AH282

Hall-Effect Smart Fan Motor Controller

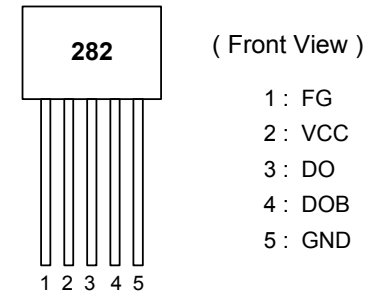
■ Features

- On chip Hall sensor
- Rotor-locked shutdown
- Automatically restart
- Frequency generator (FG) output
- Built-in Zener protection for output driver
- Operating voltage: 10V~20V, driver start up: 8V (minimum)
- Output current: $I_{O(AVE)}$ = 300 mA
- Package: SIP-5L, SOT89-5L

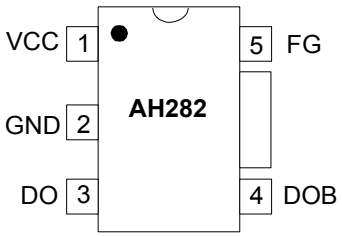
■ General Description

AH282 is a monolithic fan motor controller with Hall sensor's capability. It contains two complementary open-collector transistors as motor coil drivers, automatic lock current shutdown, and recovery protections. Additional, frequency generator (FG) output is for speed detection relatively.
To avoid coil burning, rotor-lock shutdown detection circuit shut down the output driver if the rotor is blocked and then the automatic recovery circuit will try to restart the motor. This function repeats while the rotor is blocked. Until the blocking is removed, the motor recovers running normally.

■ Pin Configuration



SIP-5L

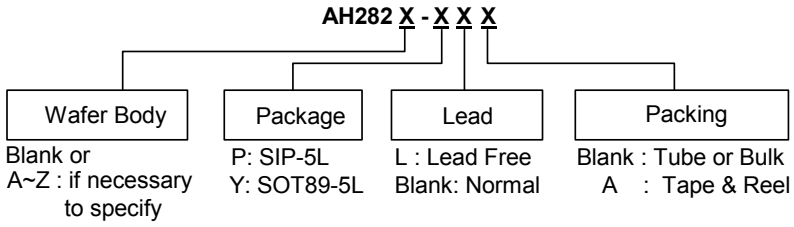


SOT89-5L

■ Pin Descriptions

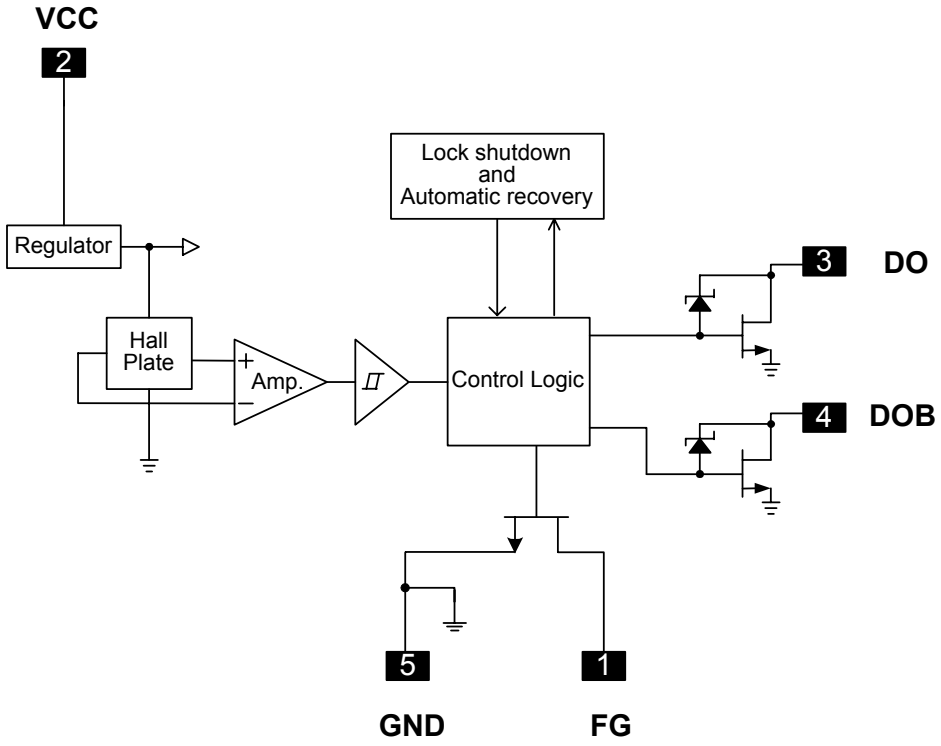
Symbol	Description
FG	Frequency generation
VCC	Input power
DO	Output pin
DOB	Output pin
GND	Ground

■ Ordering Information

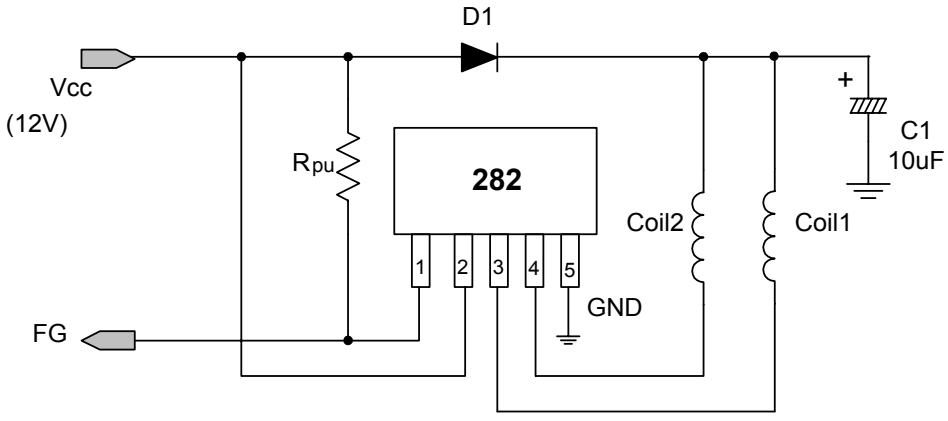


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■ Block Diagram (SIP5)



■ Typical Application Circuit



12V DC Brush-less Fan with FG output function

■ Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol		Rating	Unit
Output Zener-breakdown Voltage	Vz		38	V
Operating Supply Voltage	V_{CC}		28	V
Output Current	$I_{O(AVE)}$		300	mA
	$I_{O(PEAK)}$		400	
Power Dissipation	P_D	SIP5	550	mW
		SOT89-5	800	
Operating Temperature	Topr		-20 ~ 100	°C
Storage Temperature	Tstg		-55 ~ 150	°C
Maximum Junction Temp.	Tj		150	°C

■ Electrical Characteristics (Ta = 25 °C, V_{CC} = 12V, unless otherwise notice)

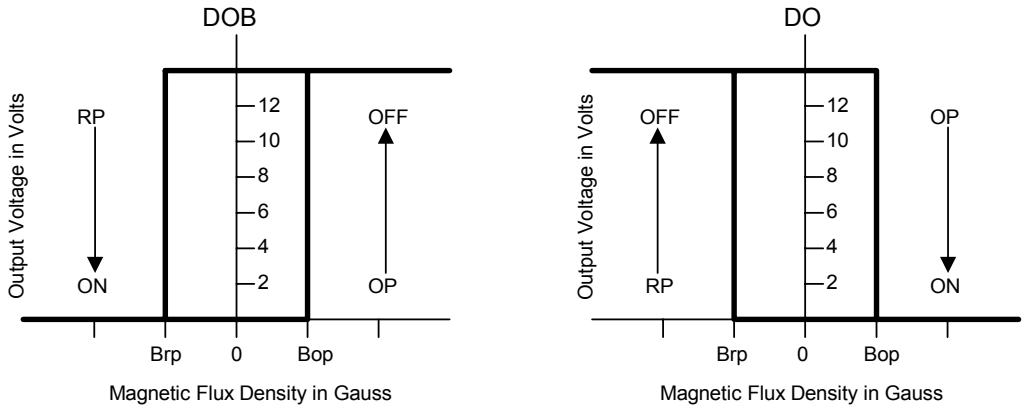
Characteristics	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	Vcc	Operating	10		20	V
Supply current	I_{cc}	Operating	-	2	4	mA
Locked Protection On	Tlrp-on			0.4		Sec
Locked Protection Off	Tlrp-off			2.4		Sec
Output saturation voltage	$V_{OUT(sat)}$	I_O=150mA	-	375	-	mV
		I_O=250mA	-	625	-	
Output On resistance	Rds(on)			2.6		ohm
FG output Vds	Vol	I_O=10mA		0.5		V

■ Magnetic Characteristics (Ta = 25 °C, V_{CC} = 12V, unless otherwise specified)

(1mT=10 Gauss)

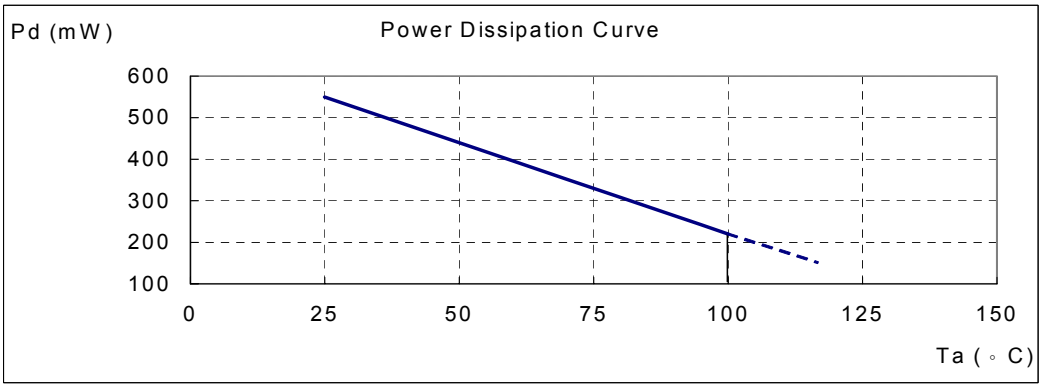
Characteristics	Symbol	Min.	Typ.	Max.	Unit
Operate Point	Bop	-	30	60	Gauss
Release Point	Brp	-60	-30	-	Gauss
Hysteresis	Bhy	-	60	-	Gauss

■ Operating Characteristics



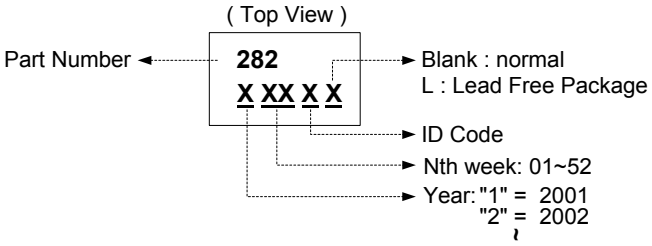
■ Performance Characteristics (SIP5)

Ta (°C)	25	50	60	70	80	85	90	95	100	105	110	115	120
Pd (mW)	550	440	396	352	308	286	264	242	220	198	176	154	132

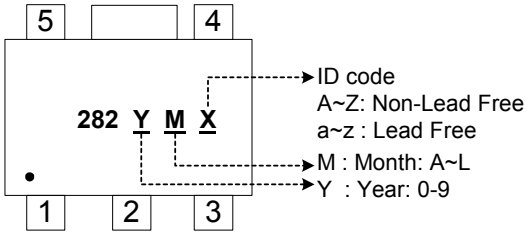


■ Marking Information

(1)SIP-5L

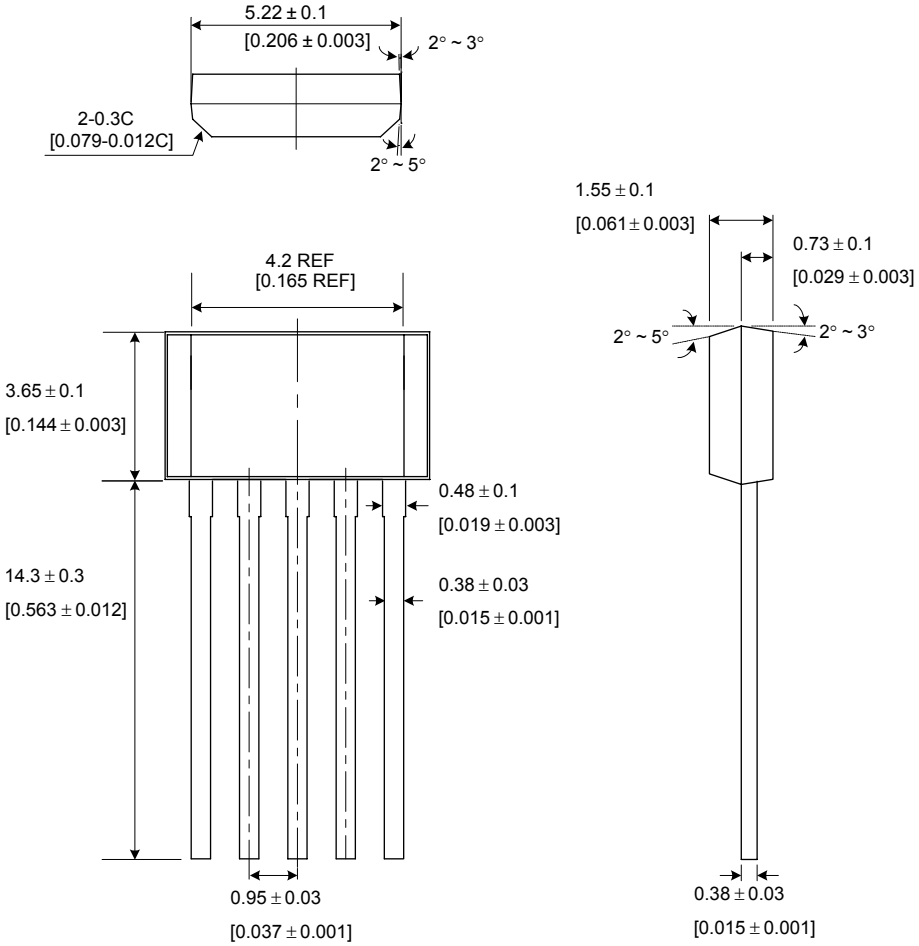


(2)SOT89-5L

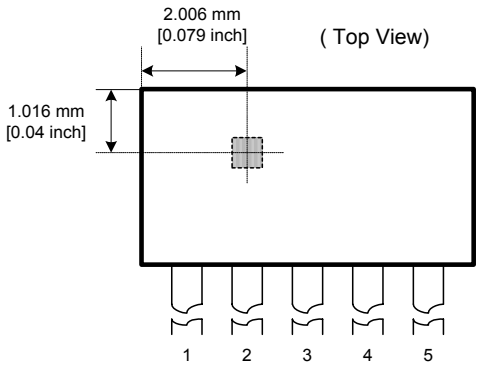


■ Package Information

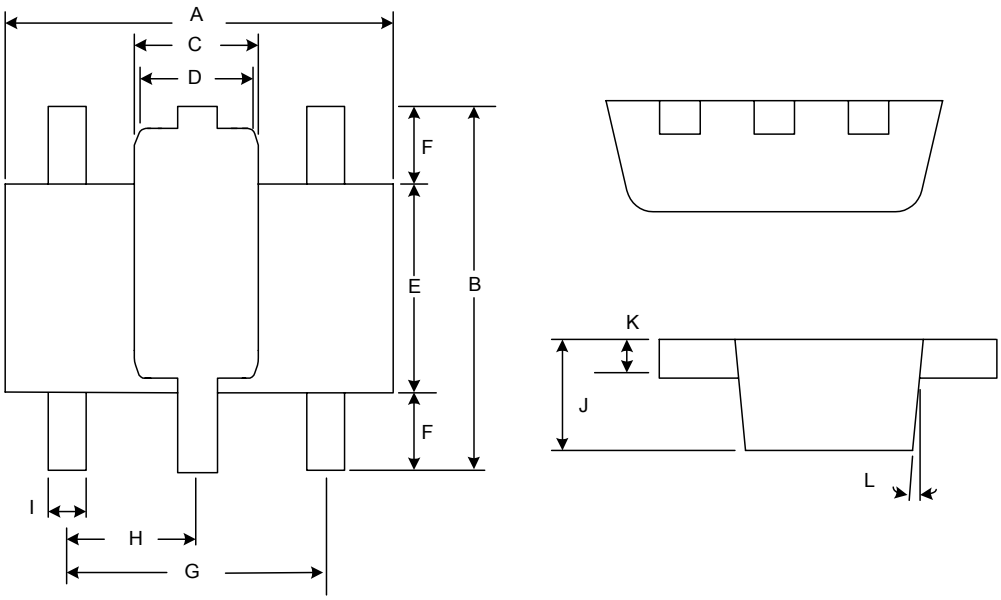
(1)Package type: SIP-5L (unit: mm / [inch])



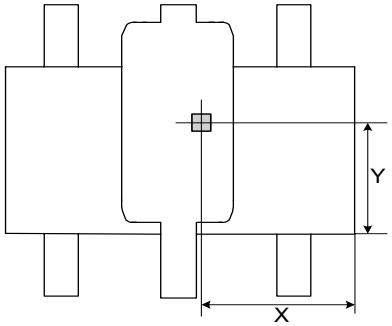
■ Location of Sensing Point



(2) Package type: SOT89-5L



Package Sensor Location



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	4.40	4.50	4.60	0.173	0.177	0.181
B	4.05	4.15	4.25	0.159	0.163	0.167
C	1.50	1.60	1.70	0.059	0.063	0.067
D	1.30	1.40	1.50	0.051	0.055	0.059
E	2.40	2.50	2.60	0.094	0.098	0.102
F	0.80	-	-	0.031	-	-
G	3.00 Ref.			0.118 Ref.		
H	1.50 Ref.			0.059 Ref.		
I	0.40	0.46	0.52	0.016	0.018	0.020
J	1.40	1.50	1.60	0.055	0.059	0.063
K	0.35	0.39	0.43	0.014	0.015	0.017
L	5^{o} Typ.			5^{o} Typ.		
X	-	1.90	-	-	0.075	-
Y	-	1.65	-	-	0.065	-