

MH4802 is a unipolar linear Hall-effect sensor, is composed of Hall sensor, linear amplifier and Totem-Pole output stage. It features low noise output, which makes it unnecessary to use external filtering. It also can provide increased temperature stability and accuracy. The linear Hall sensor has a wide operating temperature range of -40°C to +85°C, appropriate for commercial, consumer, and industrial environments.

The high sensitivity of Hall-effect sensor accurately tracks extremely weak changes in magnetic flux density. The linear sourcing output voltage is set by the supply voltage and in proportion of vary of the magnetic flux density. Operating voltage range is 3.0 volts to 10.0 volts.

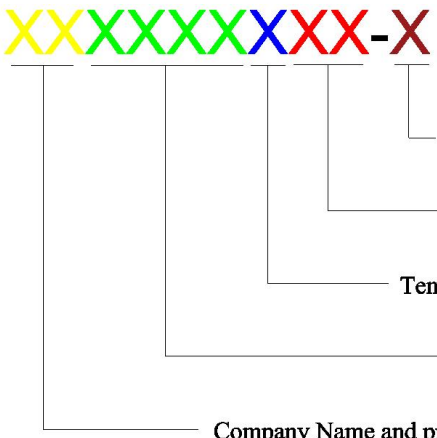
Features and Benefits

- Operating Voltage Range: 3.0V~10.0V
- Low-Noise Operation
- Linear output for circuit design flexibility
- Totem-Pole for a stable and accurate output
- Small package for SMD
- Cost competitive
- Robust ESD performance
- RoHS compliant 2011/65/EU and Halogen Free

Applications

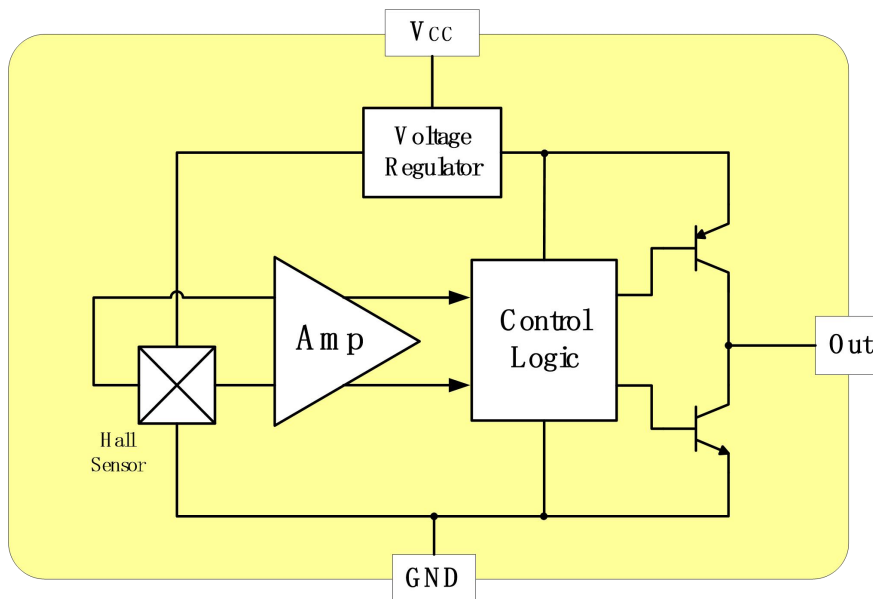
- Current sensing
- Motor control
- Position sensing
- Magnetic code reading
- Rotary encoder
- Ferrous metal detector
- Vibration sensing
- Liquid level sensing
- Weight sensing

Ordering Information

 Sorting Code Package type Temperature Code Part number Company Name and product Category	Company Name and Product Category MH:MST Hall Effect/MP:MST Power IC 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. Temperature range E: 85 °C, I: 105 °C, K: 125 °C, L: 150 °C 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 Sorting α , β ,Blank.....
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Part No.	Temperature Suffix	Package Type
MH4802ESO	E (-40°C to + 85°C)	SO (SOT-23)
MH4802ESP	E (-40°C to + 85°C)	SP (PSOT-23)

Functional Diagram



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

Characteristics		Values	Unit
Supply Voltage, (V_{CC})		30	V
Reverse Voltage, (V_{CC})		-0.3	V
Magnetic Flux Density		Unlimited	Gauss
Output Current, (I_{OUT})		2	mA
Operating Temperature Range, (T_a)	"E" version	-40 to +85	$^\circ\text{C}$
Storage temperature range, (T_s)		-65 to +165	$^\circ\text{C}$
Maximum Junction Temp, (T_j)		165	$^\circ\text{C}$
Thermal Resistance	(θ_{ja}) SO/SP	543/625	$^\circ\text{C/W}$
	(θ_{jc}) SO/SP	48/116	$^\circ\text{C/W}$
Package Power Dissipation, (P_D) SO/SP		606/200	mW

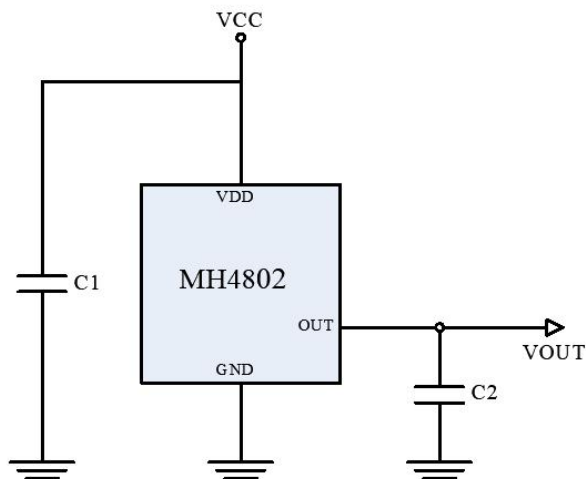
Note: Do not apply reverse voltage to V_{CC} and V_{OUT} Pin, It may be caused for Missfunction or damaged device.

Electrical Specifications

DC Operating Parameters: $T_A = +25^\circ\text{C}$, $V_{CC} = 3.3\text{V}$

Parameters	Test Conditions	Min	Typ	Max	Units
Supply Voltage, (V_{CC})	Operating	3.0		10.0	V
Supply Current, (I_{CC})	B=0 Gauss			5	mA
Output Current, (I_o)				2	mA
Null Output Voltage, (V_{Null})	B=0 Gauss		2.4		V
Output Voltage Span, (V_{os})		0.7		2.6	V
Linearity	% of Span		0.7		
Response Time			3		μs
Sensitivity		1.9		2.1	mV/G
Electro-Static Discharge	HBM	3			kV

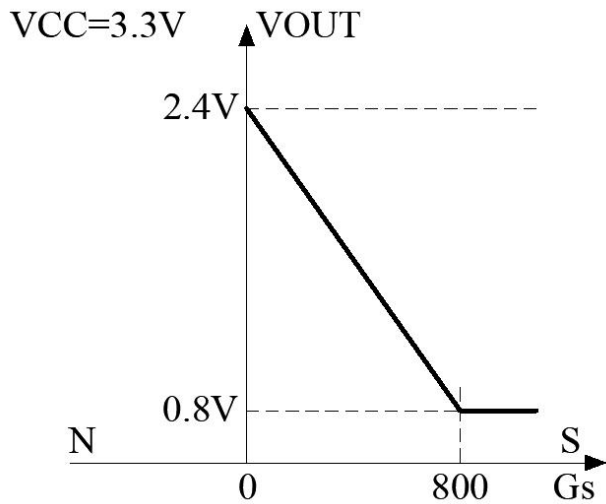
Typical application circuit



C1: 1000PF

C2: 10PF

SO/SP Output Behavior versus Magnetic Polar

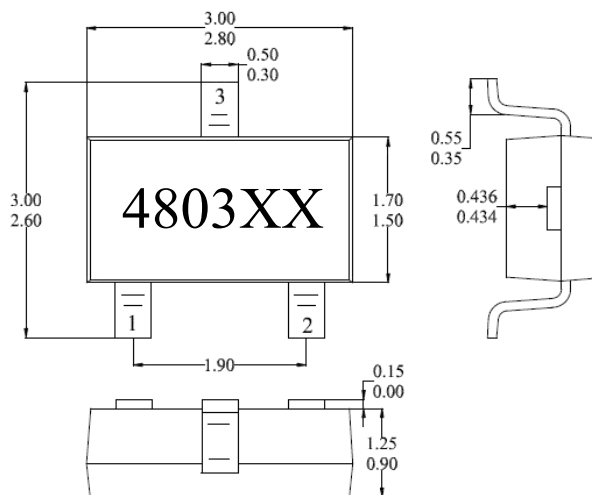


PS: The magnet is facing the marking side of the IC.

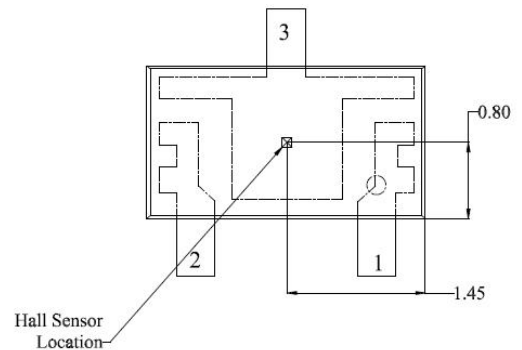
Sensor Location, package dimension and marking

SO Package (SOT-23)

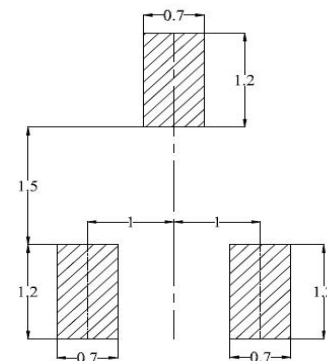
(Top View)



Hall Plate Chip Location



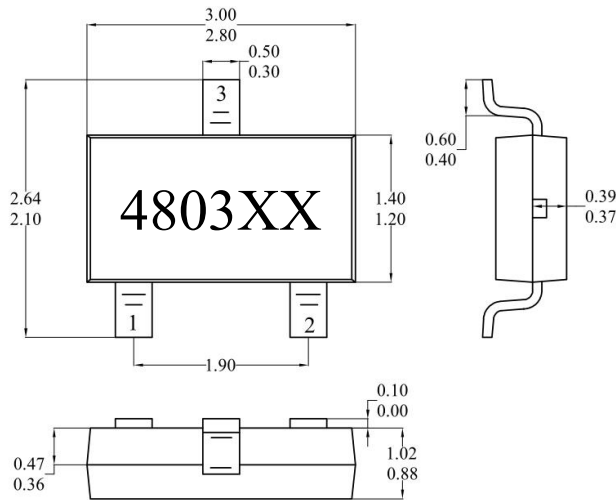
(For reference only) Land Pattern



NOTES:

- 1 PINOUT (See Top View at left :)
Pin 1 V_{DD} ; Pin 2 Output; Pin 3 GND
- 2 Controlling dimension: mm
- 3 Lead thickness after solder plating will be 0.254mm maximum
- 4 XX: Date Code, Refer to DC table

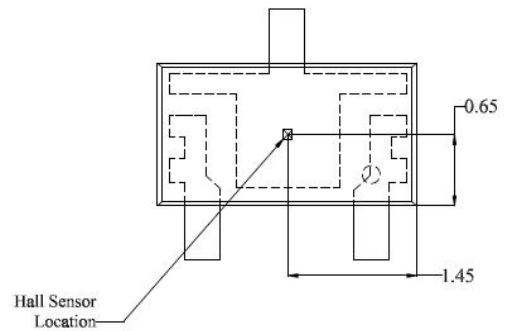
SP Package (PSOT-23) (Top View)



NOTES:

- 1 PINOUT (See Top View at left :)
Pin 1 V_{DD}
Pin 2 Output
Pin 3 GND
- 2 Controlling dimension: mm
- 3 Lead thickness after solder plating will be 0.254mm maximum
- 4 XX: Date Code, Refer to DC table

Hall Plate Chip Location (Bottom view)



(For reference only) Land Pattern

