MH285 is an unipolar Hall effect sensor IC. It incorporates advanced chopper Stabilization technology to provide accurate and stable magnetic switch points. The desigh, specifications and performance have been optimized for applications of solid state switches.

The output transistor will be switched on (B_{OP}) 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 (B_{RP}) in the presence of a weaker South field and remain off with "0"field.

The package type is in a Halogen Free version was verified by third party organization. Halogen Free package is available by customer's option.

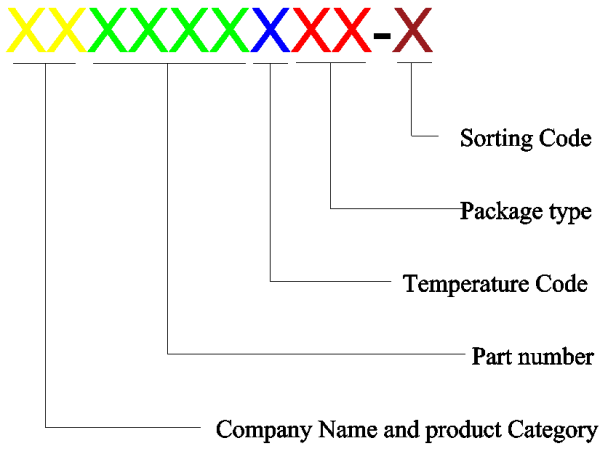
Features and Benefits

- DMOS Hall IC Technology
- Reverse bias protection on power supply pin
- Good ESD protection
- Solid-State Reliability
- Chopper stabilized amplifier stage
- Unipolar, output switches with absolute value of South pole from magnet
- Operation down to 2.5v
- High sensitivitiy direct reed switch replacement applications
- 100% tested at 125℃ for K spec
- Custom sensitivity/Temperature selection are availabe.
- RoHS compliant 2011/65/EU and Halogen Free.

Applications

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

Ordering Information



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 ℃, I: 105 ℃, K: 125 ℃, L: 150 ℃

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

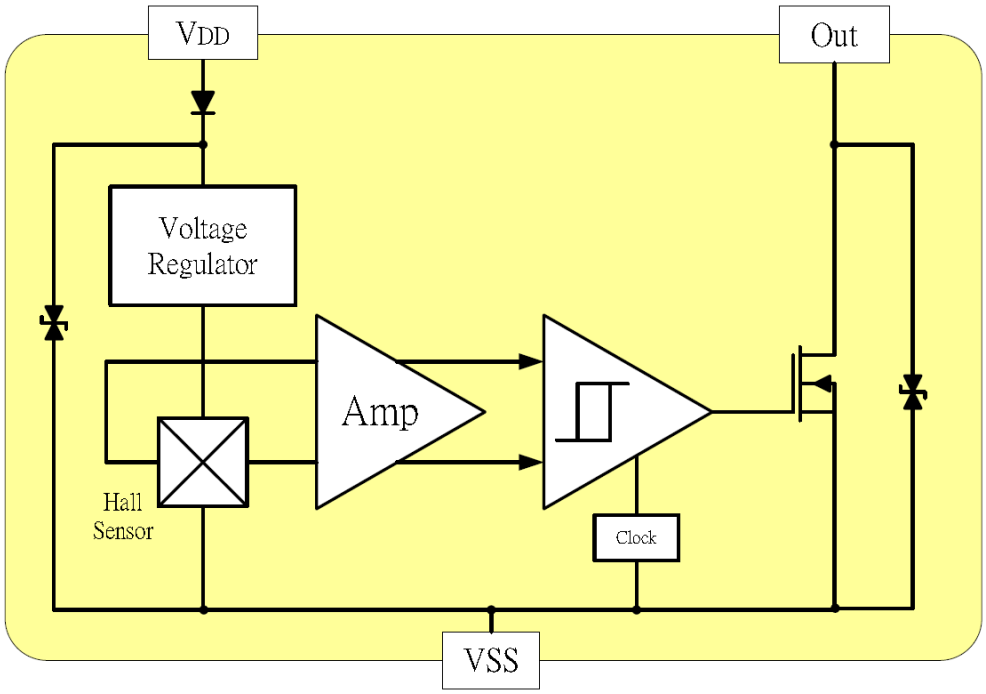
Sorting

α , β ,Blank…..

Part No.	Temperature Suffix	Package Type
MH285KUA	K (-40°C to + 125°C)	UA (TO-92S)
MH285EUA	E (-40°C to + 85°C)	UA (TO-92S)
MH285KSO	E (-40°C to + 125°C)	SO (SOT-23)

Custom sensitivity selection is available by MST sorting technology

Functional Diagram



***Note**: Static sensitive device; please observe ESD precautions. Reverse V_{DD} protection is not included. For reverse voltage protection, a 100Ω resistor in series with V_{DD} is recommended.*

Absolute Maximum Ratings At (Ta=25℃)

Characteristics		Values	Unit
Supply voltage,(V_{DD})		28	V
Output Voltage,(*Vout*)		28	V
Reverse voltage, (V_{DD}) (V_{OUT})		-27/-0.3	V
Magnetic flux density		Unlimited	Gauss
Output current,(I_{SINK})		50	mA
Operating Temperature Range, (*Ta*)	"E" version	-40 to +85	℃
	"K" version	-40 to +125	℃
Storage temperature range, (*Ts*)		-55 to +150	℃
Maximum Junction Temp,(*Tj*)		150	℃
Thermal Resistance	(θ_{JA}) UA / SO	206 / 543	℃/W
	(θ_{JC}) UA / SO	148 / 410	℃/W
Package Power Dissipation, (*PD*) UA / SO		606 / 230	mW

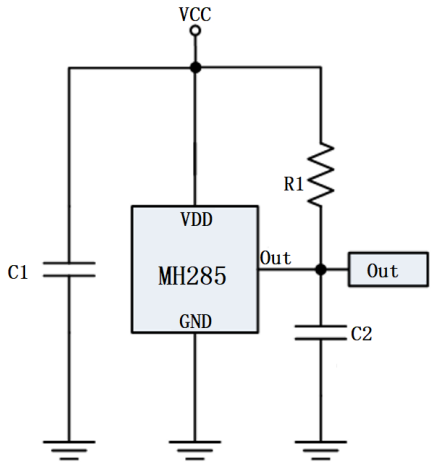
Note: *Exceeding the absolute maximum ratings may cause permanent damage. Exposure to absolute maximum-rated conditions for extended periods may affect device reliability.*

Electrical Specifications

DC Operating Parameters TA=+25℃, VDD=12V

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 Low Voltage,(V_{DSON})	I_{OUT}=20mA, B>Bop			500	mV
Output Leakage Current,(I_{off})	I_{OFF} B<BRP, V_{OUT} = 20V			10.0	uA
Power-On Time, (*Tp*)				50	uS
Output Switch Time, (*Tsw*)				150	uS
Output Switch Frequency,(Fsw)		3			KH_Z
Out put Rise Time,(T_R)	R_L=1KΩ; C_L=20pF		0.04	1.0	uS
Out put Fall Time, (T_F)	R_L=1KΩ; C_L=20pF		0.18	1.0	uS
Electro-Static Discharge	HBM	4			*KV*
Operate Point, (B_{OP})	UA(SO)	15(-35)		35(-15)	Gauss
Release Point,(B_{RP})	UA(SO)	7(-27)		27(-7)	Gauss
Hysteresis,(Bhys)	|B_{OP} - B_{RP}|		8		Gauss

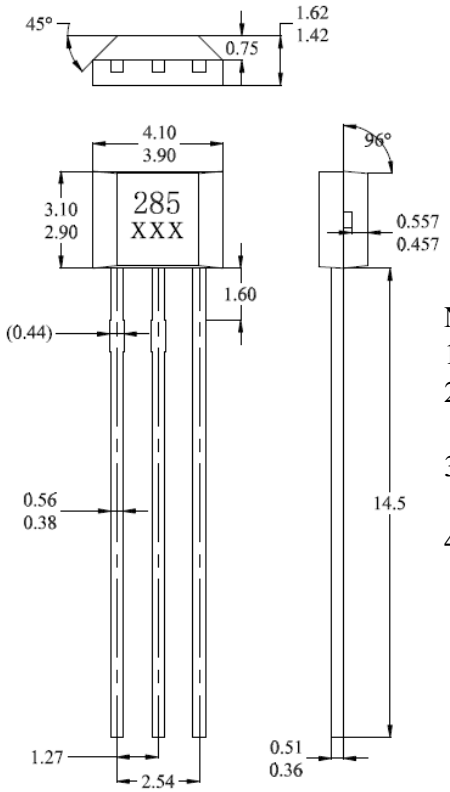
Typical Application circuit



C1：10nF
C2：1nF
R1：1KΩ

Sensor Location, Package Dimension and Marking

UA Package

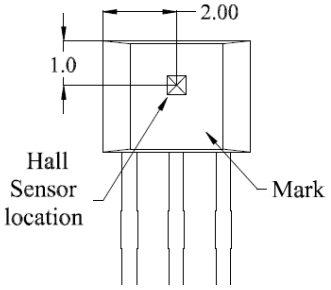


NOTES:

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

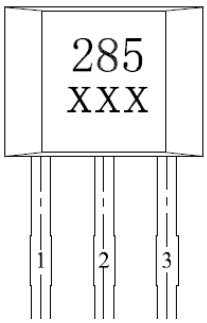
Pin 1	V_{DD}
Pin 2	GND
Pin 3	Output

Hall Chip location



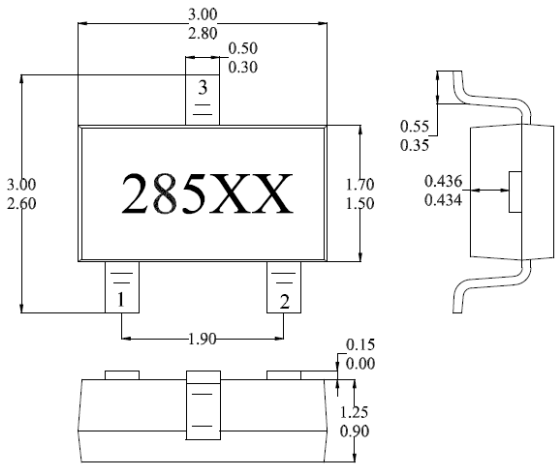
Output Pin Assignment

(Top view)



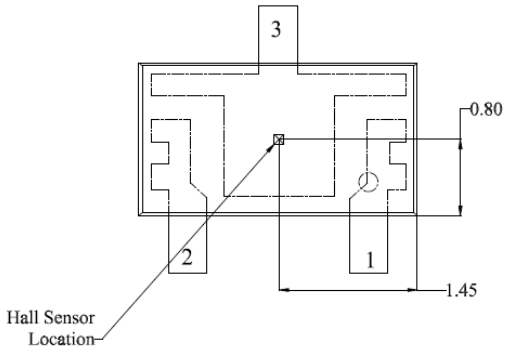
SO Package

(Top View)

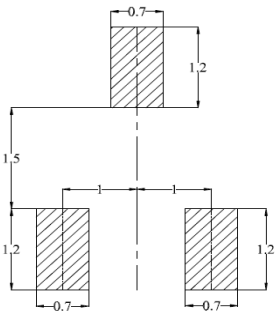


Hall Plate Chip Location

(Bottom view)



(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