



## UH276

## LINEAR INTEGRATED CIRCUIT

### COMPLEMENTARY OUTPUTS HALL EFFECT LATCH IC

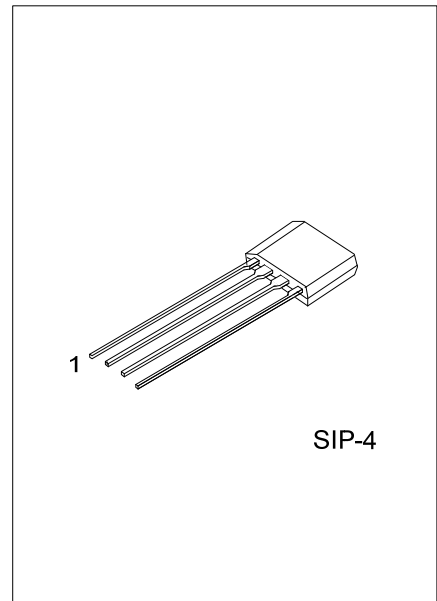
#### DESCRIPTION

The UTC **UH276** is a Latch-Type Hall Effect sensor with built-in complementary output drivers. It's designed with internal temperature compensation circuit and built-in protection diode prevent reverse power fault. The application is aimed for brush-less DC Fan

The **UH276** Outputs operate as the Hysteresis Characteristics. The Outputs alternately ON and OFF when either the magnetic flux density larger than threshold  $B_{OP}$  or the magnetic flux density lower than  $B_{RP}$ .

#### FEATURES

- \* Widen Power Supply range from 3V ~ 20V.
- \* On-chip Hall sensor with excellent hysteresis.
- \* Open Collector outputs had the sinking capability up to 400mA.
- \* Output Clamping Diodes reduce the peak output voltages during switching.
- \* Build-in reverse protection diode.



#### ORDERING INFORMATION

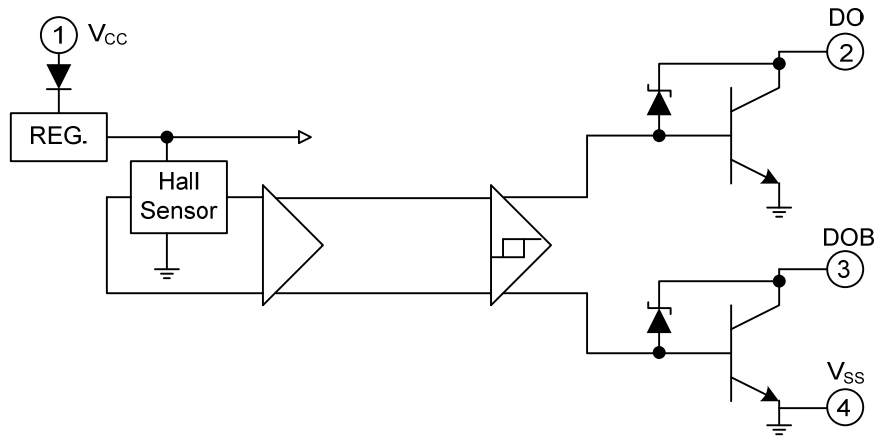
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UH276L-G04-K	UH276G-G04-K	SIP-4	Bulk

<p>UH276L-G04-K</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) B: Bulk (2) G04: SIP-4 (3) G: Halogen Free, L: Lead Free</p>
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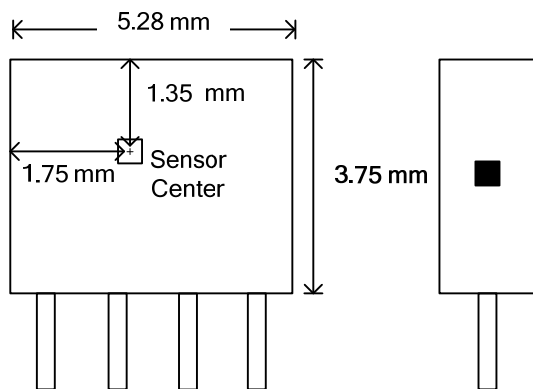
#### PIN DESCRIPTION

PIN NO.	PIN NAME	P/I/O	DESCRIPTION
1	V <sub>CC</sub>	P	Positive Power Supply
2	DO	O	Output Pin
3	DOB	O	Output Pin
4	V <sub>SS</sub>	P	Ground

## ■ BLOCK DIAGRAM



## ■ SENSOR LOCATIONS



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		$V_{CC}$	20	V
Reverse $V_{CC}$ Polarity Voltage		$V_{RCC}$	-25	V
Output OFF Voltage		$V_{CE}$	32	V
Magnetic flux density		B	Unlimited	
Output ON Current	Continuous	$I_c$	0.4	A
	Hold		0.5	
	Peak (Start Up)		0.7	
Power Dissipation		$P_D$	500	mW
Junction Temperature		$T_J$	+150	$^{\circ}\text{C}$
Operating Temperature		$T_{OPR}$	-20 ~ +85	$^{\circ}\text{C}$
Storage Temperature		$T_{STG}$	-65 ~ +150	$^{\circ}\text{C}$

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Output Zener protection voltage

■ ELECTRICAL CHARACTERISTICS ( $T_A = 25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Low Supply Voltage	$V_{CE}$	$V_{CC}=3.5\text{V}$ , $I_L=100\text{mA}$			0.6	V
Supply Voltage	$V_{CC}$		3		20	V
Output Saturation Voltage	$V_{CE(SAT)}$	$V_{CC}=14\text{V}$ , $I_L=400\text{mA}$		0.6	0.9	V
Output Leakage Current	$I_{CEX}$	$V_{CE}=14\text{V}$ , $V_{CC}=14\text{V}$		<0.1	10	$\mu\text{A}$
Supply Current	$I_{CC}$	$V_{CC}=20\text{V}$ , Output Open		15	25	mA
Output Rise Time	$t_R$	$V_{CC}=14\text{V}$ , $R_L=820\Omega$ , $C_L=20\text{pF}$		0.3	3	$\mu\text{S}$
Output Falling Time	$t_F$	$V_{CC}=14\text{V}$ , $R_L=820\Omega$ , $C_L=20\text{pF}$		0.04	1	$\mu\text{S}$
Switch Time Differential	$\Delta t$	$V_{CC}=14\text{V}$ , $R_L=820\Omega$ , $C_L=20\text{pF}$		0.3	3	$\mu\text{S}$

■ MAGNETIC CHARACTERISTICS

A grade

PARAMETR	SYMBOL	MIN	TYP	MAX	UNIT
Operate Point	$B_{OP}$	10		50	G
Release Point	$B_{RP}$	-50		-10	G
Hysteresis	$B_{HYS}$	20		100	G

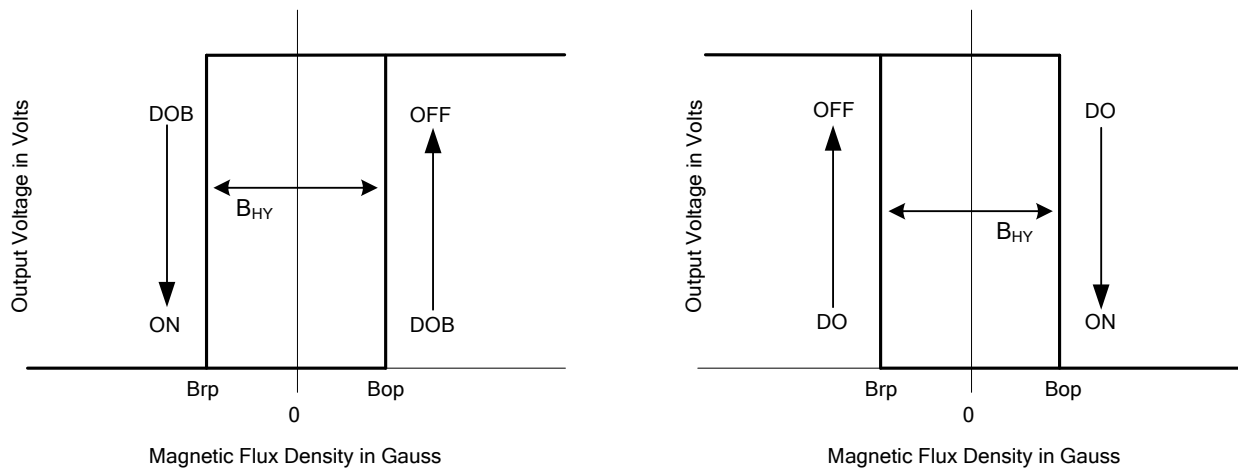
B grade

PARAMETR	SYMBOL	MIN	TYP	MAX	UNIT
Operate Point	$B_{OP}$	5		70	G
Release Point	$B_{RP}$	-70		-5	G
Hysteresis	$B_{HYS}$	20		140	G

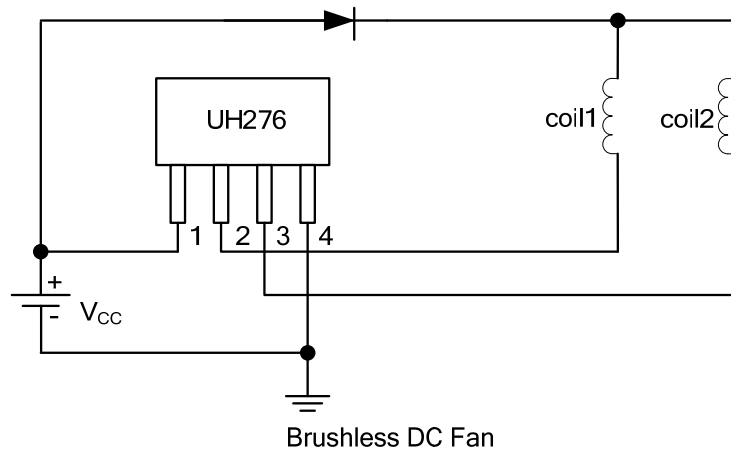
C grade

PARAMETR	SYMBOL	MIN	TYP	MAX	UNIT
Operate Point	$B_{OP}$			100	G
Release Point	$B_{RP}$	-100			G
Hysteresis	$B_{HYS}$	20		200	G

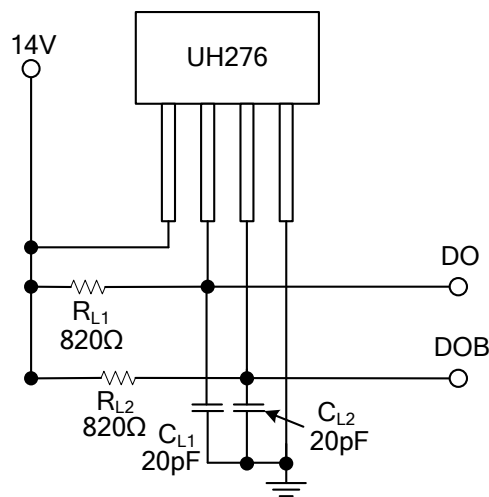
## ■ CHYSTERESIS CHARACTERISTICS



## ■ TYPICAL APPLICATION CIRCUIT

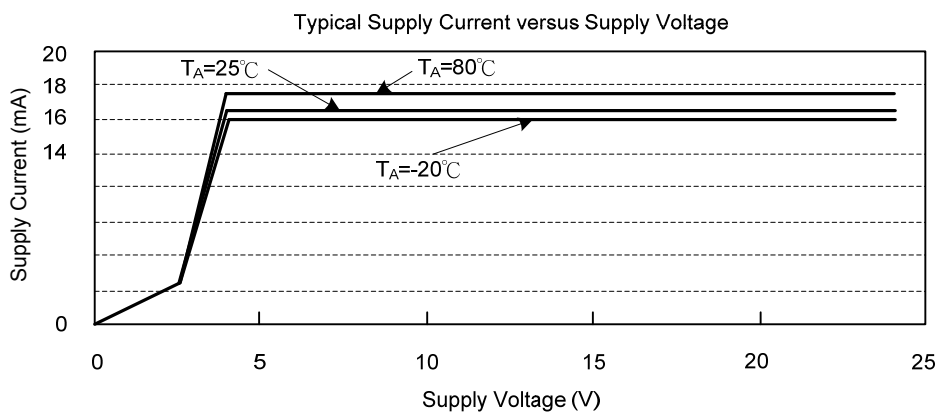
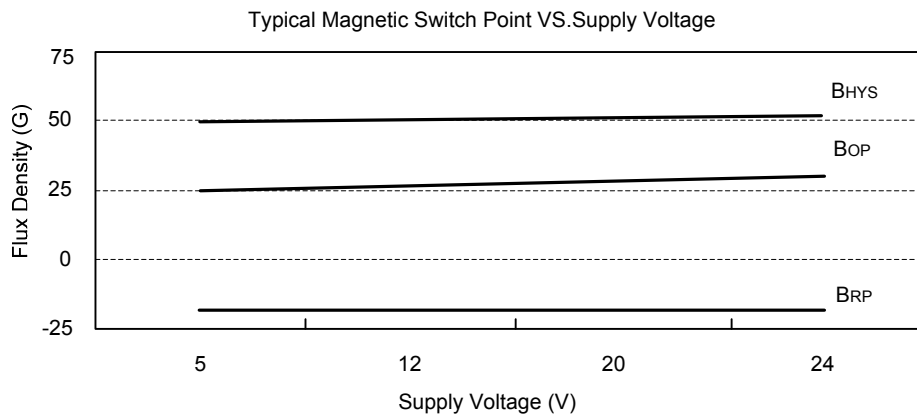
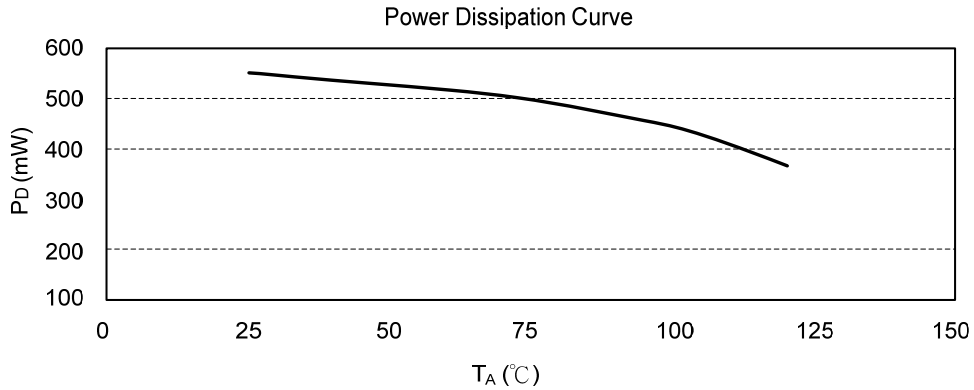


## ■ TEST CIRCUIT



## ■ PERFORMANCE CHARACTERISTICS

T <sub>A</sub> (°C)	25	50	60	70	80	85	90	95	100	105	110	115	120
P <sub>D</sub> (mW)	550	525	515	505	485	475	465	455	445	425	405	385	365



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