ChenYang Technologies GmbH & Co. KG

CYTHS124 砷化镓霍尔效应元件

CYTHS124 系列霍尔效应元件是一款由单晶砷化镓（GaAs）半导体材料组III-V 使用离子注入技术制成的离子注入磁场传感器，可将磁通量密度信号线性地转变成电压输出。

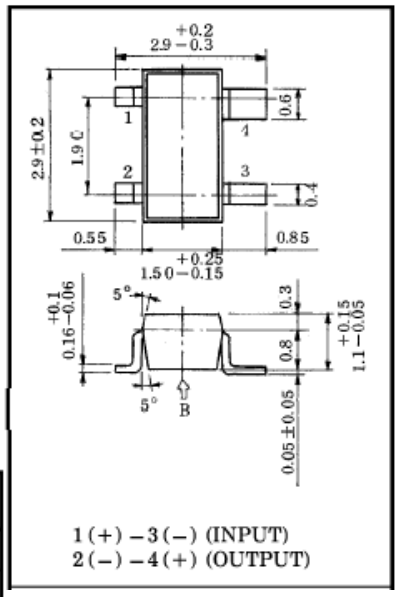
HIGH STABILITY MOTOR CONTROL.

DIGITAL TACHOMETER.

CRANK SHAFT POSITION SENSOR.

- Excellent Temperature Characteristics.
- Wide Operating Temperature Range. (; −55~125°C)
- Excellent Output Voltage Linearity.
- High Internal Resistance. : R_d=1000Ω (Min.)
- Low Residual Voltage Ratio. : V_{HO}/V_H=±5% (Max.)

Unit in mm



Unit weight: 0.013g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Control Voltage	V_C	12	V
Power Dissipation	P_D	150	mW
Operating Temperature Range	T_{opr}	−55~125	°C
Storage Temperature Range	T_{stg}	−55~150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Internal Resistance (Input)	R_d	I_C=1mA	1000	1250	1500	Ω
Residual Voltage Ratio	V_{HO}/V_H	V_C=5V, B=0/B=0.1T	—	—	±5	%
Hall Voltage (Note 1)	V_H	V_C=5V, B=0.1T	130	150	170	mV
Temperature Coefficient (Note 2)	V_{HT}	I_C=5mA, B=0.1T T1=25°C, T2=125°C	—	—	−0.06	%/°C
Linearity (Note 3)	ΔK_H	V_C=5V, B1=0.05T, B2=0.1T	—	—	2	%
Specific Sensitivity (Note 4)	K*	V_C=5V, B=0.1T	—	30	—	$\times 10^{-2}$/T
Internal Resistance (Output)	R_{OUT}	I_C=1mA	1800	2375	3000	Ω

Note 1 : $V_H = V_{HM} - V_{HO}$ (V_{HM} is meter indication)

Note 2 : $V_{HT} = \frac{1}{V_{H(T1)}} \cdot \frac{V_{H(T2)} - V_{H(T1)}}{T2 - T1} \times 100\ (\%/°C)$ V_{HO} : Residual Voltage

Note 3 : $\Delta K_H = \frac{K_{H(B2)} - K_{H(B1)}}{1/2\{K_{H(B1)} + K_{H(B2)}\}} \times 100\ (\%)$, $K_H = \frac{V_H}{I_C \cdot B}$ K_H : Product Sensitivity

Note 4 : $K^* = V_H/(R_d \times I_C \times B) = K_H/R_d$

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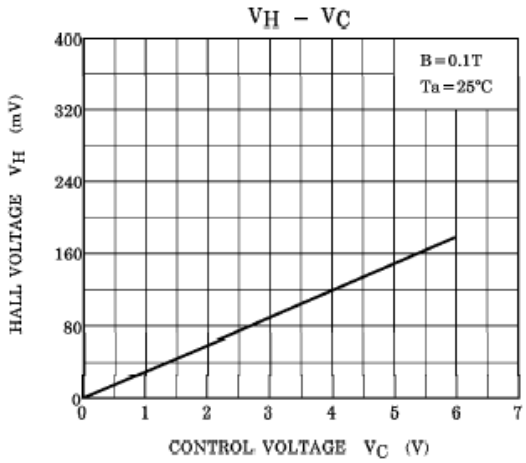
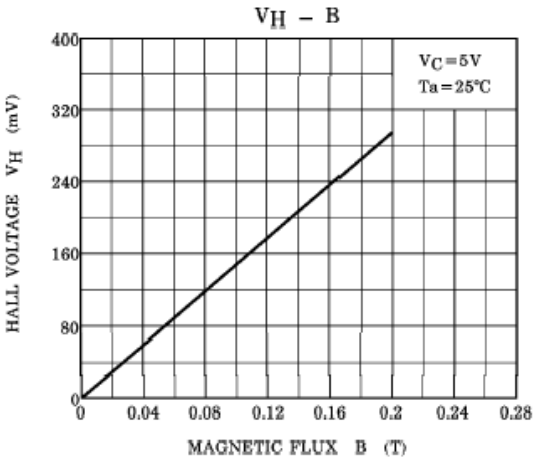
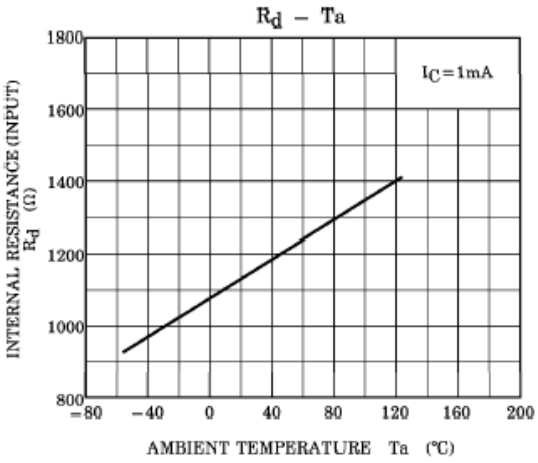
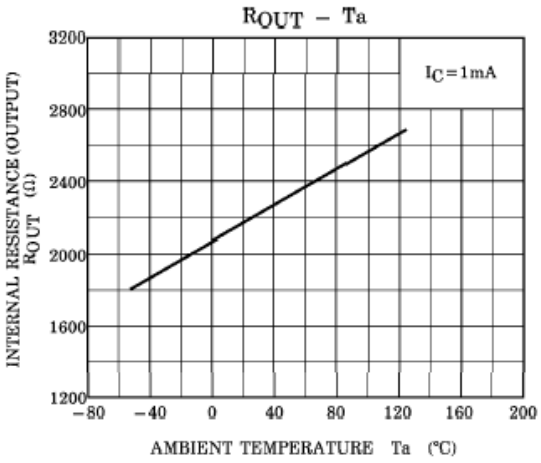
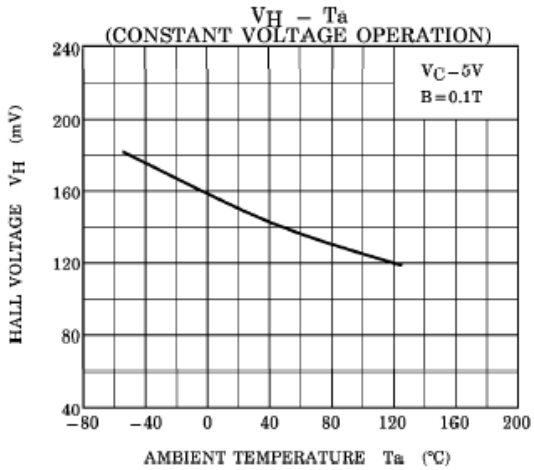
特性曲线











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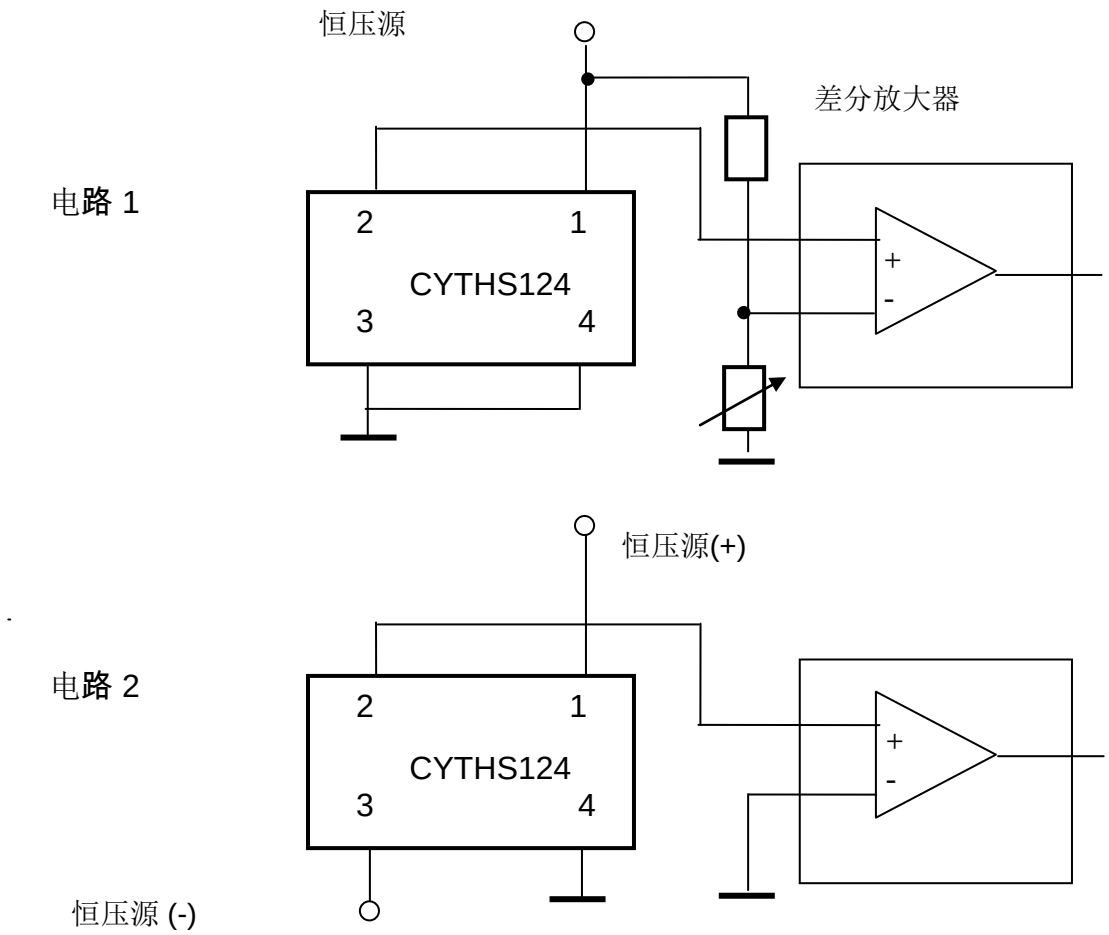
接线图



应用说明

霍尔电压 V_H 可以是正和负，但若一端如下连接到传感器 (电路 1):

引脚 1: 正输入电压 V+, 例如 +5VDC.
引脚 3: 地
引脚 2: 输出
引脚 4: 地

一端只能在引脚 2 测量正电压，这说明在磁场为 0 时输出电压不是 0，该电压称作偏移电压。在这种情况下输出电压不等于霍尔电压，输出电压等于偏移电压和霍尔电压之和。

若连接双电源 V+ 和 V- 到传感器(电路 2)，偏移电压是 0:

引脚 1: 正输入电压 V+,例如+5VDC.
引脚 3: 负输入电压 V-,例如-5VDC
引脚 2: 输出
引脚 4: 地

这种情况下，输出电压等于霍尔电压。

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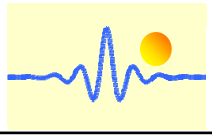

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