Current Sense Transformers CST2010

Specifications subject to change without notice. Please check our website for latest information.

- AEC-Q200 Grade 1 qualified (−40°C to +125°C ambient)
- Sensed current up to 40 A; Frequency range up to 1 MHz
- Very low primary DC resistance
- 500 Vrms, one minute isolation (hipot) between windings.

Core material  Ferrite
Terminations  RoHS compliant tin-silver over tin over nickel over phos bronze
Weight  4.13 g
Ambient temperature  −40°C to +125°C
Maximum part temperature  +165°C (ambient + temp rise)
Storage temperature  Component: −40°C to +125°C.
Tape and reel: −40°C to +80°C
Resistance to soldering heat  Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles
Moisture Sensitivity Level (MSL)  1 (unlimited floor life at <30°C / 85% relative humidity)
Failures in Time (FIT) / Mean Time Between Failures (MTBF)  38 per billion hours / 263,157,898 hours, calculated per Telcordia SR-332
Packaging  300/13″ reel; Plastic tape: 32 mm wide, 0.5 mm thick, 20 mm pocket spacing, 10.6 mm pocket depth
PCB washing  Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

Part number1  Turns (N) pri: sec  Inductance2  DCR max (Ohms)  Frequency range (kHz)  Volt-time product3 (Vµsec) max  Sensed current I4 (A)  Terminating resistance R5 (Ohms)
CST2010-020L_  1:20  0.34  0.00036  0.180  10 – 1000  50.8  40  0.5
CST2010-030L_  1:30  0.76  0.00036  0.265  7 – 1000  76.2  40  0.8
CST2010-040L_  1:40  1.36  0.00036  0.560  5 – 1000  101.6  40  1.0
CST2010-050L_  1:50  2.12  0.00036  0.705  4 – 1000  127.0  40  1.3
CST2010-060L_  1:60  3.06  0.00036  0.850  3 – 1000  152.4  40  1.5
CST2010-070L_  1:70  4.16  0.00036  1.00  3 – 1000  177.8  40  1.8
CST2010-080L_  1:80  5.44  0.00036  1.15  2 – 1000  203.2  40  2.0
CST2010-100L_  1:100  8.50  0.00036  1.45  2 – 1000  254.0  40  2.5
CST2010-125L_  1:125  13.3  0.00036  1.85  2 – 1000  317.5  40  3.1
CST2010-150L_  1:150  19.2  0.00036  2.25  1 – 1000  381.0  40  3.8
CST2010-200L_  1:200  34.0  0.00036  4.06  1 – 1000  508.0  40  5.0

1. When ordering, please specify packaging code:

<table>
<thead>
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<th>Packaging</th>
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<td>CST2010-200LD</td>
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| D = 13″ machine-ready reel. EIA-481 embossed plastic tape (300 parts per full reel).
| B = Less than full reel. In tape, but not machine ready. To have a leader and trailer added ($25 charge), use code letter D instead. |

2. Inductance measured between secondary pins at 1 kHz, 0.1 Vrms, 0 Adc.


4. Primary current of 40 A causes less than 25°C temperature rise from 25°C ambient. Higher current causes a greater temperature rise (see Temperature Rise vs Current curve).

5. Terminating resistance (Rt) value is based on 1 Volt output with 40 Amps flowing through the primary. Varying terminating resistance increases or decreases output Voltage/Ampere according to the following equation:

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

6. Electrical specifications at 25°C.

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

Typical Circuit
CST2010 SMT Current Sense Transformers

Temperature Rise vs Current

![Temperature Rise vs Current Graph](image)

Dimensions

- Dot indicates pin 1
- Dimensions are in inches [mm]
- Recommended Land Pattern

- Dimensions are in inches [mm]
- 0.110 × 0.240 [2.80 × 6.10] (2)

Temperature Rise vs Current

<table>
<thead>
<tr>
<th>Current (Arms)</th>
<th>Temperature rise (from 25°C)</th>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
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<td>20</td>
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