

ATS280

Hall-Effect Smart Fan Driver

(Preliminary)

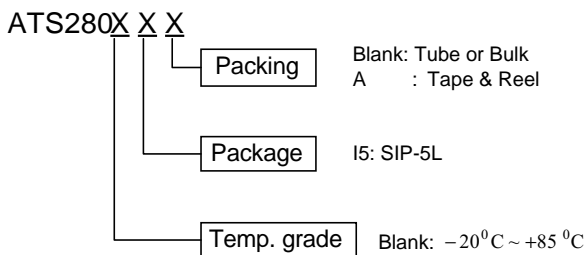
■ Features

- On chip Hall plate
- Build in Zener protection for output driver
- Build in protection diode for power reverse connecting
- Rotor-locked detection
- Automatically restart after release of motor Locking
- Adjustable auto restart time
- Operating voltage: 3~28 V
- Output current: $I_{O(AVE)} = 400 \text{ mA}$
- Package: SIP-5L
- Less external component

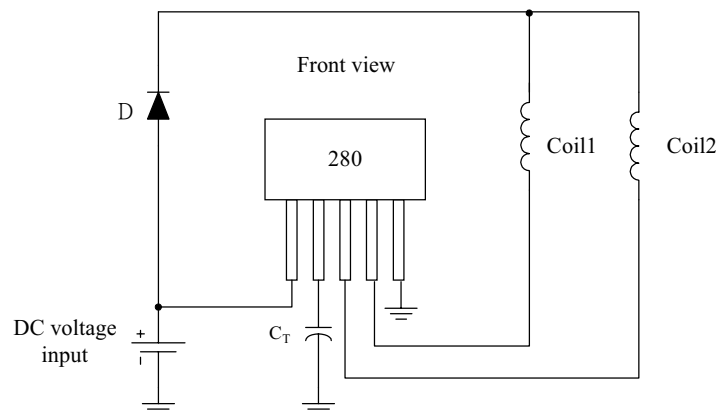
■ General Descriptions

ATS280 is the integrated Hall sensor owned two complementary outputs for motor's coil driving, auto locked shutdown and auto restart functions. Functional block diagram includes that a regulator with temperature-compensated band-gap, an on-chip Hall voltage generator, a comparator, a Schmitt trigger and two current output drivers. The regulator can provide wide operational voltage range. The Hall voltage generator is to amplify the Hall voltage due to Hall effect. A Schmitt trigger is to provide switching Hysteresis for noise rejection. To avoid coil burning, rotor-lock detection circuit will shutdown the output driver if detect rotor-lock status. A rotation recovery circuit is to restart the motor after rotor-lock is removed. In addition, the auto re-start time is flexible by adjusting the capacitance (C_T).

■ Ordering Information

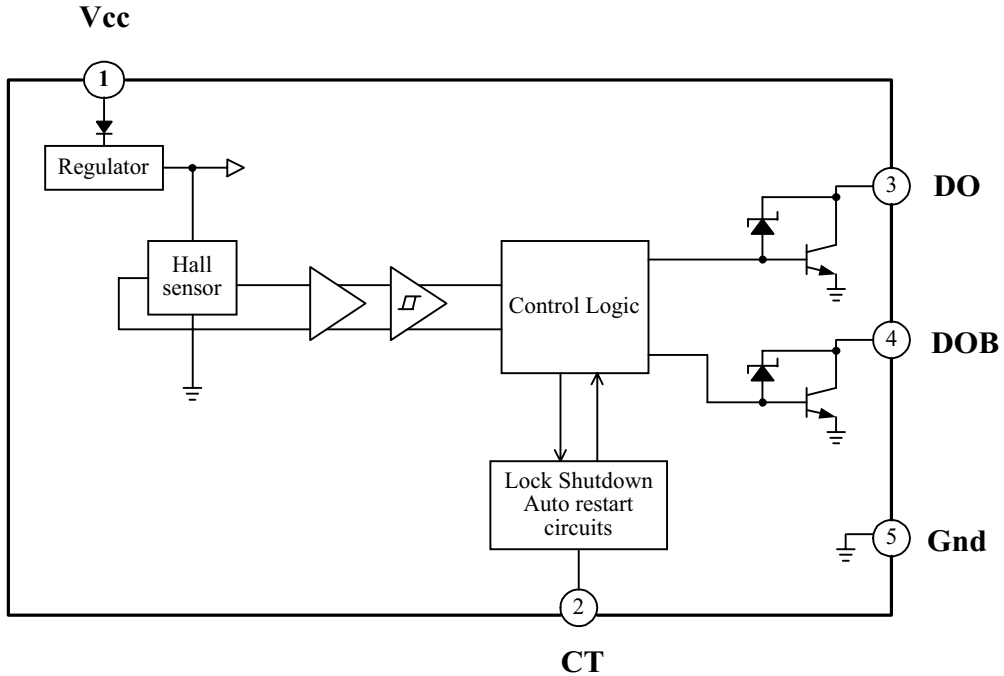


■ Application Circuit



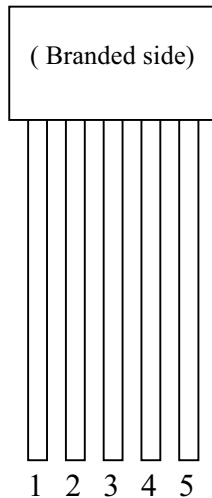
(DC Brush-less Fan)

■ Block Diagrams



■ Pin Assignments

Front View



Symbol	P/I/O	Pin #	Description
VCC	P	1	Positive power supply
CT	I	2	Timing cap.
DO	O	3	Driver output
DOB	O	4	Driver inverted output
GND	P	5	Ground

■ Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Internal Zener-protected Voltage	VCB	56	V
Operating Supply Voltage	V _{CC opr}	28	V
Output Current	I _o (AVE)	400	mA
	I _o (PEAK)	1000	
Power Dissipation	P _D	700	mW
Operating Temperature	T _{opr}	-20~85	°C
Storage Temperature	T _{stg}	-55~150	°C

■ Electrical Characteristics (Ta=25°C, V_{CC}=12V, C_T=1μF)

Characteristic		Symbol	Test Condition	Min	Typ.	Max.	UNIT
Quiescent current		I _Q	V _{CC} =5V Output1 "ON"	10	15	20	mA
			V _{CC} =12V Output1 "ON"	10	17	20	
Output saturation voltage	DO DOB		I _o =0.2A, T _j =25°C	-	0.5	1.0	V
			I _o =0.4A, T _j =25°C	-	0.9	1.5	
			I _o =0.8A, T _j =25°C	-	1.0	2.0	
Automatic self-rotation recovery circuit	Charge current	I _{CT}		-	1.6	-	μA
	Limiting voltage	V _{CTL}	Continuous rotation	-	0.62	-	V
			Holding state	-	0.84	-	
	Recovery voltage	V _{CTR}		-	1.5	-	
	On time	t _{on}	C _T =1 μf	-	250	-	ms
Duty ratio	DR	t _{off} / t _{on}	4	5	6		

■ Magnetic Characteristics

Characteristic		Symbol	Ta=+25°C		Ta=0°C to 70°C		Units
			Min	Max	Min	Max	
Operate Point	ATS280	Bop	0	60	0	60	G
Release Point	ATS280	Brp	-60	0	-60	0	G
Hysteresis	ATS280	Bhys	60	200	50	140	G

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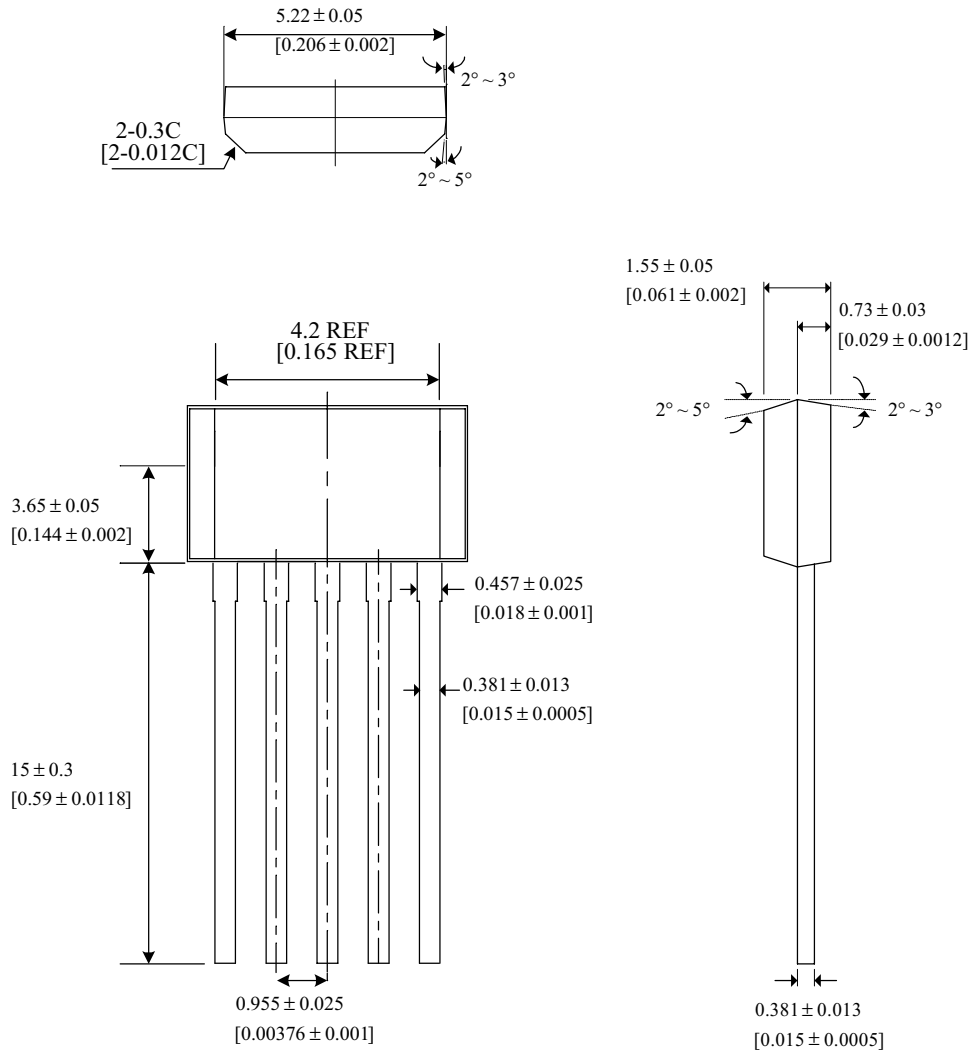


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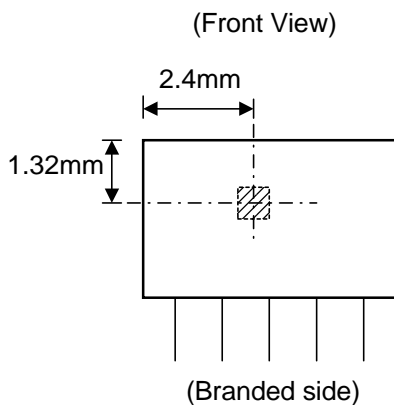
Package Information

SIP-5L

unit: mm / [inch]



Location of sensing point



Marking Information

