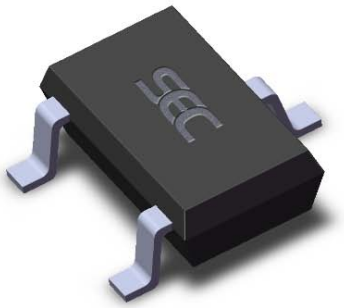
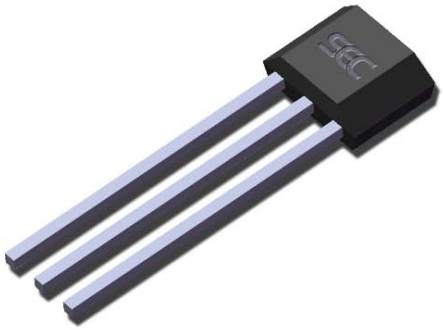
## Features

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

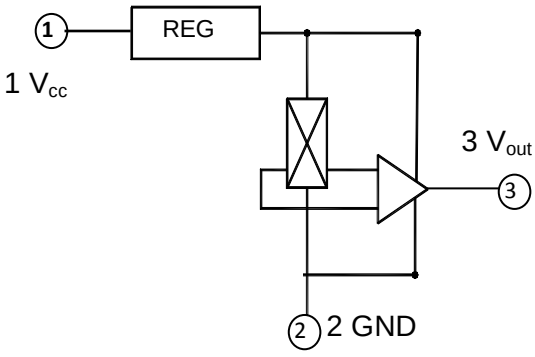


3 pin SOT23 (suffix SO)



3 pin SIP (suffix UA)

## Functional Block Diagram




## Application Examples

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

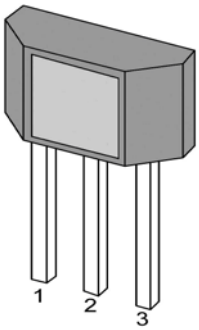
## General Description

SS657 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 output, 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.

## Glossary of Terms

| | |
|---|---|
| MilliTesla (mT), Gauss | Units of magnetic flux density: 1mT = 10 Gauss |
| RoHS | Restriction of Hazardous Substances |
| Operating Point ($B_{OP}$) | Magnetic flux density applied on the branded side of the package which turns the output driver ON ($V_{OUT} = V_{DSon}$) |
| Release Point ($B_{RP}$) | Magnetic flux density applied on the branded side of the package which turns the output driver OFF ($V_{OUT}$ = high) |

## Pin Definitions and Descriptions




| SOT Pin № | Name | Status | Description |
|---|---|---|---|
| 1 | VDD | P | Power Supply |
| 2 | OUT | P | IC Ground |
| 3 | GND | O | Output |

## Absolute Maximum Ratings

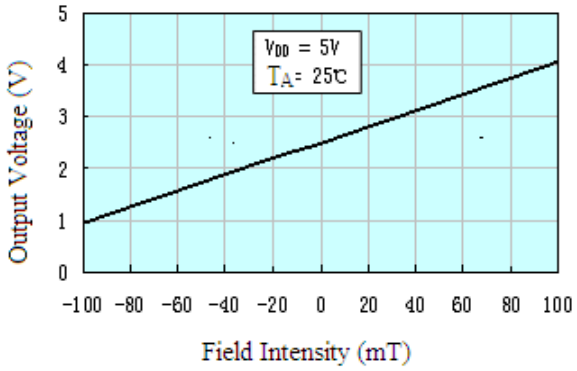
| Parameter | Symbol | Value | Units |
|---|---|---|---|
| Supply Voltage( operating) | $V_{CC}$ | 8.0 | V |
| Output Current | $I_{OUT}$ | 20 | mA |
| Operating Temperature Range | $T_A$ | -40 to 150 | ℃ |
| Storage Temperature Range | $T_S$ | -65 to 150 | ℃ |

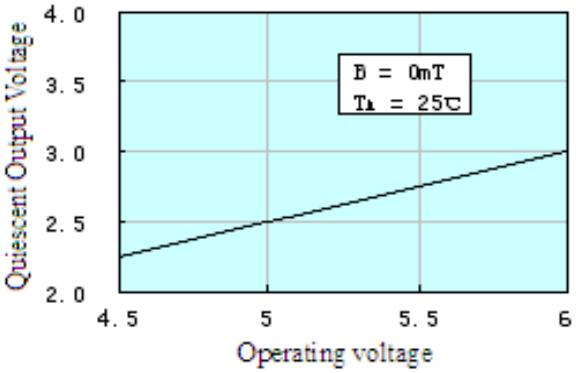
## Electrical Characteristics

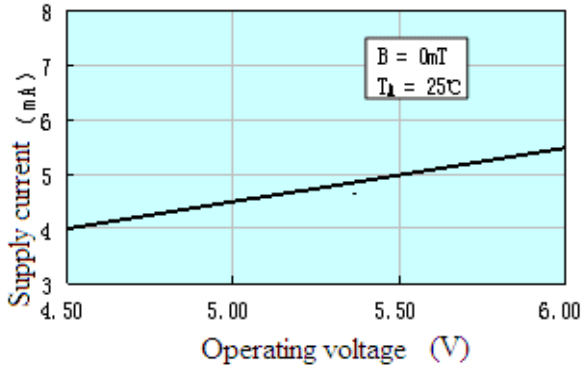
DC Operating Parameters $T_A$ = 25°C, $V_{CC}$= 5.0V

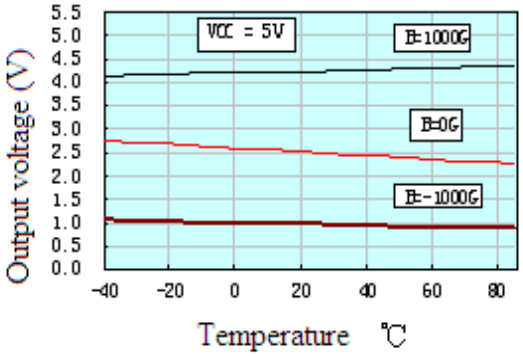
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| Operating Voltage | $V_{CC}$ | Operating | 3.0 | | 6.5 | V |
| Supply Current | $I_{CC}$ | Average | | 4.2 | 8.0 | mA |
| Output Current | $I_{OUT}$ | | 1.0 | 1.5 | | mA |
| Response Time | $T_{ack}$ | | | 3 | | μs |
| Quiescent Output Voltage | $V_O$ | B = 0G | 2.25 | 2.5 | 2.75 | V |
| Sensitivity | $\triangle V_{OUT}$ | $T_A$ =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 |

## Performance Characteristics



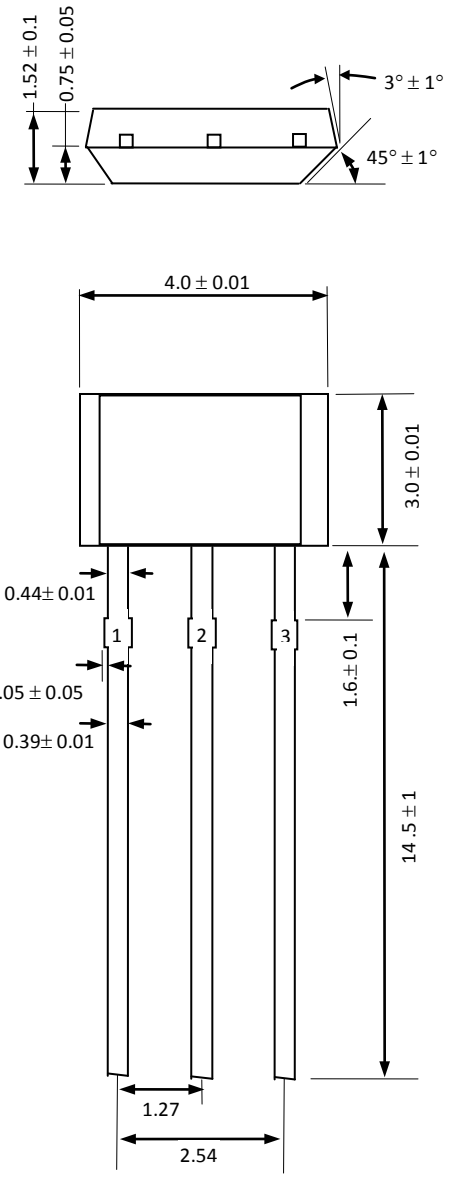



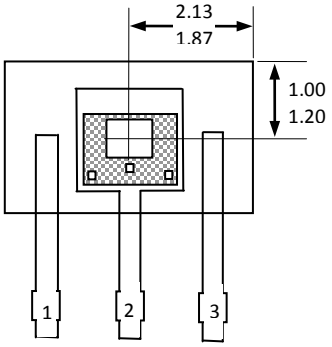



## Package Information

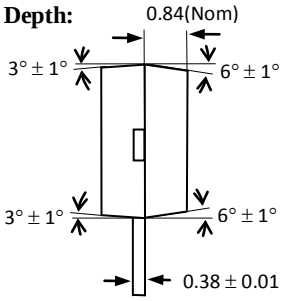
**Package UA, 3-Pin SIP:**




**Sensor Location**

**Active Area Depth:**




**Notes:**

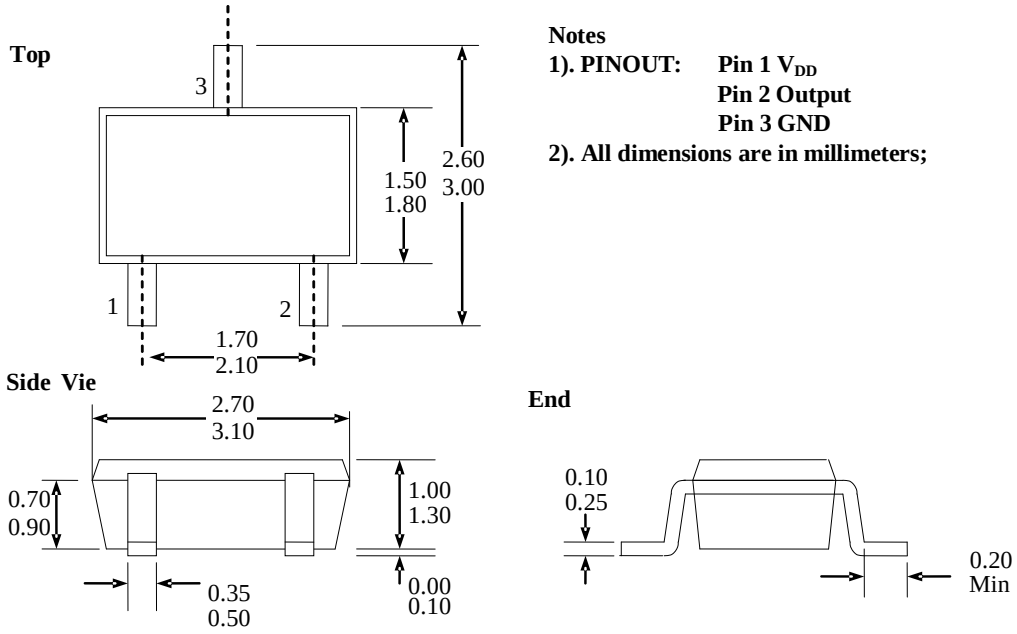
**1). Controlling dimension : mm ;**

**2). Leads must be free of flash and plating voids ;**

**3). Do not bend leads within 1 mm of lead to package interface ;**

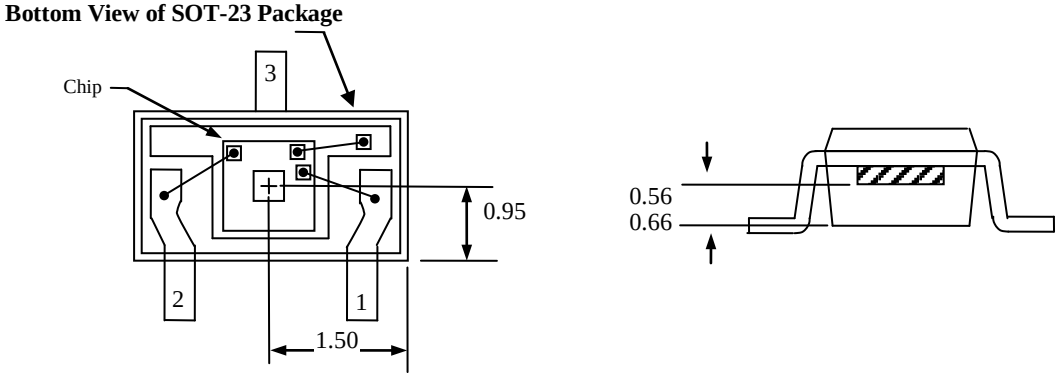
**4). PINOUT:** **Pin 1** $V_{DD}$
**Pin 2** **GND**
**Pin 3** **Output**

**Package SO, 3-Pin SOT-23:**




**Notes**
**1). PINOUT: Pin 1 $V_{DD}$**
**Pin 2 Output**
**Pin 3 GND**
**2). All dimensions are in millimeters;**

**Hall plate location**




## Ordering Information

| Part No. | Pb-free | Temperature Code | Package Code | Packing |
|---|---|---|---|---|
| SS657EUA | YES | E (-40°C to 85°C) | UA(TO-92) | Bulk, 1000 pieces/bag |
| SS657ESOT | YES | E (-40°C to 85°C) | SO（SOT-23） | 7-in. reel, 3000 pieces/ reel |
| SS657KUA | YES | E (-40°C to 125°C) | UA(TO-92) | Bulk, 1000 pieces/bag |
| SS657KSOT | YES | E (-40°C to 125°C) | SO（SOT-23） | 7-in. reel, 3000 pieces/ reel |
| SS657LUA | YES | E (-40°C to150°C) | UA(TO-92) | Bulk, 1000 pieces/bag |
| SS657LSOT | YES | E (-40°C to 150°C) | SO（SOT-23） | 7-in. reel, 3000 pieces/ reel |