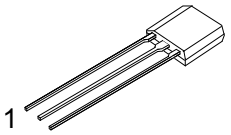
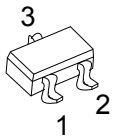
HALL-EFFECT LATCHED SENSOR



SIP-3



SOT-23
(EIAJ SC-59)

■ DESCRIPTION

The UTC **UHS41** is an integrated Hall effect latched sensor designed for electronic commutation of brush-less DC motor applications. The device includes a voltage regulator, reverse battery protection diode, Hall sensor with dynamic offset cancellation system, temperature compensation circuitry, small signal amplifier, Schmitt trigger and an open-collector output to sink up to 25mA.

These Hall-effect switches are monolithic integrated circuits with tighter magnetic specifications, and are more stable with both temperature and supply voltage changes. If a magnetic flux density larger than threshold Bop, Output is turned on (low). The output state is held until a magnetic flux density reversal falls below Brp, causing Output to be turned off (high).

Thanks to its wide operating voltage range and extended choice of temperature range, it is quite suitable for use in DC motor applications. It also can be used for Automotive, Consumer and Industrial, Solid-state switch, Speed measurement, Revolution counting, Angular position detection and Proximity detection.

■ FEATURES

* wide operating voltage range：4.5V~24V
* Wide ambient temperature range: –40°C~+125°C
* Bipolar technology
* Open-collector 25mA output
* Reverse battery protection
* Solid-state reliability
* Resistant to physical stress
* Activate with small, commercially available permanent magnets

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UHS41L-AE3-R	UHS41G-AE3-R	SOT-23	I	O	G	Tape Reel
UHS41G-G03-B	UHS41G-G03-B	SIP-3	I	G	O	Tape Box
UHS41G-G03-K	UHS41G-G03-K	SIP-3	I	G	O	Bulk

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

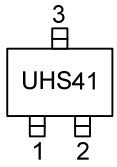
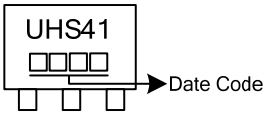
UHS41G-AE3-R

(1)Packing Type — (1) B: Tape Box, K: Bulk

(2)Package Type — (2) AE3: SOT-23, G03: SIP-3

(3)Green Package — (3) G: Halogen Free and Lead Free, L: Lead Free

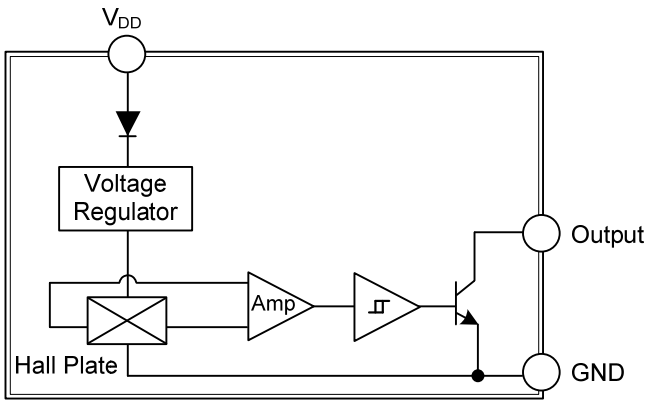
■ MARKING

SOT-23	SIP-3
	

■ PIN DESCRIPTION

PIN NO.		PIN NAME	DESCRIPTION
SOT-23	SIP-3		
1	1	V_{DD}	Supply Voltage pin
2	3	Output	Open Drain Output pin
3	2	GND	Ground pin

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	28	V
Supply Current	I_{DD}	50	mA
Output Voltage	V_{OUT}	28	V
Output Current	I_{OUT}	50	mA
Storage Temperature Range	T_S	-65 ~ +170	°C
OPERATING TEMPERATURE RANGE			
Operating Temperature	T_A	-40 ~ +125	°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

(DC Operating Parameters T_A= 25°C, V_{DD}= 4.5V~24V, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{DD}	Operating	4.5		24	V
Supply Current	I_{DD}	B<B_{RP}		5	10	mA
Output Saturation Voltage	V_{DSon}	I_{OUT}=20mA, B>B_{OP}		0.4	0.5	V
Output Leakage Current	I_{OFF}	B<B_{RP}, V_{OUT}=24V		0.01	5	uA
Output Rise Time	t_R	R_L=1KΩ, C_L=20pF		0.3	1.5	us
Output Fall Time	t_F	R_L=1KΩ, C_L=20pF		0.3	1.5	us

■ MAGNETIC SPECIFICATIONS

DC Operating Parameters V_{DD}= 4.5V~24V (unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Point	B_{OP}	T_A=25°C, V_{DD}=5V DC	5	37	70	G
Release Point	B_{RP}		-70	-37	-5	G
Hysteresis	B_{HYS}			75		G

■ PACKAGE INFORMATION

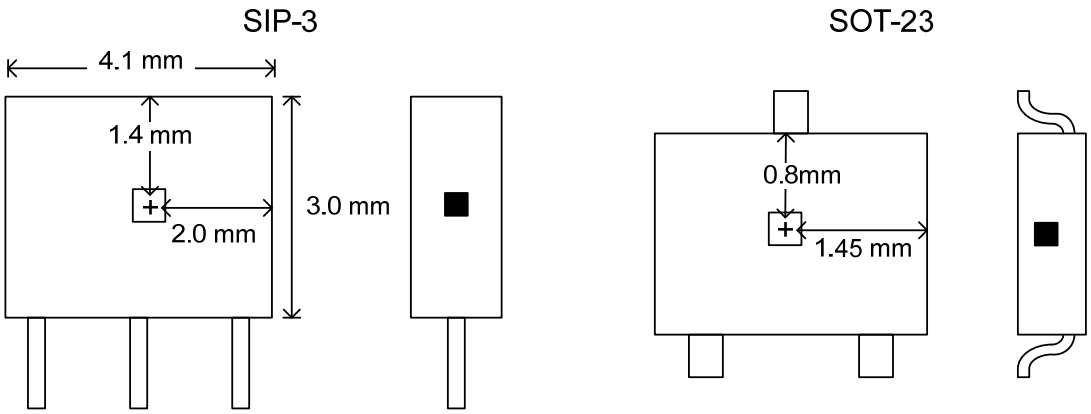
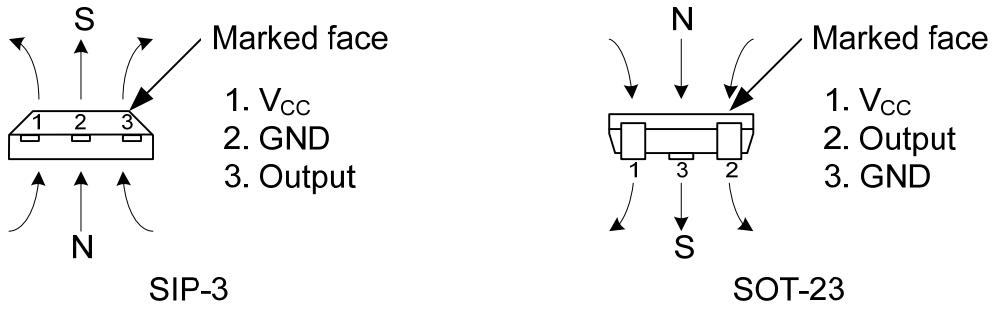


Fig. 1 Sensor Locations



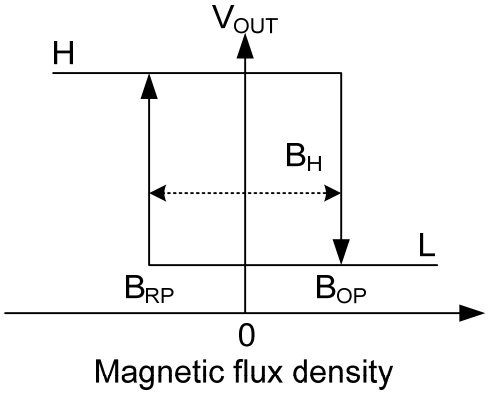


Fig. 2 Applying Direction of Magnetic Flux

■ TYPICAL APPLICATION CIRCUIT