



# SMT Current Sensors – CST Series



- For use from 50 kHz to nearly 1 MHz
- Two different pinouts to meet the requirements of different applications.
- Low primary DC resistance; 500 V isolation between windings.

**Designer's Kit C389** contains 2 each of each part

**Core material** Ferrite

**Terminations** See Note 1.

**Weight** 0.4 g

**Ambient temperature**  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

**Storage temperature** Component:  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ .

Tape and reel packaging:  $-40^{\circ}\text{C}$  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** 250/7" reel; 1000/13" reel; Plastic tape: 16 mm wide, 0.35 mm thick, 12 mm pocket spacing, 5.6 mm pocket depth

**PCB washing** Only pure water or alcohol recommended

Part number <sup>1</sup>		Turns (N) pri:sec	Inductance <sup>2</sup> min ( $\mu\text{H}$ )	DCR max (Ohms)		Sensed current <sup>3</sup> $I_{in}$ (A)	Terminating resistance $R_T$ <sup>4</sup> (Ohms)	Volt-time product <sup>5</sup> (V- $\mu\text{sec}$ )	Color dot
CST1	CST2			Primary	Secondary				
CST1-020L_	CST2-020L_	1:20	81	0.0007	0.400	10	2.0	16	Red
CST1-030L_	CST2-030L_	1:30	180	0.0007	0.870	10	3.0	24	Orange
CST1-040L_	CST2-040L_	1:40	320	0.0007	1.14	10	4.0	32	Yellow
CST1-050L_	CST2-050L_	1:50	500	0.0007	1.50	10	5.0	41	Green
CST1-060L_	CST2-060L_	1:60	730	0.0007	1.98	10	6.0	49	Blue
CST1-070L_	CST2-070L_	1:70	980	0.0007	4.75	10	7.0	57	Violet
CST1-100L_	CST2-100L_	1:100	2000	0.0007	5.50	10	10.0	81	Gray
CST1-125L_	CST2-125L_	1:125	3000	0.0007	6.50	10	12.5	101	Black

1. When ordering, please specify **termination** and **packaging** codes:

CSTX-125LC

**Termination:** **L** = RoHS compliant tin-silver over tin over nickel over phos bronze (pins 1 – 6); RoHS compliant tin-silver over tin over nickel over copper (pins 7 – 8)  
Special order: **S** = non-RoHS tin-lead (63/37) over tin over nickel over phos bronze (pins 1 – 6); non-RoHS tin-lead over gold over nickel over copper (pins 7 – 8).

**Packaging:** **C** = 7" machine-ready reel. EIA-481 embossed plastic tape (250 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 C instead.

**D** = 13" machine-ready reel. EIA-481 embossed plastic tape (1000 parts per full reel).

- Inductance measured between secondary pins at 100 kHz, 0.1 Vrms.
- Primary current of 10 A causes approximately  $25^{\circ}\text{C}$  temperature rise from  $25^{\circ}\text{C}$  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 10 Amps flowing through the primary. Varying terminating resistance increases or decreases output Voltage/Ampere according to the following equation:  $R_T$  (Ohms) =  $V_{out} \times N_{sec} / I_{in}$ .
- Maximum volt-time product for the secondary.
- Electrical specifications at  $25^{\circ}\text{C}$ .

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

## Typical Circuits

### CST1



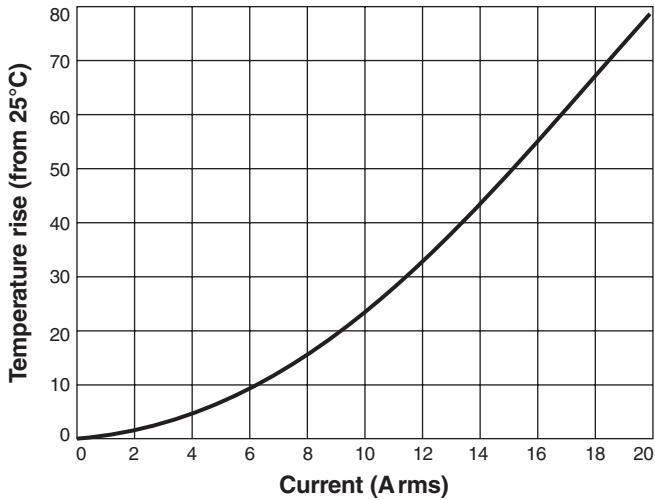
### CST2





# CST Series Current Sensors

## Temperature Rise vs Current



## Pinouts



## Dimensions



## Recommended Land Pattern

