

Date Sheet



The "Huaxin" brand was founded in 2003 and has a history of 18 years. The company is mainly engaged in Hall elements, has a group of senior professional device design, integrated circuit design and test engineers, and has a first-class development and test platform. We have developed a number of high-end products with independent intellectual property rights, such as RF LDMOS series and RF VDMOS series, which represent China's integrated circuit level.

HX6287

Unipolar Hall Switch

HX6287 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 Green version was verified by third party Lab.

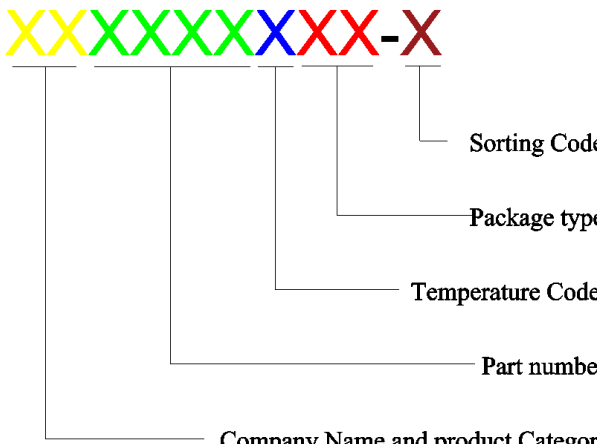
Features and Benefits

- DMOS Hall IC Technology.
- Reverse bias protection on power supply pin.
- Solid-State Reliability.
- Chopper stabilized amplifier stage.
- Unipolar, output switches with absolute value of South pole from magnet.
- Operation down to 3.0V.
- High Sensitivity for direct reed switch replacement applications.
- 100% tested at 125°C for K Spec.
- Custom sensitivity / Temperature selection are available.
- Good ESD Protection.

Applications

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

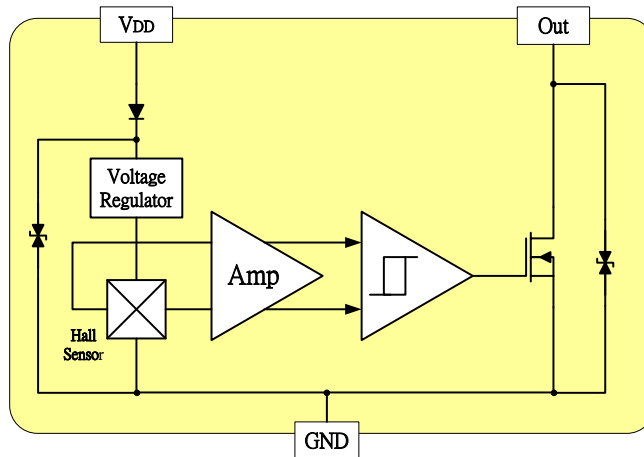
Ordering Information

	<p>Company Name and Product Category HX:HX Hall Effect/MP:HX Power IC</p> <p>Part number 6286,6275,6278,6287,6383,6474,6571,6572,6573,6574... 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>
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Part No.	Temperature Suffix	Package Type
HX6287KUA	K (-40°C to + 125°C)	UA (TO-92S)
HX6287KSO	K (-40°C to + 125°C)	SO (SOT-23)
HX6287EUA	E (-40°C to + 85°C)	UA (TO-92S)
HX6287ESO	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 Ω 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_{OUT})	28	V
Reverse Voltage, (V_{DD})	-27	V
Magnetic flux density	Unlimited	Gauss
Output current, (I_{OUT})	50	mA
Operating Temperature Range, (T_a)	“E” version	-40 to +85
	“K” version	-40 to +125
Storage temperature range, (T_s)	-55 to +150	°C
Maximum Junction Temp, (T_j)	150	°C
Thermal Resistance	(θ_{ja}) UA / SO	206 / 543
	(θ_{jc}) UA / SO	148 / 410
Package Power Dissipation, (P_D) UA / SO	606 / 230	mW

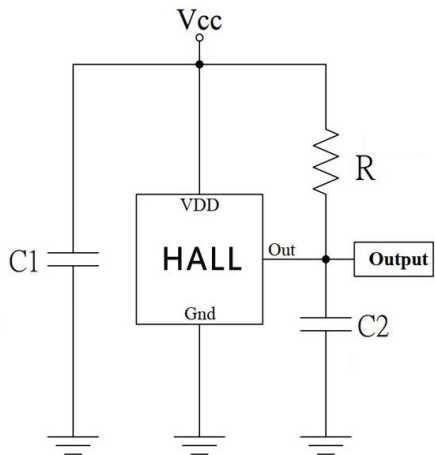
Note: Do not apply reverse voltage to V_{DD} and V_{OUT} Pin, It may be caused for Miss function or damaged device.

Electrical Specifications

DC Operating Parameters TA=+25°C, VDD=12V (Unless otherwise specified)

Parameters	Test Conditions	Min	Typ	Max	Units
Supply Voltage, (VDD)	Operating	3.0		24.0	V
Supply Current, (IDD)	B<BOP		2.5	5.0	mA
Output Saturation Voltage, (Vsat)	Iout = 20 mA, B>BOP			500.0	mV
Output Leakage Current, (Ioff)	IOFF B<BRP, VOULT = 20V			10.0	uA
Output Rise Time, (TR)	RL=1kΩ, CL =20pF		0.04	0.45	uS
Output Fall Time, (TF)	RL=820Ω; CL =20pF		0.18	0.45	uS
Electro-Static Discharge	HMB	4			KV
Operate Point (BOP)		90		150	Gauss
Release Point (BRP)		40		100	Gauss
Hysteresis (BHYS)			50		Gauss

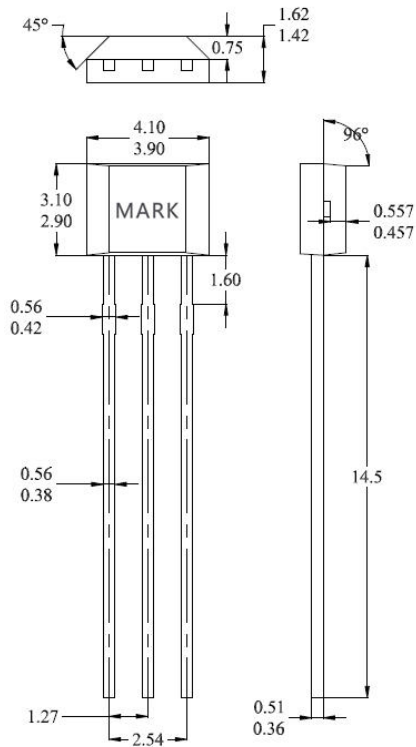
Typical application circuit



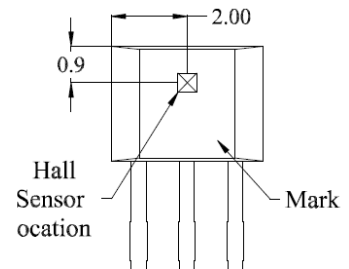
- R : 1KΩ
- C1 : 10nF
- C2 : 1nF

Sensor Location, Package Dimension and Marking

UA Package



Hall Chip Location



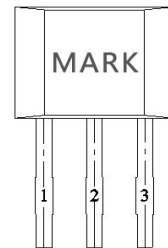
NOTES:

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.

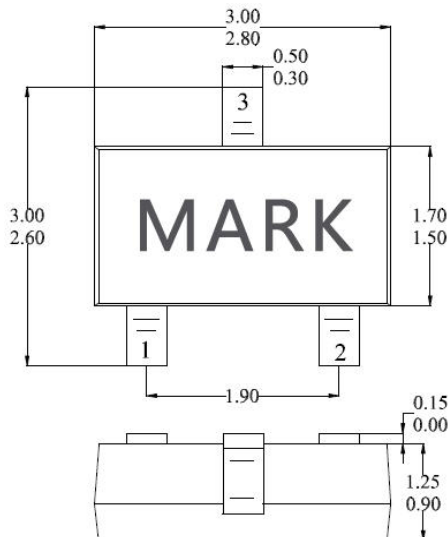
4. PINOUT:

- Pin 1 VCC
- Pin 2 GND
- Pin 3 Output

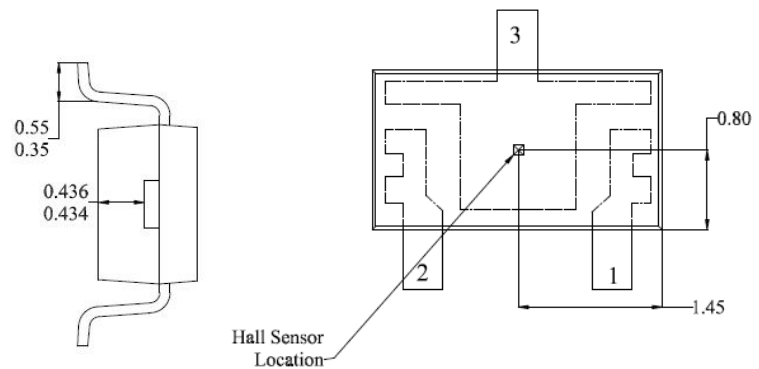
Output Pin Assignment (Top View)



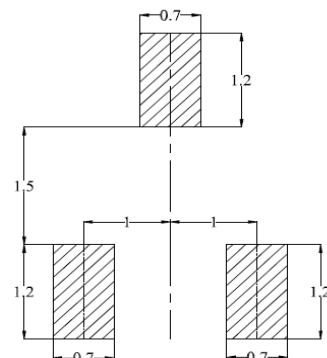
SO Package (Top View)



Hall Plate Chip Location (Bottom View)



(For reference only) Land Pattern



NOTES:

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

Warm reminder

1. Hall is a sensitive device. Please take electrostatic protection measures during use and storage.

2. During the installation process, the Hall should try to avoid applying mechanical stress to the Hall body. If the pins need to be bent, please operate at a distance of 3 mm from the root of the lead.

3. Recommended soldering temperature: soldering with electric soldering iron, the recommended temperature is 350°C, the longest is 5 seconds.

Wave soldering: The recommended maximum temperature is 260°C, the longest is 3 seconds

Infrared reflow soldering: recommended maximum 245°C, maximum 10 seconds

4. It is not recommended to exceed the parameters in the data sheet. Although the Hall will work normally under the limit parameters, it may cause damage to the Hall or the actual product under extreme conditions for a long time. In order to ensure the normal operation of the Hall and the product For safety and stability, please use it within the scope of the data sheet.

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