

## Installation Instructions for the Low-cost, Bipolar Digital Hall-effect Sensor ICs: SS41G

50028377  
Issue C

### GENERAL INFORMATION

#### CAUTION ELECTROSTATIC DISCHARGE DAMAGE

Ensure proper ESD precautions are followed when handling this product.

**Failure to comply with these instructions may result in product damage.**



### CLEANING

#### CAUTION IMPROPER CLEANING

Do not use pressure wash. High-pressure stream could force contaminants into the package.

**Failure to comply with these instructions may result in product damage.**

Use agitated rinse to clean the sensor.

**Table 2. Absolute Maximum Specifications**

Characteristic	Min.	Typ.	Max.	Unit
Supply voltage	-50.0	—	50.0	V
Applied output voltage	-0.5	—	50.0	V
Output current	—	—	20	mA
Magnetic flux	—	—	no limit	Gauss

#### NOTICE

Absolute maximum ratings are the extreme limits the device will momentarily withstand without damage to the device. Electrical and mechanical characteristics are not guaranteed if the rated voltage and/or currents are exceeded, nor will the device necessarily operate at absolute maximum ratings.

### SOLDERING/ASSEMBLY

#### CAUTION IMPROPER SOLDERING

- Ensure leads are adequately supported during any forming/shearing operation so that they are not stressed inside the plastic case.
- Limit exposure to high temperatures.

**Failure to comply with these instructions may result in product damage.**

See Table 1 for soldering information.

**Table 2. Electrical and Environmental Specifications**

(At  $V_{\text{supply}} = 4.5 \text{ Vdc}$  to  $24.0 \text{ Vdc}$ ,  $20 \text{ mA}$  load,  $T_A = -40 \text{ }^\circ\text{C}$  to  $150 \text{ }^\circ\text{C}$  [ $-40 \text{ }^\circ\text{F}$  to  $302 \text{ }^\circ\text{F}$ ] except where otherwise specified.)

Characteristic	Condition	Min.	Typ.	Max.	Unit
Supply voltage	—	4.5	—	24.0	Vdc
Supply current:					
output off	—	—	6.8	10.0	mA
output on	—	—	—	11.3	
Output current	—	—	—	20.0	mA
$V_{\text{sat}}$ at 20 mA	$V_{\text{supply}} = 12.0 \text{ Vdc}$ , $\text{Brp} \geq 170$ , $25 \text{ }^\circ\text{C}$ [ $77 \text{ }^\circ\text{F}$ ]	—	—	0.4	V
Output leakage current	$V_{\text{supply}} = 24.0 \text{ Vdc}$ , $\text{Brp} \leq -170$	—	—	10.0	$\mu\text{A}$
Rise time	$25 \text{ }^\circ\text{C}$ [ $77 \text{ }^\circ\text{F}$ ]	—	0.5	1.5	$\mu\text{s}$
Fall time	$25 \text{ }^\circ\text{C}$ [ $77 \text{ }^\circ\text{F}$ ]	—	0.2	1.5	$\mu\text{s}$
Magnetic characteristics:					
operate (Bop)	$25 \text{ }^\circ\text{C}$ [ $77 \text{ }^\circ\text{F}$ ]	—	40	150	Gauss
operate (Bop)	—	—	—	250	
release (Brp)	$25 \text{ }^\circ\text{C}$ [ $77 \text{ }^\circ\text{F}$ ]	-140	-40	—	
release (Brp)	—	-250	—	—	
differential	—	40	—	—	
Operating temperature	—	-40 [ $-40$ ]	—	150 [ $302$ ]	$^\circ\text{C}$ [ $^\circ\text{F}$ ]
Storage temperature	—	-40 [ $-40$ ]	—	150 [ $302$ ]	$^\circ\text{C}$ [ $^\circ\text{F}$ ]
ESD (Human Body Model)	per JEDEC JS-001	-3	—	+3	kV
Soldering temperature and time	PC board wave soldering process: $250 \text{ }^\circ\text{C}$ to $260 \text{ }^\circ\text{C}$ [ $482 \text{ }^\circ\text{F}$ to $500 \text{ }^\circ\text{F}$ ] for 3 s max.				

#### NOTICE

These Hall-effect sensor ICs may have an initial output in either the ON or OFF state if powered up with an applied magnetic field in the differential zone (applied magnetic field  $>\text{Brp}$  and  $<\text{Bop}$ ). Honeywell recommends allowing  $10 \mu\text{s}$  after supply voltage has reached 3 V for the output voltage to stabilize.

#### NOTICE

The magnetic field strength (Gauss) required to cause the switch to change state (operate and release) will be as specified in the magnetic characteristics. To test the switch against the specified limits, the switch must be placed in a uniform magnetic field.

Figure 1. Magnetic Performance vs Temperature ( $V_{supply} = 12\text{ Vdc}$ )

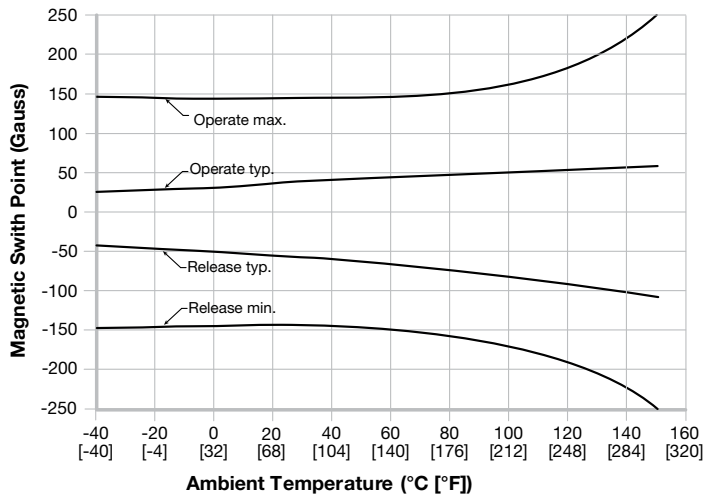


Figure 2. Current Sinking Output Block Diagram

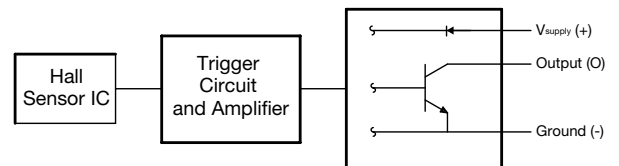


Figure 3. Wiring Diagrams

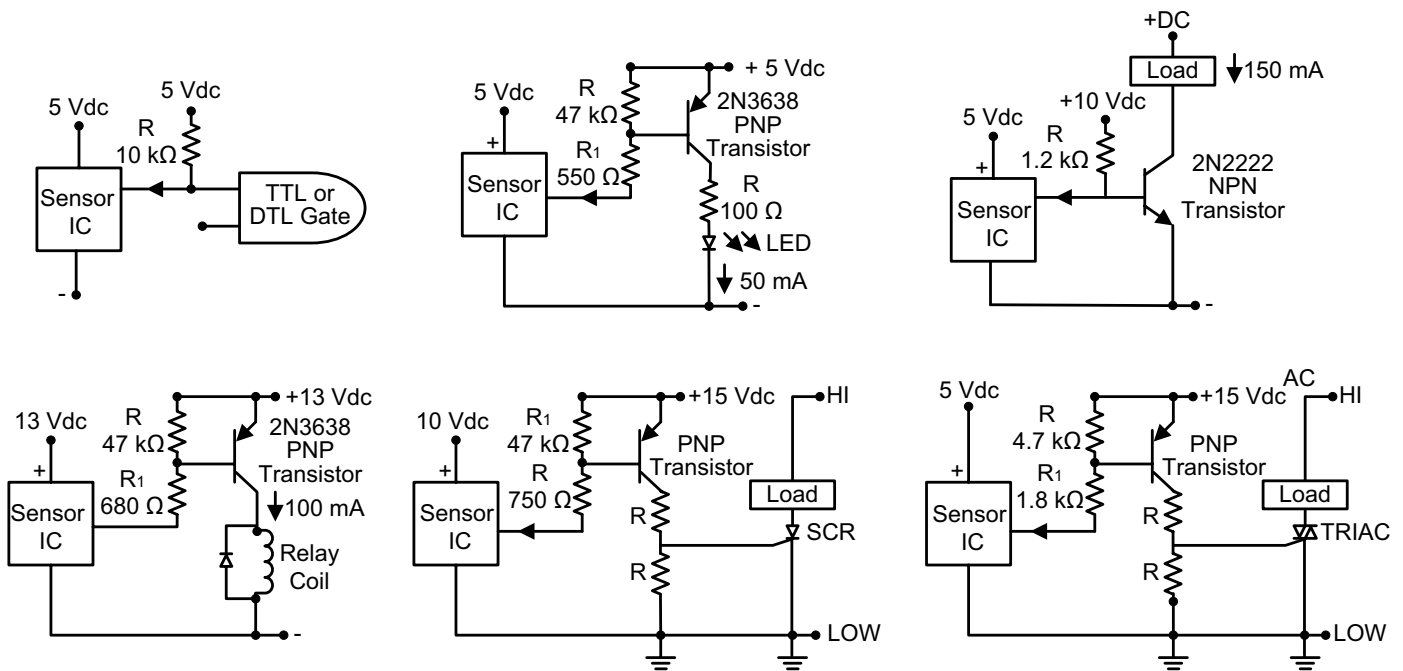
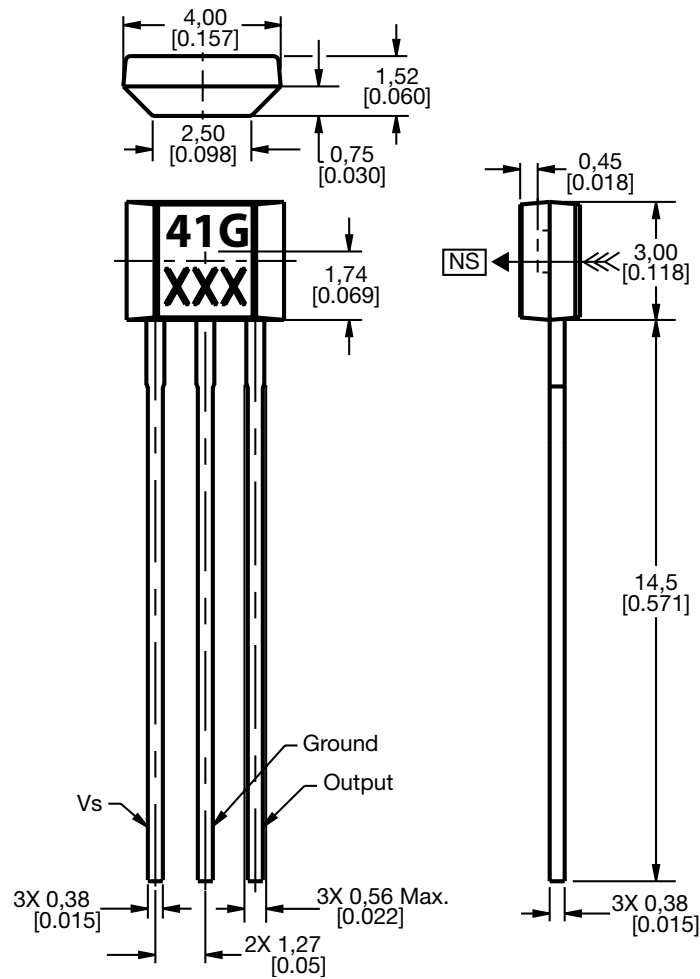


Figure 4. Sensor IC Mounting Dimensions (For reference only. mm/in.)



## **⚠ WARNING**

### **PERSONAL INJURY**

**DO NOT USE** these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

### **WARRANTY/REMEDY**

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