

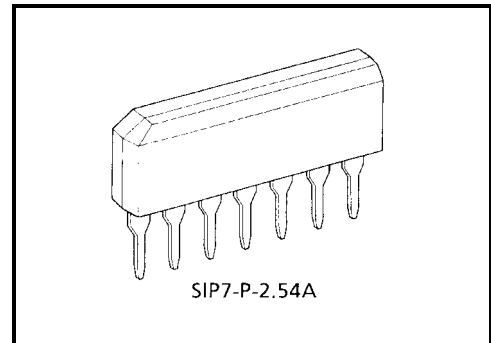
# TA8052AS

## 0.3A MOTOR DRIVER WITH BRAKE FUNCTION

The TA8052AS is a full-bridge driver which directly drives a bidirectional DC motor. Inputs DI1 and DI2 are combined to select one of forward, reverse, stop, and brake modes. Since the inputs are TTL-compatible, the IC can be directly controlled from a CPU or other control system. The IC also has various protective functions.

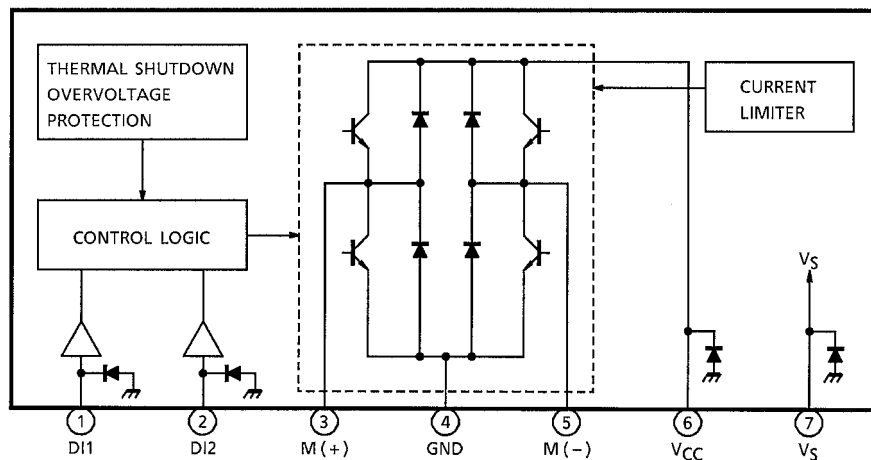
### FEATURES

- Output current : 300mA (max.)
- Four modes : Forward, reverse, stop, and brake
- Low Standby Current : 100  $\mu$  A (Max.)
- Multiple protective functions
  - : Thermal shutdown, current limiter, and overvoltage shut down.
- Built-in diode for counteracting counter electromotive force
- Small SIP-7pin



Weight: 0.7 g (typ.)

### BLOCK DIAGRAM AND PIN LAYOUT



## PIN DESCRIPTION

PIN No.	SYMBOL	DESCRIPTION
1	DI1	Output status control pin. Connects to a PNP-type voltage comparator.
2	DI2	
3	M (+)	Connects to the DC motor. Diodes for absorbing counter electromotive force are contained on the $V_{CC}$ and GND sides.
4	GND	Grounded
5	M (-)	Connects to the DC motor together with pin 3 and has the same function as pin 3. This pin is controlled by the inputs from pins 1 and 2.
6	$V_{CC}$	Power supply pin. This pin has a function to turn off the output when the applied voltage exceeds 30V, thus protecting the IC and the load.
7	$V_S$	Power supply pin for the control section. This pin is completely separated from the $V_{CC}$ pin.

## TRUTH TABLE

INPUT		OUTPUT		OUTPUT MODE
DI1	DI2	M (+)	M (-)	
H	H	L	L	BRAKE
L	H	L	H	REVERSE
H	L	H	L	FORWARD
L	L	OFF (high impedance)		STOP (*)

\*: LOW STANDBY CURRENT MODE : 100 $\mu$ A (MAX.)

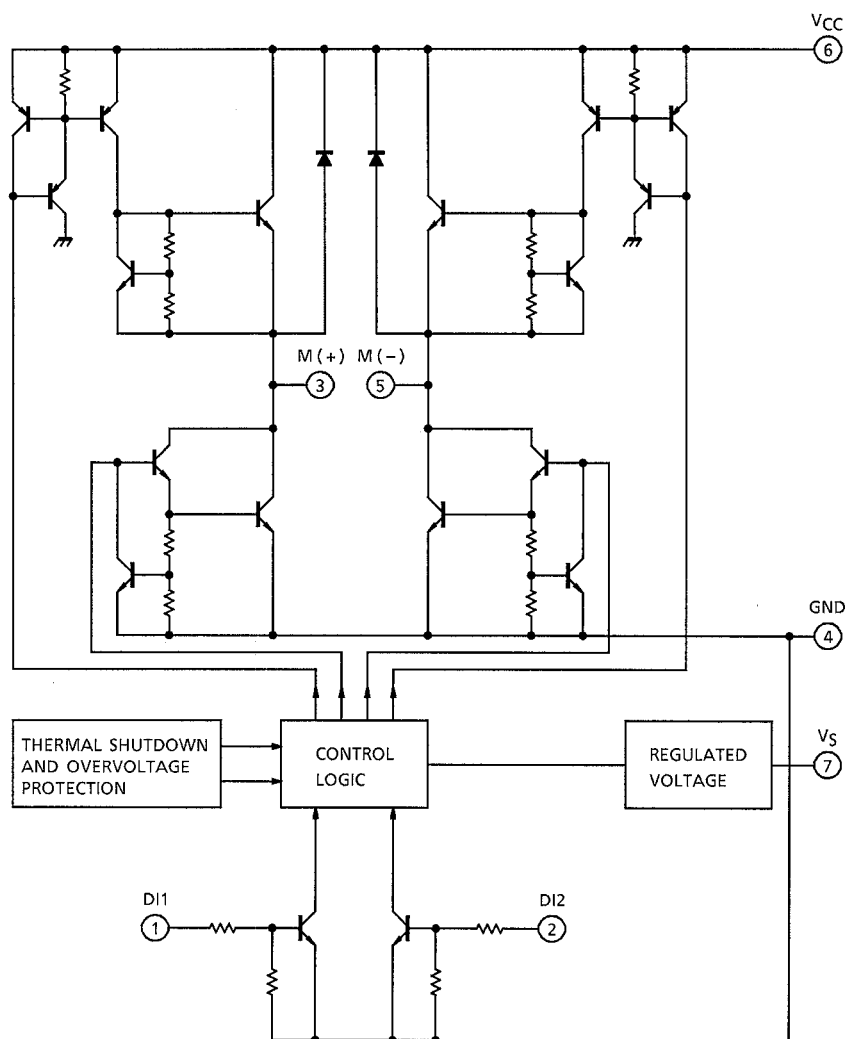
## MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC}$	50 (1s)	V
Input Voltage	$V_{IN}$	-0.3~ $V_{CC}$ +0.3	V
Output Current	$I_{OUT}$	300	mA
Power Dissipation	$P_D$	0.92	W
Operation Temperature	$T_{opr}$	-40~85	°C
Storage Temperature	$T_{stg}$	-55~150	°C
Lead Temperature Time	$T_{sol}$	260 (10s)	°C

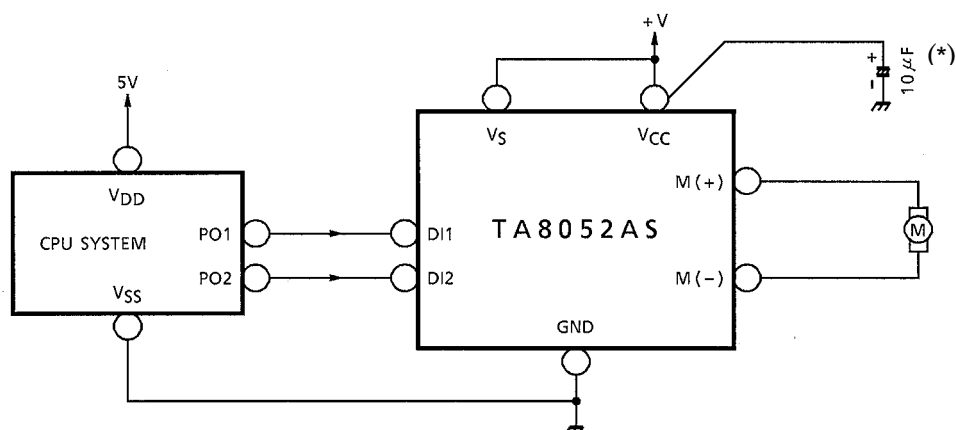
**ELECTRICAL CHARACTERISTICS (VS, V<sub>CC</sub> = 8~16V, Ta = -40~85°C)**

CHARACTERISTIC	SYMBOL	PIN	TEST CIR-CUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Current Consumption (I)	I <sub>S1</sub>	V <sub>S</sub>	—	Stop	—	—	0.05	mA
	I <sub>S2</sub>		—	Forward / Reverse	—	6	15	
	I <sub>S3</sub>		—	Brake	—	9	20	
Current Consumption (II)	I <sub>CC1</sub>	V <sub>CC</sub>	—	Stop	—	—	0.05	mA
	I <sub>CC2</sub>		—	Forward / Reverse	—	7.5	15	
	I <sub>CC3</sub>		—	Brake	—	—	1	
Input Voltage	V <sub>IL</sub>	DI1 / DI2	—		—	—	0.8	V
	V <sub>IH</sub>				2.0	—	—	
Input Current	I <sub>IL</sub>	DI1 / DI2	—	V <sub>IN</sub> = 0.4V	—	10	20	μA
	I <sub>IH</sub>		—	V <sub>IN</sub> = 5V	—	170	350	
Output Saturation Voltage	V <sub>sat(total)</sub>	M (+) / M (-)	—	I <sub>O</sub> = 200mA	—	1.8	2.5	V
Output Leakage Current	I <sub>LEAK-U</sub>	M (+) / M (-)	—	V <sub>O</sub> = 0V	—	—	-100	μA
	I <sub>LEAK-L</sub>		—	V <sub>O</sub> = V <sub>CC</sub>	—	—	100	
Diode Forward Voltage	V <sub>F-U</sub>	M (+) / M (-)	—	I <sub>F</sub> = 200mA	—	1.1	—	V
	V <sub>F-L</sub>		—	I <sub>F</sub> = 200mA	—	1.1	—	
Output Limit Current	I <sub>SC</sub>		—	Ta = 25°C	0.3	0.55	—	A
Shutdown Temperature	T <sub>SD-H</sub>		—	ON → OFF	—	150	—	°C
	T <sub>SD-L</sub>		—	OFF → ON	—	130	—	
Overvoltage Detection	V <sub>SD</sub>		—		27	30	33	V
Transfer Delay Time	t <sub>pLH</sub>		—		—	1	10	μs
	t <sub>pHL</sub>		—		—	1	10	

## I / O EQUIVALENT CIRCUIT



## EXAMPLE OF APPLICATION CIRCUIT

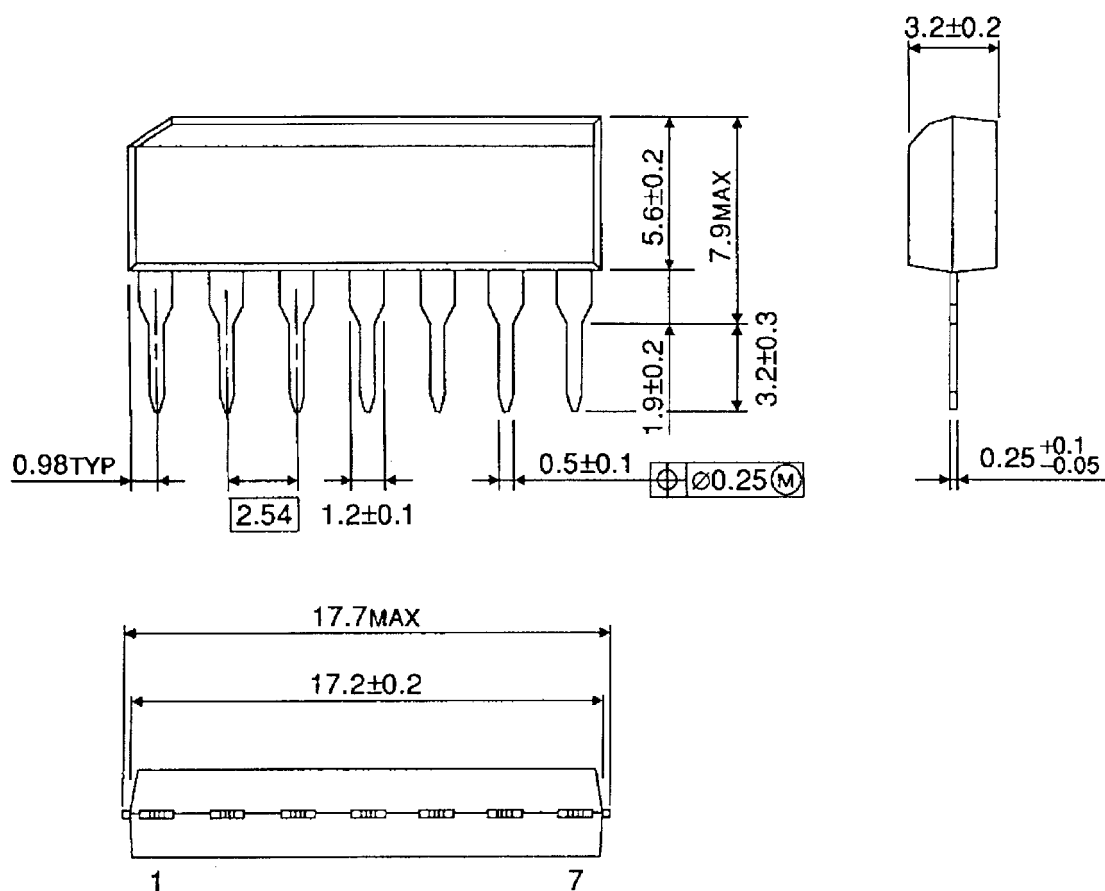


\*: Connect this capacitor as close to the IC as Possible.

## PACKAGE DIMENSIONS

SIP7-P-2.54A

Unit : mm



Weight: 0.7g (Typ.)

**RESTRICTIONS ON PRODUCT USE**

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