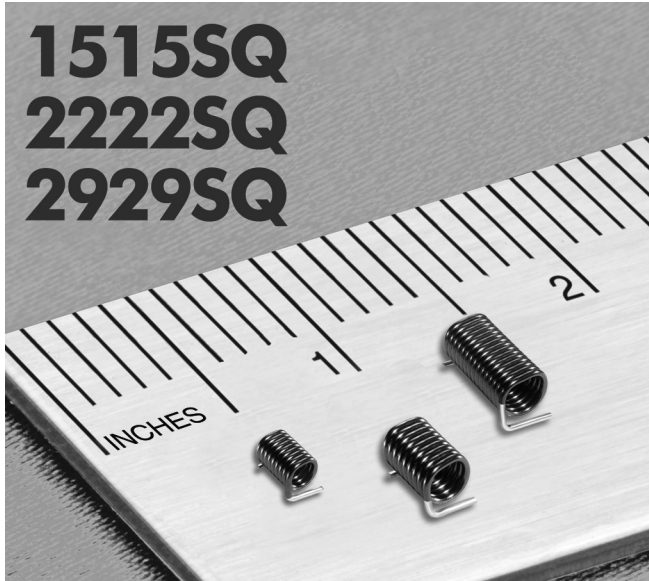




# Square Air Core Inductors

1515SQ  
2222SQ  
2929SQ



- Excellent Q factors – up to 230 at 400 MHz!
- Current handling as high as 5.7 Amps
- Inductance values from 47 to 500 nH
- Flat top and bottom for reliable pick and place and mechanical stability

**Designer's Kit C438** contains 10 each of all 5% parts

**Terminations** RoHS compliant tin-silver over copper

**Ambient temperature** –40°C to +125°C with Irms current

**Maximum part temperature** +145°C (ambient + temp rise).

**Storage temperature** Component: –40°C to +145°C.  
Tape and reel 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)

**Mean Time Between Failures (MTBF)** 1 billion hours

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

Part number <sup>1</sup>	Inductance <sup>2</sup> (nH)	Percent tolerance <sup>3</sup>	Q <sup>4</sup> typ	Test frequency (MHz)	SRF min <sup>5</sup> (GHz)	DCR max (mOhm)	Irms <sup>6</sup> (A)
1515SQ-47N_E_	47	<b>5,2</b>	230	400	1.87	6.35	4.9
1515SQ-68N_E_	68	<b>5,2</b>	230	400	2.13	8.60	5.5
1515SQ-82N_E_	82	<b>5,2</b>	230	400	1.79	9.40	5.6
2222SQ-90N_E_	90	<b>5,2</b>	140	50	1.15	5.50	5.0
2222SQ-111_E_	110	<b>5,2</b>	140	50	1.00	6.50	5.7
2222SQ-131_E_	130	<b>5,2</b>	140	50	1.00	7.50	5.4
2222SQ-161_E_	160	<b>5,2</b>	140	50	1.00	8.25	5.7
2222SQ-181_E_	180	<b>5,2</b>	140	50	1.10	9.50	5.0
2222SQ-221_E_	220	<b>5,2</b>	140	50	1.00	11.0	5.0
2222SQ-271_E_	270	<b>5,2</b>	140	50	0.800	12.5	4.3
2222SQ-301_E_	300	<b>5,2</b>	150	50	0.720	13.8	3.7
2929SQ-331_E_	330	<b>5,2</b>	180	50	0.660	12.5	4.7
2929SQ-361_E_	360	<b>5,2</b>	180	50	0.620	13.5	4.5
2929SQ-391_E_	390	<b>5,2</b>	180	50	0.590	14.5	4.4
2929SQ-431_E_	430	<b>5,2</b>	180	50	0.550	15.5	4.2
2929SQ-501_E_	500	<b>5,2</b>	180	50	0.500	16.5	4.3

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

1515SQ-82N**J**E**C**

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

(Table shows stock tolerances in bold.)

**Termination:** E = RoHS compliant tin-silver (96.5/3.5) over copper.

**Special order, added cost:**

T = RoHS tin-silver-copper (95.5/4/0.5) over copper  
or S = non-RoHS tin-lead (63/37) over copper.

**Packaging:** C = 7" machine-ready reel. EIA-481 embossed plastic tape.

B = Less than full reel. In tape, but not machine ready.  
To have a leader and trailer added (\$25 charge),  
use code letter C instead.

D = 13" machine-ready reel. EIA-481 embossed plastic  
tape. Factory order only, not stocked.

2. Inductance measured at specified test frequency, 0.1 Vrms, 0 A using an Agilent/HP 4287A LCR meter with the following Coilcraft test fixtures: CCF1191C for 1515SQ; CCF1197A for 2222SQ and 2929SQ.

3. Tolerances in bold are stocked for immediate shipment.

4. Q measured at specified test frequency, using an Agilent/HP 4291A impedance analyzer.

5. SRF measured using an Agilent/HP 8753 network analyzer and the following Coilcraft test fixtures: CCF1143 for 1515SQ; CCF1199 for 2222SQ-90N and 2222SQ-161; CCF1200 for 2222SQ-301 and 2929SQ-501.

6. 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.

7. Electrical specifications at 25°C.

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



www.coilcraft.com

**US** +1-847-639-6400 sales@coilcraft.com

**UK** +44-1236-730595 sales@coilcraft-europe.com

**Taiwan** +886-2-2264 3646 sales@coilcraft.com.tw

**China** +86-21-6218 8074 sales@coilcraft.com.cn

**Singapore** + 65-6484 8412 sales@coilcraft.com.sg

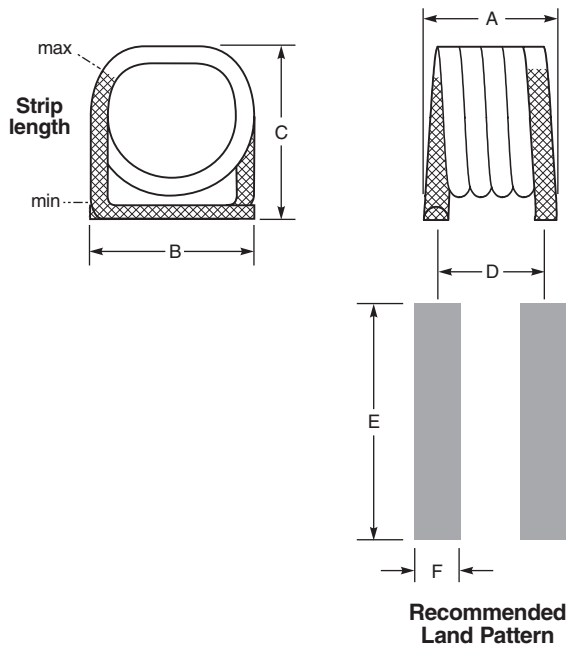
Document 720-1 Revised 10/12/15

© Coilcraft Inc. 2017

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.



# Square Air Core Inductors – 1515SQ, 2222SQ, 2929SQ



Part number	A	B	C	D	E	F	Weight (mg)
1515SQ-47N	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
1515SQ-68N	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
1515SQ-82N	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
2222SQ-90N	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
2222SQ-111	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
2222SQ-131	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
2222SQ-161	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
2222SQ-181	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
2222SQ-221	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
2222SQ-271	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
2222SQ-301	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
2929SQ-331	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
2929SQ-361	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
2929SQ-391	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
2929SQ-431	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
2929SQ-501	0.550 ±0.015 14.00 ±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  $\frac{\text{inches}}{\text{mm}}$ .

**Packaging:**

- 1515SQ-47N** 500/7" reel; 2000/13" reel Plastic tape: 12 mm wide, 0.26 mm thick, 8 mm pocket spacing, 4.06 mm pocket depth
- 1515SQ-68N** 500/7" reel; 2000/13" reel Plastic tape: 12 mm wide, 0.26 mm thick, 8 mm pocket spacing, 4.06 mm pocket depth
- 1515SQ-82N** 500/7" reel; 2000/13" reel Plastic tape: 12 mm wide, 0.26 mm thick, 8 mm pocket spacing, 4.06 mm pocket depth
- 2222SQ-90N** 250/7" reel; 750/13" reel Plastic tape: 16 mm wide, 0.32 mm thick, 12 mm pocket spacing, 5.97 mm pocket depth
- 2222SQ-111** 250/7" reel; 750/13" reel Plastic tape: 16 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
- 2222SQ-131** 250/7" reel; 750/13" reel Plastic tape: 16 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
- 2222SQ-161** 250/7" reel; 750/13" reel Plastic tape: 16 mm wide, 0.33 mm thick, 12 mm pocket spacing, 5.97 mm pocket depth
- 2222SQ-181** 250/7" reel; 750/13" reel Plastic tape: 16 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
- 2222SQ-221** 250/7" reel; 750/13" reel Plastic tape: 24 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
- 2222SQ-271** 250/7" reel; 750/13" reel Plastic tape: 24 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.10 mm pocket depth
- 2222SQ-301** 250/7" reel; 750/13" reel Plastic tape: 24 mm wide, 0.33 mm thick, 12 mm pocket spacing, 5.97 mm pocket depth
- 2929SQ-331** 150/7" reel; 600/13" reel Plastic tape: 24 mm wide, 0.40 mm thick, 12 mm pocket spacing, 6.99 mm pocket depth
- 2929SQ-361** 150/7" reel; 600/13" reel Plastic tape: 24 mm wide, 0.40 mm thick, 12 mm pocket spacing, 7.75 mm pocket depth
- 2929SQ-391** 150/7" reel; 600/13" reel Plastic tape: 24 mm wide, 0.45 mm thick, 12 mm pocket spacing, 7.75 mm pocket depth
- 2929SQ-431** 150/7" reel; 600/13" reel Plastic tape: 24 mm wide, 0.45 mm thick, 12 mm pocket spacing, 7.75 mm pocket depth
- 2929SQ-501** 150/7" reel; 600/13" reel Plastic tape: 24 mm wide, 0.33 mm thick, 12 mm pocket spacing, 7.49 mm pocket depth

**Recommended pick and place nozzles**

- 1515SQ:** OD: 0.170 inch; ID: 0.059 inch
- 2222SQ, 47 – 200 nH:** 3.5 mm x 7 mm (rubber). This nozzle is available [here](#).
- 2222SQ, 270 – 300 nH:** 4.0 mm x 12 mm (rubber). This nozzle is available [here](#).
- 2929SQ:** 4.0 mm x 12 mm (rubber). This nozzle is available [here](#).

**S-Parameter files**

ON OUR WEB SITE

**SPICE models**

ON OUR WEB SITE

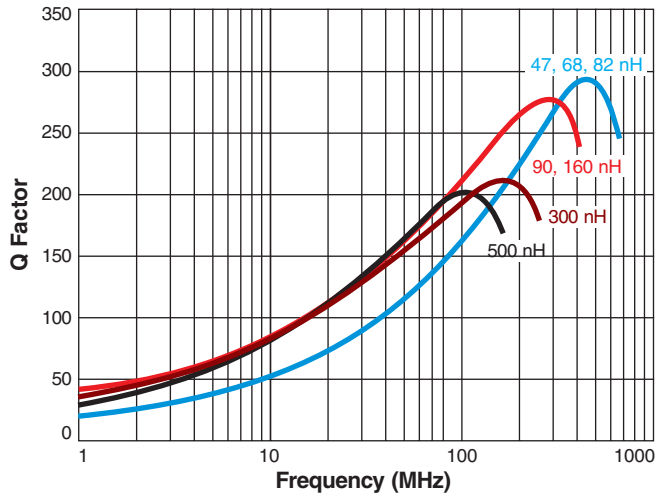


**US** +1-847-639-6400 sales@coilcraft.com  
**UK** +44-1236-730595 sales@coilcraft-europe.com  
**Taiwan** +886-2-2264 3646 sales@coilcraft.com.tw  
**China** +86-21-6218 8074 sales@coilcraft.com.cn  
**Singapore** + 65-6484 8412 sales@coilcraft.com.sg



# Square Air Core Inductors – 1515SQ, 2222SQ, 2929SQ

## Typical Q vs Frequency



## Typical L vs Frequency

