

**COMPLEMENTARY OUTPUT HALL EFFECT LATCH**

**AH276**

**Pin Configuration**

Z4 Package  
(TO-94)

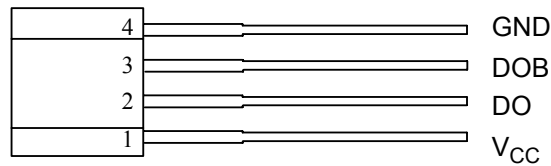


Figure 2. Pin Configuration of AH276 (Front View)

**Pin Description**

Pin Number	Pin Name	Function
1	V <sub>CC</sub>	Supply voltage
2	DO	Output 1
3	DOB	Output 2
4	GND	Ground

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**Functional Block Diagram**

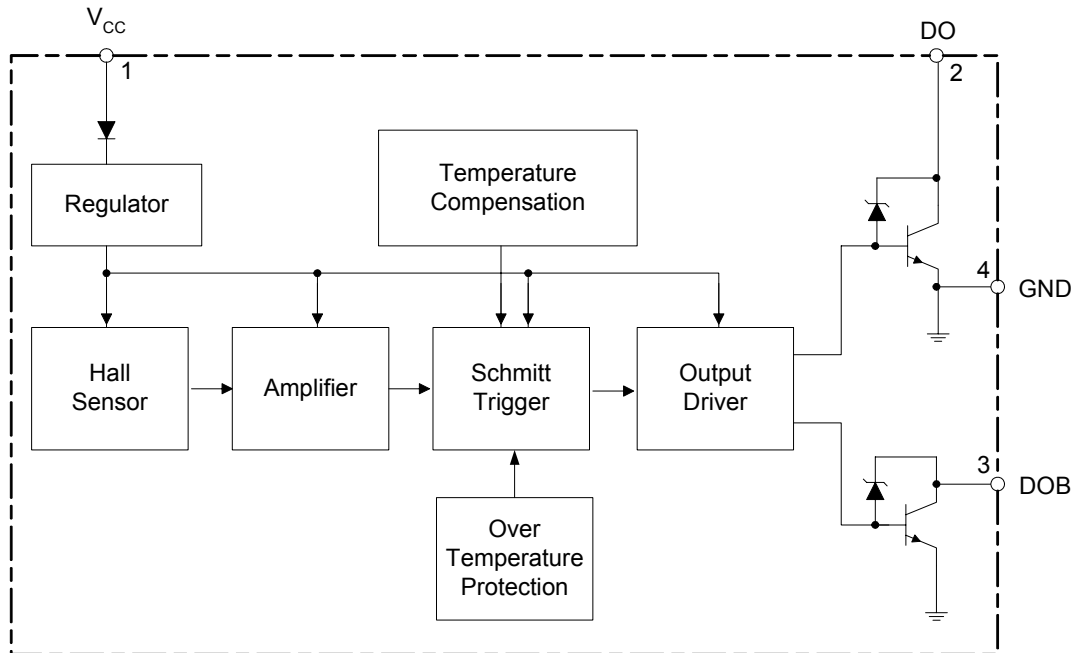
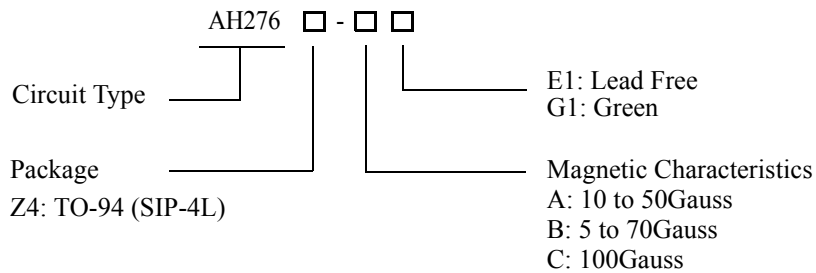


Figure 3. Functional Block Diagram of AH276

**Ordering Information**



Package	Temperature Range	Part Number		Marking ID		Packing Type
		Lead Free	Green	Lead Free	Green	
TO-94	-20 to 85 °C	AH276Z4-AE1	AH276Z4-AG1	AH276Z4-E1	AH276Z4-G1	Bulk
		AH276Z4-BE1	AH276Z4-BG1	AH276Z4-E1	AH276Z4-G1	Bulk
		AH276Z4-CE1	AH276Z4-CG1	AH276Z4-E1	AH276Z4-G1	Bulk

BCD Semiconductor's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with "G1" suffix are available in green package.

**COMPLEMENTARY OUTPUT HALL EFFECT LATCH****AH276****Absolute Maximum Ratings (Note 1)** $(T_A=25^{\circ}\text{C})$ 

Parameter		Symbol	Value	Unit
Supply Voltage		$V_{CC}$	20	V
Reverse Protection Voltage		$V_{RCC}$	-20	V
Magnetic Flux Density		B	Unlimited	Gauss
Output Current	Continuous	$I_O$	350	mA
	Hold		550	mA
	Peak (start up)		750	mA
Power Dissipation		$P_D$	550	mW
Thermal Resistance	Die to atmosphere	$\theta_{JA}$	227	$^{\circ}\text{C}/\text{W}$
	Die to package case	$\theta_{JC}$	49	$^{\circ}\text{C}/\text{W}$
Storage Temperature		$T_{STG}$	-50 to 150	$^{\circ}\text{C}$
ESD (Machine Model)			300	V
ESD (Human Body Model)			2500	V

Note 1: Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. "Absolute Maximum Ratings" for extended period may affect device reliability.

**Recommended Operating Conditions** $(T_A=25^{\circ}\text{C})$ 

Parameter	Symbol	Min	Max	Unit
Supply Voltage	$V_{CC}$	3.5	16	V
Ambient Temperature	$T_A$	-20	85	$^{\circ}\text{C}$



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**Electrical Characteristics**

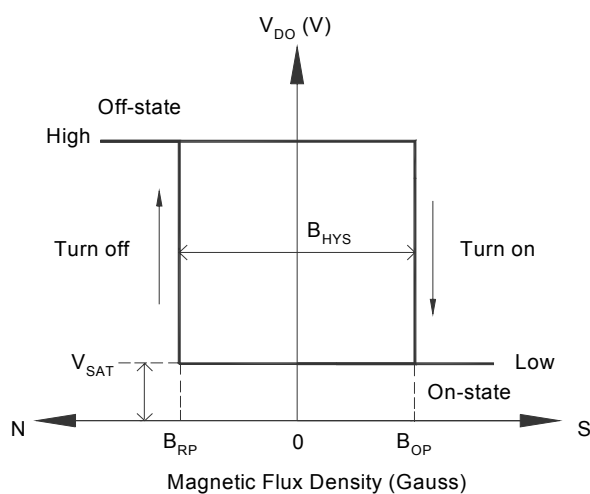
( $T_A=25^{\circ}\text{C}$ ,  $V_{CC}=14\text{V}$ , unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Saturation Voltage	$V_{SAT}$	$V_{CC}=3.5\text{V}$ , $I_O=100\text{mA}$		0.3		V
		$I_O=350\text{mA}$		0.35	0.6	V
Output Leakage Current	$I_{OL}$	$V_{CE}=16\text{V}$		0.1	10	$\mu\text{A}$
Supply Current	$I_{CC}$	$V_{CC}=16\text{V}$ , Output Open		12	16	mA
Output Rise Time	$t_r$	$R_L=820\Omega$ , $C_L=20\text{pF}$		3.0	10	$\mu\text{s}$
Output Fall Time	$t_f$	$R_L=820\Omega$ , $C_L=20\text{pF}$		0.3	1.5	$\mu\text{s}$
Switch Time Differential	$\Delta t$	$R_L=820\Omega$ , $C_L=20\text{pF}$		3.0	10	$\mu\text{s}$
Output Zener Breakdown Voltage	$V_Z$			55		V
Thermal Protection Temperature	TSD			178		$^{\circ}\text{C}$
Thermal Protection Hysteresis	$\Delta\text{TSD}$			40		$^{\circ}\text{C}$

**Magnetic Characteristics**

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

Parameter	Symbol	Grade	Min	Typ	Max	Unit
Operating Point	$B_{OP}$	A	10		50	Gauss
		B	5		70	Gauss
		C			100	Gauss
Releasing Point	$B_{RP}$	A	-50		-10	Gauss
		B	-70		-5	Gauss
		C	-100			Gauss
Hysteresis	$B_{HYS}$			75		Gauss



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**Magnetic Characteristics (Continued)**

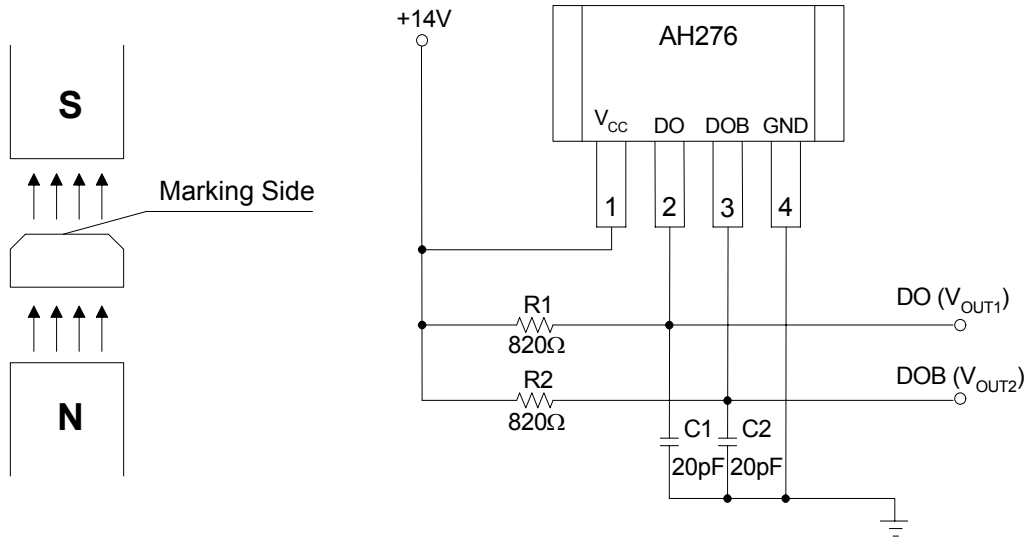


Figure 4. Basic Test Circuit

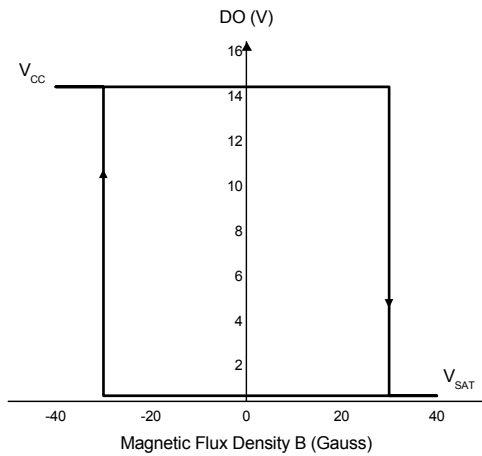


Figure 5. V<sub>DO</sub> vs. Magnetic Flux Density

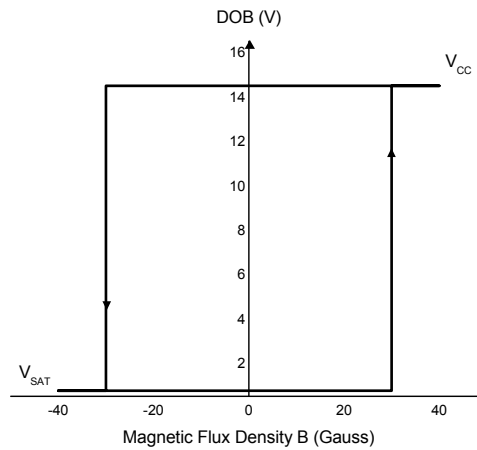


Figure 6. V<sub>DOB</sub> vs. Magnetic Flux Density



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**Typical Performance Characteristics**

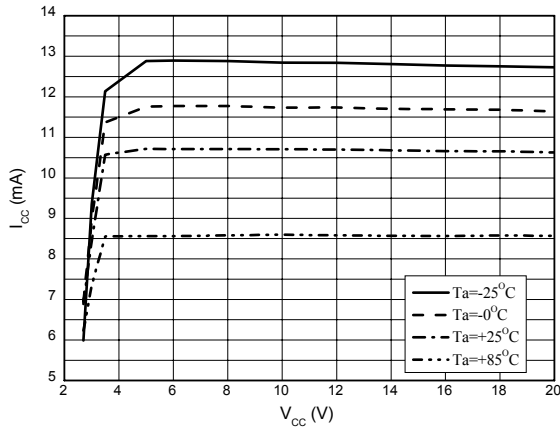


Figure 7.  $I_{CC}$  vs.  $V_{CC}$

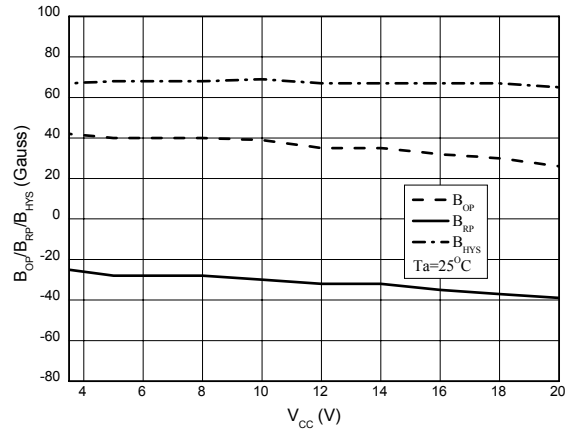


Figure 8.  $B_{OP}/B_{RP}/B_{HYS}$  vs.  $V_{CC}$

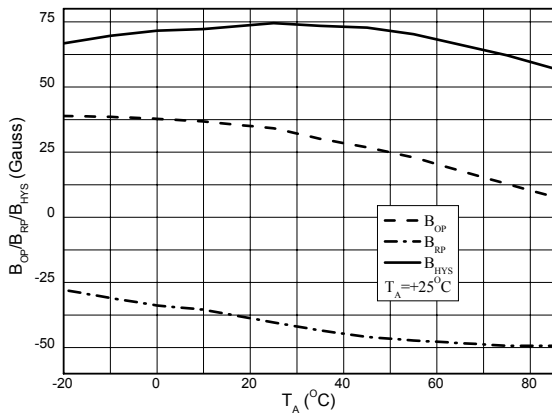


Figure 9.  $B_{OP}/B_{RP}/B_{HYS}$  vs. Ambient Temperature

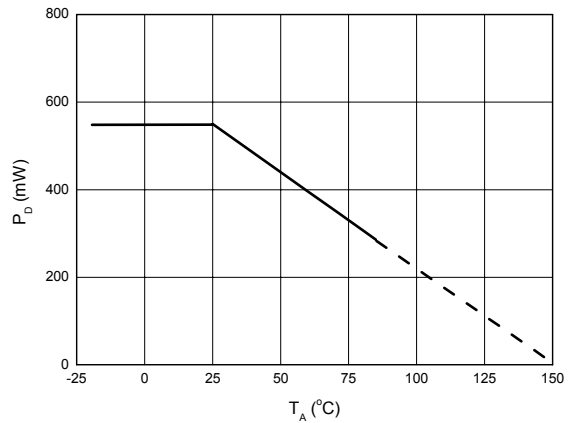


Figure 10.  $P_D$  vs. Ambient Temperature

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**Typical Performance Characteristics (Continued)**

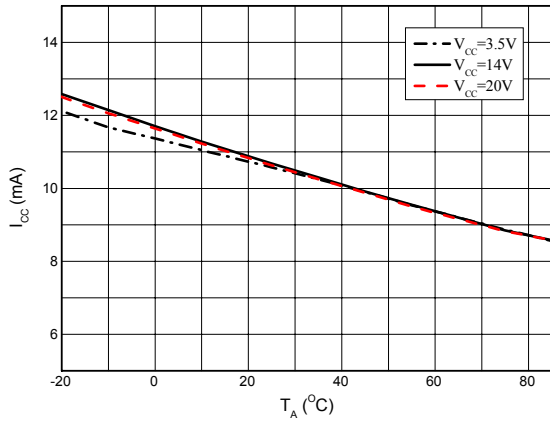


Figure 11.  $I_{CC}$  vs. Ambient Temperature

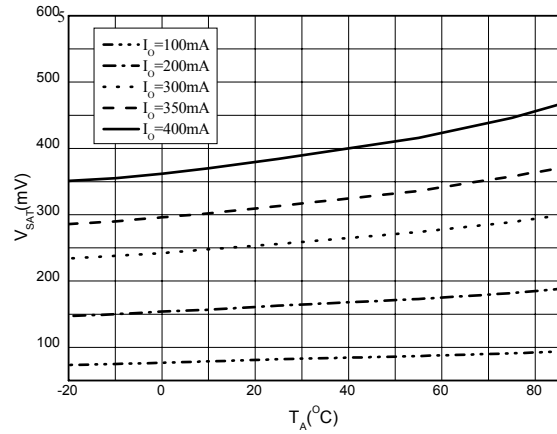


Figure 12.  $V_{SAT}$  vs. Ambient Temperature

**Typical Applications**

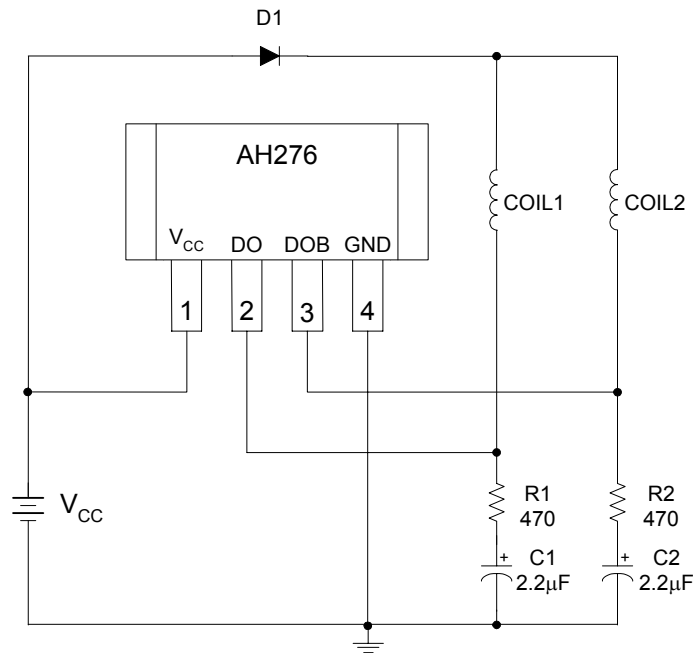


Figure 12. Typical Application Circuit



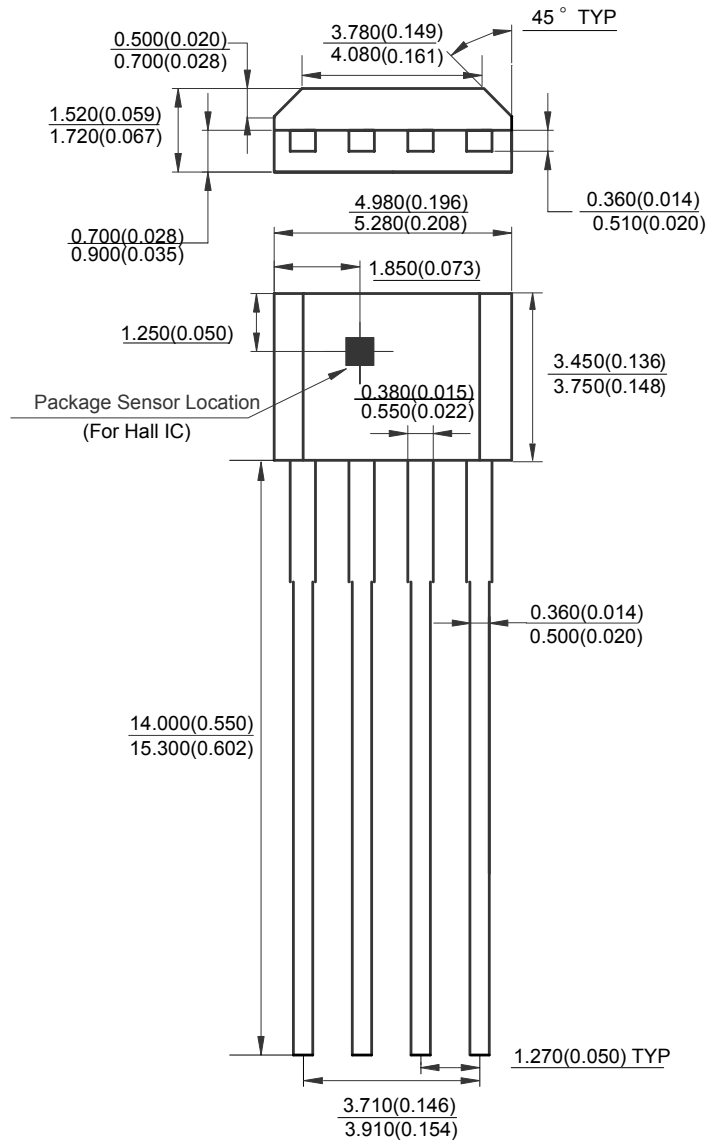
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**Mechanical Dimensions**

**TO-94**

**Unit: mm(inch)**







## **BCD Semiconductor Manufacturing Limited**

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