3.0-7.0V V_{CC} Hall Effect Sensor

1. Description

SS49EUA 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 SS49EUA 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 resistors to provide increased temperature stability and accuracy. The linear Hall sensor has an operating temperature range of -40 °C to 100 °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 +100 °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
SS49EUA	49E	Flat, TO-92S package, bulk packing (1000 units per bag)

Table-1 Package Information

5. Pin Configuration and Functions

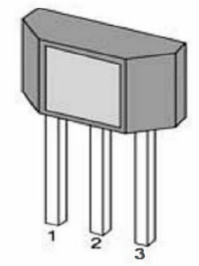
Name	Number	Description	Outline
V_{DD}	1	Supply Voltage Pin	
GND	2	Ground terminal	
OUT	3	Collector Output pin	

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_{CC}	15	V
Output Current	I_{OUT}	10	mA
Operating Ambient Temperature	T_A	-40 to 100	℃
Storage Temperature	T_s	-65 to 150	℃

Table-3 Absolute Maximum rating

6.2 ESD Protection

Parameter	Value	Unit
HBM (human body mode, C=100pF, R=1.5 kohm)	+/-4000	V

Table-4 ESD Protection

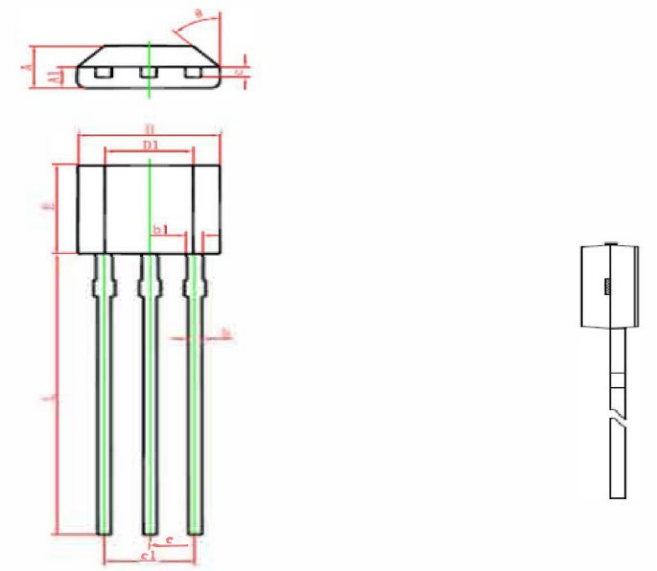
6.3 Electric Characteristics

(At Vcc = 5.0V, TA = -40°C to +150°C.)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{CC}	Operating voltage	Operating	3.0		7.0	V
I_{CC}	Supply Current	Average		6.0	10.0	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		0.80		0.95	V
	Max Output Voltage		4.2			V
Magnetic Characteristics	Sensitivity	T_A=25°C	1.5	2.0	2.5	mV/G
	Magnetic Range	T_A=25°C	±650	±1000		Gauss

Table-5 Electric Characteristics

7. 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	

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