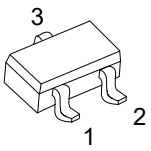
OMNIPOLAR HALL-EFFECT DIGITAL POSITION SENSOR



SOT-23
(EIAJ SC-59)

■ DESCRIPTION

The UTC **UHS351** sensor is small, multipurpose digital Hall-effect device which is operated by the magnetic field from a permanent magnet or an electromagnet. It is designed to respond to either a North pole or a South pole.

This omnipolar sensor designed to meet a extensive range of possible applications is flexible and sensitive device. The UTC **UHS351** has a typical operating point of 85 G at 25 °C. Because of being operated by a North pole or a South pole, They do not require the magnet polarity to be identified, which makes the installation easier and potentially reduces the system cost.

■ FEATURES

* Simple activation from a North pole or a South pole and sensitive magnetics makes this omnipolar product suitable in all kinds of lid closure detection, potential motion control, and displacement sensing applications
* Built-in reverse polarity protection prevents the device from potential damage during installation
* Low voltage 3V ability helps reduce power consumption
* Thermally balanced integrated circuit provides for stable operation over a wide temperature range of -40° ~ 150 °C

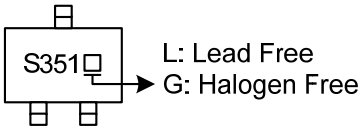
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UHS351L-AE3-R	UHS351G-AE3-R	SOT-23	I	O	G	Tape Reel

Note: Pin Assignment: I: V_{DD} O: Output G: GND

UHS351G-AE3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free

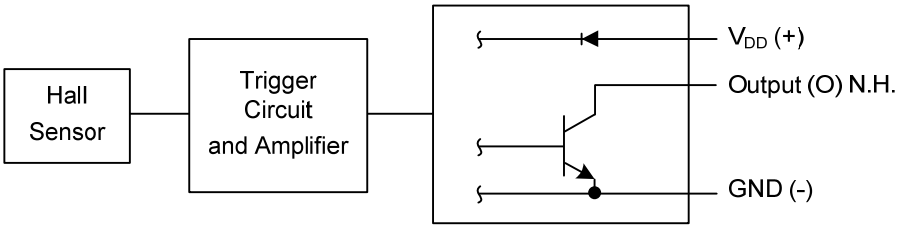
■ MARKING



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V_{DD}	Supply voltage
2	Output	Output voltage
3	GND	Ground

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	-28 ~ 28	V
Applied Output Voltage	V_{OUT}	-0.5 ~ 28	V
Output Current	I_{OUT}	20	mA
Magnetic Flux		No limit	gauss
Operating temperature	T_{OPR}	-40 ~ +150	°C
Storage temperature	T_{STG}	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (V_{DD}=3.0V to 24V, 20mA load, T_A=-40°C~150°C)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage		V_{DD}	-40°C~125°C	3		24	V
			150°C	3		12	V
Supply Current		I_S	V_{DD}=5V at 25°C		3.5	6	mA
			V_{DD}=3V at 25°C		3	5	mA
						9	mA
Output Current		I_{OUT}				20	mA
VSAT		V_{SAT}	at 20mA, gauss>Bop positive or gauss<Bop negative			0.4	V
Output Leakage Current		I_{LEAK}	gauss<Bop- or>Bop+			10	μA
Output Switching Time	Rise	t_r	V_{DD}=12V at 25°C			1.5	μS
	Fall	t_f	R_L=1.6KΩ, C_L=20pF			1.5	μS

■ MAGNETIC SPECIFICATIONS (V_{DD}=3.0V to 24V, T_A=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operate Positive	B_{OP+}		35	85	135	G
Operate Negative	B_{OP-}		-135	-85	-35	G
Release Positive	B_{RP+}		10	50	120	G
Release Negative	B_{RP-}		-120	-50	-10	G
Differential			5	35	80	G

■ PACKAGE INFORMATION

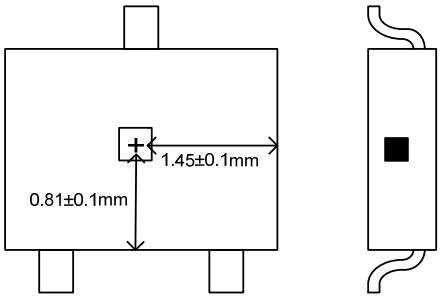


Fig. 1 Sensor Locations

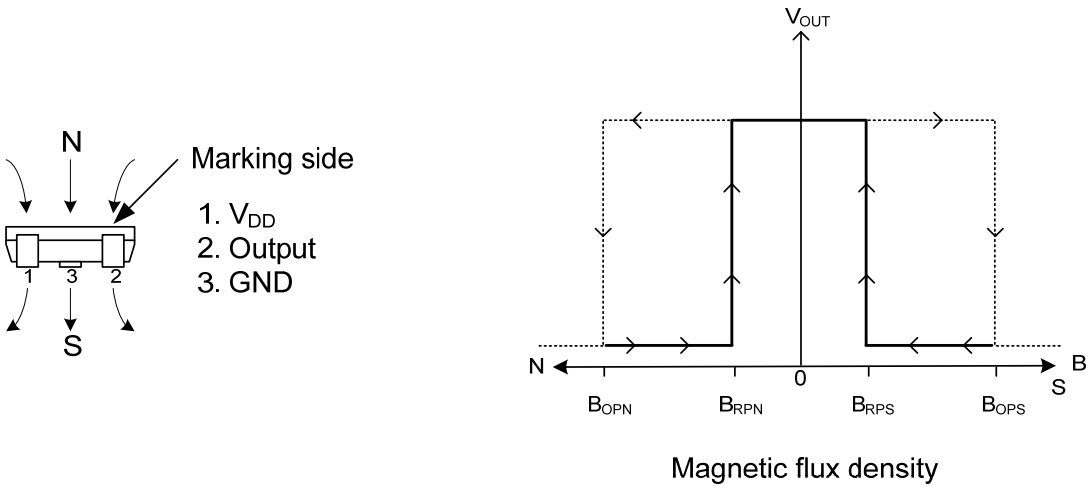


Fig. 2 Applying Direction of Magnetic Flux

■ TYPICAL APPLICATION CIRCUIT