Pin Descriptions

Package: X1-DFN1216-4

Pin Number	Pin Name	Function
1	OUTPUT	Output Pin
2	GND	Ground Pin
3	NC	No Connection (Note 5)
4	V_{DD}	Power Supply Input
Pad	Pad	The center exposed pad – No connection internally. The exposed pad can be left open (unconnected to) on the PCB layout.

Package: X2-DFN2015-6

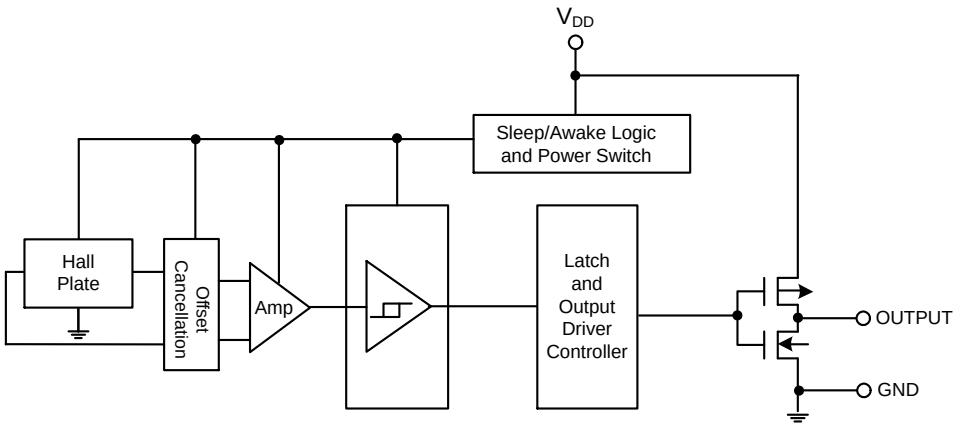
Pin Number	Pin Name	Function
1	OUTPUT	Output Pin
2	NC	No Connection (Note 5)
3	NC	No Connection (Note 5)
4	GND	Ground Pin
5	NC	No Connection (Note 5)
6	V_{DD}	Power Supply Input
Pad	Pad	The center exposed pad – No connection internally. The exposed pad can be left open (unconnected to) on the PCB layout.

Package: SOT553

Pin Number	Pin Name	Function
1	NC	No Connection (Note 5)
2	GND	Ground Pin
3	NC	No Connection (Note 5)
4	V_{DD}	Power Supply Input
5	OUTPUT	Output Pin

Note: 5. NC is “No Connection” pin and is not connected internally. This pin can be left open or tied to ground.

Functional Block Diagram



Absolute Maximum Ratings (Note 6) (@T_A = +25°C, unless otherwise specified.)

Symbol	Parameter		Rating	Unit
V_{DD}	Supply Voltage (Note 7)		6	V
V_{DD_REV}	Reverse Supply Voltage		-0.3	V
I_{OUTPUT}	Output Current (source and sink)		3	mA
B	Magnetic Flux Density		Unlimited	
P_D	Package Power Dissipation	X1-DFN1216-4 and X2-DFN2015-6	230	mW
		SOT553	230	mW
Ts	Storage Temperature Range		-65 to +150	°C
T_J	Maximum Junction Temperature		+150	°C
ESD HBM	Human Body Model (HMB) ESD capability		8	kV

Notes: 6. 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.

7. The absolute maximum V_{DD} of 6V 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.

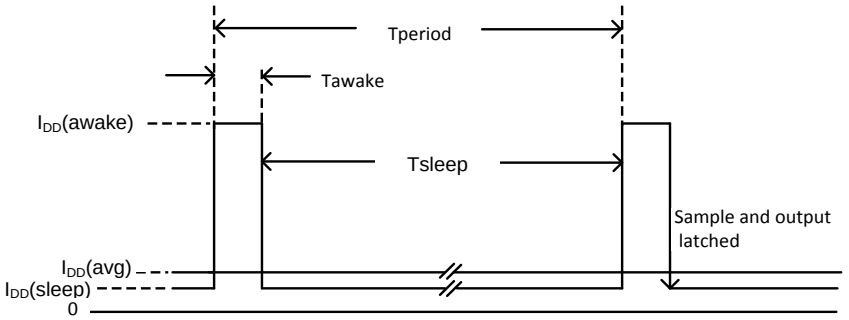
Recommended Operating Conditions (@T_A = +25°C, unless otherwise specified.)

Symbol	Parameter	Conditions	Rating	Unit
V_{DD}	Supply Voltage	Operating	1.6V to 3.6V	V
T_A	Operating Temperature Range	Operating	-40 to +85	°C

Electrical Characteristics (@T_A = +25°C, V_{DD} = 1.8V, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{OL}	Output Low Voltage (on)	I_{OUT} = 1mA	—	0.1	0.2	V
V_{OH}	Output High Voltage (off)	I_{OUT} = -1mA	V_{DD}-0.2	V_{DD}-0.1	—	V
Ioff	Output Leakage Current	V_{OUT} = 3.6V, Output off	—	< 0.1	1	µA
I_{DD}(awake)	Supply Current	During ‘awake’ period, T_A = +25°C, V_{DD} = 3V	—	2.1	—	mA
I_{DD}(sleep)		During ‘sleep’ period, T_A = +25°C, V_{DD} = 3V	—	2.5	—	µA
I_{DD}(avg)	Average Supply Current	T_A = +25°C, V_{DD} = 1.8V	—	4.3	8	µA
		T_A = +25°C, V_{DD} = 3.6V	—	7.2	13	µA
Tawake	Awake Time	(Note 8)	—	50	100	µs
Tperiod	Period	(Note 8)	—	50	100	ms
D.C.	Duty Cycle	—	—	0.1	—	%

Note: 8. When power is initially turned on, the operating V_{DD} (1.6V to 3.6V) must be applied to guaranteed the output sampling. The output state is valid after the second operating cycle (typical 100ms).



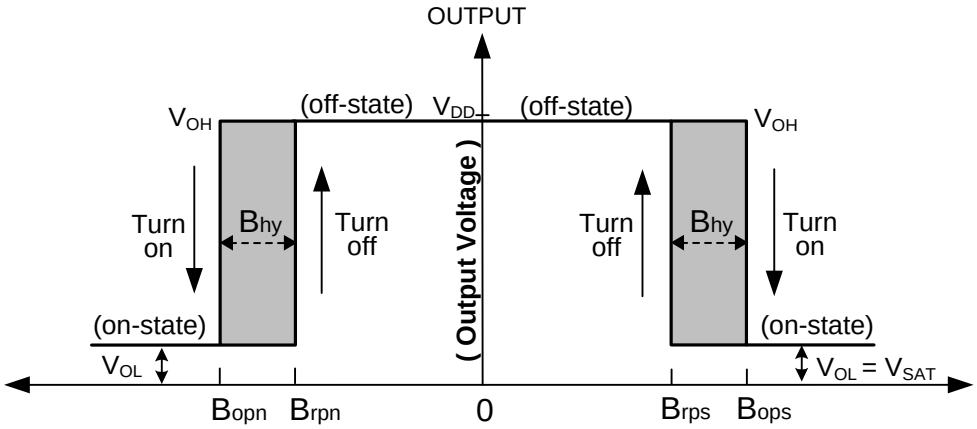
Magnetic Characteristics (Note 9 &10) (T_A = +25°C, V_{DD} = 1.8V, unless otherwise specified)

(1mT=10 Gauss)

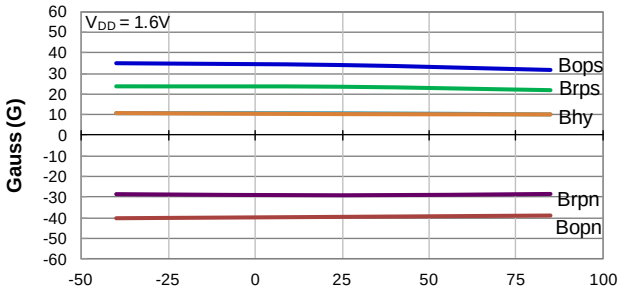
Symbol	Characteristics	Test Condition	Min	Typ	Max	Unit
Bops (south pole to part marking side)	Operation Point	—	23	33	47	Gauss
		V_{DD} = 1.6V to 3.6V T_A = -40°C to +85°C	21	33	48	
Bopn (north pole to part marking side)		—	-47	-33	-24	
		V_{DD} = 1.6V to 3.6V T_A = -40°C to +85°C	-48	-33	-21	
Brps (south pole to part marking side)	Release Point	—	12	23	35	
		V_{DD} = 1.6V to 3.6V T_A = -40°C to +85°C	9	23	38	
Brpn (north pole to part marking side)		—	-35	-23	-12	
		V_{DD} = 1.6V to 3.6V T_A = -40°C to +85°C	-38	-23	-9	
Bhy (|Bopx|-|Brpx|)	Hysteresis	—	—	10	—	

Notes: 9. Typical data is at T_A = +25°C, V_{DD} = 1.8V.

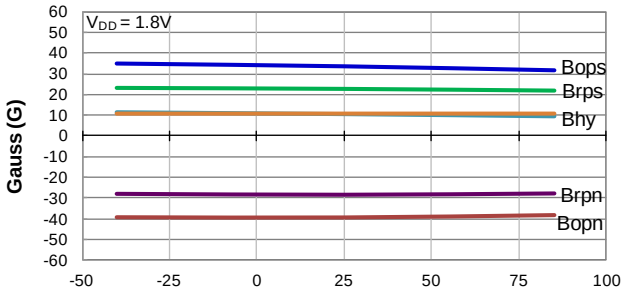
10. Maximum and minimum parameters values over operating temperature range are not tested in production, they are guaranteed by design, characterization and process control. The magnetic characteristics may vary with supply voltage, operating temperature and after soldering.



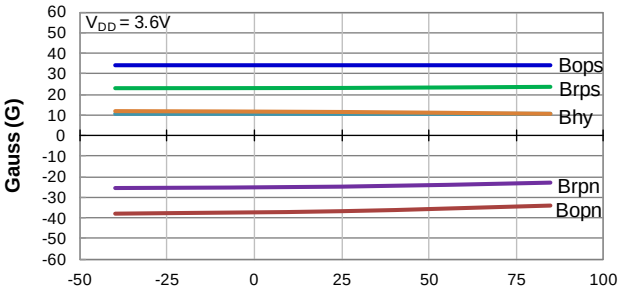
Typical Operating Characteristics



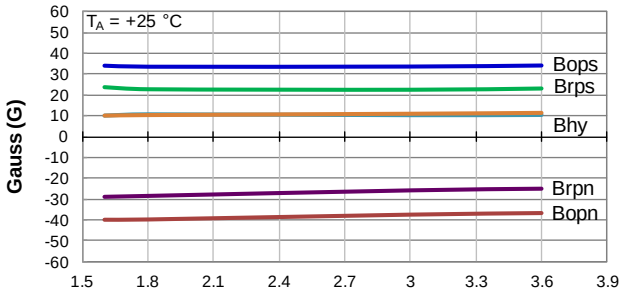
Switch Points vs Temperature



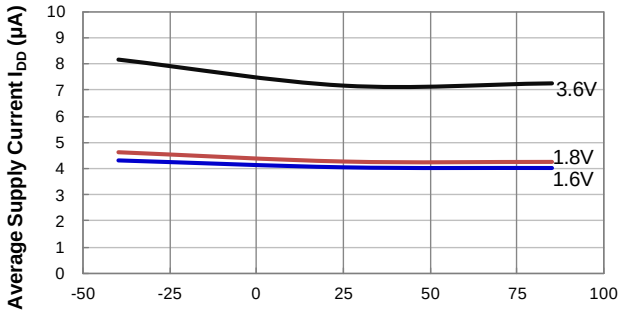
Switch Points vs Temperature



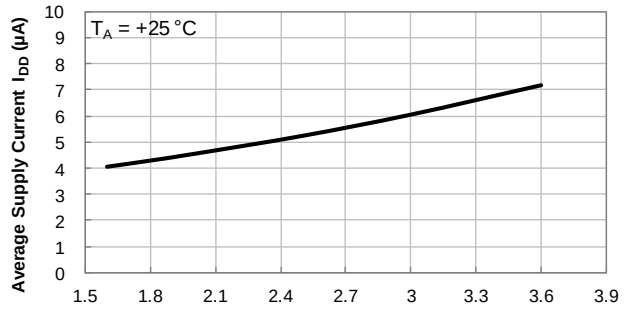
Switch Points vs Temperature



Switch Points vs Temperature



Average Supply Current vs. Temperature



Average Supply Current vs. Supply Voltage

Ordering Information

AH1902 - XXX - X

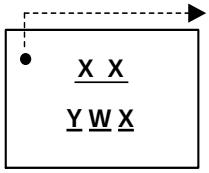
Package	Packing
FA : X1-DFN1216-4 FT4 : X2-DFN2015-6 Z : SOT553	7 : Tape & Reel

Part Number	Package Code	Packaging	7" Tape and Reel	
			Quantity	Part Number Suffix
AH1902-FA-7	FA	X1-DFN1216-4	3,000/Tape & Reel	-7
AH1902-FT4-7	FT4	X2-DFN2015-6	3,000/Tape & Reel	-7
AH1902-Z-7	Z	SOT553	3,000/Tape & Reel	-7

Marking Information

(1) Package Type: X1-DFN1216-4 and X2-DFN2015-6

(Top View)

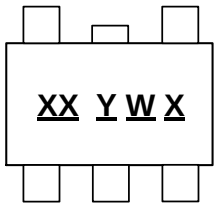


Pin 1 indicator
XX : Identification Code
Y : Year : 0~9
W : Week : A~Z : 1~26 week;
a~z : 27~52 week; z represents
52 and 53 week
X : Internal code

Part Number	Package	Identification Code
AH1902-FA-7	X1-DFN1216-4	F2
AH1902-FT4-7	X2-DFN2015-6	D2

(2) Package Type: SOT553

(Top View)



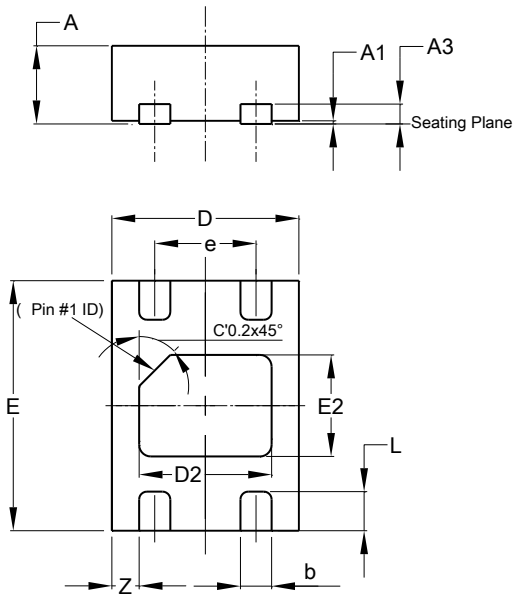
XX : Identification Code
Y : Year : 0 to 9
W : Week : A to Z : 1~26 week;
a to z : 27~52 week; z represents
52 and 53 week
X : Internal code

Part Number	Package	Identification Code
AH1902-Z-7	SOT553	D2

Package Outline Dimensions (All dimensions in mm.)

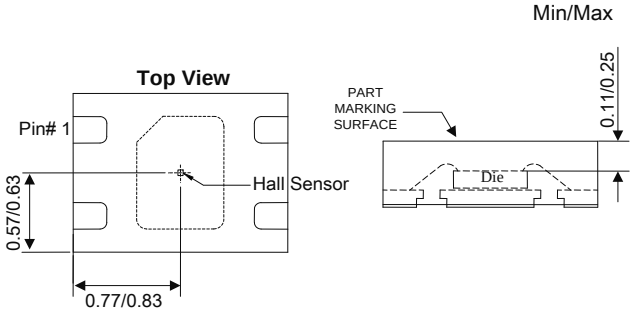
Please see http://www.diodes.com/package-outlines.html for the latest version.

(1) Package Type: X1-DFN1216-4



Bottom View

X1-DFN1216-4			
Dim	**Min**	**Max**	**Typ**
A	0.47	0.53	0.50
A1	0.00	0.05	0.02
A3	--	--	0.13
b	0.15	0.25	0.20
D	1.15	1.25	1.20
D2	0.75	0.95	0.85
E	1.55	1.65	1.60
E2	0.55	0.75	0.65
e	-	-	0.65
L	0.20	0.30	0.25
Z	-	-	0.175
All Dimensions in mm			

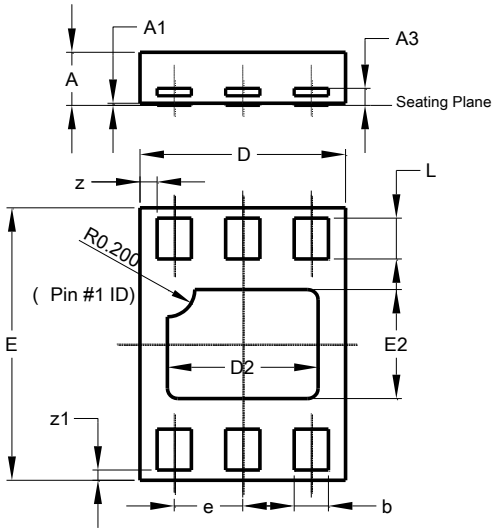


Sensor Location

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

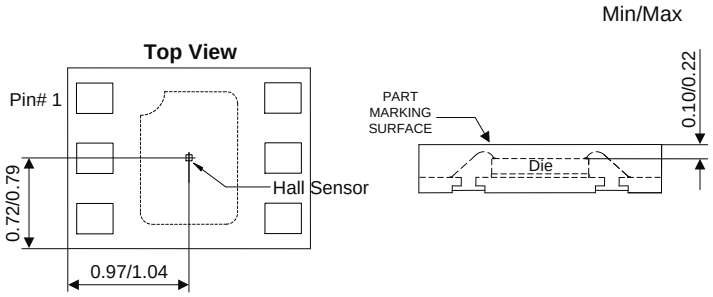
Please see http://www.diodes.com/package-outlines.html for the latest version.

(2) Package Type: X2-DFN2015-6



Bottom View

X2-DFN2015-6			
Dim	**Min**	**Max**	**Typ**
A	0.375	0.40	0.390
A1	0	0.05	0.02
A3	-	-	0.13
b	0.20	0.30	0.25
D	1.45	1.575	1.50
D2	1.00	1.20	1.10
e	-	-	0.50
E	1.95	2.075	2.00
E2	0.70	0.90	0.80
L	0.25	0.35	0.30
Z	-	-	0.125
Z1	-	-	0.075
All Dimensions in mm			

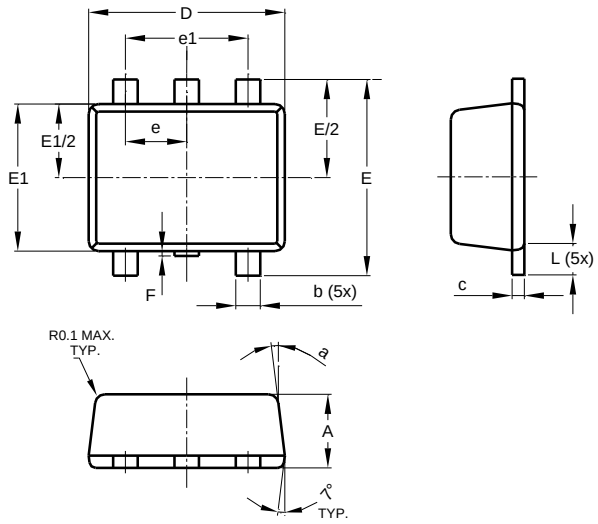


Sensor Location

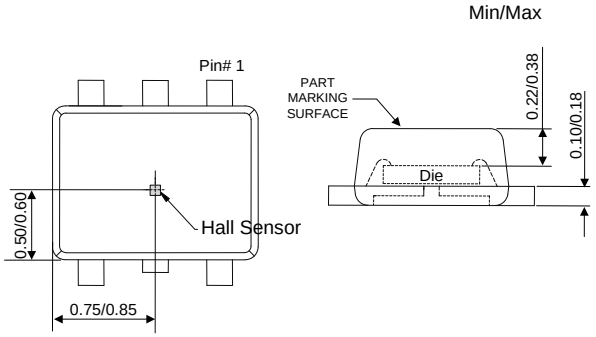
Package Outline Dimensions (cont.) (All dimensions in mm.)

Please see http://www.diodes.com/package-outlines.html for the latest version.

(3) Package Type: SOT553



SOT553			
Dim	**Min**	**Max**	**Typ**
A	0.55	0.62	0.60
b	0.15	0.30	0.20
c	0.10	0.18	0.15
D	1.50	1.70	1.60
E	1.55	1.70	1.60
E1	1.10	1.25	1.20
e	0.50 BSC		
e1	1.00 BSC		
F	0.00	0.10	—
L	0.10	0.30	0.20
a	6°	8°	7°
All Dimensions in mm			

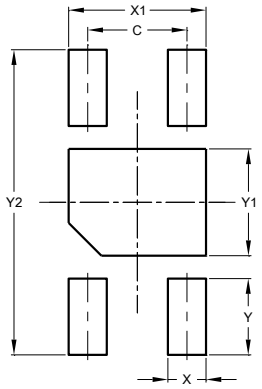


Sensor Location

Suggested Pad Layout

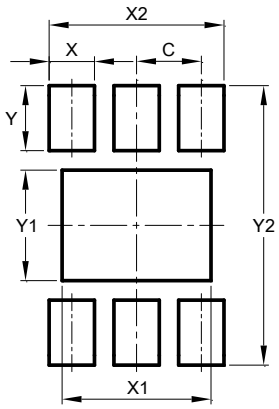
Please see http://www.diodes.com/package-outlines.html for the latest version.

(1) Package Type: X1-DFN1216-4



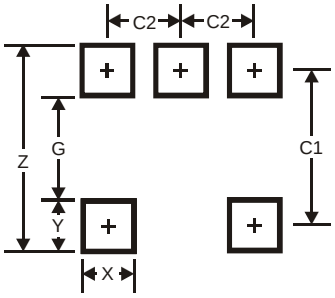
X1-DFN1216-4	
Dimensions	**Value**
C	0.65
X	0.25
X1	0.90
Y	0.50
Y1	0.70
Y2	2.00
All Dimensions in mm	

(2) Package Type: X2-DFN2015-6



X2-DFN2015-6	
Dimensions	**Value**
C	0.500
X	0.350
X1	1.150
X2	1.350
Y	0.500
Y1	0.850
Y2	2.150
All Dimensions in mm	

(3) Package Type: SOT553



SOT553	
Dimensions	**Value**
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5
All Dimensions in mm	

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