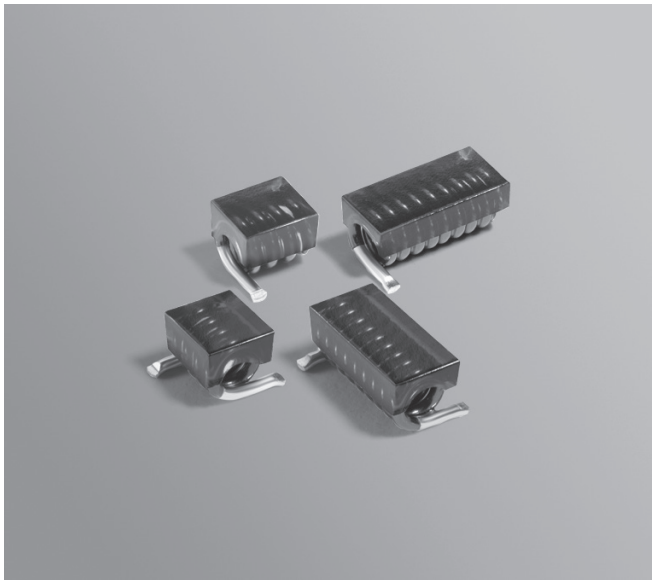
RoHS/ REACH COMPLIANT

Halogen Free

# Mini Air Core Inductors 1512SP 2712SP



- Small air core inductors feature high Q and tight tolerances
- Acrylic jacket provides a flat top for pick and place
- Solder coated leads ensure reliable soldering
- Wide range of standard EIA inductance values
- Available in two sizes: 4.45 × 3.94 × 3.15 mm and 6.86 × 4.45 × 3.15 mm
- **Designer's Kit C501** contains 10 of each part

**Terminations** RoHS compliant tin-silver over copper. Other terminations available at additional cost.

**Ambient temperature** –40°C to +125°C with Irms current, +125°C to +140°C with derated current

**Storage temperature** Component: –40°C to +140°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)

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

| Part number[1] | L[2] (nH) | Percent tol[3] | Q[4] min | SRF typ[5] (GHz) | DCR max[6] (mOhm) | Irms[7] max (A) | Weight (mg) |
|---|---|---|---|---|---|---|---|
| 1512SP-2N5K1E_ | 2.5 | **10** | 80 | 14.0 | 1.0 | 11.1 | 37.8 |
| 1512SP-2N7K1E_ | 2.7 | **10** | 80 | 14.0 | 3.0 | 8.4 | 16.6 |
| 1512SP-4N7_2E_ | 4.7 | **5,2**,1 | 80 | 18.0 | 2.0 | 9.4 | 51.3 |
| 1512SP-5N6_2E_ | 5.6 | **5,2**,1 | 80 | 18.0 | 3.2 | 6.6 | 33.9 |
| 1512SP-6N8_3E_ | 6.8 | **5,2**,1 | 80 | 6.4 | 2.1 | 9.8 | 78.4 |
| 1512SP-8N2_3E_ | 8.2 | **5,2**,1 | 80 | 7.2 | 2.9 | 7.4 | 57.2 |
| 1512SP-10N_4E_ | 10.0 | **5,2**,1 | 80 | 3.4 | 2.5 | 9.2 | 94.8 |
| 1512SP-12N_4E_ | 12.0 | **5,2**,1 | 80 | 4.1 | 3.5 | 8.0 | 80.2 |
| 1512SP-15N_4E_ | 15.0 | **5,2**,1 | 80 | 4.5 | 5.0 | 5.9 | 55.8 |
| 1512SP-18N_4E_ | 18.0 | **5,2**,1 | 80 | 5.2 | 9.3 | 3.7 | 34.2 |
| 1512SP-22N_5E_ | 22.0 | **5,2**,1 | 80 | 3.1 | 5.3 | 5.2 | 64.0 |
| 1512SP-27N_5E_ | 27.0 | **5,2**,1 | 80 | 4.2 | 10.6 | 3.5 | 37.5 |
| 1512SP-33N_6E_ | 33.0 | **5,2**,1 | 80 | 2.8 | 8.6 | 3.9 | 50.7 |
| 1512SP-43N_7E_ | 43.0 | **5,2**,1 | 80 | 2.1 | 10.6 | 4.3 | 55.5 |
| 1512SP-51N_7E_ | 51.0 | **5,2**,1 | 80 | 2.1 | 14.5 | 2.7 | 48.0 |
| 1512SP-62N_8E_ | 62.0 | **5,2**,1 | 80 | 1.8 | 15.5 | 2.7 | 51.1 |

Continued on next page

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

**1512SP-62NJ8EC**

**Tolerance:** **F** = 1% **G** = 2% **J** = 5% **K** = 10% (Table shows stock tolerances in bold.)
**Termination:** **E** = Halogen free component. RoHS compliant tin-silver (96.5/3.5) over copper terminations. Special order: **T** = RoHS tin-silver-copper (95.5/4/0.5) or **S** = non-RoHS tin-lead (63/37).
**Packaging:** **C** = 7″ machine-ready reel. EIA-481 embossed plastic tape, 700 (1512SP) or 500 (2712SP) parts per full reel. 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, 2500 (1512SP) or 2200 (2712SP) parts per full reel.

2. Inductance measured at 150 MHz with an Agilent/HP 4286 or equivalent, a Coilcraft SMD-A and correlation.
3. Tolerances in bold are stocked for immediate shipment.
4. Q measured at 150 MHz using an Agilent/HP 4291A with an Agilent/HP 16193A test fixture or equivalents.
5. SRF is measured on an Agilent 8753ES or equivalent with a Coilcraft CCF1268 test fixture.
6. DCR is measured on a Keithley 580 Micro-ohmmeter or equivalent.
7. Current that causes a 15°C temperature rise from 125°C ambient.
8. Electrical specifications at 25°C.

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

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# Mini Air Core Inductors – 2712SP and 1512SP

| Part number[1] | Inductance[2] (nH) | Percent tolerance[3] | Q[4] min | SRF typ[5] (GHz) | DCR max[6] (mOhm) | Irms[7] max (A) | Weight (mg) |
|---|---|---|---|---|---|---|---|
| 2712SP-10N_4E_ | 10.0 | **5,2**,1 | 85 | 6.6 | 3.1 | 10.3 | 89.5 |
| 2712SP-12N_5E_ | 12.0 | **5,2**,1 | 85 | 5.8 | 3.4 | 7.8 | 102.5 |
| 2712SP-15N_6E_ | 15.0 | **5,2**,1 | 85 | 4.9 | 3.3 | 8.2 | 142.6 |
| 2712SP-18N_7E_ | 18.0 | **5,2**,1 | 85 | 3.9 | 3.5 | 7.9 | 156.2 |
| 2712SP-22N_7E_ | 22.0 | **5,2**,1 | 85 | 3.9 | 4.5 | 7.0 | 132.4 |
| 2712SP-27N_8E_ | 27.0 | **5,2**,1 | 85 | 3.1 | 5.0 | 6.6 | 144.0 |
| 2712SP-33N_8E_ | 33.0 | **5,2**,1 | 85 | 3.3 | 7.4 | 5.1 | 98.5 |
| 2712SP-39N_9E_ | 39.0 | **5,2**,1 | 90 | 2.7 | 6.8 | 4.6 | 133.3 |
| 2712SP-47N_0E_ | 47.0 | **5,2**,1 | 90 | 2.4 | 8.0 | 4.8 | 141.6 |
| 2712SP-51N_0E_ | 51.0 | **5,2**,1 | 95 | 2.4 | 9.25 | 4.1 | 117.9 |
| 2712SP-56N_0E_ | 56.0 | **5,2**,1 | 95 | 2.6 | 15.5 | 2.9 | 79.3 |
| 2712SP-68N_1E_ | 68.0 | **5,2**,1 | 100 | 2.3 | 16.0 | 3.1 | 85.9 |
| 2712SP-82N_3E_ | 82.0 | **5,2**,1 | 100 | 1.9 | 14.7 | 2.8 | 118.3 |
| 2712SP-101_4E_ | 100.0 | **5,2**,1 | 100 | 1.8 | 19.0 | 2.3 | 103.2 |
| 2712SP-121_4E_ | 120.0 | **5,2**,1 | 100 | 1.6 | 26.5 | 2.3 | 87.9 |
| 2712SP-151_6E_ | 150.0 | **5,2**,1 | 100 | 1.4 | 29.0 | 2.2 | 95.6 |

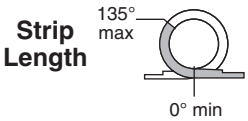
1. When ordering, please specify **tolerance**, **termination**, and **packaging** codes:

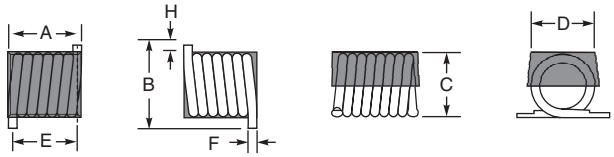
**2712SP-151J6EC**

**Tolerance:** **F** = 1% **G** = 2% **J** = 5% **K** = 10% (Table shows stock tolerances in bold.)
**Termination:** **E** = Halogen free component. RoHS compliant tin-silver (96.5/3.5) over copper terminations.
Special order: **T** = RoHS tin-silver-copper (95.5/4/0.5) or **S** = non-RoHS tin-lead (63/37).
**Packaging:** **C** = 7″ machine-ready reel. EIA-481 embossed plastic tape, 700 (1512SP) or 500 (2712)SP parts per full reel.
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, 2500 (1512SP) or 2200 (2712SP) parts per full reel.

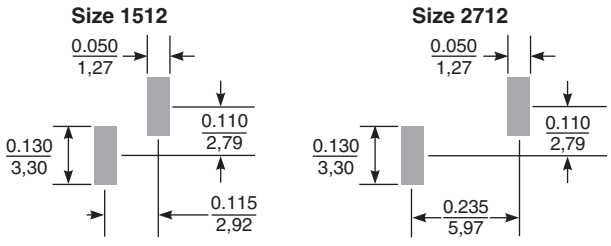
2. Inductance measured at 150 MHz with an Agilent/HP 4286 or equivalent, a Coilcraft SMD-A and correlation.
3. Tolerances in bold are stocked for immediate shipment.
4. Q measured at 150 MHz using an Agilent/HP 4291A with an Agilent/HP 16193A test fixture or equivalents.
5. SRF is measured on an Agilent 8753ES or equivalent with a Coilcraft CCF1268 test fixture.
6. DCR is measured on a Keithley 580 Micro-ohmmeter or equivalent.
7. Current that causes a 15°C temperature rise from 125°C ambient.
8. Electrical specifications at 25°C.

Refer to Doc 362 “Soldering Surface Mount Components” before soldering.




## Recommended Land Patterns




Dimensions are in inches / mm

| Part Size | Units | A MAX | B MAX | C MAX | D | E | F MAX | H |
|---|---|---|---|---|---|---|---|---|
| 1512 | in | 0.155 | 0.175 | 0.124<br>0.130 (-2N5) | 0.110<br>±0.010 | 0.115<br>±0.010 | 0.030 | 0.020<br>±0.010 |
| | mm | 3.94 | 4.45 | 3.15<br>3.30 (-2N5) | 2.79<br>±0.25 | 2.92<br>±0.25 | 0.76 | 0.51<br>±0.25 |
| 2712 | in | 0.270 | 0.175 | 0.124 | 0.110<br>±0.010 | 0.230<br>±0.015 | 0.030 | 0.020<br>±0.010 |
| | mm | 6.86 | 4.45 | 3.15 | 2.79<br>±0.25 | 5.84<br>±0.38 | 0.76 | 0.51<br>±0.25 |

**Packaging**
**1512:** 700/7″ reel; 2500/13″ reel Plastic tape: 12 mm wide, 0.32 mm thick, 8 mm pocket spacing, 3.3 mm pocket depth
**2712:** 500/7″ reel; 2200/13″ reel Plastic tape: 16 mm wide, 0.28 mm thick, 8 mm pocket spacing, 3.4 mm pocket depth
Recommended pick and place nozzle: OD: 0.110″; ID: 0.091″

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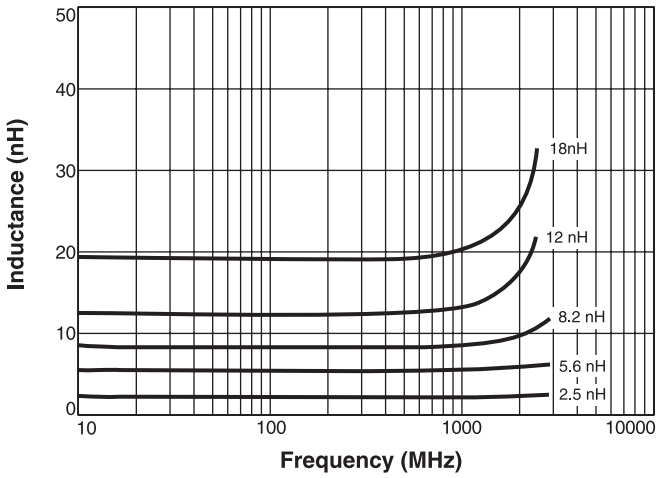
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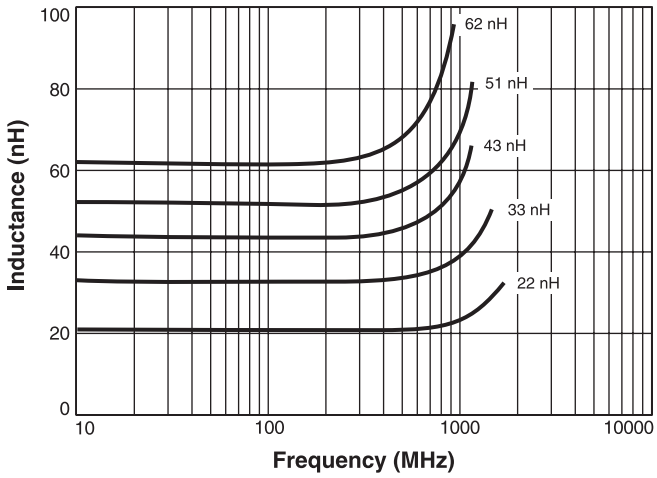
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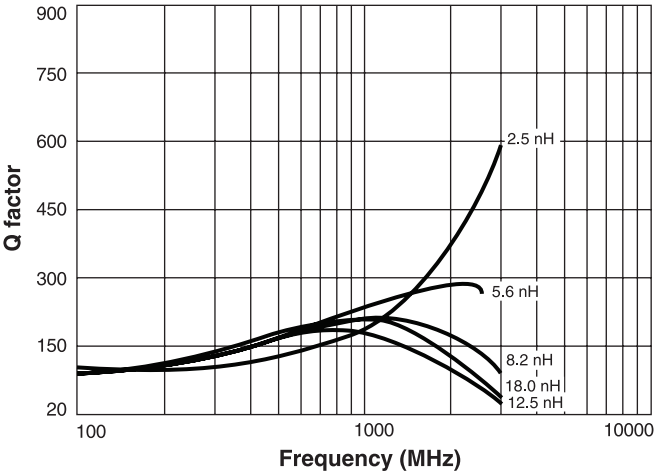
# Mini Air Core Inductors – 1512SP

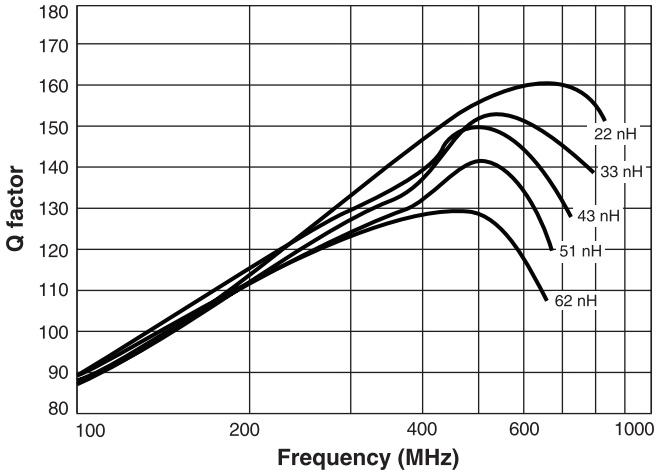
## Typical L vs Frequency




## Typical Q vs Frequency





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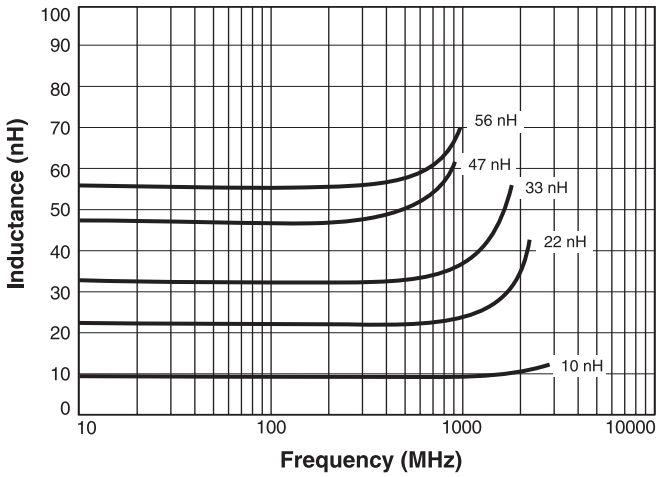
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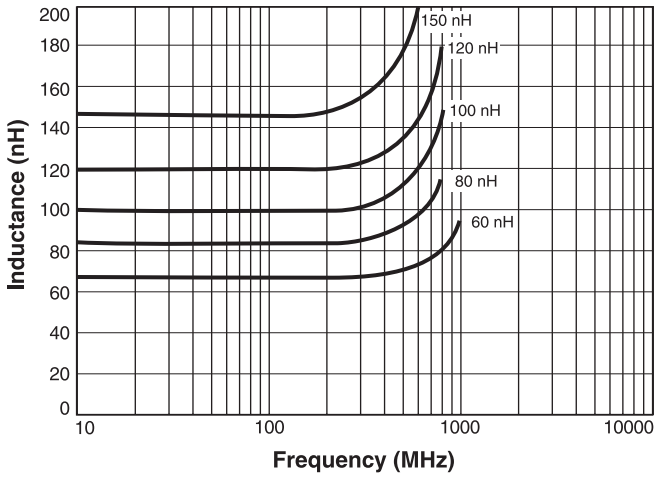


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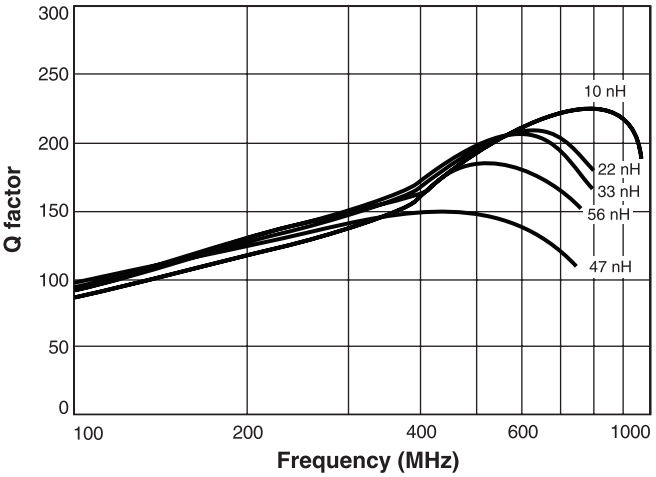
# Mini Air Core Inductors – 2712SP

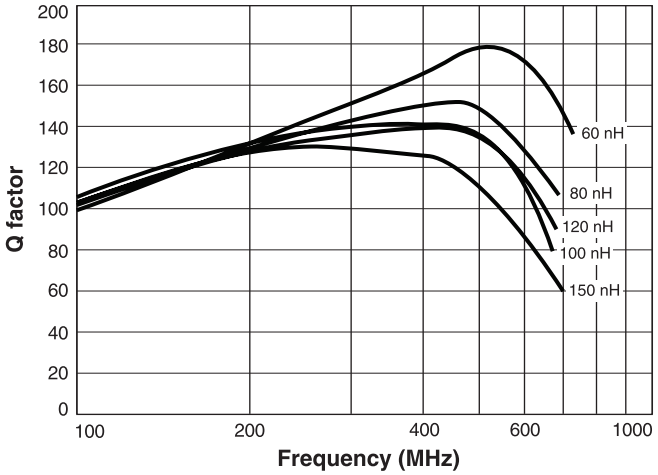
## Typical L vs Frequency




## Typical Q vs Frequency





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