

The MH365 is an output driver with Hall sensor for single-coil brush-less DC fans and motors. Beside the magnetic sensor, the device includes an amplifier that amplifies the Hall voltage, a Schmitt trigger to provide switching hysteresis, a bi-direction driver for sinking and driving large current load. It also includes locked rotor protection, auto-restart and thermal protection.

Placing the device in a variable magnetic field, if the magnetic flux density is larger than Bop, pin DO will be turned to sink and pin DOB will be turned to drive. This output state is held until the magnetic flux density reverses and falls below Brp, then causes DO to be turned to drive and DOB to be turned to sink.

MH365 is rated for operation between the ambient temperatures $-40\text{ }^{\circ}\text{C}$ and $125\text{ }^{\circ}\text{C}$ for the K temperature range. The package is available provided magnetically optimized solutions for most applications. SR is a standard Sot-26 packages at the K spec ($-40\text{ }^{\circ}\text{C}$ and $125\text{ }^{\circ}\text{C}$). also the Thermal shut-down function is integrated as well for better protection.

The package type is in a Halogen Free version has been verified by third party Lab.

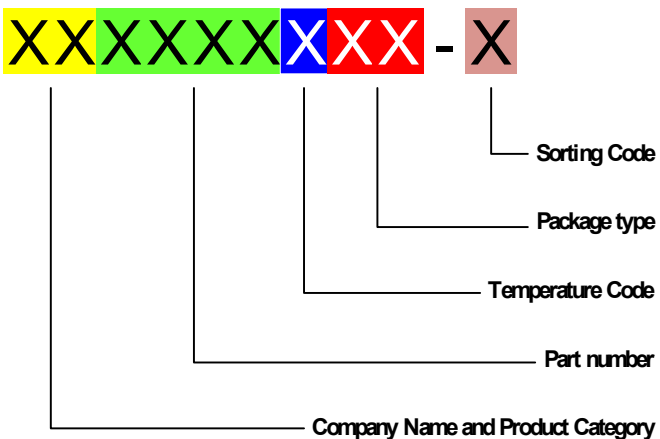
Features and Benefits

- CMOS Hall IC Technology.
- Reverse bias protection on power supply pin.
- Chopper stabilized amplifier stage.
- Soft Switch function
- Locked rotor shutdown and auto-restart.
- Thermal Shut-Down Function
- PWM function is integrated
- Good ESD Protection.
- 100% tested at $125\text{ }^{\circ}\text{C}$ for K.
- Custom sensitivity / Temperature selection are available.

Applications

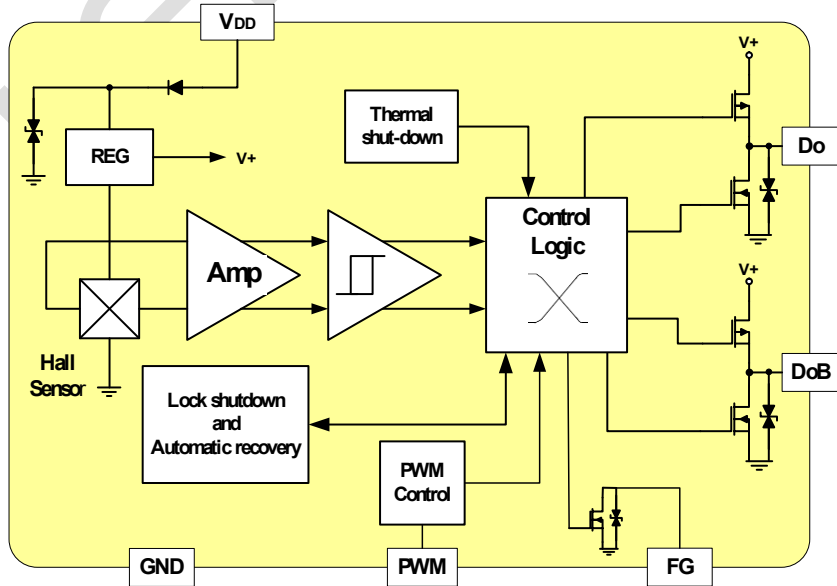
- 5V 1 coil DC Fan
- High temperature Fan motor
- Position sensing
- Revolution counting
- Solid-State Switch
- High ESD Capability

Ordering Information

	<p>Company Name and Product Category MH:MST Hall Effect/MP:MST Power IC</p> <p>Part number 181,182,183,184,185,248,249,276,477,381,381F,381R,382..... If part # is just 3 digits, the fourth digit will be omitted.</p> <p>Temperature range E: 85 °C, I: 105 °C, K: 125 °C, L: 150 °C</p> <p>Package type UA:TO-92S,VK:TO-92S(4pin),VF:TO-92S(5pin),SO:SOT-23, SQ:QFN-3,ST:TSOT-23,SN:SOT-553,SF:SOT-89(5pin), SS:TSOT-26,SD:DFN-6</p> <p>Sorting α,β,Blank.....</p>
---	--

Part No.	Temperature Suffix	Package Type
MH365FKSR	K (-40°C to +125°C)	SR (SOT-26)
MH365FESR	K (-40°C to +85°C)	SR (SOT-26)
MH365RKSR	K (-40°C to +125°C)	SR (SOT-26)
MH365RESR	K (-40°C to +85°C)	SR (SOT-26)

Functional Diagram



Absolute Maximum Ratings At($T_a=25\text{ }^\circ\text{C}$)

Characteristics	Values	Unit
Supply voltage, (V_{DD})	7.00	V
Reverse Voltage, (V_{DD})	-7.00	V
Output "on" current, (I_O)	500(Average)	mA
	1000(Peak)	mA
Operating Temperature Range, (T_A)	-40 ~+125	$^\circ\text{C}$
Storage temperature Range, (T_S)	-50 ~ +150	$^\circ\text{C}$
Package Power Dissipation, (P_D)	550	mW

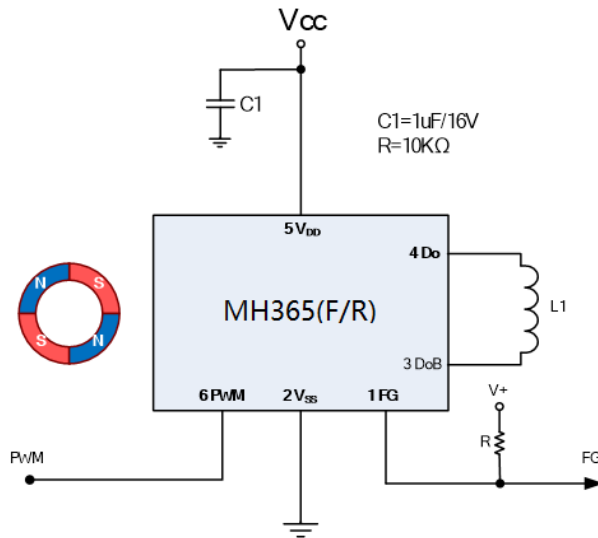
Note: Do not apply reverse voltage to V_{DD} and V_{OUT} Pin, It may be caused for Miss function or damaged device.

Electrical Specifications

DC Operating Parameters: $T_A=+25\text{ }^\circ\text{C}$, $V_{DD}=5\text{V}$

Parameters	Test Conditions	Min	Typ	Max	Units	
Supply Voltage, (V_{DD})	Operating	1.8		5.5	V	
Supply Current, (I_{DD})	No Load 5V		3.6	5.0	mA	
Output Saturation Voltage, (V_{DSON})	$I_{out}=400\text{mA}$	(Sink)		160	280	mV
		(Drive)	$V_{DD}-0.28$	$V_{DD}-0.16$		V
Output Switching Slope Duration, (T_{SW})	5V		200		μs	
FG Output Low Voltage, (V_{FG})	5V,5mA		0.3	0.5	V	
PWM Input Frequency, (F_{PWM})		0.2		30	KHz	
Locked Protection on, (T_{ON})		0.35	0.45	0.55	S	
Locked Protection off, (T_{OFF})		2.4	2.7	3.0	S	
Electro-Static Discharge	HBM	4			KV	
Operate Point, (BOP)		5	30	50	Gauss	
Release Point, (BRP)		-50	-30	-5	Gauss	
Hysteresis, ($BHYS$)			60		Gauss	

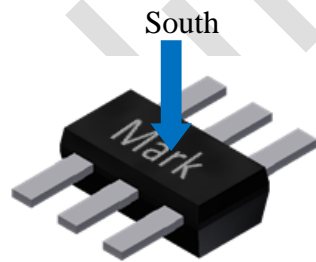
Typical application circuit



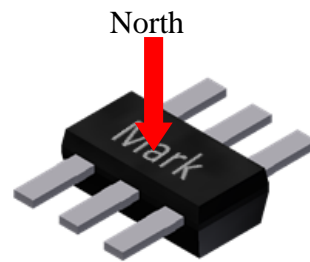
Output Behavior versus Magnetic Pole

DC Operating Parameters: $T_a = -40$ to 125 °C, $V_{CC} = 1.8$ to $5.5V$ (unless otherwise specified)

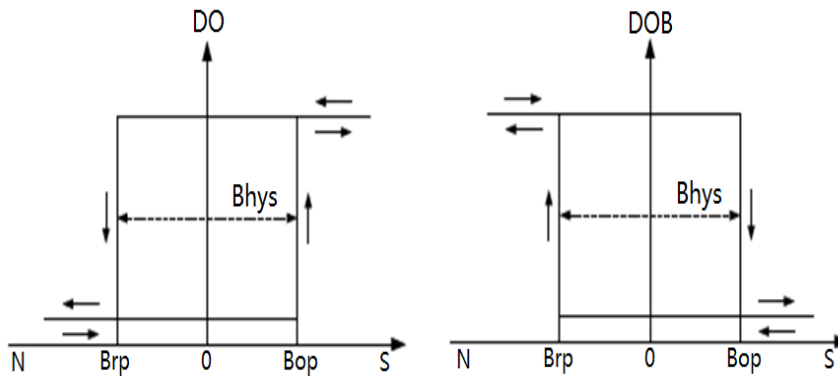
Parameter	Test condition	Do(2)	DoB(3)
South pole	$B > B_{op}$	Open	Low
North pole	$B < B_{rp}$	Low	Open



Do=open
DoB=Low



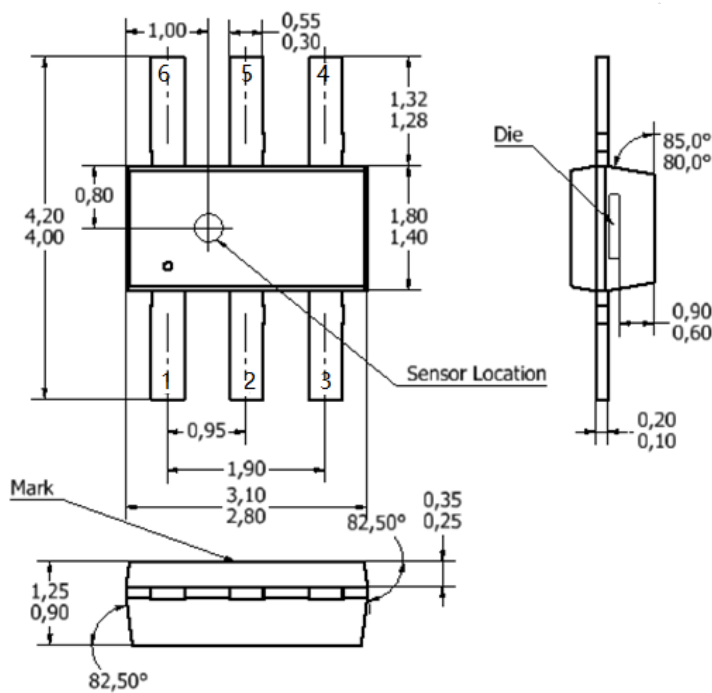
Do=Low
DoB=open



Sensor Location, Package Dimension and Marking

SR Package

SR package
 (Top View)



NOTES:

1. Controlling dimension: mm
2. Leads must be free of flash and plating voids.
3. Do not bend leads within 1 mm of lead to package interface.
4. PINOUT:

Pin No.	Pin Name
1	FG/RD
2	V _{SS}
3	DoB
4	Do
5	V _{DD}
6	PWM