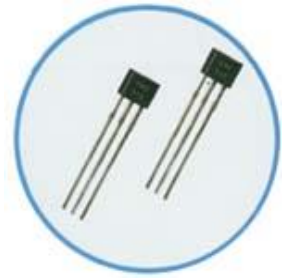


## CYL49E Linear Hall Effect Sensor

CYL49E linear Hall-effect integrated circuit is based on Hall-Effect principle, which includes a voltage regulator, Hall-voltage generator, linear amplifier, and emitter-follower output stage. The output of the ICs changes linearly with the magnetic flux density that should be measured.



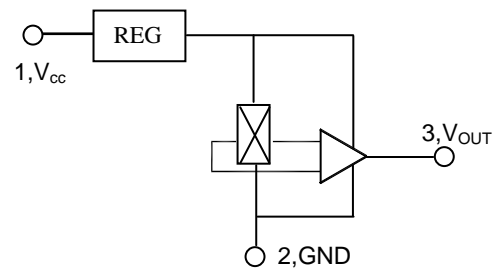
### FEATURES

- Small Size
- High Accuracy
- High Sensitivity
- Excellent Reliability
- Low Power

### TYPICAL APPLICATION

- Motion Detector
- Gear Tooth Sensors
- Proximity Detector
- Speed Regulator for Sports Appliance
- Current Detecting Sensor

### FUNCTIONAL BLOCK DIAGRAM



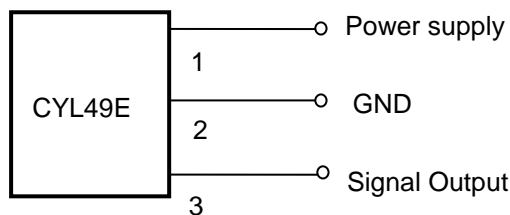
### ABSOLUTE MAXIMUM RATINGS

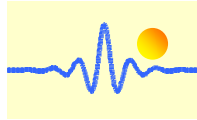
Parameter	Symbol	Value	Unit
Supply Voltage	V <sub>cc</sub>	2.7 -9.0	V
Operating Temperature Range	T <sub>A</sub>	-40 ~ 85	°C
Storage Temperature Range	T <sub>S</sub>	-50 ~150	°C

### ELECTRICAL & MAGNETIC CHARACTERISTICS (T<sub>A</sub>=25°C, V<sub>cc</sub>=5.0V)

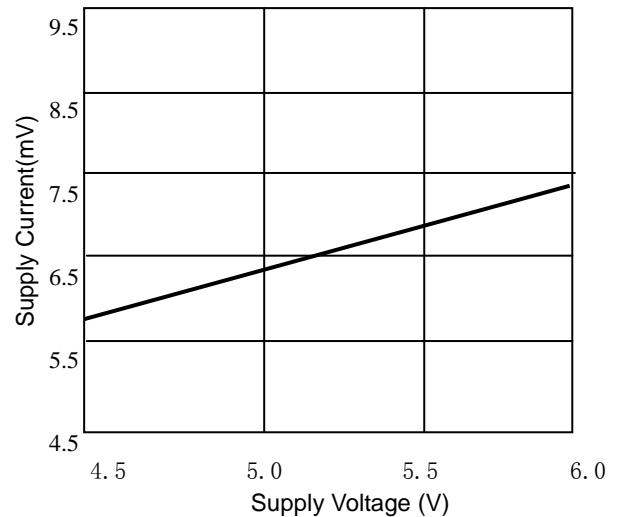
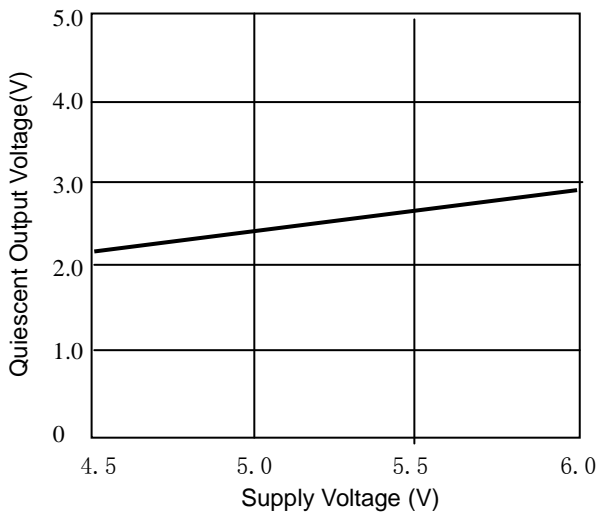
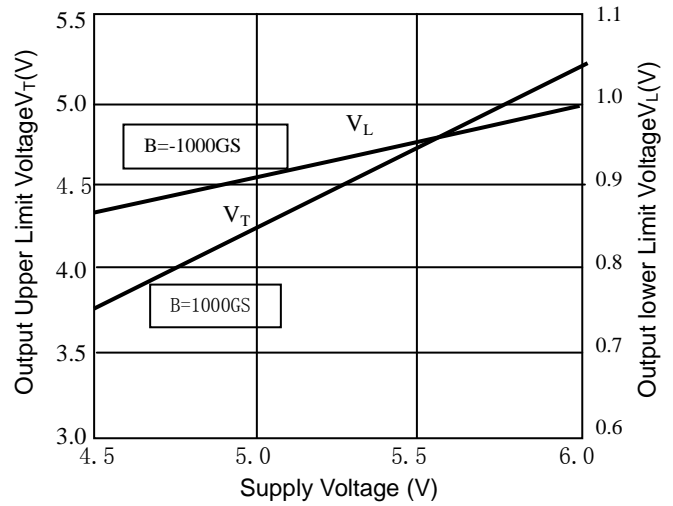
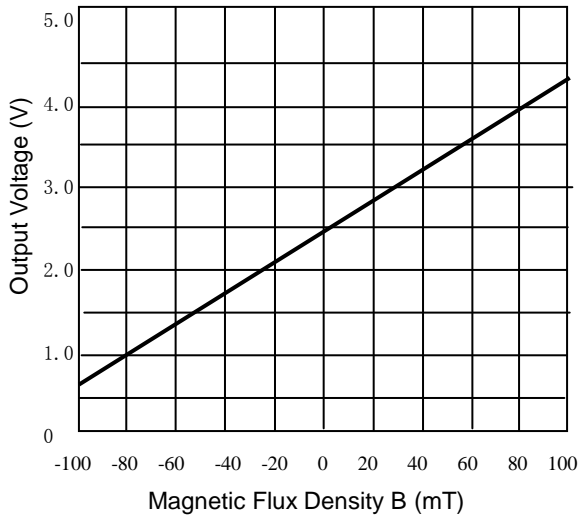
Supply current I <sub>cc</sub> (mA)	Output upper Limit Voltage V <sub>T</sub> (V) B≥90mT	Output Lower Limit Voltage V <sub>L</sub> (V) B≤-90mT	Quiescent Output Voltage V <sub>o</sub> (V) B=0mT	Sensitivity S (mV/mT)	Operating Temperature Range (°C)	Output Function
≤8mA	≥4.20	≤1	2.5±0.1	14~18	-40~+85	Linear

### Connection



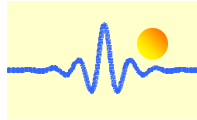


## Characteristics Curves

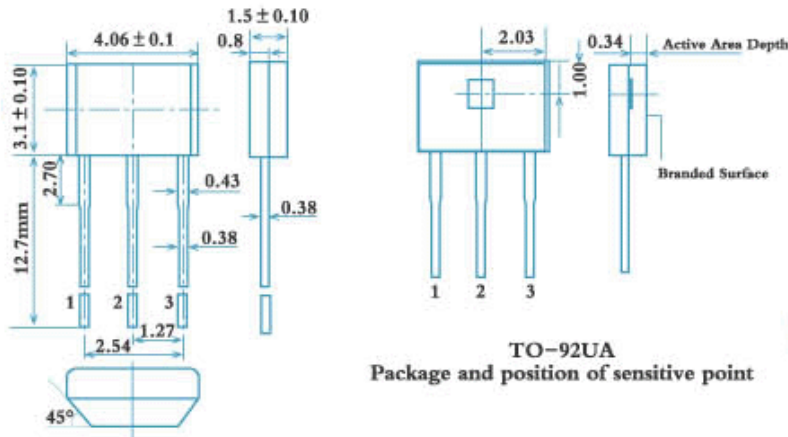


## Principles

The quiescent output voltage ( $B=0\text{mT}$ ) is nominally one-half of the supply voltage. When a south magnetic pole is presented to the branded face of the Hall-effect IC, it will drive the output higher than the quiescent voltage. A north magnetic pole will drive the output below the quiescent output voltage. In operation, instantaneous and proportional output voltage levels are dependent on magnetic flux density at the most sensitive area of the device.



## Package (Unit: mm)



TO-92UA  
Package and position of sensitive point

### PIN NOTES

1. Power Supply
2. Ground
3. Output

### CAUTIONS

- ◆ It is possible that outside mechanical stress affects the operating point and the release point of Hall-effect circuits, therefore, mechanical stress should be lessened as far as possible in the process of assembly;
- ◆ Pay attention to the soldering temperature at the leads, keep it lower in a short time to guarantee good soldering quality.

### Note:

- ◆ Mechanical Stress Should be lessened as far as possible in the process of assembly
- ◆ The soldering temperature at the leads should be less than  $260^\circ\text{C}$  with 5 seconds.
- ◆ If N pole is approaching hall-effect ICs from the back side of the package, output voltage will increase, S pole is approaching ICs from the back side, output voltage will reduce; and if from the branded side of the package, the output situation is just to the contrary.