

## COMPLEMENTARY OUTPUT HALL EFFECT ( LATCH )

### ❖ GENERAL DESCRIPTION

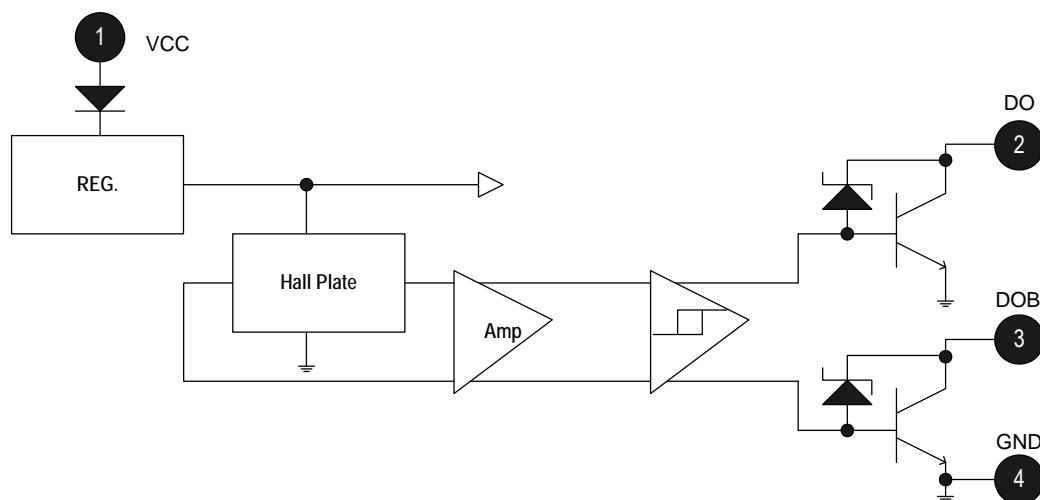
MP276 are integrated Hall sensors with output drivers, mainly designed for electronic commutation of brush-less DC Fan. This IC internally includes the regulator, protecting diode, Hall plate, amplifier, comparator, and a pair of complementary open-collector outputs (DO, DOB).

While the magnetic flux density (B) is larger than operate point (Bop), DO will turn on (low), and meanwhile DOB will turn off (high). Each output is latched until B is lower than release point (Brp), and then DO, DOB transfer each state. For DC fan application, sometimes need to test power reverse connection condition. Internal diode only protects chip-side but not for coil-side. If necessary, add one external diode to block the reverse current from coil-side.

### ❖ FEATURES

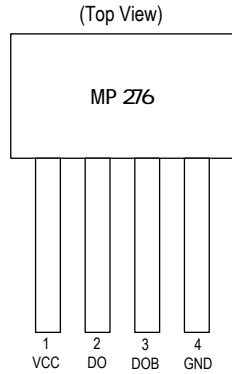
- On-chip Hall sensor with two different sensitivity and hysteresis settings for MP276
- Built-in protecting diode only for chip reverse power connecting
- -20°C to 85°C operating temperature
- Lead Free Package: SIP-4L
- SIP-4L: Available in "Green" Molding Compound (No Br, Sb)
- Lead Free Finish/RoHS Compliant (Note)

### ❖ BLOCK DIAGRAM



❖ PIN ASSIGNMENT

The package of MP276 is SIP-4L; the pin assignment is given by:



Name	Description
VCC	Power Supply Input
DO	Output Pin
DOB	Output Pin
GND	Ground

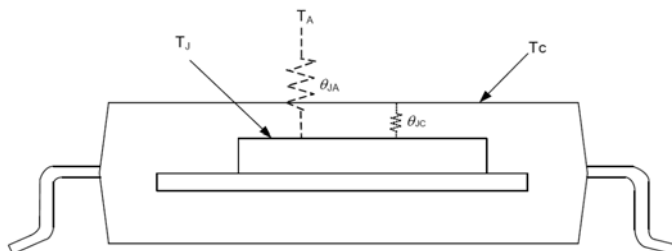
❖ ORDER/MARKING INFORMATION

Order Information	Top Marking
<p><b>MP 276XX X</b></p> <p>Package Type: I4: SIP-4L</p> <p>Packing: Blank: Tube, A: Taping</p>	<p>Logo ← <b>MP 276</b> → Part number</p> <p>YYWWX → ID code:internal</p> <p>WW: 01~52</p> <p>Year: 10=2010, 11=2011</p>

❖ ABSOLUTE MAXIMUM RATINGS (at T<sub>A</sub>=25°C)

Characteristics	Symbol	Rating	Unit
Supply Voltage	V <sub>CC</sub>	20	V
Reverse VCC Polarity Voltage	V <sub>RCC</sub>	-20	V
Magnetic Flux Density	B	Unlimited	
Output "on" current (Note 4)	Continuous	0.4	A
	Hold	0.5	A
	Peak (Start Up)	0.7	A
Storage Temperature Range	T <sub>S</sub>	-65~+150	A
Package Power Dissipation (SIP-4L)	P <sub>D</sub>	550	mW
Maximum Junction Temperature	T <sub>J</sub>	150	°C
Thermal Resistance from Junction to case	θ <sub>JC</sub>	227	°C/W

Note: P<sub>D</sub> shall be within Safety Operation Area.



### ❖ ELECTRICAL CHARACTERISTICS

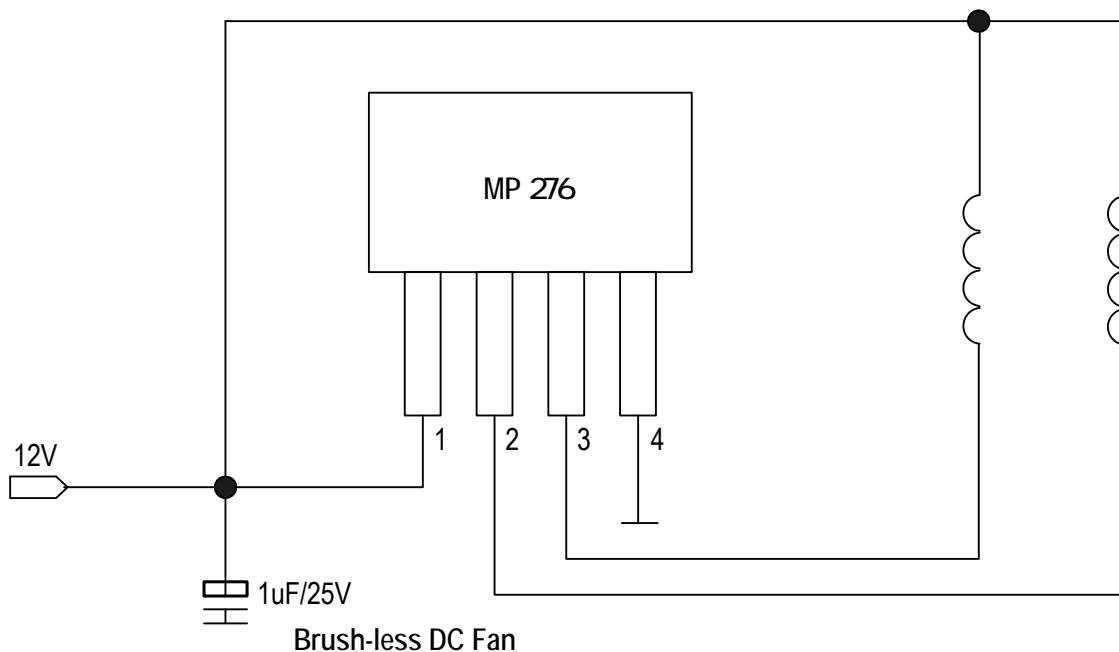
( $V_{IN}=5V$ ,  $C_{IN}=C_{OUT}=1\mu F$ ,  $T_A=25^\circ C$ , unless otherwise noted)

Characteristics	Symbol	Conditions	Min	Typ	Max	Units
Supply Voltage (Note 5)	$V_{CC}$	Operating	3.5	-	20	V
Operating Ambient Temperature	$T_A$	Operating	-20	-	85	V
Output Zener Breakdown	$V_Z$	(Note 6)	-	35	-	V
Output Saturation Voltage	$V_{ce(sat)}$	$V_{CC}=14V$ , $I_L=400mA$	-	0.6	0.9	V
Output Leakage Current	$I_{ceX}$	$V_{ce}=14V$ , $V_{CC}=14V$	-	<0.1	10	$\mu A$
Supply Current	$I_{CC}$	$V_{CC}=20V$ , Output Open	7	16	25	mA
<b>A grade</b>						
Operate Point	Bop		10	-	50	Gauss
Release Point	Brp		-50	-	-10	Gauss
Hysteresis	Bhy		-	75	-	Gauss
<b>B grade</b>						
Operate Point	Bop		5	-	70	Gauss
Release Point	Brp		-70	-	-5	Gauss
Hysteresis	Bhy		-	75	-	Gauss
<b>C grade</b>						
Operate Point	Bop		-	-	100	Gauss
Release Point	Brp		-100	-	-	Gauss
Hysteresis	Bhy		-	75	-	Gauss

Note1: The output DO/DOB is switching as magnetic field change ( $S>300G$ ,  $N<-300G$ ).

Notes:  $V_Z$  is a typical value for design reference.  $V_Z$  will vary with different coils design.

### ❖ APPLICATION CIRCUIT



❖ PACKAGE OUTLINES

