

## 4.5-10.5V $V_{CC}$ Hall Effect Sensor

### 1. Description

SS495A Economical 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. Specifically, when it is in the zero magnetic field conditions, the output voltage is half of the supply voltage. When south poles approach the SS495A 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 resists 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

### 2. Features

- Low power consumption
- Higher sensitivity and accuracy
- RoHS-compliant material meets directive 2011/65/EU
- Higher reliability
- Package: T0-92S
- Operating temperature range: -40 to +150 °C

### 3. Applications

- Proximity detector
- Electric car speed pedal
- Gear sensor
- Motor control
- Current detection sensor
- Rotary encoder

### 4. Package Information

Part Number	Marking	Description
SS495A	95A	Flat, TO-92S package, bulk packing (1000 units per bag)

Table-1 Package Information

## 5. Pin Configuration and Functions

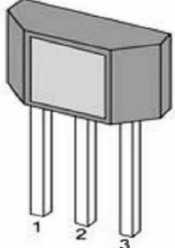
Name	Number	Description	Outline
V <sub>DD</sub>	1	Supply Voltage Pin	
GND	2	Ground terminal	
OUT	3	Collector Output pin	

Table-2 Pin configuration

## 6. Specification

### 6.1 Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameter	Symbol	Value	Units
Supply Voltage	V <sub>CC</sub>	10.5	V
Output Current	I <sub>OUT</sub>	2.0	mA
Operating Ambient Temperature	T <sub>A</sub>	-40 to 150	°C
Storage Temperature	T <sub>s</sub>	-65 to 150	°C

Table-3 Absolute Maximum rating

## 6.2 ESD Protection

Parameter	Value	Unit
HBM (human body mode, C=100pF, R=1.5 kohm)	+/-5500	V

Table-4 ESD Protection

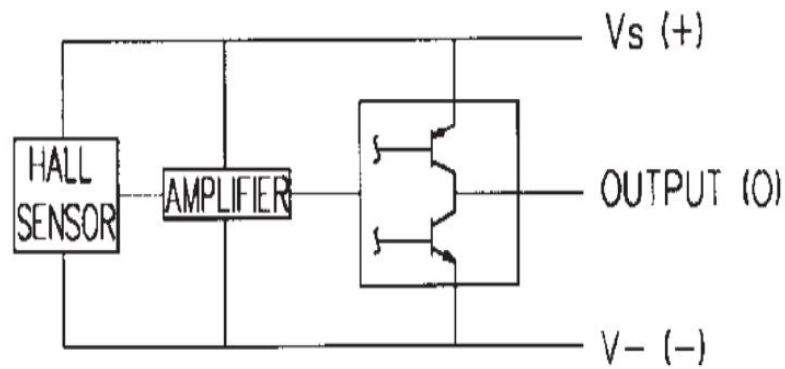
## 6.3 Electric Characteristics

(At  $V_{CC} = 5.0V$ ,  $T_A = -40^{\circ}C$  to  $+150^{\circ}C$ .)

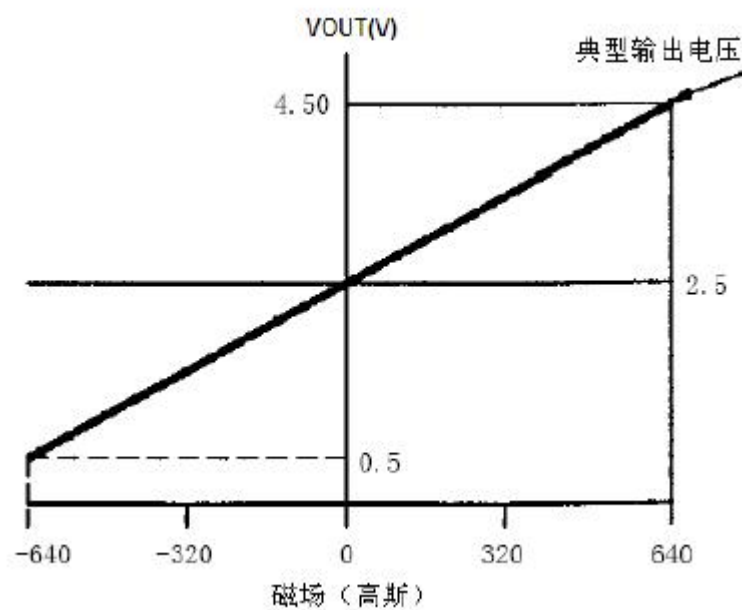
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
$V_{CC}$	Operating voltage	Operating	4.5	5.0	10.5	V
$I_{CC}$	Supply Current	Average		5.0	8.0	mA
$I_{OUT}$	Output Current		1.0	1.5		mA
$T_{ACK}$	Response Time			3.0		us
$V_O$	Quiescent Output Voltage	B=0G	2.35	2.50	2.65	V
	Min Output Voltage	B=-700Gs			0.2	V
	Max Output Voltage	B=700Gs	4.8( $V_{CC}-0.2$ )			V
Magnetic Characteristics	Sensitivity	$T_A=25^{\circ}C$	2.8	3.3	3.8	mV/G
	Magnetic Range	$T_A=25^{\circ}C$	$\pm 650$	$\pm 700$		Gauss
	Linearity	$T_A=25^{\circ}C$		-1.0		(% of Span)
	Null Drift		-0.10		0.10	%/ $^{\circ}C$
	Sensitivity Drift	$T_A \geq 25^{\circ}C$	-0.15		0.05	%/ $^{\circ}C$
	Sensitivity Drift	$T_A < 25^{\circ}C$	-0.04		0.185	

Table-5 Electric Characteristics

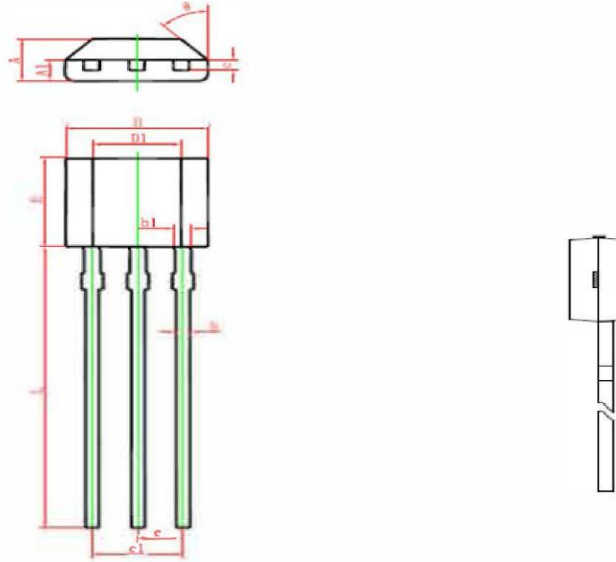
## 7. Functional Block Diagram



## 8. Typical Output Waveform



## 9. Dimension (TO-92S)



Dimension; mm

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.420	1.620	0.056	0.064
A1	0.660	0.860	0.026	0.034
b	0.350	0.480	0.014	0.019
b1	0.400	0.550	0.016	0.022
c	0.360	0.510	0.014	0.020
D	3.900	4.100	0.154	0.161
D1	2.280	2.680	0.090	0.106
E	3.050	3.250	0.120	0.128
e	1.270 TYP.		0.050 TYP.	
e1	2.440	2.640	0.096	0.104
L	15.100	15.500	0.594	0.610
θ	45° TYP.		45° TYP	

**DISCLAIMER**

ELECSUPER PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with ElecSuper products. You are solely responsible for

- (1) selecting the appropriate ElecSuper products for your application;
- (2) designing, validating and testing your application;
- (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. ElecSuper grants you permission to use these resources only for development of an application that uses the ElecSuper products described in the resource. Other reproduction and display of these resources are prohibited. No license is granted to any other ElecSuper intellectual property right or to any third party intellectual property right. ElecSuper disclaims responsibility for, and you will fully indemnify ElecSuper and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources. ElecSuper's products are provided subject to ElecSuper's Terms of Sale or other applicable terms available either on [www.elecsuper.com](http://www.elecsuper.com) or provided in conjunction with such ElecSuper products. ElecSuper's provision of these resources does not expand or otherwise alter ElecSuper's applicable warranties or warranty disclaimers for ElecSuper products.