



**Absolute Maximum Ratings** (Note 4) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Symbol	Parameter	Rating	Unit
V <sub>DD</sub>	Supply Voltage (Note 5)	7	V
I <sub>DD</sub>	Supply Current (Fault)	6	mA
V <sub>OUT</sub>	Output Voltage	7	V
I <sub>OUT</sub>	Output Current	2	mA
B	Magnetic Flux Density	Unlimited	Gauss
P <sub>D</sub>	Power Dissipation	TO92S	230
		SC59	230
T <sub>STG</sub>	Storage Temperature	-55 to +150	°C
T <sub>J</sub>	Junction Temperature	+150	°C
–	ESD (Human Body Model) (Note 6)	5000	V
–	ESD (Machine Model) (Note 6)	400	V

- Notes:
- Stresses greater than the 'Absolute Maximum Ratings' specified above may cause permanent damage to the device. These are stress ratings only; functional operation of the device at these or any other conditions exceeding those indicated in this specification is not implied. Device reliability may be affected by exposure to absolute maximum rating conditions for extended periods of time.
  - The absolute maximum V<sub>DD</sub> of 7V is a transient stress rating and is not meant as a functional operating condition. It is not recommended to operate the device at the absolute maximum rated conditions for any period of time.
  - Electronic semiconductor products are sensitive to Electro Static Discharge (ESD). Always observe Electro Static Discharge control procedures whenever handling semiconductor products.

**Recommended Operating Conditions**

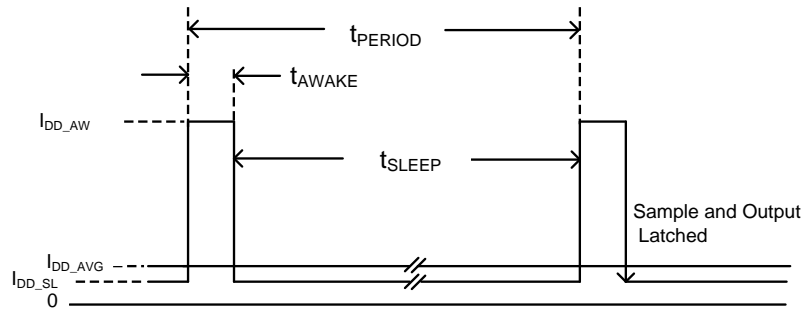
Symbol	Characteristic	Conditions	Min	Max	Unit
V <sub>DD</sub>	Supply Voltage	Operating	2.5	5.5	V
T <sub>A</sub>	Operating Temperature Range	Operating	-40	+85	°C

**Electrical Characteristics** (Note 7) (@T<sub>A</sub> = +25°C, V<sub>DD</sub> = 3V, unless otherwise specified.)

Symbol	Characteristic	Conditions	Min	Typ	Max	Unit
V <sub>DD</sub>	Supply Voltage	Operating	2.5	3	5.5	V
I <sub>DD_AW</sub>	Supply Current During "Awake" Period	T <sub>A</sub> = -40 to +85°C, V <sub>DD</sub> = 2.5V to 5.5V	–	1.8	3	mA
I <sub>DD_SL</sub>	Supply Current During "Sleep" Period	T <sub>A</sub> = -40 to +85°C, V <sub>DD</sub> = 2.5V to 5.5V	–	4	10	µA
I <sub>DD_AVG</sub>	Average Supply Current	T <sub>A</sub> = -40 to +85°C, V <sub>DD</sub> = 2.5V to 5.5V	–	8	15	µA
I <sub>OUT</sub>	Output Current	–	–	–	1.0	mA
I <sub>OFF</sub>	Output Leakage Current	V <sub>OUT</sub> = 5.5V, Output off	–	<0.1	1	µA
V <sub>OL</sub>	Output Low Voltage (On)	I <sub>OUT</sub> = 1.0mA	–	–	0.4	V
V <sub>OH</sub>	Output High Voltage (Off)	I <sub>OUT</sub> = -1.0mA	V <sub>DD</sub> -0.2	V <sub>DD</sub> -0.1	–	V
t <sub>AW</sub>	Awake Mode Time	Operating	–	150	–	µs
t <sub>SL</sub>	Sleep Mode Time	Operating	–	100	–	ms
D	Duty Cycle	–	–	0.15	–	%
f <sub>C</sub>	Chopper Frequency	–	–	15	–	kHz

- Note: 7. Parameters values over operating temperature range are not tested in production, they are guaranteed by design, process control and characterization. The magnetic characteristics may vary with supply voltage, operating temperature and after soldering.

**Electrical Characteristics** (Cont.) (@ $T_A = +25^\circ\text{C}$ ,  $V_{DD} = 3\text{V}$ , unless otherwise specified.)



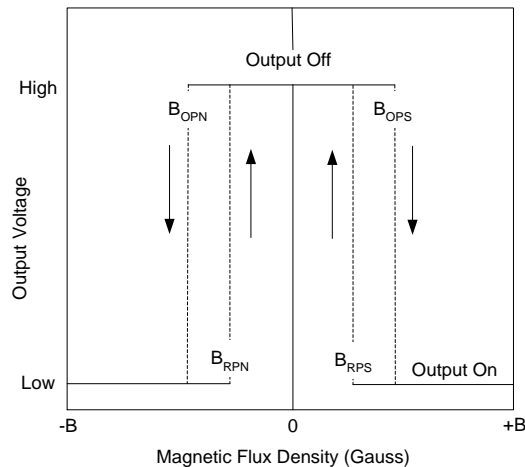
**Magnetic Characteristics** (Notes 8 & 9) (@ $T_A = -40^\circ\text{C}$  to  $+85^\circ\text{C}$ ,  $V_{DD} = 3\text{V}$ , unless otherwise specified.)

(1mT=10 Gauss)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$B_{OPS}$ (South Pole to Part Marking Side)	Operating Point	$B > B_{OPS}, V_{OUT} = \text{Low}$ (output on)	9	18	27	Gauss
$B_{OPN}$ (North Pole to Part Marking Side)		$B > B_{OPN}, V_{OUT} = \text{Low}$ (output on)	-27	-18	-9	Gauss
$B_{RPS}$ (South Pole to Part Marking Side)	Releasing Point	$B < B_{RPS}, V_{OUT} = \text{High}$ (output off)	4	12	22	Gauss
$B_{RPN}$ (North Pole to Part Marking Side)		$B < B_{RPN}, V_{OUT} = \text{High}$ (output off)	-22	-12	-4	Gauss
$B_{HYS}$ (   $B_{OPX} - B_{RPX}$   )	Hysteresis	(Note 9)	-	6	-	Gauss

- Notes:
- Parameters values over operating temperature range are not tested in production, they are guaranteed by design, process control and characterization. The magnetic characteristics may vary with supply voltage, operating temperature and after soldering.
  - Maximum and minimum hysteresis is guaranteed by design and characterization.  
 $B_{OPX}$ =operating point (output turns on);  $B_{RPX}$ =releasing point (output turns off)

**Operating Characteristics**

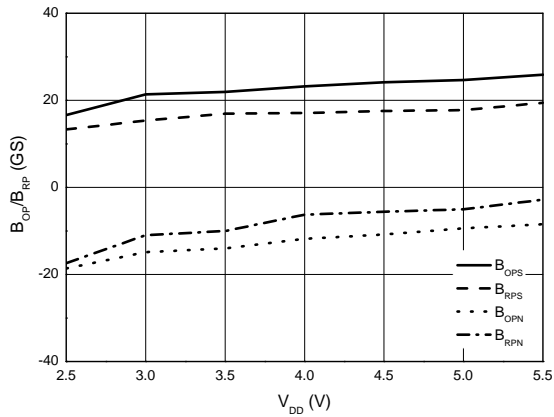


**Output Voltage vs. Magnetic Flux Density**

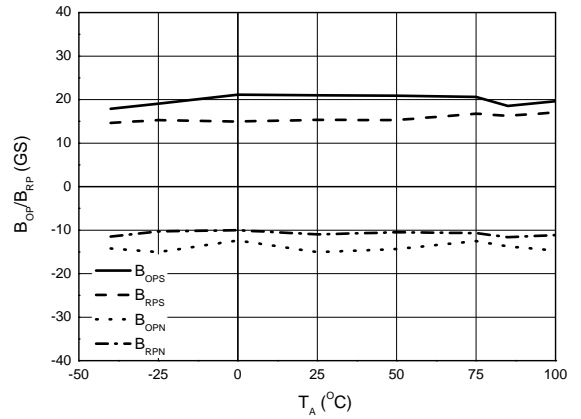
**Performance Characteristics**

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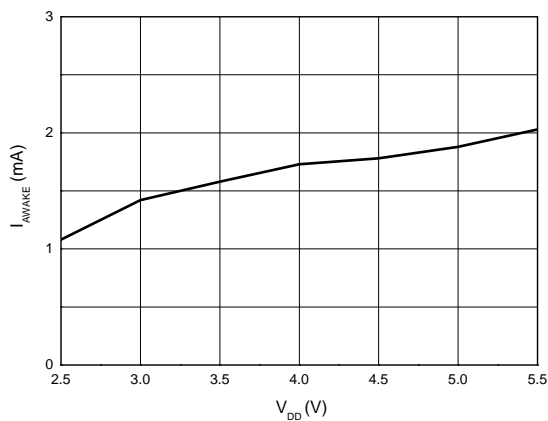
**B<sub>OP</sub>/B<sub>RP</sub> vs. Supply Voltage**



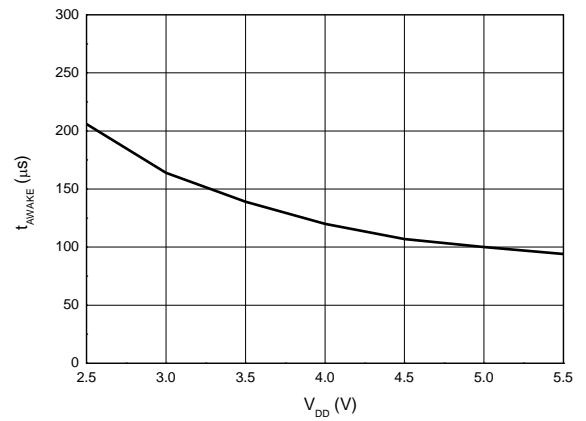
**B<sub>OP</sub>/B<sub>RP</sub> vs. Ambient Temperature**



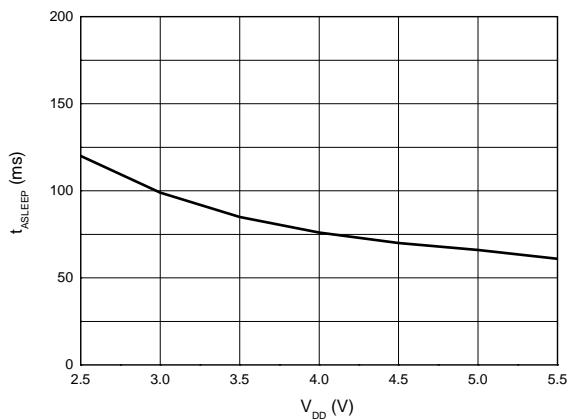
**Average Supply Current vs. Supply Voltage**



**Awake Mode Time vs. Supply Voltage**



**Sleep Mode Time vs. Supply Voltage**

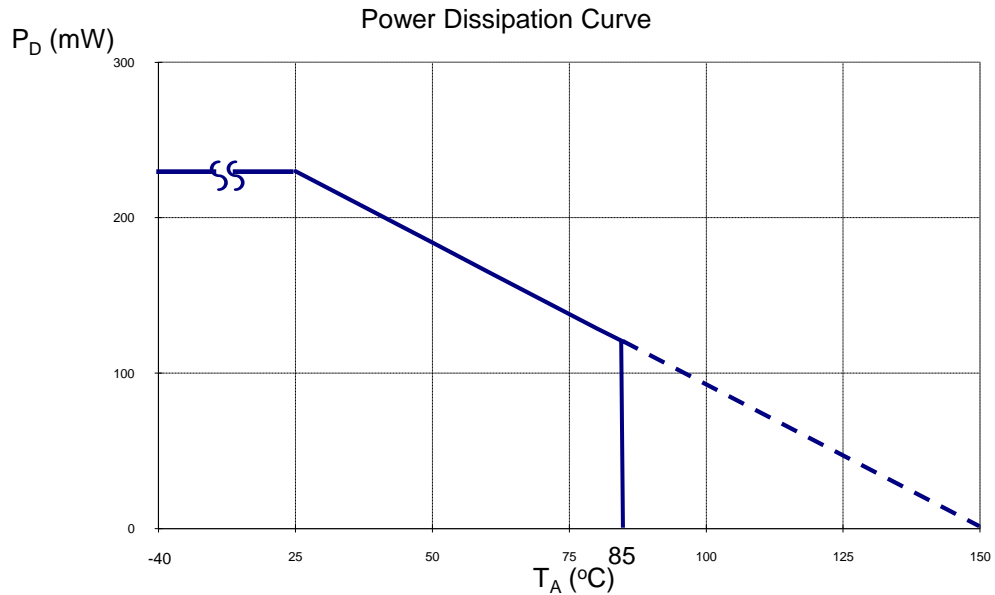


**Thermal Performance**

**Power Dissipation De-rating Curve**

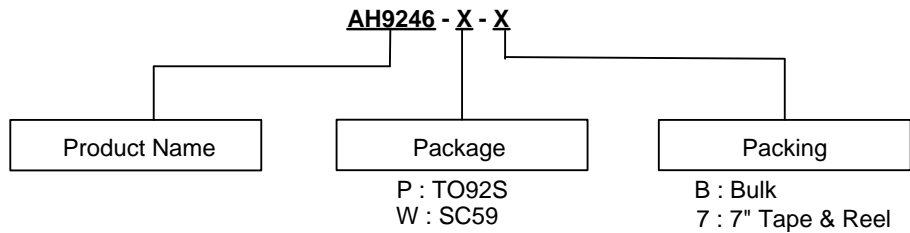
(1) Package Types: SC59 and TO92S

T <sub>A</sub> (°C)	-40	0	25	50	60	70	80	85	90	100	110	120	130	140	150
P <sub>D</sub> (mW)	230	230	230	184	166	147	129	120	110	92	74	55	37	18	0



NEW PRODUCT

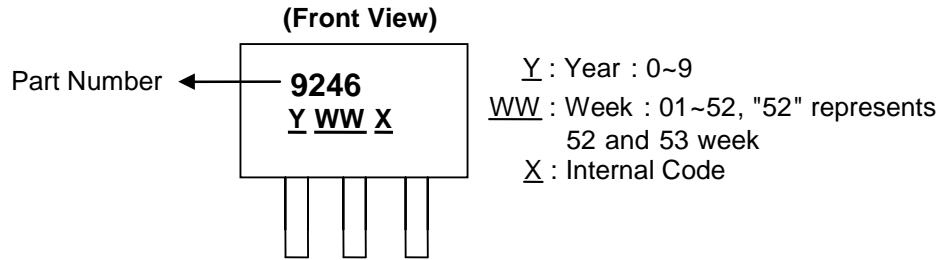
**Ordering Information**



Device	Package Code	Packaging	Bulk	7" Tape and Reel
			Quantity	Quantity
AH9246-P-B	P	TO92S	1000/Bulk	NA
AH9246-W-7	W	SC59	NA	3000/Tape & Reel

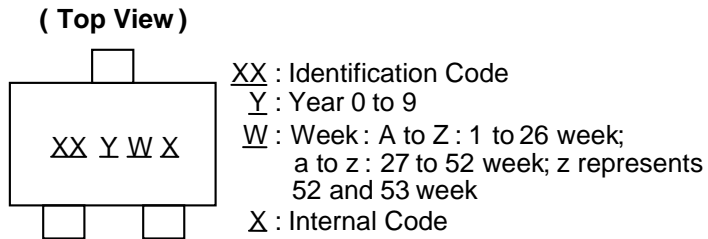
**Marking Information**

(1) Package Type: TO92S



Part Number	Package	Identification Code
AH9246	TO92S	9246

(2) Package Type: SC59

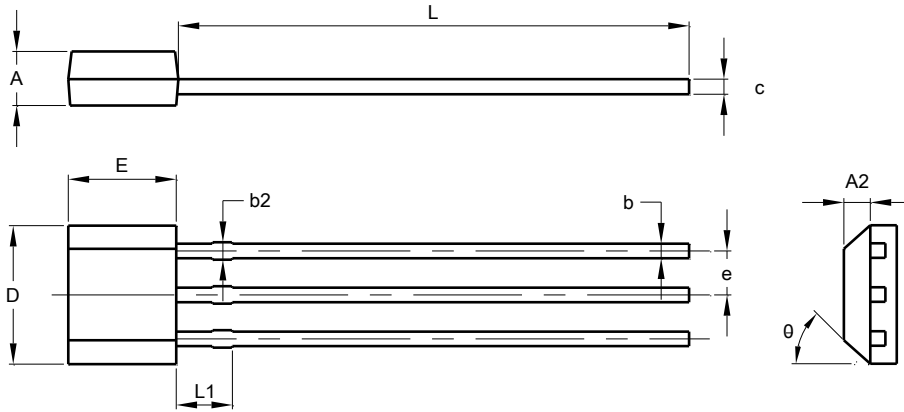


Part Number	Package	Identification Code
AH9246	SC59	H8

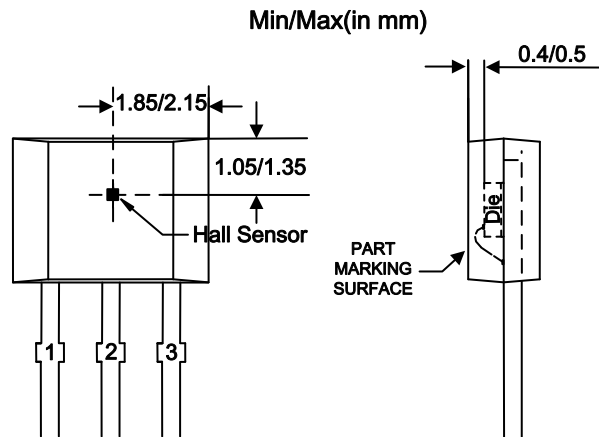
**Package Outline Dimensions** (All dimensions in mm.)

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

(1) Package Type: TO92S(TYPE B)



TO92S (TYPE B)			
Dim	Min	Max	Typ
A	1.420	1.620	-
A2	-	-	0.750
b	0.360	0.480	-
b2	0.380	0.550	-
c	0.360	0.510	-
D	3.850	4.150	-
E	2.900	3.310	-
e	-	-	1.270
L	14.000	15.500	-
L1	-	-	1.600
θ	44°	46°	-
All Dimensions in mm			



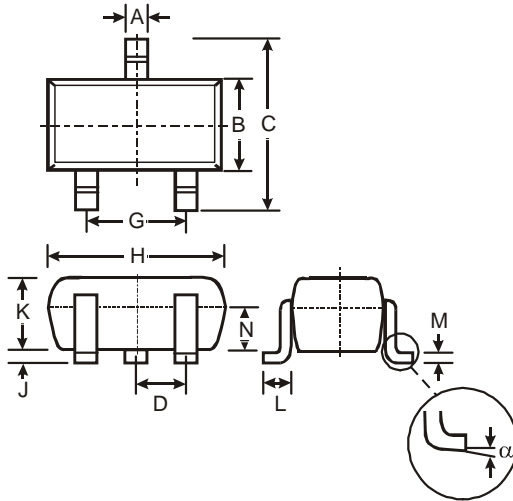
**Sensor Location**

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**Package Outline Dimensions** (All dimensions in mm.) (Cont.)

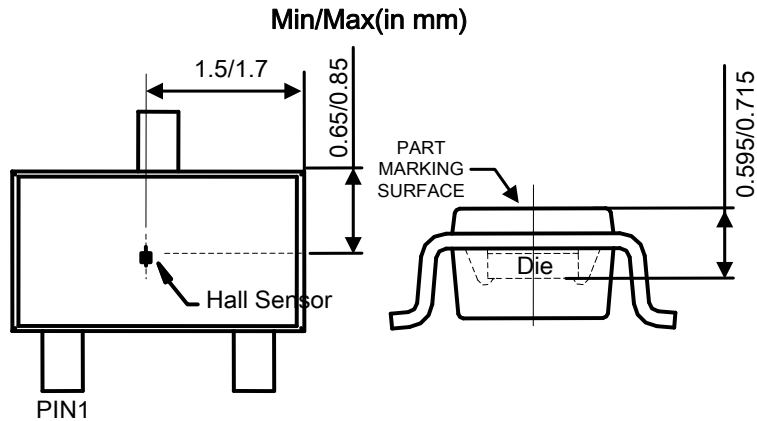
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

(2) Package Type: SC59



SC59			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	-	-	0.95
G	-	-	1.90
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	0°	8°	-
All Dimensions in mm			

NEW PRODUCT



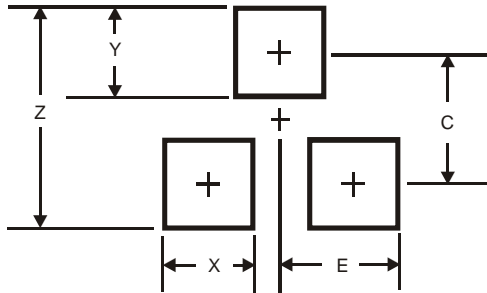
**Sensor Location**



## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

**(1) Package Type: SC59**



Dimensions	Value (in mm)
Z	3.4
X	0.8
Y	1.0
C	2.4
E	1.35

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