SS495
Linear Hall Effect Sensor

Features

Miniature construction
Low-Noise Output
Good Consistency
High sensitivity
High reliability
4.5 V to 10.5 V Operation Voltages
Magnetically Optimized Package
Linear output for circuit design flexibility
Temperature range from -40 °C to 150 °C

3 pin SIP (suffix UA)

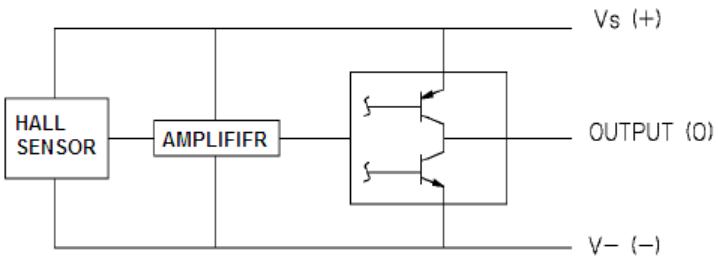
Description

SS495 Linear Hall-effect sensor is a 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. Specifically, when S495 is in the zero magnetic field conditions, the output voltage is half of the supply voltage. When south poles approach the S495 marking surface, the output voltage will increase linearly with the magnetic field strength; on the other hand, north pole will cause output voltage decreases linearly with the increase in magnetic field strength. 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.

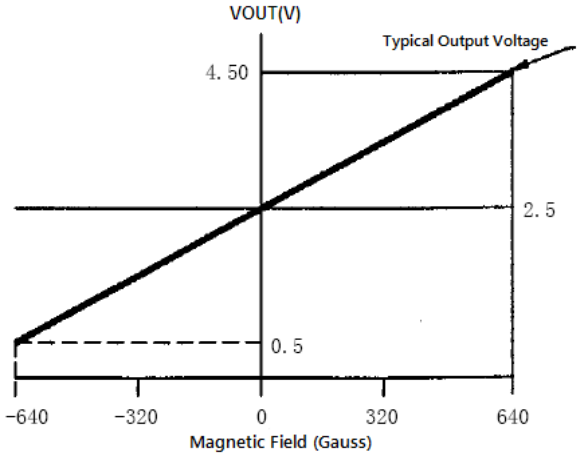
Typical Applications

Electric vehicles speed regulation pedal
Motion detector
Gear sensing
Motor control
Magnetic code reading
Ferrous metal detector
Current sensing
Position sensing
Proximity detector

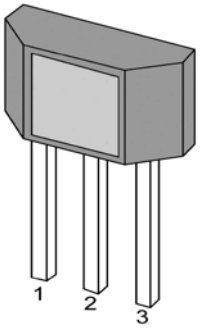
Functional Block Diagram



Magnetic Electric Conversion Curve



Pin Definitions and Descriptions



Name	No	Status	Description
Vdd	1	P	Power Supply
Gnd	2	P	IC Ground
Output	3	O	Output

Absolute Maximum Ratings

Parameter	Symbol	Value	Units
Supply Voltage (operating)	V_{CC}	10.5	V
Output Current	I_{OUT}	2	mA
Operating Temperature Range	T_A	-40~150	℃
Storage Temperature Range	T_S	-65~150	℃

Electrical Characteristics（TA =25℃， VCC =5.0V）

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Operating Voltage	V_{CC}	Operating	4.5	5	10.5	V
Supply Current	I_{CC}	Average		5	8.0	mA
Output Current	I_{OUT}		1.0	1.5		mA
Response Time	Tack			3		uS
Quiescent Output Voltage	Vo	B=0G		2.5		V
Sensitivity	△Vout	T_A=25℃	3.0	3.3	3.6	mV/G
Min Output Voltage		B=-700G		0.2		V
Max Output Voltage		B=700G		4.8		V

Magnetic Field Characteristics

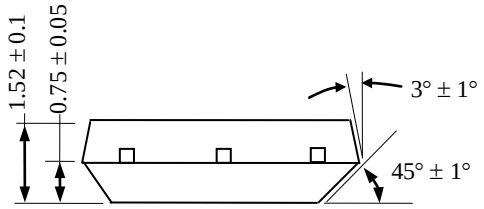
Parameter	Test Conditions	Min	Typ	Max	Units
Sensitivity	T_A=25℃	3.0	3.3	3.6	mV/G
Range of magnetic field strength		±650	±700		G
Linearity			- 1.0		%
Operating Temperature		-40		+150	℃
Zero drift		- 0.10		0.10	%/℃
Sensitivity temperature drift	T_A≥25℃	- 0.15		0.05	%/℃
	T_A<25℃	- 0.04		0.185	%/℃

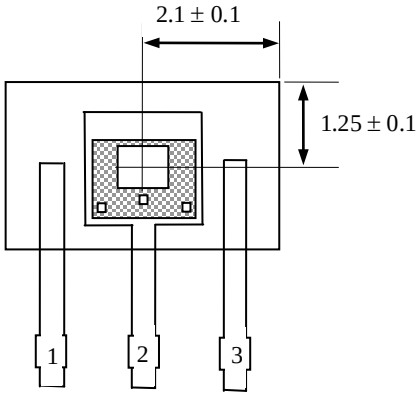
Installation Caution:

1. Should be installed by minimizing the mechanical stress on the Hall circuit;
2. On the conditions of ensuring the quality of the welding, the welding temperature and time should be reduced as far as possible.

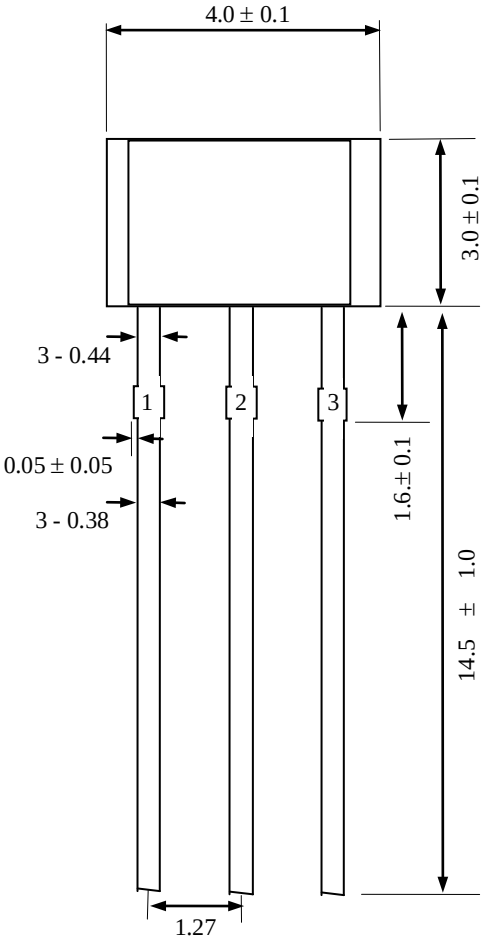
Package Information

Package UA, 3-Pin SIP (Unit:mm):

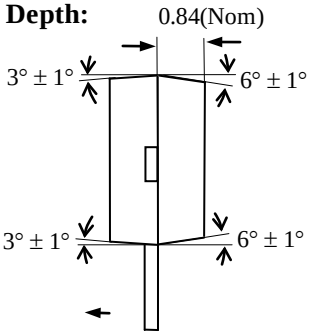




Hall Plate Location



Active Area Depth:



Notes:

1. **Controlling dimension : mm ;**
2. **Lesds 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
SS495UA	YES	-40°C to 85°C	TO-92	Bulk, 1000 pieces/bag
SS49KUA	YES	-40°C to 125°C	TO-92	Bulk, 1000 pieces/bag
SS49LUA	YES	-40°C to 150°C	TO-92	Bulk, 1000 pieces/bag