

Current Sense Transformers CST2010



- AEC-Q200 Grade 1 qualified (-40°C to $+125^{\circ}\text{C}$ ambient)
- Sensed current up to 47 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 $+125^{\circ}\text{C}$

Maximum part temperature $+165^{\circ}\text{C}$ (ambient + temp rise)

Storage temperature Component: -40°C to $+165^{\circ}\text{C}$.

Tape and reel Packaging: -40°C to $+80^{\circ}\text{C}$

Resistance to soldering heat Max three 40 second reflows at $+260^{\circ}\text{C}$, parts cooled to room temperature between cycles

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at $<30^{\circ}\text{C}$ / 85% relative humidity)

Failures in Time (FIT) / Mean Time Between Failures (MTBF)

38 per billion hours / 26,315,789 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 number ¹ | Turns (N) pri:sec | Inductance ² $\pm 30\%$ (mH) | DCR max (Ohms) | | Frequency range (kHz) | Volt-time product ³ (V μ sec) | Sensed current ⁴ I_{in} (A) | Terminating resistance R_T ⁵ (Ohms) |
|--------------------------|----------------------|--|-------------------|-------|-----------------------------|--|--|--|
| | | | pri | sec | | | | |
| CST2010-020L_ | 1:20 | 0.34 | 0.00036 | 0.180 | 10 – 1000 | 50.8 | 47 | 0.5 |
| CST2010-030L_ | 1:30 | 0.76 | 0.00036 | 0.265 | 7 – 1000 | 76.2 | 47 | 0.8 |
| CST2010-040L_ | 1:40 | 1.36 | 0.00036 | 0.560 | 5 – 1000 | 101.6 | 47 | 1.0 |
| CST2010-050L_ | 1:50 | 2.12 | 0.00036 | 0.705 | 4 – 1000 | 127.0 | 47 | 1.3 |
| CST2010-060L_ | 1:60 | 3.06 | 0.00036 | 0.850 | 3 – 1000 | 152.4 | 47 | 1.5 |
| CST2010-070L_ | 1:70 | 4.16 | 0.00036 | 1.00 | 3 – 1000 | 177.8 | 47 | 1.8 |
| CST2010-080L_ | 1:80 | 5.44 | 0.00036 | 1.15 | 2 – 1000 | 203.2 | 47 | 2.0 |
| CST2010-100L_ | 1:100 | 8.50 | 0.00036 | 1.45 | 2 – 1000 | 254.0 | 47 | 2.5 |
| CST2010-125L_ | 1:125 | 13.3 | 0.00036 | 1.85 | 2 – 1000 | 317.5 | 47 | 3.1 |
| CST2010-150L_ | 1:150 | 19.2 | 0.00036 | 2.25 | 1 – 1000 | 381.0 | 47 | 3.8 |
| CST2010-200L_ | 1:200 | 34.0 | 0.00036 | 4.06 | 1 – 1000 | 508.0 | 47 | 5.0 |

1. When ordering, please specify **packaging** code:

CST2010-200LD

Packaging: D = 13" machine-ready reel. EIA-481 embossed plastic tape (300 parts per full reel).

B = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from B to D.

- Inductance measured between secondary pins at 1 kHz, 0.1 Vrms, 0 Adc.
- Maximum volt-time product is for the secondary, based on 2000 Gauss.
- Primary current of 47 A causes approximately 40°C temperature rise from 25°C ambient. Higher current causes a greater temperature rise (see Temperature Rise vs Current curve).
- Terminating resistance (R_T) 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:

$$R_T = V_{out} \times N_{sec} / I_{in}$$

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



Dimensions



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