

**SERIES:** CSXX12U | **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> )              |
| CS0312U | +3                  | +6                                |
| CS0512U | +5                  | +10                               |
| CS1012U | +10                 | +20                               |
| CS1512U | +15                 | +30                               |
| CS2012U | +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 +12 V terminal 1 to avoid noise problems.

**SPECIFICATIONS**

| parameter                                   | conditions/description                      | min  | typ   | max   | units |
|---------------------------------------------|---------------------------------------------|------|-------|-------|-------|
| supply voltage (Vcc)                        |                                             | 11.4 | 12.0  | 12.6  | V     |
| max current consumption (Ic)                |                                             |      |       | 25    | mA    |
| output voltage (Vo)                         | at +If                                      | 4.96 | 5.00  | 5.04  | V     |
| zero current offset voltage (Vr)            | after demagnetization                       | 0.97 | 1.0   | 1.03  | V     |
| output voltage linearity <sup>4</sup> (ΔKo) |                                             |      |       | ±0.5  | %     |
| response (tr)                               | at di/dt = If/μs                            |      | 3     |       | μs    |
| output voltage temperature characteristics  |                                             |      |       | ±0.1  | %/°C  |
| zero current offset voltage characteristics |                                             |      |       | ±1.5  | mV/°C |
| hysteresis (Vh)                             | at +If to zero current                      |      |       | 15    | 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

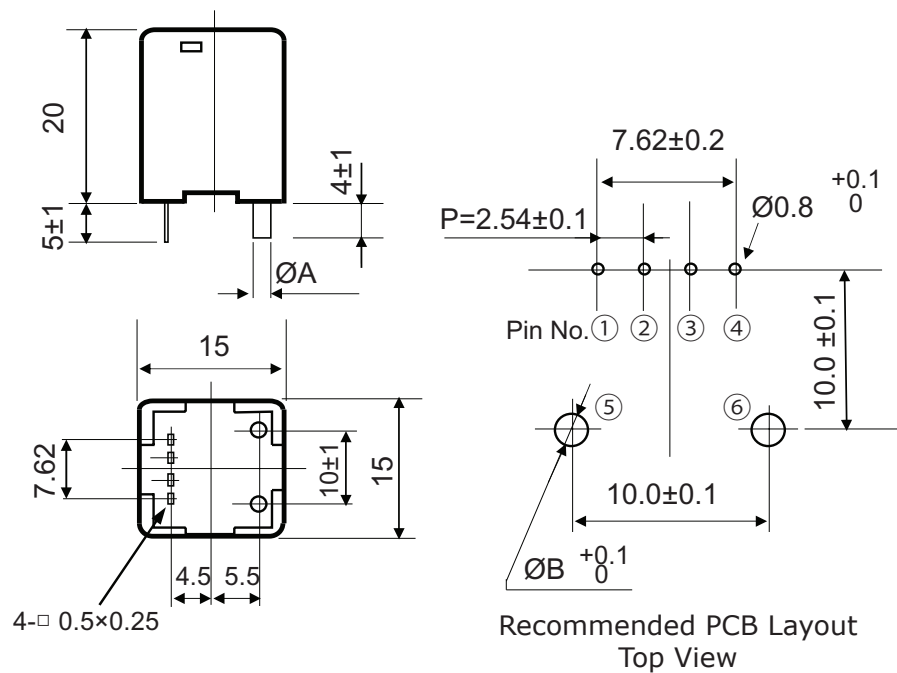
| parameter     | conditions/description           | min | typ | max | units |
|---------------|----------------------------------|-----|-----|-----|-------|
| dimensions    | 15 x 15 x 20                     |     |     |     | mm    |
| case material | PBT                              |     |     |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

## MECHANICAL DRAWING

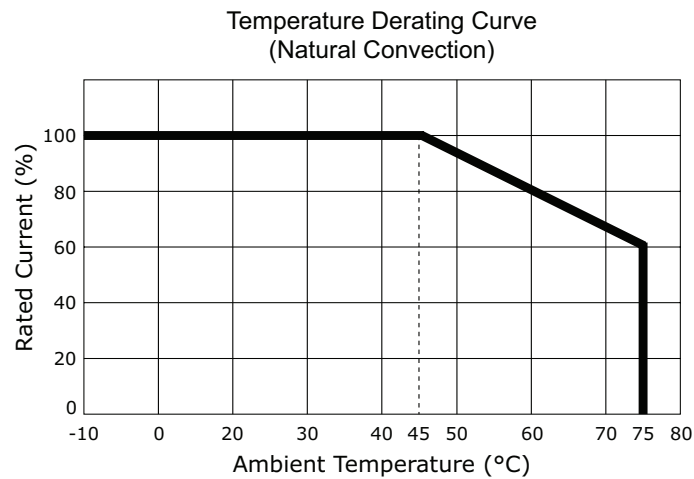
units: mm  
tolerance:  $\pm 0.5$  mm

| PIN CONNECTIONS |            |
|-----------------|------------|
| PIN             | FUNCTION   |
| 1               | +12 V      |
| 2               | NC         |
| 3               | Output (V) |
| 4               | 0 V        |
| 5               | +Input (A) |
| 6               | -Input (A) |

| MODEL NO. | $\varnothing A$<br>(mm) | $\varnothing B$<br>(mm) |
|-----------|-------------------------|-------------------------|
| CS0312U   | 0.6                     | 1.2                     |
| CS0512U   | 0.9                     | 1.5                     |
| CS1012U   | 1.1                     | 1.7                     |
| CS1512U   | 1.4                     | 2.0                     |
| CS2012U   | 1.7                     | 2.3                     |

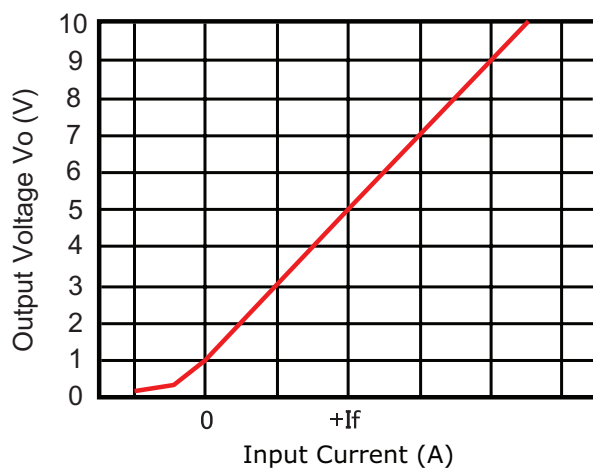


## DERATING CURVE

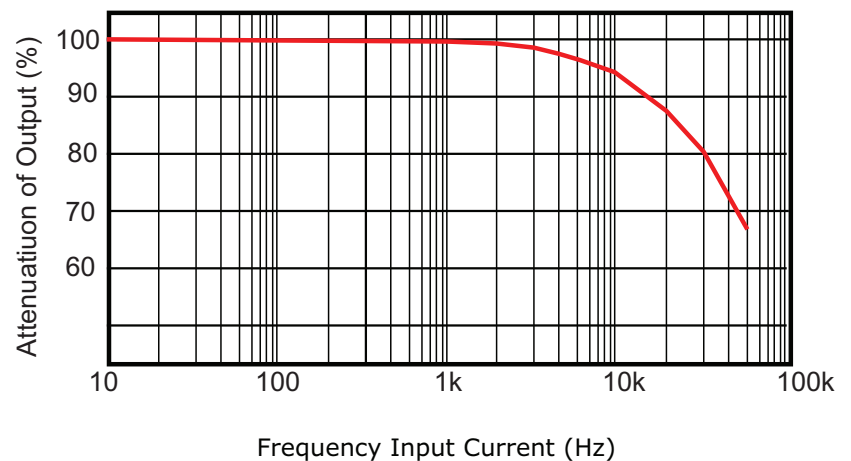


## PERFORMANCE CURVES

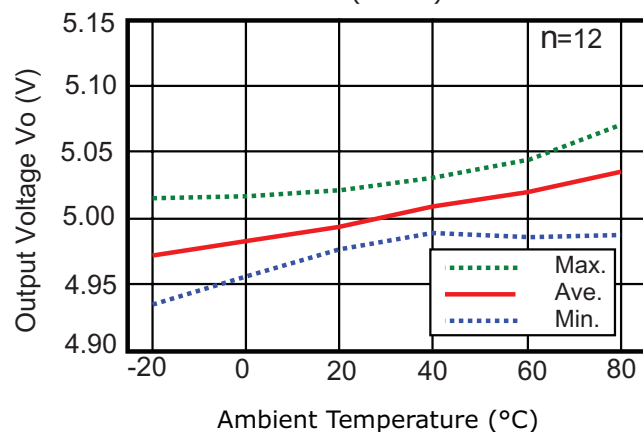
Output Voltage vs. Input Current



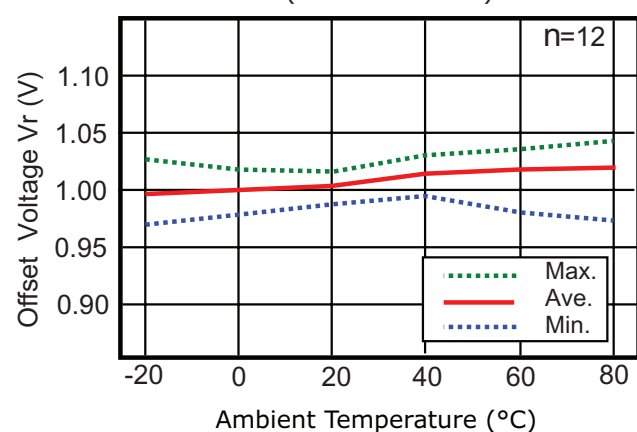
Input Current Frequency vs. Output Attenuation



Output Voltage vs. Ambient Temperature  
(at +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 |

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

---

# CUI DEVICES

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

CUI Devices reserves the right to make changes to the product at any time without notice. Information provided by CUI Devices is believed to be accurate and reliable. However, no responsibility is assumed by CUI Devices for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI Devices products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.