概述

HXY452 是一款耐高压高灵敏度全极霍尔开关芯片，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

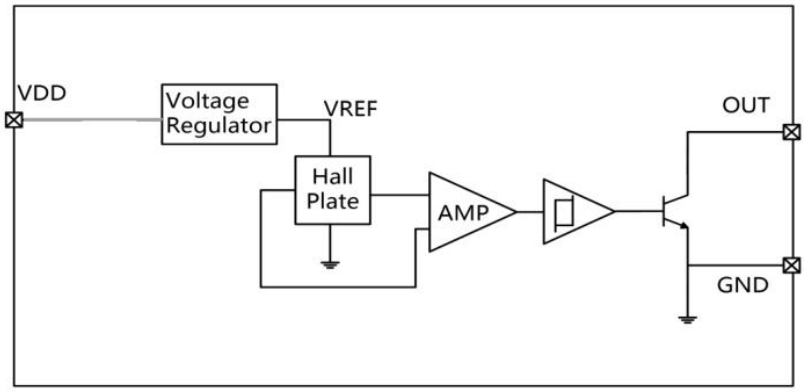
- 工作电压：3.8V~60V
- 数字电流型输出
- ESD性能：±5kV
- 磁特性温度补偿
- 工作温度范围：-40℃~85℃
- 灵敏度 ： +/- 50/30Gauss（典型值）

典型应用

- 对接检测
- 锁开闭检测
- 接近感应
- 阀门定位
- 脉冲计数

功能框图

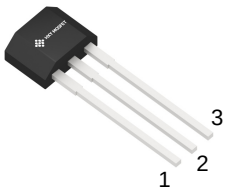
该耐高压高灵敏全极霍尔效应开关芯片包括电压调制电路、霍尔片、信号放大电路和施密特触发器电路。其中电压调制电路为霍尔片提供参考电压。该霍尔片感应到垂直于传感器表面的磁场产生霍尔电压，放大后发送给施密特触发器。



HXY452 功能框图

引脚信息

SOT-23/23-3L



TO-92S

芯片引脚号	名称	说明
1	VSUP	电源
2	GND	地
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
HXY452UA	TO-92S	1000/袋	-40℃~85℃
HXY452SU	SOT-23-3L	3000/盘	-40℃~85℃

绝对最大额定

符号	参数	最小值	最大值	单位
V_{SUP}	电源电压	-0.3	60	V
V_{OUT}	输出电压	-0.5	60	V
I_{OUT}	输出电流	0	40	mA
T_J	工作温度	-40	85	˚C
T_{STG}	存储温度	-50	165	˚C

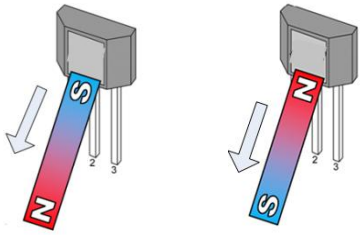
绝对最大额定值是芯片所能承受的极限值，超过该值芯片可能会永久损坏。

电磁特性

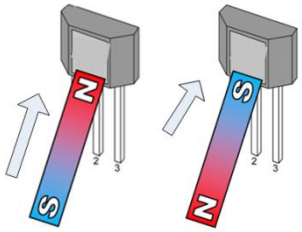
测试条件：T_J=-40˚C~150˚C，V_{SUP}=3.8V~60V；典型值测试条件：T_J=25˚C，V_{SUP}=5V。

参数	符号	测试条件	最小	典型	最大	单位
电气特性						
VDD	工作电压		3.8		60	V
IDD	电源电流			3.5	7	mA
Ile	漏电流	关闭状态			10	uA
Vsat	输出饱和电压	Iout=20mA			0.4	V
Tr	输出上升时间	RL= 1k Ω ，CL = 20pF			1	us
Tf	输出下降时间	RL= 1k Ω ，CL = 20pF			1.5	us
磁特性						
Bop	工作点	RL= 1k Ω ，CL = 20pF	+/-35	+/-50	+/-65	Gauss
Brp	释放点	RL= 1k Ω ，CL = 20pF	+/-15	+/-30	+/-45	Gauss
Bhys	回差	RL= 1k Ω ，CL = 20pF		20		Gauss

磁电转换说明

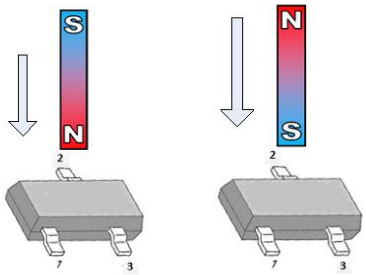


VOUT= 高电平

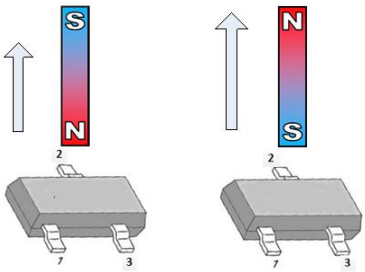


VOUT= 低电平

TO-92S

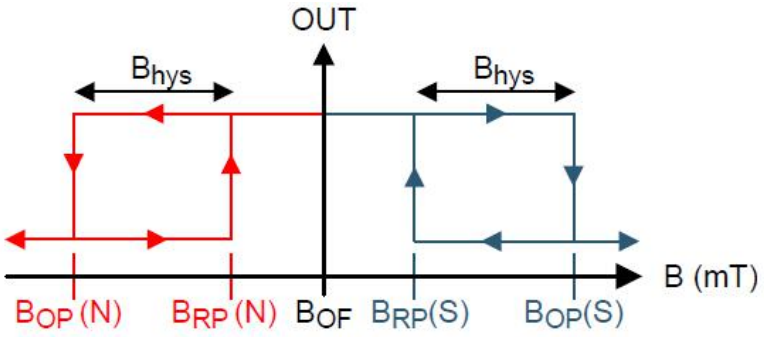


VOUT= 低电平

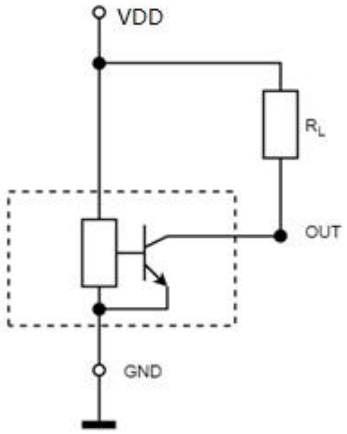


VOUT= 高电平

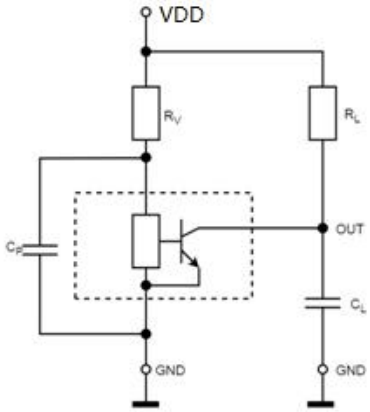
SOT-23-3L



应用电路



典型应用电路例1



典型应用电路例2

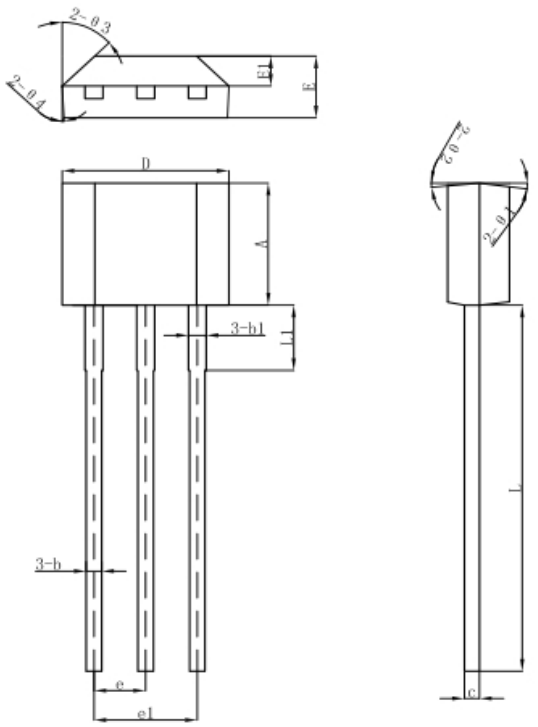
典型应用电路如图中:应用电路1，其中RL=4.7KΩ，可应用与大多数电路。应用电路2，其中R_V=100 Ω，C_P=4.7nF，RL =4.7KΩ，C_L=1nF，应用于供电线上具有干扰或辐射干扰的电路，建议在电路中串联电阻R_V和两个电容C_P、C_L，且将电阻和电容这些元器件尽量放置在接近芯片处。

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。

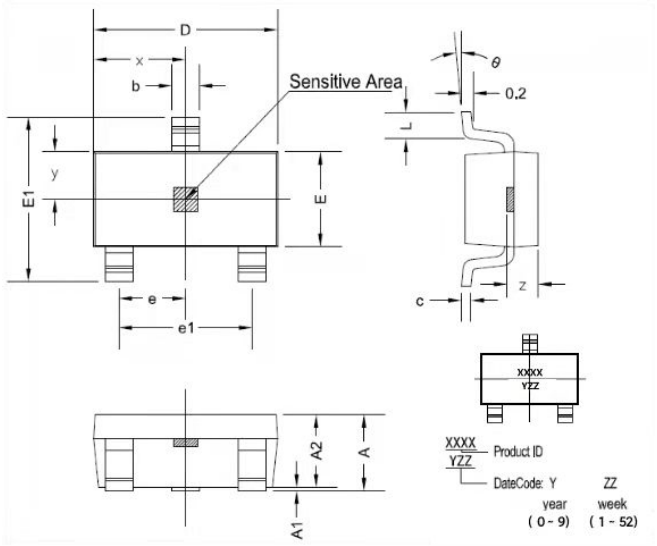
外形尺寸

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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