

MH477 is the integrated Hall sensor with output drivers designed for electrical commutation of brush-less DC motor application. The devices are included as follows: on-chip Hall voltage generator for magnetic sensing; the amplifier that amplifies the Hall voltage; a comparator is to provide switching hysteresis for noise rejection; the bi-direction drivers for sinking and driving large current load. Internal band gap regulator is used to provide temperature compensated bias for internal circuits and allows a wide operating supply voltage range.

If a magnetic flux density larger than threshold Bop, DO is turned to sink and DOB is turned to drive. The output state is held until a magnetic flux density reversal falls below Brp causing DO to be turned to drive and DOB turned to sink.

MH477 is rated for operation over-temperature range from -20 °C to 85 °C, also the thermal shut-down function is included, and voltage range from 3.5V to 20V. The device is packaged by SIP-4.

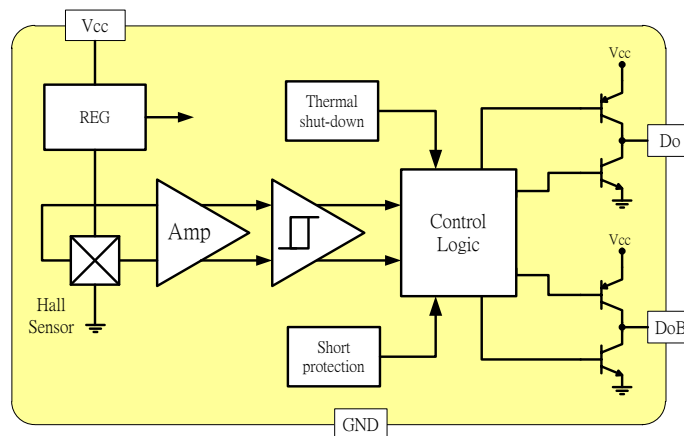
Features and Benefits

- On-chip Hall sensor with two different sensitivity and hysteresis settings
- Bi-direction H type output drivers for single coil
- Internal band gap regulator allows temperature compensated operations
- 3.5V to 20V operating voltage
- 350mA (avg.) output sink current
- -20° to +85°C operating temperature
- Thermal Shut-Down Function
- Short Protection Function(For 3.5V to 14V)
- Low cost and high sensitivity Fan Driver

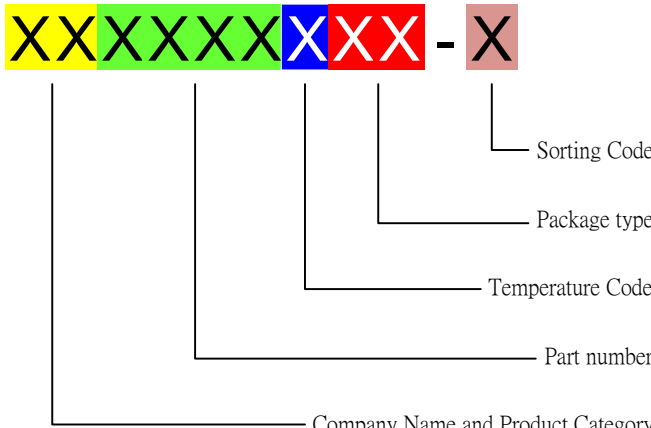
Applications

- Single-coil Brush-less DC Motor
- Single -coil Brush-less DC Fan

Functional Diagram



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>
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Part No.	Temperature Suffix	Package Type
MH477EVK-A	E (-20°C to + 85°C)	VK (4-pin TO-92S)
MH477EVK-B	E (-20°C to + 85°C)	VK (4-pin TO-92S)
MH477EVK-C	E (-20°C to + 85°C)	VK (4-pin TO-92S)

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

Characteristics	Values	Unit
Supply voltage, (V_{cc})	20	V
Magnetic flux density	Unlimited	Gauss
Output “on” current, (I_{out})	Continuous	mA
	Hold	
	Peak (Start Up)	
Operating temperature range, (T_a)	-20 to +85	°C
Storage temperature range, (T_s)	-65 to +150	°C
Maximum Junction Temp, (T_j)	150	°C
Thermal Resistance	(θ_{JA})	°C /W
	(θ_{JC})	°C /W
Package Power Dissipation, (P_D)	550	mW

Electrical Specifications

DC Operating Parameters : $T_a = +25^\circ\text{C}$, $V_{cc} = 12\text{V}$

Parameters	Test Conditions	Min	Typ	Max	Units
Supply Voltage, (V_{cc})	Operating	3.5		20.0	V
Supply Current, (I_{cc})	$B < Brp$		12	25.0	mA
Output Saturation Voltage (V_{sat})	(Sink)		280	650	mV
	(Drive)	$V_{cc} = 14\text{V}$, $I_C = 200\text{mA}$	$V_{cc} - 1.3$	$V_{cc} - 1$	V_{cc}
Output Rise Time, (T_R)	$R_L = 820\Omega$, $C_L = 20\text{PF}$		1.0	5.0	μs
Output Falling Time, (T_F)	$R_L = 820\Omega$, $C_L = 20\text{PF}$		0.3	1.5	μs
Switch Time Differential, (T_S)	$R_L = 820\Omega$, $C_L = 20\text{PF}$		1.0	5.0	μs
Thermal shut-down Temp			130		$^\circ\text{C}$
Thermal shut-down Hysteresis			40		$^\circ\text{C}$
Operate Point, (B_{OP})	"A" Grade	5		70	Gauss
	"B" Grade	0		100	Gauss
	"C" Grade			130	Gauss
Release Point, (B_{RP})	"A" Grade	-70		-5	Gauss
	"B" Grade	-100		0	Gauss
	"C" Grade	-130			Gauss
Hysteresis, (B_{HYS})	'A' 'B' 'C' Grade		70		Gauss

Typical application circuit

