Linear Hall Effect Sensor IC

Features

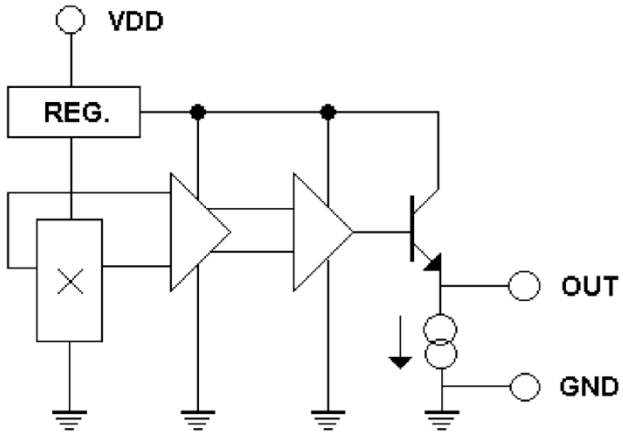
- Wide operating range 3.0 V ~ 12 V, -40℃ ~ 125℃
- Flat Response to 23 kHz
- High Sensitivity 3.0 mV/G
- Wide sensible magnetic field range on different supplied voltage:
  ±600 Gauss on 5 V supplied voltage
  ±1,500 Gauss on 12 V supplied voltage
- Low operating current 3mA
- Two package styles TO-92S/SOT-23 available
- Built-in temperature compensated circuit to minimize temperature's effect

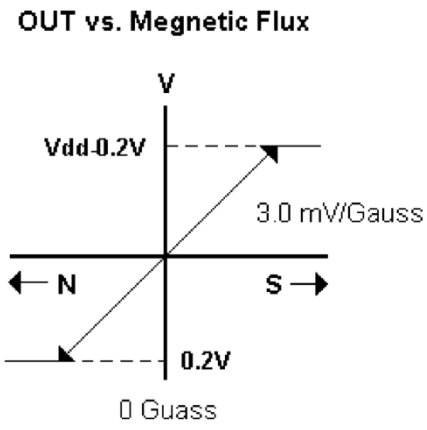
Functional Description

The WSH136 integrates Hall sensing element, linear amplifier, sensitivity controller and emitter follower output stage. It accurately tracks extremely small change in magnetic flux density which is generally too small to operate Hall effect switch.

WSH136 can be applied as current sensor, tooth sensor, proximity detectors and motion detectors. As sensitive monitor of magnetic flux, it can effectively measure the performance of system with negligible system loading while providing isolation from contaminated and electrically noisy environments.

Function Block





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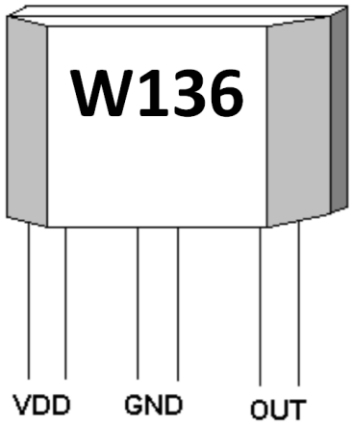
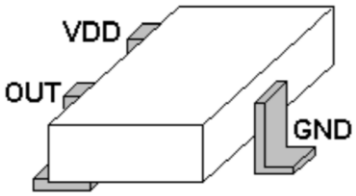




Absolute Maximum Range

Supply Voltage, Vdd ---------- **14V**
Magnetic Flux Density, B ---------- **Unlimited**
Output Driving Current, Iout ---------- **0.4mA**
Operating Temperature Range, Ta ----------
---------- **-40ºC to +125ºC**
Storage Temperature Range, Ts ----------
---------- **-65ºC to +150ºC**
Power Dissipation, Pd
TO-92S ---------- **500mW**
SOT-23 ---------- **400mW**

Order Information

WSH136-XPAN□ (TO-92S) WSH136-XPCN□ (SOT-23) Grade Halogen Free	1: A Grade 2: B Grade

★TO-92S — 1,000/bag , SOT-23 — 3,000/reel

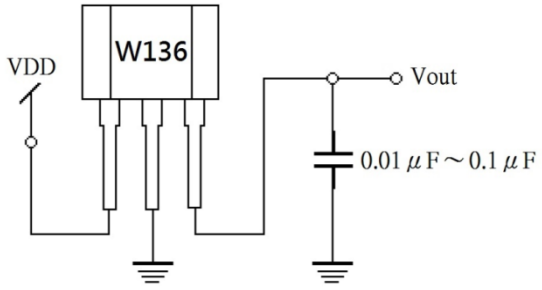
Electrical Characteristics

(T = +25 ℃, Vdd = 5.0 V)

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Supply Voltage	Vdd	—	3.0	—	12	V
Supply Current	Isupply	B = 0 Gauss	—	3.0	5.0	mA
Quiescent Vout	V0G	B=0G (Grade A)	2.45	2.5	2.55	V
		B=0G (Grade B)	2.35	2.5	2.65	V
Sensitivity	△Vout	B = 0 to ±500 G	2.7	3.0	3.3	mV/G
Bandwidth	BW	—	—	23	—	kHz
Measurable Gauss Range	MGR	Vdd = 5 V	—	±600	—	Gauss
		Vdd = 12 V	—	±1500	—	Gauss
Temperature Drift	△Vout	B = 0 Gauss	—	±0.3	—	mV/℃
Output Noise	V_{Np-p}	—	—	5	—	mV

1. All output-voltage measurements are made with a voltmeter having an input impedance of at least 100 kΩ
2. Do not apply any "resistor load" on output pin, it will degrade IC's performance.

Application Circuit



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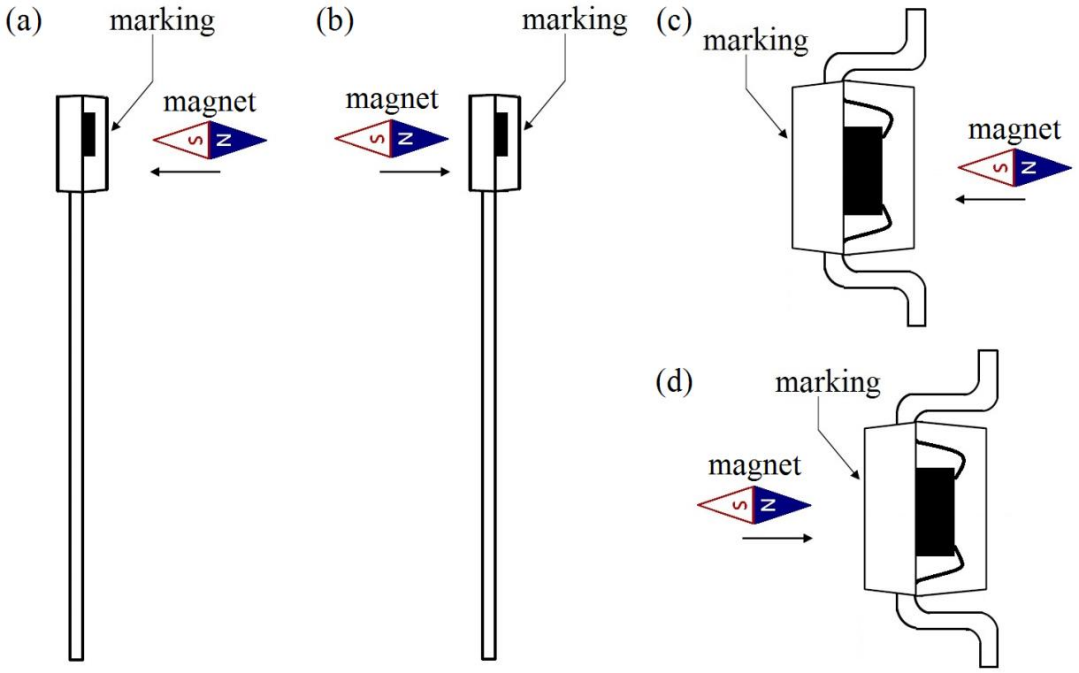
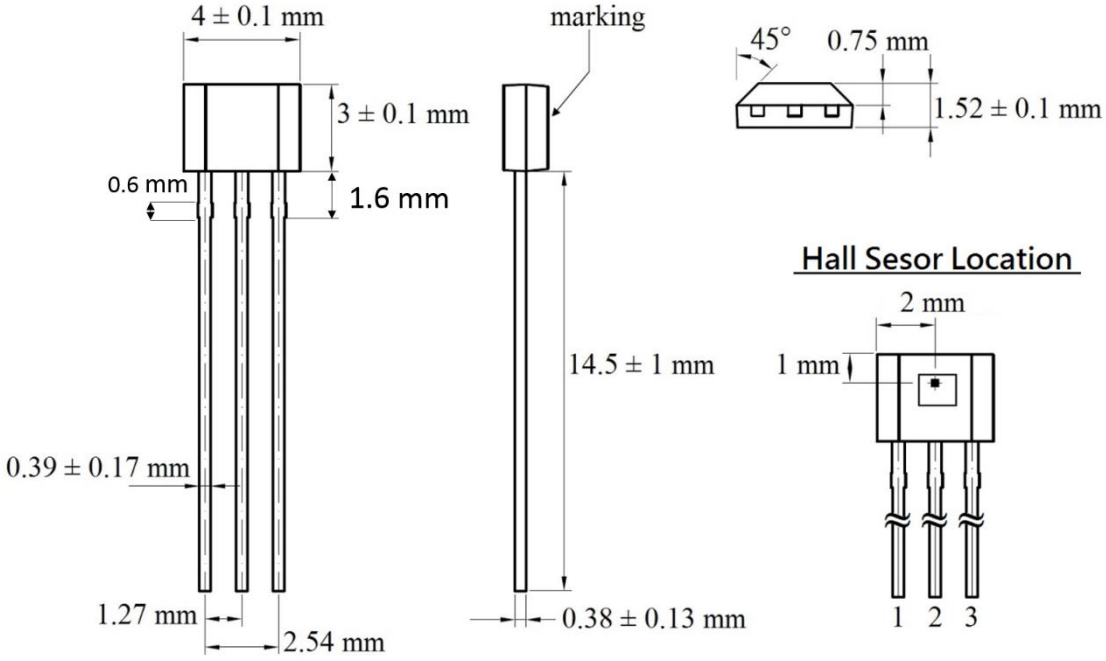
Hall Device Sensing Direction



Package Information

《**TO-92S**》



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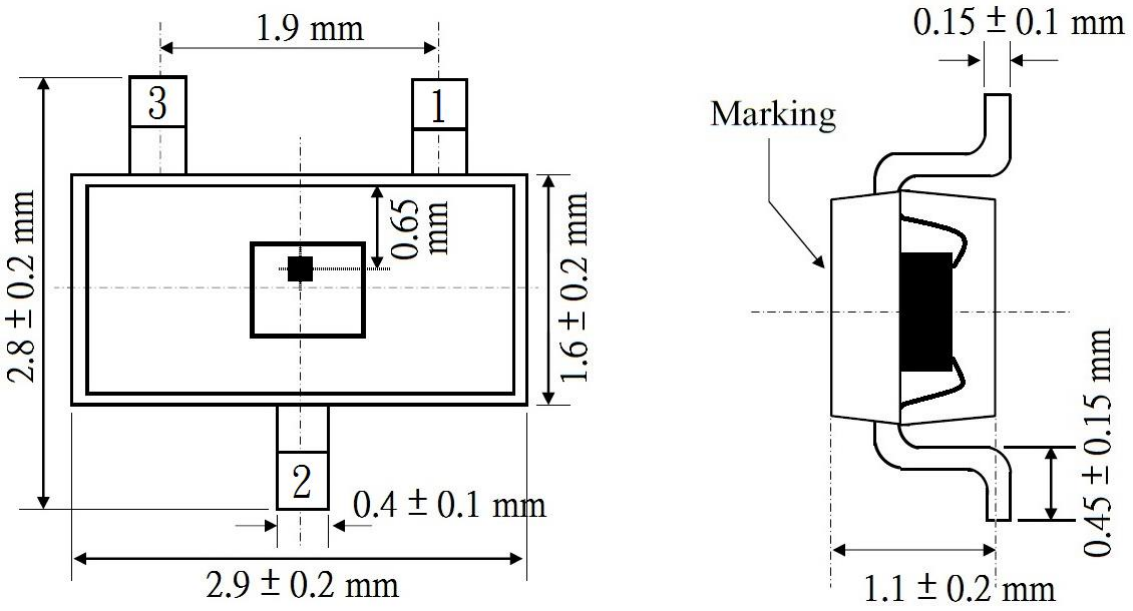
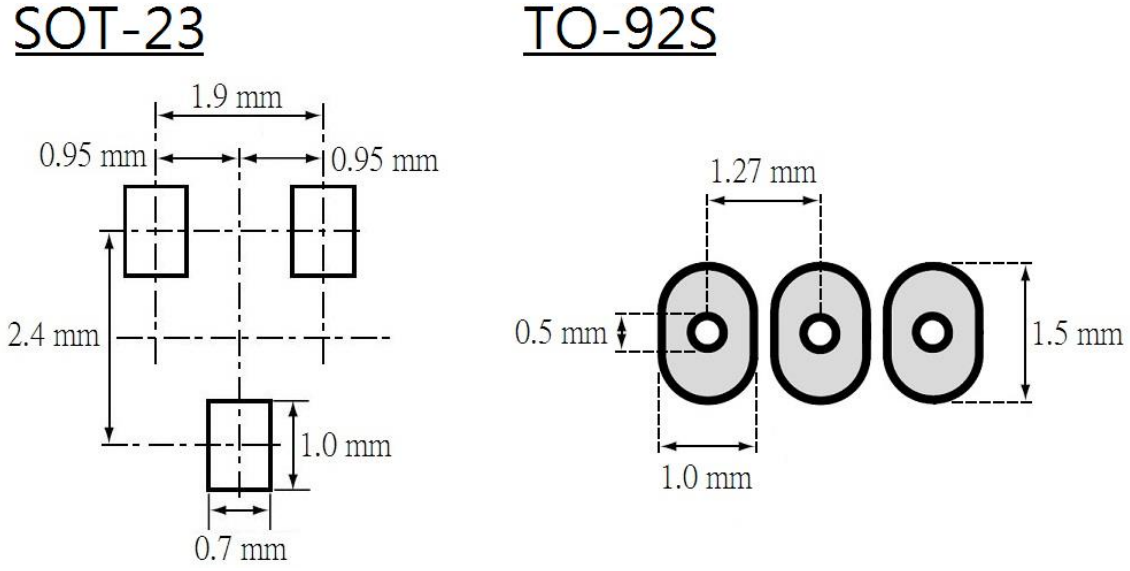
《**SOT-23**》



PCB Layout Reference View



Characteristic Diagrams

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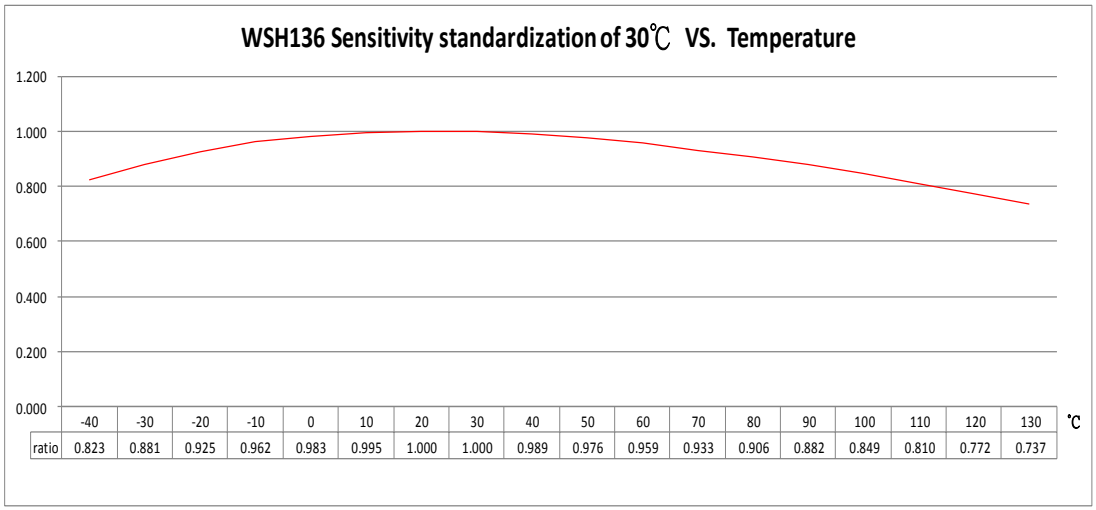

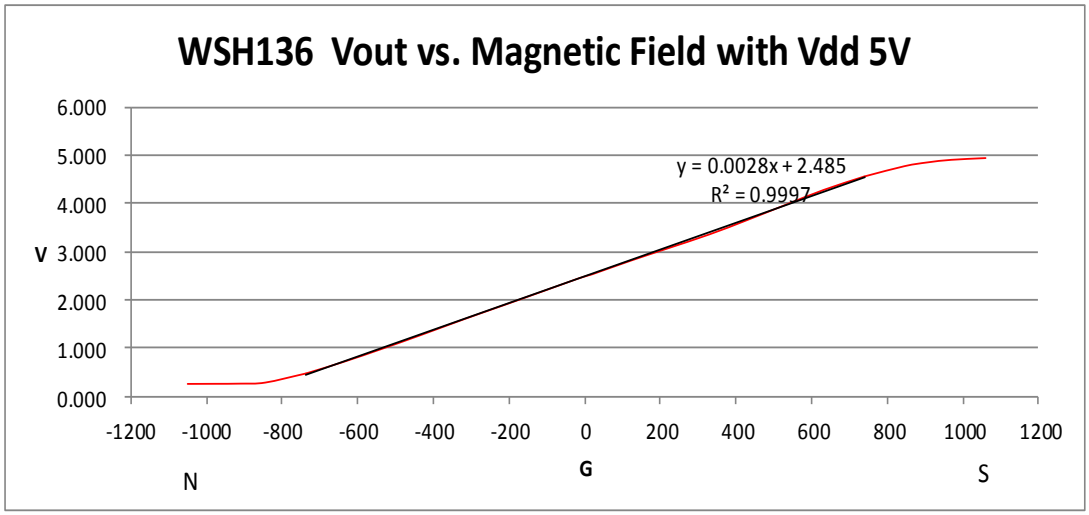

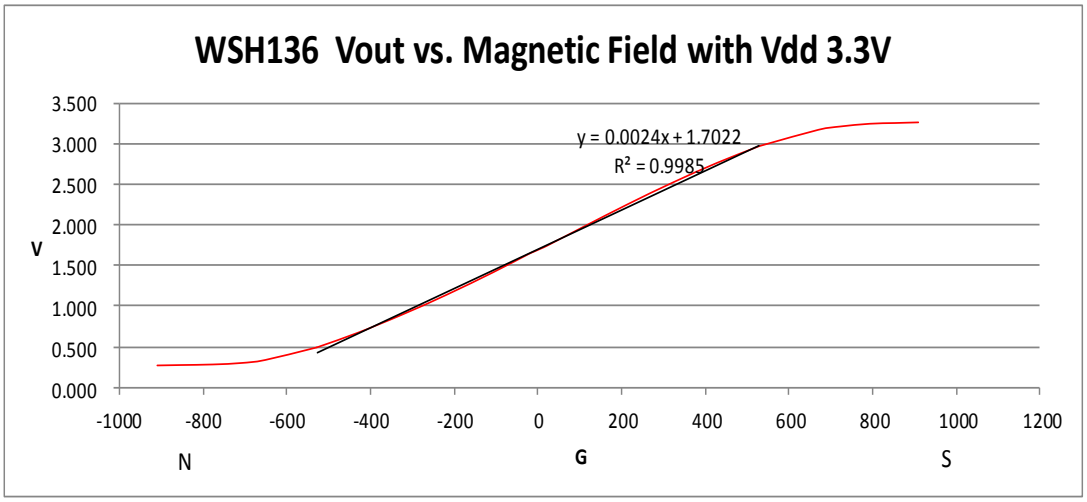

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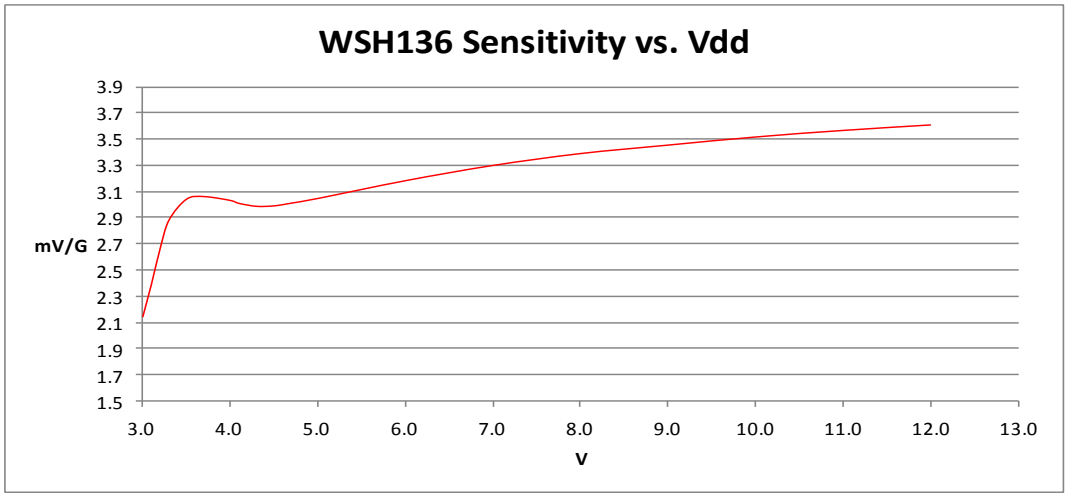

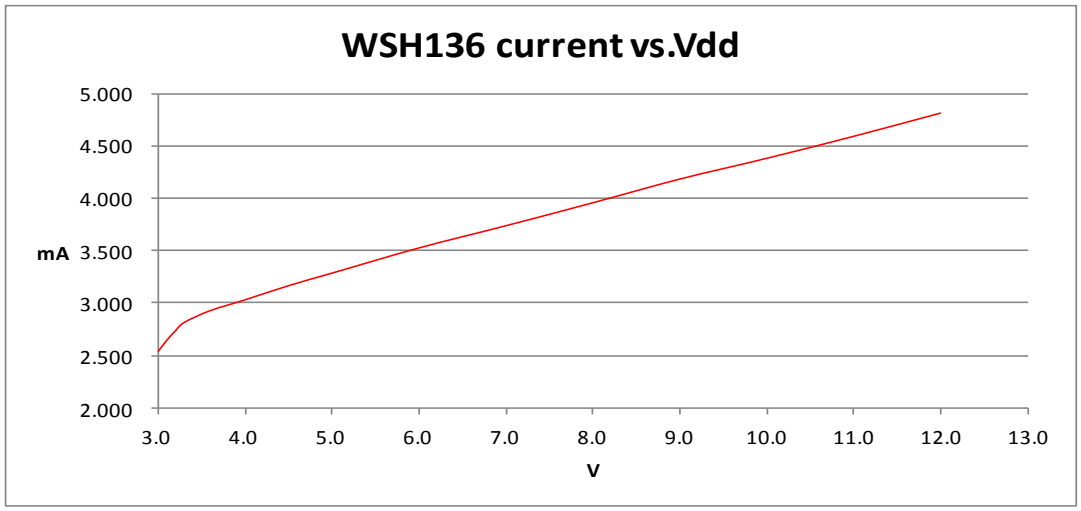

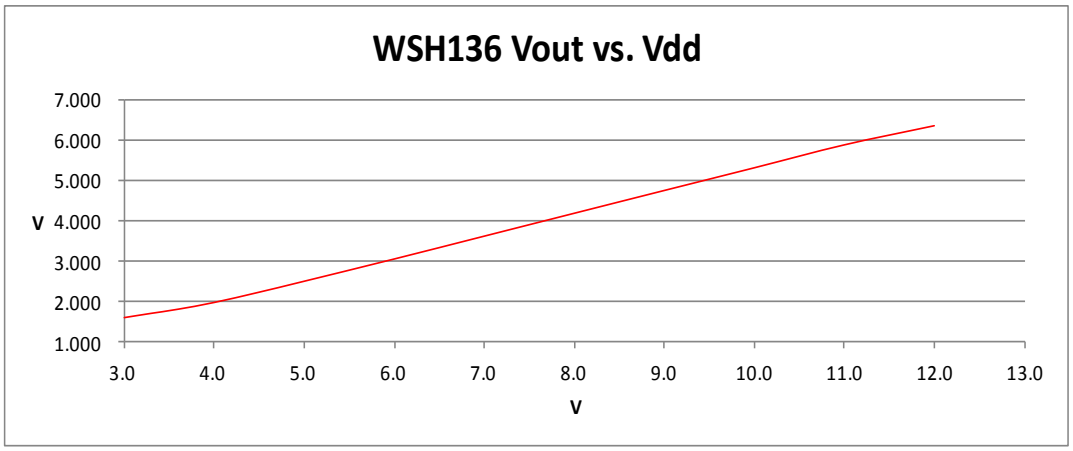

Precautions for the use of Hall Sensor IC: please refer to Winson Website-> Products->Application Note ->Hall Sensor IC Application Note: http://www.winson.com.tw/Product/83

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