

# 240°C Air Core Inductors

AT422RAS  
AT466RAS  
AT522RAS  
AT573RAS



- Excellent Q factors – up to 230 at 400 MHz!
- Current handling as high as 5.7 Amps
- Inductance values from 27 to 500 nH
- Flat top for reliable pick and place
- Special materials allow operation in ambient temperatures as low as –65°C and up to 185°C.
- Passes NASA low outgassing specifications
- Constructed with materials that are fungal inert (rating of 0 per MIL-STD-810F)
- Tin-lead (Sn-Pb) terminations ensure the best possible board adhesion

**Terminations** Tin-lead (63/37) over copper. Other terminations also available.

**Ambient temperature** –65°C to +185°C with Irms current

**Maximum part temperature** +240°C (ambient + temp rise).

**Storage temperature** Component: –65°C to +240°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)

Part number <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance	Q <sup>3</sup>		Test frequency (MHz)	SRF min <sup>4</sup> (GHz)	DCR max (mOhm)	Irms <sup>5</sup> (A)
			min	typ				
AT422RAS27N_SZ	27	5,2	170	200	400	2.60	8.1	5.5
AT422RAS30N_SZ	30	5,2	170	200	400	2.40	8.3	5.5
AT422RAS33N_SZ	33	5,2	170	200	400	2.30	9.5	4.8
AT422RAS36N_SZ	36	5,2	170	200	400	2.30	9.8	4.8
AT422RAS39N_SZ	39	5,2	170	200	400	2.20	10.0	4.8
AT422RAS43N_SZ	43	5,2	170	200	400	2.20	10.8	4.4
AT422RAS47N_SZ	47	5,2	170	200	400	2.20	11.3	4.4
AT466RAS47N_SZ	47	5,2	190	230	400	1.40	6.35	4.9
AT466RAS68N_SZ	68	5,2	190	230	400	1.30	8.60	5.5
AT466RAS82N_SZ	82	5,2	190	230	400	1.20	9.40	5.6

Continued on next page

1. When ordering, specify **tolerance**, **termination** and **screening** codes:

AT466RAS82NJSZ

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

**Termination:** S = Tin-lead (63/37) over copper  
T = Tin-silver-copper (95.5/4/0.5) over copper  
L = Tin-silver (96.5/3.5) over copper

**Screening:** Z = Unscreened  
H = Group A screening per Coilcraft CP-SA-10001  
F = ESCC3201 (F4 operational life performed at 90°C)  
1 = EEE-INST-002 (Family 3) Level 1  
2 = EEE-INST-002 (Family 3) Level 2  
3 = EEE-INST-002 (Family 3) Level 3  
4 = MIL-STD-981 (Family 50) Class B  
5 = MIL-STD-981 (Family 50) Class S

- Screening performed to the document's latest revision.
- Screening not available for parts with 2% tolerance.
- 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.
- Country of origin restrictions available; prefix option G.

2. Inductance measured at specified test frequency, 0.1 Vrms, 0 A using an Agilent/HP 4286A LCR meter (or equivalent) with the following Coilcraft test fixtures: CCF1197 for AT422RAS and CCF1191C for AT466RAS
  3. Q measured at specified test frequency, using an Agilent/HP 4291A impedance analyzer.
  4. SRF measured using an Agilent/HP 8753ES network analyzer (or equivalent) and the CCF1248 Coilcraft test fixture.
  5. Current that causes a 20°C 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.

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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.

# 240°C Air Core Inductors AT422RAS, AT466RAS, AT522RAS, AT573RAS

Part number <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance	Q <sup>3</sup>		Test frequency (MHz)	SRF min <sup>4</sup> (GHz)	DCR max (mOhm)	Irms <sup>5</sup> (A)
			min	typ				
AT522RAS90N_SZ	90	5,2	120	140	50	0.900	5.50	5.0
AT522RAS111_SZ	110	5,2	120	140	50	0.850	6.50	5.7
AT522RAS131_SZ	130	5,2	120	140	50	0.800	7.50	5.4
AT522RAS161_SZ	160	5,2	120	140	50	0.750	8.25	5.7
AT522RAS181_SZ	180	5,2	120	140	50	0.750	9.50	5.0
AT522RAS221_SZ	220	5,2	120	140	50	0.900	11.0	5.0
AT522RAS271_SZ	270	5,2	120	140	50	0.800	12.5	4.3
AT522RAS301_SZ	300	5,2	130	150	50	0.720	13.8	3.7
AT573RAS331_LZ	330	5,2	120	180	50	0.660	12.5	4.7
AT573RAS361_LZ	360	5,2	120	180	50	0.620	13.5	4.5
AT573RAS391_LZ	390	5,2	120	180	50	0.590	14.5	4.4
AT573RAS431_LZ	430	5,2	120	180	50	0.550	15.5	4.2
AT573RAS501_LZ	500	5,2	120	180	50	0.500	16.5	4.3

1. When ordering, specify **tolerance, termination and screening** codes:

AT573RAS501JSZ

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

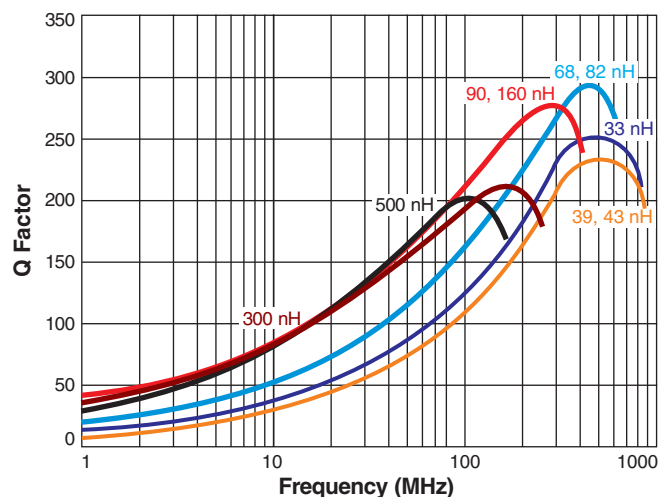
**Termination:** S = Tin-lead (63/37) over copper  
T = Tin-silver-copper (95.5/4/0.5) over copper  
L = Tin-silver (96.5/3.5) over copper

**Screening:** Z = Unscreened  
H = Group A screening per Coilcraft CP-SA-10001  
F = Screening per ESCC 3201

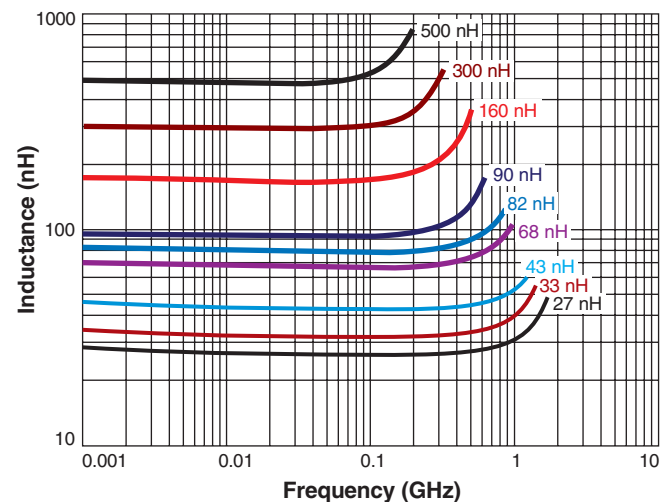
- Screening performed to the document's latest revision.
- Screening not available for parts with 2% tolerance.
- Lot qualification (Group B) available.
- Testing T and U have been replaced with more detailed codes 4, 5, and 1, 2, 3, respectively. Codes T and U can still be used, if necessary. Custom testing also available.
- Country of origin restrictions available; prefix option G.

2. Inductance measured at specified test frequency, 0.1 Vrms, 0 A using an Agilent/HP 4286A LCR meter (or equivalent) with the CCF1248 Coilcraft test fixture.
  3. Q measured at specified test frequency, using an Agilent/HP 4291A impedance analyzer (or equivalent).
  4. SRF measured using an Agilent/HP 8753ES network analyzer (or equivalent) and the following Coilcraft test fixture: CCF1199 for AT522RAS 90 nH through 160 nH; and CCF1200 for all others.
  5. Current that causes a 20°C 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.

## Typical Q vs Frequency



## Typical L vs Frequency



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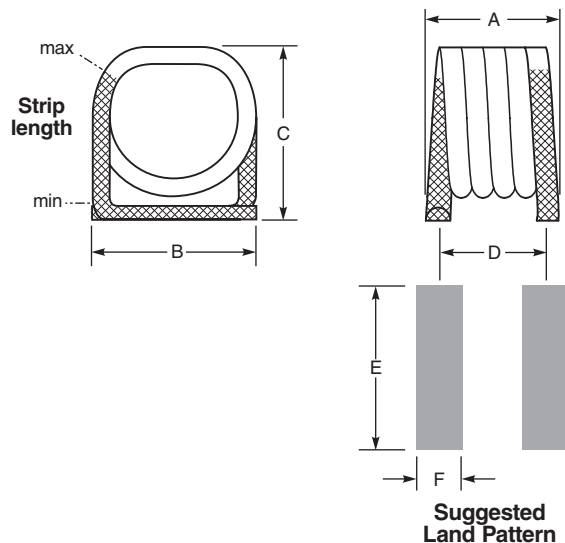
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# 240°C Air Core Inductors AT422RAS, AT466RAS, AT522RAS, AT573RAS



## Packaging:

<b>AT422RAS</b> 600/7" reel; Plastic tape: 12 mm wide, 0.35 mm thick, 8 mm pocket spacing, 3.05 mm pocket depth
<b>AT466RAS</b> 500/7" reel; Plastic tape: 12 mm wide, 0.26 mm thick, 8 mm pocket spacing, 4.06 mm pocket depth
<b>AT522RAS90N</b> 250/7" reel; Plastic tape: 16 mm wide, 0.32 mm thick, 12 mm pocket spacing, 5.97 mm pocket depth
<b>AT522RAS111</b> 250/7" reel; Plastic tape: 16 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
<b>AT522RAS131</b> 250/7" reel; Plastic tape: 16 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
<b>AT522RAS161</b> 250/7" reel; Plastic tape: 16 mm wide, 0.33 mm thick, 12 mm pocket spacing, 5.97 mm pocket depth
<b>AT522RAS181</b> 250/7" reel; Plastic tape: 16 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
<b>AT522RAS221</b> 250/7" reel; Plastic tape: 24 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
<b>AT522RAS271</b> 250/7" reel; Plastic tape: 24 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
<b>AT522RAS301</b> 250/7" reel; Plastic tape: 24 mm wide, 0.33 mm thick, 12 mm pocket spacing, 5.97 mm pocket depth
<b>AT573RAS331</b> 150/7" reel; Plastic tape: 24 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.99 mm pocket depth
<b>AT573RAS361</b> 150/7" reel; Plastic tape: 24 mm wide, 0.40 mm thick, 12 mm pocket spacing, 7.75 mm pocket depth
<b>AT573RAS391</b> 150/7" reel; Plastic tape: 24 mm wide, 0.45 mm thick, 12 mm pocket spacing, 7.75 mm pocket depth
<b>AT573RAS431</b> 150/7" reel; Plastic tape: 24 mm wide, 0.45 mm thick, 12 mm pocket spacing, 7.75 mm pocket depth
<b>AT573RAS501</b> 150/7" reel; Plastic tape: 24 mm wide, 0.33 mm thick, 12 mm pocket spacing, 7.49 mm pocket depth

## Recommended pick and place nozzles

<b>AT422RAS:</b> OD: 0.054"; ID: 0.031"
<b>AT466RAS:</b> OD: 0.170 inch; ID: 0.059 inch
<b>AT522RAS, 47 – 200 nH:</b> 3.5 mm × 7 mm (rubber). This nozzle is available <a href="#">here</a> .
<b>AT522RAS, 270 – 300 nH:</b> 4.0 mm × 12 mm (rubber). This nozzle is available <a href="#">here</a> .
<b>AT573RAS:</b> 4.0 mm × 12 mm (rubber). This nozzle is available <a href="#">here</a> .

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).

Part number	A	B	C	D	E	F	Weight ±20% (mg)
AT422RAS27N	0.105±0.010 2.67 ±0.254	0.105 ±0.015 2.67 ±0.381	0.110 ±0.005 2.79 ±0.127	0.090 2.29	0.120 3.05	0.040 1.02	32.9
AT422RAS30N	0.105 ±0.010 2.67 ±0.254	0.105 ±0.015 2.67 ±0.381	0.110 ±0.005 2.79 ±0.127	0.090 2.29	0.120 3.05	0.040 1.02	33.9
AT422RAS33N	0.115 ±0.010 2.92 ±0.254	0.105 ±0.015 2.67 ±0.381	0.110 ±0.005 2.79 ±0.127	0.100 2.54	0.120 3.05	0.040 1.02	37.6
AT422RAS36N	0.115 ±0.010 2.92 ±0.254	0.105 ±0.015 2.67 ±0.381	0.110 ±0.005 2.79 ±0.127	0.100 2.54	0.120 3.05	0.040 1.02	40.3
AT422RAS39N	0.115 ±0.010 2.92 ±0.254	0.105 ±0.015 2.67 ±0.381	0.110 ±0.005 2.79 ±0.127	0.100 2.54	0.120 3.05	0.040 1.02	42.6
AT422RAS43N	0.130 ±0.010 3.30 ±0.254	0.105 ±0.015 2.67 ±0.381	0.110 ±0.005 2.79 ±0.127	0.110 2.79	0.120 3.05	0.040 1.02	47.6
AT422RAS47N	0.130 ±0.010 3.30 ±0.254	0.105 ±0.015 2.67 ±0.381	0.110 ±0.005 2.79 ±0.127	0.110 2.79	0.120 3.05	0.040 1.02	49.9
AT466RAS47N	0.160±0.010 4.06 ±0.254	0.140 ±0.007 3.56 ±0.178	0.147 ±0.007 3.73 ±0.178	0.140 3.56	0.175 4.45	0.070 1.78	110
AT466RAS68N	0.210 ±0.010 5.33 ±0.254	0.140 ±0.007 3.56 ±0.178	0.147 ±0.007 3.73 ±0.178	0.190 4.83	0.175 4.45	0.070 1.78	145
AT466RAS82N	0.230 ±0.010 5.84 ±0.254	0.140 ±0.007 3.56 ±0.178	0.147 ±0.007 3.73 ±0.178	0.210 5.33	0.175 4.45	0.070 1.78	165
AT522RAS90N	0.205 ±0.015 5.21 ±0.381	0.215 ±0.010 5.46 ±0.254	0.224 ±0.010 5.69 ±0.254	0.175 4.45	0.255 6.48	0.085 2.16	280
AT522RAS111	0.250 ±0.015 6.35 ±0.381	0.220 ±0.010 5.59 ±0.254	0.224 ±0.010 5.69 ±0.254	0.230 5.84	0.265 6.73	0.085 2.16	330
AT522RAS131	0.265 ±0.015 6.73 ±0.381	0.220 ±0.010 5.59 ±0.254	0.224 ±0.010 5.69 ±0.254	0.245 6.22	0.265 6.73	0.085 2.16	371
AT522RAS161	0.290 ±0.015 7.37 ±0.381	0.220 ±0.010 5.59 ±0.254	0.224 ±0.010 5.69 ±0.254	0.260 6.60	0.265 6.73	0.085 2.16	425
AT522RAS181	0.320 ±0.015 8.13 ±0.381	0.220 ±0.010 5.59 ±0.254	0.224 ±0.010 5.69 ±0.254	0.290 7.37	0.265 6.73	0.085 2.16	460
AT522RAS221	0.390 ±0.015 9.91 ±0.381	0.220 ±0.010 5.59 ±0.254	0.224 ±0.010 5.69 ±0.254	0.360 9.14	0.265 6.73	0.085 2.16	550
AT522RAS271	0.460 ±0.015 11.68 ±0.381	0.220 ±0.010 5.59 ±0.254	0.224 ±0.010 5.69 ±0.254	0.420 10.67	0.265 6.73	0.085 2.16	640
AT522RAS301	0.470 ±0.015 11.94 ±0.381	0.225 ±0.010 5.72 ±0.254	0.224 ±0.010 5.69 ±0.254	0.440 11.18	0.265 6.73	0.085 2.16	650
AT573RAS331	0.405 ±0.015 10.29 ±0.381	0.295 ±0.010 7.49 ±0.254	0.285 ±0.010 7.24 ±0.254	0.375 9.53	0.325 8.26	0.09 2.29	855
AT573RAS361	0.445 ±0.015 11.30 ±0.381	0.295 ±0.010 7.49 ±0.254	0.285 ±0.010 7.24 ±0.254	0.415 10.541	0.325 8.26	0.09 2.29	928
AT573RAS391	0.485 ±0.015 12.32 ±0.381	0.295 ±0.010 7.49 ±0.254	0.285 ±0.010 7.24 ±0.254	0.455 11.56	0.325 8.26	0.09 2.29	990
AT573RAS431	0.520 ±0.015 13.21 ±0.381	0.295 ±0.010 7.49 ±0.254	0.285 ±0.010 7.24 ±0.254	0.490 12.45	0.325 8.26	0.09 2.29	1072
AT573RAS501	0.550 ±0.015 13.97 ±0.381	0.295 ±0.010 7.49 ±0.254	0.285 ±0.010 7.24 ±0.254	0.520 13.21	0.325 8.26	0.09 2.29	1160

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

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

**SPICE models**  
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