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# SERIES: CSXX05U | DESCRIPTION: CURRENT SENSOR

## FEATURES

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

## MODEL

| | rated current (If) [$A_{RMS}$] | linearity range[1] (Im) [$A_{PEAK}$] |
|---|---|---|
| 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, Rl=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[4] (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

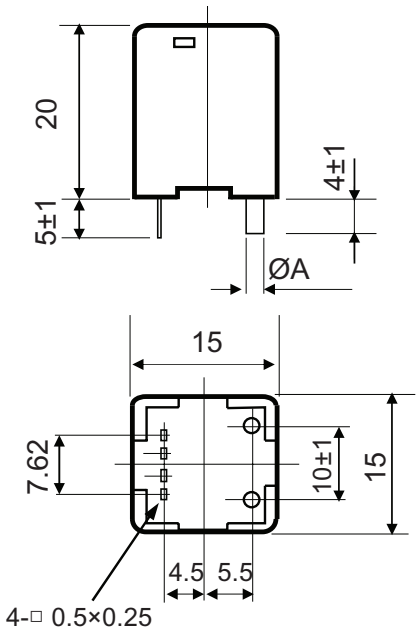
| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| dimensions | 15 x 15 x 20 | | | | mm |
| case material | PBT | | | | |
| terminals | phosphor bronze with tin plating | | | | |
| weight | | | 8 | | g |

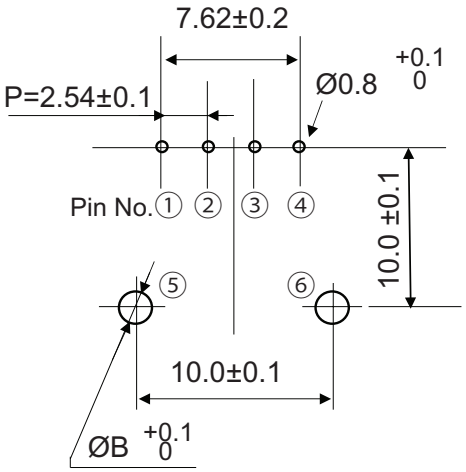
## MECHANICAL DRAWING

units: mm
tolerance: ±0.5 mm

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

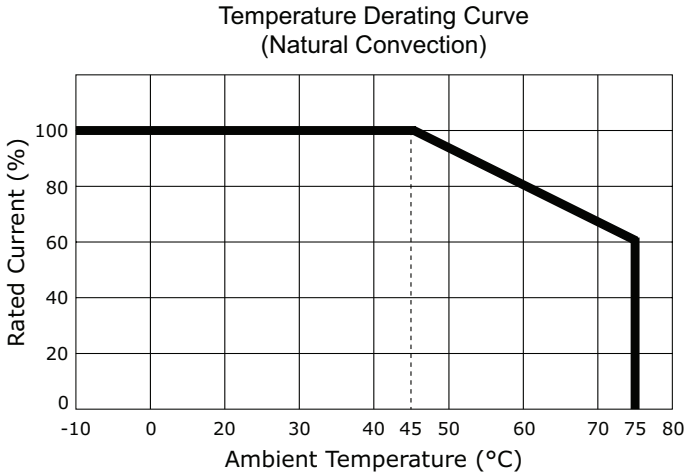
| MODEL NO. | ØA (mm) | ØB (mm) |
|---|---|---|
| CS0305U | 0.6 | 1.2 |
| CS0505U | 0.9 | 1.5 |
| CS1005U | 1.1 | 1.7 |
| CS1505U | 1.4 | 2.0 |
| CS2005U | 1.7 | 2.3 |



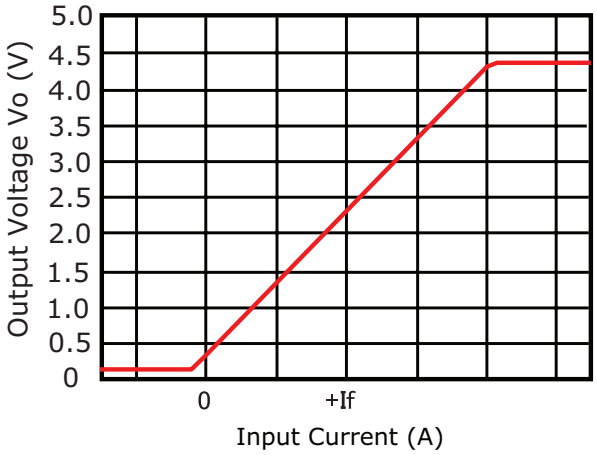

Recommended PCB Layout
Top View

## DERATING CURVE

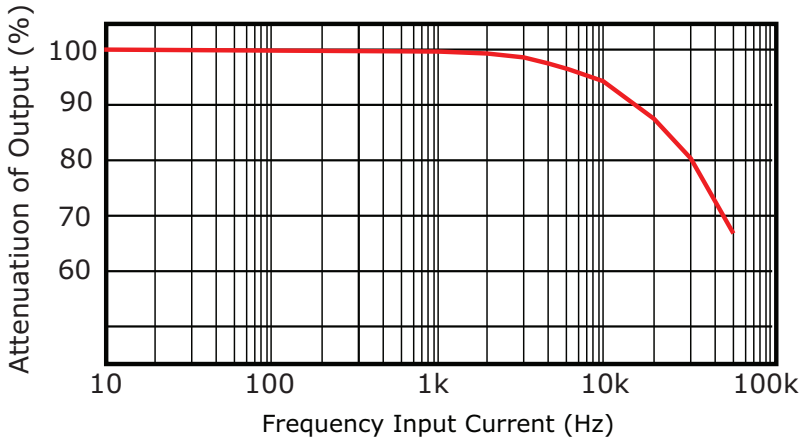



## PERFORMANCE CURVES

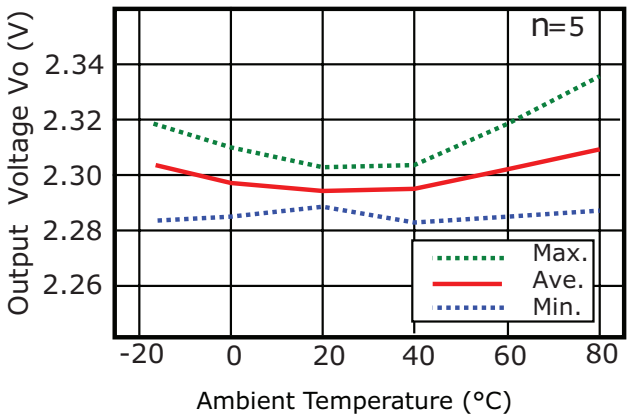
Output Voltage vs. Input Current



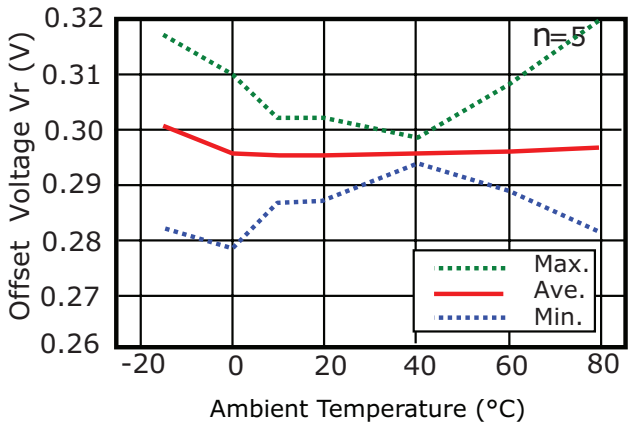

Input Current Frequency vs. Output Attenuation




Output Voltage vs. Ambient Temperature
(at +If)




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

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