

SERIES: CSXX50BL | **DESCRIPTION:** CURRENT SENSOR

FEATURES

- open loop
- bipolar
- low noise
- single channel


MODEL

| MODEL | rated current (If) | linearity range ¹ (Im) |
|----------|---------------------|-----------------------------------|
| | [A _{RMS}] | [A _{PEAK}] |
| CS0350BL | ±3 | ±4.5 |
| CS0550BL | ±5 | ±7.5 |
| CS1050BL | ±10 | ±15 |
| CS1550BL | ±15 | ±22.5 |
| CS2050BL | ±20 | ±30 |

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 and -5 V terminals, 1 and 2, 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 | ±1.98 | ±2.00 | ±2.02 | V |
| zero current offset voltage (Vr) | after demagnetization | -0.02 | 0 | +0.02 | 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. 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

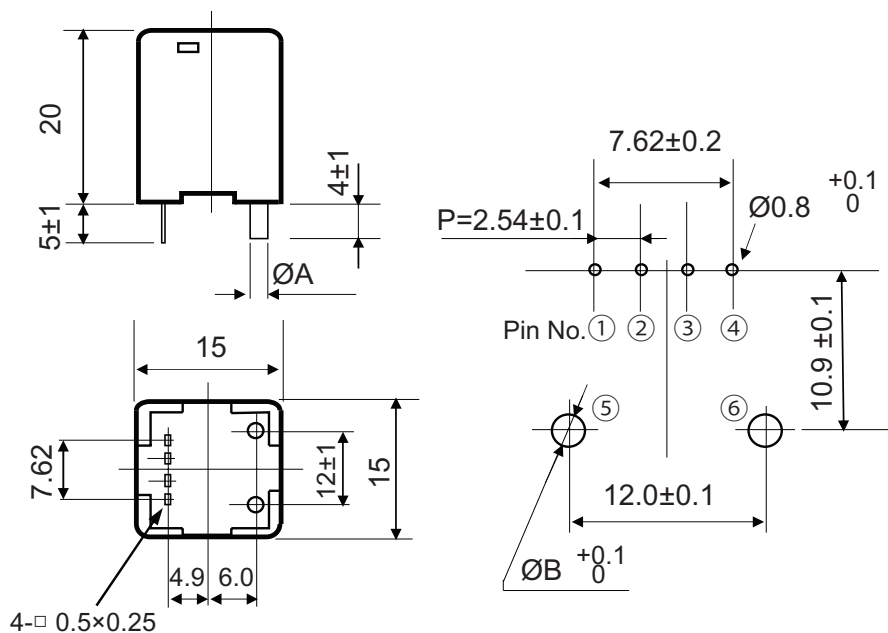
| parameter | conditions/description | min | typ | max | units |
|---------------|----------------------------------|-----|-----|-----|-------|
| dimensions | 15 x 15 x 20 | | | | mm |
| case material | PBT | | | | |
| terminals | phosphor bronze with tin plating | | | | |
| weight | | | 8 | | g |

MECHANICAL DRAWING

units: mm
tolerance: ±0.5 mm

| PIN CONNECTIONS | |
|-----------------|------------|
| PIN | FUNCTION |
| 1 | +5 V |
| 2 | -5 V |
| 3 | Output [V] |
| 4 | 0 V |
| 5 | +Input [A] |
| 6 | -Input [A] |

| MODEL NO. | ØA [mm] | ØB [mm] |
|-----------|---------|---------|
| CS0350BL | 0.6 | 1.2 |
| CS0550BL | 0.8 | 1.4 |
| CS1050BL | 1.0 | 1.6 |
| CS1550BL | 1.3 | 1.9 |
| CS2050BL | 1.5 | 2.1 |



Recommended PCB Layout
Top View

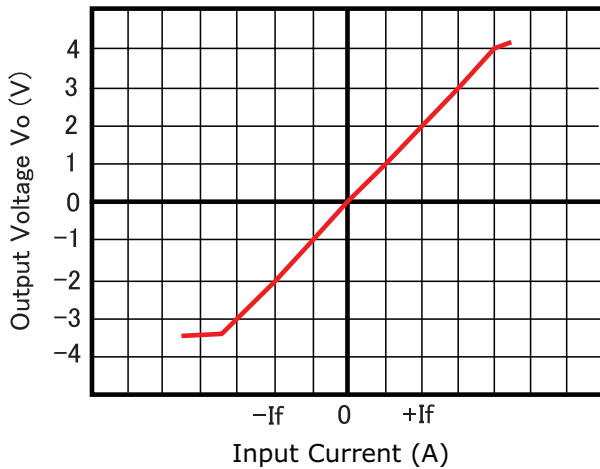
DERATING CURVE

Temperature Derating Curve
(Natural Convection)

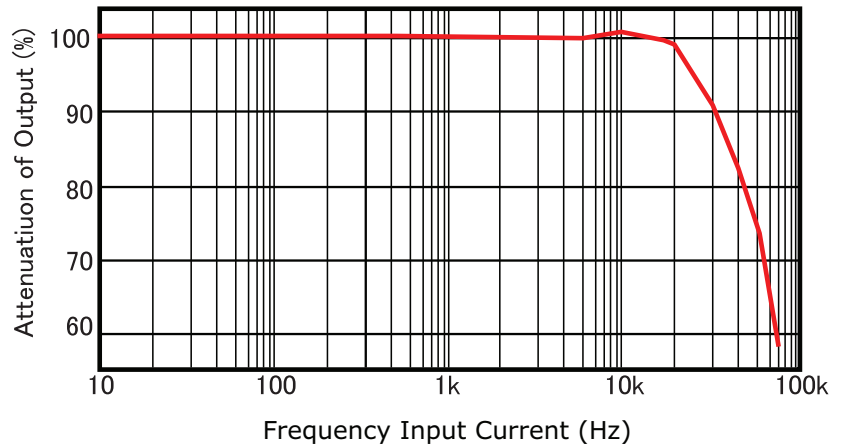


PERFORMANCE CURVES

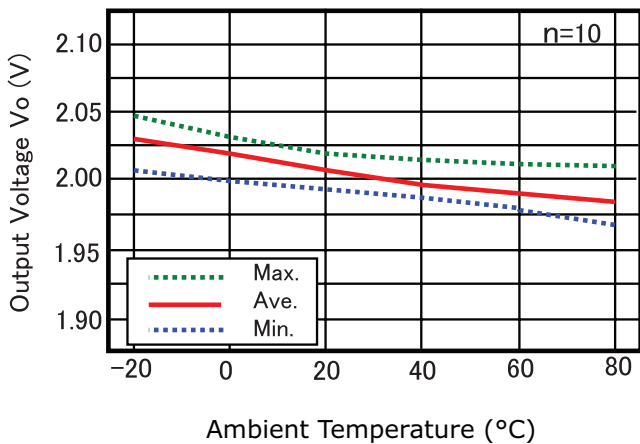
Output Voltage vs. Input Current



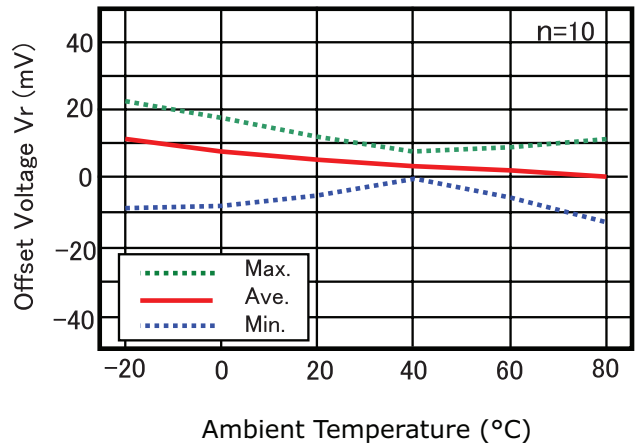
Input Current Frequency vs. Output Attenuation



Output Voltage vs. Ambient Temperature
(at +If)



Offset Voltage vs. Ambient Temperature
(at Zero Current)



REVISION HISTORY

| rev. | description | date |
|------|------------------------------|------------|
| 1.0 | initial release | 09/05/2019 |
| 1.01 | brand update | 02/19/2020 |
| 1.02 | logo, datasheet style update | 08/05/2022 |

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



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