

## CYD512 Latching Hall-effect Switch IC

**CYD512** Hall Effect latch ICs are composed of a reverse protector, voltage regulator, Hall voltage generator, differential amplifier, Schmitt trigger and an open-collector output (bipolar latch) on a single silicon chip. ICs can convert the changeable magnetic field signal into digital voltage output.

### FEATURES

- High Sensitivity
- Resistant to Physical Stress
- Wide Supply Voltage Range
- Interfacing with All Kinds of Logic Circuits Directly

### TYPICAL APPLICATION

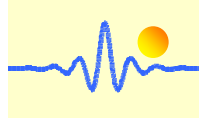
- High Sensitive Non-contact Switch
- DC Brushless Motor
- DC Brushless Fan

### ABSOLUTE MAXIMUM RATINGS

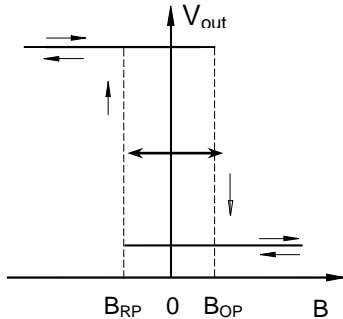
	Symbol	Value		Unit
		Min	Max	
Supply Voltage	V <sub>CC</sub>	4.5	18	
Output Current	I <sub>O</sub>	-	15	mA
Operating Temperature Range	T <sub>A</sub>	-40	150	°C
Storage Temperature Range	T <sub>S</sub>	-50	150	°C

### ELECTRICAL & MAGNETIC CHARACTERISTICS

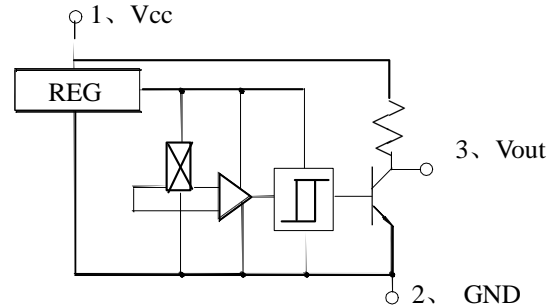
Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Supply Voltage		V <sub>CC</sub>	4.5	-	18	V
Output Low Voltage	V <sub>CC</sub> = 4.5 V~18V	V <sub>OL</sub>	-	0.2	0.4	V
Supply Current	V <sub>CC</sub> = 18V	I <sub>CC</sub>	-	-	8	mA
Operate Point	V <sub>CC</sub> = 4.5 V~18V	B <sub>OP</sub>	1	-	6	mT
Release Point	V <sub>CC</sub> = 4.5 V~18V	B <sub>RP</sub>	-6	-	-1	mT
Hysteresis	V <sub>CC</sub> = 4.5 V~18V	B <sub>H</sub>	2	-	7	mT
Internal Load Resistance		R <sub>L</sub>	7		13	KΩ



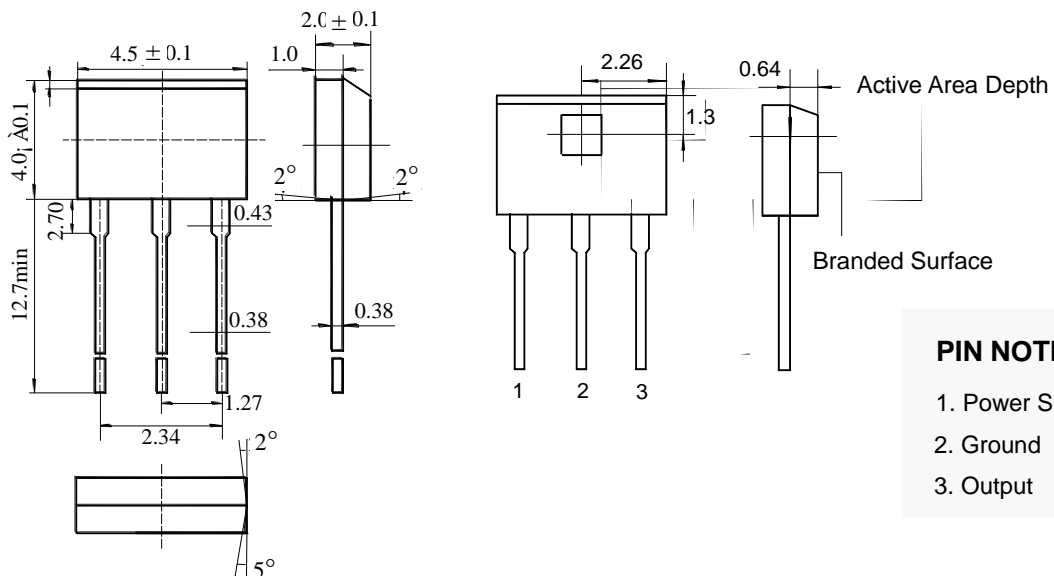
**Magnetic-Electrical  
Transfer Characteristics**



**FUNCTIONAL BLOCK DIAGRAM**



**Package Unit: (mm)**



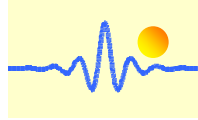
**PIN NOTES**

- 1. Power Supply
- 2. Ground
- 3. Output

**TO-92T Package and position of sensitive point**

**Cautions:**

- 1) It is possible that outside mechanical stress affects the operating point and the release point of Hall-effect circuit, therefore, mechanical stress should be lessened as far as possible in the process of assembly;
- 2) Pay attention to the soldering temperature (<260°C) at the leads; keep it lower in a short time (<3s) to guarantee good soldering quality.



## Connection

This sensor has an OC (NPN) output voltage. Therefore it is necessary to connect a pull-up resistor in value from  $1\text{k}\Omega$  to  $10\text{k}\Omega$  between the power supply  $V_{cc}$  and output pins.

