SINGLE PHASE HALL EFFECT LATCH SMART FAN MOTOR CONTROLLER

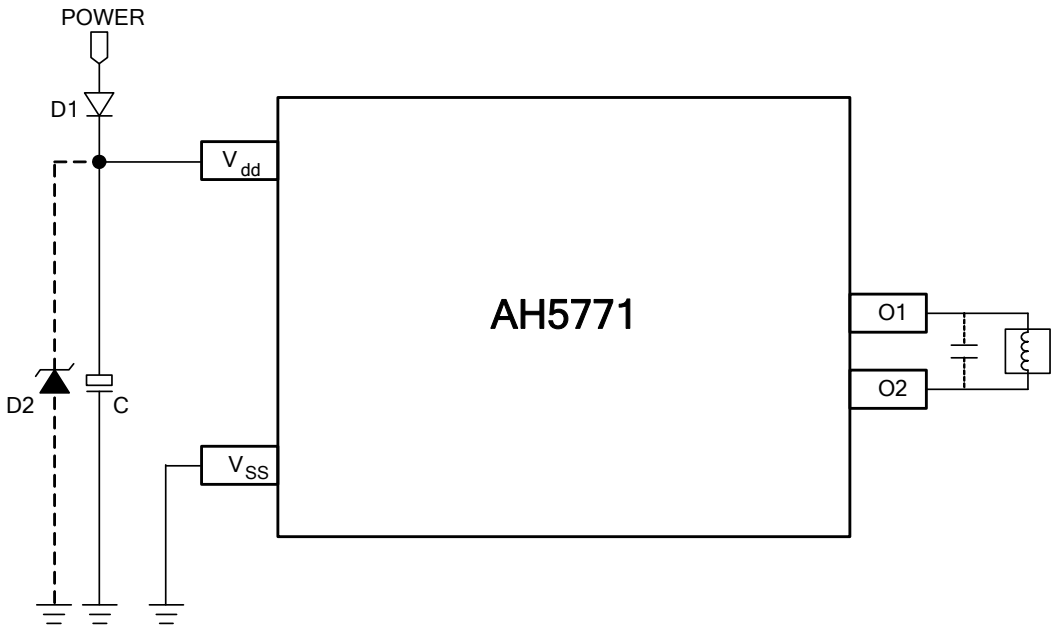
Features

- Support single-phase full wave min fan driver
- Built-in Hall sensor input amplifier
- Low voltage startup (Vdd=2.5V)
- Lock detection and automatic self-restart
- Without external timing capacitor, Reduces the numbers of external component required
- Low profile package : SIP-4L
- SIP-4L: Available in “Green” Molding Compound (No Br, Sb)
- Lead Free Finish / RoHS Compliant (Note 1)

General Description

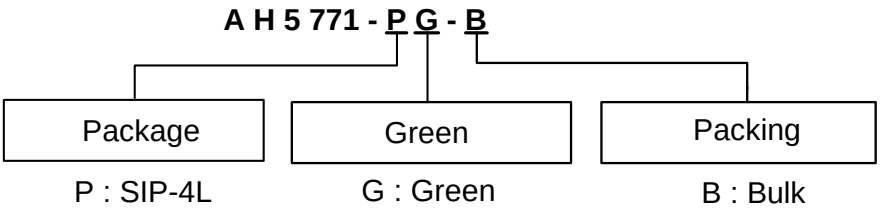
AH5771 is the integrated Hall sensor with output drivers designed for electrical commutation of brush-less DC motor application. The device is as follows: one-chip Hall voltage generator for magnetic sensing; the error amplifier that amplifies the Hall voltage; a comparator is to provide switching hysteresis for noise rejection; the full bridge driver for sinking and driving current load. Internal band gap regulator is used to provide temperature compensated bias for internal circuits and allows a wide operating supply voltage range. The device includes features such as Rotor Lock Protection with rotor lock detection and automatic self-restart to avoid damage to the coil when the rotor is blocked. AH5771 is rated for operation over-temperature range from -40℃ to 100℃ and voltage range from 2.5V to 15V. The device is available in low profile package SIP-4L.

Typical Application Circuit



Note: D2 (Zenor Diode) and Capacitor C are for power stabilization, D2 is recommended to be 18Vz (option), C is recommended to 0.1uF ~1uF (E-Cap). D1 (reverse Diode) is for reverse voltage protection.

Ordering Information

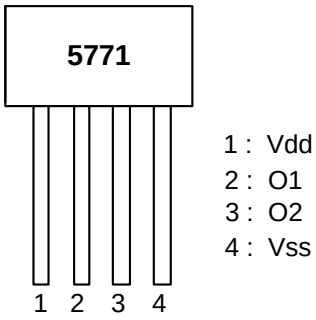


Device	Package Code	Packaging (Note 2)	Bulk	
			Quantity	Part Number Suffix
AH5771-PG-B	P	SIP-4L	1000	-B

Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/products/lead_free.html
2. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

Pin Assignment

(Top View)

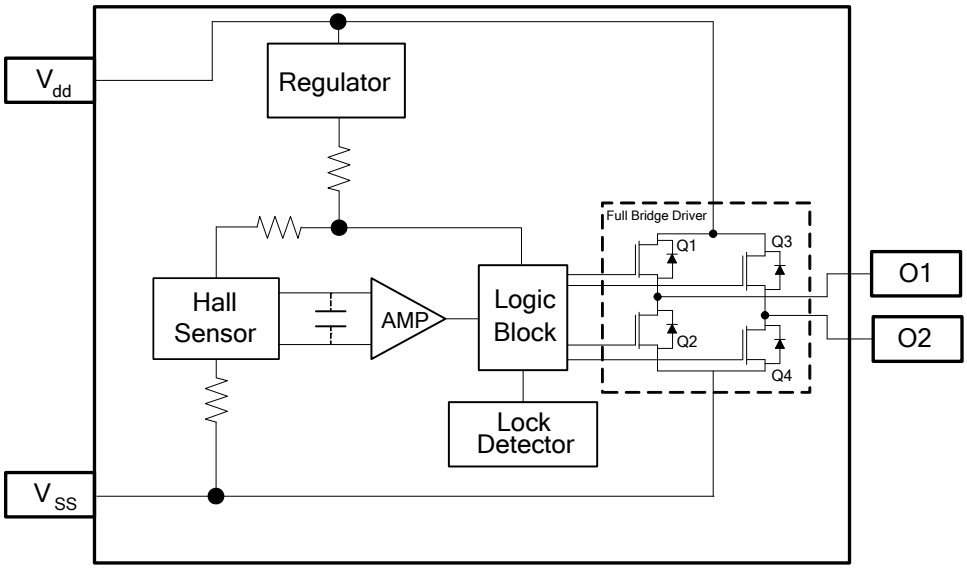


SIP-4L

Pin Description

Pin Name	Pin No.	Description
Vdd	1	Power supply pin
O1	2	Output driving & sinking pin
O2	3	Output driving & sinking Pin
V_{SS}	4	Ground pin

Block Diagram



Absolute Maximum Ratings (Unless otherwise noted, at T_A= 25°C)

Symbol	Characteristics		Values	Unit
Vdd	Supply voltage		18	V
I_O (peak as hold)	Output Current (Peak as hold)		400	mA
P_D	Power Dissipation	SIP-4L	550	mW
T_{ST}	Storage Temperature Range		-55 ~ 150	°C

Recommended Operating Conditions

Symbol	Characteristics	Conditions	Ratings	Unit
Vdd	Supply voltage	Operating	2.5~15	V
T_A	Operating Temperature Range	Operating	-40 to +100	°C

Electrical Characteristics (T_A = 25°C, Vdd = 12V; unless otherwise specified)

Symbol	Characteristics	Conditions	Min	Typ.	Max	Unit
Idd	Supply Current	No Load	-	3.5	5	mA
V_{OH}	Output Voltage High	I_{OUT} = 200mA	11.4	-	-	V
V_{OL}	Output Voltage Low	I_{OUT} = 200mA	-	-	0.6	V
T_{ON}	On Time	Vdd = 12V	-	220	-	ms
R_{DR}	Duty Ratio	T_{OFF} / T_{ON}	-	10	-	

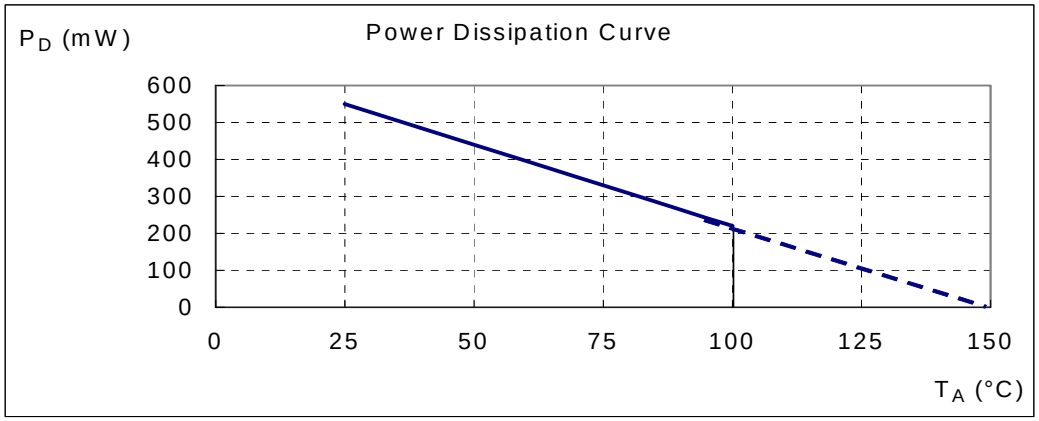
Magnetic Characteristics (TA=25°C, Vdd=2.5V~15V)

(1mT = 10 G)

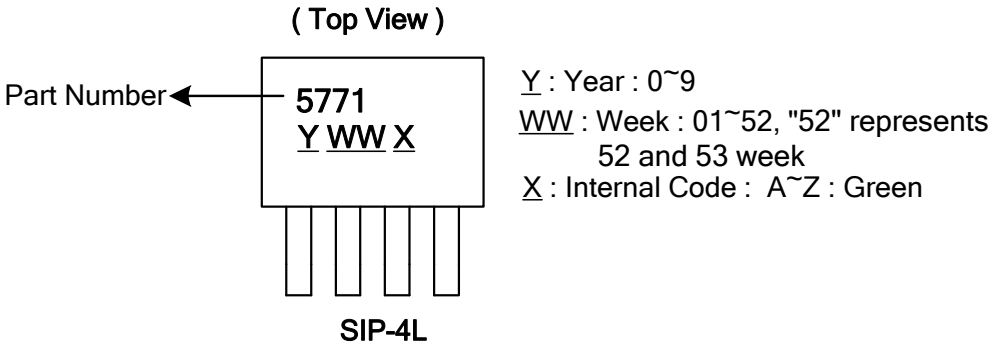
Symbol	Characteristic	Min	Typ.	Max	Unit
B_{op}	Operate Point	-10	30	50	G
Brp	Release Point	-50	-30	-10	G
B_{hy}	Hysteresis	-	60	-	G

Performance Characteristics

T_A (°C)	25	50	60	70	80	85	90	95	100
P_D (mW)	550	440	396	352	308	286	264	242	220
T_A (°C)	**105**	**110**	**115**	**120**	**125**	**130**	**135**	**140**	**150**
P_D (mW)	198	176	154	132	110	88	66	44	0



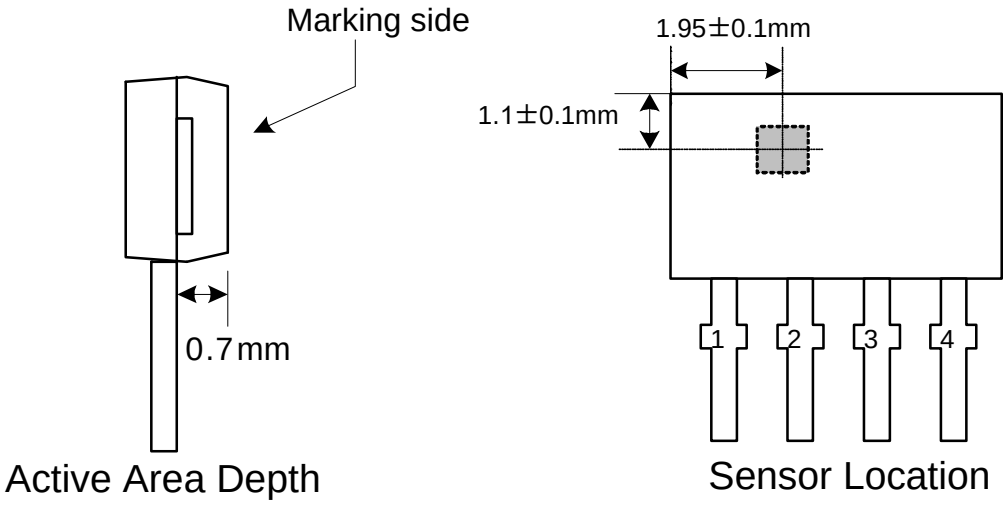
Marking Information



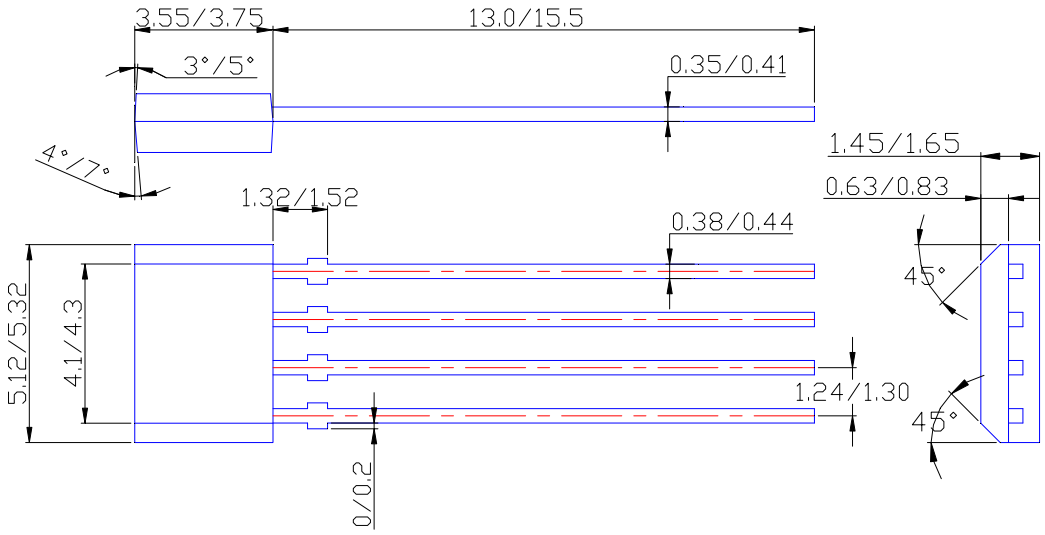
Y : Year : 0~9
WW : Week : 01~52, "52" represents 52 and 53 week
X : Internal Code : A~Z : Green

Package Information (All Dimensions in mm)

(1) Package type: SIP-4L



Package Dimension



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