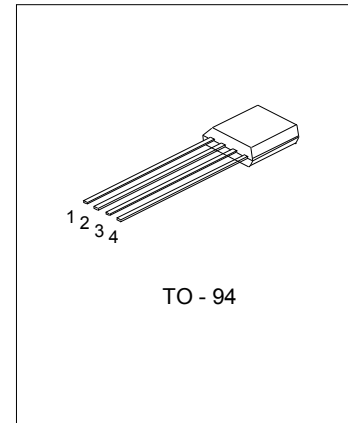


BRUSH-LESS DC-FAN DRIVER WITH ON-CHIP HALL SENSOR

DESCRIPTION

SA276 mainly designed for electronic commutation of brush-less DC fan. This IC internally includes the Hall Plate, Regulator, Pre-Amplifier, Comparator, and a pair of complementary open-collector Outputs (DO, DOB).

SA276 internally includes power-reverse protecting diode, the protecting diode only protects chips but not for coils. If necessary, add one external diode to block the reverse current from coils.



FEATURES

- * On-chip hall sensor
- * Wide operating voltage: 3.5V to 20V
- * 400mA (avg) output sink current
- * Build-in power-reverse protecting diode only for reverse power connecting

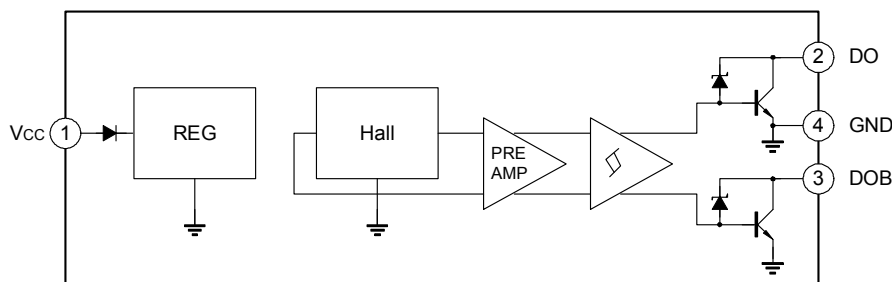
ORDERING INFORMATION

Device	Package
SA276	TO-94

APPLICATIONS

- * Dual coils brush-less DC fan
- * Dual coils brush-less DC motor
- * Revolution counting
- * Speed measurement

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (T_{amb}=25°C)

Characteristics		Symbol	Value	Unit
Supply Voltage		V _{CC}	25	V
Reverse Vcc Polarity Voltage		V _{rcc}	-25	V
Magnetic Flux Density		B	Unlimited	G
Output On Current	Continuous	I _{omax}	400	mA
	Hold		500	mA
	Peak (start up)		700	mA

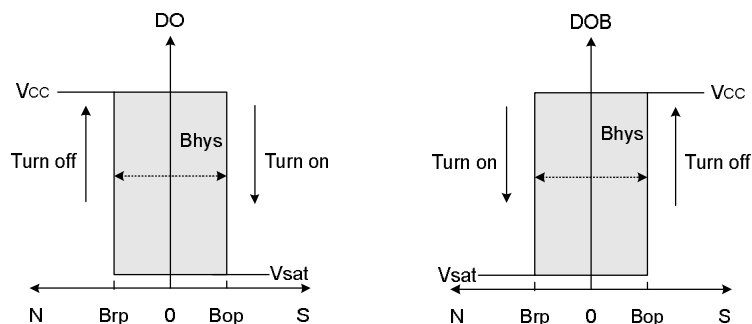
Characteristics	Symbol	Value	Unit
Maximum Junction Temp	T_j	170	°C
Storage Temperature Range	T_{stg}	-55~+150	°C
Operating Temperature Range	T_{amb}	-25~+85	°C
Package Power Dissipation($T_{amb} \leq 85^\circ\text{C}$)	P_{tot}	500	mW
Maximum Jointing Temp $t \leq 10s$	T_{sd}	260	°C

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^\circ\text{C}$, $V_{CC}=4.0V$ to $20V$)

Characteristics	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Voltage	V_{CC}		3.5		25	V
Supply Current	I_{CC}	$V_{CC}=20V$, $R_L=\infty$		16	25	mA
Low Supply Voltage	V_{CE}	$V_{CC}=3.5V$, $I_L=100mA$		0.4		V
Output Saturation Voltage	$V_{CE(sat)}$	$V_{CC}=12V$, $I_L=300mA$		0.3	0.5	V
Output Leakage Current	I_{CEX}	$V_{CE}=12V$, $V_{CC}=12V$		<0.1	10	μA
Output Rise Time	t_r	$V_{CC}=12V$, $R_L=820\Omega$, $C_L=20pF$		3.0	10	μs
Output Falling Time	t_f	$V_{CC}=12V$, $R_L=820\Omega$, $C_L=20pF$		0.4	2	μs
Switch Time Differential	Δt	$V_{CC}=14V$, $R_L=820\Omega$, $C_L=20pF$		3.0	10	μs
Output Zener Breakdown	V_Z			40		V

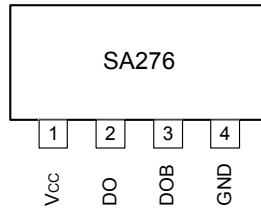
MAGNETIC CHARACTERISTICS

Characteristics	Symbol	Test circuit	Min.	Typ.	Max.	Unit
Operate Point	SA276-A	$T_{amb}=-20\sim+85^\circ\text{C}$	0	--	50	G
	SA276-B		0	--	60	
	SA276-C		--	--	80	
	SA276-D		--	--	90	
Release Point	SA276-A	$T_{amb}=-20\sim+85^\circ\text{C}$	-50	--	0	G
	SA276-B		-60	--	0	
	SA276-C		-80	--	--	
	SA276-D		-90	--	--	
Hysteresis	SA276-A	$T_{amb}=-20\sim+85^\circ\text{C}$	0	--	100	G
	SA276-B		0	--	120	
	SA276-C		--	--	160	
	SA276-D		--	--	180	



While the magnetic flux density B is larger than operate point Bop, DO will turn on and output low potential, DOB will turn off and output high potential. Each output is latched until the magnetic flux density B is lower than release point Brp, and then DO; DOB transfer each state.

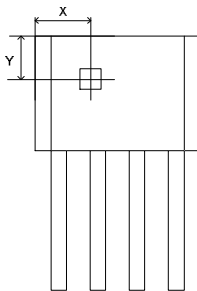
PIN CONFIGURATION



PIN DESCRIPTION

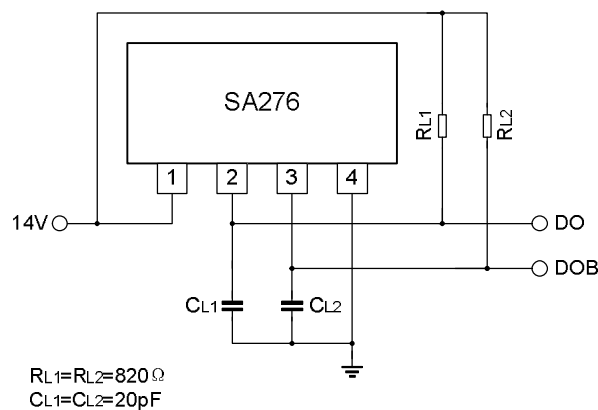
Pin No.	Symbol	Description
1	Vcc	Power supply
2	DO	Positive output
3	DOB	Negative output
4	GND	Ground.

HALL SENSOR LOCATION

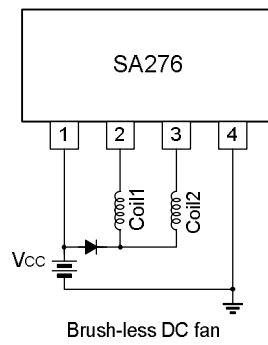


		Unit
X	1.75	mm
Y	1.35	mm

TEST CIRCUIT



TYPICAL APPLICATION CIRCUIT



PACKAGE OUTLINE

