

AH59

COMPLEMENTARY OUTPUT HALL EFFECT SWITCHES

These sensor are an integrated Hall sensor with output driver designed for electronic commutation of brushless DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, an amplifier that amplifies the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and complementary open-collector drivers for sinking large current loads. An internal band-gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range. If a magnetic flux density larger than threshold Bop, DO is turned on (low) and DOB is turned off (high). The output state is held until a magnetic flux density reversal falls below Brp causing DO to be turned off (high) and DOB turned on.

FEATURES

- One chip hall sensor.
- 4.5V to 20V supply voltage.
- 350mA (avg) output sink current.
- Build in protection diode for chip reverse power connecting.
- 20° to 85° operating temperature.CC
- Low profile SIP-4L packages.
- ESD rating: 2000V (Human body model).

TYPICAL APPLICATIONS

- Dual-coil Brushless DC motor.
- Dual-coil Brushless DC fan.
- Revolution Counting.

ABSOLUTE MAXIMUM RATING

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	24	V
Reverse VCC polarity voltage	VRcc	-24	V
Magnetic flux density	B	Unlimited	G
IO	Continuous	350	mA
	HoldOutput ON current	500	mA
	Peak (start up)	600	mA
FG ON Current (continudus)		20	mA
Power dissipation	IF	500	mW
Operation temperature	Pd	-20 ~ 85	°C
Storage temperature	Ta	-50 ~ 150	°C
	Tetg		

ELECTRICAL CHARACTERISTICS

TA=25°C

Parameter	Symbol	Test condition	Type and Value			Unit
			min	typ	max	
Supply Voltage	Vcc		2.5	-	24	V
Low supply voltage	VCE	Vcc=4.5V Io=100mA	--	0.4	--	V
Output saturation voltage	VSAT	Io=50mA	--	0.35	0.6	V
Output leakage current	IOL	VCE=14V	--	0.1	10	µA
Supply current	Icc	Vcc=20V Output open	--	12	16	mA
Switch time differential	Δt	RL=820Ω CL=20pF	--	3.0	10	µs

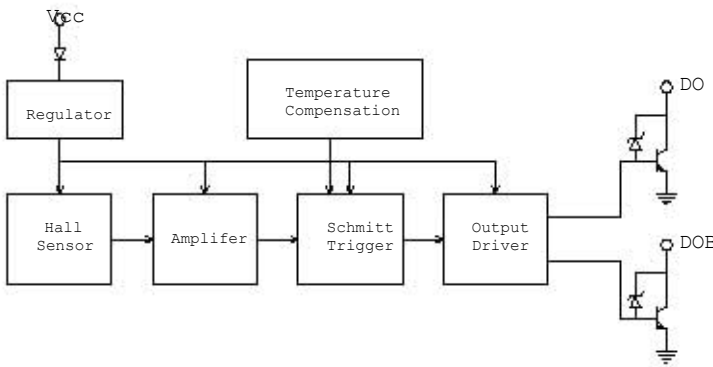
MAGNET CHARACTERISTICS

Ta=25

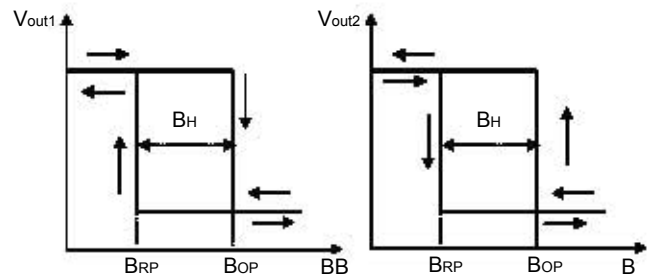
Parameter	Symbol	AH58			AH59			AH68			Unit
		min	typ	max	min	typ	max	min	typ	max	
Operate Point	BOP	-	-	20			8			15	mT
Release Point	BRP	2	-	-	-8			-15			mT
Hysteresis	BH	5	-	-	4			5			mT

NOTE: 1mT=10GS

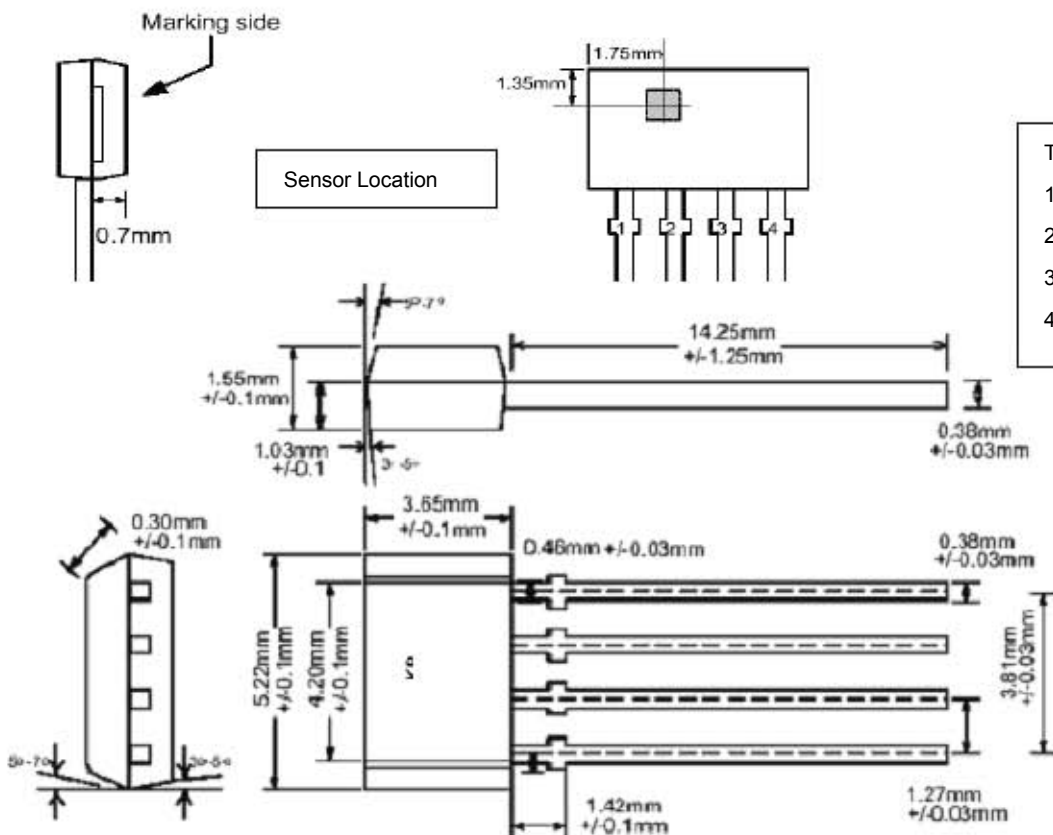
BLOCK DIAGRAM



MAGNETIC-ELECTRICAL TRANSFER CHARACTERISTICS



DIMENSIONS (in: mm)



- TO-94 PACKAGE
1. Vcc
 2. Output 1
 3. Output2
 4. GND

