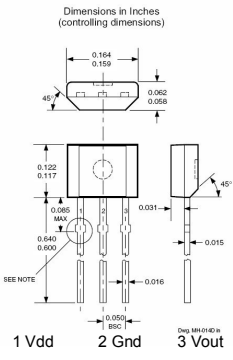


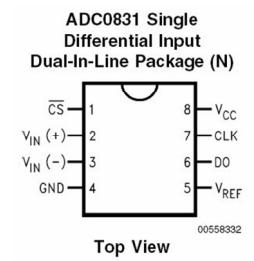
Vss (Vcc) = 5V Linier Hall Effect IC

8 Bit A/D Converter



ELECTRICAL CHARACTERISTICS at T_A = +25°C, V_{CC} = 5 V

Characteristic	Symbol	Test Conditions	Limits			
			Min.	Typ.	Max.	Units
Operating Voltage	V _{CC}		4.5	—	6.0	V
Supply Current	I _{CC}		—	9.0	13	mA
Quiescent Output Voltage	V _{OUT}	B = 0 G	2.25	2.50	2.75	V
Sensitivity	ΔV _{OUT}	B = 0 G to ±900 G	0.75	1.30	1.75	mV/G
Bandwidth (-3 dB)	BW		—	23	—	kHz
Broadband Output Noise	V _{out}	BW = 10 Hz to 10 kHz	—	90	—	μV
Output Resistance	R _{OUT}		—	50	220	Ω



Quantity	Part
1	UGN3503UA Linier Hall Effect IC
1	ADC0831 8Bit A/D Converter

REVISIONS		

```
'-----[ Title ]-----
' Magnetometer
' Revision 2
' Paul Ashley
' {$STAMP BS2}
' {$PBASIC 2.5}
'-----[ Declarations ]-----
adcBits VAR Byte
v VAR Byte
r VAR Byte
v2 VAR Byte
v3 VAR Byte
g VAR Byte
'-----[ Initialization ]-----
CS PIN 0
CLK PIN 1
DataOutput PIN 2

DEBUG CLS
'-----[ Main Routine ]-----
DO
GOSUB ADC_Data
GOSUB Calc_Volts
GOSUB Display
LOOP
```

```
'-----[ Subroutines ]-----
ADC_Data:
HIGH CS
LOW CS
LOW CLK
PULSOUT CLK, 210
SHIFTIN DataOutput,CLK,MSBPOST,[adcBits*8]
RETURN

Calc_Volts:
g=adcBits
v = 5 * g / 255
r = 5 * g // 255
v2 = 100 * r / 255
v3 = 100 * r // 255
v3 = 10 * v3 / 255
IF (v3 >= 5) THEN v2 = v2 + 1
IF (v2 >= 100) THEN
v = v + 1
v2 = 0
ENDIF
RETURN
```

```
Display:
DEBUG HOME
DEBUG "8-bit binary value: ", BIN8 adcBits
DEBUG CR, CR, "Decimal value: ", DEC3 adcBits
DEBUG CR, CR, "DVM Reading: "
DEBUG DEC1 v, ".", DEC2 v2, " Volts"
RETURN
```

TITLE		
Magnetometer and 8 Bit A/D Converter		
DATE	SCALE	Parallax BS2 program provided. +/- 0 to 900 Gauss
1-30-2010	none	
DRAWN BY	PAGES	www.robo-works.net
Paul Ashley	1 of 1	