

Features

- Bipolar Hall Effect Latch Sensor
- 3.5V to 20V DC Operation Voltage
- Open Collector Pre-Driver
- 50mA Output Sink Current
- Chip Power Reverse-Connection Protection
- Operating Temperature: -40°C~125°C
- SIP3, SC59 and SC59R (Commonly known as SOT23 in Asia): Available in "Green" Molding Compound (No Br, Sb)
- Lead Free Finish/ RoHS Compliant (Note 1)

General Description

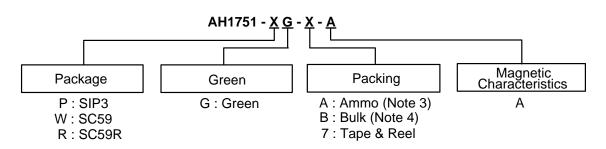
AH1751 is a single-digital-output Hall-effect sensor for high temperature operation. The device includes an on-chip Hall voltage generator for magnetic sensing, an amplifier to amplify Hall voltage, and a comparator to provide switching hysteresis for noise rejection, and an open-collector output pre-driver. 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 threshold Bop, the OUT pin turns on (low). If B removed toward Brp, the OUT pin is latched "on" state prior to B < Brp. When B < Brp, the OUT pin go into "off" state.

Applications

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

Ordering Information



			Tube/Bulk		7" Tape and R	Ammo	Box			
	Device	Package Code	Packaging (Note 2)	Quantity	Part Number Suffix	Quantity	Part Number Suffix	Quantity	Part Number Suffix	Magnetic Characteristics
9	AH1751-PG-A-A	Р	SIP3	NA	NA	NA	NA	4000/Box	-A	А
9	AH1751-PG-B-A	Р	SIP3	1000	-B	NA	NA	NA	NA	Α
9	AH1751-WG-7-A	W	SC59	NA	NA	3000/Tape & Reel	-7	NA	NA	Α
D	AH1751-RG-7-A	R	SC59R	NA	NA	3000/Tape & Reel	-7	NA	NA	Α

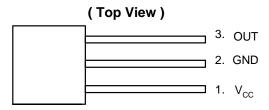
- 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/products/lead_free.html
- 2. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
- 3. Ammo Box is for SIP3 Spread Lead.4. Bulk is for SIP3 Straight Lead.



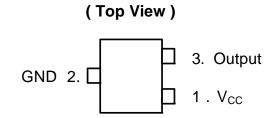


Pin Assignment



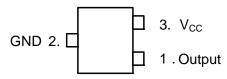






(3) SC59R



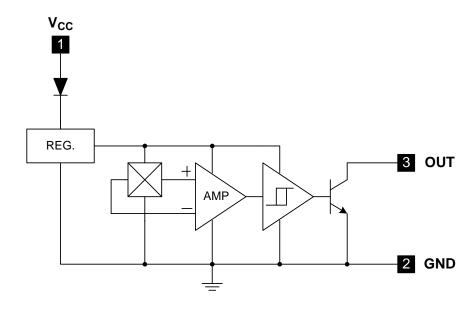


Pin Descriptions

Pin Name	Description				
V _{CC}	Input Power				
GND	Ground				
OUT	Output Stage				



Block Diagram



Absolute Maximum Ratings (T_A = 25°C)

Symbol	Parameter	Rating	Unit	
V _{cc}	Supply Voltage	20	V	
V _{out} (off)	Output "OFF" Voltage	20	V	
I _o (sink)	Output "ON" Current	100	mA	
T _{ST}	Storage Temperature Range	-65~+150	°C	
$T_{J(MAX)}$	Maximum Junction Temperature	+150	Ô	
P _D	Power Dissipation	SIP3	550	mW
FD	ruwei Dissipation	SC59 and SC59R	230	mW

Recommended Operating Conditions

Symbol	Parameter	Conditions	Min	Max	Unit
V _{cc}	Supply Voltage	Operating (Note 5)	3.5	20	V
T _A	Operating Temperature Range	Operating	-40	125	°C

Notes: 5. Operating, the output is switching as magnetic field change (S>300G, N<-300G).



Electrical Characteristics (T_A = 25°C)

Symbol	Parameter	Min	Тур.	Max	Unit	
Vout (SAT)	Output Saturation voltage	$V_{CC} = 12V$, OUT "ON" $I_0 = 50$ mA		200	300	mV
I _{CC}	Supply Current	V _{CC} = 12V, OUT "OFF"	ı	3.5	6	mA

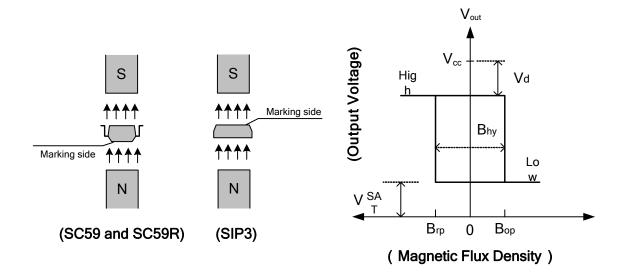
Magnetic Characteristics (T_A = 25°C, V_{CC} = 4~20V, Note 6)

A grade (1mT = 10 Gauss)

Symbol	Parameter	Min	Тур.	Max	Unit
Bops(south pole to brand side)	Operation Point	5	-	70	Gauss
Brps(south pole to brand side)	Release Point	-70	-	-5	Gauss
Bhy(Bopx – Brpx)	Hysteresis	-	75	-	Gauss

Notes: 6. Magnetic characteristics are for design information, which will vary with supply voltage, operating temperature and after soldering.

Operating Characteristics

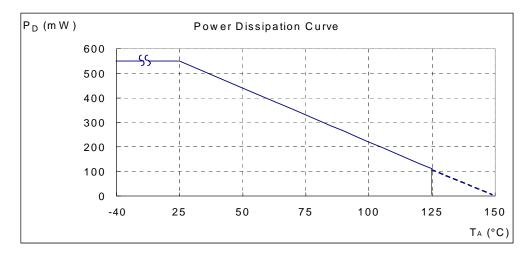




Performance Characteristics

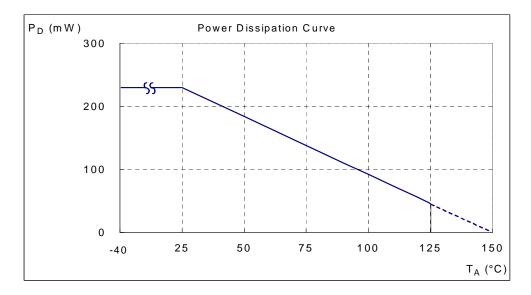
(1) SIP3

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 and SC59R (Commonly known as SOT23 in Asia)

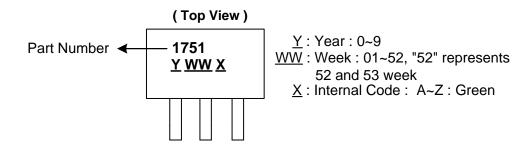
T _A (°C)	25	50	60	70	80	90	100	110	120	125	130	140	150
P _D (mW)	230	184	166	147	129	110	92	74	55	46	37	18	0





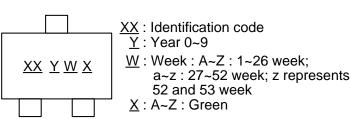
Marking Information

(1) SIP3



(2) SC59 and SC59R (Commonly known as SOT23 in Asia)



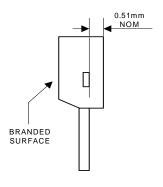


Part Number	Package	Identification Code
AH1751	SC59	RK
AH1751	SC59R	SK

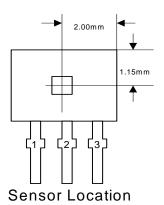


Package Information (All Dimensions in mm)

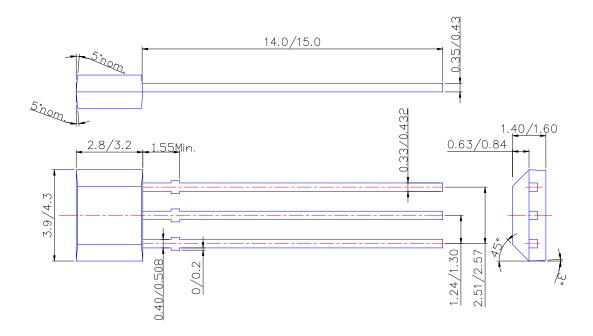
(1) Package Type: SIP3 for Bulk pack



Active Area Depth



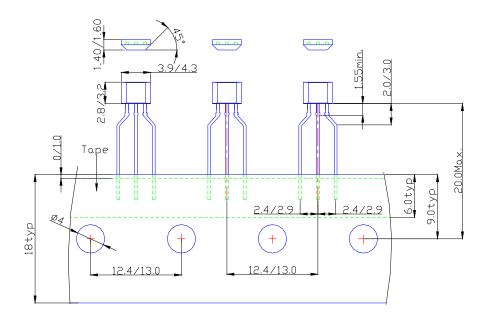
Package Dimension



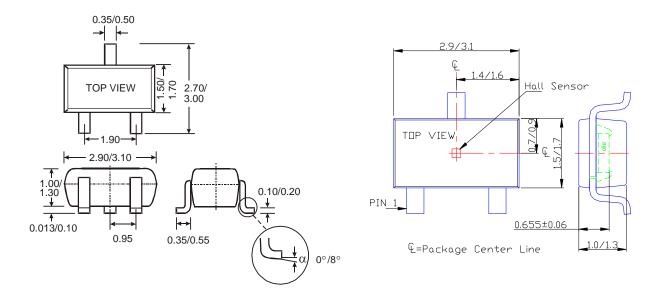


Package Information (Continued)

(2) Package Type: SIP3 for Ammo pack



(3) Package Type: SC59 and SC59R (Commonly known as SOT23 in Asia)





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