



概述

AH601 是一款小型多功能经济型的线性霍尔传感器。工作原理是当磁场输入时，输出和输入量是成比例变化电压，静态输出电压大小由电源电压设定。该传感器具有低噪声输出，无需外部滤波的特点。可电气元件连接，无需缓冲。同时还包括精密电阻，以提供更好的温度稳定性和准确性。工作温度范围为 $-40^{\circ}\text{C}\sim 150^{\circ}\text{C}$ ，适用于消费类电子、工业和医疗环境。提供 TO-92S 和 SOT-23-3L 两种封装形式，且符合RoHS标准。

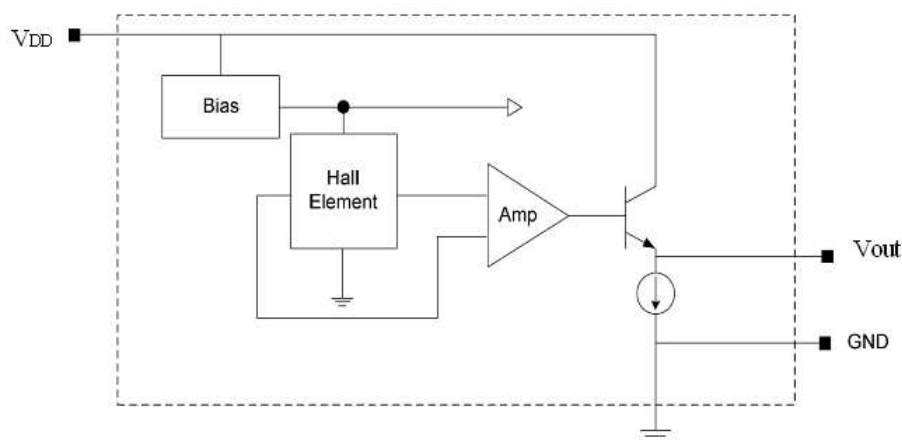
特征

- 体积小
- 能耗低 5mA 5VDC
- 电压范围：3VDC $\sim$ 12VDC
- 低噪声输出
- 工作温度范围： $-40^{\circ}\text{C}\sim 150^{\circ}\text{C}$
- ESD 性能可达 $\pm 4\text{kV}$
- 对南极和北极磁场做出不同反应

典型应用

- 电流检测
- 电机控制
- 位置检测
- 磁力计
- 旋转编码器
- 金属探测器
- 液位传感器
- 重量传感器

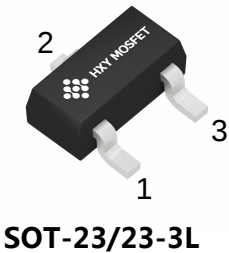
功能框图



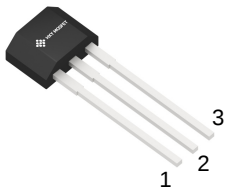
AH601 功能框图



引脚信息



SOT-23/23-3L



TO-92S

芯片引脚号	名称	说明
1	VCC	电源
2	GND	地
3	VOUT	输出

订购信息

编号	封装	包装	工作温度范围
AH601UA	TO-92S	1000/袋	-40℃~150℃
AH601SU	SOT-23-3L	3000/盘	-40℃~150℃

绝对最大额定

绝对最大额定值是芯片所能承受的极限值，超过该值芯片可能会永久损坏。

参数	符号	最小值	最大值	单位
电源电压	V_{CC}	-0.5	15	V
输出电压	V_{OUT}	-0.5	15	V
输出电流	I_{OUT}	0	5	mA
操作温度范围	T_A	-40	150	℃
储存温度范围	T_S	-50	165	℃

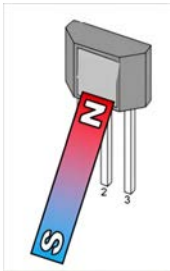


电磁特性

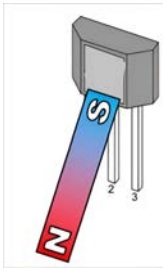
测试条件：T_j=25℃，VDD=3.0V

参数	符号	测试条件	最小值	典型值	最大值	单位
操作电压	V _{CC}		3	5	12	V
供电电流	I _{CC}		3	5	8	mA
输出电流	I _{OUT}				1.5	mA
响应时间	Tack			3		uS
静态输出电压	Vo	B=0	2.25	2.5	2.75	V
灵敏度	Sen		0.9	1.2	1.5	mV/G
最小输出电压	Vmin	B=-1250G		1		V
最大输出电压	Vmax	B=1250G		4		V
输出负载电阻	R _L	ΔV _{OUT} <15mV	200			KOhm

磁电转换说明

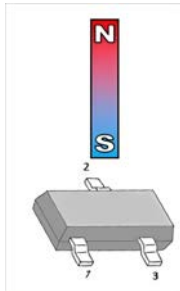


VOUT= 高电平

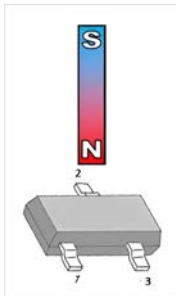


VOUT= 低电平

TO-92S



VOUT= 低电平

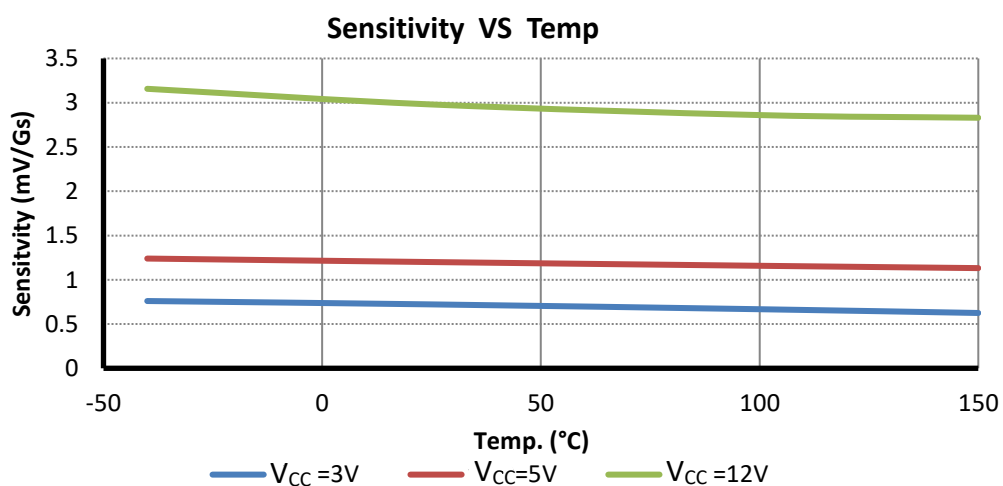
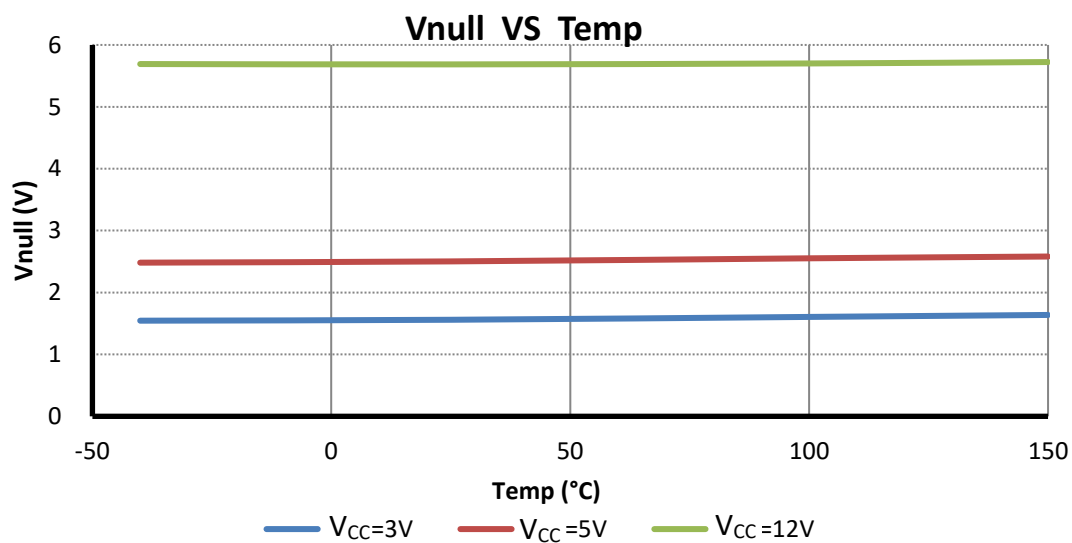
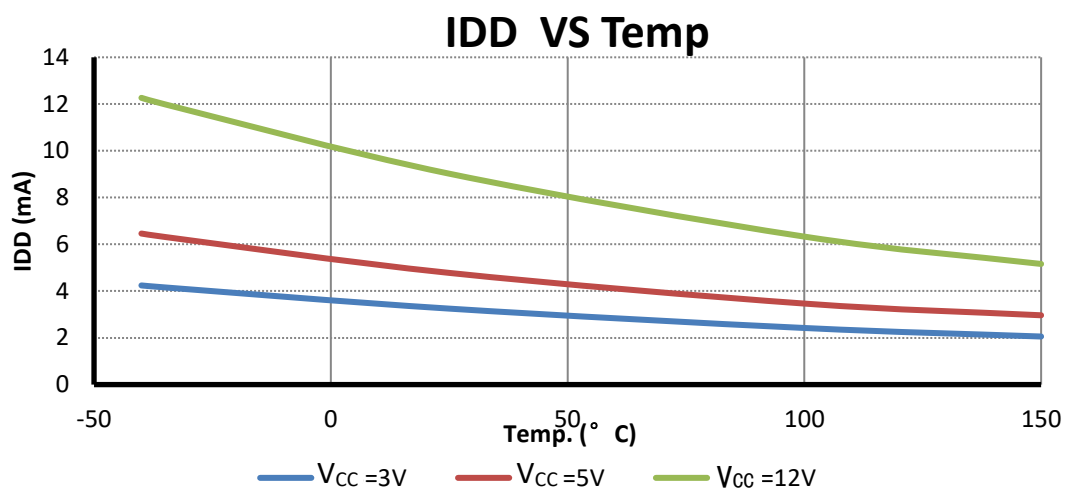


VOUT= 高电平

SOT-23-3L

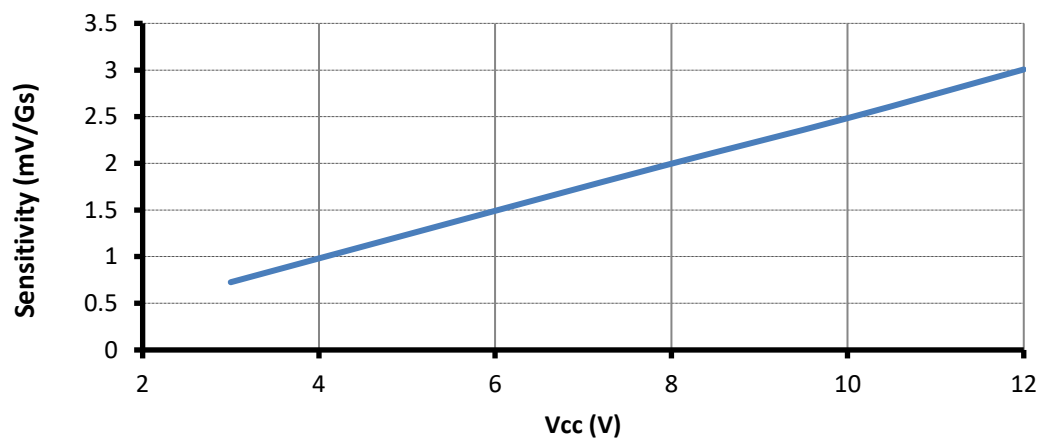


电磁特性

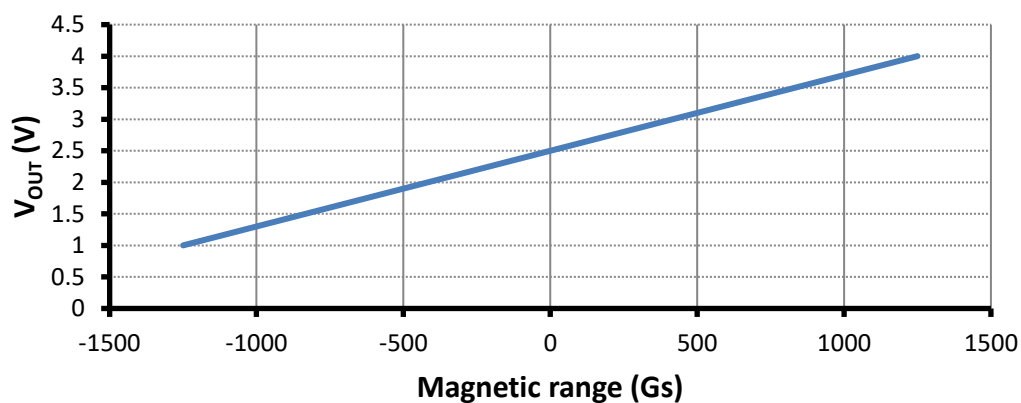




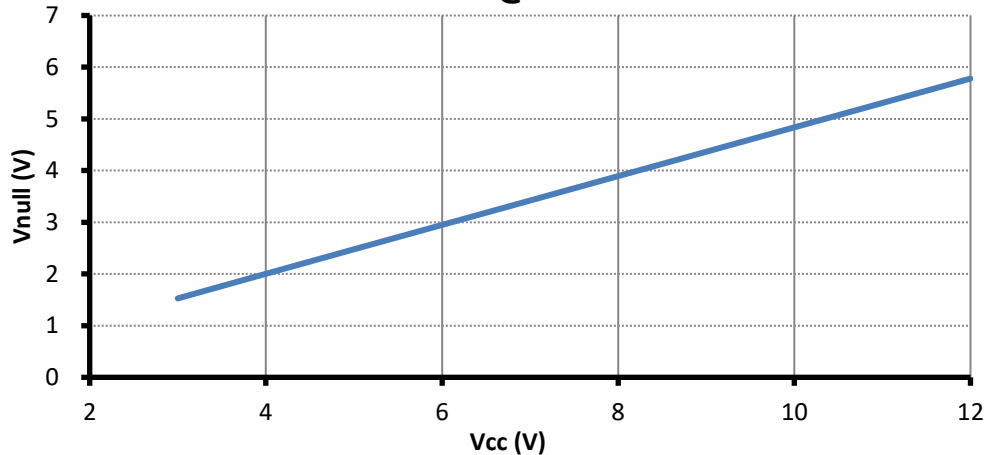
Sensitivity VS V_{CC} @25 ° C



Magnetic range VS V_{out} @25 ° C

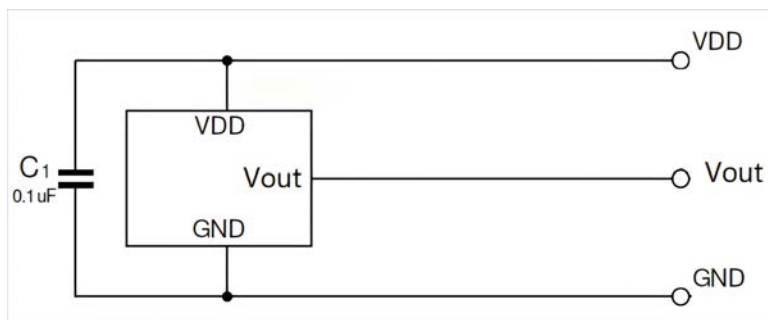


V_{null} VS V_{CC} @25 ° C





应用电路



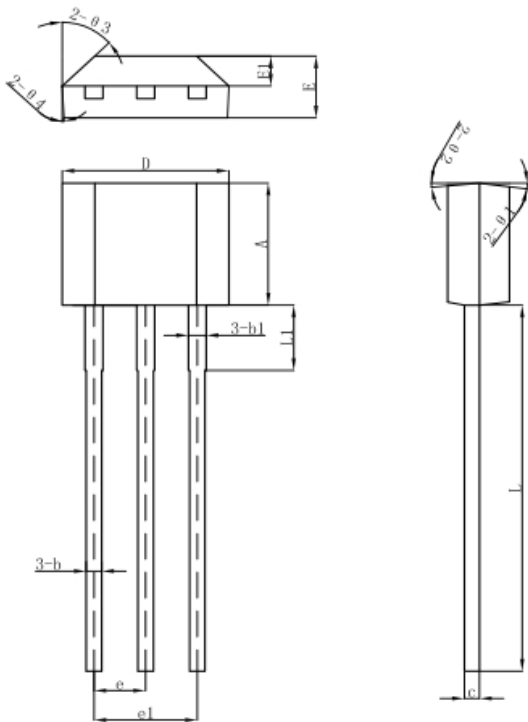
注意事项

- 霍尔芯片是敏感器件，在使用及存储过程中应注意采取静电防护措施。
- 在安装使用中应尽量减少施加到器件外壳和引线上的机械应力。
- 建议焊接温度不超过 350℃，持续时间不超过 5 秒。
- 为保证霍尔芯片的安全性和稳定性，不建议长期超出参数范围使用。



外形尺寸

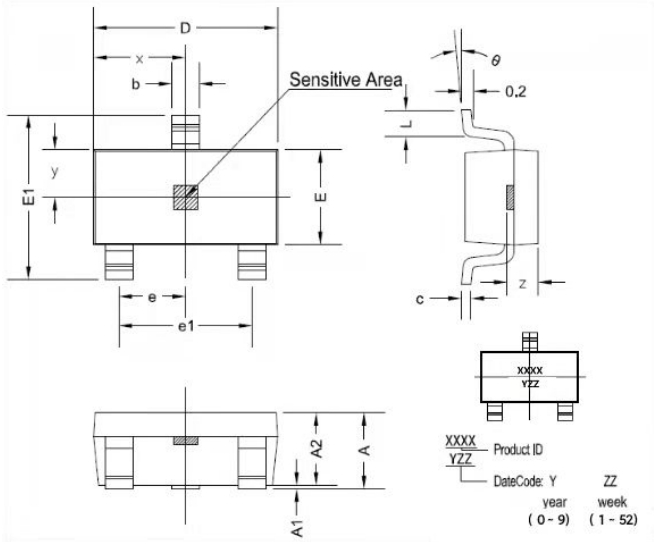
TO-92S 封装尺寸



符号	机械尺寸/mm		
	最小	典型	最大
A	2.90	3.00	3.10
b	0.35	0.39	0.40
b1		0.44	
c	0.36	0.38	0.40
D	4.00	4.10	4.20
E	1.42	1.52	1.62
E1		0.75	
e		1.27	
e1		1.27	
L1		2.54	
L	13.50	14.50	15.50
θ1		6°	
θ2		3°	
θ3		45°	
θ4		3°	
h		3.6	



SOT-23-3L 封装尺寸



符号	尺寸 (毫米)		尺寸 (英尺)	
	最小	最大	最小	最大
A	1.05	1.25	0.041	0.049
A1	0	0.1	0	0.004
A2	1.05	1.15	0.041	0.045
b	0.3	0.5	0.012	0.02
c	0.100	0.2	0.004	0.008
D	2.82	3.02	0.111	0.119
E	1.5	1.7	0.059	0.067
E1	2.65	2.95	0.104	0.116
e	0.950 TYP		0.037 TYP	
e1	1.8	2	0.071	0.079
L	0.3	0.6	0.012	0.024
x	1.460 TYP		0.057 TYP	
y	0.800 TYP		0.032 TYP	
z	0.600 TYP		0.024 TYP	
θ	0°	8°	0°	8°



Attention

- Any and all HUA XUAN YANG ELECTRONICS products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your HUA XUAN YANG ELECTRONICS representative nearest you before using any HUA XUAN YANG ELECTRONICS products described or contained herein in such applications.
- HUA XUAN YANG ELECTRONICS assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein.
- Specifications of any and all HUA XUAN YANG ELECTRONICS products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- HUA XUAN YANG ELECTRONICS CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all HUA XUAN YANG ELECTRONICS products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of HUA XUAN YANG ELECTRONICS CO.,LTD.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. HUA XUAN YANG ELECTRONICS believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the HUA XUAN YANG ELECTRONICS product that you intend to use.