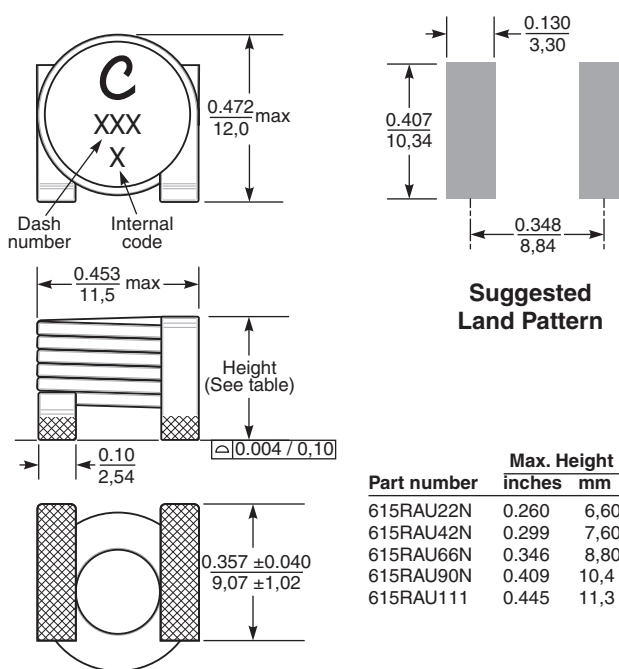
## 561RAU



## 643RAU



## 615RAU



All dimensions are in  $\frac{\text{inches}}{\text{mm}}$ .

### Enhanced crush resistant Packaging

- MS561RAU23N** 1000/13" reel
- MS561RAU46N** 900/13" reel
- MS561RAU79N** 800/13" reel
- Plastic tape: 24 mm wide, 0.35 mm thick, 16 mm pocket spacing
- MS561RAU111** 700/13" reel
- MS561RAU141** 600/13" reel
- Plastic tape: 24 mm wide, 0.40 mm thick, 16 mm pocket spacing
- MS615RAU22N** 450/13" reel
- MS615RAU42N** 400/13" reel
- MS615RAU66N** 350/13" reel
- MS615RAU90N** 300/13" reel
- MS615RAU111** 250/13" reel
- Plastic tape: 24 mm wide, 0.50 mm thick, 20 mm pocket spacing
- MS643RAU33N** 500/13" reel
- MS643RAU66N** 450/13" reel
- MS643RAU111** 400/13" reel
- MS643RAU151** 350/13" reel
- MS643RAU201** 300/13" reel
- MS643RAU251** 250/13" reel
- Plastic tape: 44 mm wide, 0.50 mm thick, 20 mm pocket spacing

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