

Features

- On-Chip Hall Plate
- Operating Voltage: 4V~28V
- Output Current: 400mA (Continuous, 25°C)
- Reverse Protection Diode Only for Chip Reverse Power Connecting (Note 1)
- Output Protection Zener Breakdown $V_z = 62V$ (Typ.)
- Lead Free package: SIP-4L
- SIP-4L: Available in "Green" Molding Compound (No Br, Sb)
- Lead Free Finish/ RoHS Compliant (Note 2)

General Description

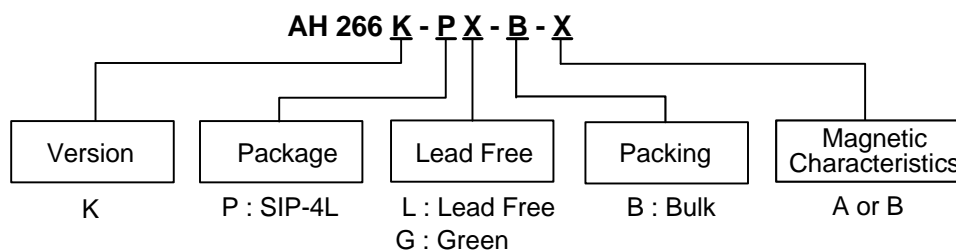
AH266 is an integrated Hall sensor with output drivers designed for electronic commutation of brush-less DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, a Schmitt trigger to provide switching hysteresis for noise rejection, and complementary Darlington open-collector drivers for sinking large current loads. An internal band-gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range.

If a magnetic flux density (B) is larger than operation point (Bop), DO will turn on (low) and DOB will turn off (high). The output state is latched prior to reaching release point (Brp). If $B < Brp$, DO will turn off and DOB will turn on. AH266 is rated for operation over temperature range from -20°C to 85°C and voltage range from 4V to 28V. The devices are available in low cost die forms or rugged 4 pin SIP packages.

Applications

- Dual-Coil Brush-Less DC Motor
- Dual-Coil Brush-Less DC Fan
- Revolution Counting
- Speed Measurement

Ordering Information

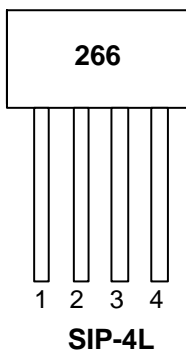


Device	Package Code	Packaging (Note 3)	Bulk		Magnetic Characteristics
			Quantity	Part Number Suffix	
AH266K-PL-B-A	P	SIP-4L	1000	-B	A
AH266K-PL-B-B	P	SIP-4L	1000	-B	B
AH266K-PG-B-A	P	SIP-4L	1000	-B	A
AH266K-PG-B-B	P	SIP-4L	1000	-B	B

- Notes:
1. Protection diode only exists at power pin (1, 4) output, not including pin (2, 3).
 2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at http://www.diodes.com/products/lead_free.html.
 3. 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>.

Pin Assignment

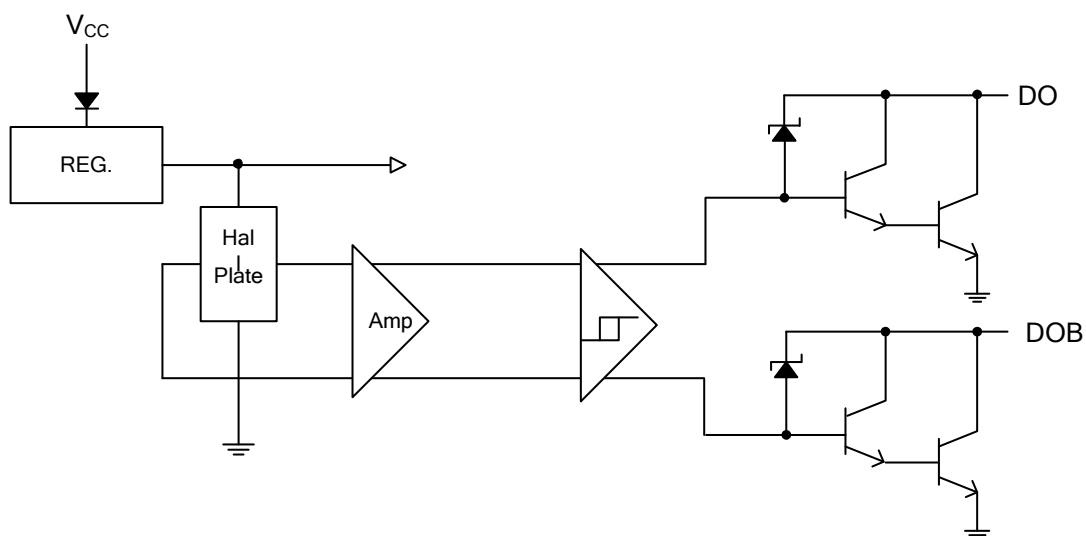
(Top View)



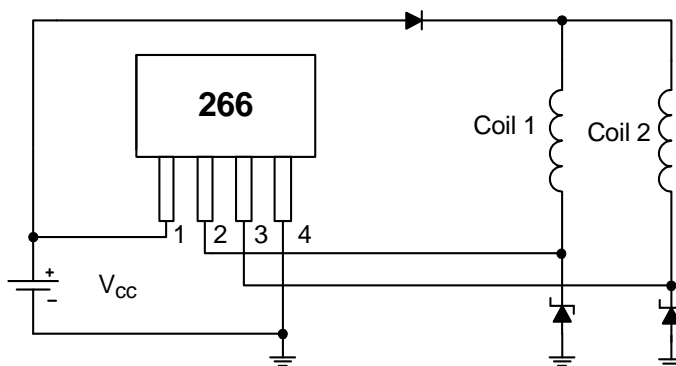
Pin Descriptions

Pin Name	P/I/O	Pin #	Description
V _{CC}	P	1	Power Supply Input
DO	O	2	Output Pin
DOB	O	3	Output Pin
GND	P	4	Ground

Block Diagram



Typical Application Circuit



Brush-Less DC Fan

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

Symbol	Parameter	Rating	Unit
V_{CC}	Supply Voltage	28	V
$V_{out (off)}$	Output "OFF" Voltage	28	V
$I_o (con)$	Output "ON" Current	400 (Note 5)	mA
$I_o (hold)$		500	mA
$I_o (peak)$		700	mA
B	Magnetic Flux Density	Unlimited	Gauss
T_{ST}	Storage Temperature Range	-65 ~ +150	$^\circ\text{C}$
P_D	Power Dissipation (Note 6)	550	mW
θ_{JC}	Thermal Resistance Junction-to-Case	227	$^\circ\text{C/W}$

Recommended Operating Conditions

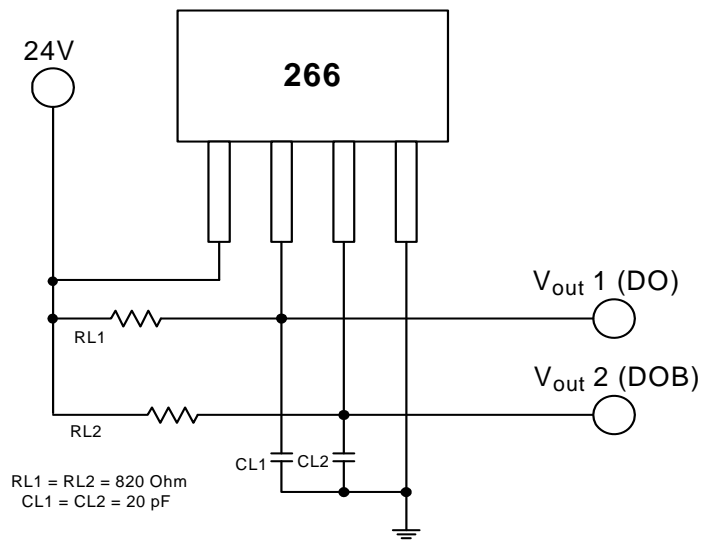
Symbol	Characteristic	Conditions	Min	Max	Unit
V_{CC}	Supply Voltage	Operating	4	28	V
T_A	Operating Ambient Temperature (Note 7)	Operating	-20	85	$^\circ\text{C}$

- Notes:
- This application circuit can't protect reverse coil current if power is connecting reverse.
 - $I_o (con)$ is 150 mA at 85°C .
 - See **Performance Characteristics** for other conditions.
 - Shall not exceed P_D and Safety Operation Area.

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

Symbol	Characteristic	Conditions	Min	Typ.	Max	Unit
V_Z	Output Zener Breakdown	Output Turn off	54	62	70	V
$V_{ce(SAT)}$	Output Saturation Voltage	$V_{CC} = 24\text{V}$, $I_C = 400\text{mA}$	—	1.1	1.5	V
I_{ceX}	Output Leakage Current	$V_{ce} = 24\text{V}$, $V_{CC} = 24\text{V}$	—	< 0.1	10	μA
I_{CC}	Supply Current	$V_{CC} = 24\text{V}$, Output Open	—	5	10	mA
t_r	Output Rise Time	$V_{CC} = 24\text{V}$, $R_L = 820\Omega$, $C_L = 20\text{pF}$	—	1.0	5	μs
t_f	Output Falling Time	$V_{CC} = 24\text{V}$, $R_L = 820\Omega$, $C_L = 20\text{pF}$	—	1.0	1.5	μs
Δt	Switch Time Differential	$V_{CC} = 24\text{V}$, $R_L = 820\Omega$, $C_L = 20\text{pF}$	—	3.0	10	μs

Test Circuit



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

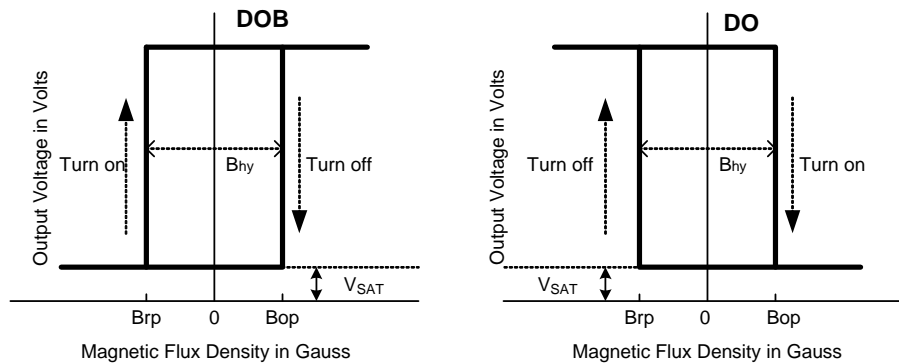
A grade

(1mT = 10 Gauss)

Symbol	Characteristic	Min	Typ.	Max	Unit
Bop	Operation Point	10	-	70	Gauss
Brp	Release Point	-70	-	-10	Gauss
Bhy	Hysteresis	-	80	-	Gauss

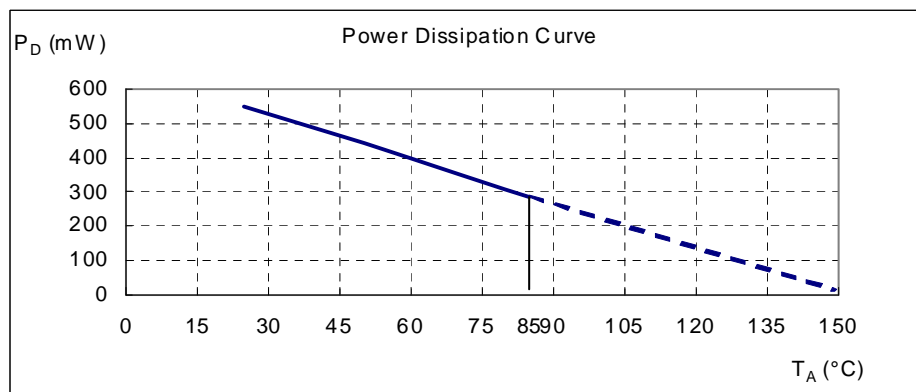
B grade

Symbol	Characteristic	Min	Typ.	Max	Unit
Bop	Operation Point	-	-	100	Gauss
Brp	Release Point	-100	-	-	Gauss
Bhy	Hysteresis	-	80	-	Gauss

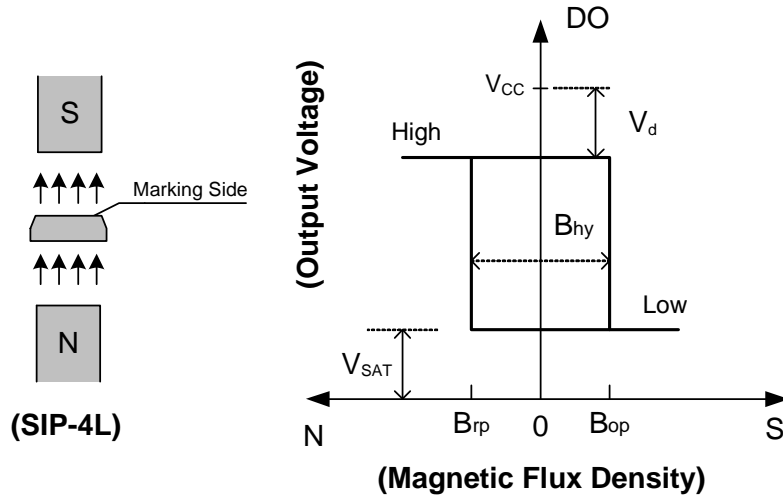


Performance Characteristics

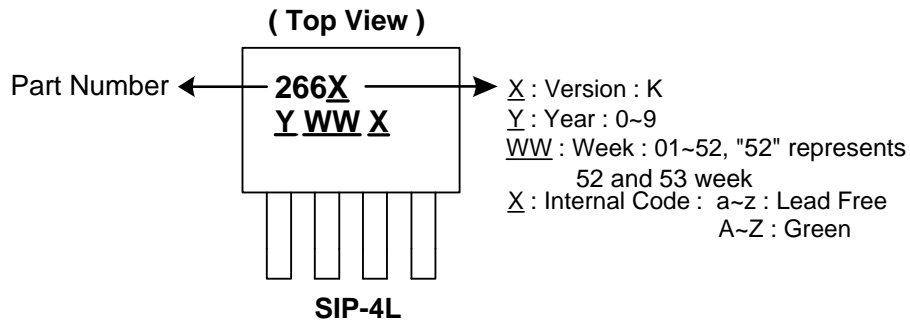
T_A ($^\circ\text{C}$)	25	50	60	70	80	85	90	95	100
P_D (mW)	550	440	396	352	308	286	264	242	220
T_A ($^\circ\text{C}$)	105	110	115	120	125	130	135	140	150
P_D (mW)	198	176	154	132	110	88	66	44	0



Operation Characteristics

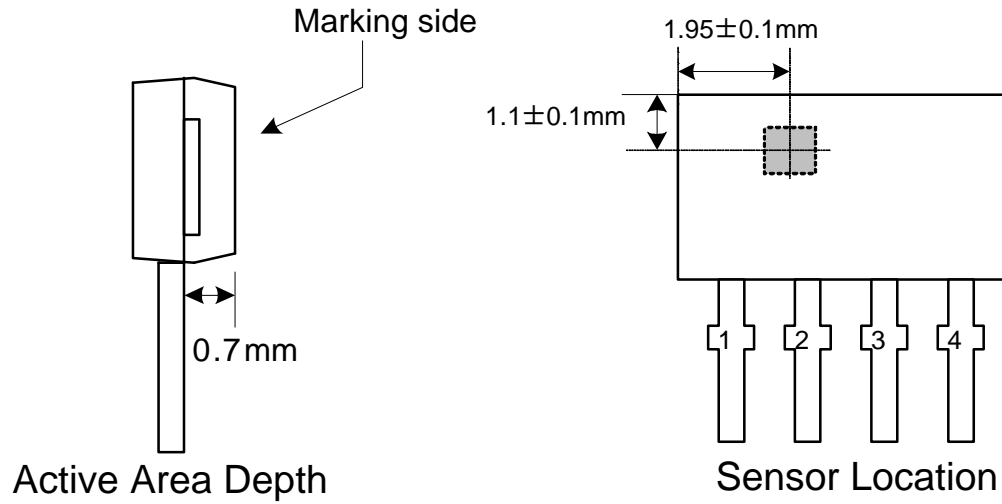


Marking Information

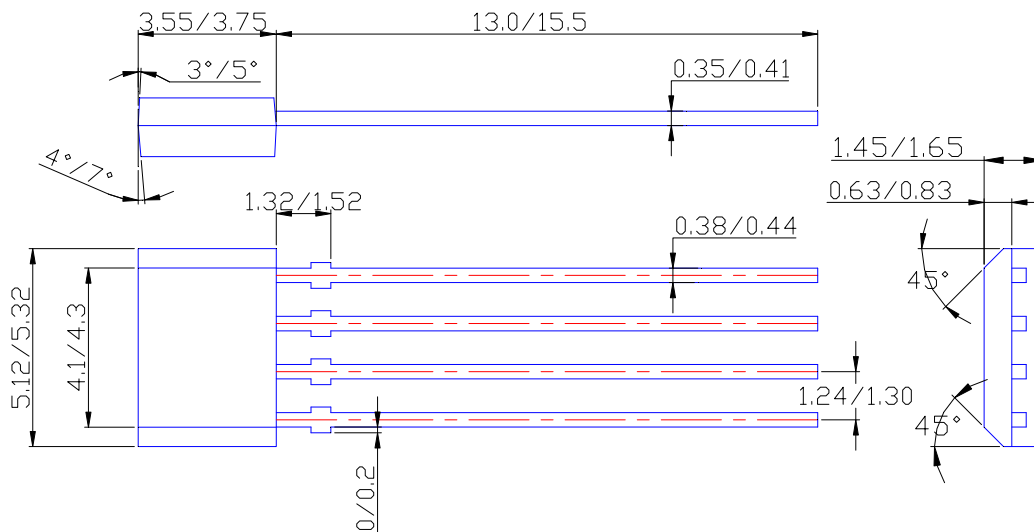


Package Information (All Dimensions in mm)

(1) Package type: SIP-4L



Package Dimension



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