Date Sheet

華芯
WWW.WXHXKJ.COM

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.

HX6363
Omnipolar Hall Switch

HX6363 Hall-effect sensor is a temperature stable, stress-resistant , micro-power switch. Superior high-temperature performance is made possible through a dynamic offset cancellation that utilizes chopper-stabilization. This method reduces the offset voltage normally caused by device over molding, temperature dependencies, and thermal stress.

HX6363 includes the following on a single silicon chip: voltage regulator, Hall voltage generator, small-signal amplifier, chopper stabilization, Schmitt trigger, open-drain output. Advanced CMOS wafer fabrication processing is used to take advantage of low-voltage requirements, component matching, very low input-offset errors, and small component geometries.

This device requires the presence of omni-polar magnetic fields for operation.

HX6363 is rated for operation between the ambient temperatures –40°C and + 85°C for the E temperature range. The four package styles available provide magnetically optimized solutions for most applications. Package types SO is an SOT-23(1.1 mm nominal height),SQ is an QFN2020-3(0.5 mm nominal height),Tsot-23 is an ST(0.7 mm nominal height) ,a miniature low-profile surface-mount package, while package UA is a three-lead ultra-mini SIP for through-hole mounting.

The package type is in a lead Halogen Free version was verified by third party Lab.

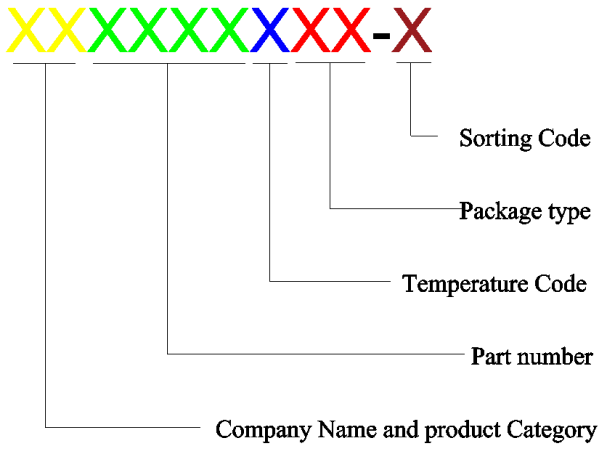
Features and Benefits

- CMOS Hall IC Technology
- Solid-State Reliability
- Micro power consumption for battery-powered applications
- Omni polar, output switches with absolute value of North or South pole from magnet
- Operation down to 2.5 V and Max at 3.5V.
- High Sensitivity for direct reed switch replacement applications
- Multi Small Size option
- Custom sensitivity selection is available in optional package.

Applications

- Solid state switch
- Handheld Wireless Handset Awake Switch (Flip Cell/PHS Phone/Note Book/Flip Video Set)
- Lid close sensor for battery powered devices
- Magnet proximity sensor for reed switch replacement in low duty cycle applications

Ordering Information



Company Name and Product Category

HX:HX Hall Effect/MP:HX Power IC

Part number

6286,6275,6278,6287,6383,6474,6571,6572,6573,6574…

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

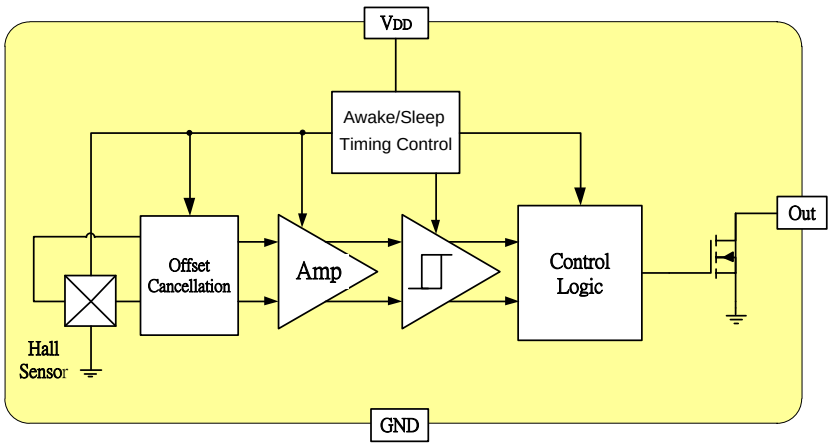
Sorting

α,β,Blank…..

Part No.	**Temperature Suffix**	**Package Type**
HX6363EUA	E (-40°C to + 85°C)	UA (TO-92S)
HX6363ESO	E (-40°C to + 85°C)	SO (SOT-23)

Custom sensitivity selection is available by HX 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})		5	V
Output Voltage,(V_{out})		5	V
Reverse voltage, (V_{DD}) (V_{OUT})		-0.3	V
Magnetic flux density		Unlimited	Gauss
Output current(I_{OUT})		2	mA
Operating temperature range, (Ta)		-40 to +85	℃
Storage temperature range, (Ts)		-55 to +150	℃
Maximum Junction Temp,(Tj)		150	℃
Thermal Resistance	(θ_{JA}) UA / SO	206 / 543 / 310 / 543	℃/W
	(θ_{JC}) UA / SO	148 / 410 / 223 / 410	℃/W
Package Power Dissipation, (P_D) UA / SO		606 / 230 / 400 / 230	mW

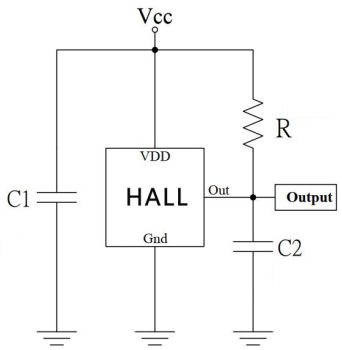
Note: *Exceeding the absolute maximum ratings may cause permanent damage. Exposure to absolute maximum-rated conditions for extended periods may affect device reliability.*

Electrical Specifications

DC Operating Parameters T_A=+25℃, V_{DD}=3.0V

Parameters	Test Conditions	Min	Typ	Max	Units
Supply Voltage,(V_{DD})	Operating	2.5		3.5	V
Supply Current,(I_{DD})	Awake State		2.5	4.0	mA
	Sleep State		8.0	12	μA
	Average		10	16	μA
Output Leakage Current,(I_{off})	Output off			1	uA
Output Low Voltage,(V_{sat})	I_{OUT}=1mA			0.3	V
Awake mode time,(T_{aw})	Operating		70		uS
Sleep mode time,(T_{SL})	Operating		70		mS
Duty Cycle,($D.C$)			0.1		%
Operate Point, (B_{OPS})	S pole to branded side, B > BOP, Vout On	6		60	Gauss
(B_{OPN})	N pole to branded side, B > BOP, Vout On	-60		-6	
Release Point (B_{RPS})	S pole to branded side, B < BRP, Vout Off	5		59	Gauss
(B_{RPN})	N pole to branded side, B < BRP, Vout Off	-60		-5	
Hysteresis,(B_{HYS})	|BOPx - BRPx|		7		Gauss

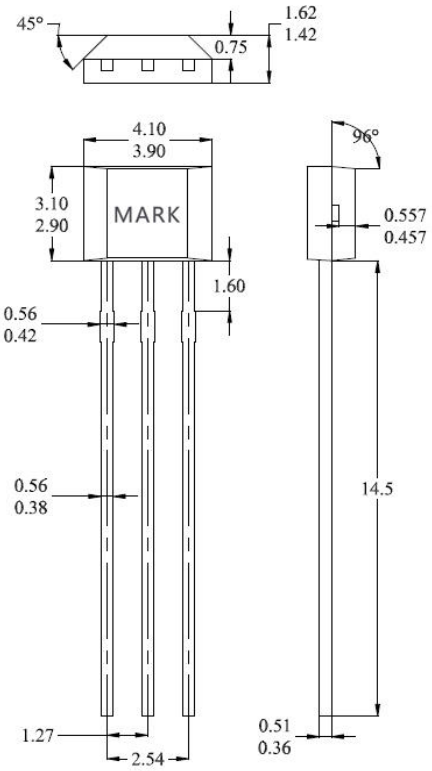
Typical Application circuit



C1：10nF
C2：100pF
R1：100KΩ

Sensor Location, Package Dimension and Marking

UA Package

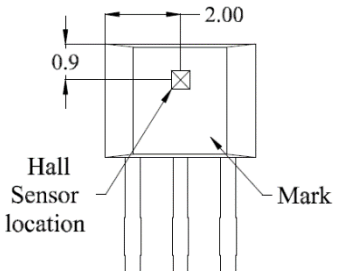


NOTES:

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:

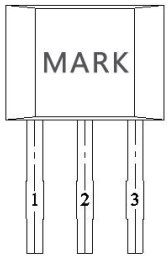
Pin 1	VCC
Pin 2	GND
Pin 3	Output

Hall Chip Location



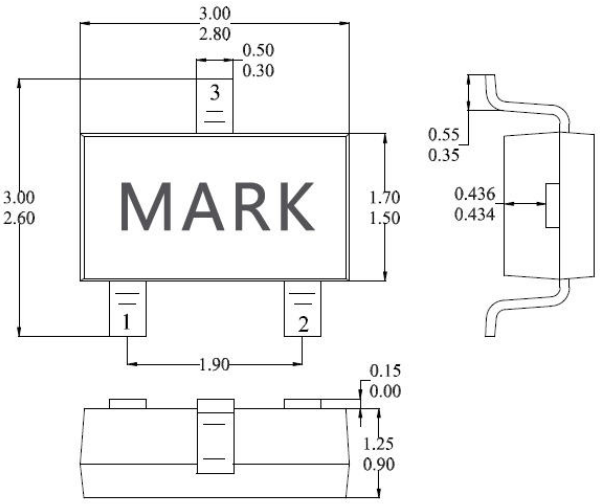
Output Pin Assignment

(Top View)



Package (SOT-23)

(Top View)



NOTES:

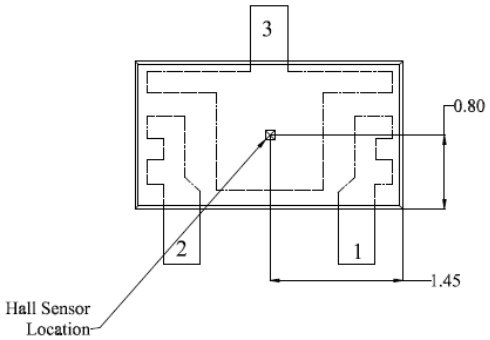
1. PINOUT (See Top View at left :)

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

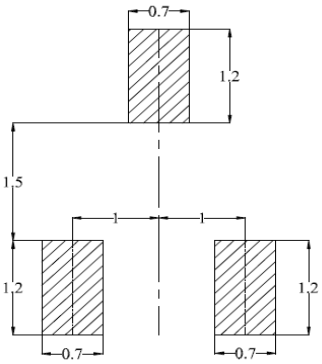
2. Controlling dimension: mm
3. Lead thickness after solder plating will be 0.254mm maximum

Hall Plate Chip Location

(Bottom View)



(For reference only)Land Pattern



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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Or for additional information contact Huaxin Direct:

Anny：15995280078 **E-mail：sales1@wxhxkj.com**

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