

Features

- Bipolar Hall Effect Latch Sensor
- 3.5V to 20V DC Operation Voltage
- Open Collector Pre-Driver
- 25mA Output Sink Current
- Chip Power Reverse-Connection Protection
- Operating Temperature: -40°C~150°C
- Lead Free Finish/RoHS Compliant for Lead Free products (Note 1)
- Package: SIP-3L, SC59-3L

General Description

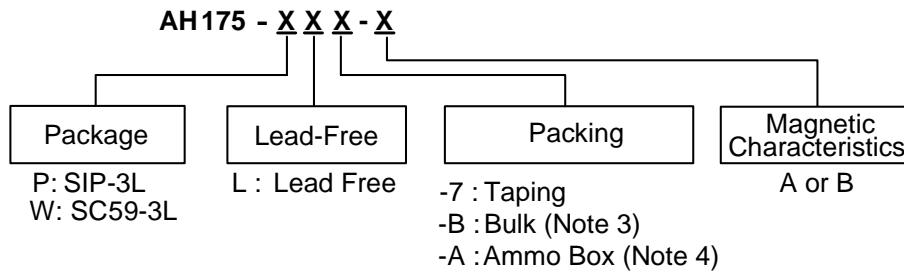
AH175 is a single-digital-output Hall-effect sensor for high temperature operation. The device includes an on-chip Hall voltage generator for magnetic sensing, an amplifier to amplify Hall voltage, and a comparator to provide switching hysteresis for noise rejection, and an open-collector output pre-driver. 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



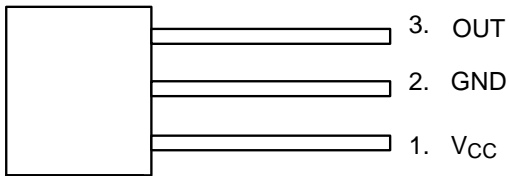
Note: 1. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.

Device	Package Code	Packaging (Note 2)	Tube/Bulk		7" Tape and Reel		Ammo Box	
			Quantity	Part Number Suffix	Quantity	Part Number Suffix	Quantity	Part Number Suffix
AH175-P	P	SIP-3L	1000	-B	NA	NA	4000/Box	-A
AH175-W	W	SC59-3L	NA	NA	3000/Tape & Reel	-7	NA	NA

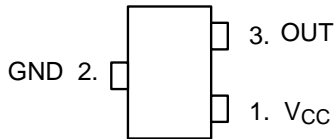
- Note: 2. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
3. Bulk is for SIP-3 Straight Lead.
4. Ammo Box is for SIP-3 Spread Lead.

Pin Assignment

(Top View)



(SIP-3L package)

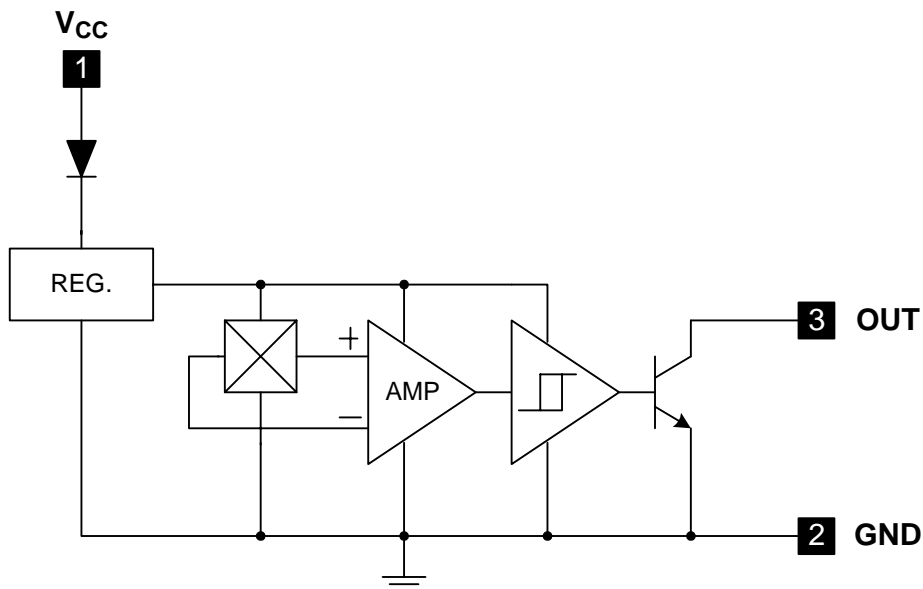


(SC59-3L Package)

Pin Description

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

Block Diagram



Absolute Maximum Ratings (T_A = 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage	V _{CC}	20	V
Output "OFF" Voltage	V _{out (off)}	20	V
Output "ON" Current	I _{o (sink)}	25	mA
Operating Temperature Range	Top	-40~+150	°C
Storage Temperature Range	T _{stg}	-65~+150	°C
Maximum Junction Temperature	T _{mj}	+150	°C
Power Dissipation	SIP-3L	550	mW
	SC59-3L	230	mW

Recommended Operating Conditions

Parameter	Symbol	Conditions	Rating	Unit
Supply Voltage	V _{CC}	Operating	3.5 ~ 20	V

Electrical Characteristics (T_A = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Saturation Voltage	V _{out (SAT)}	V _{CC} = 12V, OUT "ON" I _o = 10mA	-	300	400	mV
Supply Current	I _{CC}	V _{CC} = 12V, OUT "OFF"	-	3.5	6	mA

Magnetic Characteristics (T_A = 25°C, V_{CC} = 12V)

(1mT = 10 Gauss)

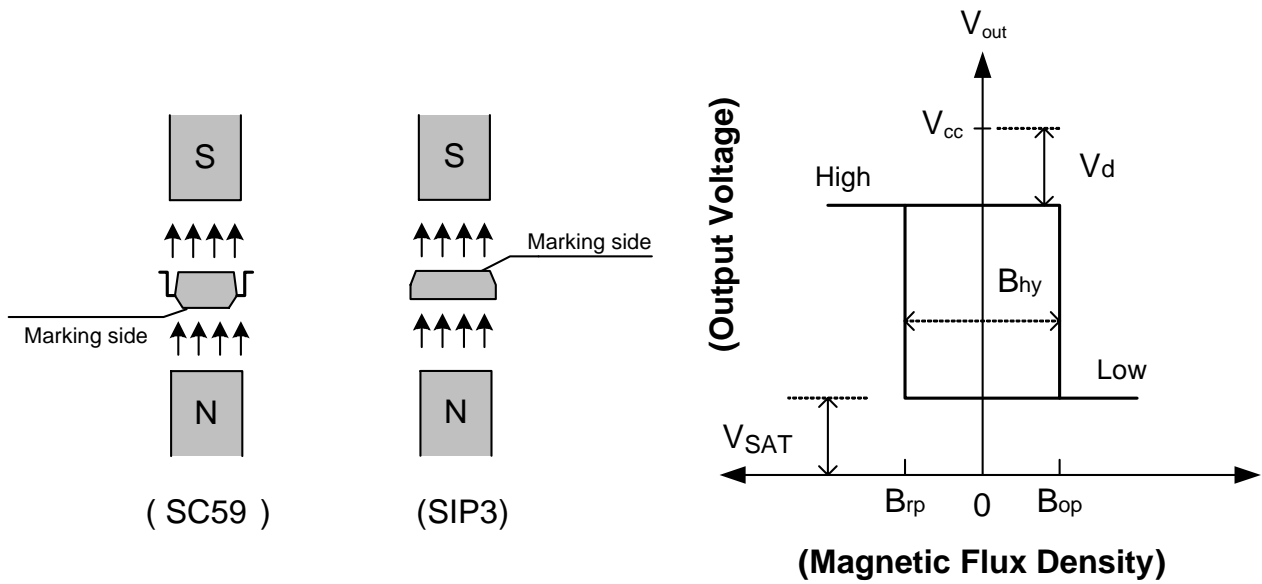
A grade

	Symbol	Min.	Typ.	Max.	Unit
Operation Point	Bop	15	-	60	Gauss
Release Point	Brp	-60	-	-15	Gauss
Hysteresis	Bhy	30	80	120	Gauss

B grade

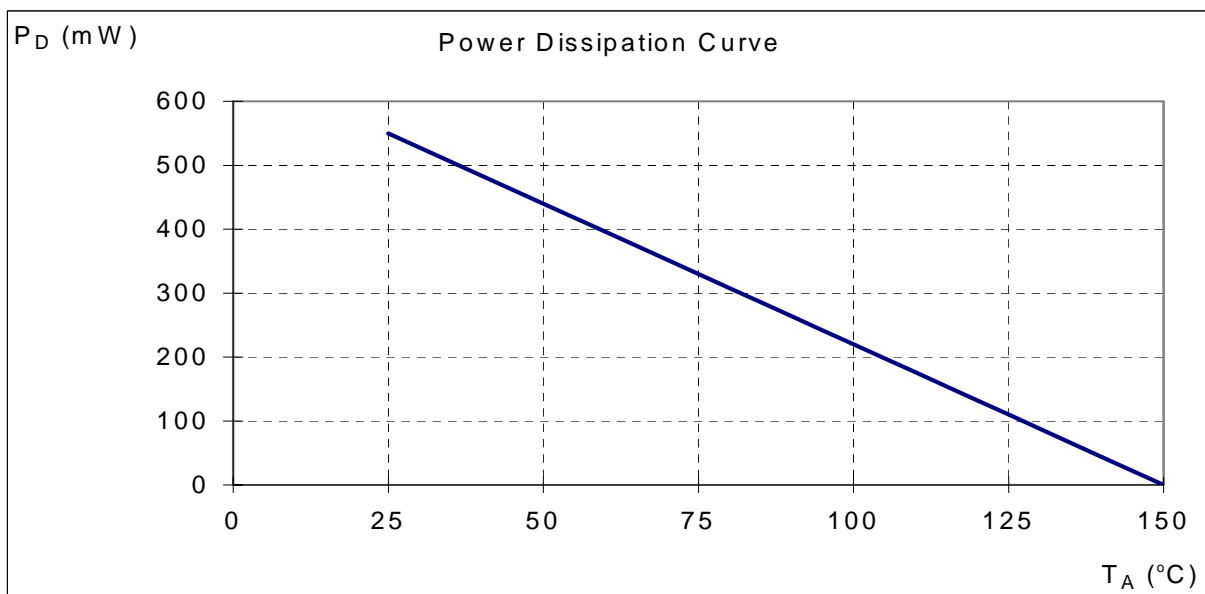
	Symbol	Min.	Typ.	Max.	Unit
Operation Point	Bop	5	-	80	Gauss
Release Point	Brp	-80	-	-5	Gauss
Hysteresis	Bhy	10	80	160	Gauss

Operating Characteristics



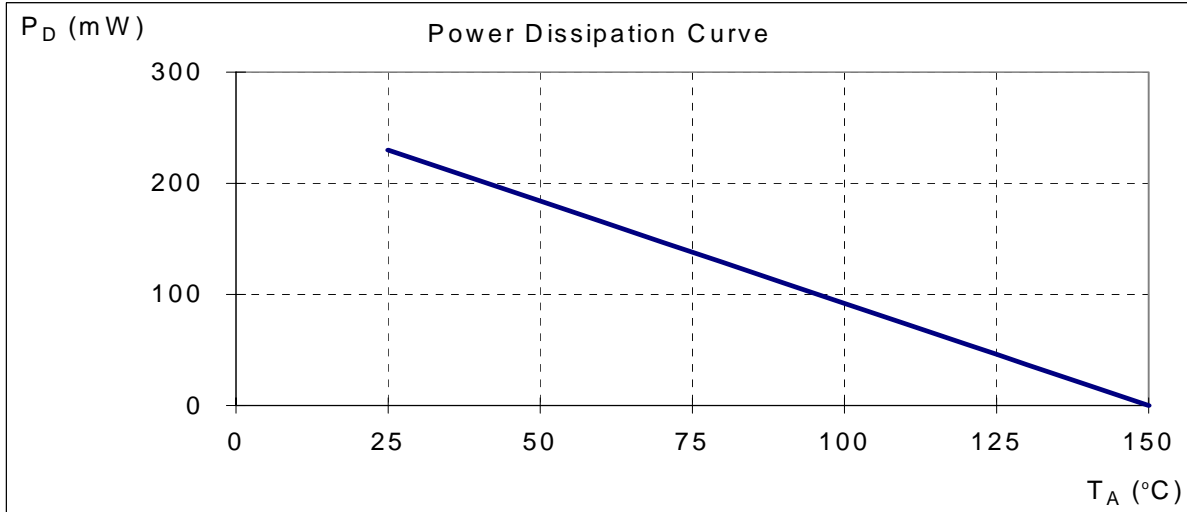
Performance Characteristics (SIP-3L)

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



Performance Characteristics (SC59-3L)

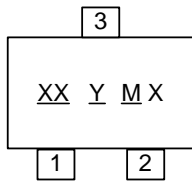
T _A (°C)	25	50	60	70	80	90	100	110	120	125	130	140	150
P _D (mW)	230	184	166	147	129	110	92	74	55	46	37	18	0



Marking Information

(1) SC59-3L

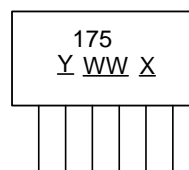
(Top View)



XX : J5: AH175
X : Internal code
a~z: Lead Free
Y : Year 0~9
M : Month A~L

(2) SIP3-3L

(Top View)

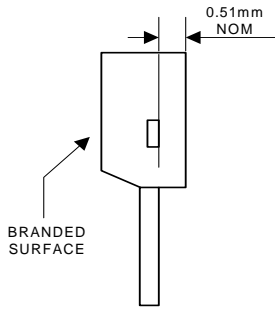


Y : Year: "1"=2001
"2"=2002
WW: Nth Week 01~52
X : Internal code
a~z: Lead Free

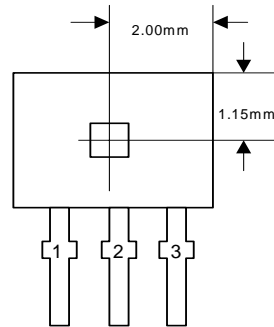
Part Number	Package	Identification Code
AH175	SC59-3L	J5

Package Information

(1) Package Type: SIP-3L for Bulk pack

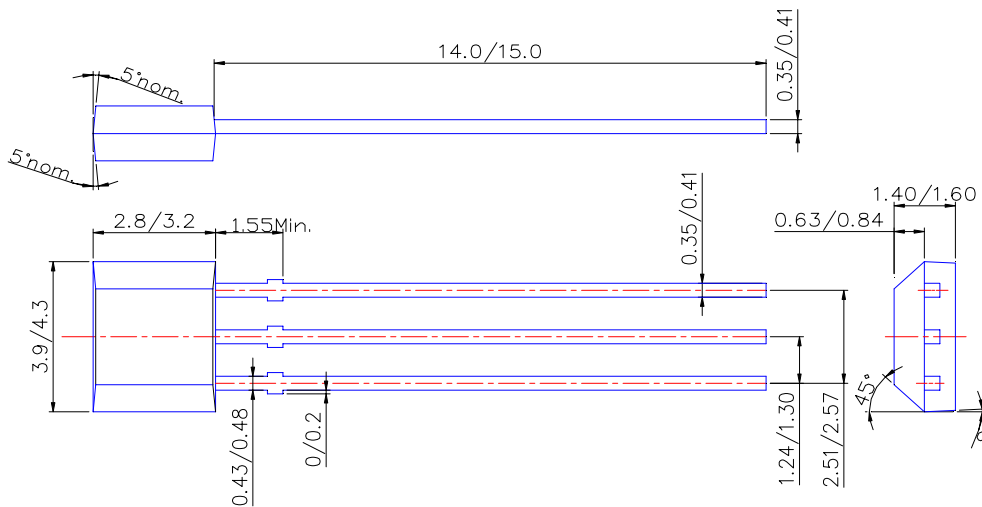


Active Area Depth



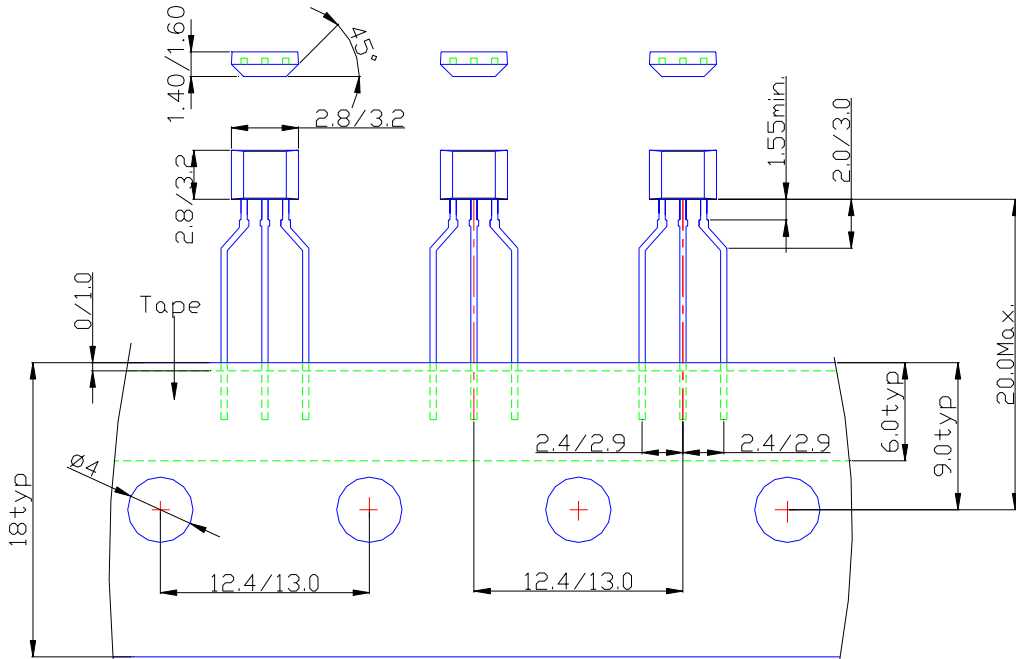
Sensor Location

Package Dimension



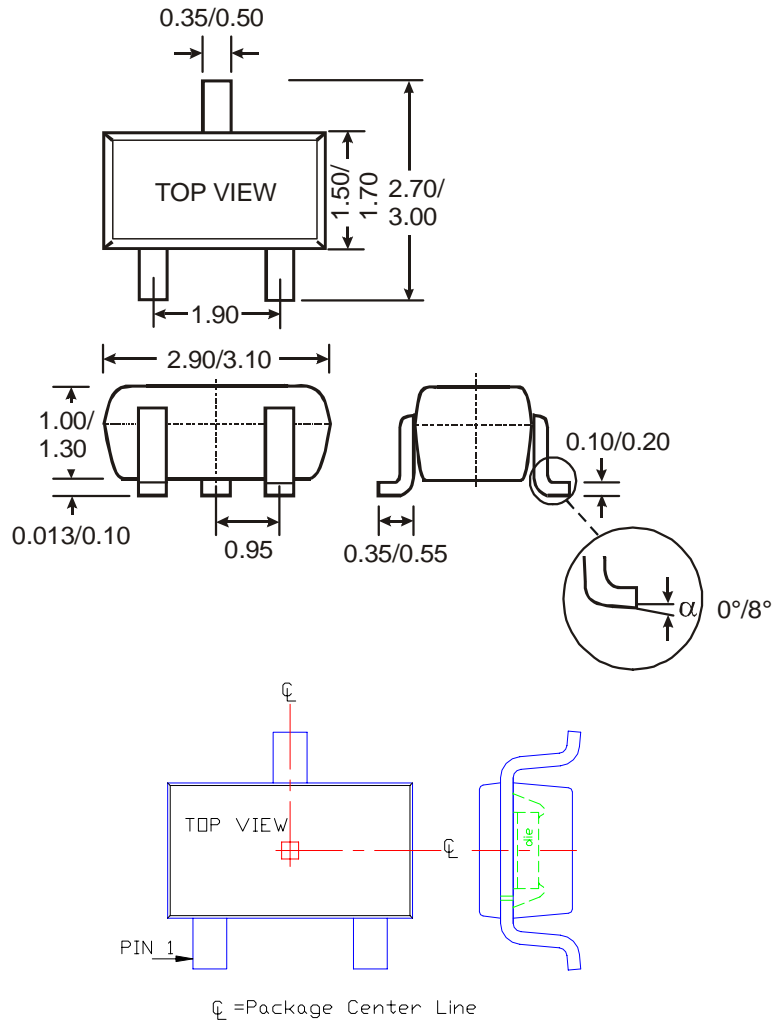
Package Information (Continued)

(2) Package Type: SIP-3L for Ammo pack



Package Information (Continued)

(3) Package Type: SC59-3L



Sensor Location

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