

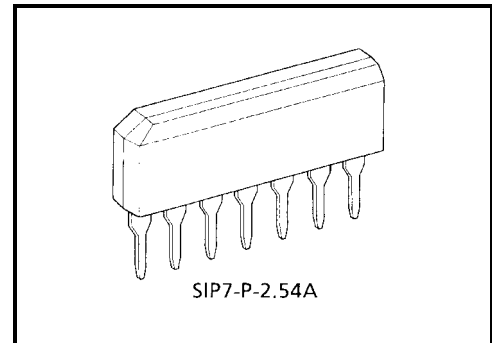
# TA8052S

## 0.3A MOTOR DRIVER WITH BRAKE FUNCTION

The TA8052S 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

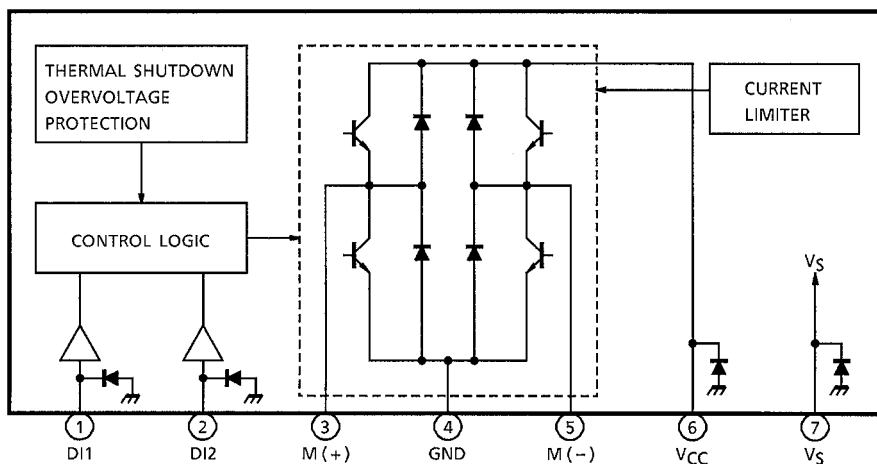
### FEATURES

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



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

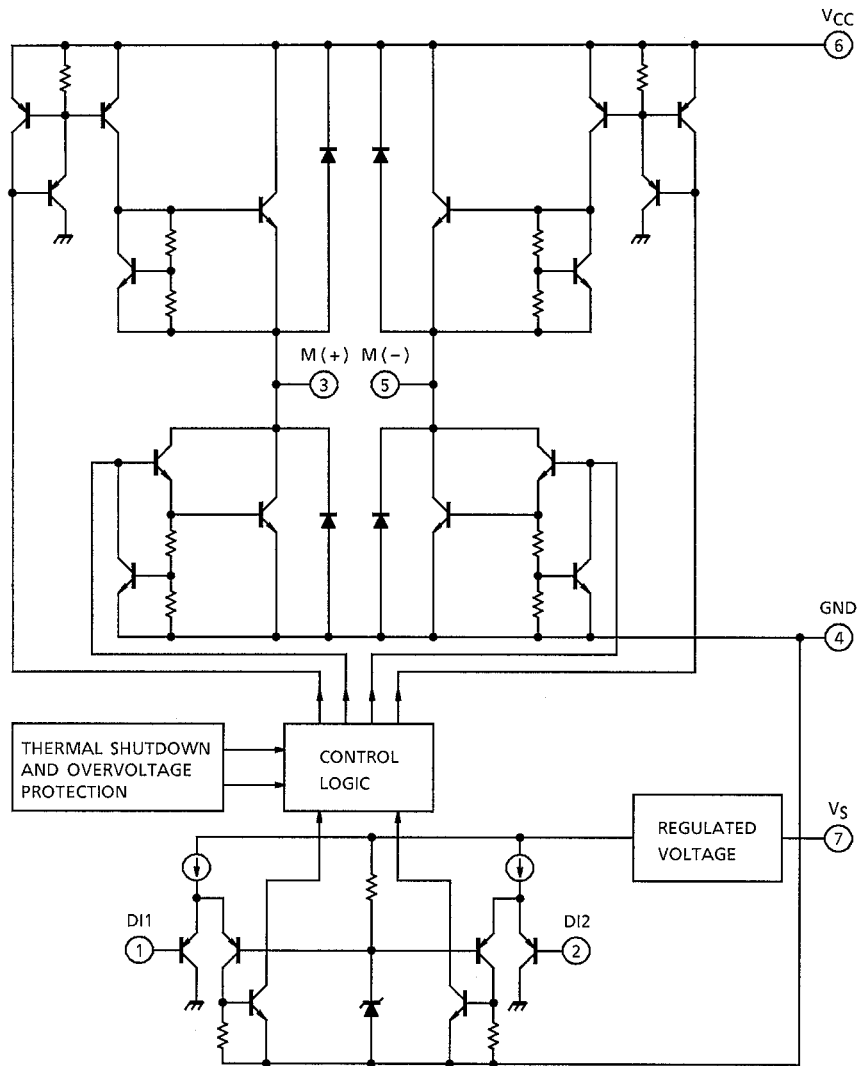
## MAXIMUM RATINGS (Ta = 25°C)

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
Operating Temperature	$T_{opr}$	-40~85	°C
Storage Temperature	$T_{stg}$	-55~150	°C
Lead Temperature Time	$T_{sol}$	260 (10s)	°C

**ELECTRICAL CHARACTERISTICS ( $V_S, V_{CC} = 8\sim 16V, T_a = -40\sim 85^\circ C$ )**

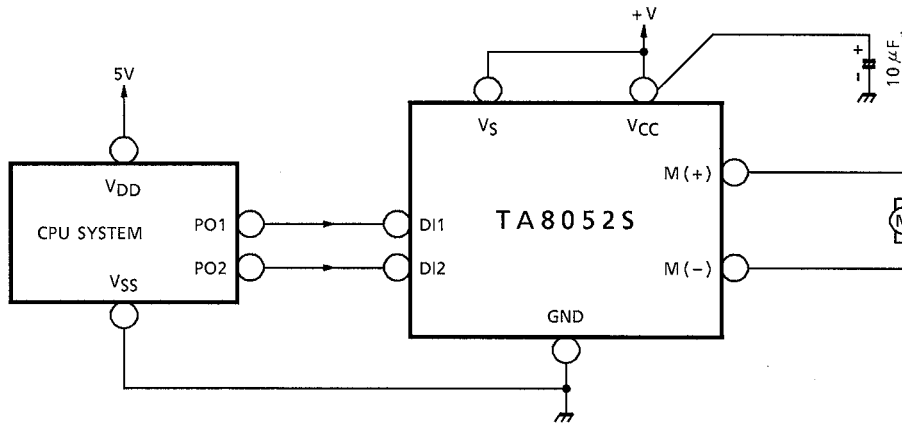
CHARACTERISTIC	SYMBOL	PIN	TEST CIRCUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Current Consumption (I)	$I_{S1}$	$V_S$	—	Stop	—	2.5	5	mA
	$I_{S2}$		—	Forward / Reverse	—	4	8	
	$I_{S3}$		—	Brake	—	4	8	
Current Consumption (II)	$I_{CC1}$	$V_{CC}$	—	Stop	—	—	1	mA
	$I_{CC2}$		—	Forward / Reverse	—	7.5	15	
	$I_{CC3}$		—	Brake	—	—	1	
Input Voltage	$V_{IL}$	DI1 / DI2	—		—	—	0.8	V
	$V_{IH}$				2.0	—	—	
Input Current	$I_{IL}$	DI1 / DI2	—	$V_{IN} = 0.4V$	—	—	-20	$\mu A$
	$I_{IH}$		—	$V_{IN} = V_{CC}$	—	—	10	
Output Saturation Voltage	$V_{sat(total)}$	M (+) / M (-)	—	$I_O = 200mA$	—	1.8	2.5	V
Output Leakage Current	$I_{LEAK-U}$	M (+) / M (-)	—	$V_O = 0V$	—	—	-100	$\mu A$
	$I_{LEAK-L}$		—	$V_O = V_{CC}$	—	—	100	
Diode Forward Voltage	$V_{F-U}$	M (+) / M (-)	—	$I_F = 200mA$	—	1.1	—	V
	$V_{F-L}$		—	$I_F = 200mA$	—	1.1	—	
Output Limit Current	$I_{SC}$		—	$T_a = 25^\circ C$	0.3	0.55	—	A
Shutdown Temperature	$T_{SD-H}$		—	ON $\rightarrow$ OFF	—	150	—	$^\circ C$
	$T_{SD-L}$		—	OFF $\rightarrow$ ON	—	130	—	
Overvoltage Detection	$V_{SD}$		—		27	30	33	V
Transfer Delay Time	$t_{pLH}$		—		—	1	10	$\mu s$
	$t_{pHL}$		—		—	1	10	

## I/O EQUIVALENT CIRCUIT



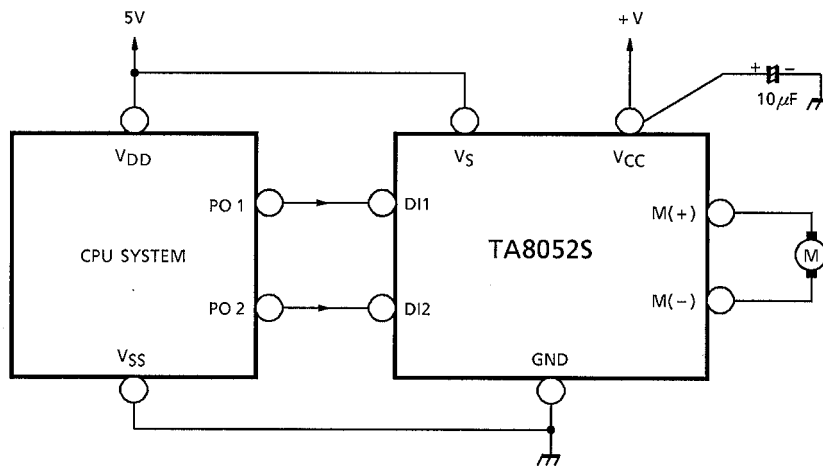
**EXAMPLE OF APPLICATION CIRCUIT**

**1. Standard Circuit**



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

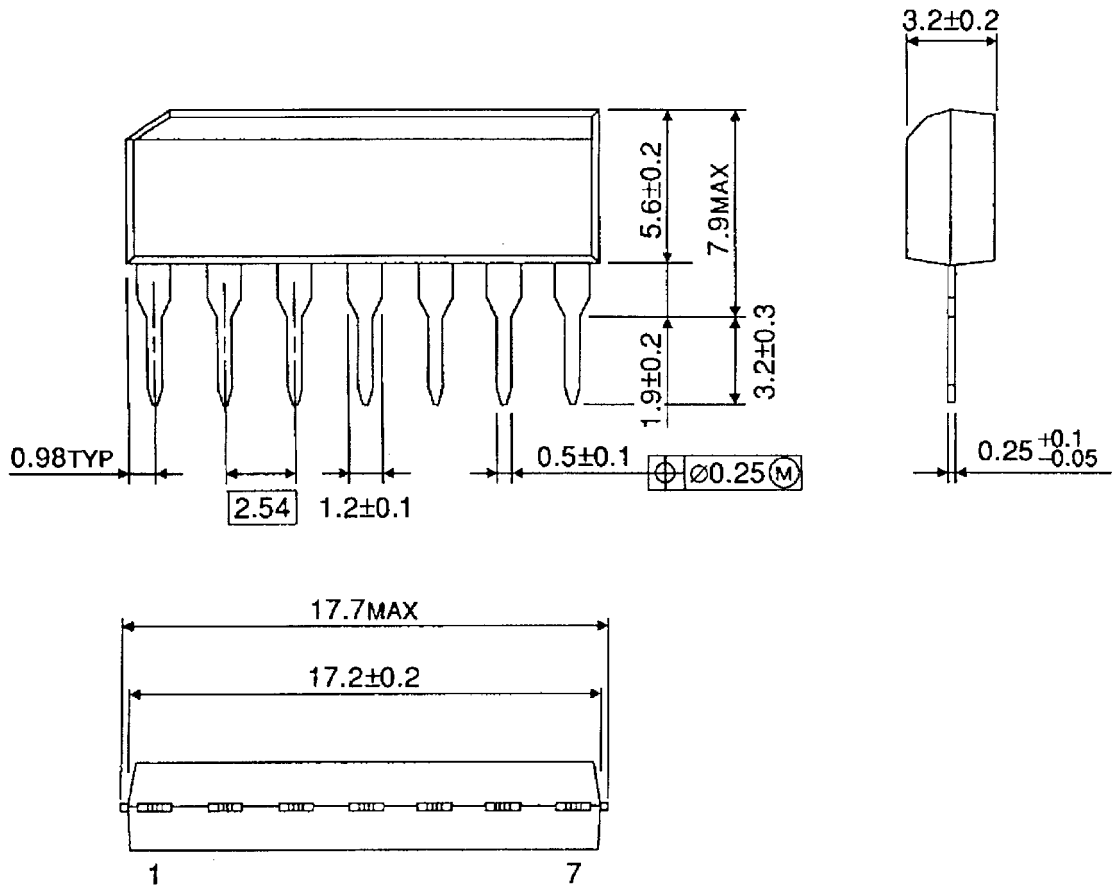
**2. Power Supply Separation Circuit**



## PACKAGE DIMENSIONS

SIP7-P-2.54A

Unit : mm



Weight: 0.7g (Typ.)

**RESTRICTIONS ON PRODUCT USE**

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