MH481 a 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℃ to +105℃, 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 ofvary of the magnetic flux density. Typical operation current is 2.5mA and operating voltage range is 3.0 volts to 6.5 volts.

The UA package style available provides magnetically optimized solutions for most applications. The SQ package is a three-lead ultra-mini SMD and ST are the industrial standard package in SMT process.

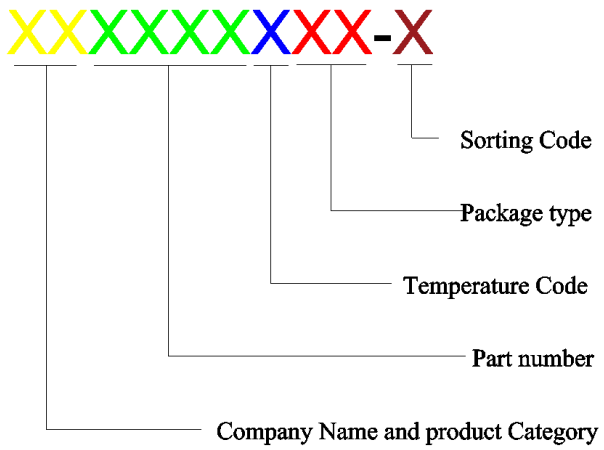
Features and Benefits

- Operating Voltage Range: 3.0V~6.5V
- Power consumption of 2.5 mA at 5 V_{DC} for energy efficiency
- Low-Noise Operation
- Linear output for circuit design flexibility
- Totem-Pole for a stable and accurate output
- Responds to either positive or negative gauss
- Small package for SMD
- MagneticallyOptimized Package for SIP
- 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



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),

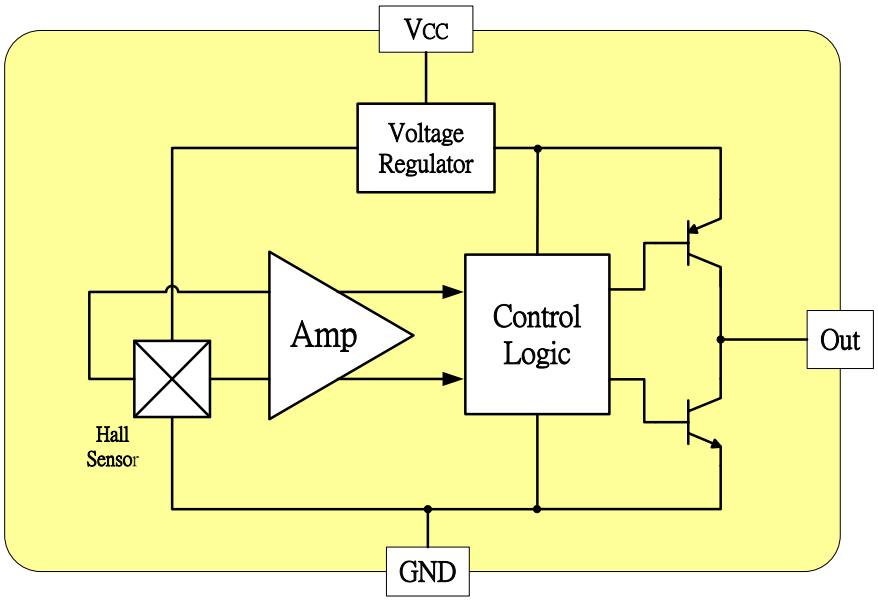
SS:TSOT-26,SD:DFN-6

Sorting

α,β,Blank…..

Part No.	**Temperature Suffix**	**PackageType**
MH481IUA	I (-40℃ to + 105℃)	UA (TO-92S)
MH481ISQ	I (-40℃ to + 105℃)	SQ (QFN2020-3)
MH481IST	I (-40℃ to + 105℃)	ST(TSOT-23)

Functional Diagram



Absolute Maximum Ratings *At(Ta=25℃)*

Characteristics		Values	Unit
Supply Voltage,(*VCC*)		8	V
Reverse Voltage , (*VCC*)		-0.5	V
Magnetic Flux Density		Unlimited	Gauss
Output Current , (*IOUT*)		10	mA
Operating Temperature Range, (*Ta*)	"I" version	-40 to +105	℃
Storage temperature range, (*Ts*)		-65 to +150	℃
Maximum Junction Temp,(*Tj*)		150	℃
Thermal Resistance	(*θja*) UA / SQ / ST	206 / 543 / 310	℃/W
	(*θjc*) UA / SQ / ST	148 / 410 / 223	℃/W
Package Power Dissipation, (*PD*)UA / SQ / ST		606 / 230 / 400	mW

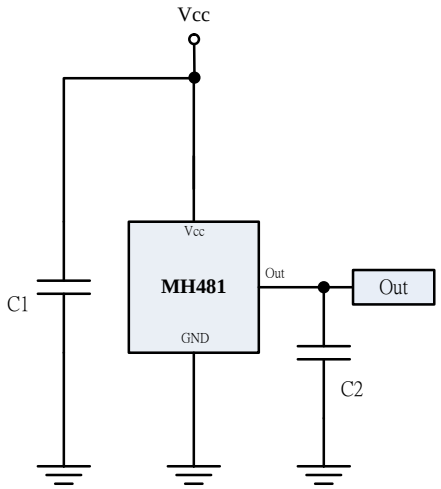
***Note**: Do not apply reverse voltage to* V_{CC} *and* V_{OUT} *Pin, It may be caused for Missfunction or damaged device.*

Electrical Specifications

DC Operating Parameters： T_A*=+25℃,* V_{CC}*=5.0V*

Parameters	Test Conditions	Min	Typ	Max	Units
Supply Voltage,(*VCC*)	Operating	3.0		6.5	V
Supply Current,(*ICC*)	B=0 Gauss		2.5	5.0	mA
Output Current ,(*Io*)	Vcc>3V	1.0	1.5		mA
Null Output Voltage, (V_{Null})	B=0 Gauss	2.3	2.5	2.7	V
Output Bandwidth, (*Bw*)			20		kHz
Output Voltage Span, (*Vos*)		2.95	3.2		V
Magnetic Range Gauss		±500	±800		Gauss
Linearity	% of Span		0.7		
Response Time			3		uS
Sensitivity		1.9		2.1	mV/G
Electro-Static Discharge	HBM	3			kV

Typical application circuit

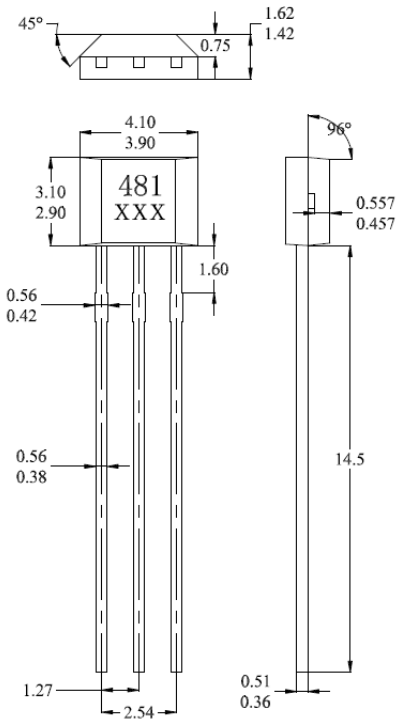


C1：1000PF

C2：10PF

Sensor Location, package dimension and marking

UA Package

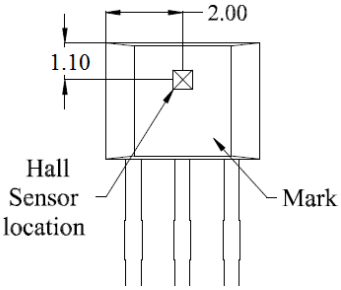


NOTES:

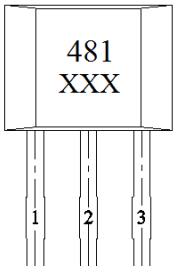
1. Controlling dimension:mm
2. Leads must be free of flash and plating voids
3. Do not bend leads within 1 mm of lead to package interface.
4. PINOUT:

Pin 1	VCC
Pin 2	GND
Pin 3	Output

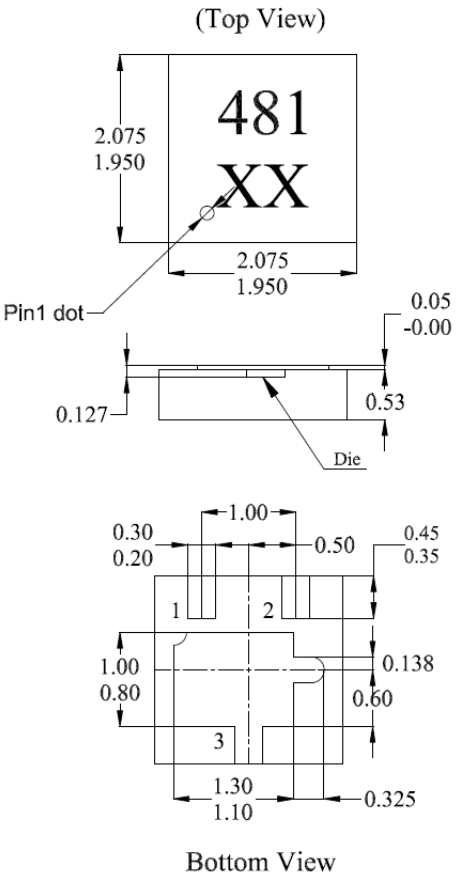
Hall Chip location



Output Pin Assignment (Top view)



SQ Package



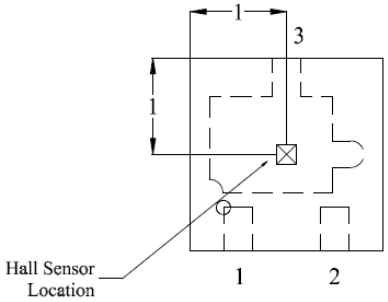
NOTES:

1. PINOUT (See Top View at left)

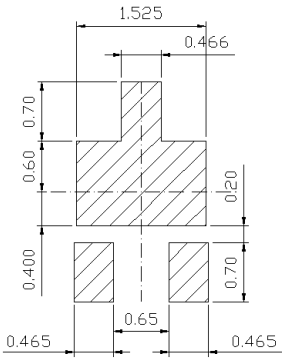
Pin 1	VCC
Pin 2	Output
Pin 3	GND

2. Controlling dimension: mm;
3. Chip rubbing will be 10mil maximum;
4. Chip must be in PKG. center.

Hall Plate Chip Location (Top view)

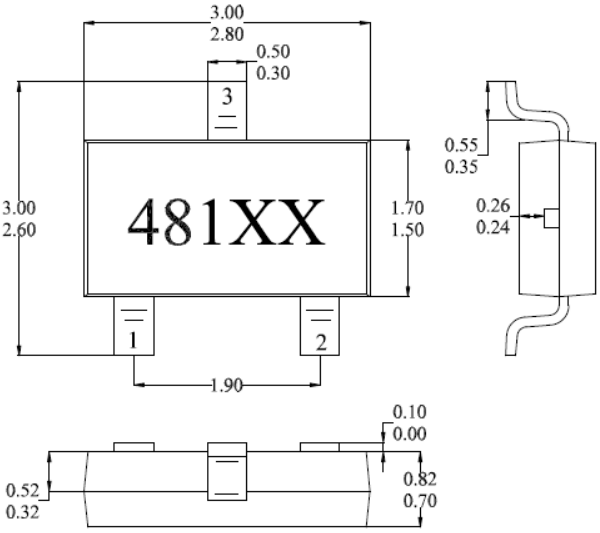


(For reference only)Land Pattern



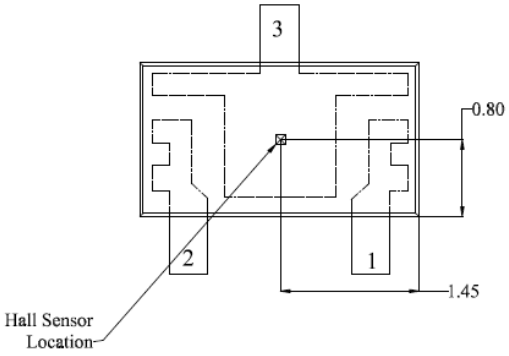
ST Package(TSOT-23)

(Top View)

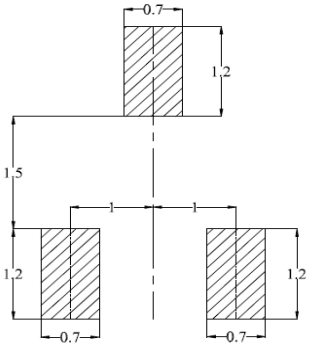


Hall Plate Chip Location

(Bottom view)



(For reference only)Land Pattern



NOTES:

1. PINOUT (See Top View at left:)
   - Pin 1 VDD
   - Pin 2 Output
   - Pin 3 GND
2. Controlling dimension: mm;