

GaAs HALL EFFECT ELEMENTS

CYSJ 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.

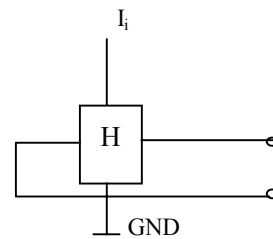
FEATURES

- High Linearity
- Superior Temperature Stability
- Miniature Package

TYPICAL APPLICATION

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

BLOCK DIAGRAM

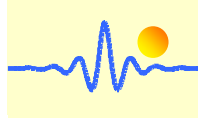


ABSOLUTE MAXIMUM RATING

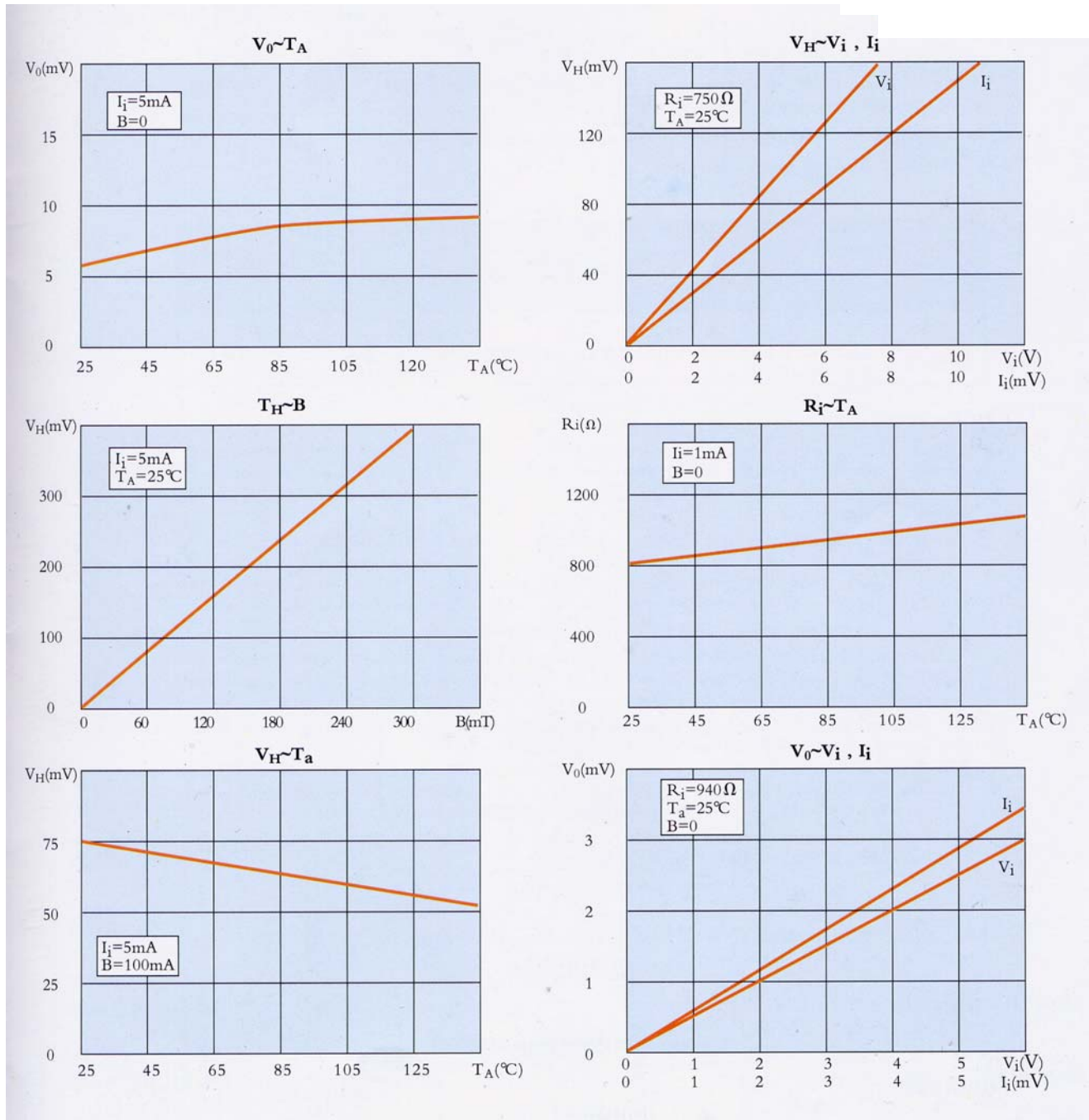
Parameter	Symbol	Value	Unit
Max. Input current	I_i	10	mA
Operating temperature range	T_A	-55~125	°C
Storage temperature range	T_S	-55~150	°C

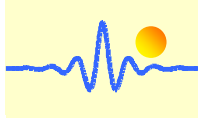
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Test conditions	Value	Unit
Hall output voltage	V_H	$B=100\text{mT}$ $I_i=5\text{mA}$	80~200	mV
Offset voltage	V_o/V_H	$I_i=5\text{mA}$ $B=0/B=100\text{mT}$	≤ 12	%
Input resistance	R_i	$I_i=1\text{mA}$	650~1200	Ω
Output resistance	R_o	$I_i=1\text{mA}$	1100~2400	Ω
Temperature coefficient of hall output voltage	αV_H	$I_i=5\text{mA}$ $B=100\text{mT}$	-0.07	%/°C
Temperature coefficient of input and output resistance	α_{i, V_o}	$I_i=1\text{mA}$ $B=0\text{mT}$	0.3	%/°C
Linearity	ΔK_H	$I_i=5\text{mA}$ $B=0\sim 300\text{mT}$	< 2	%

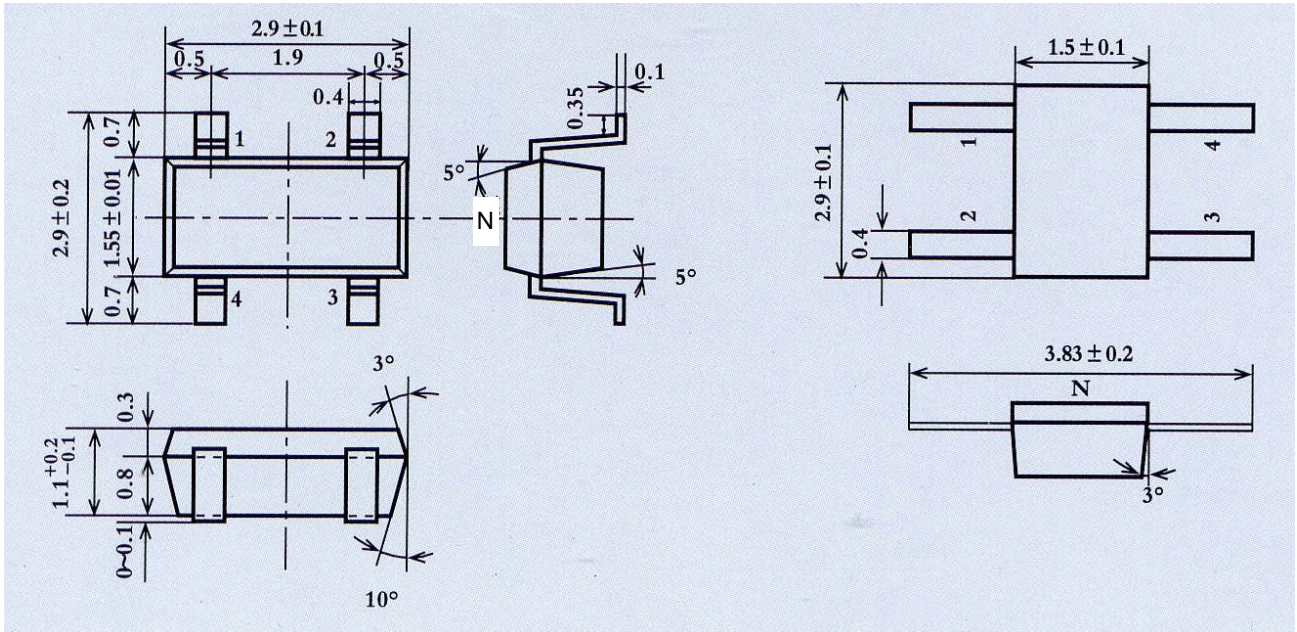


Characteristics Curves



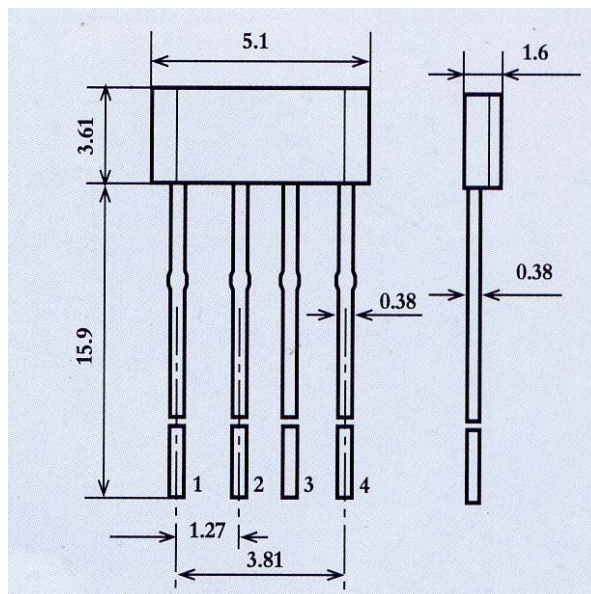


Package Outline Drawing (unit: mm)



CYSJ411 (SOT-143)
2, 4: Input; 1, 3: Output

CYSJ422 (SOT-143-1)
1, 3: Input; 2, 4: Output



CYSJ119 (TO-94)
1, 3: Input; 2, 4: Output