## Square Air Core Inductors

**Typical Application Diagram:**

- 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 parts 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 refloows 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)

### PCB washing
- Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787_PCB_Washing.pdf](#).

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### Table: Inductors Specifications

<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance (nH)</th>
<th>Percent tolerance</th>
<th>Q&lt;sub&gt;typ&lt;/sub&gt;</th>
<th>Test frequency (MHz)</th>
<th>SRF min&lt;sup&gt;3&lt;/sup&gt; (GHz)</th>
<th>DCR max (mOhm)</th>
<th>Irms&lt;sup&gt;6&lt;/sup&gt; (A)</th>
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<tbody>
<tr>
<td>1515SQ-47N_E</td>
<td>47</td>
<td>5.2</td>
<td>230</td>
<td>400</td>
<td>1.87</td>
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<td>400</td>
<td>1.79</td>
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</table>

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

   **1515SQ-82NJE 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:**
   **Packaging:** C = 7” machine-ready reel. EIA-481 embossed plastic tape. Quantities less than full reel available in tape (not machine ready) or with leader and trailer ($25 charge).
   **D = 13” machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked.
   **B = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from B to C.**

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.

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[Doc787_PCB_Washing.pdf](#)

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Specification subject to change without notice

Please check web site for latest information
Square Air Core Inductors – 1515SQ, 2222SQ, 2929SQ

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-301 0.470 ±0.015 0.225 ±0.010 0.224 ±0.010 0.440 ±0.015 0.325 ±0.010 0.09 1160
2929SQ-331 0.405 ±0.015 0.295 ±0.010 0.285 ±0.010 0.375 ±0.015 0.325 ±0.010 0.09 855
2929SQ-361 0.445 ±0.015 0.295 ±0.010 0.285 ±0.010 0.415 ±0.015 0.325 ±0.010 0.09 928
2929SQ-391 0.485 ±0.015 0.295 ±0.010 0.285 ±0.010 0.455 ±0.015 0.325 ±0.010 0.09 1072
2929SQ-431 0.520 ±0.015 0.295 ±0.010 0.285 ±0.010 0.490 ±0.015 0.325 ±0.010 0.09 1160
2929SQ-501 0.550 ±0.015 0.295 ±0.010 0.285 ±0.010 0.520 ±0.015 0.325 ±0.010 0.09 1250

All dimensions are in inches, mm

Recommended pick and place nozzles

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

S-Parameter files
ON OUR WEB SITE

SpICE models
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Square Air Core Inductors – 1515SQ, 2222SQ, 2929SQ

Typical Q vs Frequency

Typical L vs Frequency