

### Packages

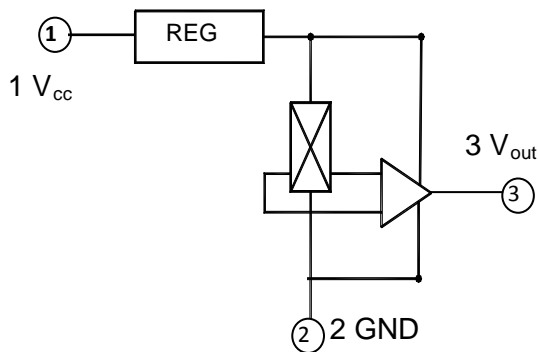


3 pin SIP (suffix UA)

### Features and Benefits

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

### Functional Block Diagram



### Application Examples

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

### General Description

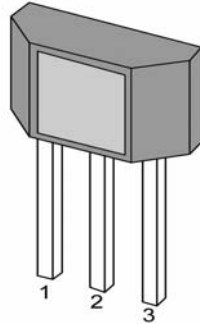
SS657 Linear Hall-effect sensor is small, versatile linear Hall-effect device that is operated by the magnetic field from a permanent magnet or an electromagnet. The linear sourcing output voltage is set by the supply voltage and varies in proportion to the strength of the magnetic field. The integrated 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

Table 1: Pin definitions and descriptions

### 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 85	°C
Storage Temperature Range	$T_S$	-65 to 150	°C

Table 2: Absolute maximum ratings

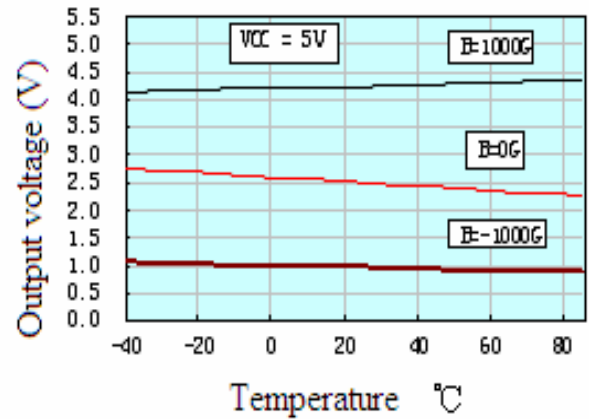
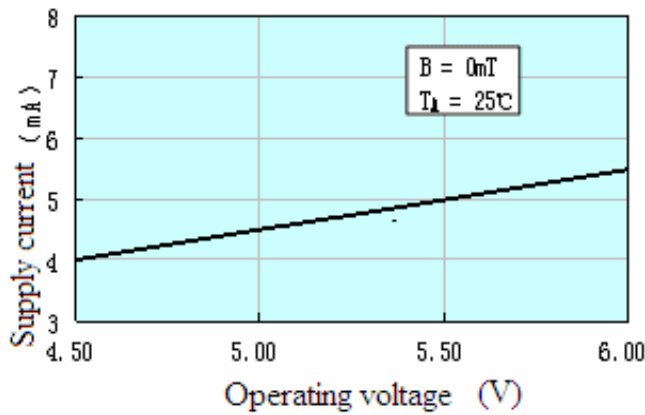
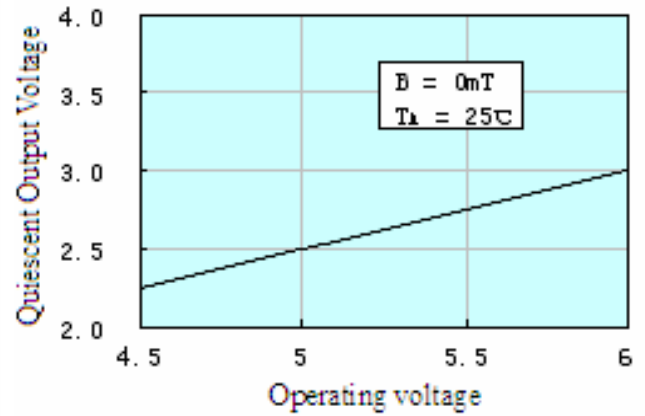
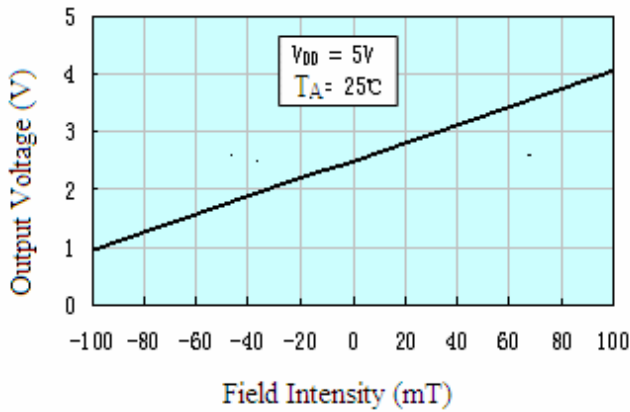
### Electrical Characteristics

DC Operating Parameters  $T_A = 25^\circ\text{C}$ ,  $V_{CC} = 5.0\text{V}$

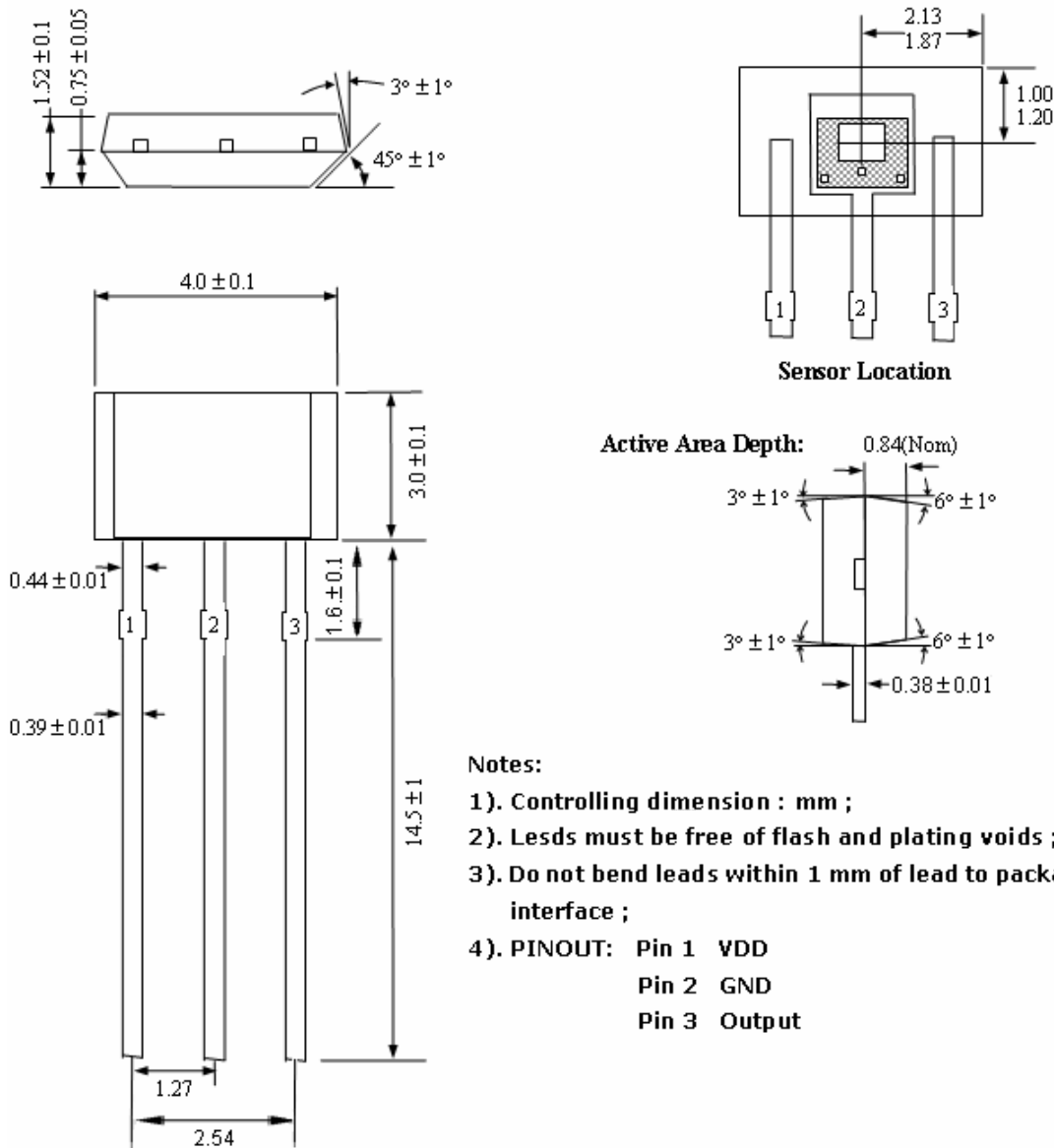
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Operating Voltage	$V_{CC}$	Operating	3.0		6.5	V
Supply Current	$I_{CC}$	Average		4.2	8.0	mA
Output Current	$I_{OUT}$		1.0	1.5		mA
Response Time	$T_{ack}$			3		$\mu\text{s}$
Quiescent Output Voltage	$V_O$	$B = 0\text{G}$	2.25	2.5	2.75	V
Sensitivity	$\Delta V_{OUT}$	$T_A = 25^\circ\text{C}$	1.6	1.8	2.0	mV/G
Min Output Voltage		$B = -1500\text{G}$		0.86		V
Max Output Voltage		$B = 1500\text{G}$		4.21		V

Table 3: Electrical Characteristics

### Performance Characteristics



**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 VDD  
Pin 2 GND  
Pin 3 Output

### 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
SS657KUA	YES	E (-40°C to 125°C)	UA(TO-92)	Bulk, 1000 pieces/bag
SS657LUA	YES	E (-40°C to 150°C)	UA(TO-92)	Bulk, 1000 pieces/bag