WCS2801

Hall Effect Base Linear Current Sensor

Features:



- Low noise analog signal path
- 98 mΩ internal conductor resistance
- Output voltage proportional to AC and DC current
- Min. sensing current 0～1.0A at 5V voltage supply
- High Sensitivity 2 mV/mA
- Wide operating voltage range 3.0～12 V.
- Low operating current 3mA
- Nearly zero magnetic hysteresis
- Ratiometric output from supply voltage
- 10K Hz bandwidth

Functional Description :

The Winson WCS2801 provides economical and precise solution for both DC and AC current sensing in industrial, commercial and communications systems. The unique package allows for easy implementation by the customer. Typical applications include motor control, load detection and management, over-current fault detection and any intelligent power management system etc…

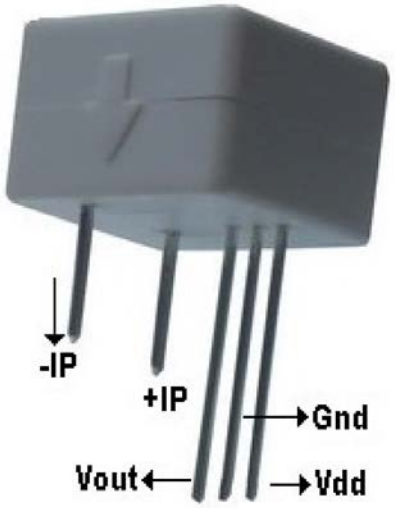
The WCS2801 consists of a precise, low-temperature drift linear hall sensor IC with temperature compensation circuit and a current path with 98 mΩ typical internal conductor resistance. This extremely low resistance can effectively reduce power loss, operating temperature and increase the reliability greatly. Applied current flowing through this conduction path generates a magnetic field which is sensed by the integrated Hall IC and converted into a proportional voltage.

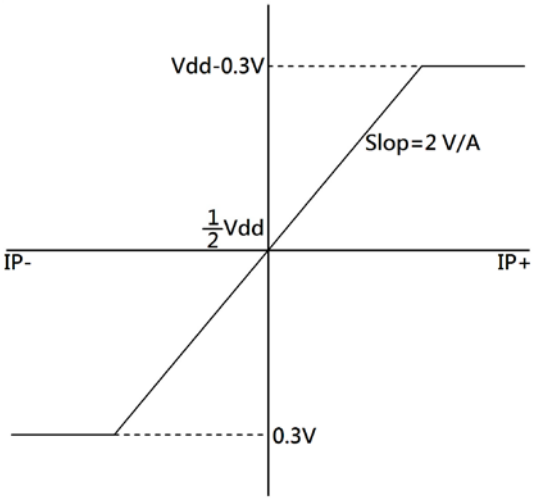
The terminals of the conductive path are electrically isolated from the sensor leads. This allow the WCS2801 current sensor to be used in applications requiring electrical isolation without the use of opto-isolators or other costly isolation techniques and make system more competitive in cost.

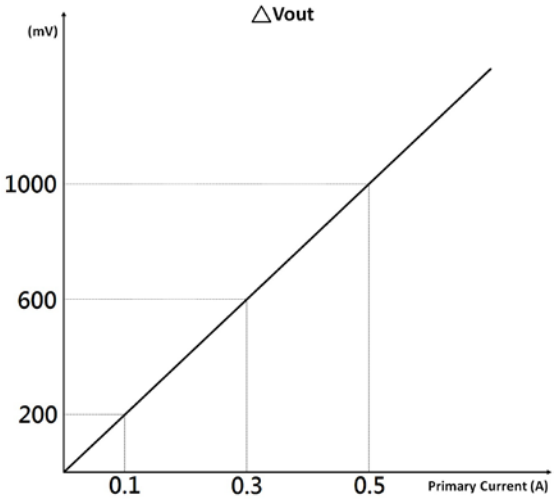
Winson reserves the right to make changes to improve reliability or manufacturability.

ABSOLUTE MAXIMUM RATING:

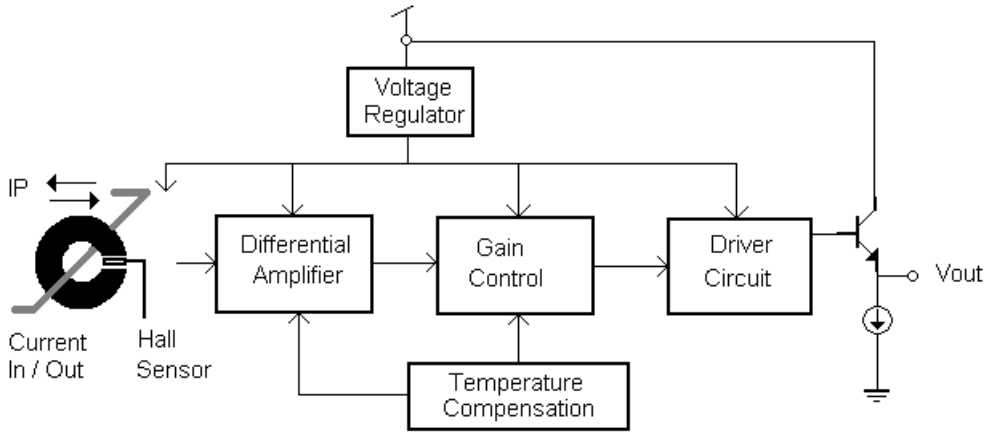
Supply Voltage, Vdd	----------	14V	
Pass Current IP	----------	2.5A	
Pass Current (10ms pulse) Ipulse	-	5A	
Output Current Sink	----------	0.4mA	
Output Current Source	----------	2mA	
Conductor Isolation Voltage	--------	1000V	
Operating Temperature Range Ta	- -20	℃+125	℃
Storage Temperature Range Ts	---- -65	℃+150	℃
Power Dissipation Pd	----------	1W	







Function Block:



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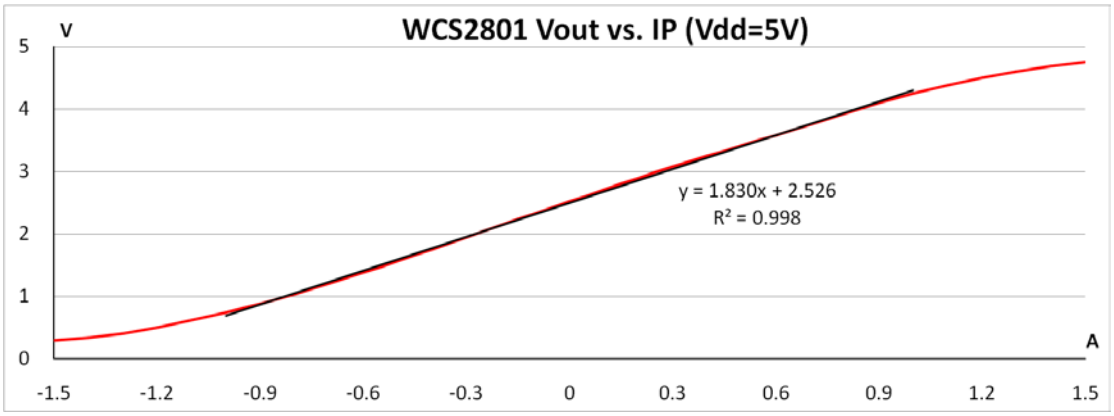
Electrical Characteristics: (T=+25˚C, Vdd=5.0V)

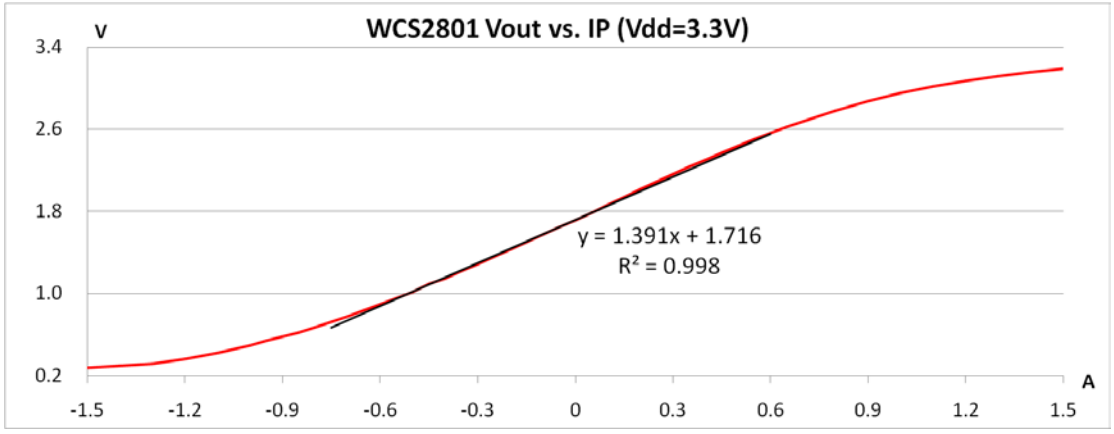
Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Supply Voltage	Vcc	—	3.0	—	12	V
Supply Current	Isupply	IP =0 A	—	3.4	5.0	mA
Zero Current Vout	V0G	IP =0 A	2.3	2.5	2.7	V
Primary Conductor Resistance	Rprimary	IP =2 A	—	98	—	mΩ
Sensitivity	△Vout	IP= ± 2.0 A	1.7	2.0	2.3	V/A
Bandwidth	BW		—	10	—	kHz
Measurable Current Range	MCR	Vdd=5V (**DC current**)	—	±1.0	—	A
		Vdd=5V (**AC RMS**)	—	0.7	—	
Temperature Drift	△Vout	Ip =0 A	—	±1	—	mV/℃

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

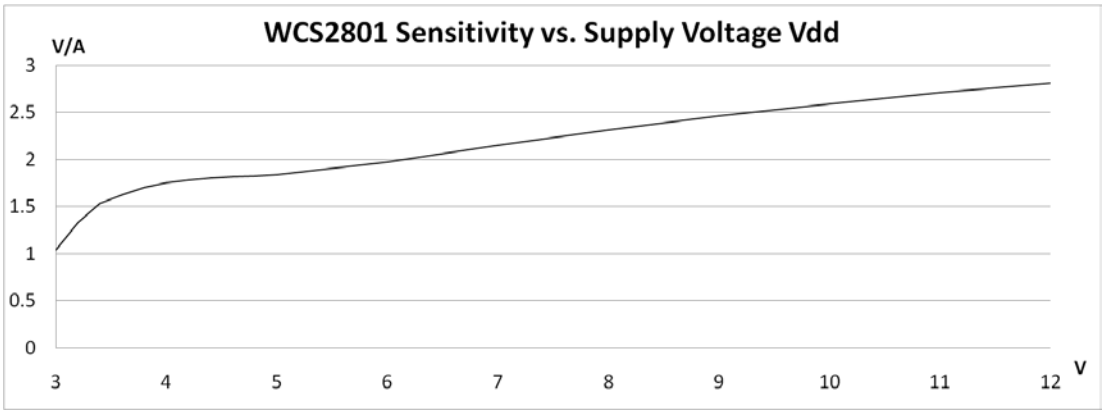
2. Do not apply any resistor load on output pin, it will degrade IC's performance.

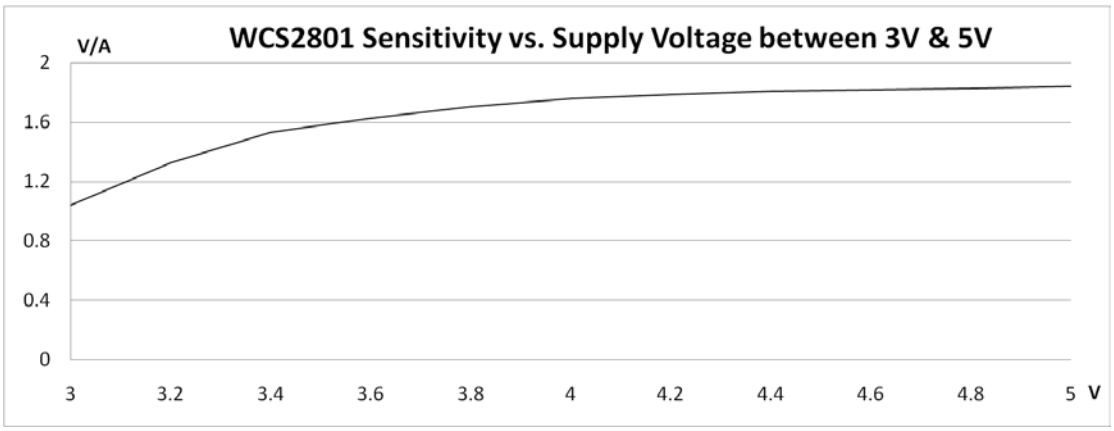
Characteristic Diagrams:

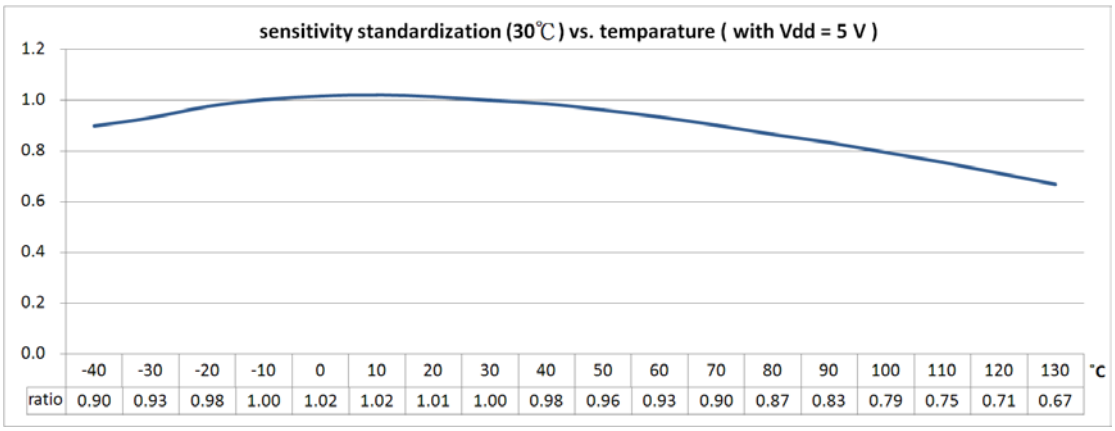




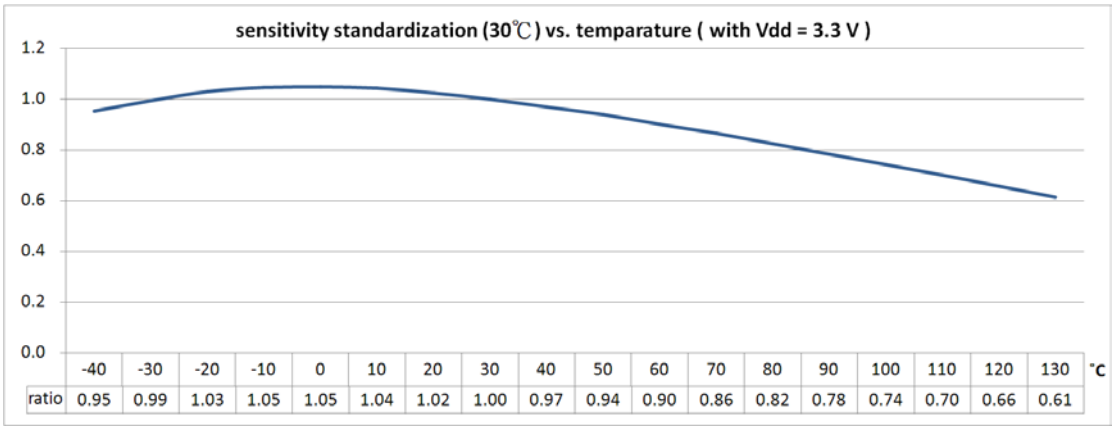
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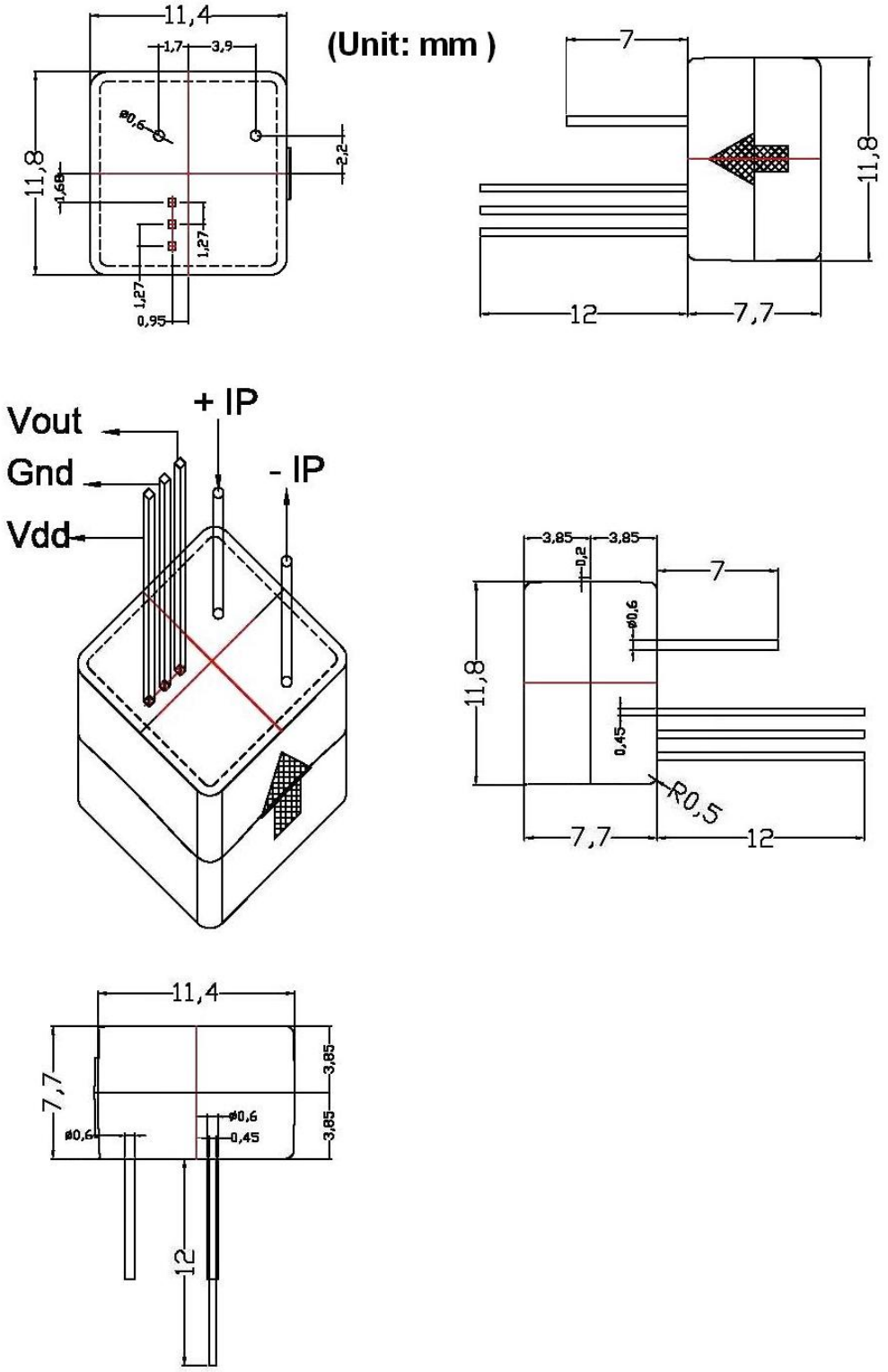
	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	90	100	110	120	130	℃
ratio	0.90	0.93	0.98	1.00	1.02	1.02	1.01	1.00	0.98	0.96	0.93	0.90	0.87	0.83	0.79	0.75	0.71	0.67	



	-40	-30	-20	-10	0	10	20	30	40	50	60	70	80	90	100	110	120	130	℃
ratio	0.95	0.99	1.03	1.05	1.05	1.04	1.02	1.00	0.97	0.94	0.90	0.86	0.82	0.78	0.74	0.70	0.66	0.61	

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Package Information:



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