

MH283 is an unipolar Hall effect sensor IC. It incorporates advanced chopper stabilization technology to provide accurate and stable magnetic switch points. The design, specifications and performance have been optimized for applications of solid state switches.

The output transistor will be switched on (BOP) in the presence of a sufficiently strong South pole magnetic field facing the marked side of the package. Similarly, the output will be switched off (BRP) in the presence of a weaker South field and remain off with “0” field. The Pull high resistor has been integrated.

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

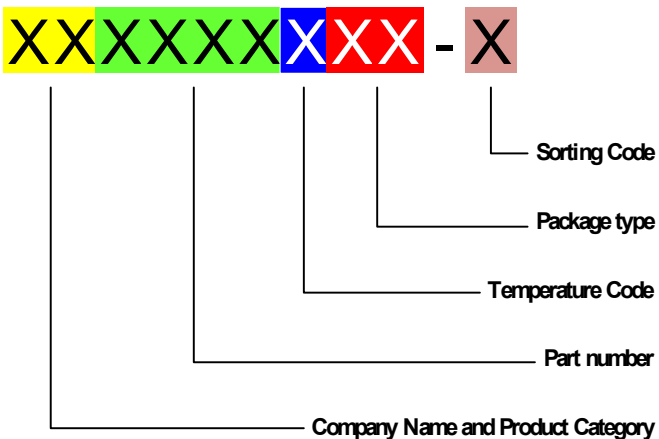
### Features and Benefits

- DMOS Hall Effect IC.
- Chopper stabilized amplifier stage.
- Operation down to 2.5V
- Small Size in TO- 92S and Sot 23 package.
- 100% tested at 125°C for K Spec.
- Custom sensitivity / Temperature selection are available.

### Applications

- Solid state switch
- Limit switch
- Current limit
- Interrupter
- Current sensing
- Magnet proximity sensor for reed switch replacement

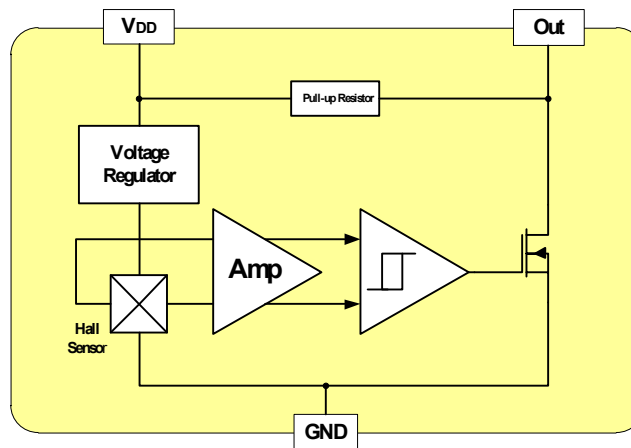
### Ordering Information

	<p><b>Company Name and Product Category</b> MH:MST Hall Effect/MP:MST Power MOSFET</p> <p><b>Part number</b> 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><b>Temperature range</b> E: 85 °C, I: 105 °C, K: 125 °C, L: 150 °C</p> <p><b>Package type</b> 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)</p> <p><b>Sorting</b> α,β,Blank.....</p>
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Part No.	Temperature Suffix	Package Type
MH283KUA	K (-40°C to + 125°C)	UA (TO-92S)
MH283KSO	K (-40°C to + 125°C)	SO (SOT-23)
MH283EUA	E (-40°C to + 85°C)	UA (TO-92S)
MH283ESO	E (-40°C to + 85°C)	SO (SOT-23)

*KUA spec is using in industrial and automotive application. Special Hot Testing is utilized.*

### Functional Diagram



**Note:** Static sensitive device; please observe ESD precautions. Reverse  $V_{DD}$  protection is not included. For reverse voltage protection, a 11K $\Omega$  resistor in series with  $V_{DD}$  is recommended.

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

Characteristics	Values	Unit
Supply voltage, ( $V_{DD}$ )	28	V
Output Voltage, ( $V_o$ )	28	V
Reverse Voltage, ( $V_{DD}$ ) ( $V_{OUT}$ )	-0.3	V
Magnetic flux density	Unlimited	Gauss
Output current, ( $I_{OUT}$ )	50	mA
Operating Temperature Range, ( $T_a$ )	“E” version	-40 to +85 °C
	“K” version	-40 to +125 °C
Storage temperature range, ( $T_s$ )	-55 to +150	°C
Maximum Junction Temp, ( $T_j$ )	150	°C
Thermal Resistance	( $\theta_{ja}$ ) UA / SO	206 / 543 °C/W
	( $\theta_{jc}$ ) UA / SO	148 / 410 °C/W
Package Power Dissipation, ( $P_D$ ) UA / SO	606 / 230	mW

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

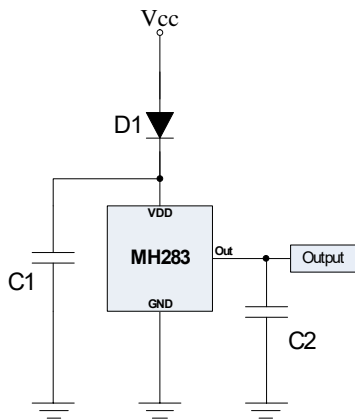
### Electrical Specifications

DC Operating Parameters  $T_A=+25^\circ\text{C}$ ,  $V_{DD}=12\text{V}$  (Unless otherwise specified)

Parameters	Test Conditions	Min	Typ	Max	Units
Supply Voltage, ( $V_{DD}$ )	Operating	2.5		24.0	V
Supply Current, ( $I_{DD}$ )	B<BOP		2.5	5.0	mA
Output Saturation Voltage, ( $V_{sat}$ )	$I_{OUT} = 20\text{ mA}$ , B>BOP			500.0	mV
Output Leakage Current, ( $I_{off}$ )	IOFF B<BRP, $V_{OUT} = 20\text{V}$			10.0	uA

Output Rise Time, ( <i>TR</i> )	RL=1kΩ, CL =20pF		0.45	uS
Output Fall Time, ( <i>TF</i> )	RL=1kΩ; CL =20pF		0.45	uS
Operate Point(BOP)		90	150	Gauss
Release Point(BRP)		40	100	Gauss
Hysteresis(BHYS)			50	Gauss

### Typical application circuit



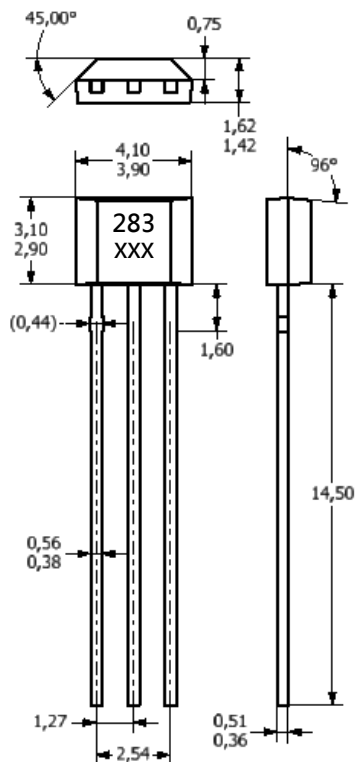
D1 : 1N4148 or 100Ω

C1 : 1000PF

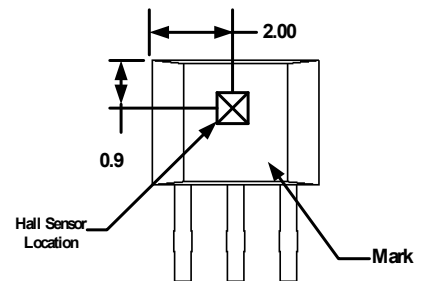
### Sensor Location, Package Dimension and Marking

#### Package

#### UA Package



#### Hall Chip location

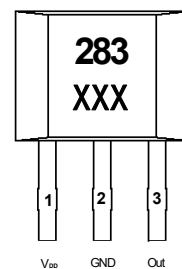


#### NOTES:

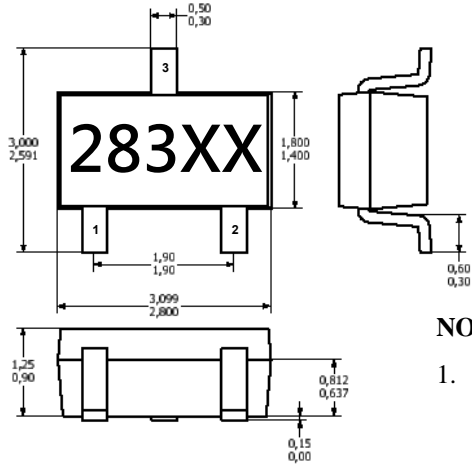
- 1).Controlling dimension: mm
- 2).Leads must be free of flash and plating voids
- 3).Do not bend leads within 1 mm of lead to package interface.

#### 4).PINOUT:

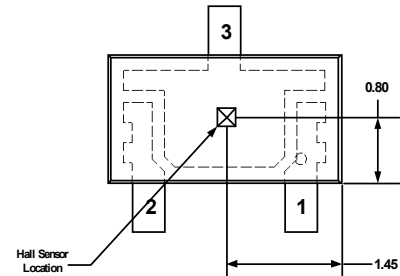
#### Output Pin Assignment (Top view)



#### Package (SOT-23) (Top View)



#### Hall Plate Chip Location (Bottom view)



#### NOTES:

1. PINOUT (See Top View at left :)
  - Pin 1  $V_{CC}$
  - Pin 2 Output
  - Pin 3 GND
2. Controlling dimension: mm
3. Lead thickness after solder plating will be 0.254mm maximum