

MH191 Hall-Effect sensor, designed for electronic commutation of brush-less DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall Voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and open collector output. An internal band gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range. The device is identical except for magnetic switch points.

The device includes on a single silicon chip a voltage regulator, Hall-voltage generator, small-signal amplifier, Schmitt trigger, open-collector output to sink up to 100mA. A south pole of sufficient strength will turn the output on. The North Pole is necessary to turn the output off. An on-board regulator permits operation with supply voltages of 4V to 30 V.

The package type in a lead Halogen Free version was verified by third party organization.


Features and Benefits

- Temperature compensation.
- Inverted output
- Wide operating voltage range.
- Open-Collector pre-driver.
- Reverse bias protection on power supply pin.

Applications

- High temperature Hall IC application
- Fan motor application
- BLDC motor application

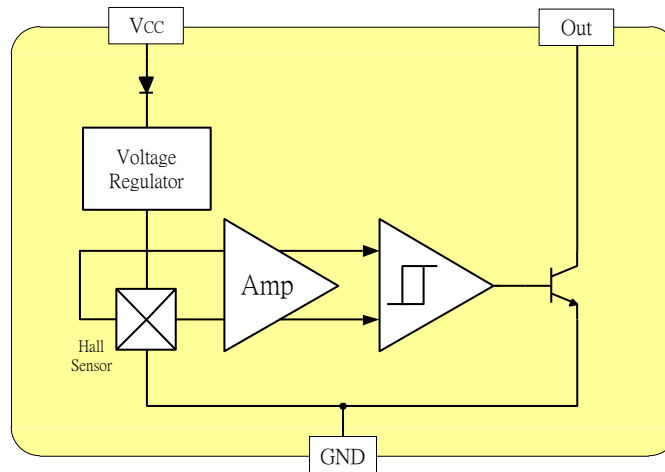
Ordering Information

	<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 forth 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>
<p>Sorting Code</p> <p>Package type</p> <p>Temperature Code</p> <p>Part number</p> <p>Company Name and product Category</p>	

Ordering number

Part No.	Temperature Suffix	Package Type
MH191KUA	(-40°C to + 125°C)	(TO-92S)

Functional Diagram



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

Characteristics		Values	Unit
Supply voltage, (V_{cc})		35	V
Reverse Vcc Polarity Voltage, (V_{cc})		-35	V
Magnetic flux density		Unlimited	Gauss
Output "on" current, (I_{OUT})	Continuous	200	mA
Operating temperature range, (T_a)		-40 to +125	$^{\circ}\text{C}$
Storage temperature range, (T_s)		-55 to +150	$^{\circ}\text{C}$
Maximum Junction Temp, (T_j)		150	$^{\circ}\text{C}$
Thermal Resistance	(θ_{ja}) UA	206	$^{\circ}\text{C}/\text{W}$
	(θ_{jc}) UA	148	$^{\circ}\text{C}/\text{W}$
Package Power Dissipation, (P_D)		606	mW

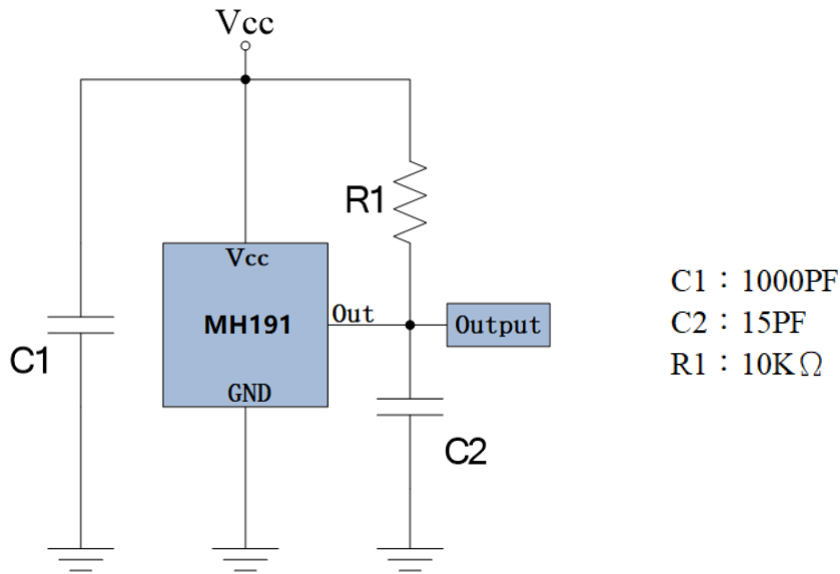
Note: Do not apply reverse voltage to V_{CC} and V_{OUT} Pin, It may be caused for Miss function or damaged device.

Electrical Specifications

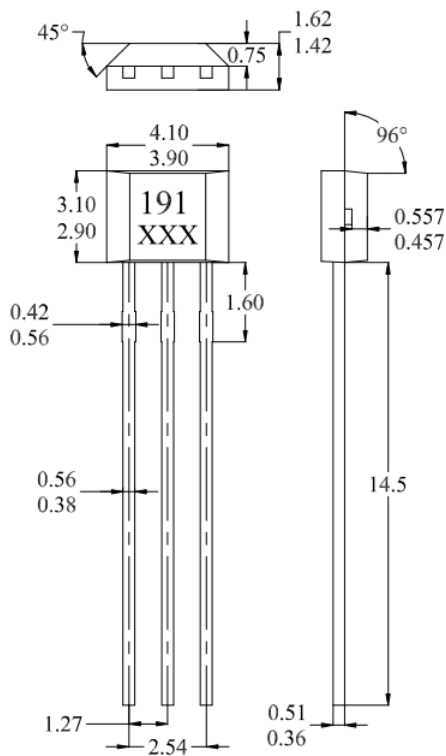
DC Operating Parameters: $T_a=+25^{\circ}\text{C}$, $V_{cc}=12\text{V}$

Parameters	Test Conditions	Min	Typ	Max	Units
Supply Voltage, (V_{cc})	Operating	4		30.0	V
Supply Current, (I_{cc})	$B < B_{rp}$	7	14	25.0	mA
Output Saturation Voltage, (V_{Sat})	$I_{OUT} = 5 \text{ mA}$, $B > B_{OP}$		600.0	950.0	mV
Output Leakage Current, (I_{off})	$I_{OFF} B < B_{RP}$, $V_{OUT} = 24\text{V}$		<0.1	10.0	μA
Output Rise Time, (T_R)	$V_{cc}=14\text{V}$, $L_1=820\Omega$, $CL=20\text{PF}$		3.0	10.0	μS
Output Falling Time, (T_F)	$V_{cc}=14\text{V}$, $L_1=820\Omega$, $CL=20\text{PF}$		0.3	1.5	μS
Thermal shut-down Temp			130		$^{\circ}\text{C}$
Thermal shut-down Hysteresis			40		$^{\circ}\text{C}$
Operate Point		-100		-10	Gauss
Release Point		10		100	Gauss
Hysteresis			70		Gauss

Typical application circuit



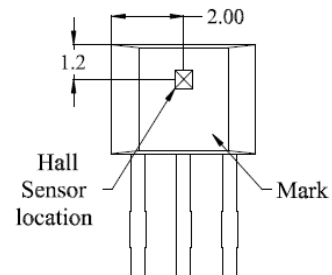
Sensor Location, Package Dimension and Marking
UA Package



NOTES:

1. Controlling dimension: mm
2. Leads must be free of flash and plating voids
3. Do not bend leads within 1mm of lead to package interface.
4. PINOUT:
Pin 1 VDD
Pin 2 GND
Pin 3 Output
5. XXX; 1st X=Year;
2nd and 3rd XX=Week

Hall Chip location



Output Pin Assignment
(Top view)

