

## Introduction

Vinbelltech's ACM20B miniature, open-loop current sensors incorporate our AH69X Series miniature ratiometric linear Hall-effect sensor. The sensing element is encapsulated in a printed circuit board-mountable plastic package. The combination of sensor, flux collector and housing comprises the current sensor assembly. These sensors are ratiometric output.

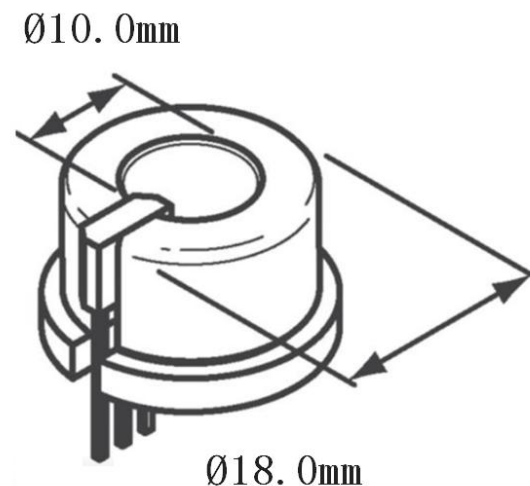
## Features

- Open-loop, through-hole design
- Output voltage isolation from input
- ac or dc current sensing
- Linear ratiometric output
- Current sinking or sourcing output for interfacing flexibility
- Fast response time
- Compact size
- Accurate, low-cost sensing
- Minimum energy dissipation
- Maximum current limited only by conductor size
- Built-in temperature compensation promotes reliable operation
- Operating temperature range -40 °C to 125 °C
- RoHs compliant (lead-free)

## Applications

- Motor control in appliances, HVAC and consumer tools
- Current monitoring of electronic circuits
- Overcurrent protection
- Ground fault detectors
- Robotics
- Industrial process control
- UPS and telecommunication power supplies
- Welding current monitoring
- Battery management systems in mobile equipment
- Watt meters
- Variable speed drives

## Package

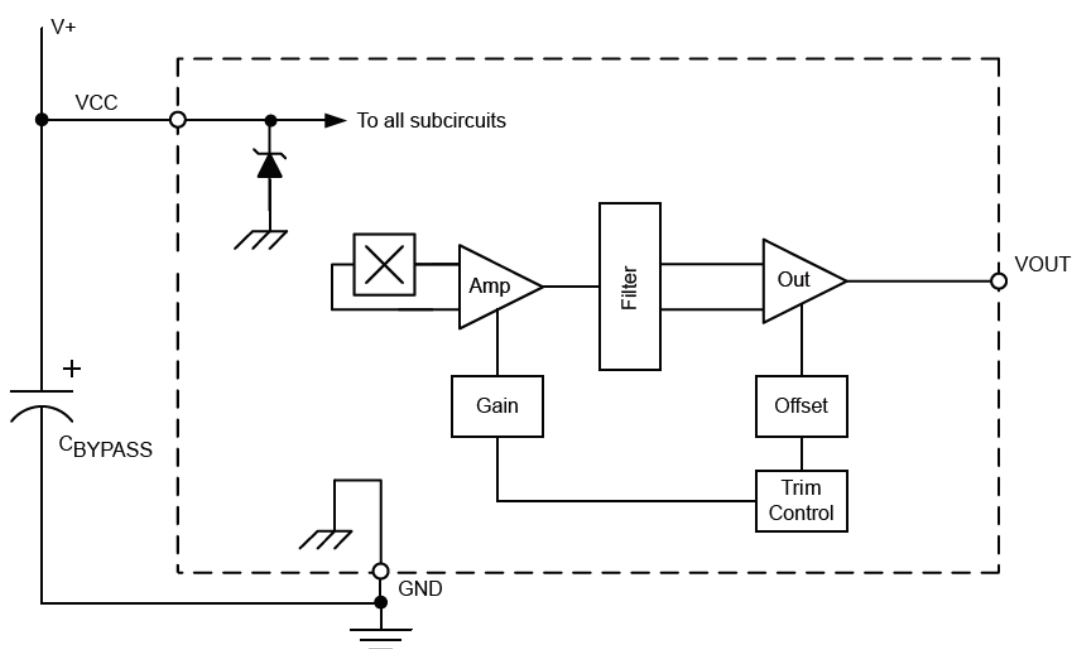


## Product specification

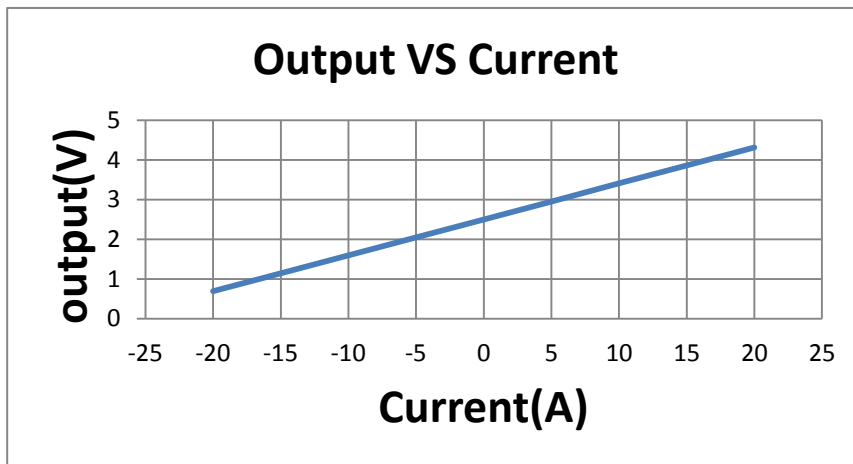
|                         |   |
|-------------------------|---|
| Product type            | Hall-effect linear open-loop current sensor |
| Package quantity        | 25 per box                                  |
| Package style           | PC board mount - radial lead IC             |
| Supply voltage          | 4.5 Vdc to 10.5 Vdc                         |
| Output type             | sink/source                                 |
| Magnetic actuation type | analog ratiometric                          |

| Parameter       | Symbol | Min.   | Typ.     | Max   | Units               | Condition   |
|-----------------|--------|--------|----------|-------|---------------------|---|
| Current range   | $I_p$  |        | $\pm 22$ |       | A                   | $< \pm 1.5\%$ error<br>( $-40^\circ\text{C}$ to $125^\circ\text{C}$ ) |
| Supply voltage  | $V_s$  | 4.5    | 5        | 10.5  | V                   |   |
| Vout @ 0 NI     | $V_o$  | 2.41   | 2.5      | 2.59  | V                   |   |
| Supply current  | $I_s$  |        | 4.8      | 7     | mA                  | no load   |
| Sensitivity     | Sens   | 87.5   | 90.5     | 93.5  | mV/A                | $-40$ to $125^\circ\text{C}$  |
| Hysteresis      | Hys    |        |          | 0.5   | %                   | $\pm 22\text{A}$  |
| Temp error-null | TCnull | -0.054 |          | 0.054 | $\%/^\circ\text{C}$ | $-40^\circ\text{C}$ to $125^\circ\text{C}$                            |
| Temp error-gain | TCgain | -0.08  |          | 0.08  | $\%/^\circ\text{C}$ | $-40^\circ\text{C}$ to $125^\circ\text{C}$                            |
| Rise time       | $t_r$  |        | 3        |       | $\mu\text{s}$       |   |

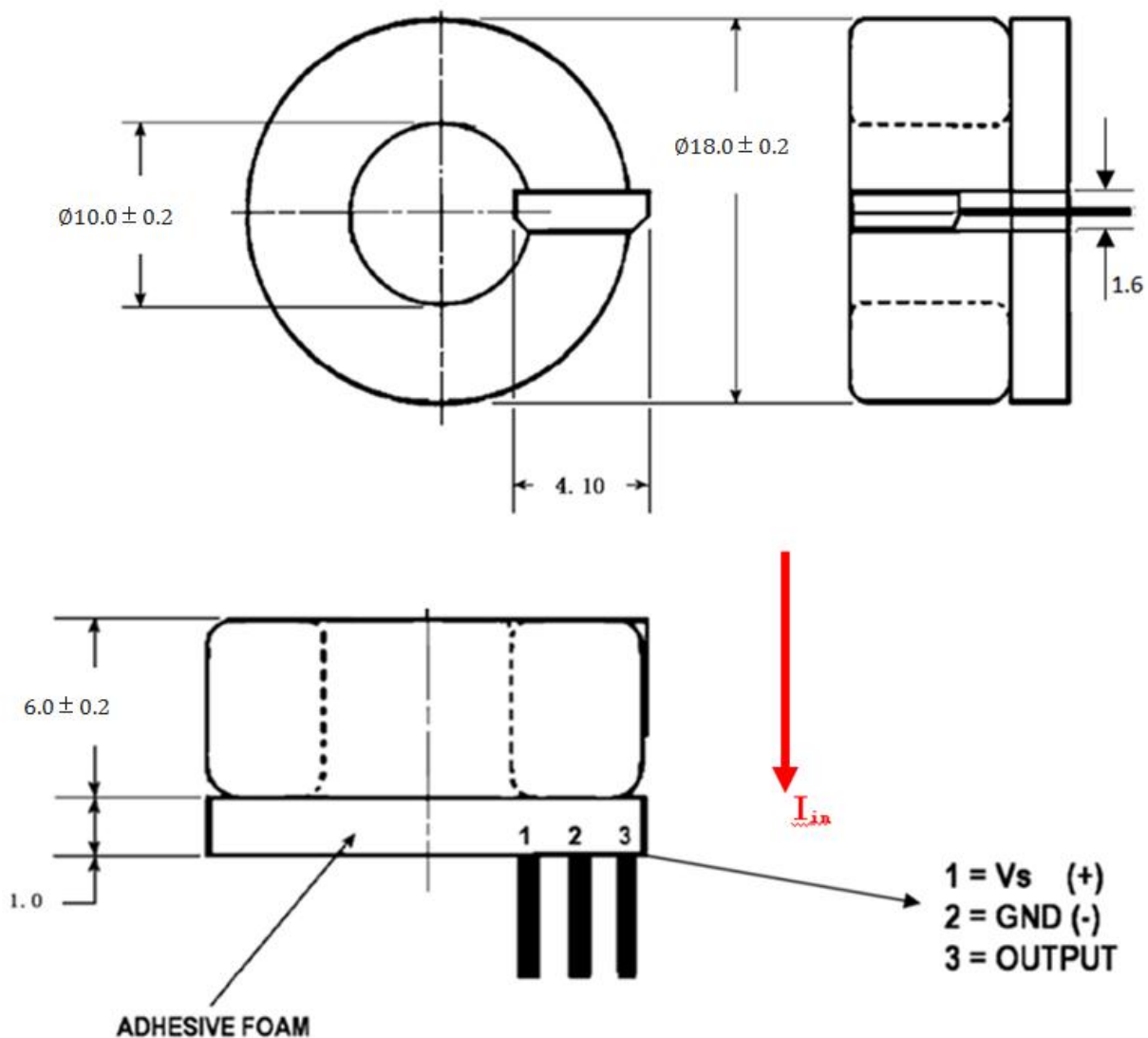
## Block diagram



## Typical transfer function (25 °C)



## Dimensional drawing (mm)





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