概述

HXY422 是一款耐高压高灵敏度单极霍尔开关芯片，采用双极半导体 (Bipolar) 工艺设计，该芯片内部由电压稳压单元、霍尔电压发生器、差分放大电路、温度补偿电路、集电极开路输出电路组成。工作形式：输入磁感应强度，输出为数字电压信号。提供 TO-92S 和 SOT-23-3L 两种封装形式，且封装都符合RoHS标准。

特征

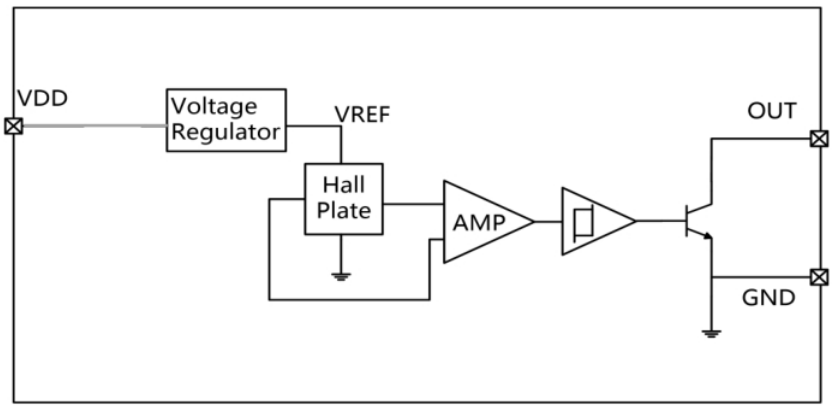
- 宽电压范围：3.8V~40V
- 微型结构
- ESD 性能：±4 kV
- 集电极开路输出
- 工作温度范围：-40℃~150℃
- 高灵敏度：30/20Gauss（典型值）

典型应用

- 无刷电机换向
- 流量传感器
- 位置传感器
- 速度传感器
- 距离传感器

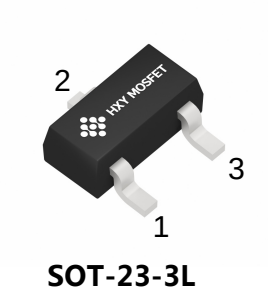
功能框图

该耐高压高灵敏单极霍尔开关芯片包括包括电压调制电路、霍尔片、信号放大电路和施密特触发器电路。其中电压调制电路为霍尔片提供参考电压。该霍尔片感应到垂直于传感器表面的磁场产生霍尔电压，放大后发送给施密特触发器。

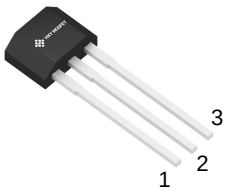


HXY422 功能框图

引脚信息



SOT-23-3L



TO-92S

芯片引脚号	名称	说明
1	VSUP	电源
2	GND	地线
3	VOUT	集电极开路输出，需外接上拉电阻

订购信息

编号	封装	包装	工作温度范围
HXY422UA	TO-92S	1000/袋	-40℃~85℃
HXY422SU	SOT-23-3L	3000/卷	-40℃~85℃

绝对最大额定

参数	符号	最小值	最大值	单位
电源电压	VDD	-0.3	60	V
输出电流	Isink	0	40	mA
输出电压	Vout	-0.5	60	V
工作温度范围	Ta	-40	85	℃
储存温度范围	Ts	-50	165	℃

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。

电磁特性

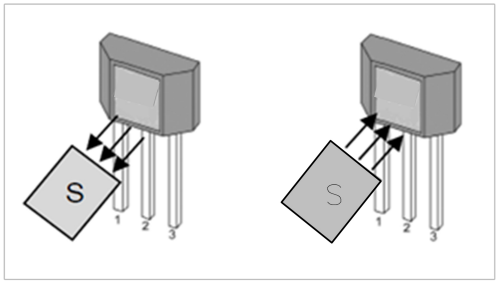
测试条件：T_J=-40˚C~150˚C，V_{SUP}=3.8V~40V；典型值测试条件：T_J=25˚C，V_{SUP}=5V。

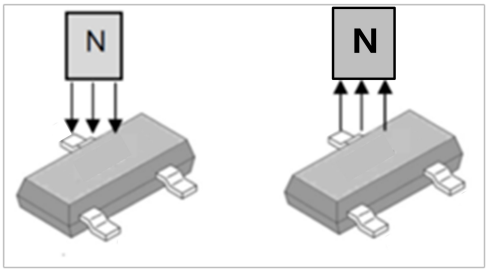
符号	参数	测试条件	最小值	典型值	最大值	单位
电特性						
V_{SUP}	电源电压		3.8		40	V
I_{SUP}	工作电流	V_{SUP} =5V		6	9	mA
I_{oleak}	输出漏电流				10	uA
V_{sat}	输出饱和电压	I_{OUT}=20mA， 导通状态			0.4	V
$I_{s□□k}$	输出电流沉				30	mA
T_r	输出上升时间	C_L=20pF			1.0	us
T_f	输出下降时间	C_L=20pF			1.5	us
磁特性						
Bop	工作点	RL= 1k Ω，C_L=20pF	14	30	50	Gauss
Brp	释放点	RL= 1k Ω，C_L=20pF	5	20	35	Gauss
B_{HYS}	回差	RL= 1k Ω，C_L=20pF	6	10	20	Gauss

磁电转换说明

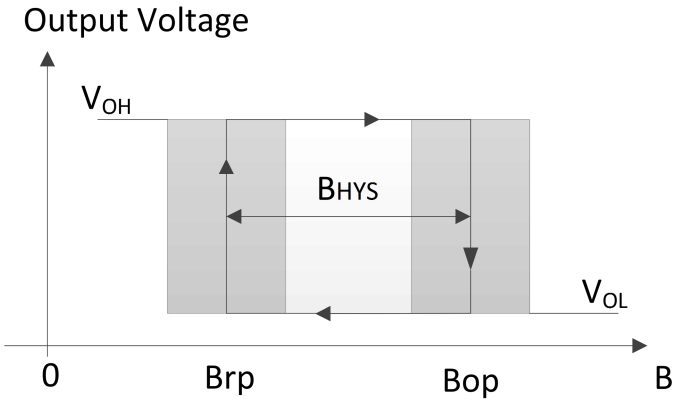
TO-92S封装，南极靠近标记侧时，输出为低电平，远离时，输出为高电平；

SOT-23-3L封装，北极靠近标记侧时，输出为低电平，远离时，输出为高电平。



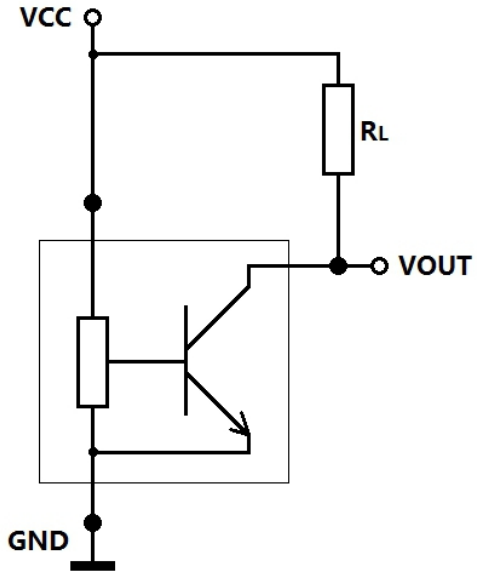


Vout=高电平　　Vout=低电平　　Vout=低电平　　Vout=高电平

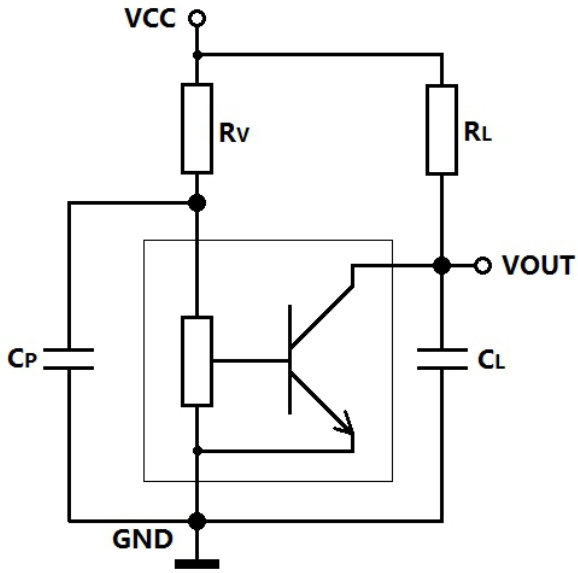


应用电路

典型应用电路见下图中:应用电路1，其中RL =4.7KΩ，可应用与大多数电路。应用电路2，其中RV=100 Ω，CP=4.7nF，RL =4.7KΩ，CL=1nF，应用于供电线上具有干扰或辐射干扰的电路，建议在电路中串联电阻RV和两个电容CP、CL，且将电阻和电容这些元器件尽量放置在接近芯片处。



应用电路 1

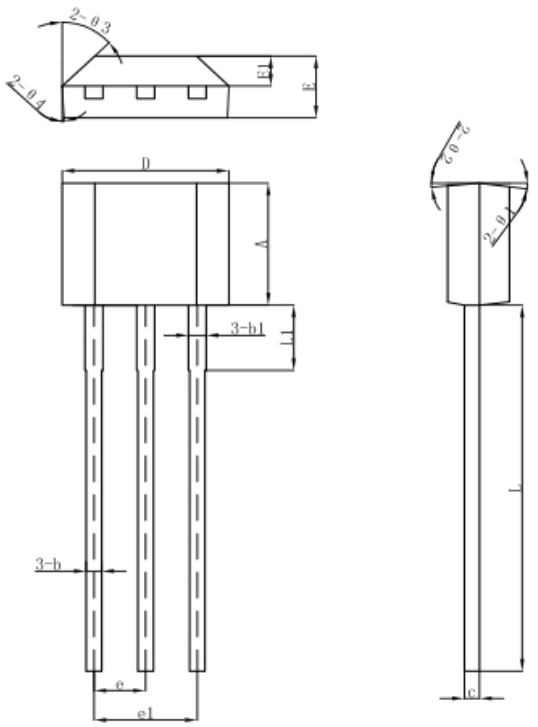


应用电路 2

注意事项

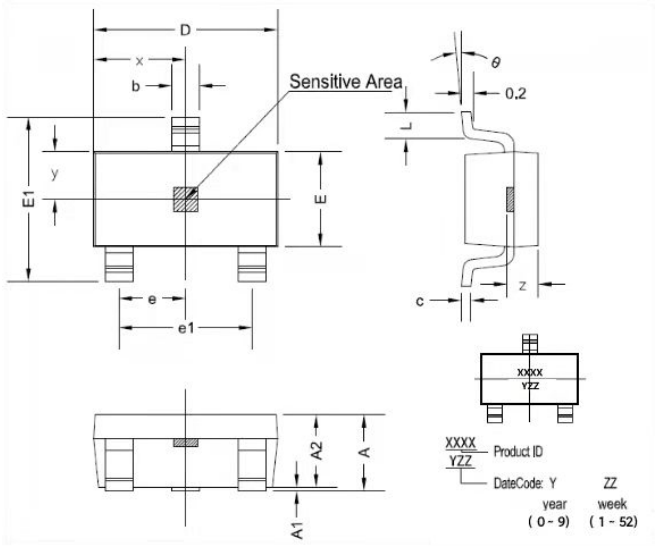
外形尺寸

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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