ChenYang
Technologies GmbH & Co. KG

CYSJ362A GaAs HALL-EFFECT ELEMENTS

CYSJ362A series Hall-effect element is a ion-implanted magnetic field sensor made of mono-crystal gallium arsenide (GaAs) semiconductor material group III-V using ion-implanted technology. It can convert a magnetic flux density signal linearly into voltage output.

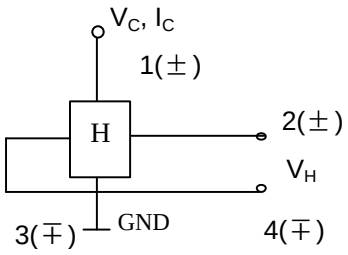
FEATURES

- High Linearity
- Superior Temperature Stability
- Miniature Package
- Replacements of **THS119**, **KSY14** and **KSY44** etc.

TYPICAL APPLICATION

- Magnetic Field Measurement
- DC Brushless Motor
- Current Sensor
- Non-contact Switch
- Position Control
- Detection of Revolution

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATING

Parameter	Symbol	Value	Unit
Max. Input Voltage	V_C	12V	mA/V
Max. Input Power	P_D	150	mW
Operating temperature range	T_A	-40~125	°C
Storage temperature range	T_S	-55~150	°C
MTBF (Mean Time Before Failure)		>100k	hour

ELECTRICAL CHARACTERISTICS（T_A=25°C）

Parameter	Symbol	Test conditions	Value	Unit
Hall output voltage	V_H	B=100mT, V_C=6V	156~204	mV
Offset voltage	Vos(Vu)	IV_C=6V, B=0	±8	mV
Input resistance	R_{in}	B=0mT, I_C=0.1mA	1000~1500	Ω
Output resistance	R_{out}	B=0mT, I_C=0.1mA	1800~3000	Ω
Temperature coefficient of Hall output voltage	αV_H	I_C=1mA , B=100mT (Ta=25°C ~ 125°C)	-0.06	%/°C
Temperature coefficient of input resistance	αR_{in}	I_C=0.1mA , B=0mT (Ta=25°C ~ 125°C)	0.3	%/°C
Linearity	ΔK_H	I_C=1mA B=0.1/0.5T	2	%

Notes: V_H=VHM-V_{OS}(V_u) (VHM: meter indication)

$$\alpha V_H = \frac{1}{V_H(T_1)} x \frac{V_H(T_2)-V_H(T_1)}{T_2-T_1} x100,$$

$$\alpha R_{in} = \frac{1}{R_{in}(T_1)} x \frac{R_{in}(T_2)-R_{in}(T_1)}{T_2-T_1} x100$$

$$\Delta K_H = \frac{K(B_1)-K(B_2)}{[K(B_1)+K(B_2)]} x200$$

$$K_H = \frac{V_H}{I_C B}$$

T_1=25°C, T_2=125°C, B_1=0.5T, B_2=0.1T

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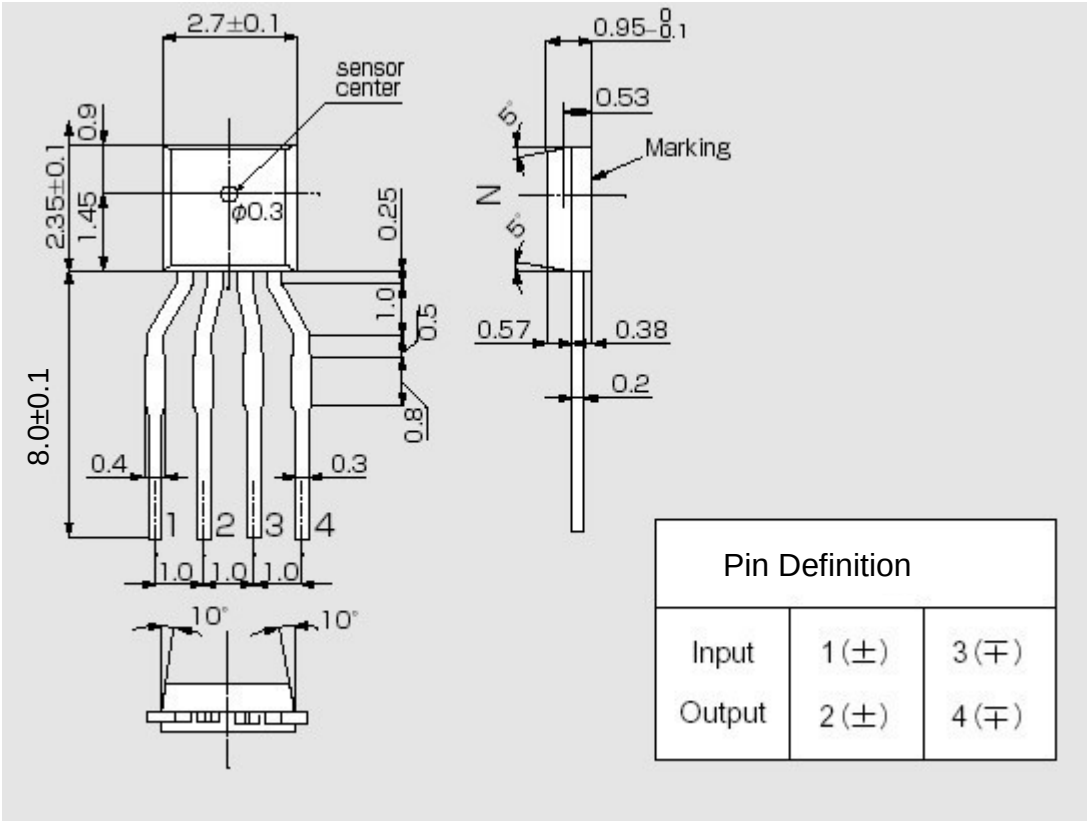
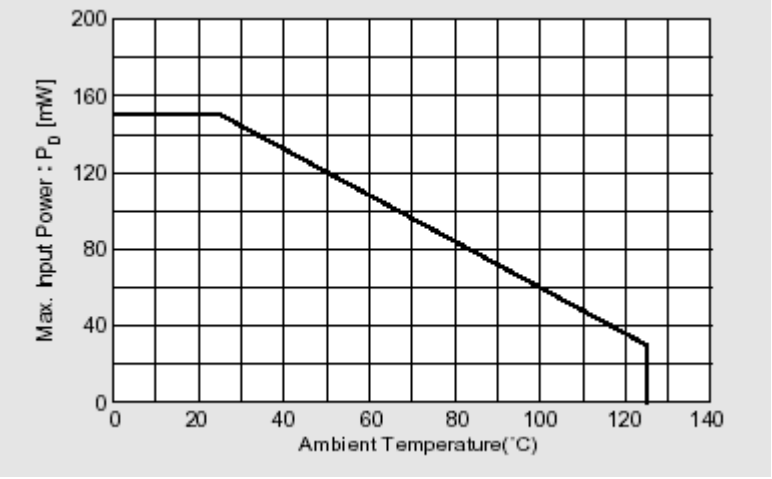
Package Outline Drawing (Unit: mm)



Pin Definition		
Input	1 (±)	3 (∓)
Output	2 (±)	4 (∓)

Characteristic Curves

Allowable Package Power Dissipation



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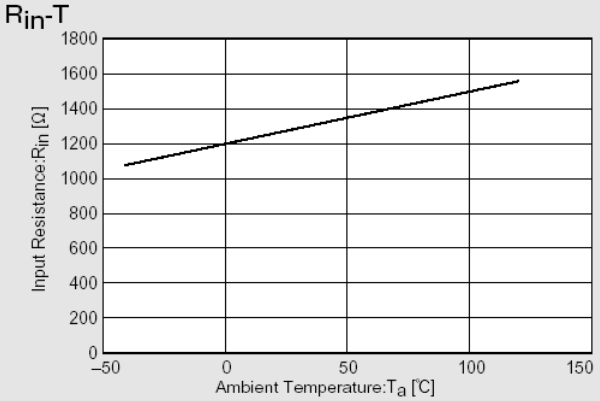
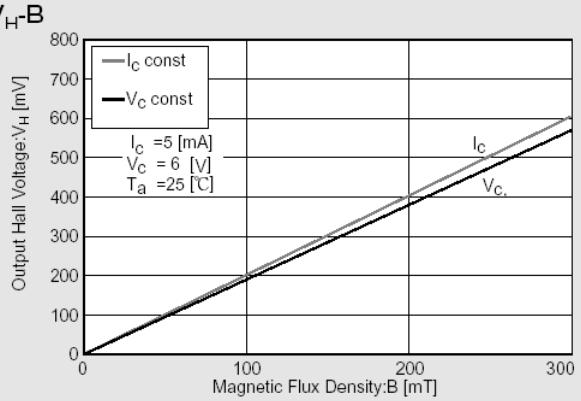
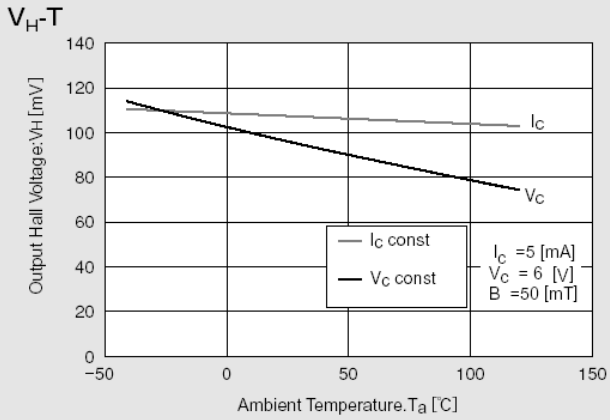
R_{in}-T



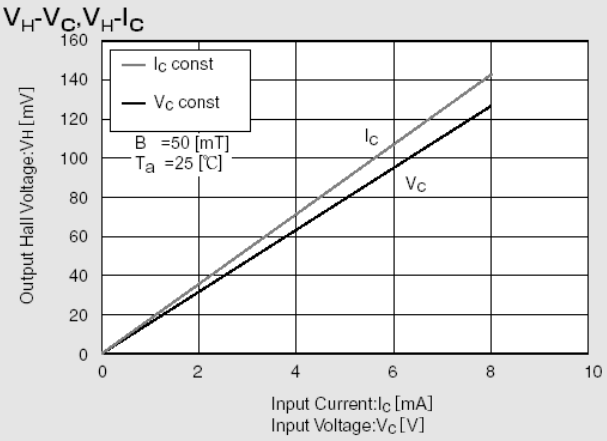
V_H-B



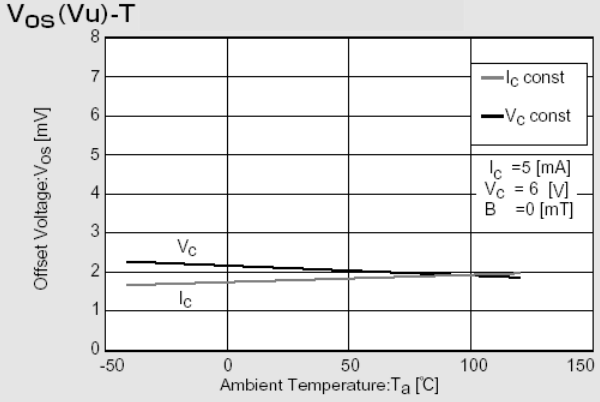
V_H-T



V_H-V_C,V_H-I_C

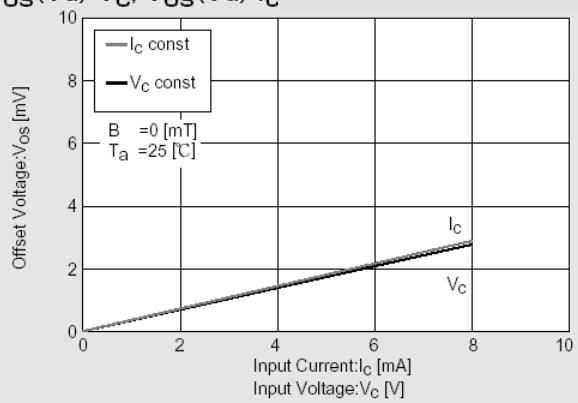


V_{OS}(Vu)-T



※Magnetic Flux Density
1[mT]=10[G]

V_{OS}(Vu)-V_C, V_{OS}(Vu)-I_C



In This Example : R_{in}=1270〔Ω〕, V_{OS}=2.1〔mV〕, 〔V_C=6〔V〕〕

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