

G276P

Complementary Output Hall Effect Latched Sink Driver IC

Description

The G276P is an integrated Hall sensors with output drivers designed for electronic commutation of brushless DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator 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 bandgap 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 and DOB turned on.

G276P is rated for operation over temperature range from -20°C to 85°C and voltage range from 3.5V to 20V. The devices are available in low cost die forms or rugged 4 pin SIP packages.

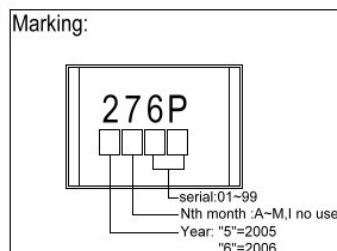
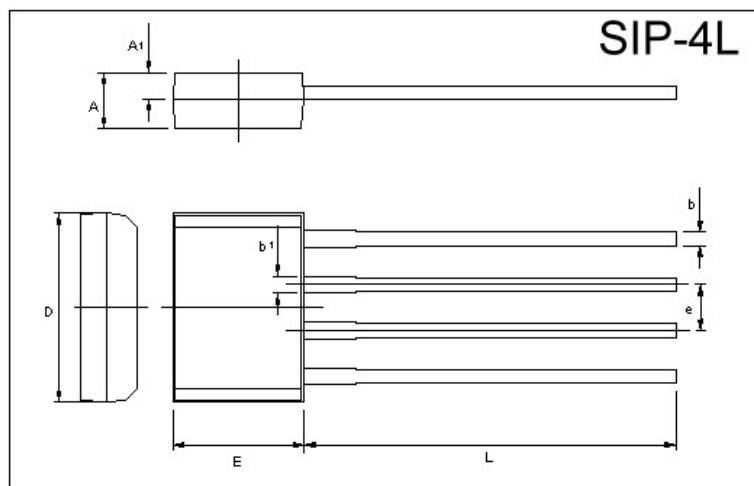
Features

- *On-chip Hall sensor IC with two different sensitivity and hysteresis settings for G276P
- *Internal bandgap regulator allows temperature compensated operations and a wide operating voltage range.
- *High output sinking capability up to 300mA for driving large load.
- *Lower current change rate reduces the peak output voltages during switching.
- *Build in protection diode for chip reverse power connecting.
- *Package: SIP-4L.

Application

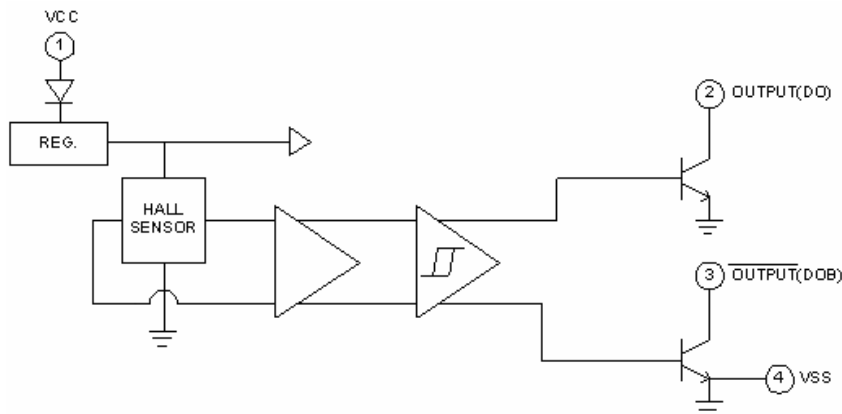
- 1)Brushless DC Motor
- 2)Brushless DC Fan
- 3)Revolution Counting
- 4)Speed Measurement

Package Dimensions

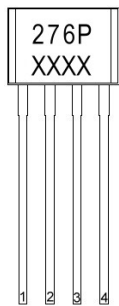


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.295	1.803	D	5.105	5.359
A1	0.610		E	3.531	3.785
b	0.330	0.432	L	14.00	16.00
b1	0.406	0.508	e	1.27REF	

Functional Block Diagrams



Pin Descriptions



Name	P/I/O	Pin#	Description
Vcc	P	1	Positive Power supply
DO	O	2	Output Pin
DOB	O	3	Output Pin
Vss	P	4	Ground

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Value	Unit
Supply Voltage	Vcc	20V	V
Reverse Vcc Polarity Voltage	VRCC	-35V	V
Magnetic flux density	B	Unlimited	
Output OFF Voltage	Vce	35	V
Output ON Current	Continuous	300	mA
	Hold	400	
Operating Temperature Range	Ta	-20 ~ 85	°C
Storage Temperature Range	Ts	-65 ~ 150	°C
Package Power Dissipation	PD	550	mW
Maximum Junction Temp.	Tj	175	°C

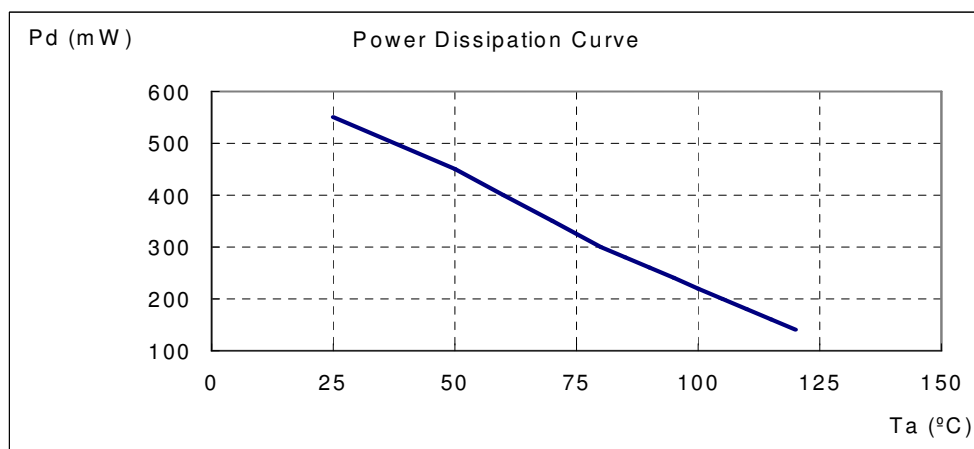
*Exceeding the absolute maximum ratings may cause permanent damage. Exposure to absolute maximum rated conditions for extended periods may affect device reliability.

Electrical Characteristics (Ta=+25°C, Vcc=4.0V to 20V)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Low Supply Voltage	Vce	Vcc=3.5V, IL=100mA	-	0.4	-	V
Supply Voltage	Vcc	-	3.5	-	20	V
Output Saturation Voltage	Vce(sat)	Vcc=14V, IL=300mA	-	0.6	0.9	V
Output Leakage Current	Icex	Vce=14V, Vcc=14V	-	<1	10	uA
Supply Current	Icc	Vcc=20V, Output Open	-	18	25	mA
Output Rise Time	Tr	Vcc=14V, RL=820Ω, CL=20pf	-	3.0	10	us
Output Falling Time	Tf	Vcc=14V, RL=820Ω, CL=20pf	-	0.3	1.5	us
Switch Time Differential	Δt	Vcc=14V, RL=820Ω, CL=20pf	-	3.0	10	us

Power dissipation vs. Environment Temperature

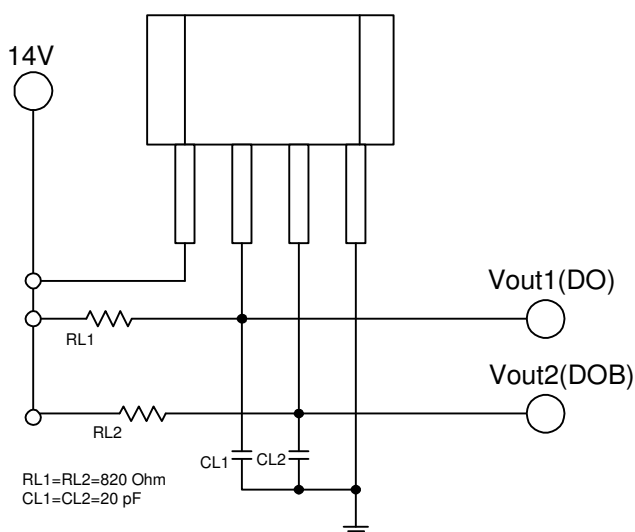
Ta(°C)	25	50	60	70	80	85	90	95	100	105	110	115	120
Pd(mW)	550	450	400	350	300	280	260	240	220	200	180	160	140



Magnetic Characteristics

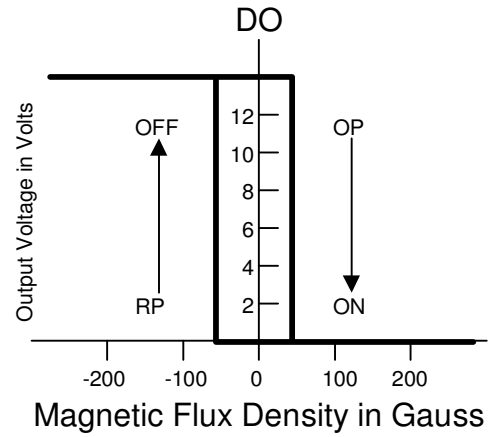
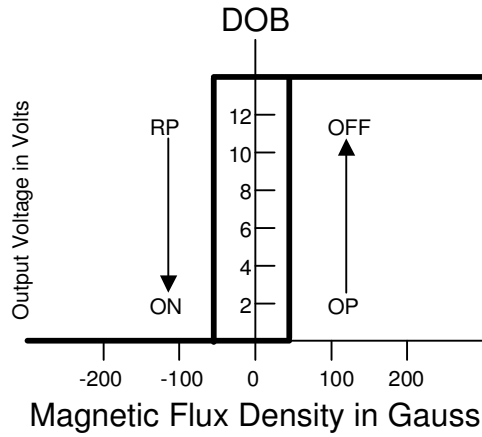
Characteristic		Symbol	Ta=+25°C		Ta=0°C to 70°C		Unit
			Min	Max	Min	Max	
Operate Point	BIN A	Bop	5	50	5	50	Gauss
	BIN B	Bop	-	70	-	70	Gauss
	BIN C	Bop	-	100	-	100	Gauss
Release Point	BIN A	Brp	-50	-5	-50	-5	Gauss
	BIN B	Brp	-70	-	-70	-	Gauss
	BIN C	Brp	-100	-	-100	-	Gauss
Hysteresis	BIN A	Bhys	40	80	40	80	Gauss
	BIN B	Bhys	40	80	40	80	Gauss
	BIN C	Bhys	40	80	40	80	Gauss

Test Circuit

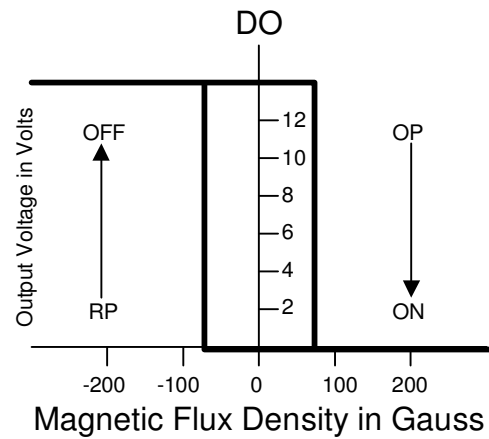
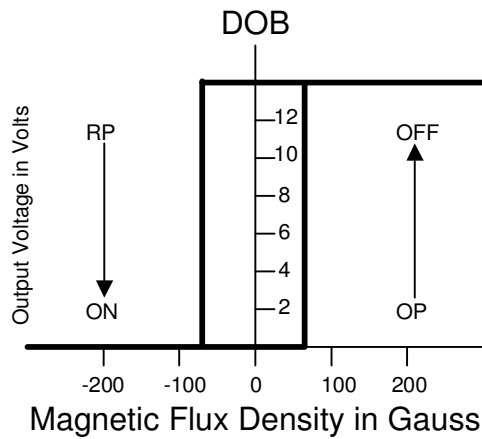


Hysteresis Characteristics

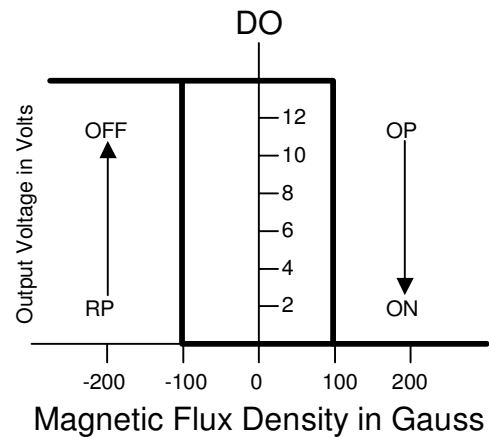
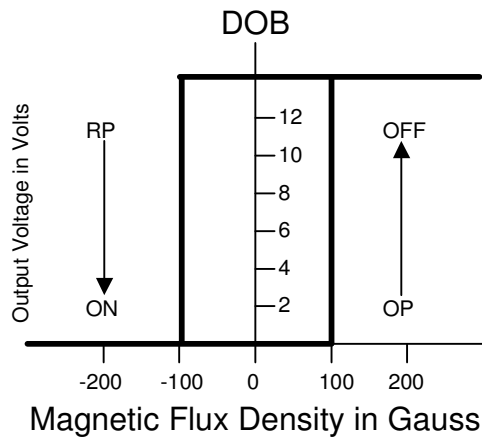
Bin A



Bin B

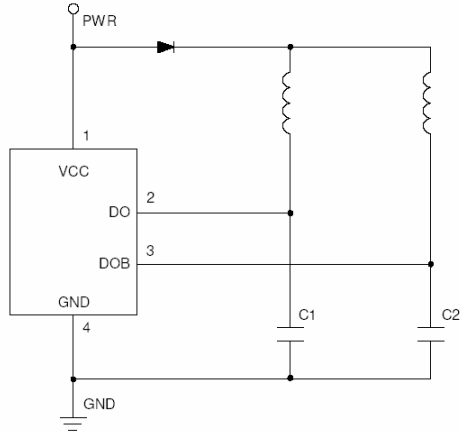


Bin C



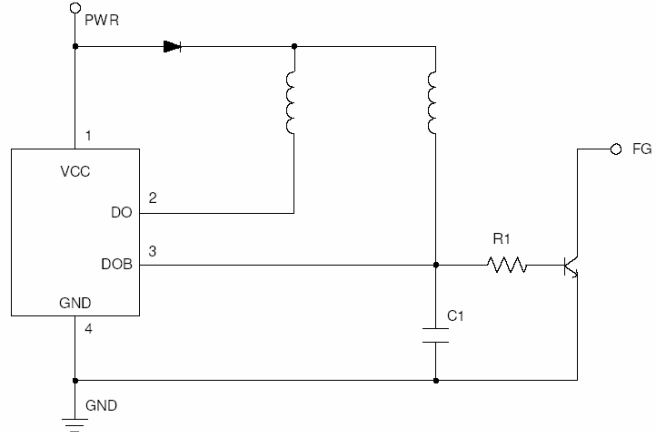
Application Circuit Double Coil

1) Output on current, $I_c > 250\text{mA}$



Remark: C1, C2: Capacitor 2.2 μF ~4.7 μF (optional)

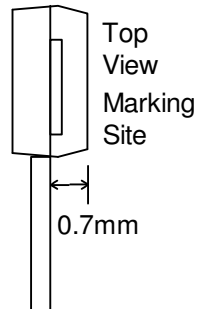
2) With FG output



Remark: C1: Capacitor 0.1 μF ~1 μF R1: Resistor 1K Ω

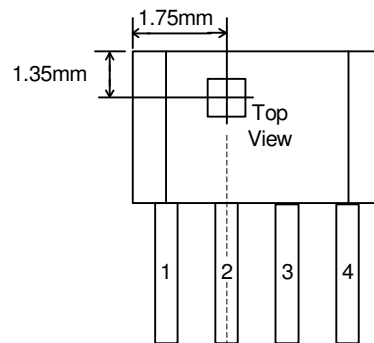
Package Information

Active Area Depth



Tolerance: +/- 0.05mm

Package Sensor Location



Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of GTM.
- GTM reserves the right to make changes to its products without notice.
- GTM semiconductor products are not warranted to be suitable for use in life-support Applications, or systems.
- GTM assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.

Head Office And Factory:

- Taiwan:** No. 17-1 Tatung Rd. Fu Kou Hsin-Chu Industrial Park, Hsin-Chu, Taiwan, R. O. C.
TEL : 886-3-597-7061 FAX : 886-3-597-9220, 597-0785
- China:** (201203) No.255, Jang-Jiang Tsai-Lueng RD. , Pu-Dung-Hsin District, Shang-Hai City, China
TEL : 86-21-5895-7671 ~ 4 FAX : 86-21-38950165