



## 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.

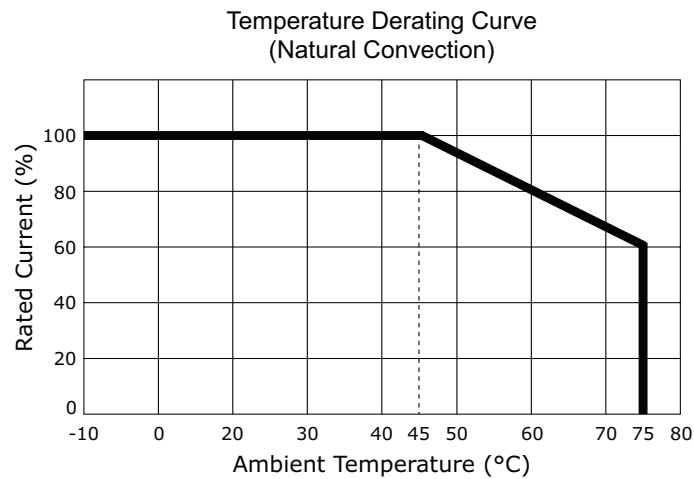
### SPECIFICATIONS

| 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/Vo)/(IfxI-1)x100%.

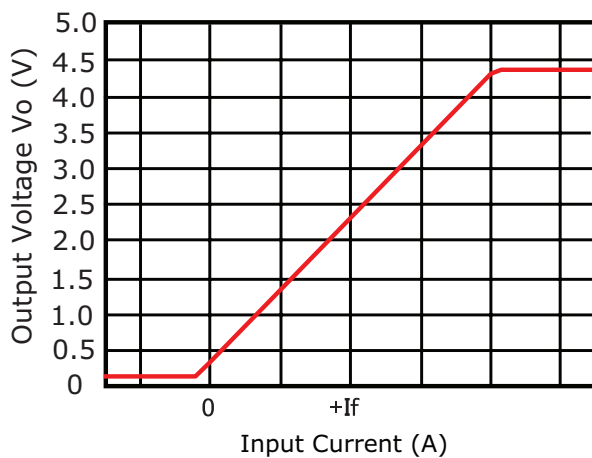


## DERATING CURVE

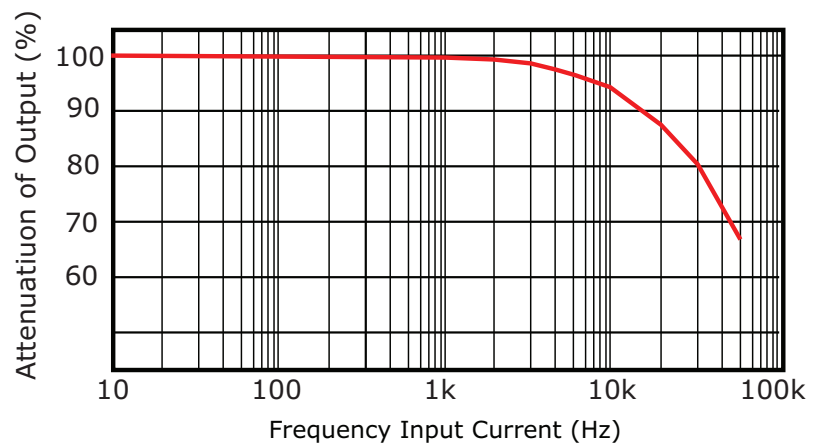


## PERFORMANCE CURVES

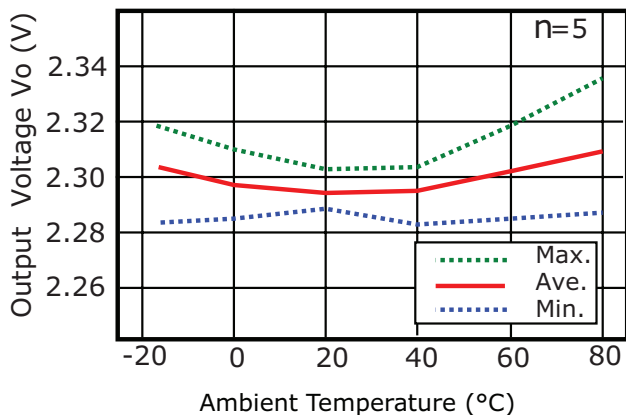
Output Voltage vs. Input Current



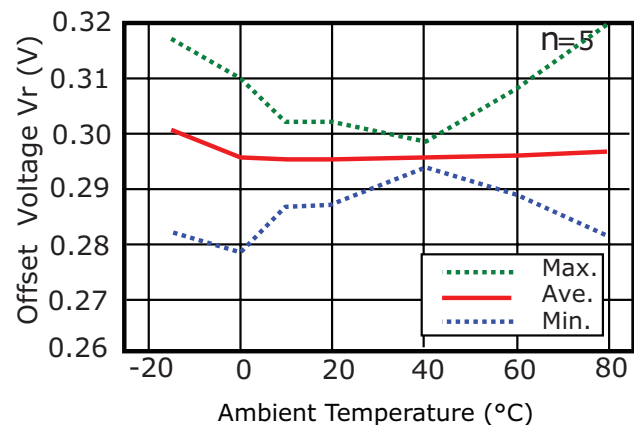
Input Current Frequency vs. Output Attenuation



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 |

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

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