Chip Inductors – 0402CS (1005)

Continuing in our long tradition of innovation and leadership, Coilcraft introduced the industry’s first 0402 wirewound inductor.

This series shares all of the characteristics of Coilcraft’s other ceramic inductors: exceptionally high Q factors, especially at use frequencies; outstanding self-resonant frequency; tight inductance tolerance; and excellent batch-to-batch consistency.

Typical L vs Frequency

Typical Q vs Frequency

Core material Ceramic
Environmental RoHS compliant, halogen free
Terminations RoHS matte Sn over Ni over Ag-Pt-glass frit. Other terminations available at additional cost.
Weight 0.8 – 1.0 mg
Ambient temperature –40°C to +125°C with I rms current.
Maximum part temperature +140°C (ambient + temp rise).
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) +25 to +125 ppm/°C
Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30°C / 85% relative humidity)
Packaging 2000 or 5000 or 10000 per 7” reel
Paper tape: 8 mm wide, 0.68 mm thick, 2 mm pocket spacing
PCB washing Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.
<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance (nH)</th>
<th>Percent tolerance</th>
<th>900 MHz</th>
<th>1.7 GHz</th>
<th>SRF min$^b$</th>
<th>DCR max$^c$</th>
<th>Irms$^d$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L typ</td>
<td>Q typ</td>
<td>L typ</td>
<td>Q typ</td>
<td>(GHz)</td>
<td>(Ohms)</td>
<td>(mA)</td>
</tr>
<tr>
<td>0402CS-4T8X</td>
<td>2.2</td>
<td>5</td>
<td>2.19</td>
<td>59</td>
<td>2.23</td>
<td>100</td>
<td>10.80</td>
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<tr>
<td>0402CS-4T9X</td>
<td>2.3</td>
<td>5</td>
<td>2.24</td>
<td>51</td>
<td>2.27</td>
<td>68</td>
<td>10.50</td>
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<td>0402CS-4T3X</td>
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<td>1.78</td>
<td>54</td>
<td>1.74</td>
<td>82</td>
<td>11.30</td>
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<tr>
<td>0402CS-4T1X</td>
<td>6.1</td>
<td>5</td>
<td>5.26</td>
<td>58</td>
<td>5.30</td>
<td>76</td>
<td>12.30</td>
</tr>
</tbody>
</table>

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

2. Inductance measured at 250 MHz using a Coilcraft SMD-F test fixture and Coilcraft-provided correlation pieces with an Agilent/HP 4286 impedance analyzer.

3. Tolerances in bold are stocked for immediate shipment.

4. Q measured using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.

5. For SRF >6 GHz, measured using an Agilent/HP 8722ES network analyzer and a Coilcraft SMD-D test fixture. For SRF ≤6 GHz, measured using an Agilent/HP 8753D network analyzer and a Coilcraft SMD-D test fixture.

6. DCR measured on a micro-ohmmeter.

7. Current that causes a 15°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.

8. Electrical specifications at 25°C.

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

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**Designer's Kit C328 contains 20 each of all 5% values**

**Designer's Kit C328-2 contains 20 each of all 2% values**