Honeywell

Installation Instructions for the High Sensitivity Latching Digital Hall-effect Sensor ICs: VF360NT, VF360ST, VF460S

32311086
Issue B

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 2. Absolute Maximum Specifications

Characteristic	Min.	Typ.	Max.	Unit
Supply voltage	-26.0	—	26.0	V
Applied output voltage	-0.5	—	26.0	V
Output current	—	—	20.0	mA
Magnetic flux	—	—	no limit	Gauss

NOTICE
Absolute maximum ratings are the extreme limits that the device will withstand without damage to the device. However, the electrical and mechanical characteristics are not guaranteed as the maximum limits (above recommended operating conditions) are approached, nor will the device necessarily operate at absolute maximum ratings.

Table 1. Performance Specifications
(At Vs = 3.0 Vdc to 24.0 Vdc, 20 mA load, TA = -40 °C to 150 °C [-40 °F to 302 °F] except where otherwise specified.)

Characteristic	Condition	Min.	Typ.	Max.	Unit
Supply voltage: VF360NT, VF360ST VF360NT, VF360ST VF460S	 -40 °C to 125 °C [-40 °F to 257 °F] 150 °C [302 °F] —	 3.0 3.0 3.0	 — — —	 24.0 12.0 24.0	Vdc
Supply current	V_{supply} = 3.0 Vdc at 25 °C [77 °F] —	— —	3.5 —	6.0 8.0	mA
Output current	—	—	—	20.0	mA
V_{sat}	Gauss > 55	—	—	0.6	V
Output leakage current	Gauss > -55	—	—	10.0	µA
Rise/fall time	25 °C [77 °F]	—	—	1.5	µs
Thermal resistance: VF360NT, VF360ST VF460S	 single layer, single sided PCB —	 — —	 303 233	 — —	°C/W
Magnetic characteristics: operate (Bop) operate (Bop) release (Brp) release (Brp) differential	 25 °C [77 °F] — 25 °C [77 °F] — —	 15 5 -45 -55 40	 30 30 -30 -30 60	 45 55 -15 -5 80	Gauss
Operating temperature	—	-40 [-40]	—	150 [302]	°C [°F]
Storage temperature: VF360NT, VF360ST VF460S	 — —	 -40 [-40] -40 [-40]	 — —	 150 [302] 165 [239]	°C [°F]
ESD (Human Body Model)	per JEDEC JS-001, Class H3A/3A	-4	—	+4	kV
Soldering temperature and time: VF360NT, VF360ST VF460S	infrared reflow: peak temperatures not to exceed 245 °C [473 °F] for 10 s max. PCB wave soldering: 250 °C to 260 °C [482 °F to 500 °F] for 3 s max.				

High Sensitivity Latching Digital Hall-effect Sensor ICs: VF360NT, VF360ST, VF460S

Issue B
32311086

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 >Brp and <Bop). Honeywell recommends allowing 10 µs after supply voltage has reached 3 V (VF460S) or 5 V (VF360NT, VF360ST) 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. Sensor IC Block Diagram

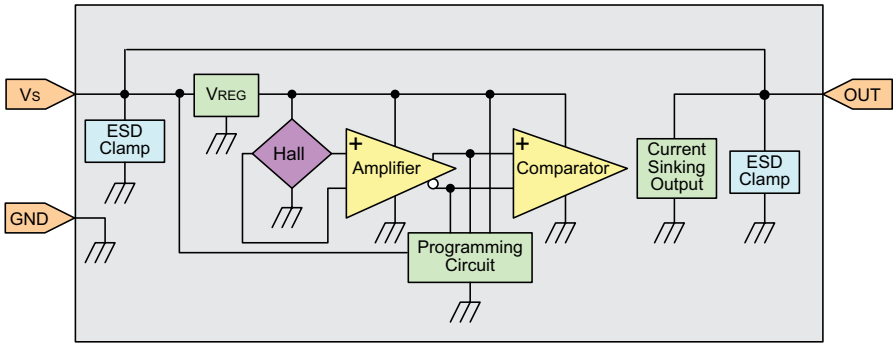


Figure 2. Typical Magnetic Characteristics vs Ambient Temperature at Supply Voltages

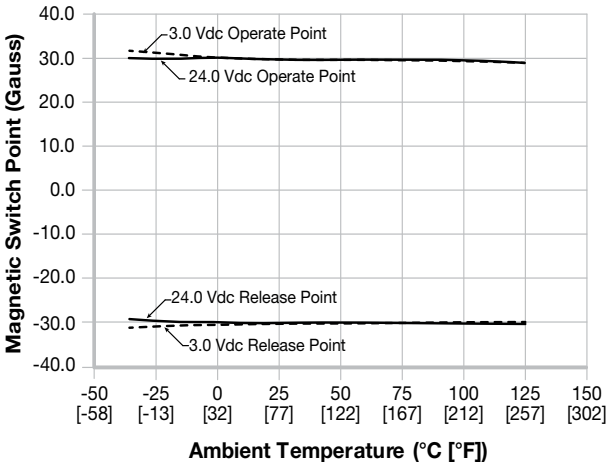


Figure 3. VF360NT, VF360ST Rated Supply Voltage vs Temperature

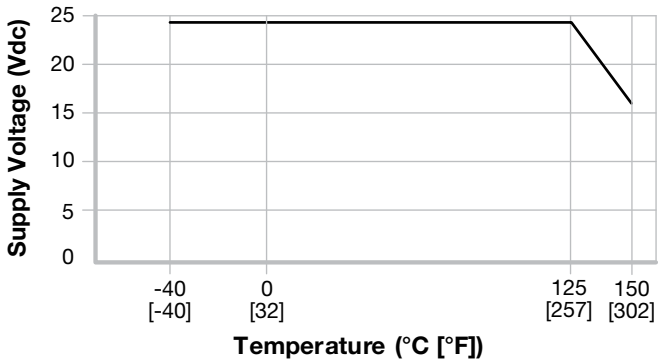


Figure 4. Magnetic Activation

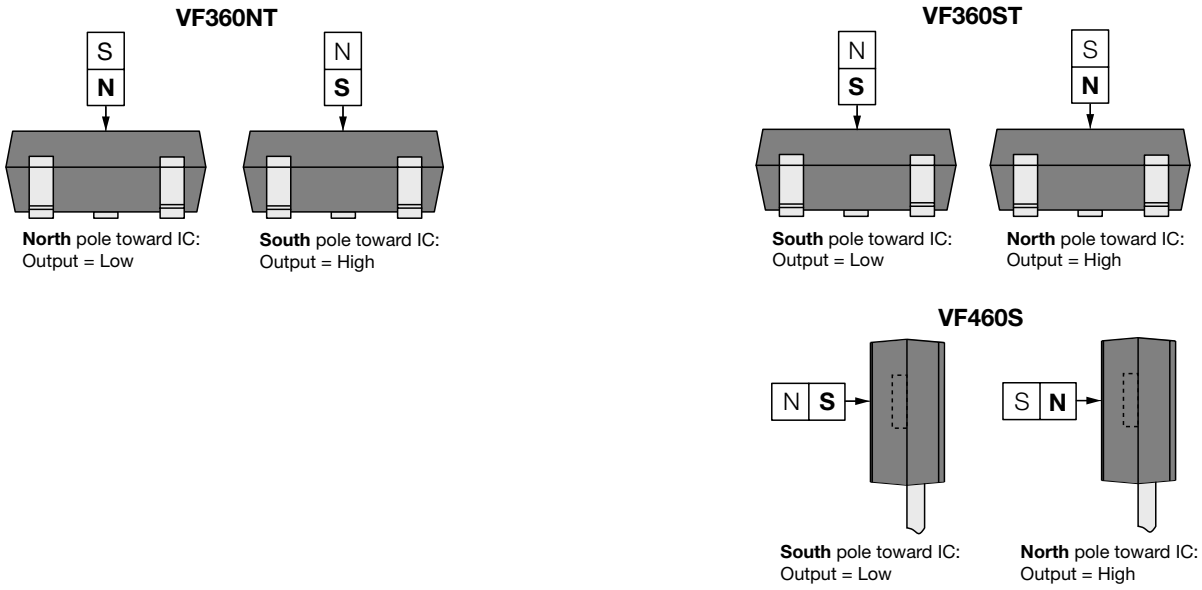
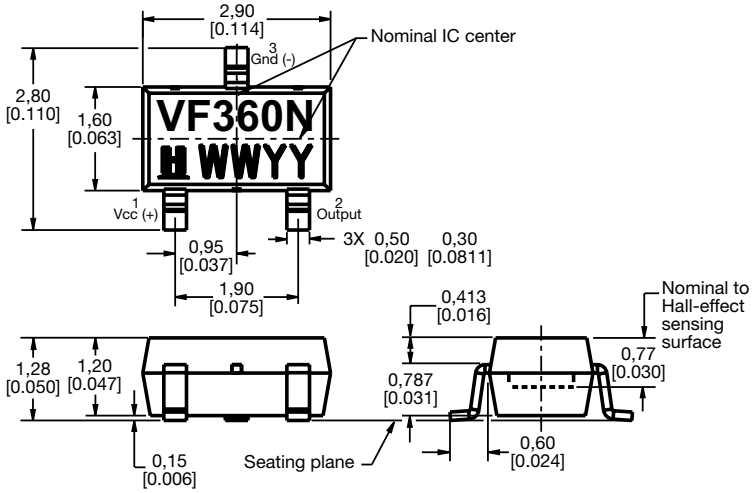
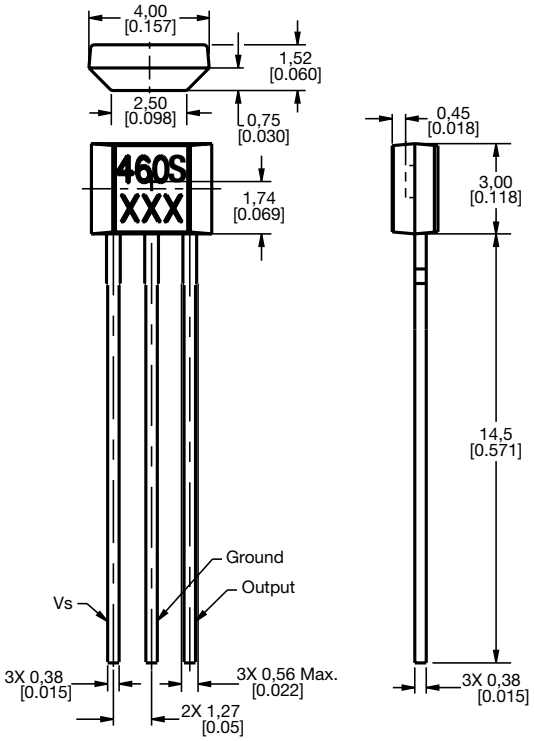


Figure 5. Sensor IC, Tape and Reel Mounting Dimensions (For reference only. mm/in)

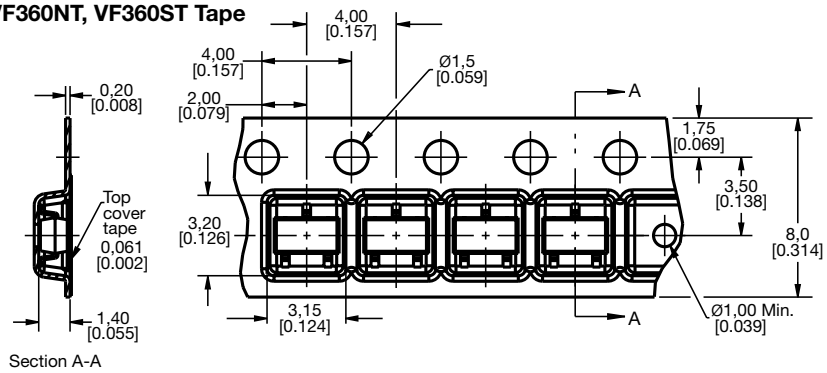
VF360NT, VF360ST Sensor IC



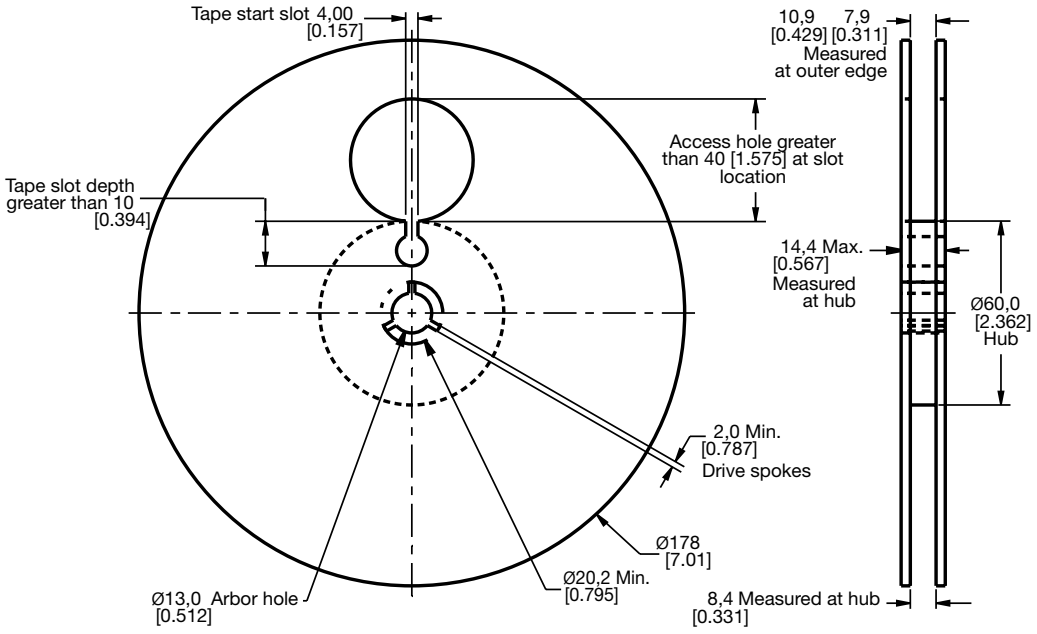
VF460S Sensor IC



VF360NT, VF360ST Tape



VF360NT, VF360ST Reel



⚠ 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

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com
Internet: sensing.honeywell.com
Phone and Fax:
USA/Canada +1-800-537-6945
International +1-815-235-6847; +1-815-235-6545 Fax

Sensing and Productivity Solutions
Honeywell
1985 Douglas Drive North
Golden Valley, MN 55422
honeywell.com

32311086-B-EN IL50
March 2016