WCS6800

Hall Effect Base Linear Current Sensor

Features:

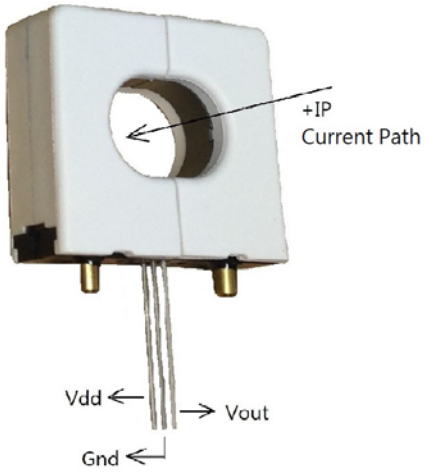
- 11 x 8 mm^2 split through hole design
- Output voltage proportional to AC and DC current
- Wide sensing current range 0~35 A at 5V volt.
- High sensitivity 55 mV/A
- Wide operating voltage range 3.0~12 V.
- Low operating current 3 mA
- Isolation voltage 4000 V
- Ratiometric output from supply voltage
- 23 KHz Bandwidth
- Two bronze sticks for easy soldering on PCB

Functional Description:

The Winson WCS6800 current sensor provides economical and precise solution for both DC and AC current sensing in industrial, commercial and communications systems. New patent design of split through hole 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 WCS6800 consists of a precise, low-temperature drift linear hall sensor IC and 11x8 mm^2 split 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.

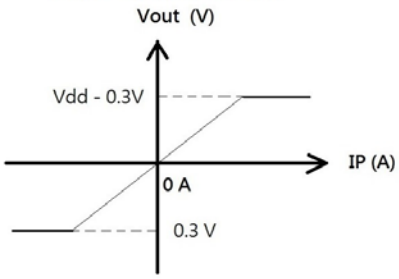
The terminals of the conductive path are electrically isolated from the sensor leads. This allows the WCS6800 current sensor to be used in applications requiring electrical isolation without the use of opto-isolators or other costly isolation techniques and make system more competitive in cost.



Absolute Maximum Rating

Supply Voltage, V_{dd}	14	V
Pass Through Wire Channel	11x8	mm^2
Output Current Sink	0.4	mA
Output Current Source	2	mA
Basic Isolation Voltage	4000	V
Operating Temperature Range		
T_a	-20 to +125	℃
Storage Temperature Range		
T_s	-65 to +150	℃
Power Dissipation, Pd	1	W

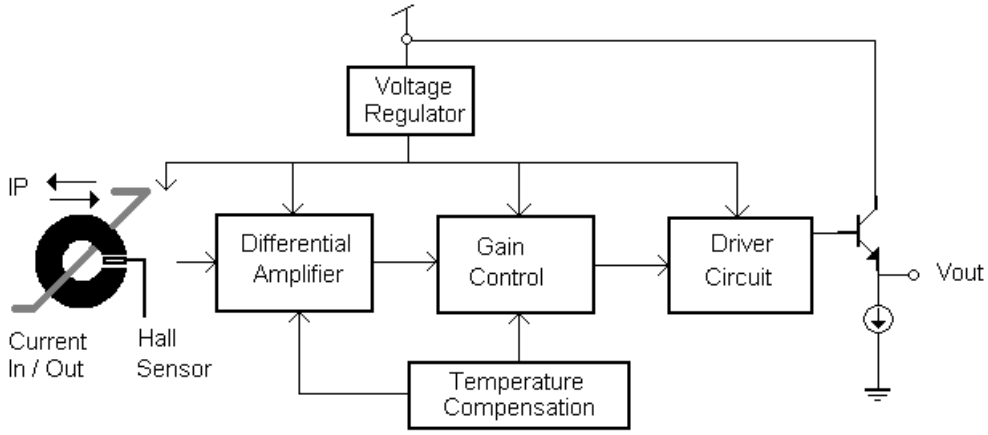
V_{out} v.s Primary Current



Order Infomation (Vdd=5V)

Part No.	Sensitivity	Current range
WCS6800	55 mV/A	DC : ± 0~35 A
		AC : rms 25 A

Function Block:



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

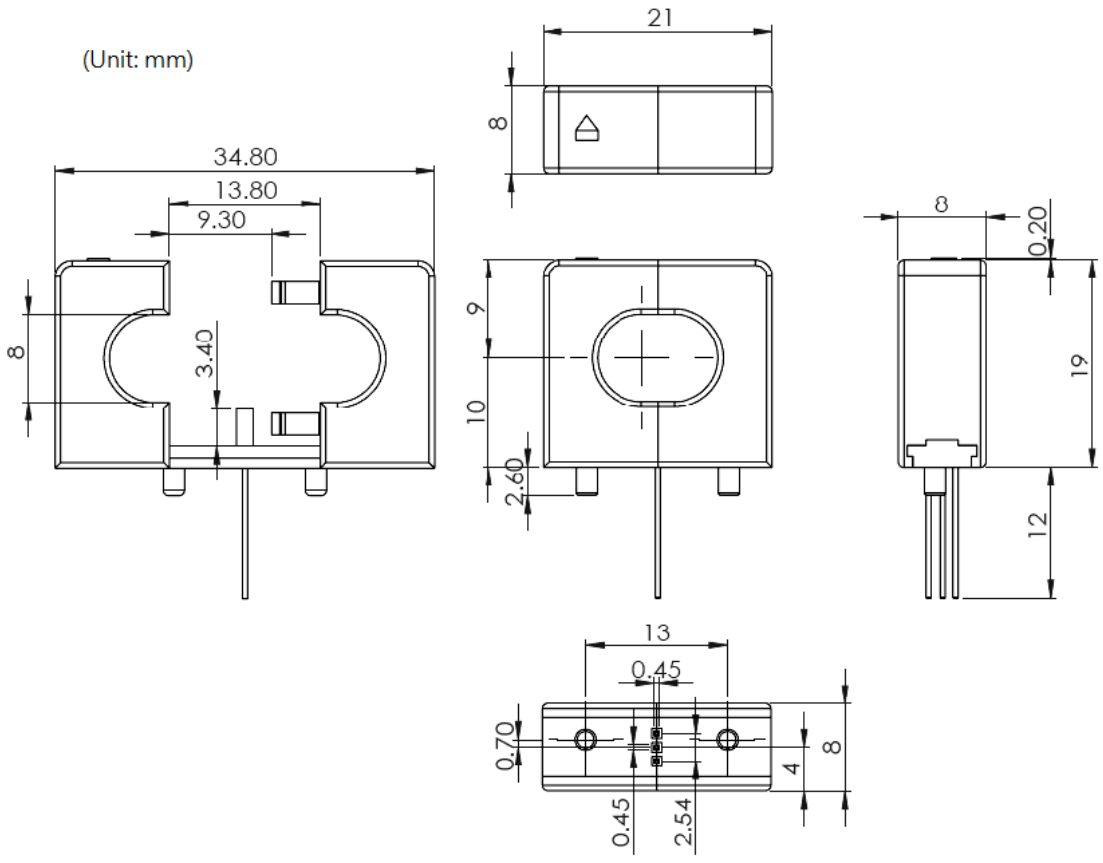
Electrical Characteristics: (T=+25°C, V_{dd}=5V)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Supply Voltage	V_{dd}	—	3.0	—	12	V
Supply Current	I_{supply}	IP = 0 A	—	3.5	6.0	mA
Zero Current Vout	V_{0G}	IP = 0 A (DC mode)	2.35	2.5	2.65	V
Conductor Through Hole	—	—	—	11x8	—	mm^2
Sensitivity	WCS6800	IP = ±10 A	47	55	63	mV/A
Bandwidth	BW	—	—	23	—	kHz
Measurable Current Range	WCS6800	V_{dd} = 5 V (DC mode)	—	±35	—	A
		V_{dd} = 5 V (AC rms)	—	25	—	
Temperature Drift	△Vout	IP = 0 A	—	±1.0	—	mV/℃

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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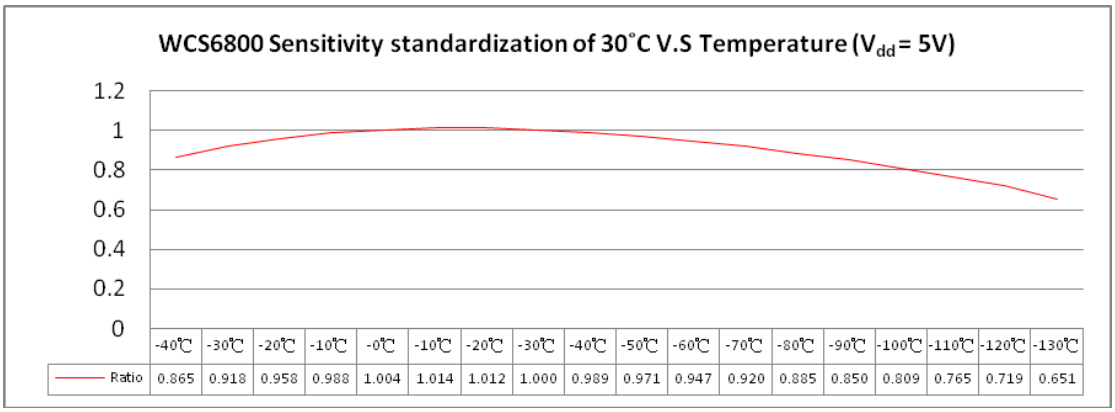
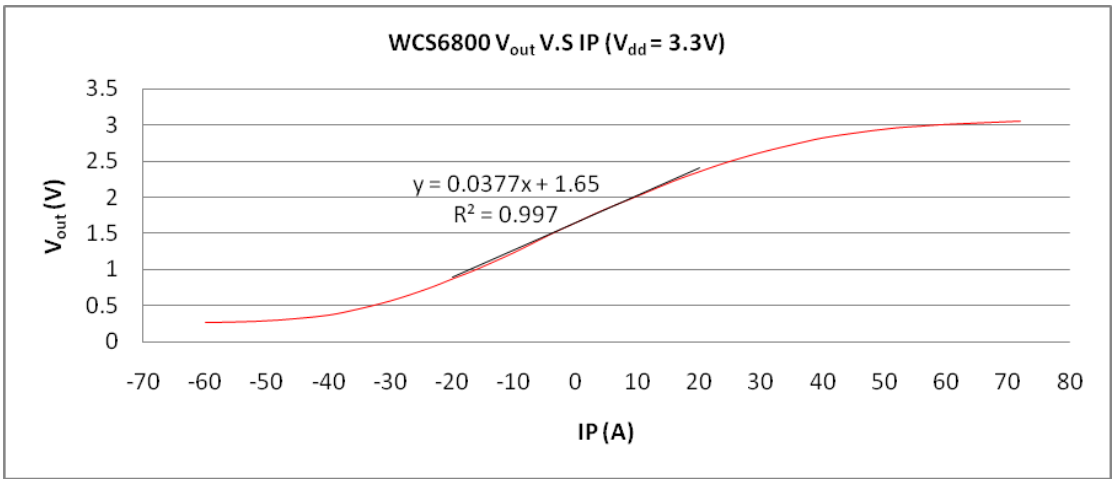
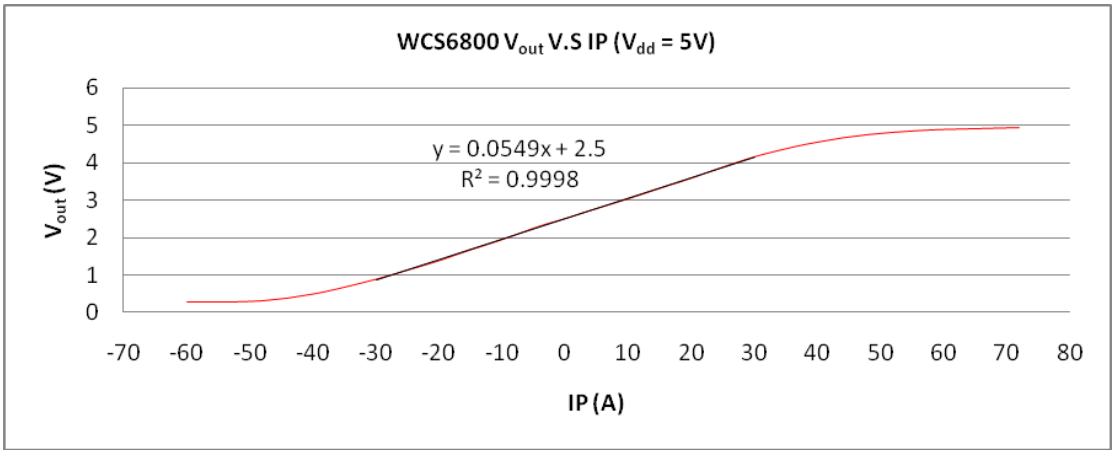
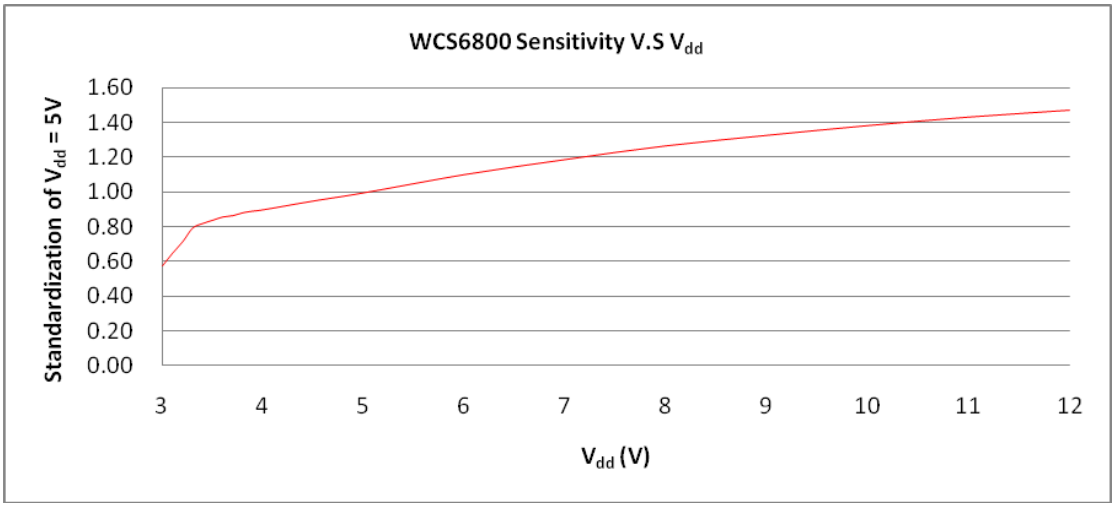
Characteristic Diagrams:









Application Notice:

There is a linear variation of sensitivity along the y directions. Keep wire as fixed as possible to get steadiest reading.