

Installation Instructions for the Low Gauss, Bipolar Digital Hall-effect Sensor ICs: SS41

PK 87881
Issue 6

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.



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.

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 1. Electrical and Environmental Specifications

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

Characteristic	Condition	Min.	Typ.	Max.	Unit
Supply voltage	—	4.5	—	24.0	Vdc
Supply current:					
output off	—	—	—	10.0	mA
output on	—	—	—	11.3	mA
Output current	—	—	—	20.0	mA
V_{sat} at 20 mA	$V_{\text{supply}} = 12.0 \text{ Vdc}$, $\text{Brp} \geq 170$, 25°C [77°F]	—	—	0.4	V
Output leakage current	$V_{\text{supply}} = 24.0 \text{ Vdc}$, $\text{Brp} \leq -170$	—	—	10.0	μA
Rise time	25°C [77°F]	—	0.5	1.5	μs
Fall time	25°C [77°F]	—	0.2	1.5	μs
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

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 5 V for the output voltage to stabilize.

Table 2. Magnetic Characteristics

Characteristic	Temperature ($^\circ\text{C}$ [$^\circ\text{F}$])						Unit
	-40 [-40]	0 [32]	25 [77]	85 [185]	125 [257]	150 [302]	
Operate, maximum	200	150	150	150	200	250	Gauss
Release, minimum	-160	-160	-140	-150	-200	-250	Gauss
Differential, minimum	40	50	50	50	50	60	Gauss

Table 3. 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.

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. Current Sinking Output Block Diagram

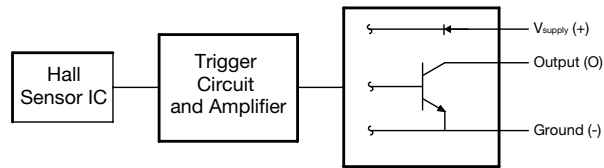


Figure 2. Wiring Diagrams

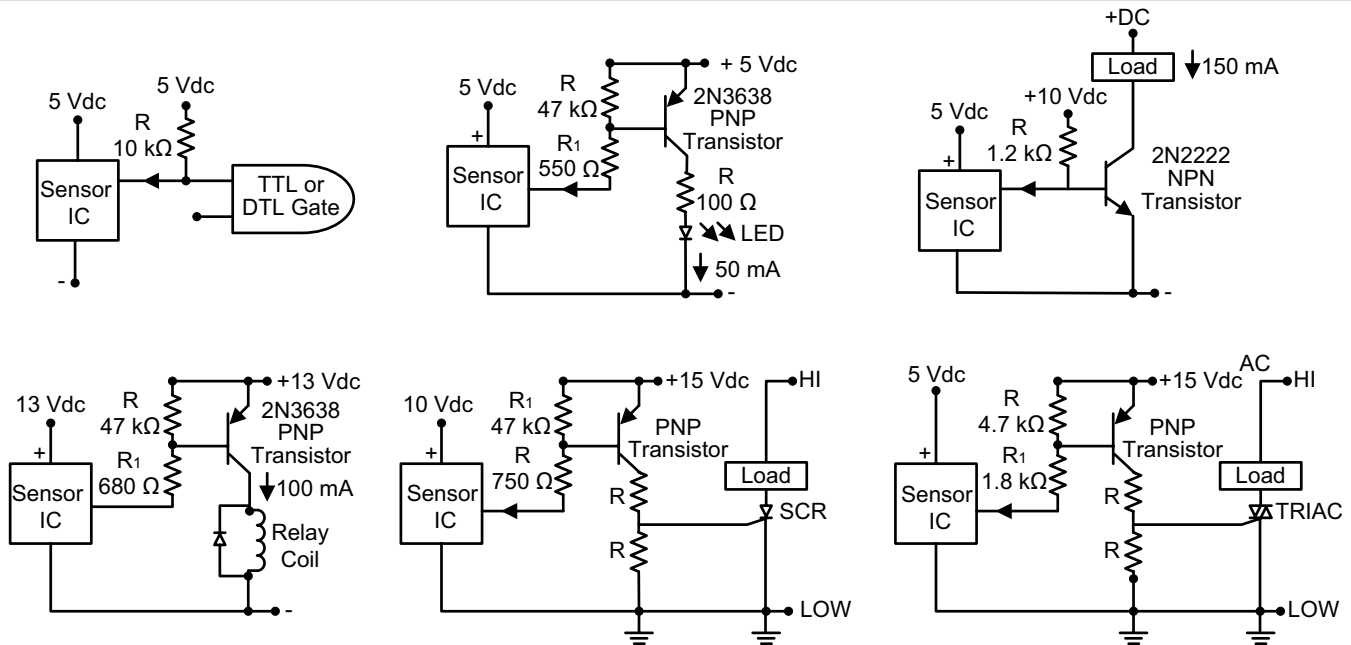
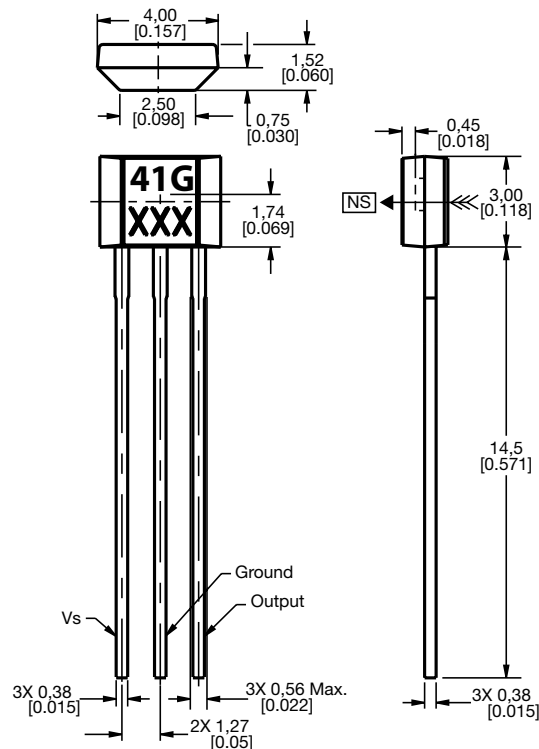


Figure 3. Sensor IC Mounting Dimensions (For reference only. mm/in.)



⚠ 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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