

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

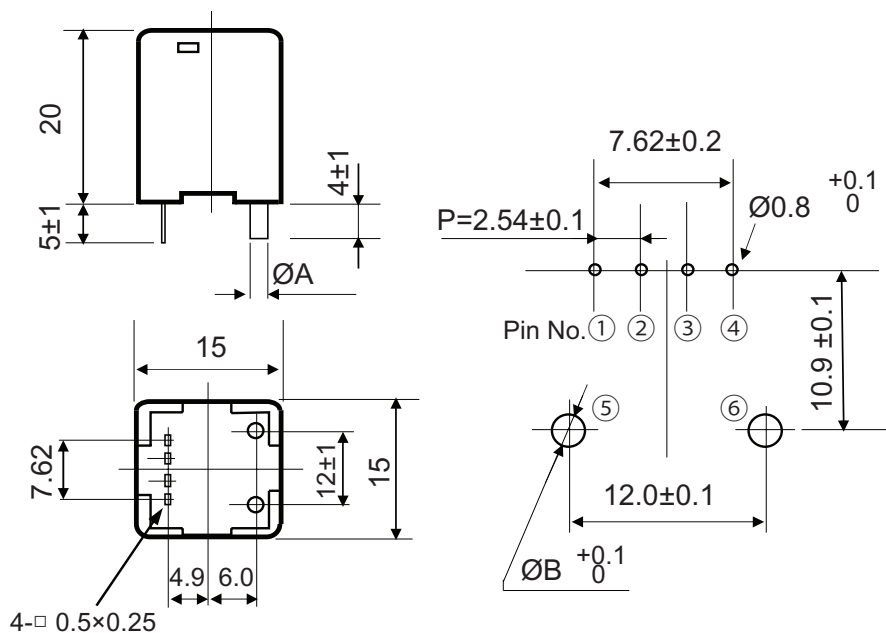
| parameter | conditions/description | min | typ | max | units |
|---------------|----------------------------------|-----|-----|-----|-------|
| dimensions | 15 x 15 x 20 | | | | mm |
| case material | PBT | | | | |
| terminals | phosphor bronze with tin plating | | | | |
| weight | | | 8 | | g |

MECHANICAL DRAWING

units: mm
tolerance: ±0.5 mm

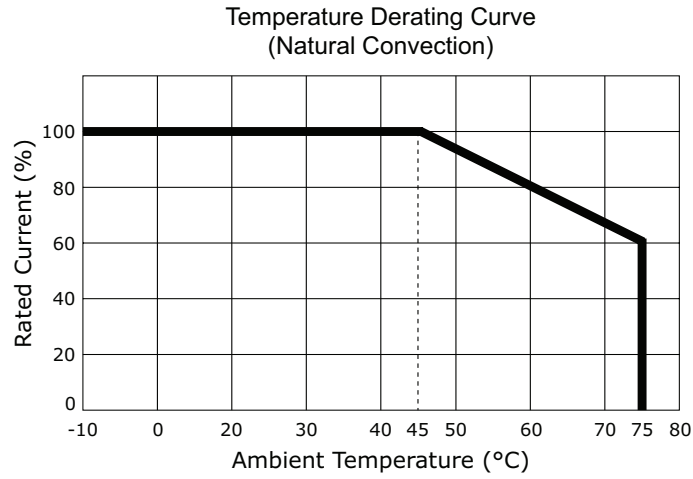
| PIN CONNECTIONS | |
|-----------------|------------|
| PIN | FUNCTION |
| 1 | +5 V |
| 2 | -5 V |
| 3 | Output [V] |
| 4 | 0 V |
| 5 | +Input [A] |
| 6 | -Input [A] |

| 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 |



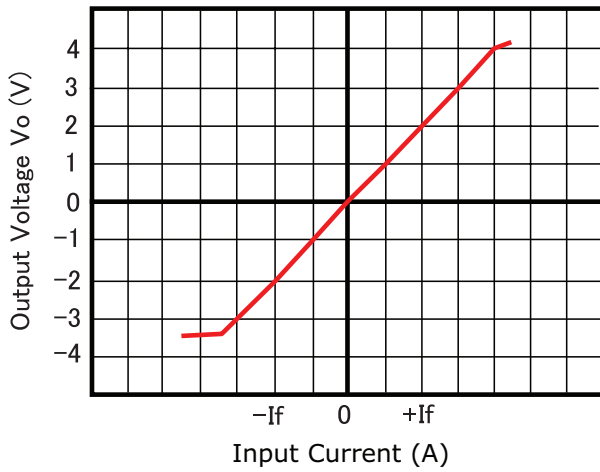
Recommended PCB Layout
Top View

DERATING CURVE

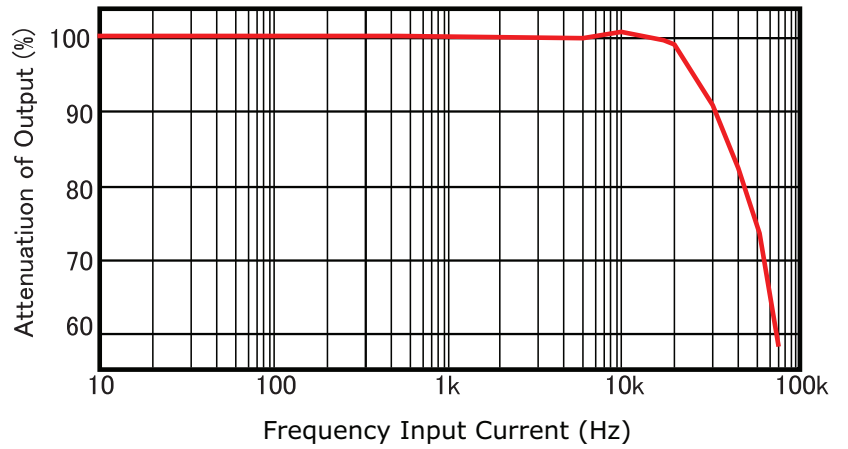


PERFORMANCE CURVES

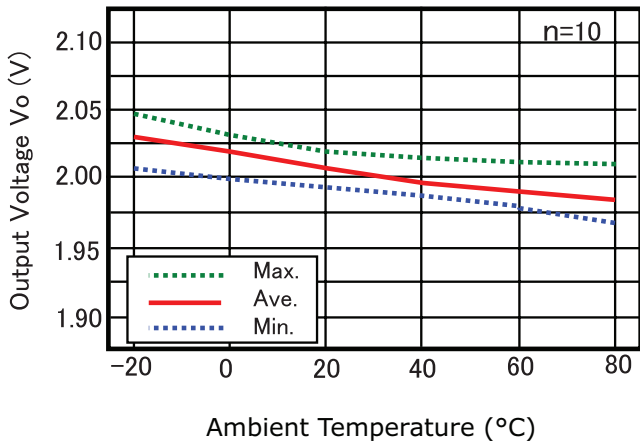
Output Voltage vs. Input Current



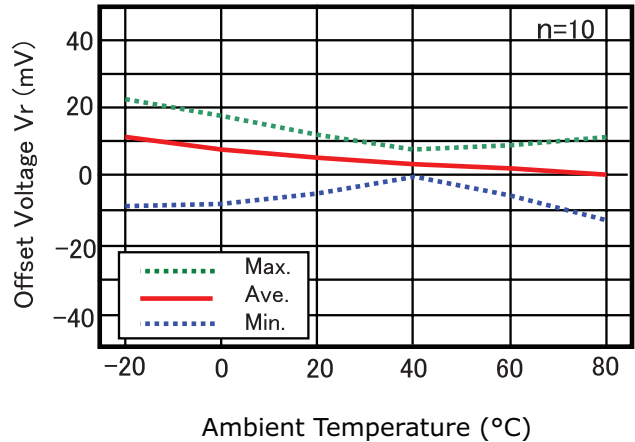
Input Current Frequency vs. Output Attenuation



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 | 09/05/2019 |
| 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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