

**SERIES:** CSXX50BL | **DESCRIPTION:** CURRENT SENSOR**FEATURES**

- open loop
- bipolar
- low noise
- single channel

**MODEL**

|          | rated current [If]  | linearity range <sup>1</sup> [Im] |
|----------|---------------------|-----------------------------------|
|          | [A <sub>RMS</sub> ] | [A <sub>PEAK</sub> ]              |
| CS0350BL | ±3                  | ±4.5                              |
| CS0550BL | ±5                  | ±7.5                              |
| CS1050BL | ±10                 | ±15                               |
| CS1550BL | ±15                 | ±22.5                             |
| CS2050BL | ±20                 | ±30                               |

Notes: 1. Im is the maximum peak current for which the output voltage specifications are guaranteed, however the If RMS rating must not be exceeded.  
2. All specifications measured at 25°C, RI=10 kΩ, unless otherwise noted.  
3. It is recommended to add a 1 μF capacitor connected between the common terminal 4 and the +5 V and -5 V terminals, 1 and 2, to avoid noise problems.

**SPECIFICATIONS**

| parameter                                   | conditions/description                      | min   | typ   | max   | units |
|---------------------------------------------|---------------------------------------------|-------|-------|-------|-------|
| supply voltage [Vcc]                        |                                             | ±4.75 | ±5.00 | ±5.25 | V     |
| max current consumption [Ic]                |                                             |       |       | 25    | mA    |
| output voltage [Vo]                         | at +If                                      | ±1.98 | ±2.00 | ±2.02 | V     |
| zero current offset voltage [Vr]            | after demagnetization                       | -0.02 | 0     | +0.02 | V     |
| output voltage linearity <sup>4</sup> [ΔKo] |                                             |       |       | ±0.5  | %     |
| response [tr]                               | at di/dt = If/μs                            |       | 7     |       | μs    |
| output voltage temperature characteristics  |                                             |       |       | ±0.1  | %/°C  |
| zero current offset voltage characteristics |                                             |       |       | ±1.5  | mV/°C |
| hysteresis [Vh]                             | at +If to zero current                      |       |       | 8     | mV    |
| primary over current                        | for maximum 50 ms, no damage                |       |       | 10*If | A     |
| withstand voltage                           | between coil and each terminal for 1 minute |       | 2,000 |       | Vac   |
| insulation resistance                       | between coil and each terminal at 500 Vdc   |       | 500   |       | MΩ    |
| operating temperature                       |                                             | -10   |       | 75    | °C    |
| storage temperature                         |                                             | -30   |       | 90    | °C    |
| safety approvals                            | UL 508                                      |       |       |       |       |
| flammability rating                         | UL94V-0                                     |       |       |       |       |
| RoHS                                        | yes                                         |       |       |       |       |

Notes: 4. Deducting the value of hysteresis and offset voltage, calculated by (V/Vo)/(|IfxI-1|)x100%.

## SOLDERABILITY

| parameter      | conditions/description | min | typ | max | units |
|----------------|------------------------|-----|-----|-----|-------|
| hand soldering | for maximum 3 seconds  |     | 280 |     | °C    |

## MECHANICAL

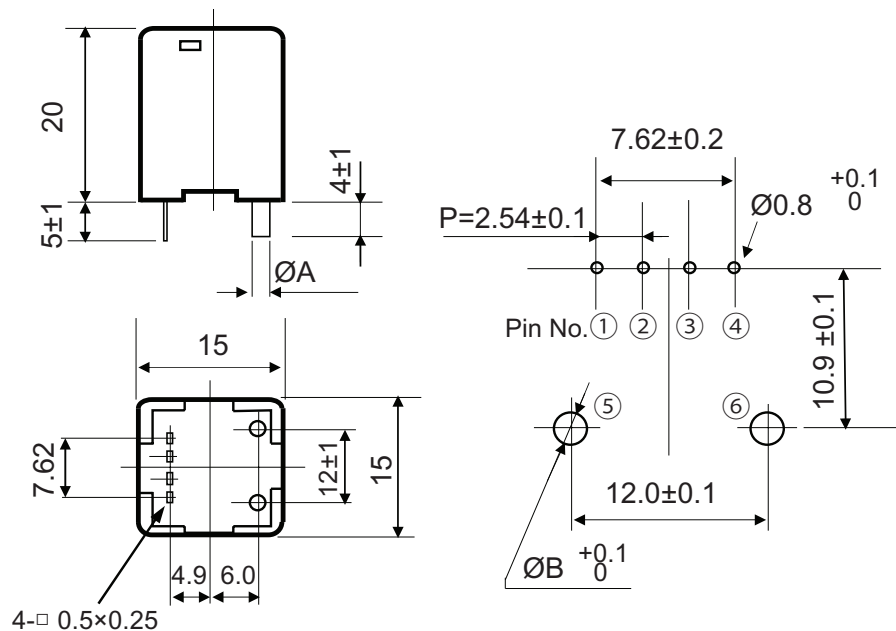
| parameter     | conditions/description           | min | typ | max | units |
|---------------|----------------------------------|-----|-----|-----|-------|
| dimensions    | 15 x 15 x 20                     |     |     |     | mm    |
| case material | PBT                              |     |     |     |       |
| terminals     | phosphor bronze with tin plating |     |     |     |       |
| weight        |                                  |     | 8   |     | g     |

# MECHANICAL DRAWING

units: mm  
tolerance:  $\pm 0.5$  mm

| PIN CONNECTIONS |            |
|-----------------|------------|
| PIN             | FUNCTION   |
| 1               | +5 V       |
| 2               | -5 V       |
| 3               | Output [V] |
| 4               | 0 V        |
| 5               | +Input [A] |
| 6               | -Input [A] |

| MODEL NO. | ØA<br>[mm] | ØB<br>[mm] |
|-----------|------------|------------|
| CS0350BL  | 0.6        | 1.2        |
| CS0550BL  | 0.8        | 1.4        |
| CS1050BL  | 1.0        | 1.6        |
| CS1550BL  | 1.3        | 1.9        |
| CS2050BL  | 1.5        | 2.1        |



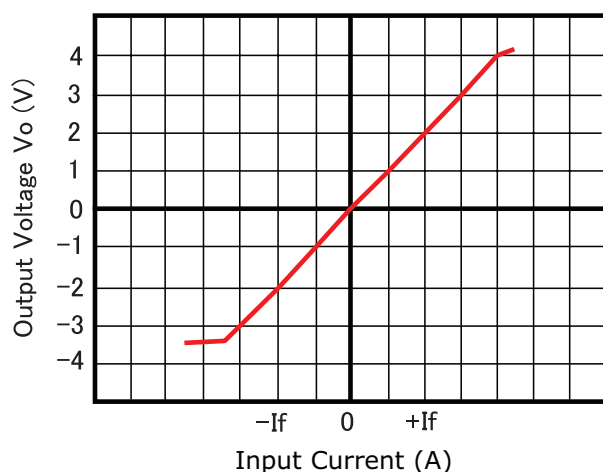
### Recommended PCB Layout Top View

## DERATING CURVE

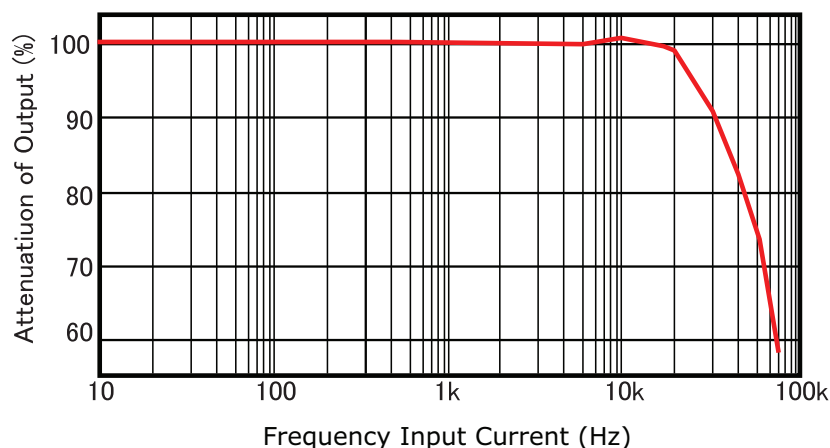
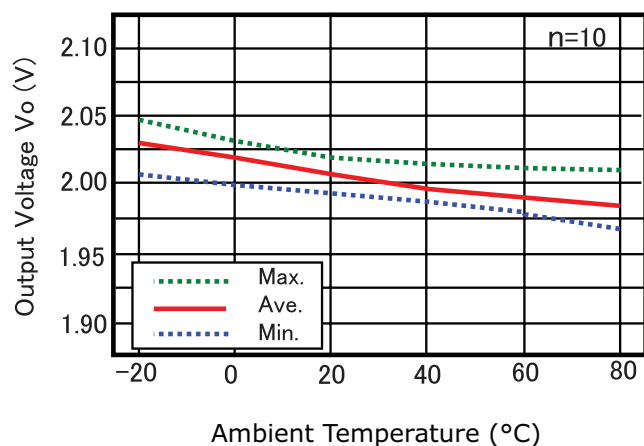
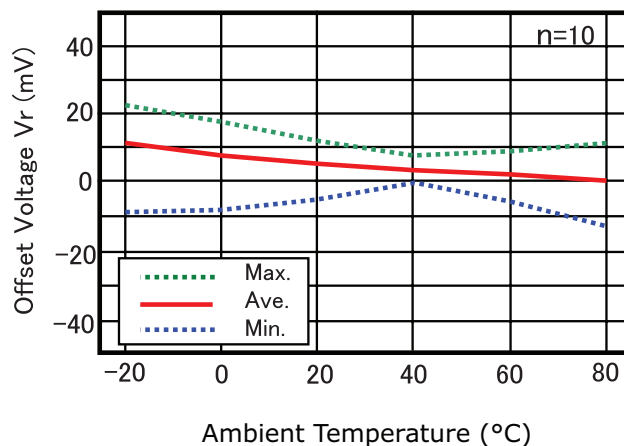


## PERFORMANCE CURVES

Output Voltage vs. Input Current



Input Current Frequency vs. Output Attenuation

Output Voltage vs. Ambient Temperature  
(at  $+I_f$ )Offset Voltage vs. Ambient Temperature  
(at Zero Current)

REVISION HISTORY

| rev. | description                       | date       |
|------|-----------------------------------|------------|
| 1.0  | initial release                   | 09/05/2019 |
| 1.01 | brand update                      | 02/19/2020 |
| 1.02 | logo, datasheet style update      | 08/05/2022 |
| 1.03 | CUI Devices rebranded to Same Sky | 09/12/2024 |

The revision history provided is for informational purposes only and is believed to be accurate.



Same Sky offers a one (1) year limited warranty. Complete warranty information is listed on our website.

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