

**SERIES:** CSXX120B | **DESCRIPTION:** CURRENT SENSOR**FEATURES**

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



| MODEL    | rated current (If)  | linearity range <sup>1</sup> (Im) |
|----------|---------------------|-----------------------------------|
|          | (A <sub>RMS</sub> ) | (A <sub>PEAK</sub> )              |
| CS03120B | ±3                  | ±6                                |
| CS05120B | ±5                  | ±10                               |
| CS10120B | ±10                 | ±20                               |
| CS15120B | ±15                 | ±30                               |
| CS20120B | ±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 and -12 V terminals, 1 and 2, 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                                      | ±3.96 | ±4.00 | ±4.04 | V     |
| zero current offset voltage (Vr)            | after demagnetization                       | -0.03 | 0     | +0.03 | 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. Deducing 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

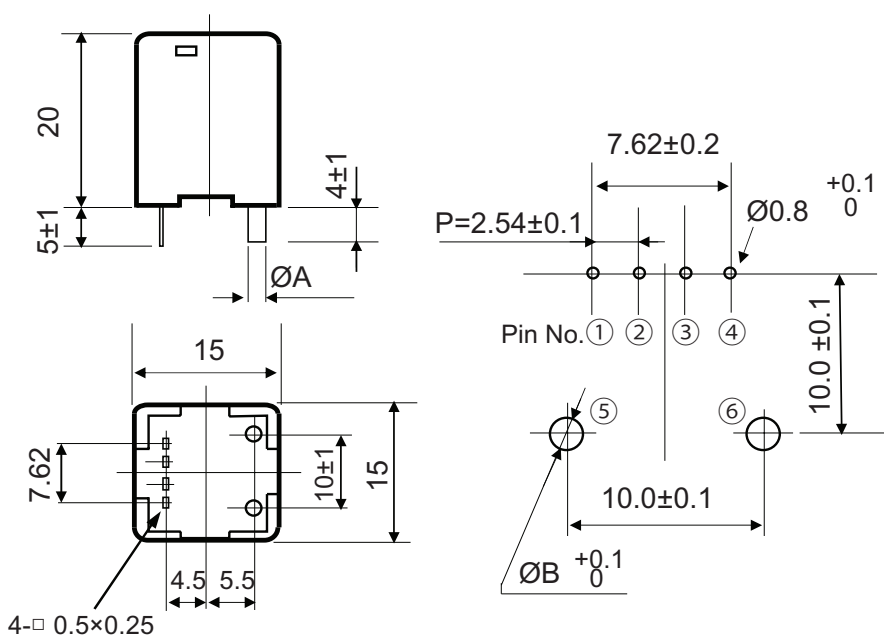
| parameter     | conditions/description           | min | typ | max | units |
|---------------|----------------------------------|-----|-----|-----|-------|
| dimensions    | 15 x 15 x 20                     |     |     |     | mm    |
| case material | PBT                              |     |     |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

## MECHANICAL DRAWING

units: mm  
tolerance: ±0.5 mm

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

| MODEL NO. | ØA (mm) | ØB (mm) |
|-----------|---------|---------|
| CS03120B  | 0.6     | 1.2     |
| CS05120B  | 0.9     | 1.5     |
| CS10120B  | 1.1     | 1.7     |
| CS15120B  | 1.4     | 2.0     |
| CS20120B  | 1.7     | 2.3     |



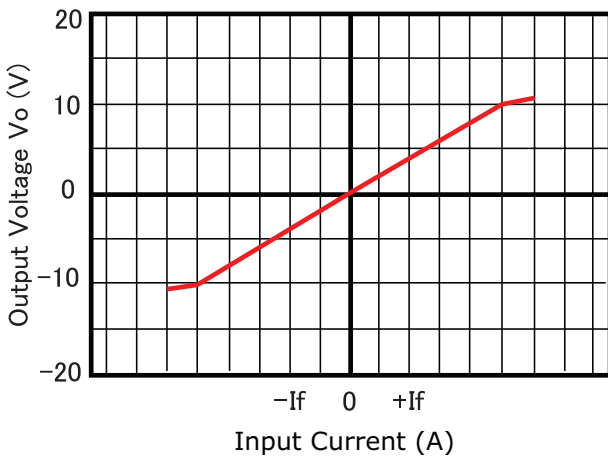
Recommended PCB Layout  
Top View

## DERATING CURVE

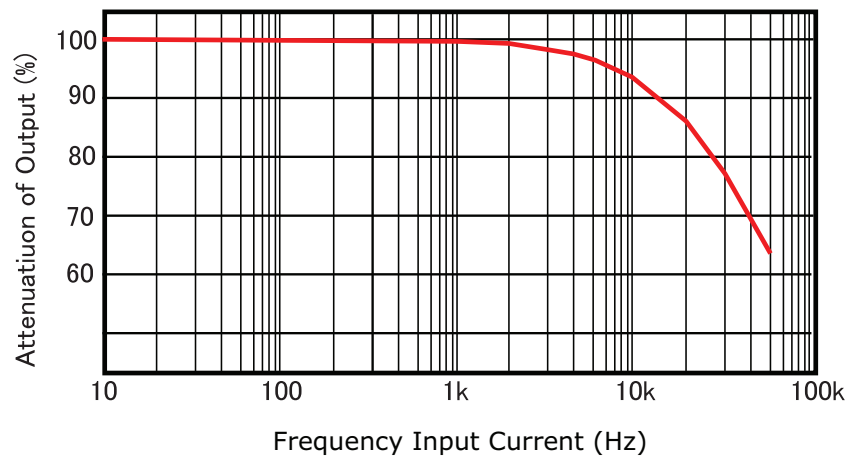


## PERFORMANCE CURVES

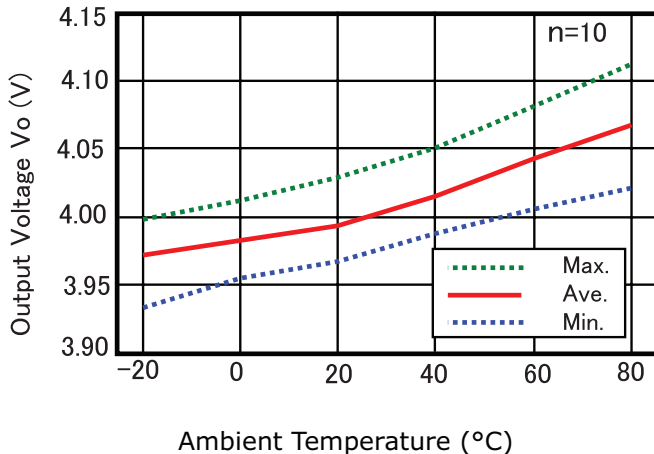
Output Voltage vs. Input Current



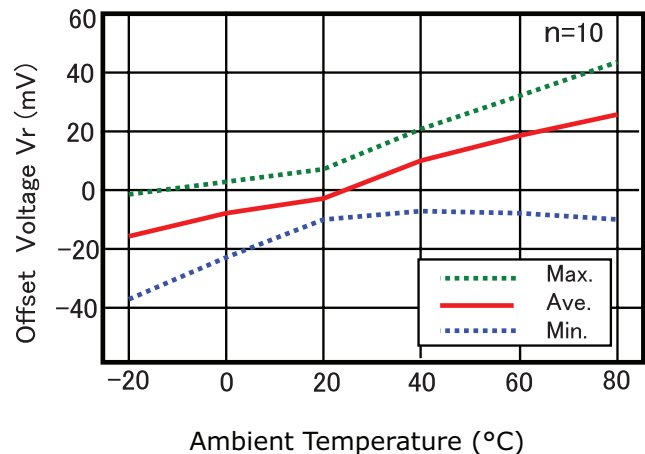
Input Current Frequency vs. Output Attenuation



Output Voltage vs. Ambient Temperature  
(at +If)



Offset Voltage vs. Ambient Temperature  
(at Zero Current)



## REVISION HISTORY

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| 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.

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