

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
- Package: SIP3
- SIP3: Available in "Green" Molding Compound (No Br, Sb)
- Lead Free Finish/ RoHS Compliant (Note 1)

General Description

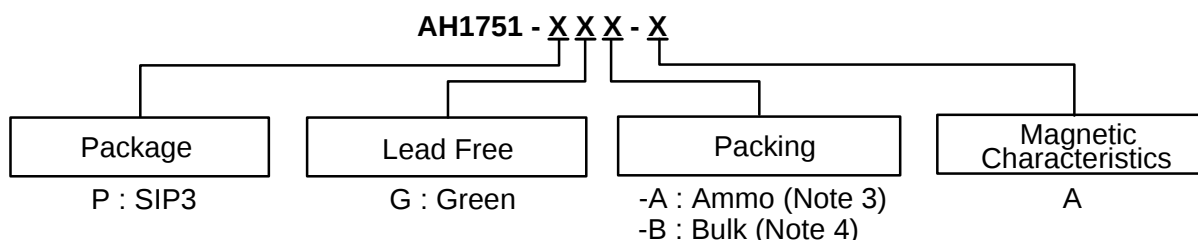
AH1751 is a single-digital-output Hall-effect sensor for high temperature operation. The device includes an on-chip Hall voltage generator for magnetic sensing, an amplifier to amplify Hall voltage, and a comparator to provide switching hysteresis for noise rejection, and an open-collector output pre-driver. 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

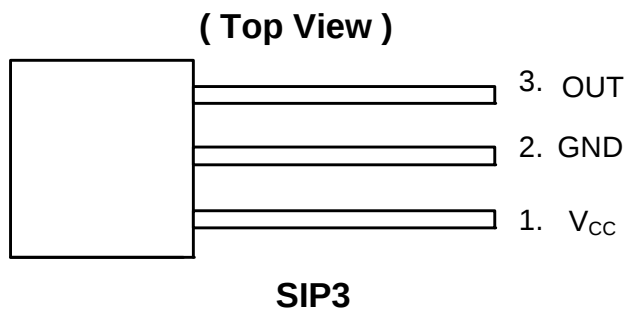
Ordering Information



Device	Package Code	Packaging (Note 2)	Tube/Bulk		Ammo Box	
			Quantity	Part Number Suffix	Quantity	Part Number Suffix
AH1751-P	P	SIP3	1000	-B	4000/Box	-A

- Notes:
1. RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied, see *EU Directive Annex Notes 5 and 7*.
 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.

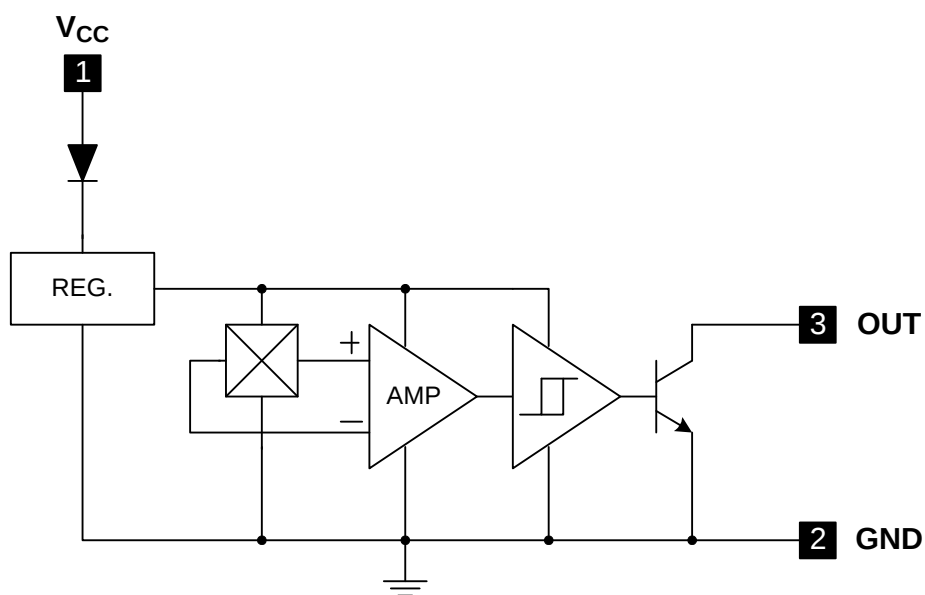
Pin Assignment



Pin Descriptions

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

Block Diagram



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

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_A	Operating Temperature Range	-40~+125	$^\circ\text{C}$
T_{ST}	Storage Temperature Range	-65~+150	$^\circ\text{C}$
$T_{J(MAX)}$	Maximum Junction Temperature	+150	$^\circ\text{C}$
P_D	Power Dissipation	SIP3	mW

Recommended Operating Conditions

Symbol	Parameter	Conditions	Rating	Unit
V_{CC}	Supply Voltage	Operating (Note 5)	3.5 ~ 20	V

Electrical Characteristics ($T_A = 25^\circ\text{C}$)

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
$V_{out (SAT)}$	Output Saturation Voltage	$V_{CC} = 12\text{V}$, OUT "ON" $I_o = 50\text{mA}$	-	200	300	mV
I_{CC}	Supply Current	$V_{CC} = 12\text{V}$, OUT "OFF"	-	3.5	6	mA

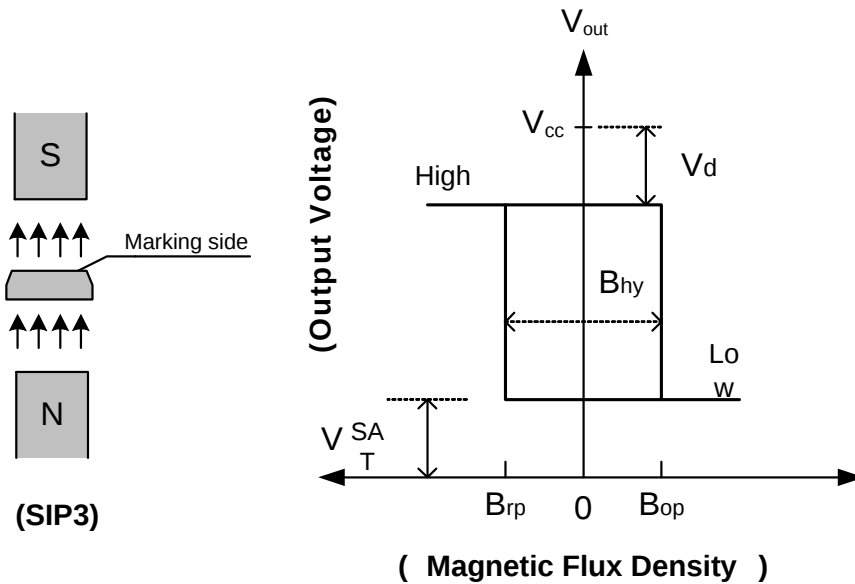
Magnetic Characteristics ($T_A = 25^\circ\text{C}$, $V_{CC} = 4\sim 20\text{V}$)

A grade (1mT = 10 Gauss)

Symbol	Parameter	Min	Typ.	Max	Unit
Bop	Operation Point	5	-	70	Gauss
Brp	Release Point	-70	-	-5	Gauss
Bhy	Hysteresis	-	75	-	Gauss

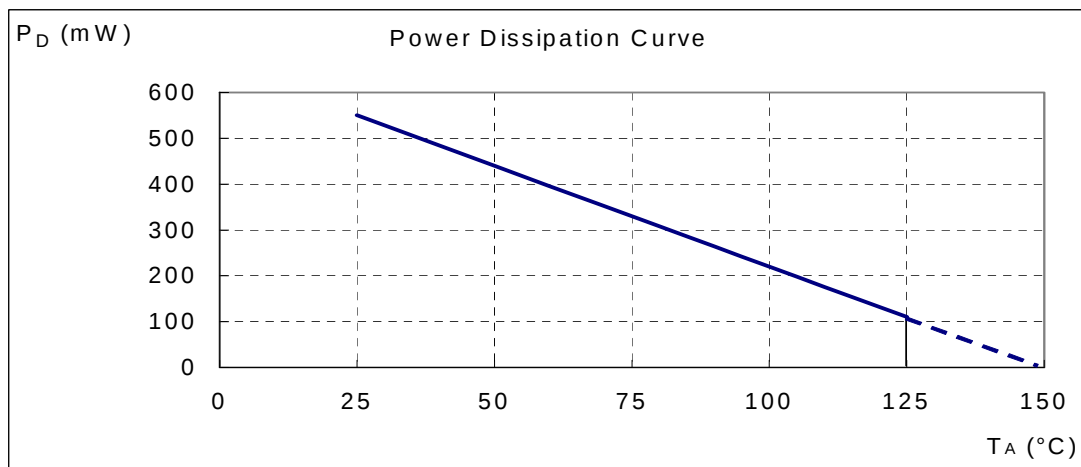
Notes: 5. Operating, the output is switching as magnetic field change ($S > 300\text{G}$, $N < -300\text{G}$).
 6. Magnetic characteristics are design information, which will vary with supply voltage, operating temperature and after soldering.

Operating Characteristics



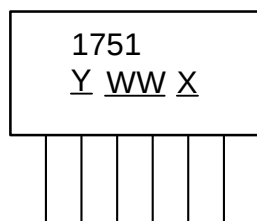
Performance Characteristics

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



Marking Information

(Top View)

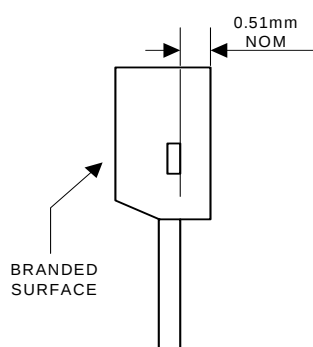


SIP3

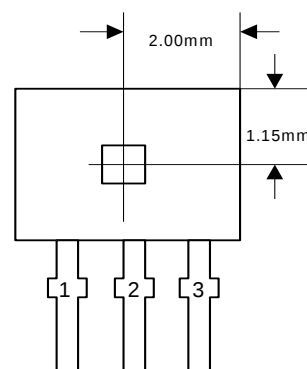
Y : Year : "7" = 2007
"8" = 2008
WW : Nth Week 01~52
X : Internal code
A~Z : Green

Package Information (All Dimensions in mm)

(1) Package Type: SIP3 for Bulk pack

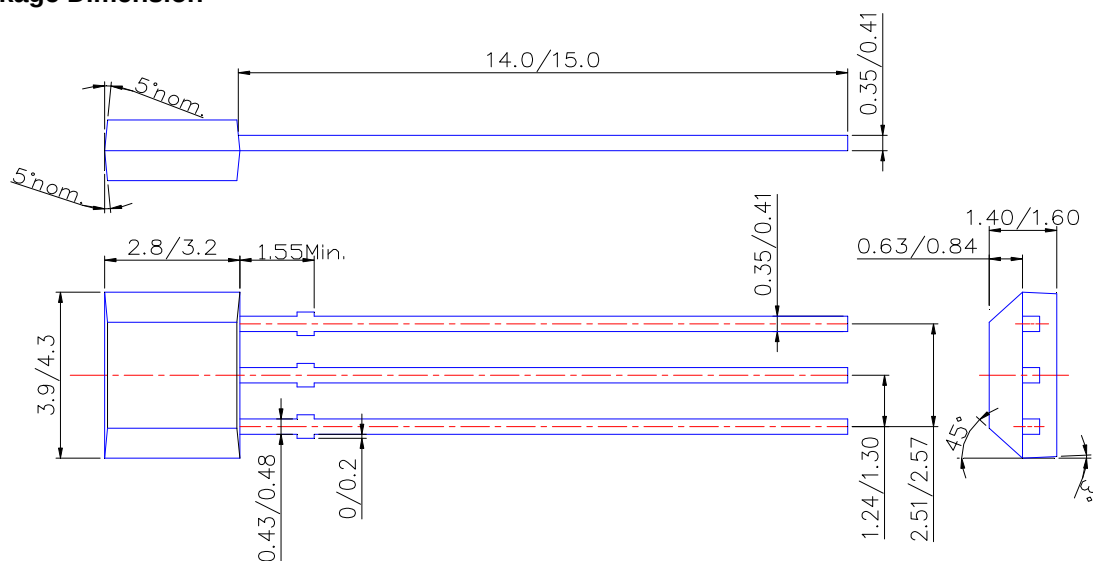


Active Area Depth



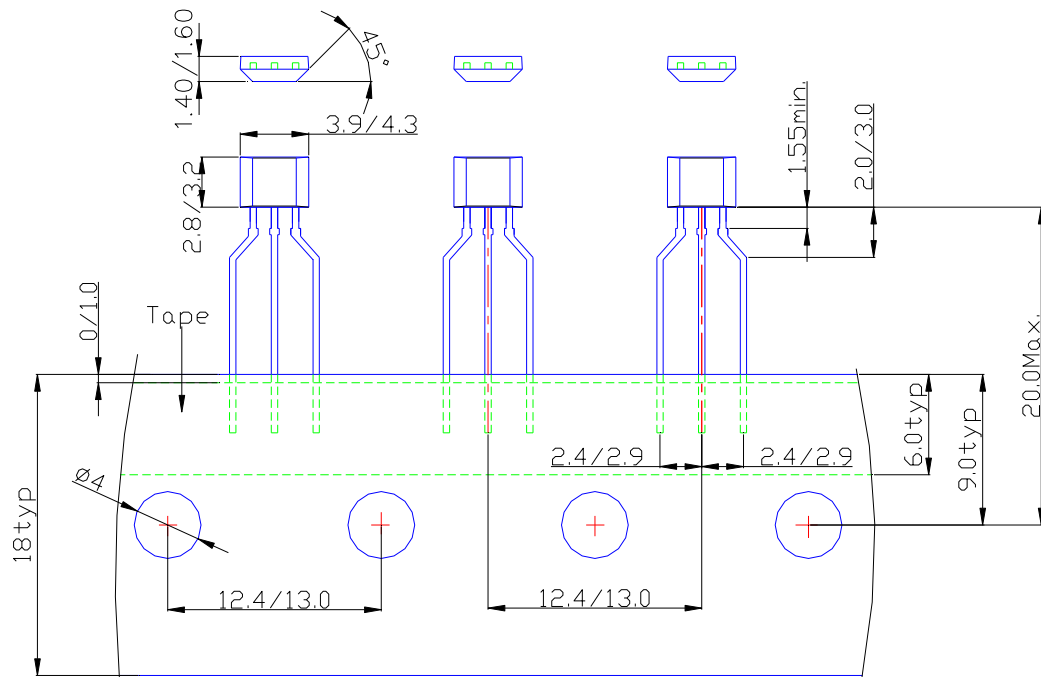
Sensor Location

Package Dimension



Package Information (Continued)

(2) Package Type: SIP3 for Ammo pack



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