

## Hall Effect Base Linear Current Sensor

**Features:**

- Diameter 9.0mm conductor through hole
- Output voltage proportional to AC and DC current
- Wide sensing current range 0~35 A at 5V volt.
- High sensitivity 60mV/A
- Wide operating voltage range 3.0~12 V.
- Low operating current 3mA
- Isolation voltage 4000V
- Ratiometric output from supply voltage
- 23K Hz Bandwidth
- Two bronze sticks for easy soldering on PCB

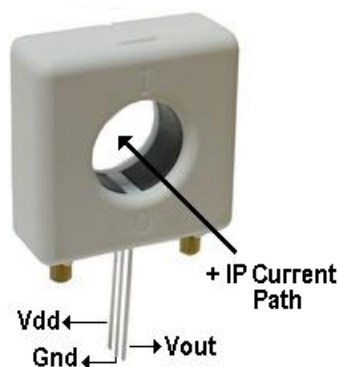
**Functional Description:**

The Winson WCS1800 current sensor provides economical and precise solution for both DC and AC current sensing in industrial, commercial and communications systems. The unique package provides easy implementation without breaking original system and makes current sensing possible. Typical applications include motor control, load detection and management, over-current fault detection and any intelligent power management system etc...

The WCS1800 consists of a precise, low-temperature drift linear hall sensor IC with temperature compensation circuit and a diameter 9.0mm through hole. Users can use system's own electric wire by pass it through this hole to measure passing current. This design allows system designers to monitor any current path without breaking or changing original system layout at all. Any current flowing through this hole will generate a magnetic field which is sensed by the integrated Hall IC and converted into a proportional voltage.

The terminals of the conductive path are electrically isolated from the sensor leads. This allows the WCS1800 current sensor to be used in applications requiring electrical isolation without the use of opto-isolators or other costly isolation techniques and make system more competitive in cost.

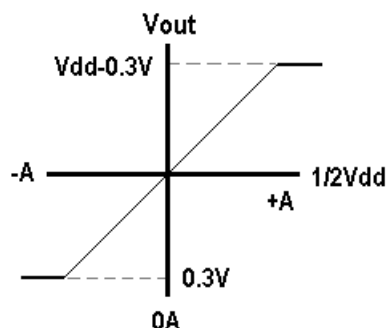
Winson reserves the right to make changes to improve reliability or manufacturability.



## ABSOLUTE MAXIMUM RATING

|                             |                 |
|-----------------------------|-----------------|
| Supply Voltage, Vdd         | 14V             |
| Pass Through Wire Diameter  | 9.0 mm          |
| Output Current Sink         | 0.4mA           |
| Output Current Source       | 2mA             |
| Basic Isolation Voltage     | 4000 V          |
| Operating Temperature Range |                 |
| Ta                          | -20°C to +125°C |
| Storage Temperature Range   |                 |
| Ts                          | -65°C to +150°C |
| Power Dissipation Pd        | 1 W             |

## Vout vs. Primary Current

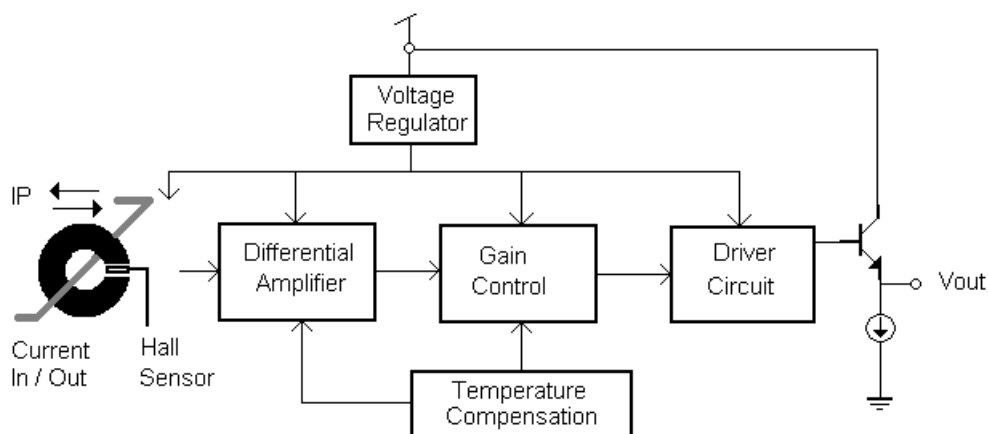


## Order Information

(Vdd=5V)

| Part No. | Sensitivity | Current range         |
|----------|-------------|-----------------------|
| WCS1800  | 60 mV/A     | DC: $\pm 0 \sim 35$ A |
|          |             | AC: rms 25 A          |

## Function Block:



## Electrical Characteristics:

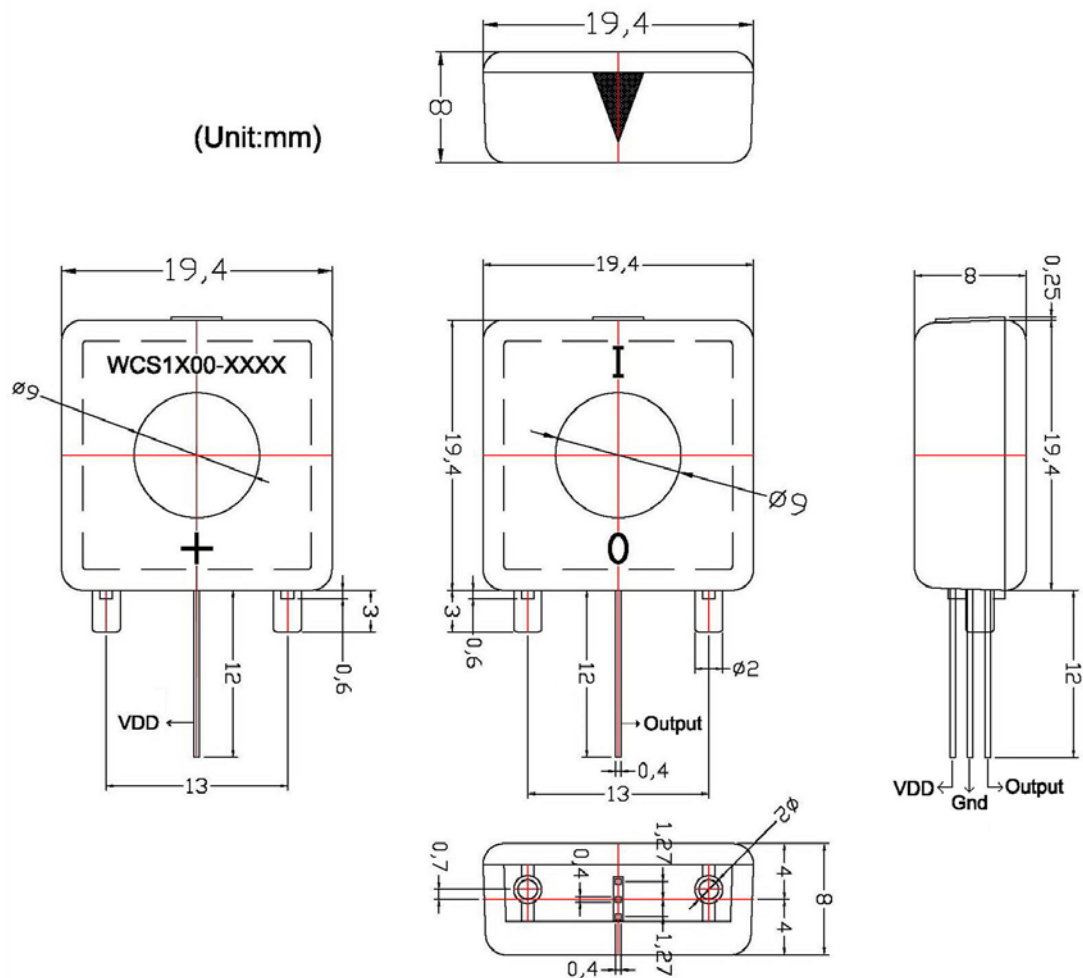
(T=+25°C, Vdd=5.0V )

| Characteristic           | Symbol              | Test Conditions        | Min | Typ  | Max | Units |
|--------------------------|---------------------|------------------------|-----|------|-----|-------|
| Supply Voltage           | Vdd                 | —                      | 3.0 | —    | 12  | V     |
| Supply Current           | I <sub>supply</sub> | I <sub>P</sub> =0 A    | —   | 3.5  | 6.0 | mA    |
| Zero Current Vout        | V <sub>OG</sub>     | I <sub>P</sub> =0 A    | 2.4 | 2.5  | 2.6 | V     |
| Conductor Through Hole   |                     |                        | —   | 9.0  | —   | mm    |
| Sensitivity              | <b>WCS1800</b>      | I <sub>P</sub> = ±10 A | 51  | 60   | 69  | mV/A  |
| Bandwidth                | BW                  |                        | —   | 23   | —   | kHz   |
| Measurable Current Range | <b>WCS1800</b>      | Vdd=5V (DC )           | —   | ±35  | —   | A     |
|                          |                     | Vdd=5V (AC RMS )       | —   | 25   | —   |       |
| Temperature Drift        | ΔVout               | I <sub>p</sub> =0 A    | —   | ±1.0 | —   | mV/°C |

1.All output-voltage measurements are made with a voltmeter having an input impedance of at least 100kΩ

2. Do not apply any load on output pin, it will degrade IC's performance.

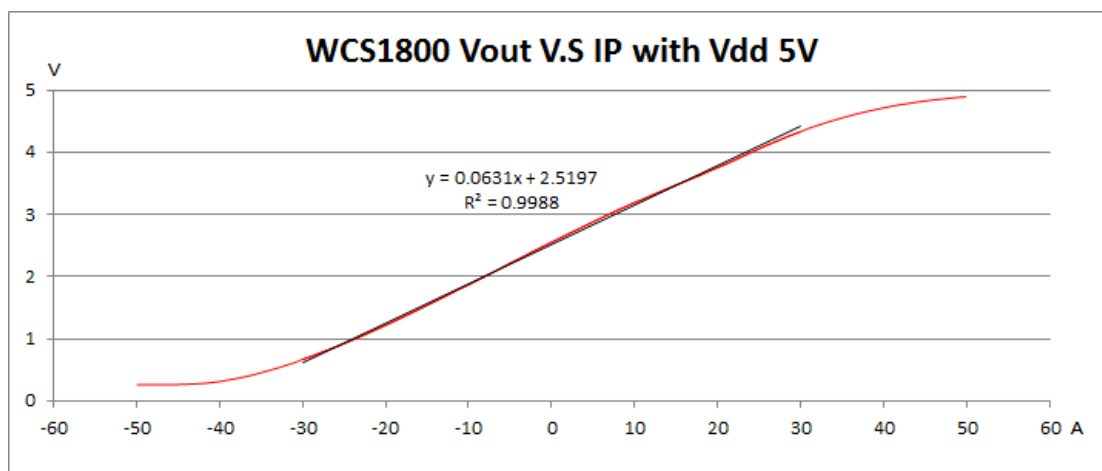
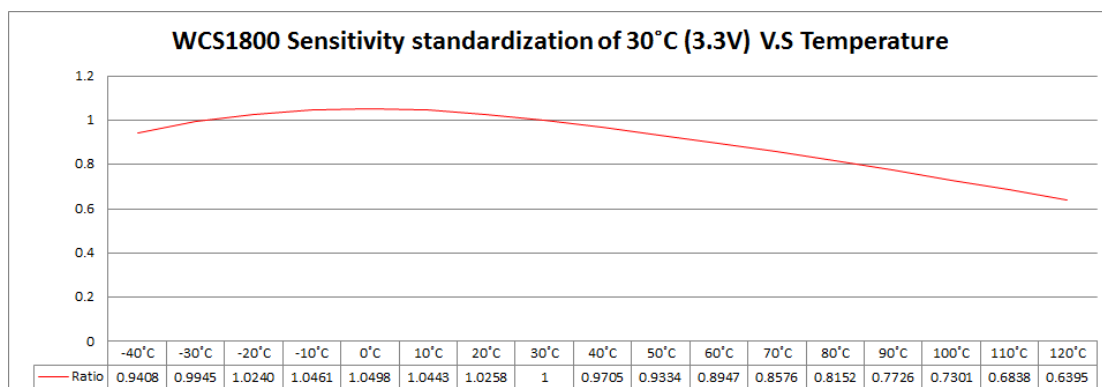
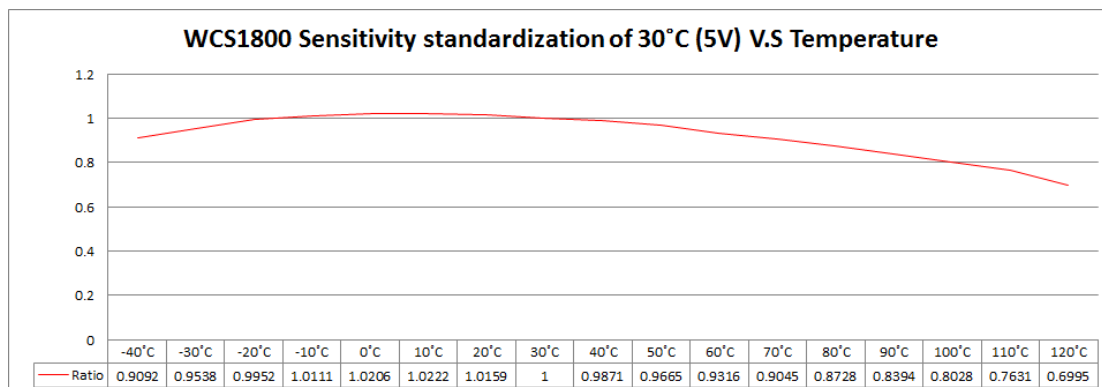
## Package Information:



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## Characteristic Diagrams:

### WCS1800



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