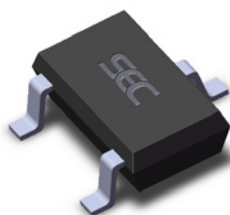
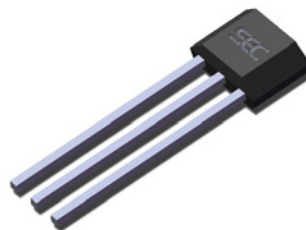


## Features

- Miniature construction
- Low-Noise Output
- 4.5 V to 6 V Operation
- Magnetically Optimized Package
- Linear output for circuit design flexibility
- Temperature range of -40 °C to 150 °C



3 pin SOT23 (suffix SO)



3 pin SIP (suffix UA)

## Description

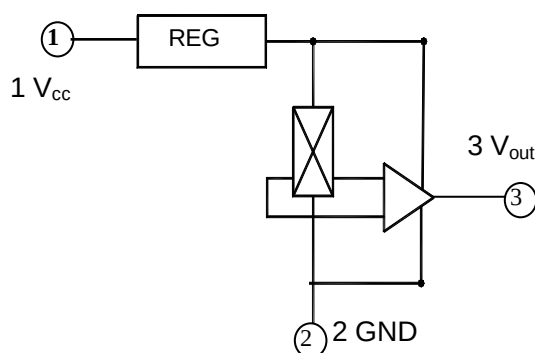
SS49E Linear Hall-effect sensor is small, versatile linear Hall-effect device that is operated by the magnetic field from a permanent magnet or an electromagnet. The linear sourcing output voltage is set by the supply voltage and varies in proportion to the strength of the magnetic field. The integrated circuitry features low noise out-

put, which makes it unnecessary to use external filtering. It also includes thin film resistors to provide increased temperature stability and accuracy. The linear Hall sensor has an operating temperature range of -40 °C to 150 °C appropriate for commercial, consumer and industrial environments.

## Typical Applications

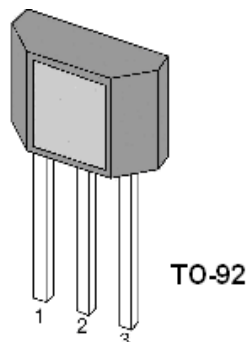
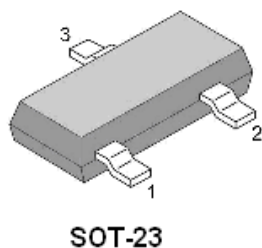
- Motor control
- Magnetic code reading
- Ferrous metal detector
- Current sensing
- Position sensing

## Functional Block Diagram



### Pin Definitions and Descriptions

| SOT Pin № | SIP Pin № | Name            | Type   | Function              |
|-----------|-----------|-----------------|--------|-----------------------|
| 1         | 1         | V <sub>DD</sub> | Supply | Supply Voltage pin    |
| 2         | 3         | OUT             | Output | Open Drain Output pin |
| 3         | 2         | GND             | Ground | Ground pin            |



### Absolute Maximum Ratings

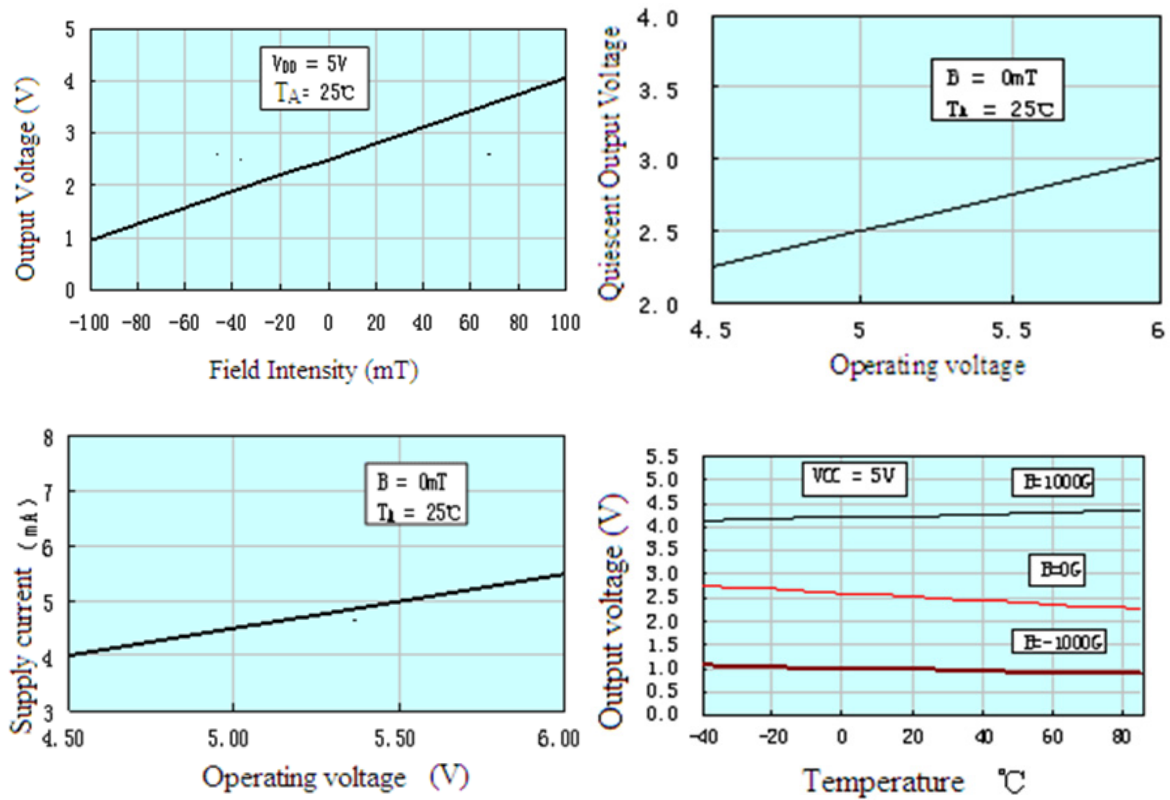
| Parameter                   | Symbol           | Value   | Units |
|-----------------------------|------------------|---------|-------|
| Supply Voltage (operating)  | V <sub>CC</sub>  | 8.0     | V     |
| Output Current              | I <sub>OUT</sub> | 20      | mA    |
| Operating Temperature Range | T <sub>A</sub>   | -40~150 | °C    |
| Storage Temperature Rang    | T <sub>S</sub>   | -65~150 | °C    |

### Electrical Characteristics

Operating Parameters T<sub>A</sub> = 25°C, V<sub>CC</sub> = 5.0 V

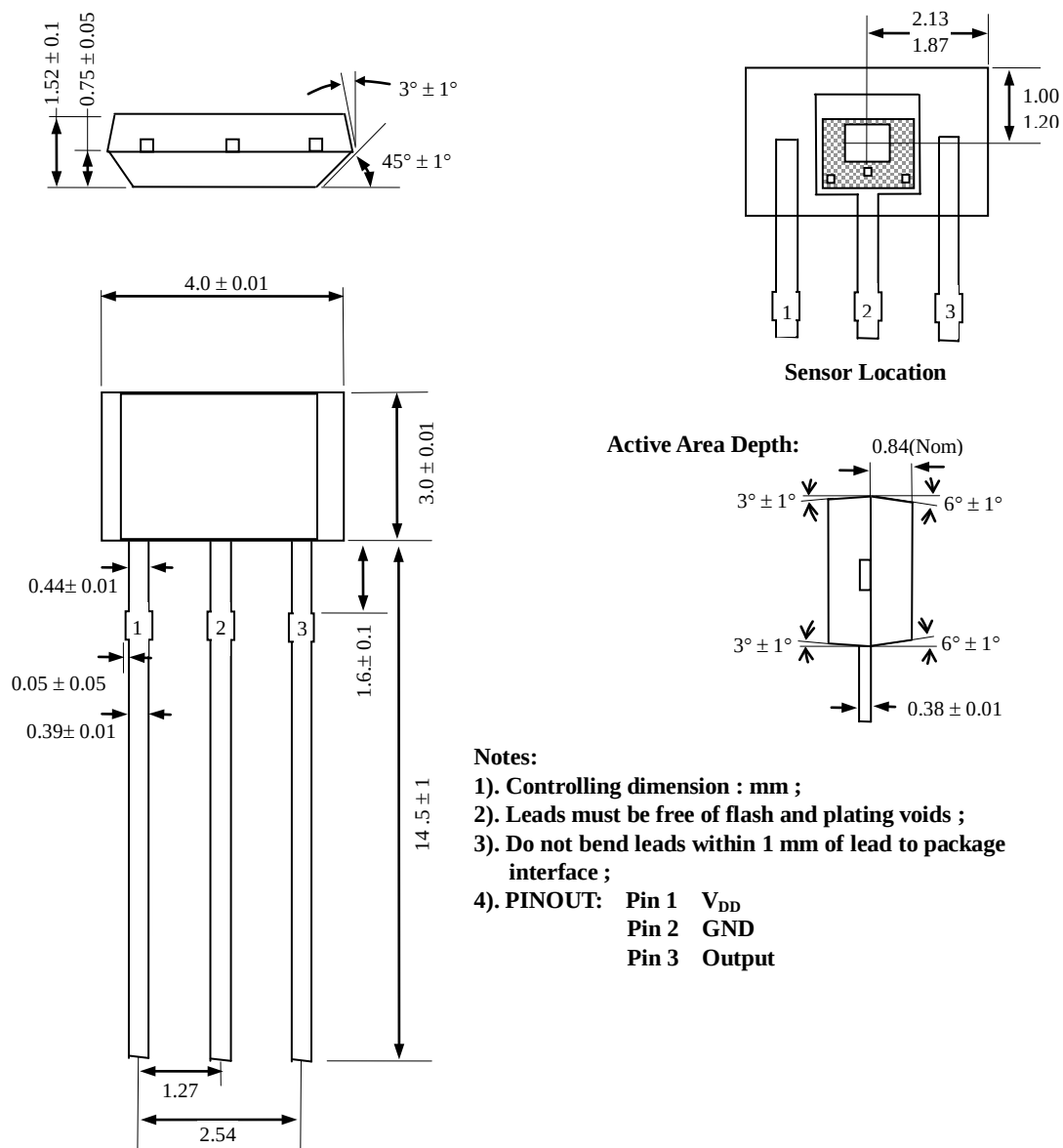
| Parameter                      | Symbol            | Test Conditions       | Min   | Typ    | Max   | Units |
|--------------------------------|-------------------|-----------------------|-------|--------|-------|-------|
| Operating voltage              | V <sub>CC</sub>   | Operating             | 3.0   |        | 6.5   | V     |
| Supply current                 | I <sub>CC</sub>   | Average               |       | 4.2    | 8.0   | mA    |
| Output Current                 | I <sub>OUT</sub>  |                       | 1.0   | 1.5    |       | mA    |
| Response Time                  | T <sub>ack</sub>  |                       |       | 3      |       | μs    |
| Quiescent Output Voltage       | V <sub>o</sub>    | B = 0G                | 2.25  | 2.5    | 2.75  | V     |
| Sensitivity                    | ΔV <sub>OUT</sub> | T <sub>A</sub> = 25°C | 2.0   | 2.5    | 3.0   | mV/G  |
| Min Output Voltage             |                   | B = -1500G            |       | 0.86   |       | V     |
| Max Output Voltage             |                   | B = 1500G             |       | 4.21   |       | V     |
| Linearity (% of Span)          |                   |                       |       | -0.007 |       |       |
| Temperature Error (Null Drift) |                   |                       | -0.10 |        | 0.10  | %/°C  |
| Sensitivity Drift              |                   | T <sub>A</sub> ≥ 25°C | -0.15 |        | 0.05  | %/°C  |
|                                |                   | T <sub>A</sub> < 25°C | -0.04 |        | 0.185 | %/°C  |

## Performance Characteristics



## Package Information

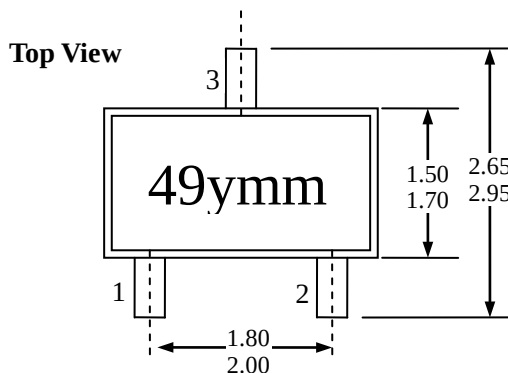
### Package UA, 3-Pin SIP:



#### Notes:

- 1). Controlling dimension : mm ;
- 2). Leads must be free of flash and plating voids ;
- 3). Do not bend leads within 1 mm of lead to package interface ;
- 4). PINOUT: Pin 1  $V_{DD}$   
Pin 2 GND  
Pin 3 Output

Package SO, 3-Pin SOT-23:

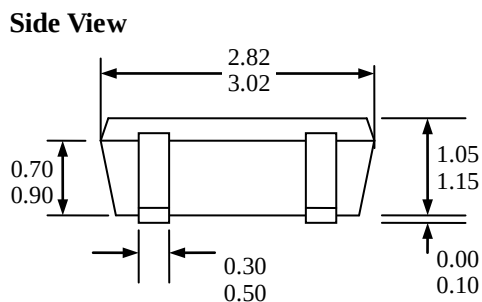


**Notes:**

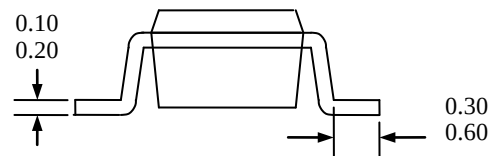
- 1). HNOOUT: Pin 1VDD  
Pin 2 Output  
Pin 3 GND
- 2). All dimensions are in millimeters ;

**Marking:**

49 -- Code of Device (49E ) ;  
y -- last 1 digit of year ;  
mm -- Production Lot ;

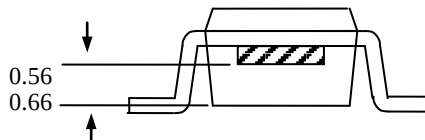
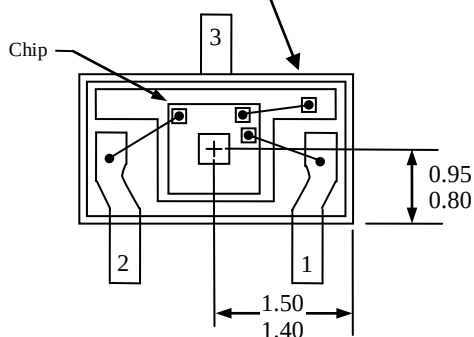


**End View**



**SOT-23 Hall plate location**

**Bottom View of SOT-23 Package**



## Ordering Information

| Part No. | Pb-free | Temperature Code | Package Code | Packing                       |
|----------|---------|------------------|--------------|-------------------------------|
| SS49EUA  | YES     | -40°C to 85°C    | TO-92        | Bulk, 1000 pieces/bag         |
| SS49ESOT | YES     | -40°C to 85°C    | SOT-23       | 7-in. reel, 3000 pieces/ reel |
| SS49KUA  | YES     | -40°C to 125°C   | TO-92        | Bulk, 1000 pieces/bag         |
| SS49KSOT | YES     | -40°C to 125°C   | SOT-23       | 7-in. reel, 3000 pieces/ reel |
| SS49LUA  | YES     | -40°C to 150°C   | TO-92        | Bulk, 1000 pieces/bag         |
| SS49LSOT | YES     | -40°C to 150°C   | SOT-23       | 7-in. reel, 3000 pieces/ reel |