

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

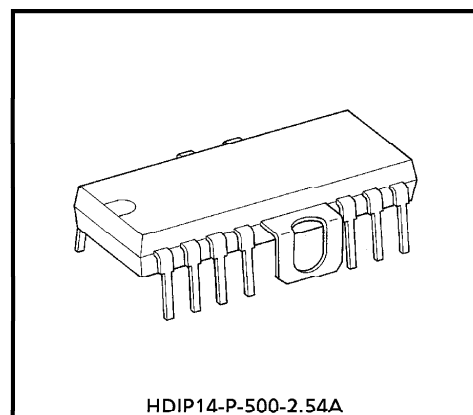
TA7279P, TA7279AP

DUAL BRIDGE DRIVER

The TA7279P, TA7279AP are dual bridge driver designed for DC motor rotation control.

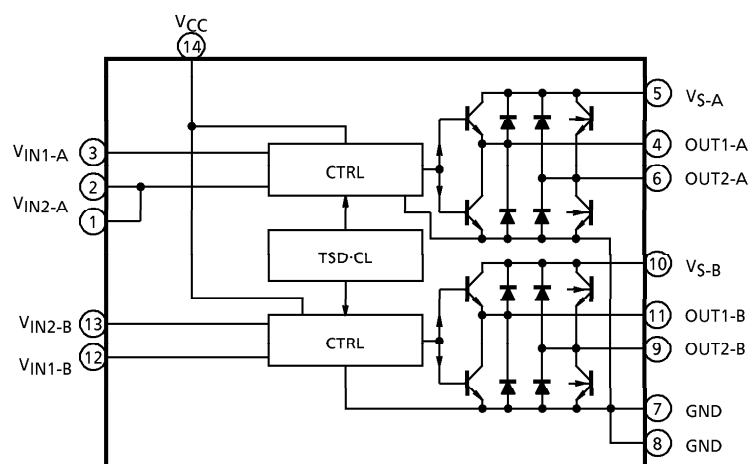
FEATURES

- Wide Range of Operating Voltage
: $V_{CC}(\text{opr.}) = 6 \sim 18\text{V}$ (P, AP),
 $V_S(\text{opr.}) = 0 \sim 16\text{V}$ (P) / $0 \sim 18\text{V}$ (AP)
- Output Current Up to 1.0A (AVE.), 3.0A (PEAK)
- Built-in Thermal Shut Down and Current Limiter
- Input Hysteresis for Stable Operation



Weight : 3.00g (Typ.)

BLOCK DIAGRAM



961001EBA1

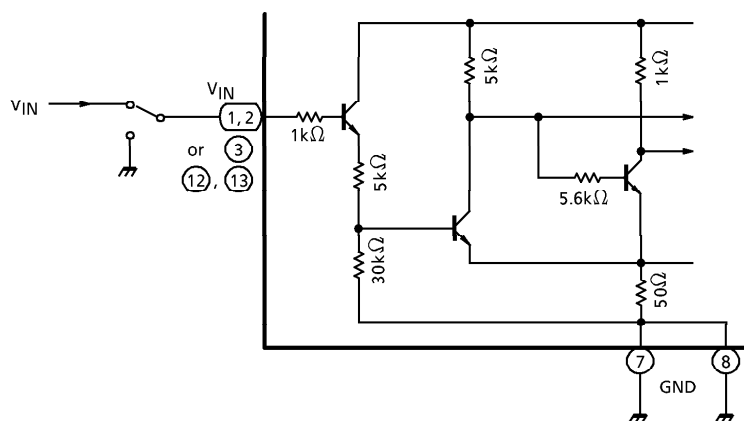
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PIN FUNCTION

PIN No.	SYMBOL	FUNCTIONAL DESCRIPTION
1	V _{IN2-A}	A-ch input terminal
2	V _{IN2-A}	
3	V _{IN1-A}	A-ch input terminal
4	OUT1-A	A-ch output terminal
5	V _{S-A}	A-ch Motor drive power supply
6	OUT2-A	A-ch output terminal
7	GND	GND terminal
8	GND	
9	OUT2-B	B-ch output terminal
10	V _{S-B}	B-ch Motor drive power supply
11	OUT1-B	B-ch output terminal
12	V _{IN1-B}	B-ch input terminal
13	V _{IN2-B}	B-ch input terminal
14	V _{CC}	Logic power supply

APPLICATION NOTE

(1) Input circuit

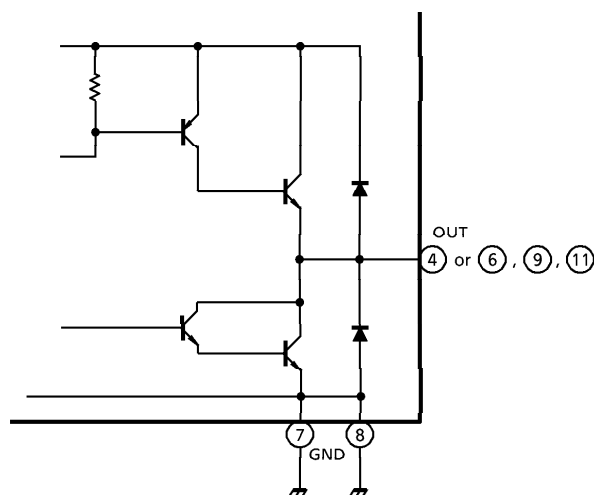


Input terminals of ②, ③, ⑫ and ⑬Pin are all high active type and have a hysteresis.

$3\mu\text{A}$ Typ. of input current is required.

The input circuit is an active high type, as shown in the diagram. When voltage higher than the specified $V_{IN(H)}$ is applied, the output is logic "H". When voltage lower than the specified $V_{IN(L)}$ is applied or if the input is grounded, the output is logic "L". Since the input current I_N flows to the input when logic "H", be careful with the output impedance at the previous step.

(2) Output circuit



FUNCTION

IN1	IN2	OUT1	OUT2	MODE
1	1	L	L	BRAKE
0	1	L	H	CW / CCW
1	0	H	L	CCW / CW
0	0	High Impedance		STOP

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage	AP	V _{CC} (MAX.)	25	V
	P		20	
Motor Drive Voltage	AP	V _S (MAX.)	25	V
	P		18	
Output Current	PEAK	I _O (PEAK)	3.0	A
	AVE.	I _O (AVE.)	1.0	
Power Dissipation		P _D (Note)	2.3	W
Operating Temperature		T _{opr}	-30~75	°C
Storage Temperature		T _{stg}	-55~150	°C

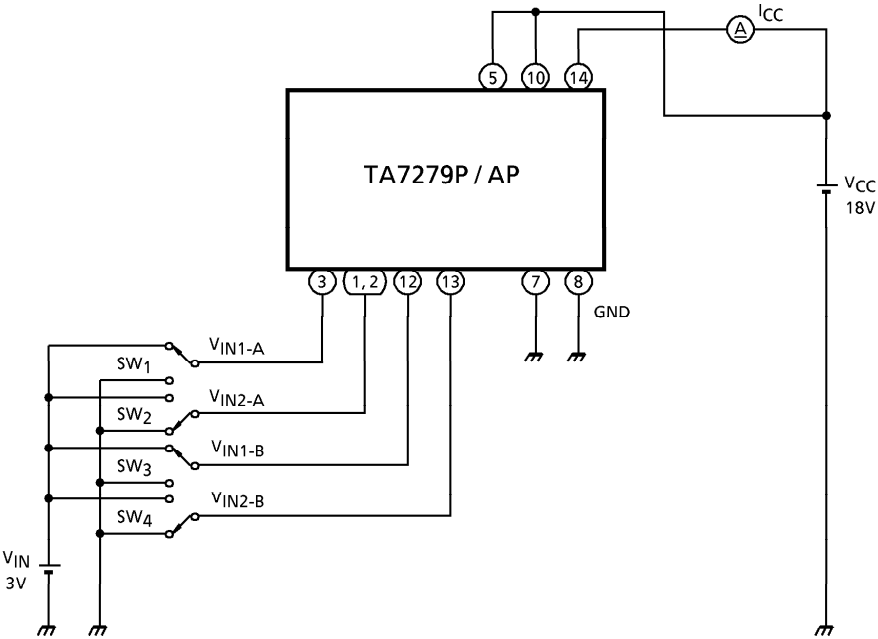
(Note) No heat sink.

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		I _{CC1}	1	V _{CC} = 18V, Output off, Stop mode	14	28	41	mA
		I _{CC2}	1	V _{CC} = 18V, Output off, CW / CCW mode	10	29	38	
		I _{CC3}	1	V _{CC} = 18V, Output off, Brake mode	8	20	35	
Input Operating Voltage	1 (High)	V _{IN} (H)	—	T _j = 25°C	3.0	—	V _{CC}	V
	2 (Low)	V _{IN} (L)	—	T _j = 25°C	—	—	0.8	
Input Current		I _{IN}	2	Sink, V _{IN} = 3V	—	3	10	μA
Output Saturation Voltage	Upper	V _{SATU-1}	3	I _O = 0.1A, V _{CC} = V _S = 18V	—	—	1.1	V
	Lower	V _{SATL-1}	3	I _O = 0.1A, V _{CC} = V _S = 18V	—	—	1.0	
	Upper	V _{SATU-2}	3	I _O = 1.0A, V _{CC} = V _S = 18V	—	1.2	1.5	
	Lower	V _{SATL-2}	3	I _O = 1.0A, V _{CC} = V _S = 18V	—	1.05	1.4	
Leakage Current	Upper	I _{LU}	—	V _S = 25V	—	—	50	μA
	Lower	I _{LL}	—	V _S = 25V	—	—	50	
Diode Forward Drop	Upper	V _{FU}	4	I _F = 1A	—	2.5	—	V
	Lower	V _{FL}	4	I _F = 1A	—	1.3	—	

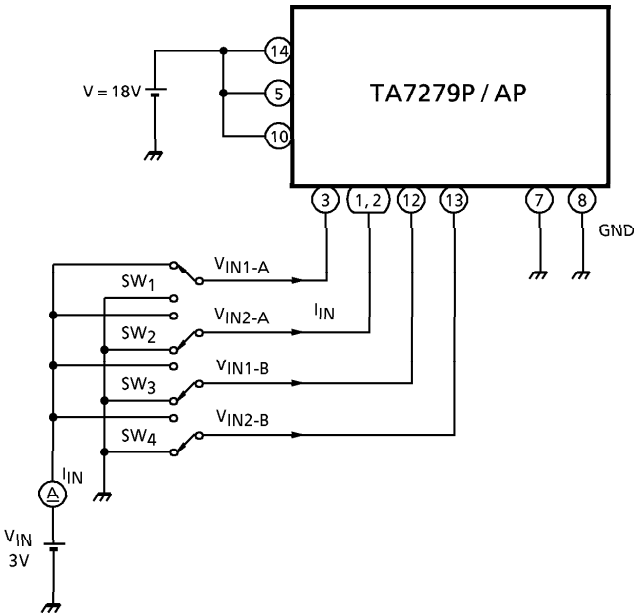
TEST CIRCUIT 1.

$I_{CC1, 2, 3}$



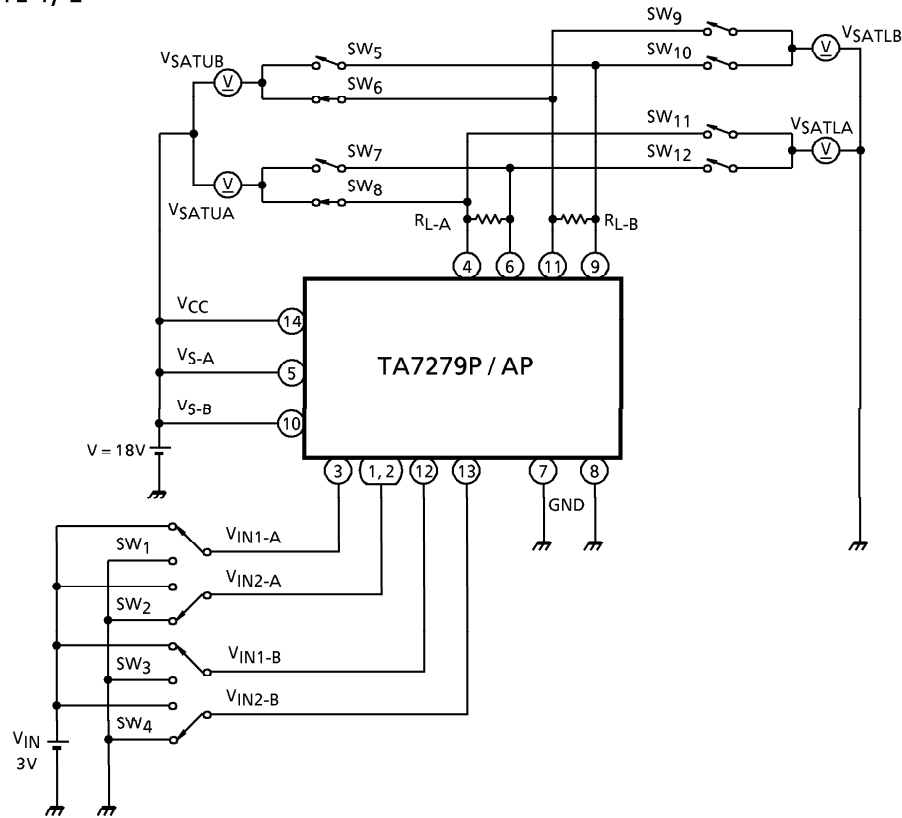
TEST CIRCUIT 2.

$I_{IN (H), (L)}$



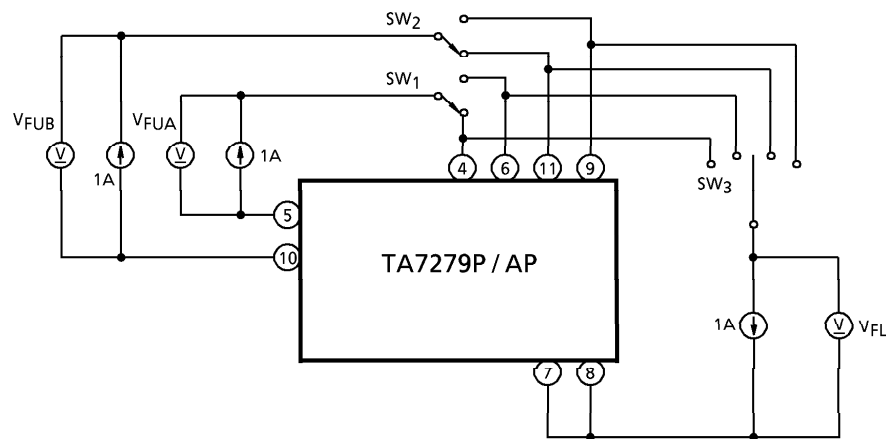
TEST CIRCUIT 3.

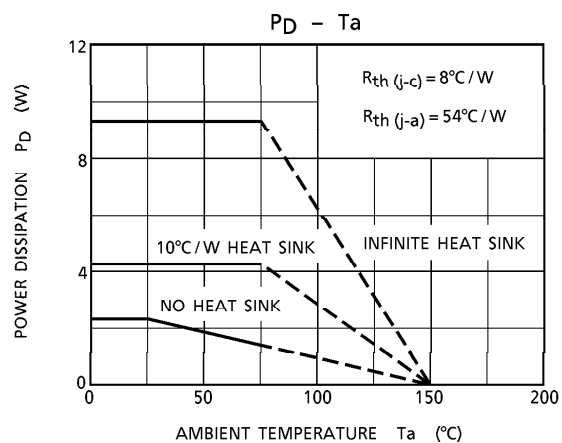
$V_{SATU-1, 2} / V_{SATL-1, 2}$



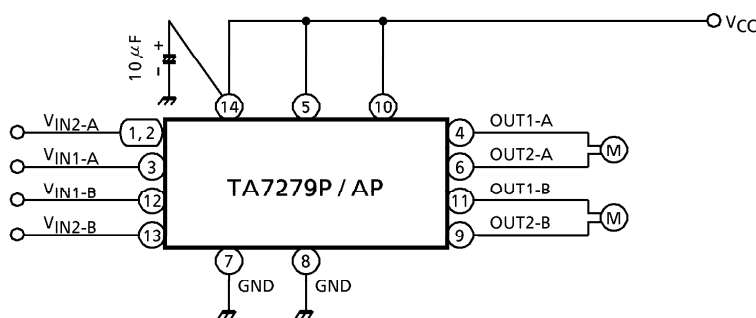
TEST CIRCUIT 4.

$V_{FU, L}$

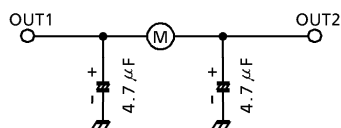




APPLICATION CIRCUIT



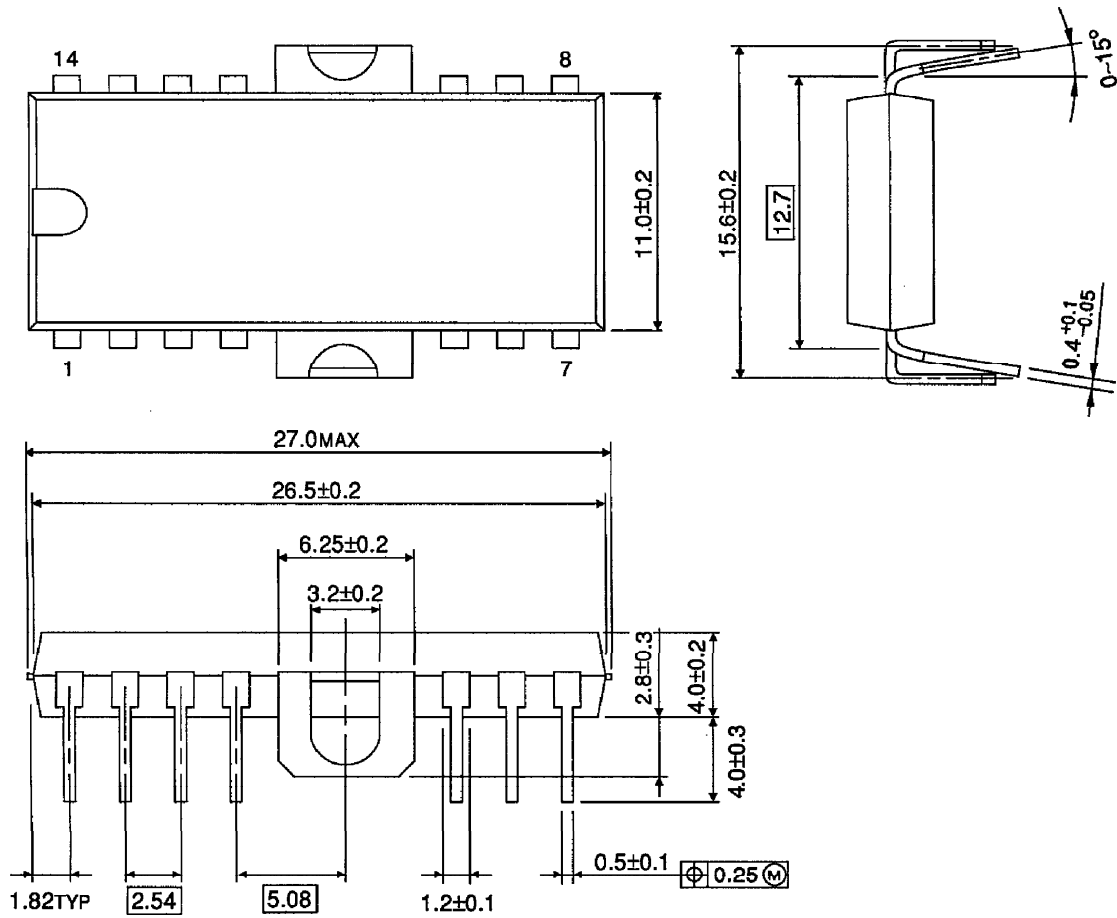
Problems may result if a capacitor is inserted in parallel to the motor as a measure against noise. If measures against noise are necessary, connect capacitors as shown in the diagram below. A larger bypass capacitor between V_{CC} and GND is effective against noise and other problems. (A capacitance higher than $100\mu\text{F}$ is recommended.)



(Note) Utmost care is necessary in the design of the output line, V_S and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

OUTLINE DRAWING
HDIP14-P-500-2.54A

Unit : mm



Weight : 3.00g (Typ.)