



## 产品介绍

AH710 是一款内置 2 个霍尔效应元件的速度方向传感器系列。每个元件提供一个独立的数字信号输出用于速度和方向的信号处理。

该芯片内部包括两个相距 1.63mm 的霍尔传感元件，包括霍尔电压发生器、电源电压为 3.8~30V 的电压调节器、温度补偿电路、小信号放大器、动态偏移消除系统霍尔传感器、施密特触发器和开漏输出。处理速度和方向信号很方便。

AH710 分为 T0-94 和 SOP-8 两种封装形式，且符合 RoHS 标准。

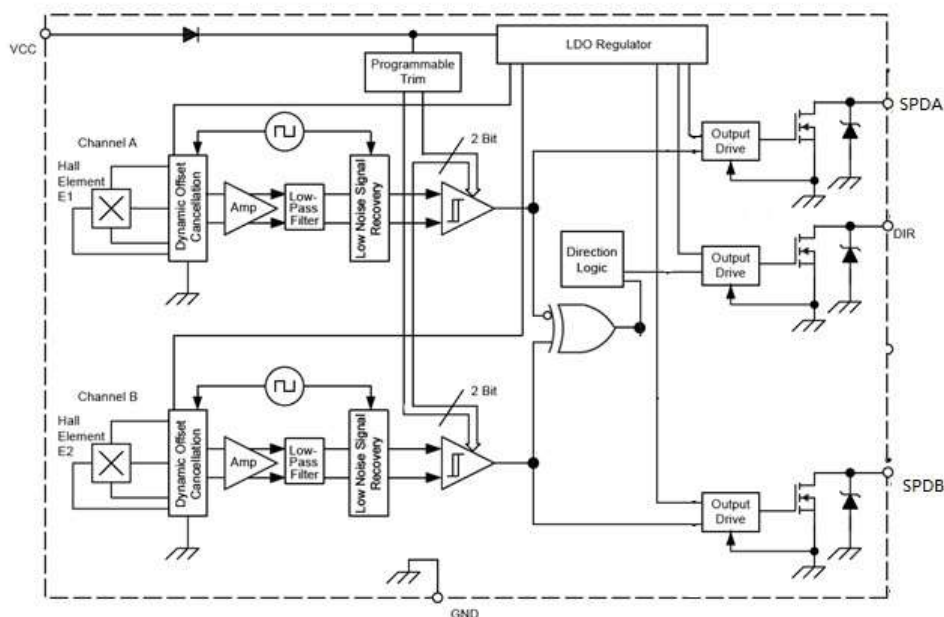
## 功能

- 霍尔元件间距 1.63mm
- 磁性类型：双极开关
- 工作电压：3.8V~30V
- 反向电压保护
- ESD 性能可达±6kV
- 工作温度范围：-40°C~150°C
- 灵敏度：BOP=40Gs，BRP=-40Gs
- 防静电等级高

## 应用领域

- 速度检测
- 方向检测
- 磁性编码器

## 功能框图



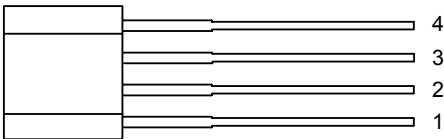
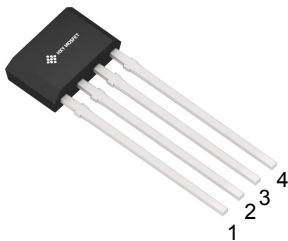


产品包装

| 产品型号    | 封装形式  | 灵敏度   | 成品包装   |
|---------|-------|-------|--------|
| AH710-T | T0-94 | ±40Gs | 1000/袋 |
| AH710-S | SOP-8 | ±40Gs | 100/管  |

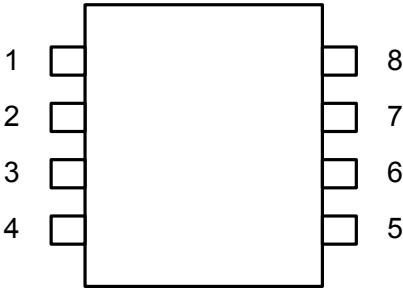
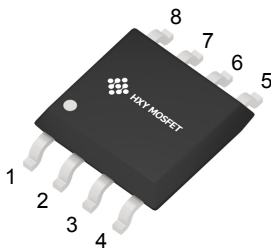
T0-94

| 编号 | 名称              | 描述 |
|----|-----------------|----|
| 1  | V <sub>CC</sub> | 电源 |
| 2  | DIR             | 方向 |
| 3  | SPD             | 速度 |
| 4  | GND             | 地  |



SOP-8

| 编号 | 名称   | 描述   |
|----|------|------|
| 1  | GND  | 地    |
| 2  | SPDA | 速度 A |
| 3  | DIR  | 方向   |
| 4  | SPDB | 速度 B |
| 5  | NC   | 未定义  |
| 6  | NC   | 未定义  |
| 7  | NC   | 未定义  |
| 8  | VCC  | 电源   |





## 绝对最大额定

绝对最大值是应用芯片时的极限值，超过该值可能会损坏芯片。尽管在超过该值时芯片的功能不一定受到损害，但是如果在规定时间内超过该值，则芯片的可靠性可能会受到影响。

| 参数     | 符号        | 最小值  | 最大值 | 单位 |
|--------|-----------|------|-----|----|
| 电源电压   | $V_{CC}$  | -40  | 40  | V  |
| 输出电压   | $V_{OUT}$ | -0.5 | 40  | V  |
| 输出电流   | $I_{OUT}$ | 0    | 30  | mA |
| 操作温度范围 | $T_A$     | -40  | 150 | °C |
| 储存温度范围 | $T_S$     | -50  | 165 | °C |

## 电学参数

测试条件：VCC=5.0V，TA=25°C

| 参数     | 符号        | 测试条件                                      | 最小值 | 典型值  | 最大值 | 单位 |
|--------|-----------|-------------------------------------------|-----|------|-----|----|
| 工作电压   | Vcc       | Operating                                 | 3.8 | 5    | 30  | V  |
| 工作电流   | $I_s$     | B<Brp                                     |     | 8    |     | mA |
| 饱和电压   | $V_{SAT}$ | B=250Gs,<br>$R_L=10Kohms$                 |     |      | 0.4 | V  |
| 输出漏电流  | $I_{off}$ | B<Brp,<br>$V_{out}=24V$                   |     | 0.1  | 1   | uA |
| 上升时间   | $T_R$     | $R_L=10Kohms$ , $C_L=20pF$                |     |      | 1   | uS |
| 下降时间   | $T_F$     | $R_L=10Kohms$ , $C_L=20pF$                |     |      | 1   | uS |
| 工作点    | Bop       | $T_A=25^{\circ}C$                         | 10  | 40   | 70  | Gs |
| 释放点    | Brp       | $T_A=25^{\circ}C$                         | -70 | -40  | -10 | Gs |
| 回差     | Bhys      | $T_A=25degC$ ,<br>$B_{hys}=B_{op}-B_{rp}$ |     | 80   |     | Gs |
| 两个霍尔距离 | Dis       |                                           |     | 1.63 |     | mm |

## 磁参数定义

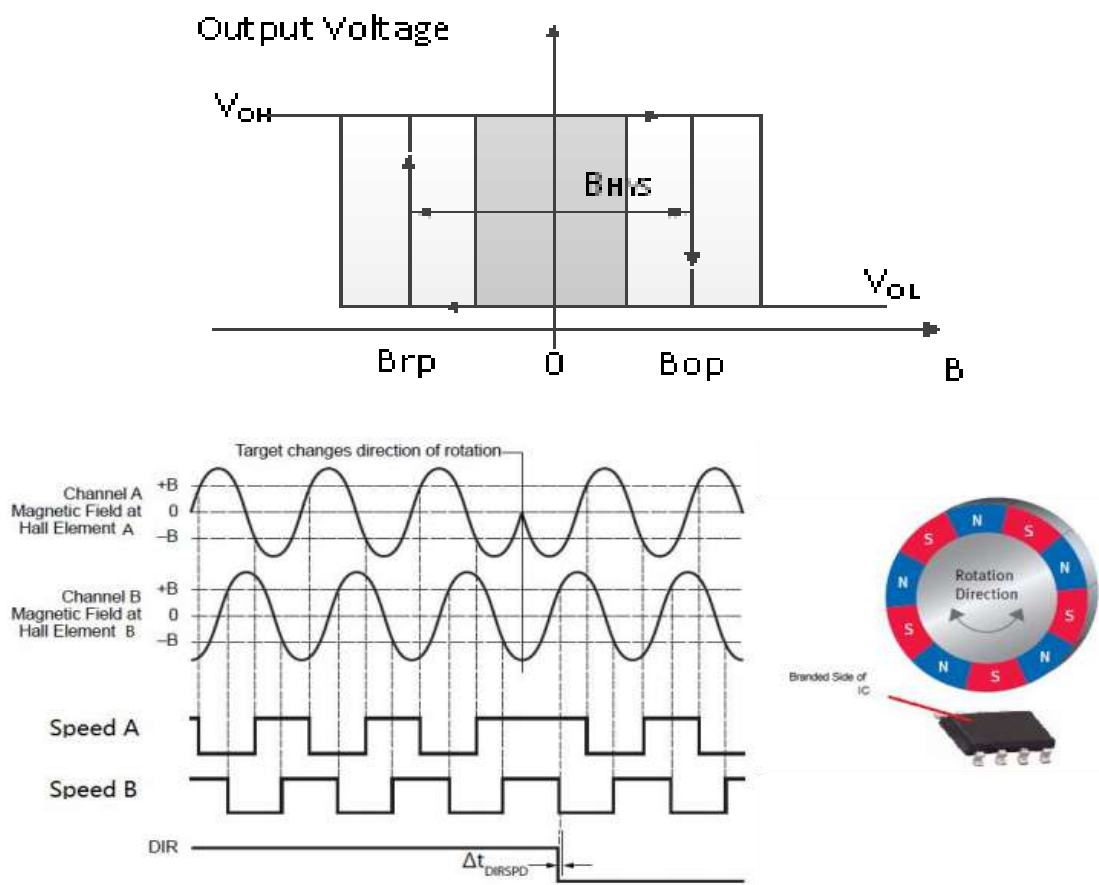
BOP：工作点，在封装标记面施加磁通密度，输出驱动器开 ( $V_{OUT}$ =低)

BRP：释放点，在封装标记面施加磁通密度，输出驱动器关 ( $V_{OUT}$ =高)

BHYST：滞回窗口 |BOP-BRP|

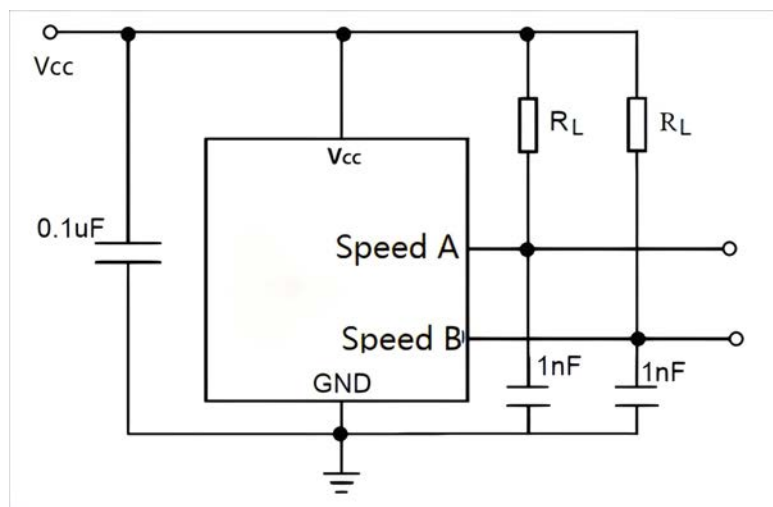


## 输出特性



## 应用电路

注意:  $R_L$  推荐 1Kohm~10Kohm



正交双通道速度输出



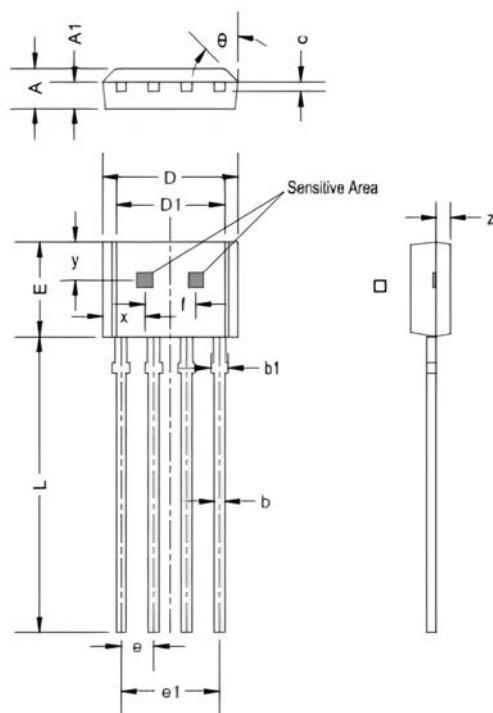
## 注意事项

- 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。



## 封装信息

T0-94

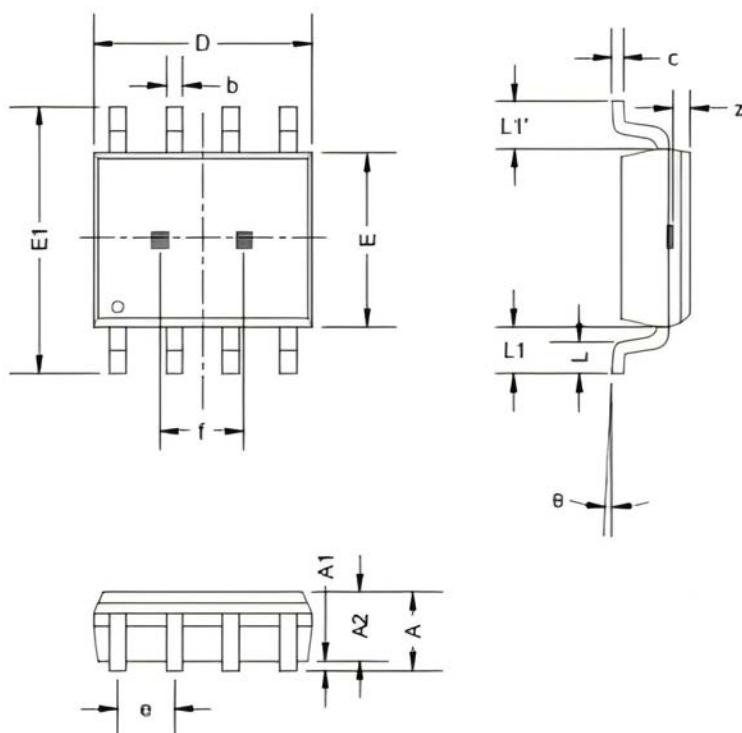


| 符号       | 尺寸（毫米）   |        | 尺寸（英寸）   |       |
|----------|----------|--------|----------|-------|
|          | 最小值      | 最大值    | 最小值      | 最大值   |
| A        | 1.420    | 1.660  | 0.056    | 0.065 |
| A1       | 0.660    | 0.860  | 0.026    | 0.034 |
| b        | 0.350    | 0.480  | 0.014    | 0.019 |
| b1       | 0.400    | 0.650  | 0.016    | 0.026 |
| c        | 0.360    | 0.510  | 0.014    | 0.020 |
| D        | 5.100    | 5.300  | 0.201    | 0.208 |
| D1       | 4.100    | 4.300  | 0.161    | 0.169 |
| E        | 3.550    | 3.750  | 0.140    | 0.147 |
| e        | 1.267    | 1.273  | 0.050    | 0.050 |
| e1       | 3.780    | 3.840  | 0.149    | 0.151 |
| L        | 13.500   | 15.500 | 0.531    | 0.610 |
| f        | 1.390    | 1.410  | 0.055    | 0.056 |
| x        | 1.800    | 2.000  | 0.071    | 0.079 |
| z        | 0.500TYP |        | 0.020TYP |       |
| $\theta$ | 10°      | 12°    | 10°      | 12°   |



## 封装信息

### SOP-8



| 符号 | 尺寸(毫米)      |       | 尺寸(英寸)      |       |
|----|-------------|-------|-------------|-------|
|    | 最小值         | 最大值   | 最小值         | 最大值   |
| A  | 1.350       | 1.750 | 0.530       | 0.069 |
| A1 | 0.100       | 0.250 | 0.004       | 0.010 |
| A2 | 1.350       | 1.550 | 0.053       | 0.061 |
| b  | 0.330       | 0.510 | 0.013       | 0.020 |
| c  | 0.170       | 0.250 | 0.007       | 0.010 |
| D  | 4.800       | 5.000 | 0.189       | 0.197 |
| e  | 1.270 (BSC) |       | 1.270 (BSC) |       |
| E  | 3.800       | 4.000 | 0.228       | 0.224 |
| E1 | 5.800       | 6.200 | 0.150       | 0.157 |
| L  | 0.400       | 1.270 | 0.016       | 0.050 |
| θ  | 0°          | 8°    | 0°          | 8°    |



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