

## CYTY SERIES (InSb) HALL-EFFECT ELEMENTS

CYTY series Hall-effect elements are made of compound semiconductor material indium stibnite (InSb), which utilizes the Hall Effect principle. It can convert a magnetic flux density signal linearly into voltage output.

### FEATURES

- High Magnetic Sensitivity
- Low Offset Voltage
- Miniature Package

### TYPICAL APPLICATION

- Magnetic Field Measurement
- Current Sensor
- Detection of Speed
- DC Brushless Motor
- Position Control

### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Input Current	$I_i$	20 ( $T_A=40^\circ\text{C}$ )	mA
Operating Temperature Range	$T_A$	-40~110	$^\circ\text{C}$
Storage Temperature Range	$T_S$	-40~120	$^\circ\text{C}$

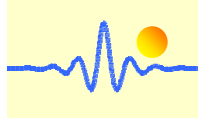
### Hall Output Voltage $V_H$ (mV)

Label	Hall Output Voltage
Q	45~60
R	55~75
D	195~230
E	225~275
F	270~320
G	315~370

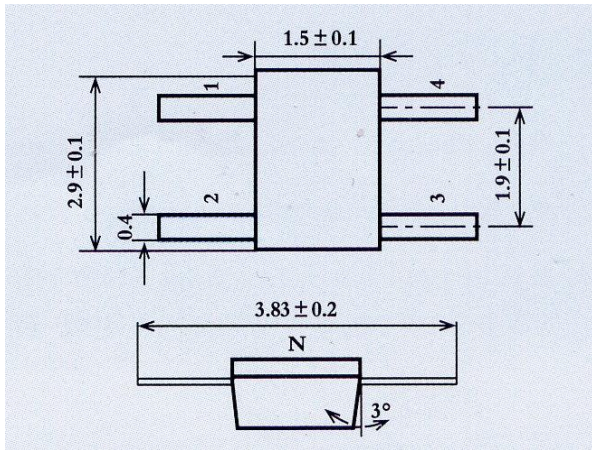
### ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

Parameter	Symbol	Test Condition	Type and Value			
				CYTY211		CYTY320
Hall output voltage	$V_H$ (mV)	Constant voltage driven, $V_i=1\text{V}$ $B=50\text{mT}$	Min	45		195
			Max	75		370
Offset voltage	$V_o$ (mV)	$B=0$ $V_i=1\text{V}$	Min	-7		-7
			Max	+7		+7
Input resistance	$R_i(\Omega)$	$B=0$ $I_i=0.1\text{mA}$	Min	240		240
			Max	550		550
Output resistance	$R_o(\Omega)$	$B=0$ $I_i=0.1\text{mA}$	Min	240		240
			Max	550		550
Output voltage temperature coefficient	$\alpha V_H$ (%/°C)	$B=50\text{mT}$ $I_i=5\text{mA}$	Max	-2		-2
Input, Output resistance temperature coefficient	$\alpha R_i$ (%/°C)	$B=0$ $I_i=0.1\text{mA}$				
Isolation resistance	(M $\Omega$ )	100V DC		>1.0		>1.0

- Note:** 1. The Hall output voltage  $V_H$ =the effective voltage- $V_o$   
2. The types are different according to the Hall output voltage  $V_H$  (mV)



### Package Outline Drawing (Unit: mm)

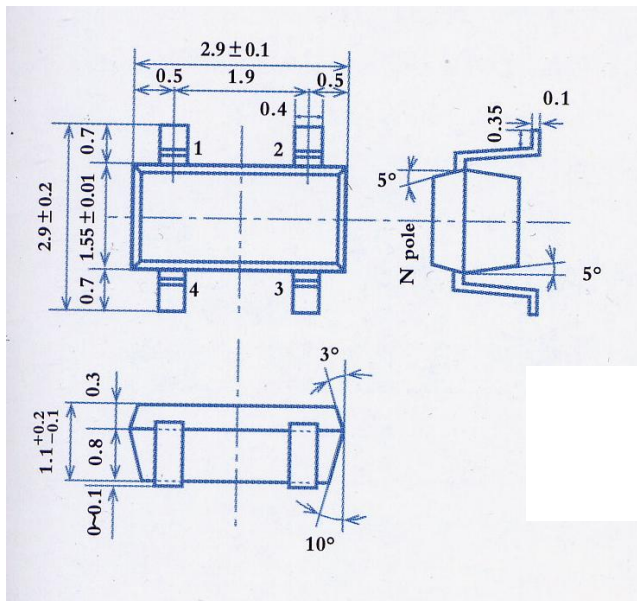
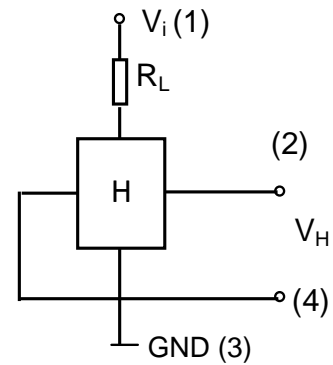


CYTY320 (SOT-143-1)

1, 3: Input; 2, 4: Output

### FUNCTIONAL BLOCK DIAGRAM

For CYTY320

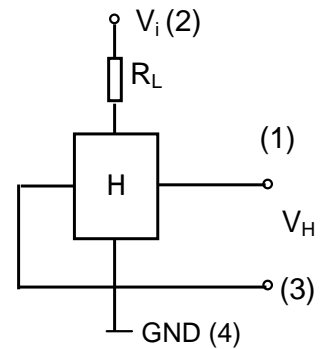


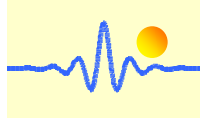
CYTY211 (SOT-143)

2, 4: Input; 1, 3: Output

### FUNCTIONAL BLOCK DIAGRAM

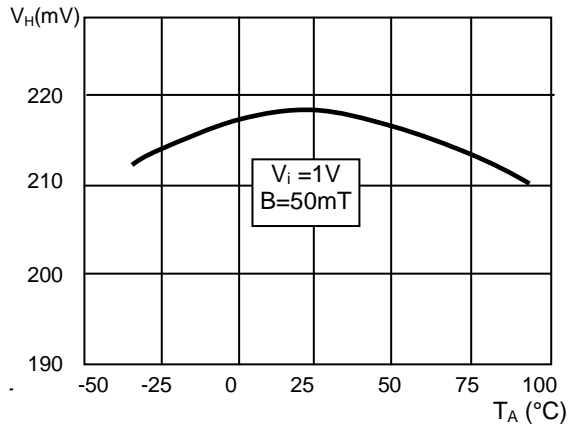
For CYTY211



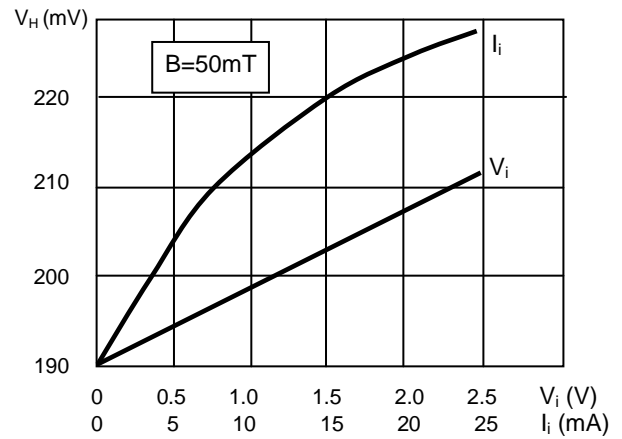


## CHARACTERISTICS CURVES

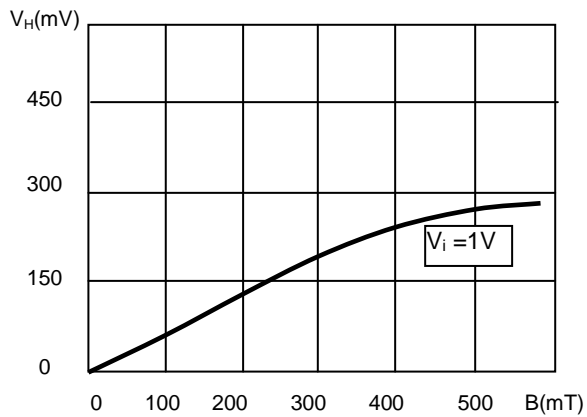
$V_H \sim T_A$  (CYTY320)



$V_H \sim V_i, I_i$  (CYTY320)



$V_H \sim B$  (CYTY211)



$V_H \sim B$  (CYTY320)

