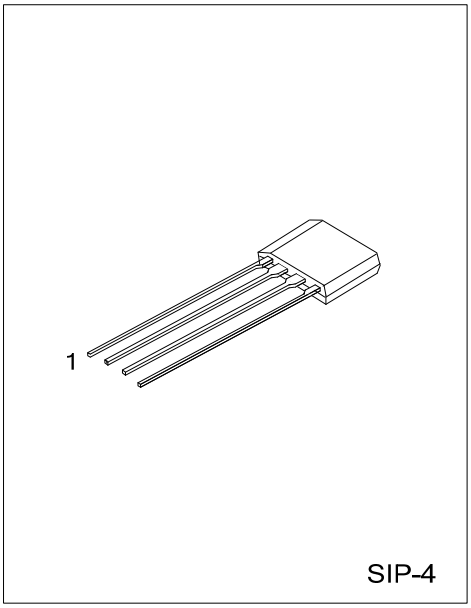
COMPLEMENTARY OUTPUTS HALL EFFECT LATCH IC



■ DESCRIPTION

The UTC **UH378** is a Latch-Type Hall Effect sensor with built-in complementary output drivers. It's composed of internal temperature compensation circuit and built-in protection diode to prevent reverse power fault. It is aimed for brush-less DC Fan.

The outputs of the **UH378** operate as the Hysteresis Characteristics. The Outputs alternately switch between ON and OFF when either the magnetic flux density is larger than threshold B_{OP} or the magnetic flux density is lower than B_{RP}.

■ FEATURES

* Widen Power Supply range from 3V ~ 20V.
* On-chip Hall sensor with excellent hysteresis.
* Build-in reverse protection diode.
* TTL and MOS IC are directly drivable by the output
* The life is semi permanent because it employs contact-less parts

■ ORDERING INFORMATION

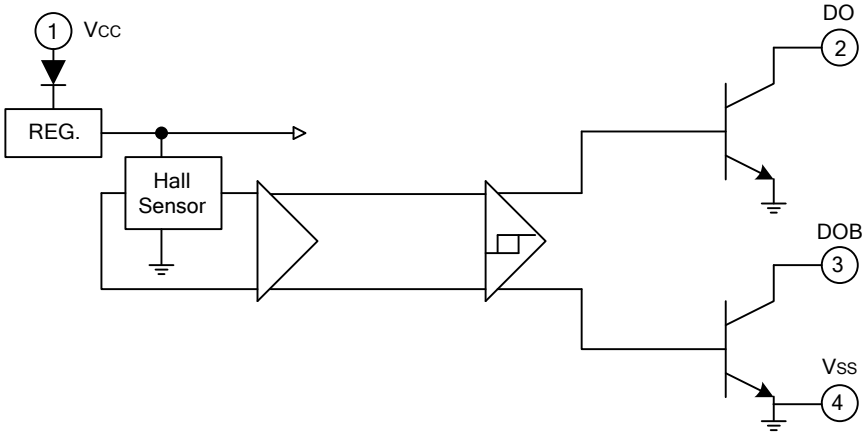
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UH378L-G04-K	UH378G-G04-K	SIP-4	Bulk

UH378L-G04-K (1)Packing Type (2)Package Type (3)Lead Free	(1) K: Bulk (2) G04: SIP-4 (3) G: Halogen Free, L: Lead Free

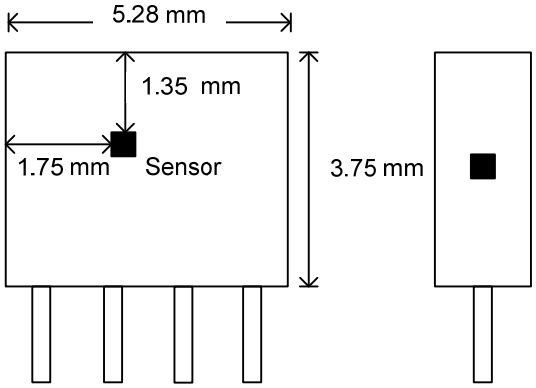
■ PIN DESCRIPTION

PIN NO.	PIN NAME	P/I/O	DESCRIPTION
1	V_{CC}	P	Positive Power Supply
2	DO	O	Output Pin
3	DOB	O	Output Pin
4	V_{SS}	P	Ground

■ BLOCK DIAGRAM



■ SENSOR LOCATIONS



■ ABSOLUTE MAXIMUM RATING (Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	20	V
Reverse V_{CC} Polarity Voltage	V_{RCC}	-25	V
Circuit Current	I_O	20	mA
Magnetic flux density	B	Unlimited	
Power Dissipation	P_D	500	mW
Junction Temperature	T_J	+150	℃
Operating Temperature	T_{OPR}	-20 ~ +85	℃
Storage Temperature	T_{STG}	-65 ~ +150	℃

Note: 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.

■ ELECTRICAL CHARACTERISTICS (Ta =25℃, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Low-Level Output Voltage	V_{OL}	V_{CC} = 14V, I_{OUT}=5mA	-	0.5	0.7	V
		V_{CC} = 3.6V, I_{OUT}=5mA		0.4	0.7	
Output Leakage Current	I_{CEX}	V_{CC} =14V	-	1	10	uA
Supply Current	I_{CC}	V_{CC} =14V	-	4.7	5	mA
		V_{CC} =3.6V		4.6	5	
Output Switching Time	t_R	V_{CC} =14V, R_L=10KΩ, C_L=10pF	-	-	5	us
	t_F	V_{CC} =14V, R_L=10KΩ, C_L=10pF			2	

■ MAGNETIC CHARACTERISTICS

A grade

PARAMETR	SYMBOL	MIN	TYP	MAX	UNIT
Operate Point	B_{OP}	5		50	G
Release Point	B_{RP}	-50		-5	G
Hysteresis	B_{HYS}	20		100	G

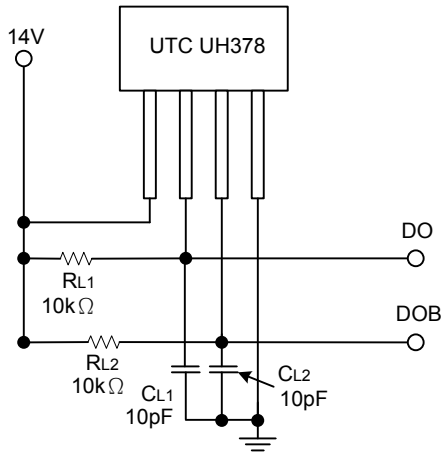
B grade

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

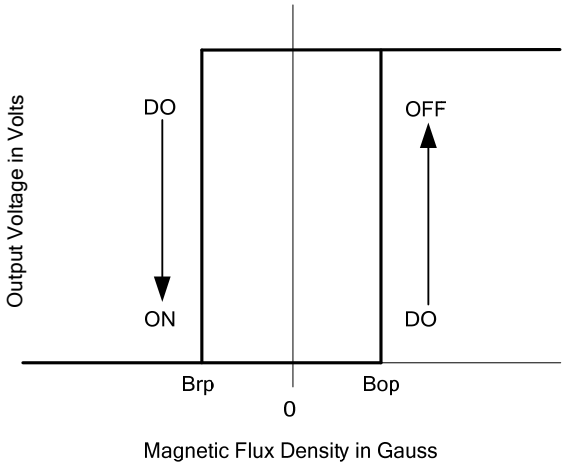
C grade

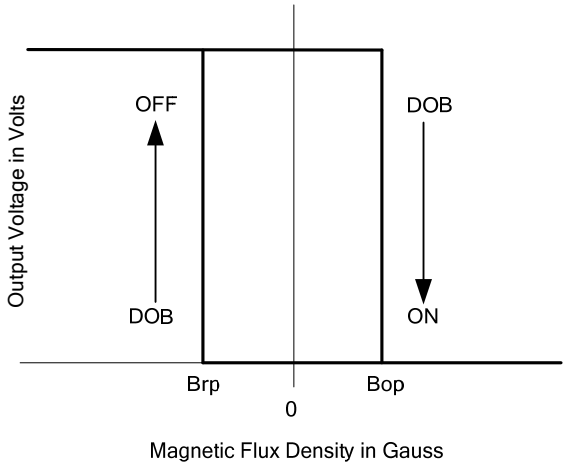
PARAMETR	SYMBOL	MIN	TYP	MAX	UNIT
Operate Point	B_{OP}			100	G
Release Point	B_{RP}	-100			G
Hysteresis	B_{HYS}	20		200	G

■ TEST CIRCUIT

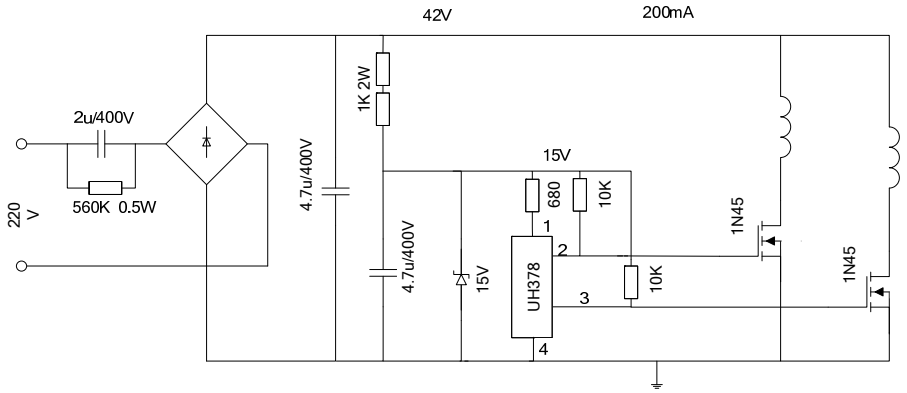


■ CHYSTERESIS CHARACTERISTICS





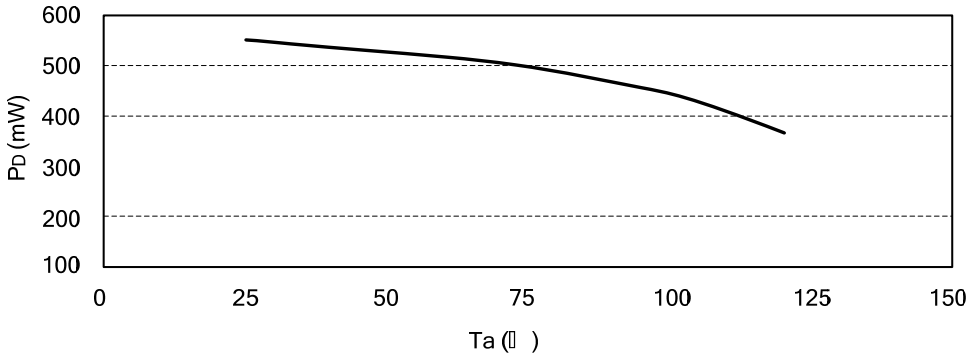
■ TYPICAL APPLICATION CIRCUIT



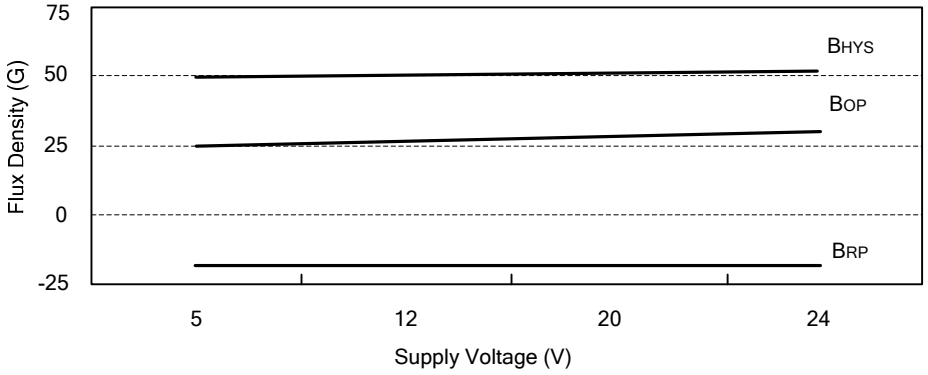
■ PERFORMANCE CHARACTERISTICS

Ta(℃)	25	50	60	70	80	85	90	95	100	105	110	115	120
P_D (mW)	550	525	515	505	485	475	465	455	445	425	405	385	365

Power Dissipation Curve



Typical Magnetic Switch Point vs.Supply Voltage



Typical Supply Current vs. Supply Voltage