



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。

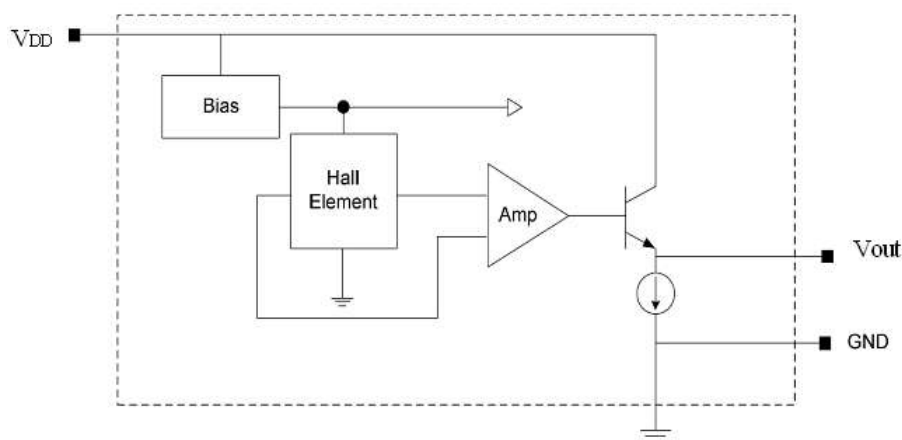
特征

- 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

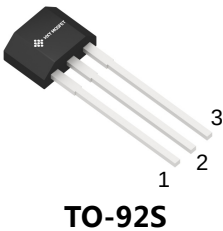
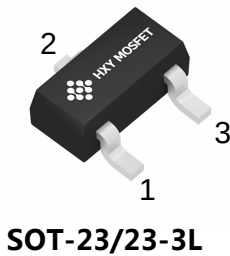
功能框图



AH601 功能框图



引脚信息



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	℃

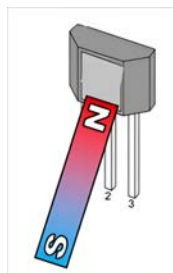


电磁特性

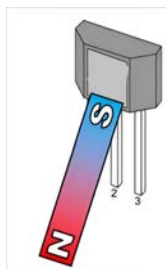
测试条件: $T_j=25^{\circ}\text{C}$, $V_{DD}=3.0\text{V}$

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	T_{ack}			3		μs
静态输出电压	V_o	$B=0$	2.25	2.5	2.75	V
灵敏度	S_{en}		0.9	1.2	1.5	mV/G
最小输出电压	V_{min}	$B=-1250\text{G}$		1		V
最大输出电压	V_{max}	$B=1250\text{G}$		4		V
输出负载电阻	R_L	$ \Delta V_{OUT} < 15\text{mV}$	200			K Ω m

磁电转换说明

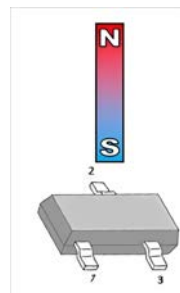


V_{OUT} = 高电平

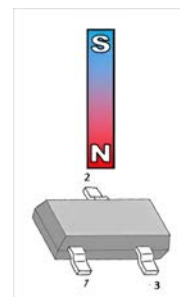


V_{OUT} = 低电平

TO-92S



V_{OUT} = 低电平

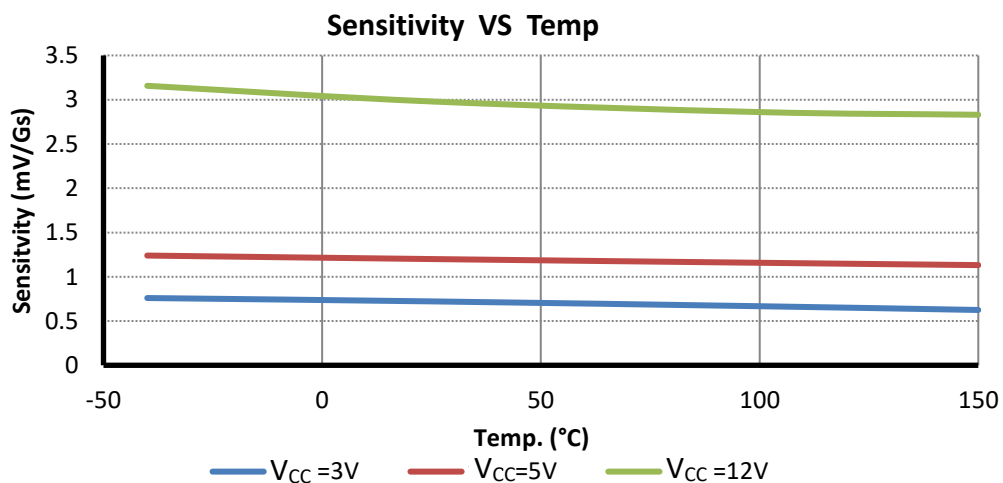
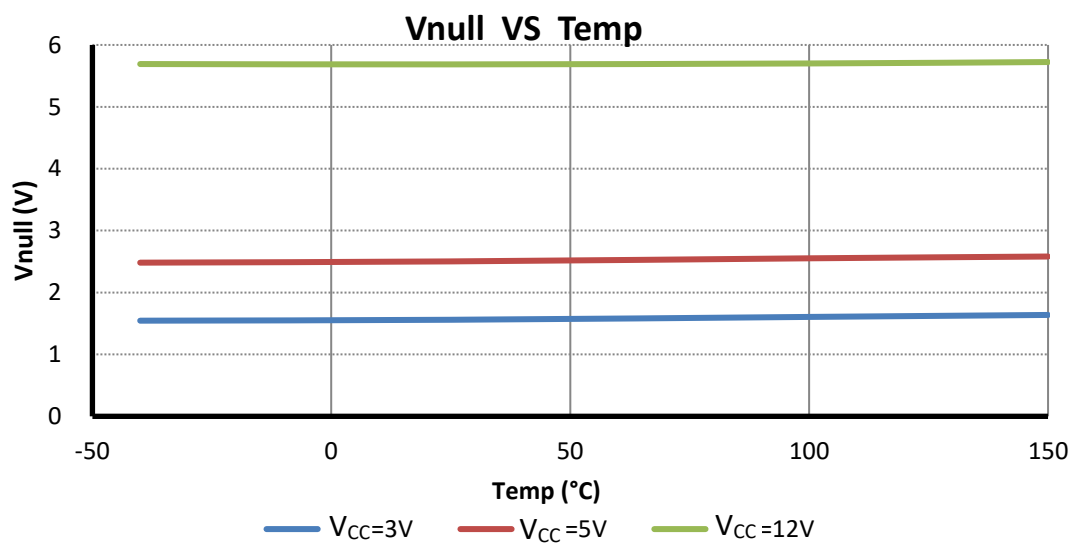
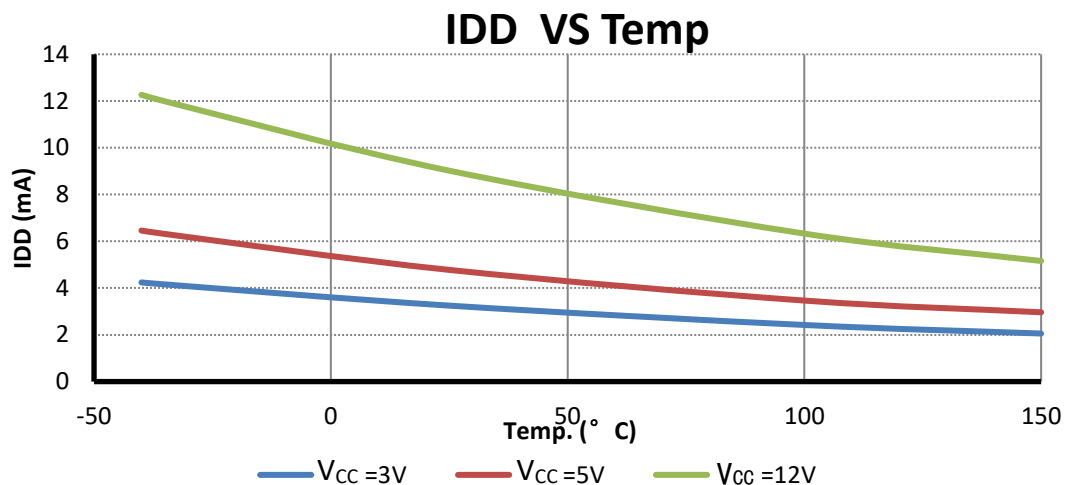


V_{OUT} = 高电平

SOT-23-3L

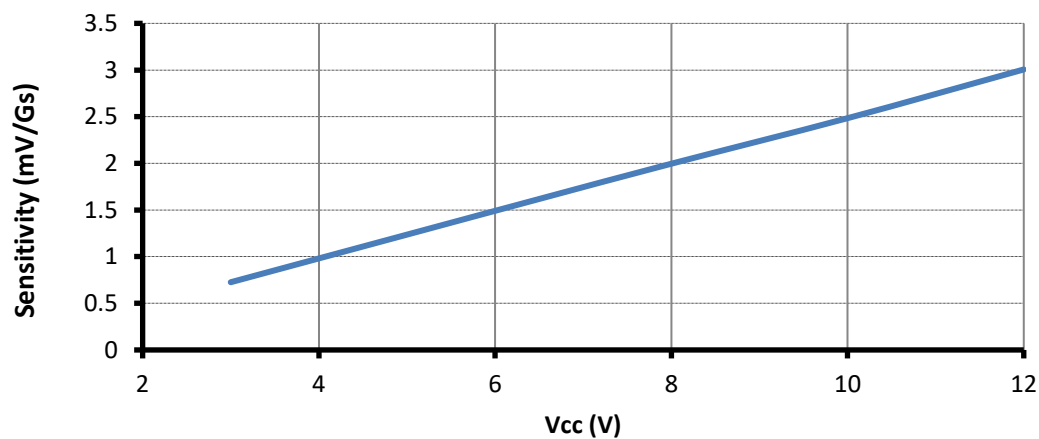


电磁特性

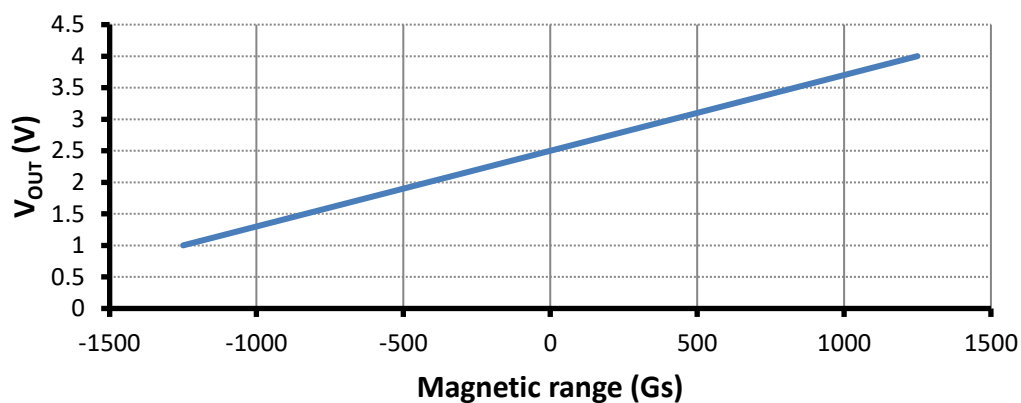




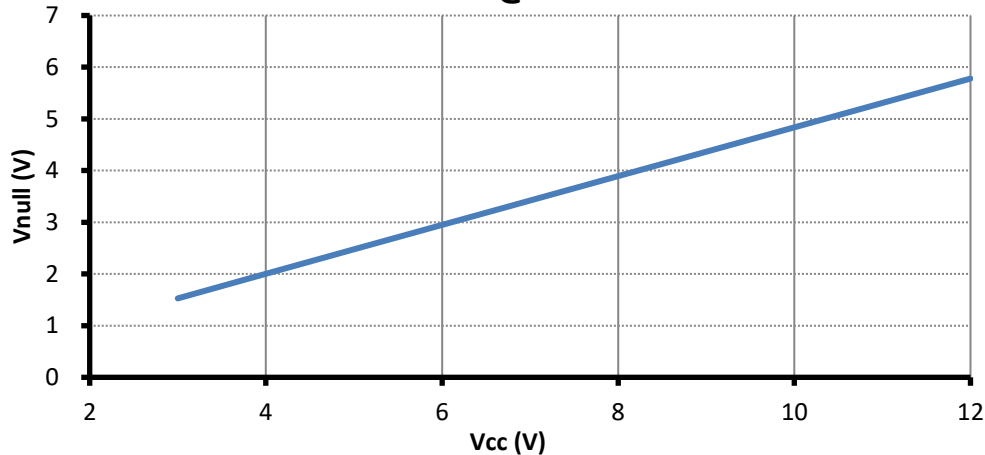
Sensitivity VS V_{CC} @25 ° C



Magnetic range VS V_{out} @25 ° C

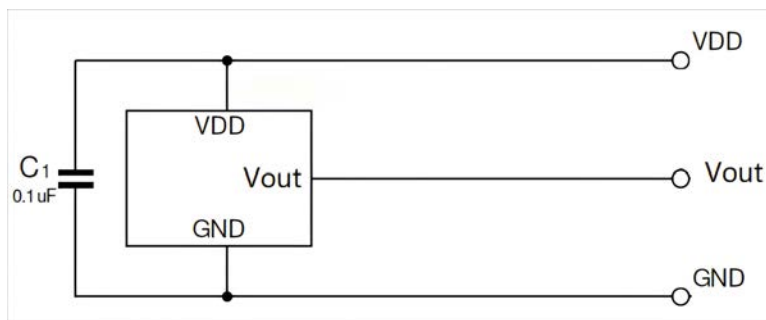


V_{null} VS V_{CC} @25 ° C





应用电路



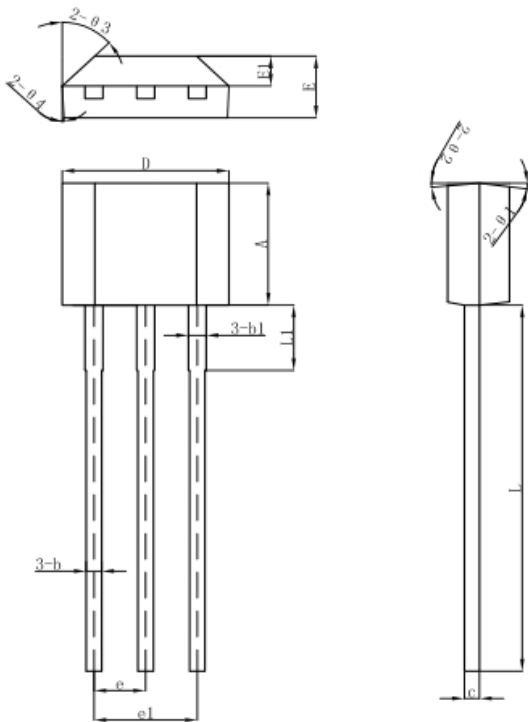
注意事项

- 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

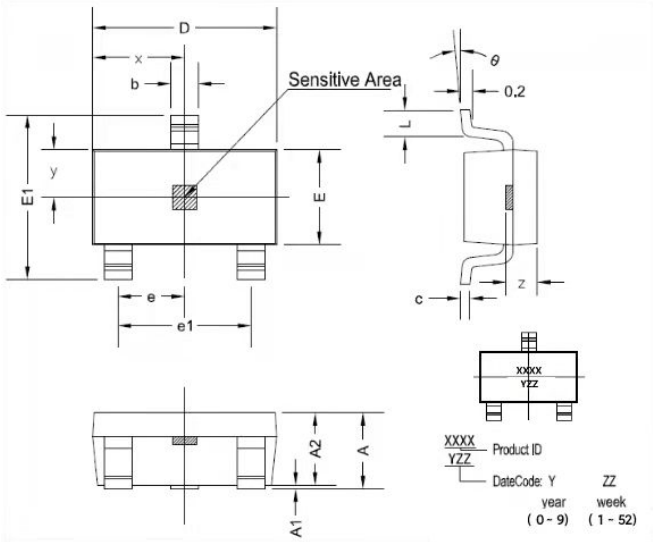
TO-92S 封装尺寸



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°



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