Pin Configuration

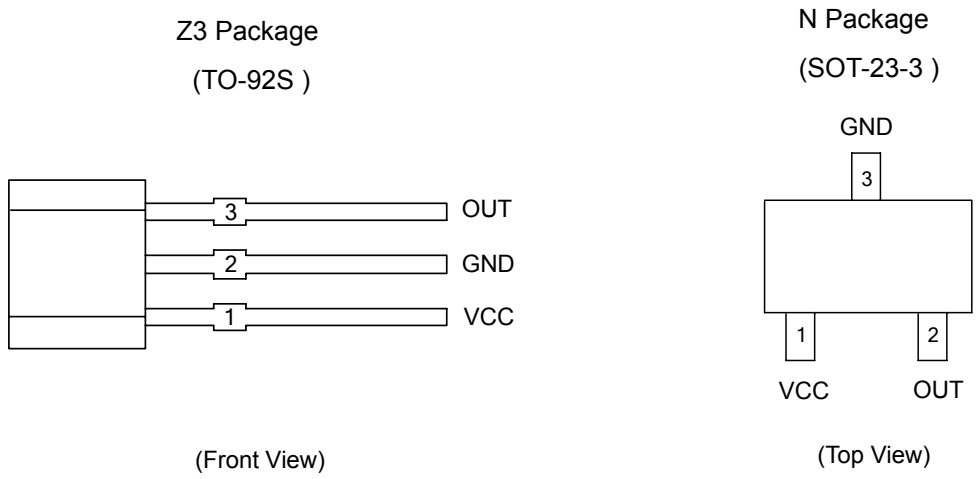
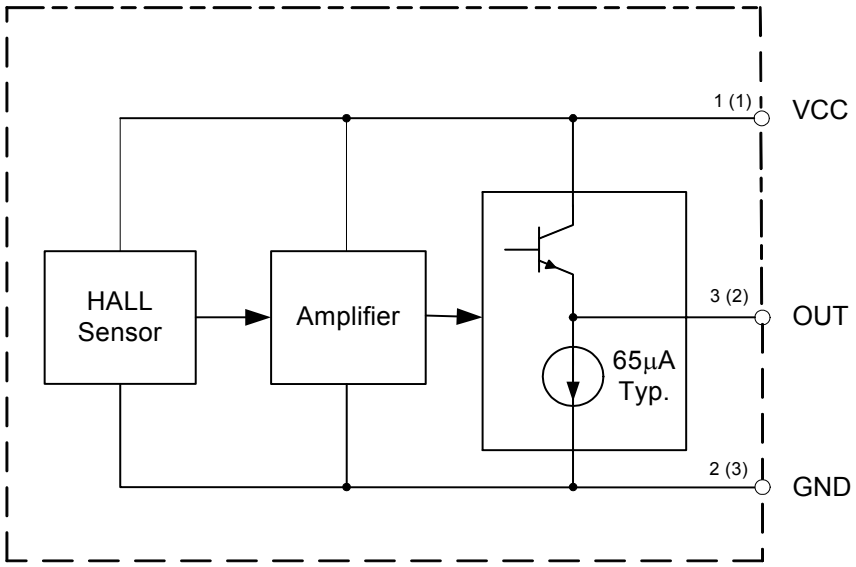


Figure 2. Pin Configuration of AH49E

Pin Description

Pin Number		Pin Name	Function
TO-92S	SOT-23-3		
1	1	VCC	Supply voltage
2	3	GND	Ground pin
3	2	OUT	Output

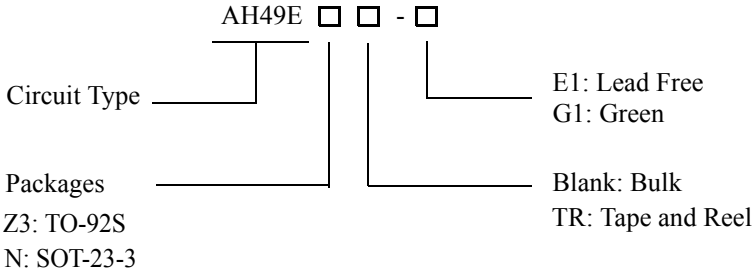
Functional Block Diagram



A (B)
A for TO-92S
B for SOT-23-3

Figure 3. Functional Block Diagram of AH49E

Ordering Information



Package	Temperature Range	Part Number		Marking ID		Packing Type
		Lead Free	Green	Lead Free	Green	
TO-92S	-40 to 85°C	AH49EZ3-E1	AH49EZ3-G1	AH49E	AH49G	Bulk
SOT-23-3			AH49ENTR-G1		GJ1	Tape & Reel

BCD Semiconductor's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with "G1" suffix are available in green package.

Absolute Maximum Ratings (Note 1)

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	8	V
Output Current	I_O	10	mA
Operating Temperature	T_A	-40 to 100	°C
Storage Temperature Range	T_{STG}	-50 to 150	°C
ESD (Human Body Model)		3000	V

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V_{CC}	3.0	6.5	V
Operating Temperature	T_{OP}	-40	85	°C

Electrical Characteristics

(V_{CC}=5V, T_A=25°C, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Current	I_{CC}			3.5	4.5	mA
Quiescent Output Voltage	V_{NULL}	@ B=0GS	2.25	2.5	2.75	V
Output Voltage Sensitivity		B=0GS to ±1000GS	1.1	1.6	2.1	mV/GS
Output Voltage Span	V_{OS}		1.0 to (V_{CC}-1.0)	0.8 to (V_{CC}-0.8)		V
Output Resistor	R_O			60	120	Ω
Magnetic Field Range	B		±650	±1000		GS
Linearity of Span				0.7		%
Output Noise		BW=10Hz to 10kHz		90		μV

Transfer Characteristics (V_{CC}=5V)

When there is no outside magnetic field (B=0GS), the quiescent output voltage is one-half the supply voltage in general.

For TO-92S package, if a south magnetic pole approches to the front face (the side with marking ID) of the Hall effect sensor, the circuit will drive the output voltage higher. Contrary, a north magnetic pole will drive the output voltage lower. The variations of voltage level up or down are symmetrical. Due to SOT-23-3 is reversed packaging with TO-92S, so the magnetic performance is also reversed. Therefor, if the reversed magnetic pole approches to the front face (the side with marking ID), the output is the same as TO-92S package.

.

Greatest magnetic sensitivity is obtained with a supply voltage of 6V, but at the cost of increased supply current and a slight loss of output symmetry. So, it is not recommended to work in such condition unless the output voltage magnitude is a main issue. The output signal can be capacitively coupled to an amplifier for boosting further if the changing frequency of the magnetic field is high.

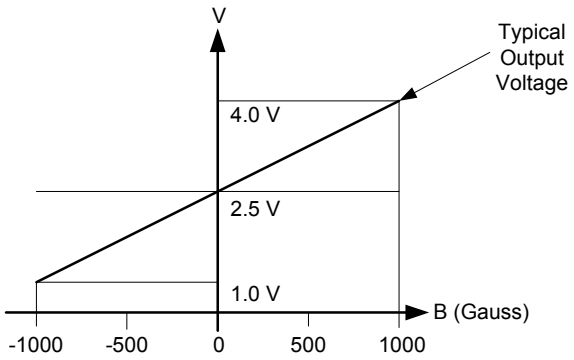
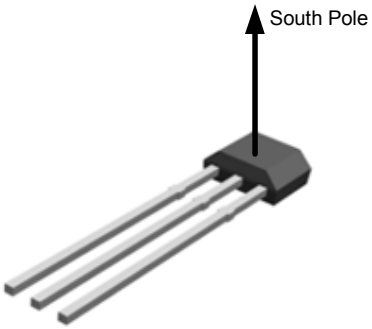
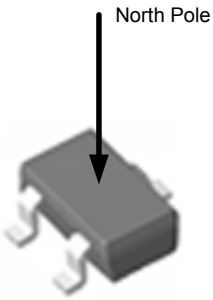


Figure 4. The Transfer Characteristics of AH49E



TO-92S Package



SOT-23-3 Package

Typical Performance Characteristics

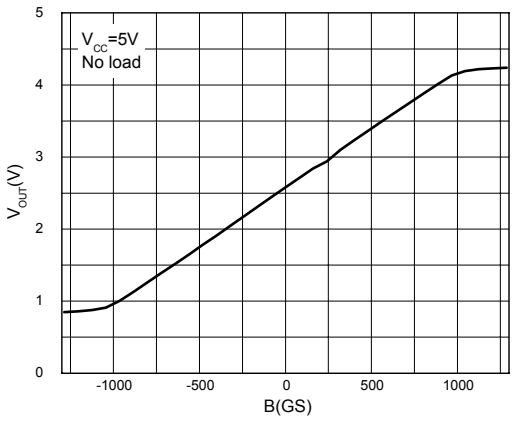


Figure 5. Output Voltage vs. Magnetic Field

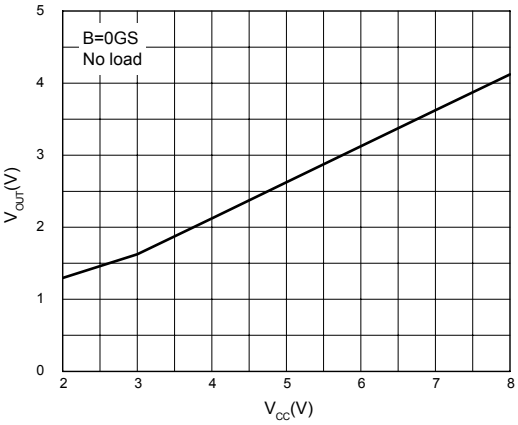


Figure 6. Output Voltage vs. Supply Voltage

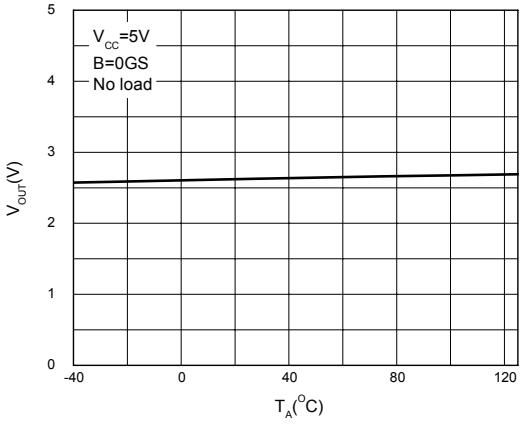
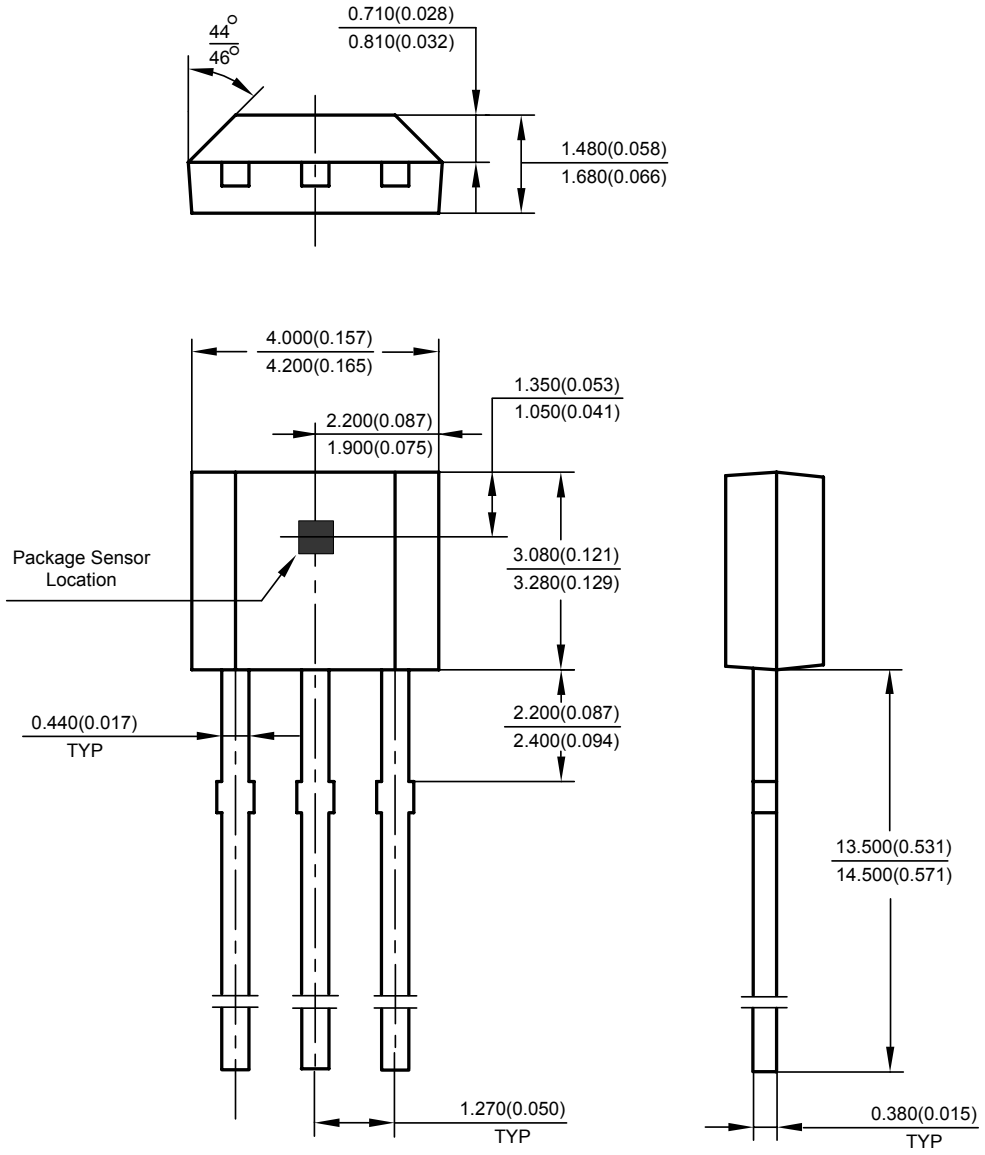


Figure 7. Output Voltage vs. Ambient Temperature

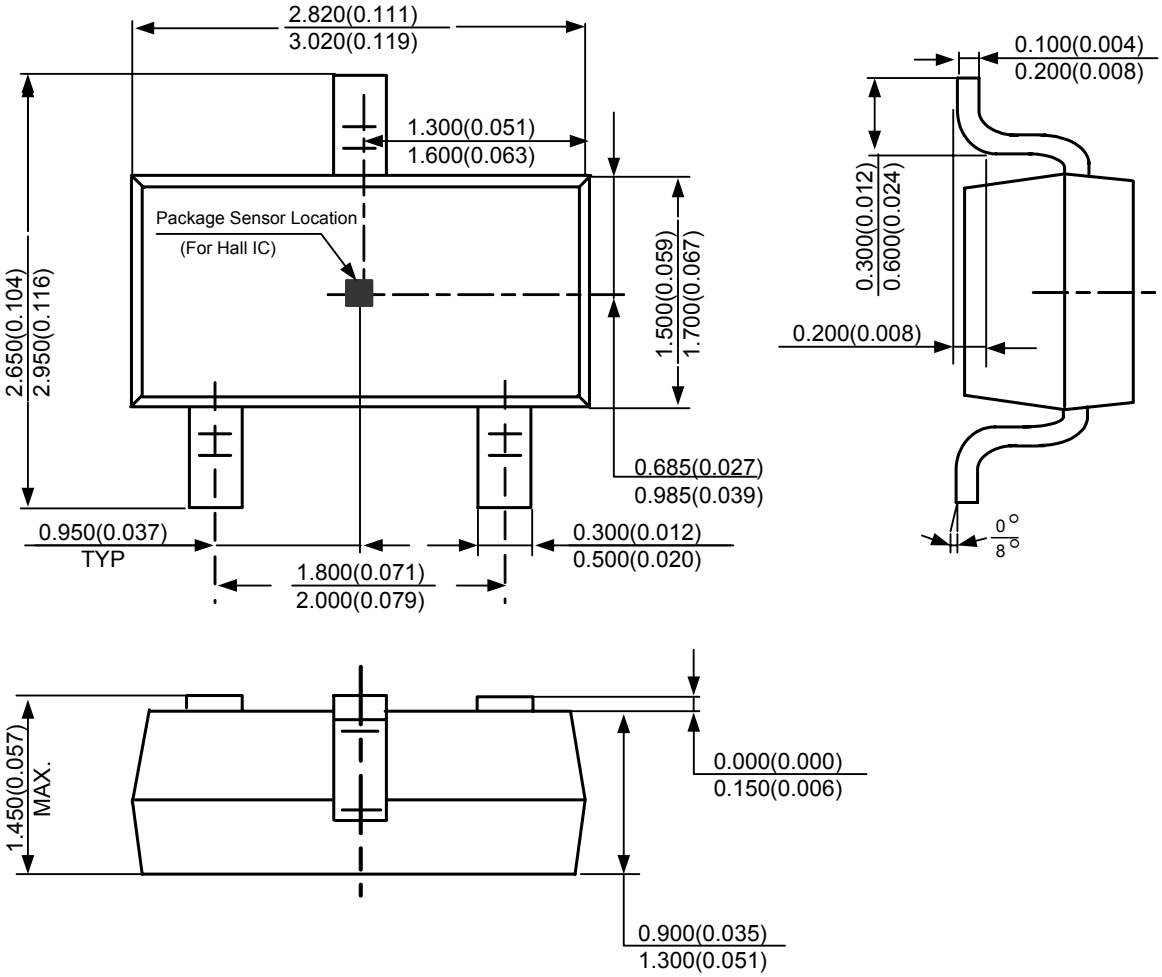
Mechanical Dimensions

TO-92S **Unit: mm(inch)**



Mechanical Dimensions (Continued)

SOT-23-3 **Unit: mm(inch)**



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