

**SERIES:** CSXX05U | **DESCRIPTION:** CURRENT SENSOR**FEATURES**

- open loop
- unipolar
- detects current direction
- single channel

**MODEL**

|         | rated current [If]  | linearity range <sup>1</sup> [Im] |
|---------|---------------------|-----------------------------------|
|         | [A <sub>RMS</sub> ] | [A <sub>PEAK</sub> ]              |
| CS0305U | +3                  | +6                                |
| CS0505U | +5                  | +10                               |
| CS1005U | +10                 | +20                               |
| CS1505U | +15                 | +30                               |
| CS2005U | +20                 | +40                               |

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 terminal 1 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                                      | 2.26 | 2.30  | 2.34  | V     |
| zero current offset voltage [Vr]            | after demagnetization                       | 0.27 | 0.30  | 0.33  | 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  $(V/V_o)/(|I_{fxl}-1|) \times 100\%$ .

SOLDERABILITY

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

MECHANICAL

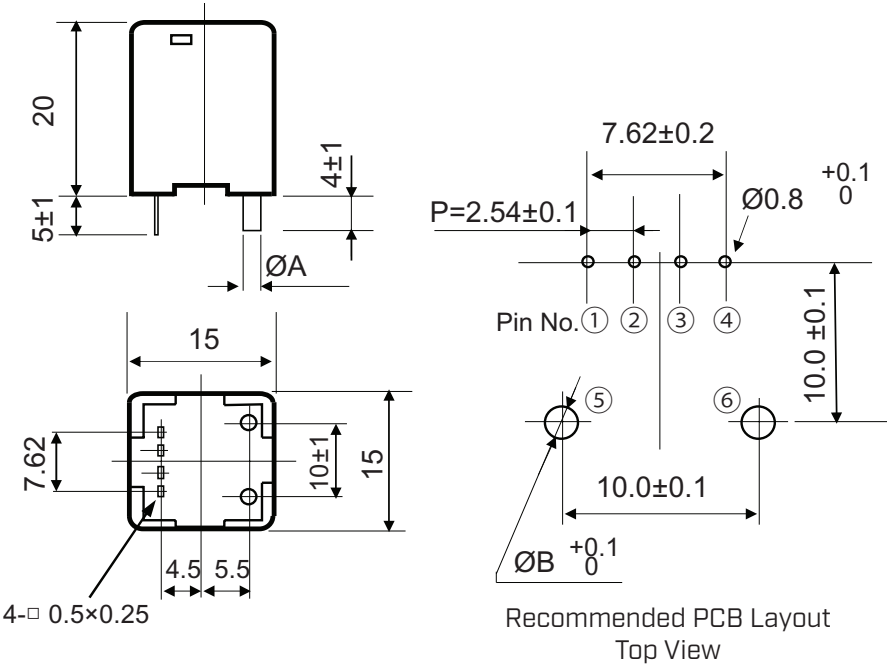
| parameter     | conditions/description           | min | typ | max | units |
|---------------|----------------------------------|-----|-----|-----|-------|
| dimensions    | 15 x 15 x 20                     |     |     |     | mm    |
| case material | PBT                              |     |     |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

MECHANICAL DRAWING

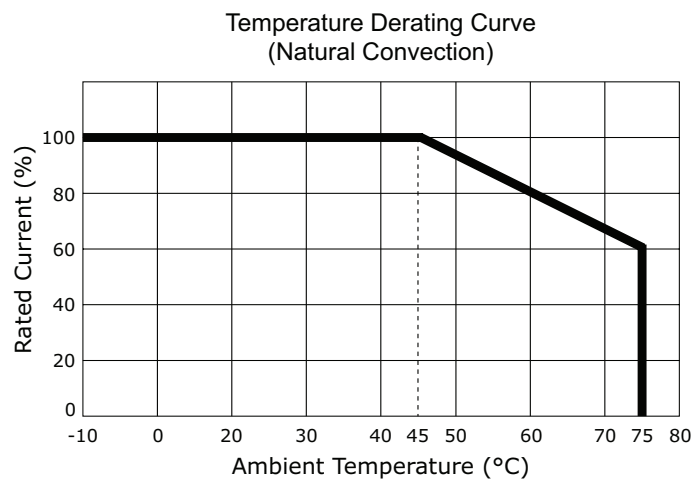
units: mm  
tolerance: ±0.5 mm

| PIN CONNECTIONS |            |
|-----------------|------------|
| PIN             | FUNCTION   |
| 1               | +5 V       |
| 2               | NC         |
| 3               | Output (V) |
| 4               | 0 V        |
| 5               | +Input (A) |
| 6               | -Input (A) |

| MODEL NO. | ØA [mm] | ØB [mm] |
|-----------|---------|---------|
| CS0305U   | 0.6     | 1.2     |
| CS0505U   | 0.9     | 1.5     |
| CS1005U   | 1.1     | 1.7     |
| CS1505U   | 1.4     | 2.0     |
| CS2005U   | 1.7     | 2.3     |

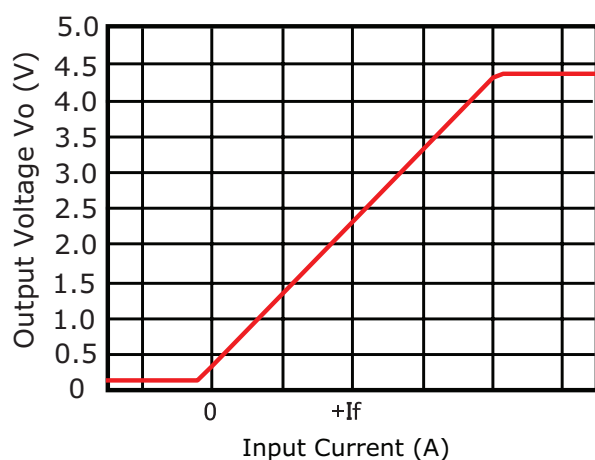


## DERATING CURVE

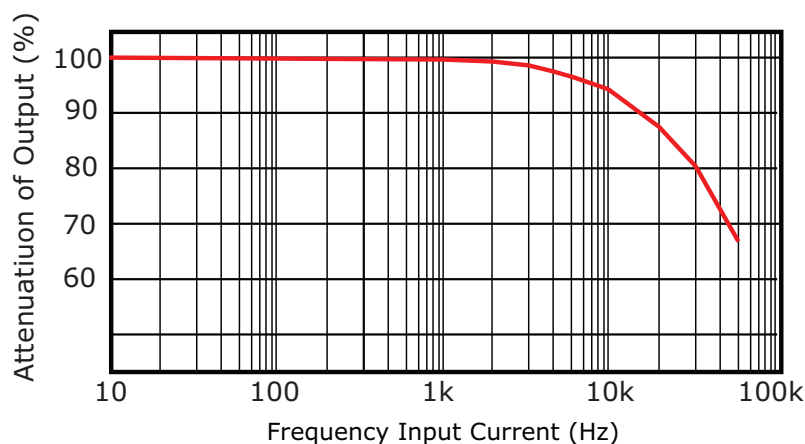


## PERFORMANCE CURVES

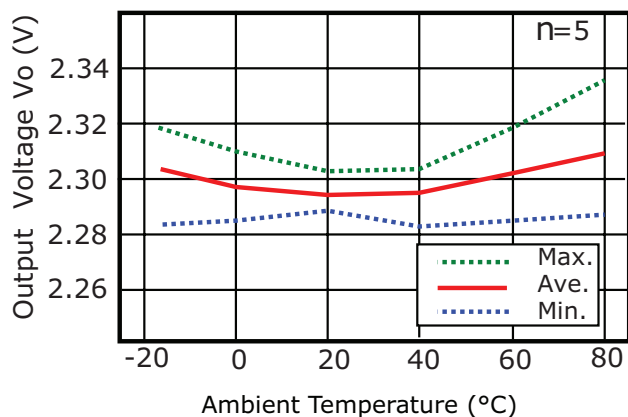
Output Voltage vs. Input Current



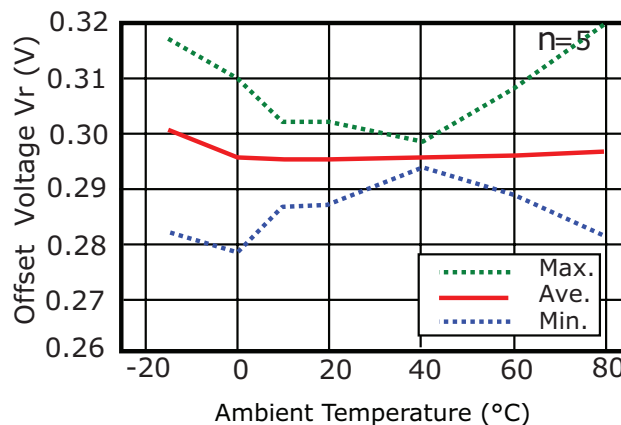
Input Current Frequency vs. Output Attenuation



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                   | 09/03/2019 |
| 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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