Chip Inductors – 0603CS (1608)

Ultra-small size, exceptional Q and high SRFs make these inductors ideal for high frequency applications where size is at a premium. They also have excellent DCR and current carrying characteristics.

Typical Q vs Frequency

Typical L vs Frequency

I rms Derating

Note: Height dimension (C) is before optional solder application. For maximum height dimension including solder, add 0.006 in / 0.152 mm.

Core material Ceramic
Environmental RoHS compliant, halogen free optional
Terminations RoHS compliant silver-palladium-platinum-glass frit. Other terminations available at additional cost.
Weight 3.2 – 3.7 mg
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 refractions 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)
Failures in Time (FIT) / Mean Time Between Failures (MTBF) One per billion hours / one billion hours, calculated per Telcordia SR-332
Packaging 2000 per 7″ reel Paper tape: 8 mm wide, 1.0 mm thick, 4 mm pocket spacing
PCB washing Only pure water or alcohol recommended
### 0603CS Series (1608)

<table>
<thead>
<tr>
<th>Part number</th>
<th>Inductance (nH)</th>
<th>Percent tolerance</th>
<th>Q min</th>
<th>900 MHz L typ</th>
<th>900 MHz Q typ</th>
<th>1.7 GHz L typ</th>
<th>1.7 GHz Q typ</th>
<th>SRF min (GHz)</th>
<th>DCR max (Ohms)</th>
<th>Irms max (mA)</th>
<th>Color dot</th>
</tr>
</thead>
<tbody>
<tr>
<td>0603CS-1N8X_L_</td>
<td>1.8 @ 250 MHz</td>
<td>5</td>
<td>24</td>
<td>1.67 49</td>
<td>1.65 63</td>
<td>12.5</td>
<td>0.030</td>
<td>700</td>
<td>Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0603CS-2N2X_L_</td>
<td>3.3 @ 250 MHz</td>
<td>5</td>
<td>35</td>
<td>3.31 75</td>
<td>3.38 88</td>
<td>5.90</td>
<td>0.045</td>
<td>700</td>
<td>Red</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0603CS-3N3X_L_</td>
<td>5.1 @ 250 MHz</td>
<td>5</td>
<td>26</td>
<td>5.77 63</td>
<td>6.05 80</td>
<td>4.76</td>
<td>0.075</td>
<td>700</td>
<td>Red</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

   - **0603CS-R39X_LW**
   - **0603CS-R47X_LW**

   **Tolerance:**  
   - G = 2%  
   - H = 3%  
   - J = 5%  
   
   (Table shows stock tolerances in bold.)

   **Termination:**  
   - L = RoHS compliant silver-palladium-platinum-glass frit.  
   - E = Halogen free component. RoHS compliant silver-palladium-platinum-glass frit terminations.

   **Special order:**  
   - T = RoHS tin-silver-copper (95.5/4/0.5)  
   - S = non-RoHS tin-lead (63/37).

   **Packaging:**  
   - W = 7" machine-ready reel. EIA-481 punched paper tape (2000 parts per full reel).  
   - U = Less than full reel. In tape, but not machine ready.  
   - To have a leader and trailer added ($25 charge), use code letter W instead.

2. Inductance measured using a Coilcraft SMD-A fixture in an Agilent/HP 4291A impedance analyzer with Coilcraft-provided correlation pieces.

3. Tolerances in bold are stocked for immediate shipment.

4. Q measured at the same frequency as inductance using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.

5. SRF measured using an Agilent/HP 8720D network analyzer and a Coilcraft-provided correlation pieces.

6. DCR measured on a Cambridge Technology micro-ohmmeter and a Coilcraft CCF858 test fixture.

7. Current that causes a 15°C temperature rise from 25°C ambient.

8. Electrical specifications at 25°C.

9. Percent Q measured at the same frequency as inductance using an Agilent/HP 4291A with an Agilent/HP 16193 test fixture.

10. SRF measured using an Agilent/HP 8720D network analyzer and a Coilcraft-provided correlation pieces.

11. DCR measured on a Cambridge Technology micro-ohmmeter and a Coilcraft CCF858 test fixture.

12. Current that causes a 15°C temperature rise from 25°C ambient.

13. Electrical specifications at 25°C.

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

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**Designer’s Kits**

- C324A-2 contains 10 each of all 2% values.
- C324A contains 10 each of all 5% values.

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This product may not be used in medical of high risk applications without prior Coilcraft approval.

Specification subject to change without notice.

Please check out web site for latest information.