

Features

- 2.2V to 20V DC Operation Voltage
- Built-in Pull-up Resistor
- 25mA Output Sink Current
- Operating Temperature: -40°C ~ +125°C
- Lead Free Package: SIP3 (Note 1) and SC59 (Commonly known as SOT23 in Asia)
- SC59: Available in "Green" Molding Compound (No Br, Sb)
- Lead Free Finish/RoHS Compliant (Note 2)

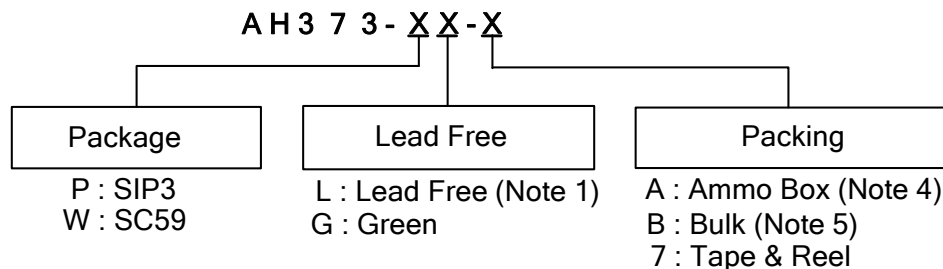
General Description

AH373 is a single-digital-output Hall-effect sensor with pull-up resistor for high temperature operation. The device includes an on-chip Hall voltage generator for magnetic sensing, an amplifier to amplify Hall voltage, and a comparator to provide switching hysteresis for noise rejection, and an output driver with a pull-up resistor (Rpu). An internal band-gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range. While the magnetic flux density (B) is larger than operation point (Bop), the OUT pin turns on (low). If B moves toward release point (Brp), the OUT pin is latched "on" state prior to B < Brp. When B < Brp, the OUT pin goes into "off" state.

Applications

- Rotor Position Sensing
- Current Switch
- Encoder
- RPM Detection

Ordering Information



Device	Package Code	Packaging (Note 3)	Bulk		7" Tape and Reel		Ammo Box	
			Quantity	Part Number Suffix	Quantity	Part Number Suffix	Quantity	Part Number Suffix
AH373-PL-A	P	SIP3	NA	NA	NA	NA	4000/Box	-A
AH373-PL-B	P	SIP3	1000	-B	NA	NA	NA	NA
AH373-WL-7	W	SC59	NA	NA	3000/Tape & Reel	-7	NA	NA
AH373-WG-7	W	SC59	NA	NA	3000/Tape & Reel	-7	NA	NA

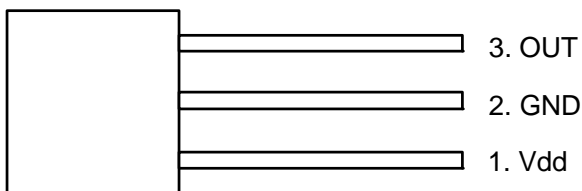
- Notes:
1. SIP3 is available in "Lead Free" product only.
 2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.
 3. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
 4. Ammo Box is for SIP3 Spread Lead.
 5. Bulk is for SIP3 Straight Lead.

Pin Assignments

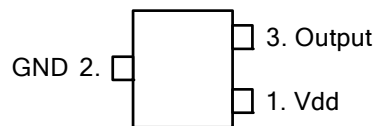
(1) SIP3

(2) SC59

(Top View)



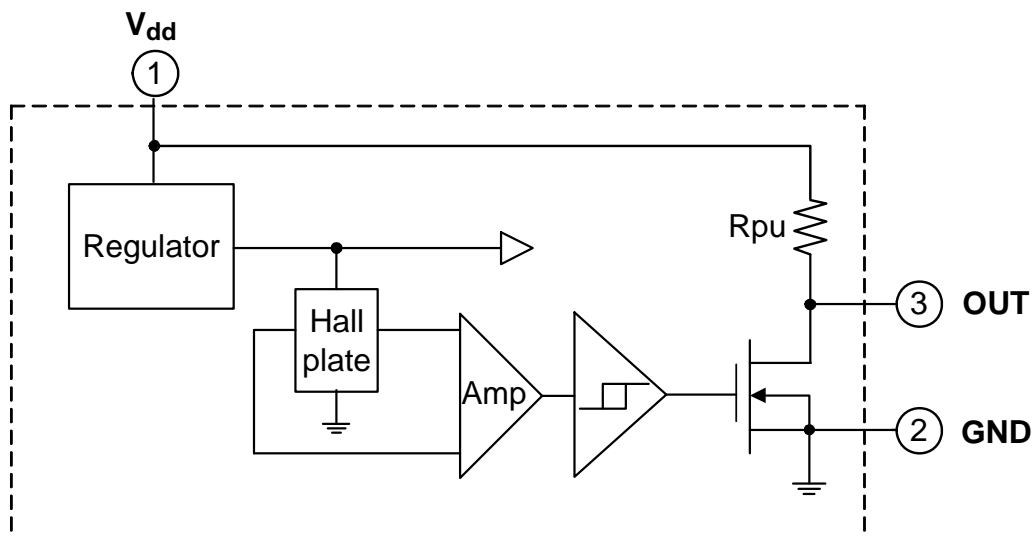
(Top View)



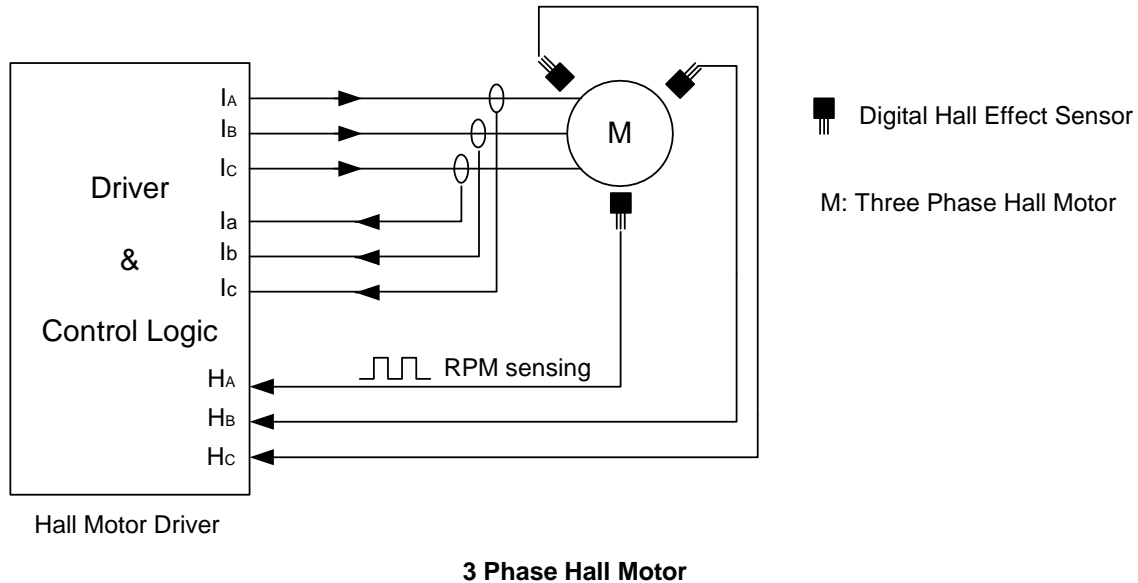
Pin Descriptions

Name	P/I/O	Pin #	Description
V _{dd}	P	1	Positive Power Supply
GND	P	2	Ground
OUT	O	3	Output Pin

Block Diagram



Functional Application Circuit



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$)

Symbol	Characteristics	Values	Unit	
V _{dd}	Supply Voltage	20	V	
V _{out (off)}	Output "off" Voltage	28	V	
I _{o (sink)}	Output "on" Current	25	mA	
T _{ST}	Storage Temperature Range	-65~+150	°C	
P _D	Power Dissipation	SIP3	550	mW
		SC59	230	mW

Recommended Operating Conditions

Symbol	Parameter	Conditions	Min	Max	Unit
V _{dd}	Supply Voltage (Note 6)	Operating	2.2	20	V
T _A	Operating Ambient Temperature	Operating	-40	125	°C

Notes: 6. The output of IC will be switched after the supply voltage is over 2.2V, but the magnetic characteristics won't be normal until the supply is over 2.5V.

Electrical Characteristics $(T_A = 25^\circ\text{C}, V_{dd} = 12\text{V})$

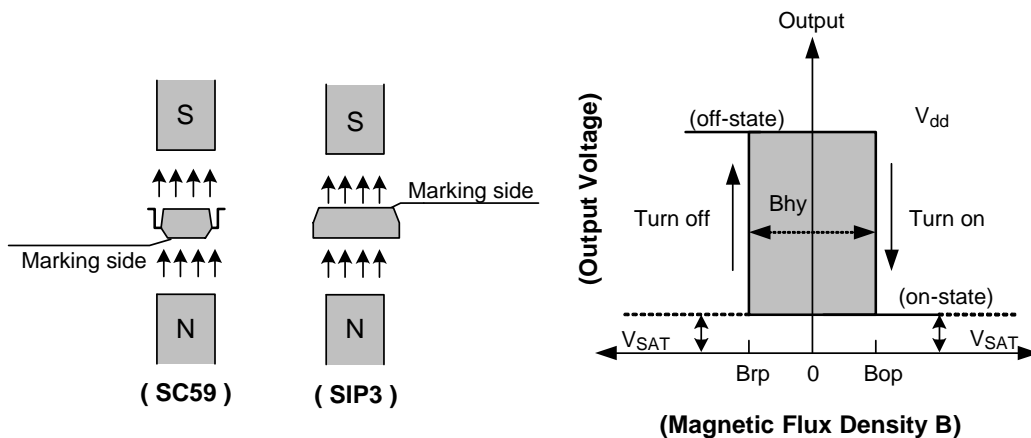
Symbol	Characteristics	Conditions	Min	Typ.	Max	Unit
$V_{out(SAT)}$	Output Saturation Voltage	$I_{out} = 20\text{mA}$	-	300	400	mV
I_{off}	Output Leakage Current	$B < Brp$	-	<0.1	10	μA
I_{dd}	Supply Current	OUT "OFF"	-	2	4	mA
R_{pu}	Internal Pull-up Resistor	—	7	10	13	$\text{K}\Omega$

Magnetic Characteristics $(T_A = 25^\circ\text{C}, V_{dd} = 2.5\text{V to } 20\text{V})$

(1mT = 10 Gauss)

Symbol	Parameter	Min	Typ.	Max	Unit
Bops(south pole to brand side)	Operation Point	5	30	60	Gauss
Brps(south pole to brand side)	Release Point	-60	-30	-5	Gauss
$B_{hy}(B_{opx} - B_{rpx})$	Hysteresis	-	60	-	Gauss

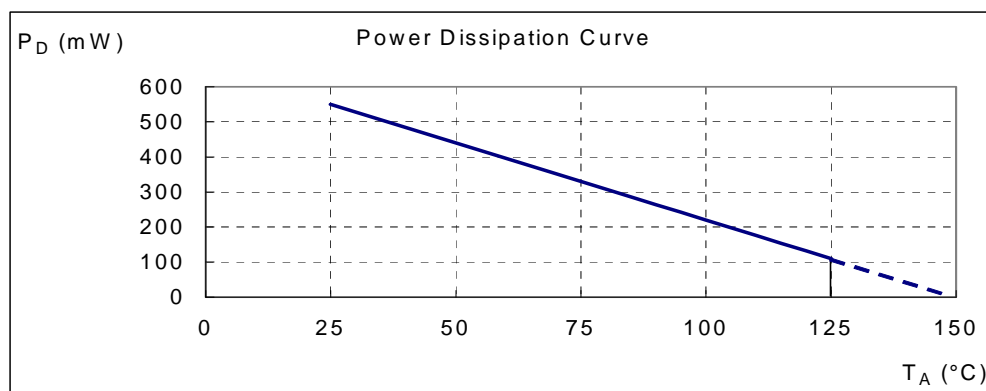
Operating Characteristics



Performance Characteristics

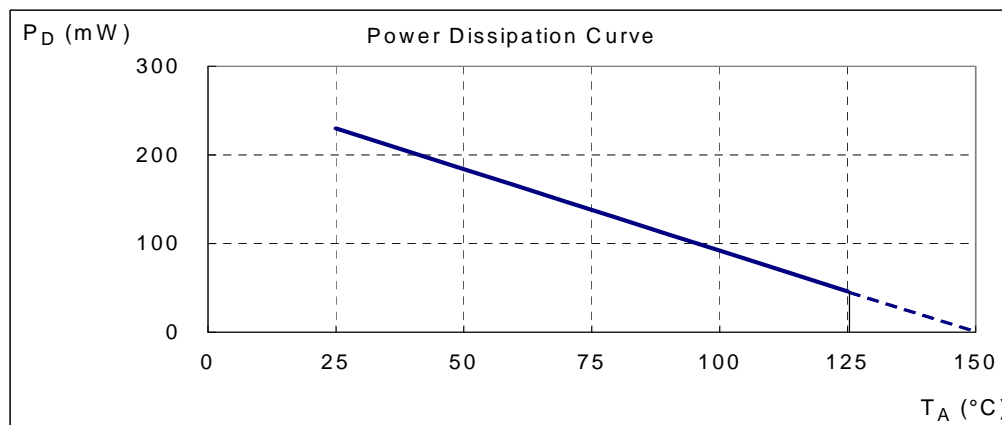
(1) SIP3

T_A (°C)	25	50	60	70	80	85	90	95	100
P _D (mW)	550	440	396	352	308	286	264	242	220
T_A (°C)	105	110	115	120	125	130	135	140	150
P _D (mW)	198	176	154	132	110	88	66	44	0



(2) SC59(Commonly known as SOT23 in Asia)

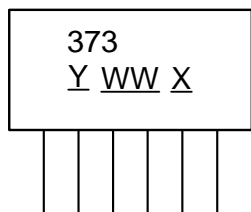
T_A (°C)	25	50	60	70	80	90	100	110	120	125	130	140	150
P _D (mW)	230	184	166	147	129	110	92	74	55	46	37	18	0



Marking Information

(1) SIP3

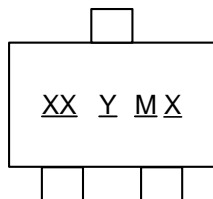
(Top View)



Y : Year : "07"= 2007
"08"= 2008
WW : Nth Week 01~52
X : Internal code
a~z : Lead Free

(2) SC59 (Commonly known as SOT23 in Asia)

(Top View)

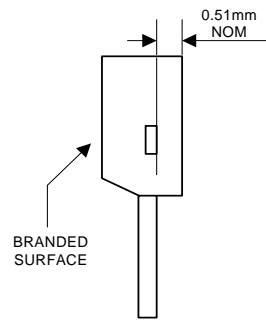


XX : P2 : AH373
Y : Year 0~9
M : Month A~L
X : Internal code
a~z : Lead Free
A~Z : Green

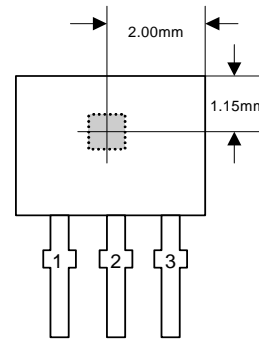
Part Number	Package	Identification Code
AH373	SC59	P2

Package Information (All Dimensions in mm)

(1) Package Type: SIP3 for Bulk only

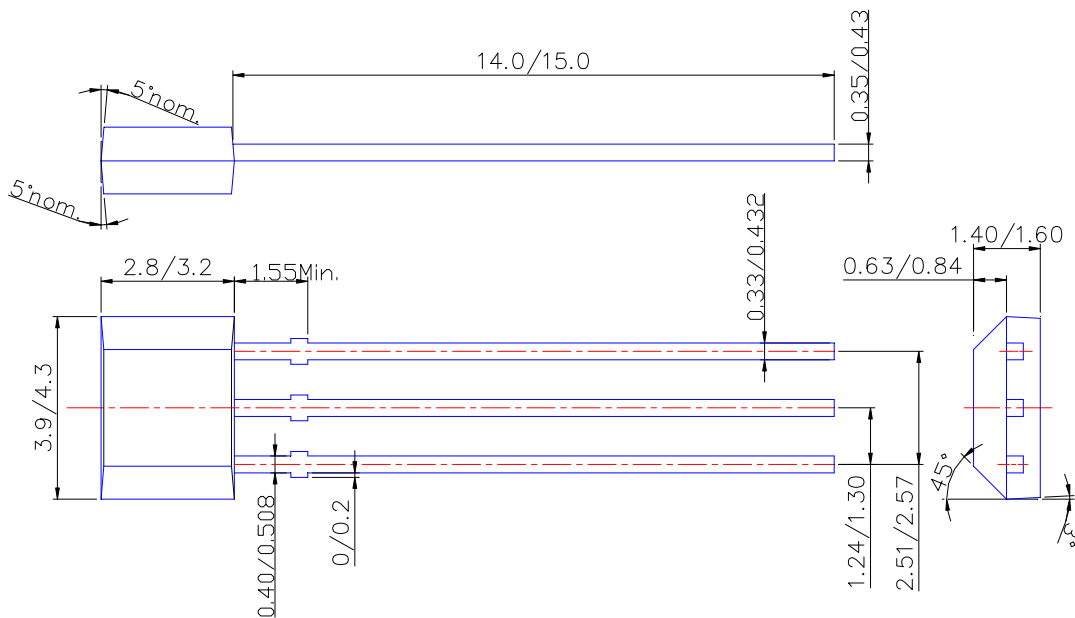


Active Area Depth



Sensor Location

Package Dimension



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