

Linear Hall Effect Sensor IC

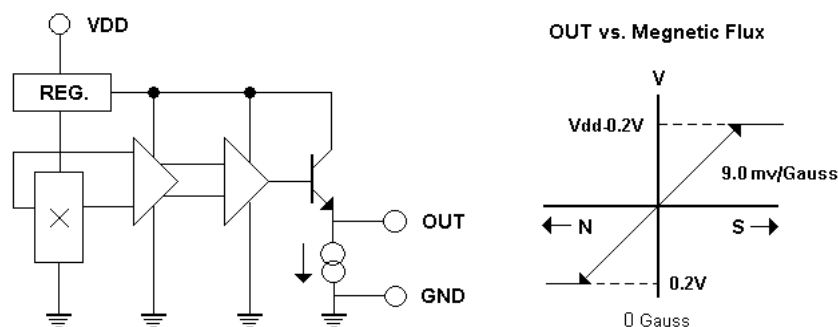
Features:

- Wide operating range 3.0~12V, -40°C~125°C
- Flat Response to 23kHz
- High Sensitivity 9.0 mV/G
- Wide sensible magnetic field range on different supplied voltage
±200 Gauss on 5V supplied voltage
±500 Gauss on 12V supplied voltage. Low operating current 3mA
- Two package styles TO-92S/SOT-23 available.
- Built-in temperature compensated circuit to minimize temperature's effect

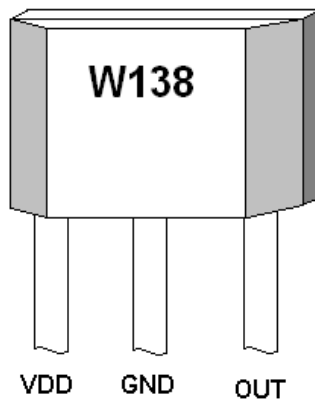
Functional Description :

The W138 integrates Hall sensing element, linear amplifier, sensitivity controller and emitter follower output stage. It accurately tracks extremely small change in magnetic flux density –generally too small to operate Hall effect switch.

W138 can be applied as current sensor, tooth sensor, proximity detectors and motion detectors. As sensitive monitor of magnetic flux, it can effectively measure a system's performance with negligible system loading while providing isolation from contaminated and electrically noisy environments.

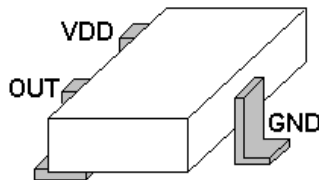


Winson reserves the right to make changes to improve reliability or manufacturability.



ABSOLUTE MAXIMUM RATING

| | |
|-----------------------------|-----------------|
| Supply Voltage, Vdd | 14V |
| Magnetic Flux Density, B | Unlimited |
| Output Driving Current | 0.4mA |
| Operating Temperature Range | |
| Ta | -40°C to +125°C |
| Storage Temperature Range | |
| Ts | -65°C to +150°C |
| Power Dissipation Pd | |
| TO-92S | 450mW |
| SOT-23 | 350mW |



ORDER INFORMATION (Halogen Free)

| | |
|------------------------|--------------------------|
| WSH138-XPAN □ (TO-92S) | 1: A Grade 2: B Grade |
| WSH138-XPCN □ (SOT-23) | |
| ↑ Grade | |

ps: (TO-92S) — 1,000/bag, (SOT-23) — 3,000/reel

Electrical Characteristics:

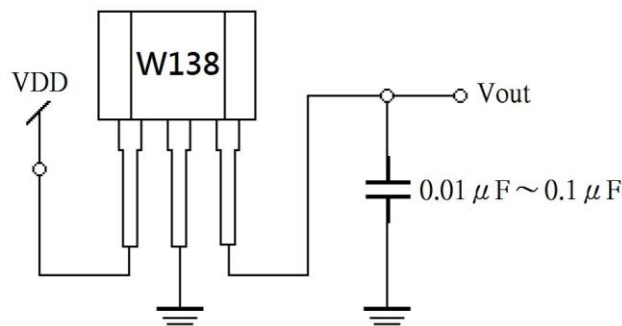
(T=+25°C, Vdd=5.0V)

| Characteristic | Symbol | Test Conditions | Min | Typ | Max | Units |
|------------------------|-------------------|---------------------|-----|-----------|------|-------|
| Supply Voltage | Vcc | — | 3.0 | — | 12 | V |
| Supply Current | Isupply | B=0 Gauss | — | 3.0 | 5.0 | mA |
| Quiescent Vout | V0G | B=0 G (A Grade) | 2.4 | 2.5 | 2.6 | V |
| | | B=0 G (B Grade) | 2.3 | 2.5 | 2.7 | |
| Sensitivity | ΔV_{out} | B= 0 to ± 200 G | 8.0 | 9.0 | 10.0 | mV/G |
| Bandwidth | BW | — | — | 23 | — | kHz |
| Measurable Gauss Range | MGR | Vdd=5V | — | ± 200 | — | Gauss |
| | | Vdd=12V | — | ± 500 | — | |
| Temperature Drift | ΔV_{out} | B=0 Gauss | — | ± 1.0 | — | mV/°C |
| Output Noise | V _{Np-p} | — | — | 15 | — | mV |

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

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

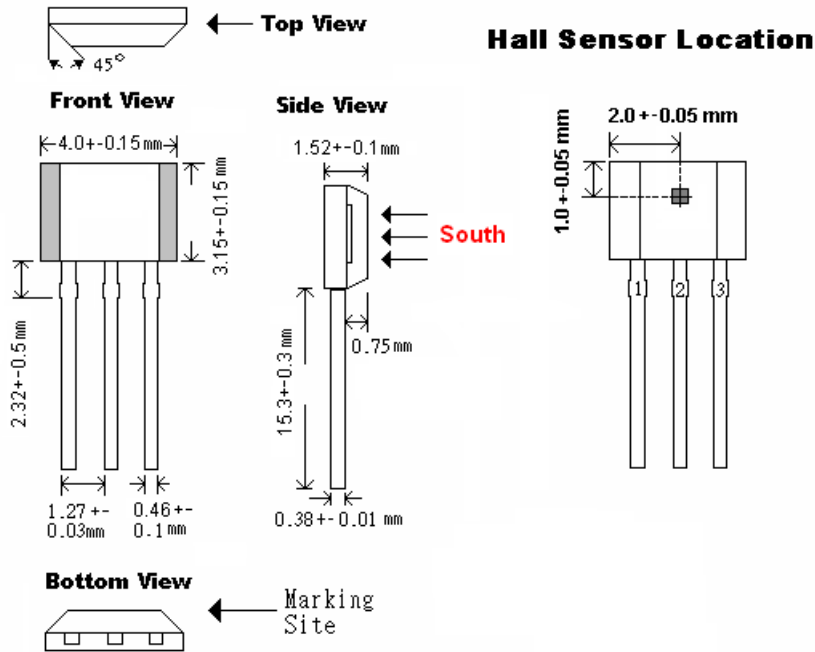
Application circuit:



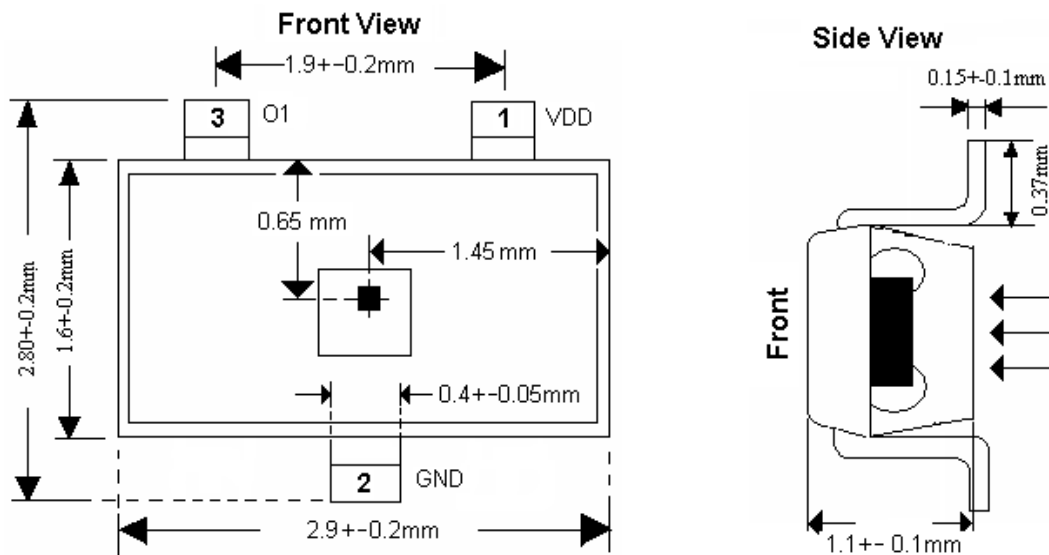
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Package Information:

T092S:

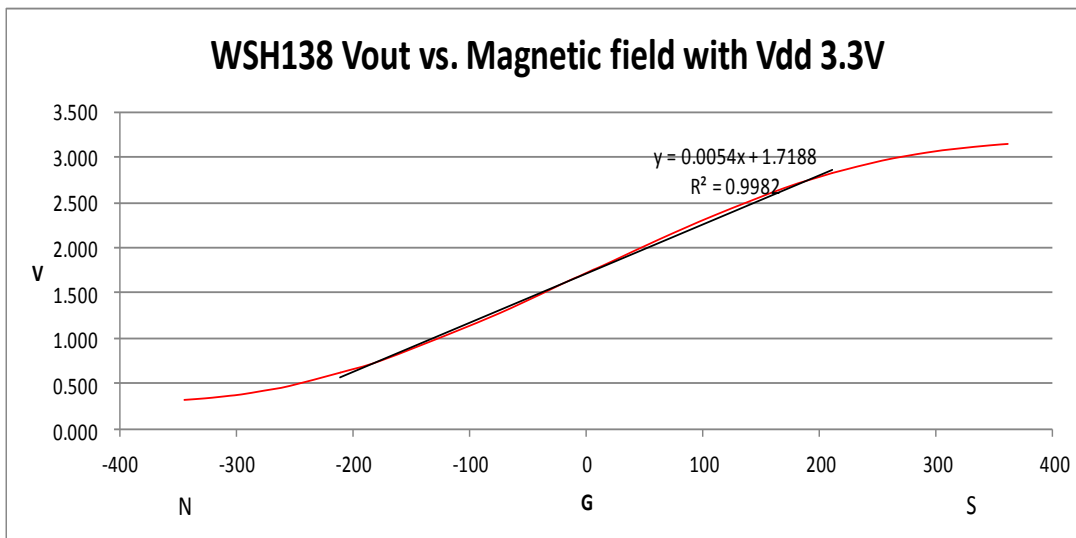
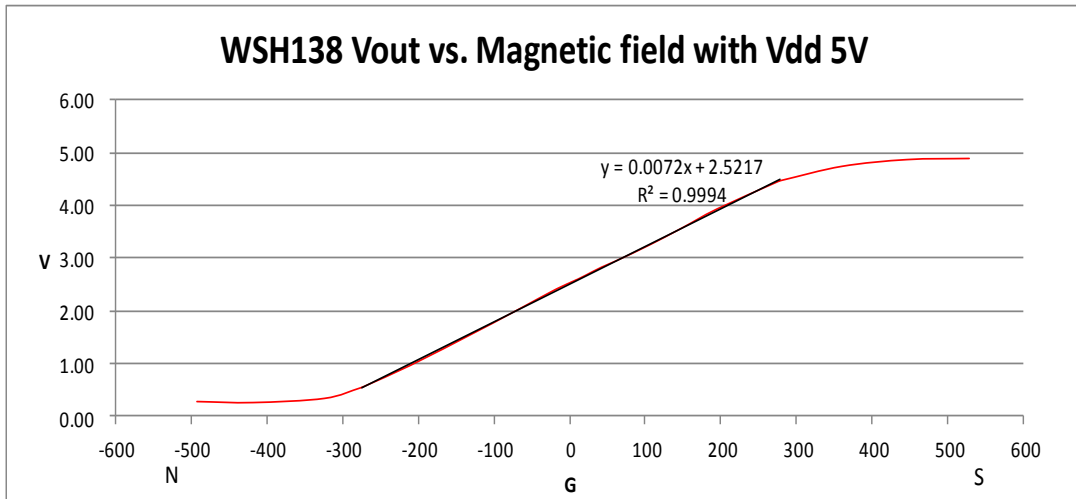
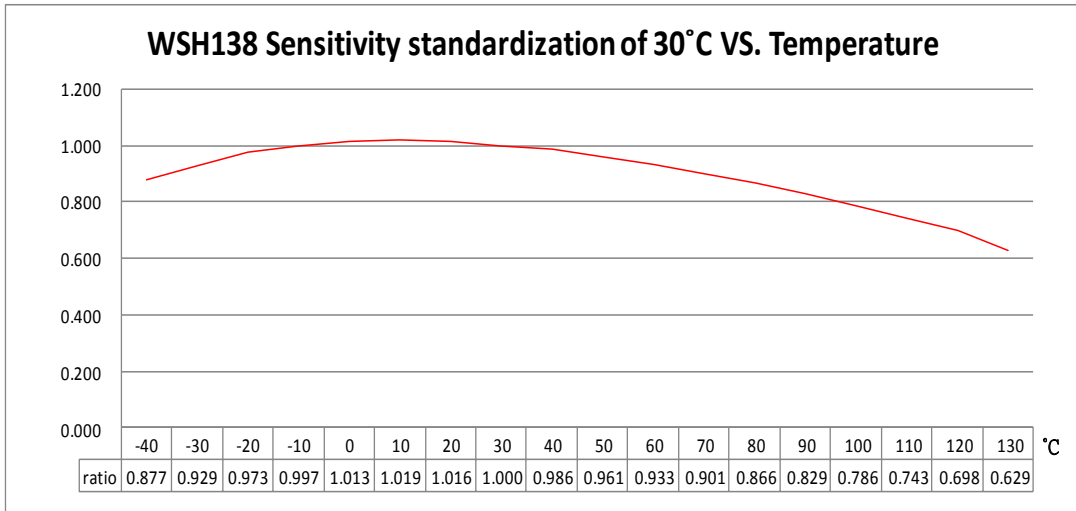


SOT23:

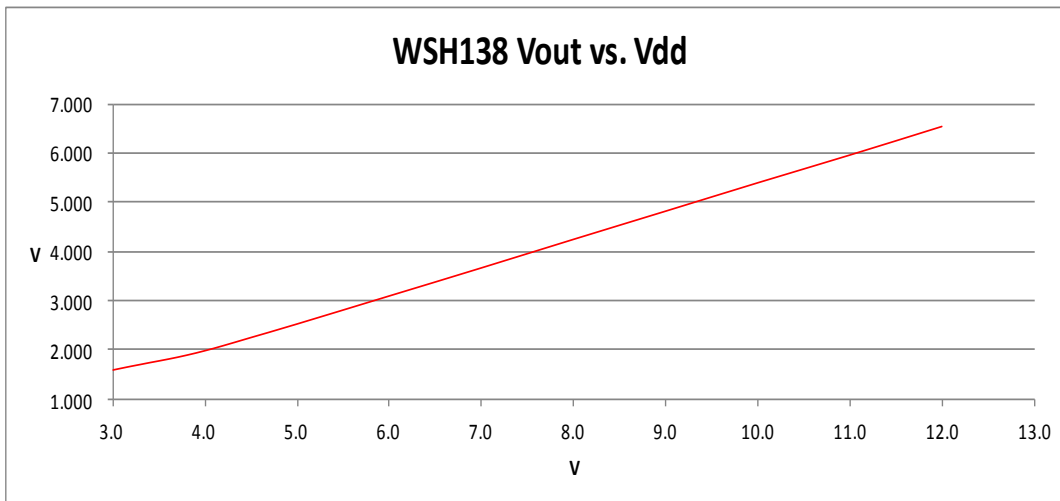
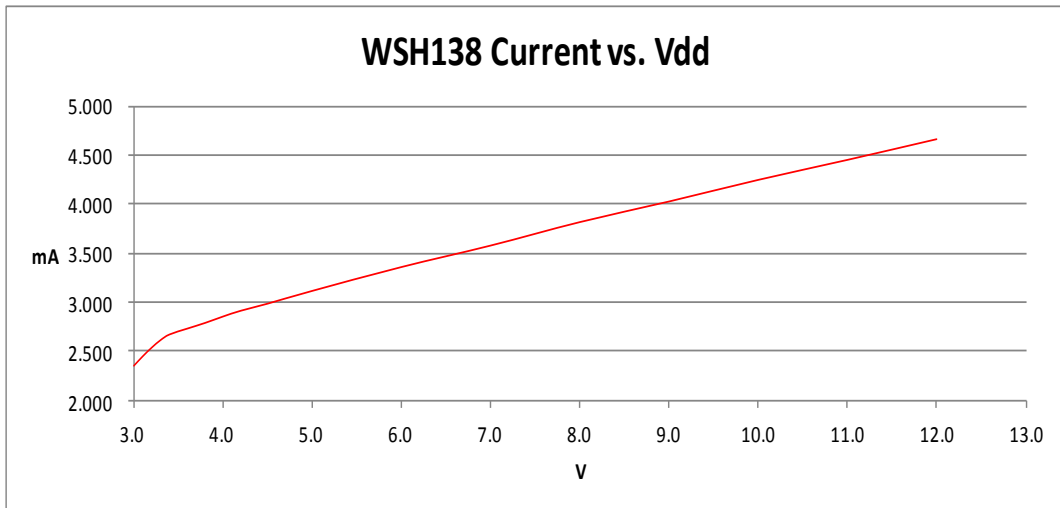
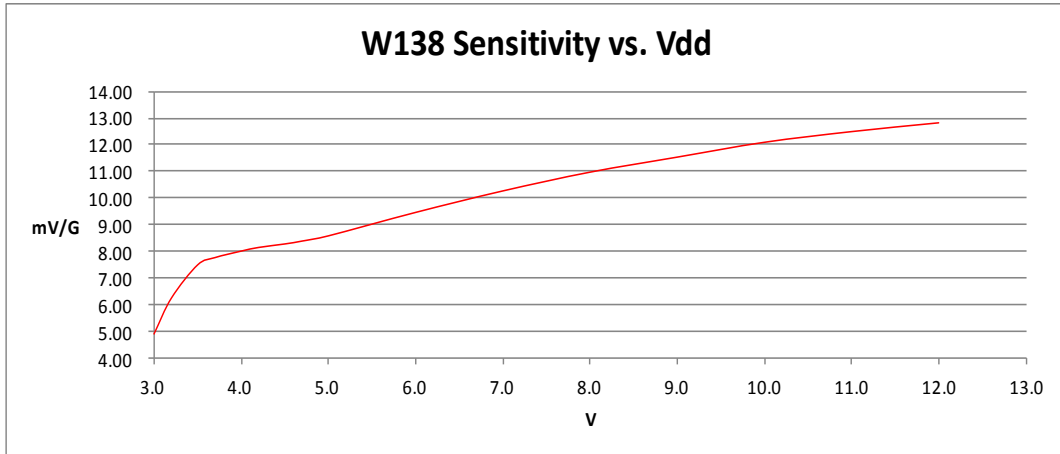


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Characteristic Diagrams:



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