Current Sense Transformers

These low cost Coilcraft current sensing transformers are designed for use up to 1 MHz. They incorporate the current and sense windings in one small, encapsulated package requiring minimum board space.

Coilcraft current sensing transformers are designed to meet UL/CSA/IEC 60950 Reinforced Insulation specification and provide 3 mm creepage/clearance between primary and secondary windings. Winding to winding isolation (hipot) is 3750 Vrms, tested for one minute.

Applications include feedback control, overload sensing, detecting load drop or shutdown, and proportional output.

Coilcraft Designer’s Kit P403 contains the three standard current sensing transformers, sensor-only versions of each, plus two 50/60Hz current sensors. To order, contact Coilcraft or visit http://order.coilcraft.com.

<table>
<thead>
<tr>
<th>Part number</th>
<th>Turns (N) pri : sec</th>
<th>Inductance (mH)</th>
<th>DCR max (Ohms) pri</th>
<th>Frequency range (kHz)</th>
<th>Volt-time product (Vμsec)</th>
<th>Sensed current (A)</th>
<th>Terminating resistance (Ohms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS4050V-01L</td>
<td>1 : 50</td>
<td>5</td>
<td>0.001</td>
<td>3 – 1000</td>
<td>149</td>
<td>35</td>
<td>1.4</td>
</tr>
<tr>
<td>CS4100V-01L</td>
<td>1 : 100</td>
<td>20</td>
<td>0.001</td>
<td>2 – 1000</td>
<td>298</td>
<td>35</td>
<td>2.9</td>
</tr>
<tr>
<td>CS4200V-01L</td>
<td>1 : 200</td>
<td>80</td>
<td>0.001</td>
<td>1 – 1000</td>
<td>596</td>
<td>35</td>
<td>5.7</td>
</tr>
</tbody>
</table>

1. Inductance is for the secondary, measured at 15.75 kHz, 1 Vrms.
2. Volt-time product is for the secondary, based on 2000 Gauss.
3. Terminating resistance (R_T) value is based on 1 Volt output with 35 Amps flowing through the primary. Varying terminating resistance increases or decreases output Voltage/Ampere according to the following equation:

\[ R_T = \frac{V_{out} \times N_{sec}}{I_{in}} \]

4. Ambient temperature range –40°C to +85°C.
5. Electrical specifications at 25°C.

Typical Circuit

Recommended PC Board Layout (viewed from top)

Weight: 8.8 – 9.3 g
Terminations: Tin-silver over copper
Packaging: 29 per tube