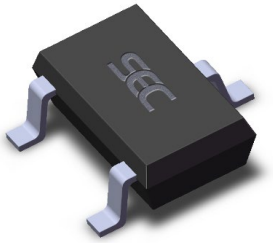
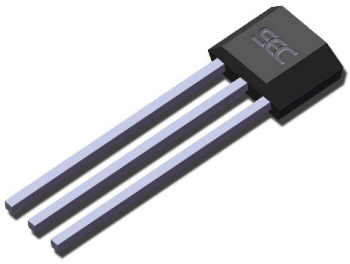
Packages



3 pin TSOT23 (suffix ST)



3 pin SIP (suffix UA)

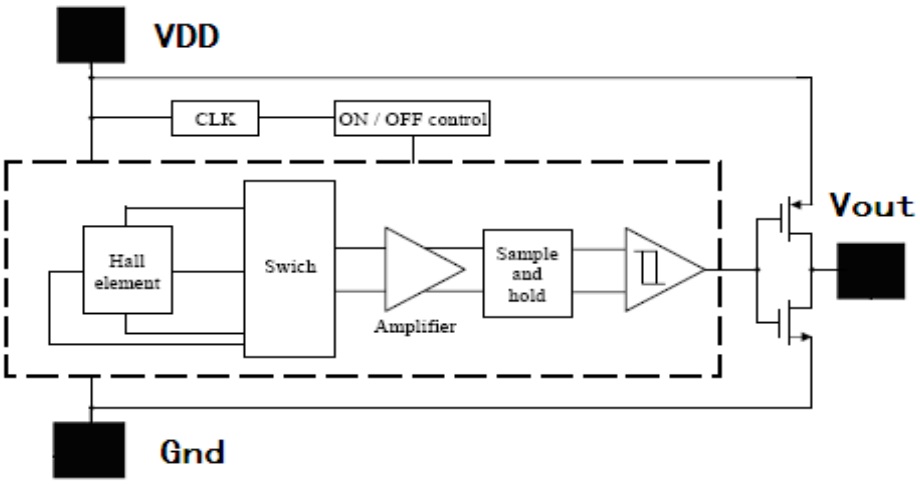
Features and Benefits

- 2.5V to 5.5V Operation
- -40°C to 150°C Superior temperature operation range
- CMOS technology
- Low current consumption
- Chopper-stabilized amplifier stage
- CMOS inverter output (no pull-up resistance need)
- High sensitivity
- Small Size TSOT23 3L or SIP 3L
  Both RoHS compliant packages

Application Examples

- Automotive, Consumer and Industrial
- Solid-state switch
- Magneto-electric conversion switch
  Magnet proximity sensor for reed switch replacement in low duty cycle applications
- Angular position detection
- Proximity detection
- Current detector

Functional Block Diagram

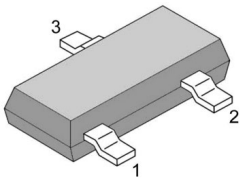


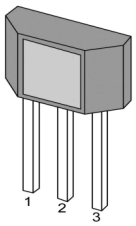
General Description

The SS1626 Hall effect sensor IC is fabricated from mixed signal CMOS technology. It incorporates advanced chopper-stabilization techniques to provide accurate and stable magnetic switch points.

The circuit design provides an internally controlled clocking mechanism to cycle power to the Hall element and analog signal processing circuits. This serves to place the high current-consuming portions of the circuit into a "Sleep" mode. Periodically the device is "Awakened" by this internal logic and the magnetic flux from the Hall element is evaluated against the predefined thresholds. If the flux density is above or below the Bop/Brp thresholds then the output transistor is driven to change states accordingly. While in the "Sleep" cycle the output transistor is latched in its previous state. The design has been optimized for service in applications requiring extended operating lifetime in battery powered systems.

Pin Definitions and Descriptions





TSOT Pin №	SIP Pin №	Name	Type	Function
1	1	V_{DD}	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	V_{DD}	5.5	V
Supply Current	I_{DD}	70	μA
Output Voltage	V_{OUT}	5.5	V
Output Current	I_{OUT}	5	mA
Operating Temperature Range	T_A	-40 to 150	°C
Storage Temperature Range	T_S	-65 to 170	°C
ESD Sensitivity		4000	V

Operating Temperature Range	Symbol	Value	Units
Temperature Suffix "E"	T_A	-40 to 85	°C
Temperature Suffix "K"	T_A	-40 to 125	°C
Temperature Suffix "L"	T_A	-40 to 150	°C

Exceeding the absolute maximum ratings may cause permanent damage. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

General Electrical Specifications

DC Operating Parameters T_A = 25°C, V_{DD}= 2.5V to 5.5V (unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Supply Voltage	V_{DD}	Operating	2.5	3	5.5	V
Supply Current	I_{DD}	B < B_{RP}		45		μA
Output Current	I_{OUT}			1.0		mA
Saturation Voltage	V_{SAT}	I_{OUT}=1mA		0.4		V
Awake mode time	T_{AW}	Operating		20		μs
Sleep mode time	T_{SL}	Operating			600	μs

Magnetic Specifications

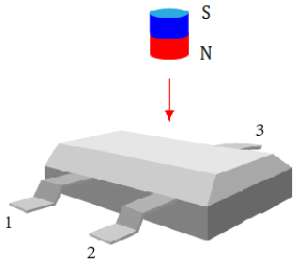
Package	Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
UA	Operating Point	B_{OP}	T_a=25°C,V_{dd}=12V DC	30	60	100	G
	Release Point	B_{RP}		10	50	80	G
	Hysteresis	B_{HYST}			30		G
ST	Operating Point	B_{OP}	T_a=25°C,V_{dd}=12V DC	-100	-60	-30	G
	Release Point	B_{RP}		-80	-50	-10	G
	Hysteresis	B_{HYST}			30		G

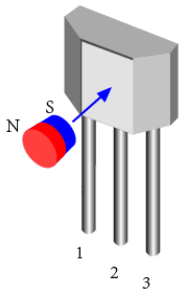
Output Behavior versus Magnetic Pole

DC Operating Parameters T_A = -40°C to 150°C, V_{DD} = 2.5V to 5.5V (unless otherwise specified)

Test Conditions (UA)	Test Conditions (ST)	OUT
B < B_{RP}	B > B_{RP}	High
B > B_{OP}	B < B_{OP}	Low

The SOT-23 device is reversed from the UA package. The SOT-23 output transistor will be turned on(drops low) in the presence of a sufficiently strong North pole magnetic field applied to the marked face.



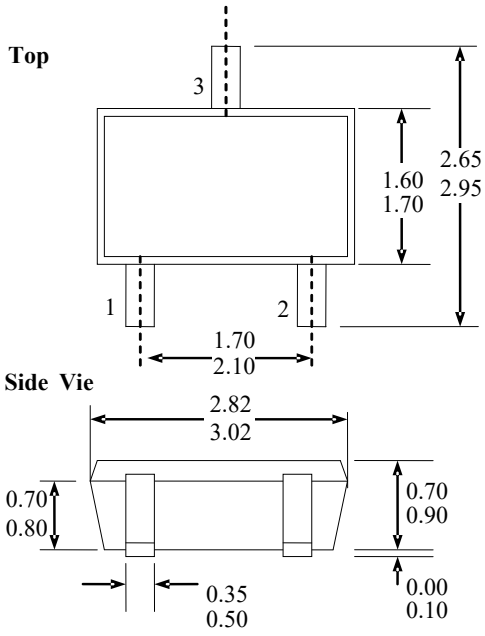


ESD Precautions

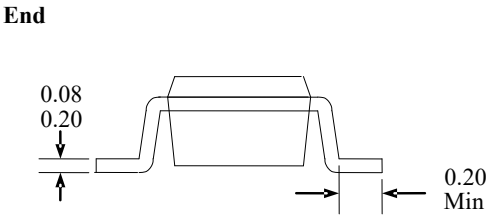
Electronic semiconductor products are sensitive to Electro Static Discharge (ESD).
Always observe Electro Static Discharge control procedures whenever handling semiconductor products.

Package Information

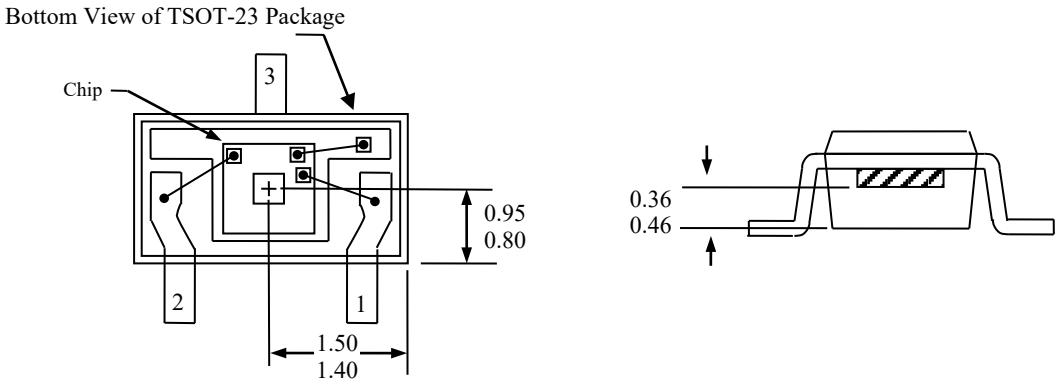
TSOT-23 Package Physical Characteristics



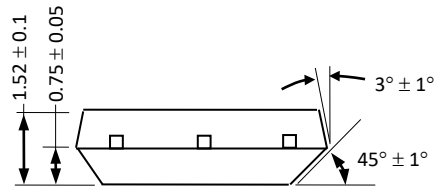
Notes
1). PINOUT: Pin 1 V_{DD}
Pin 2 Output
Pin 3 GND
2). All dimensions are in millimeters;

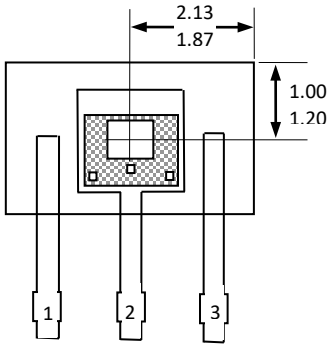


Hall plate location

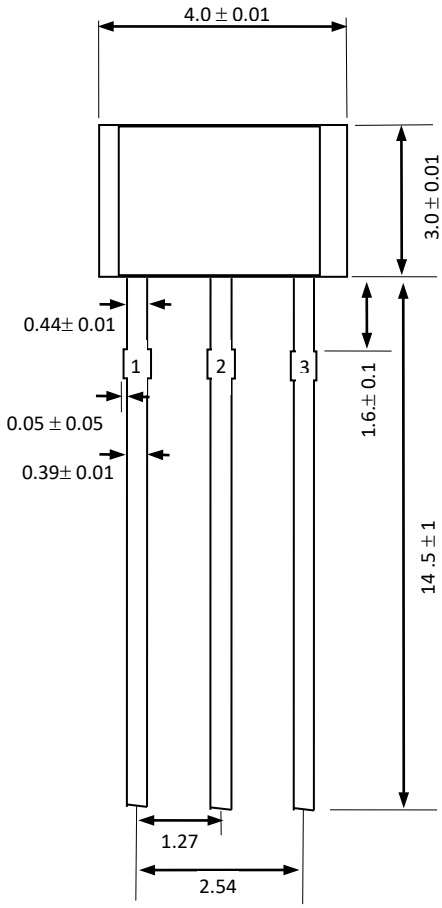


TO-92 Package Physical Characteristics

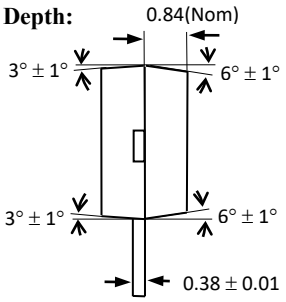




Sensor Location



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

Ordering Information

Part No.	Pb-free	Temperature Code	Package Code	Packing
SS1626ESTT	YES	-40°C to 85°C	TSOT-23	7-in. reel, 3000 pieces/reel
SS1626EUA	YES	-40°C to 85°C	TO-92	Bulk, 1000 pieces/bag
SS1626KSTT	YES	-40°C to 125°C	TSOT-23	7-in. reel, 3000 pieces/reel
SS1626KUA	YES	-40°C to 125°C	TO-92	Bulk, 1000 pieces/bag
SS1626LSTT	YES	-40°C to 150°C	TSOT-23	7-in. reel, 3000 pieces/reel
SS1626LUA	YES	-40°C to 150°C	TO-92	Bulk, 1000 pieces/bag