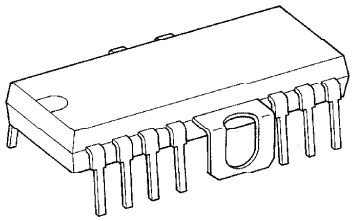
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA7279P, TA7279AP

DUAL BRIDGE DRIVER

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



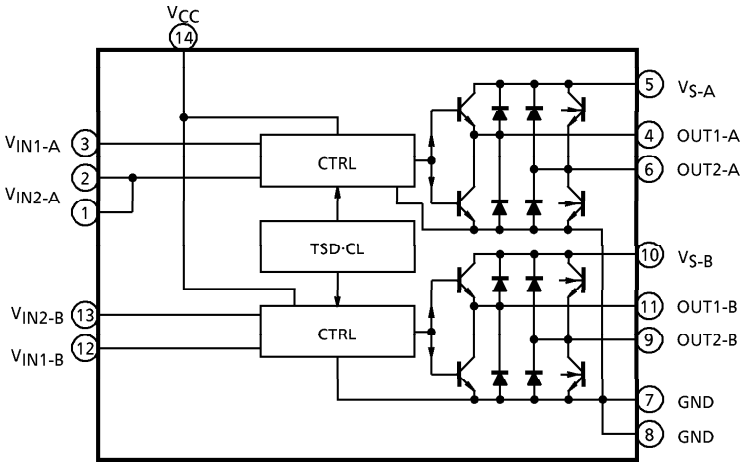
HDIP14-P-500-2.54A

Weight : 3.00g (Typ.)

FEATURES

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

BLOCK DIAGRAM



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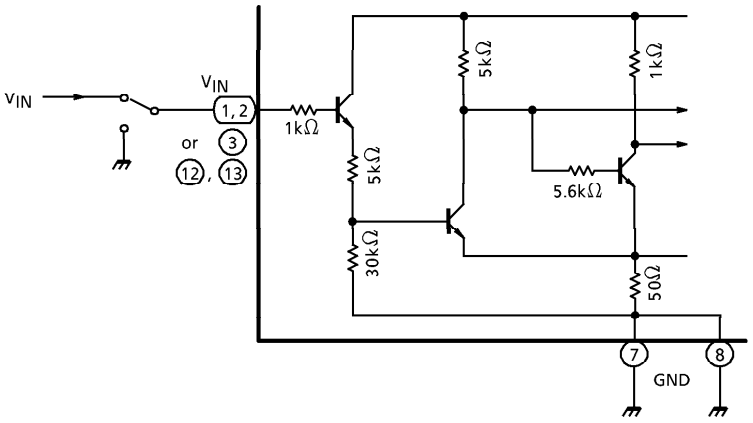
PIN FUNCTION

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 Moter 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

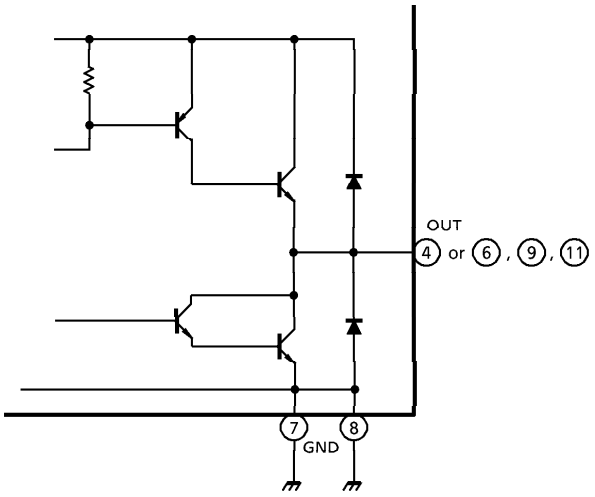
APPLICATION NOTE

(1) Input circuit



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

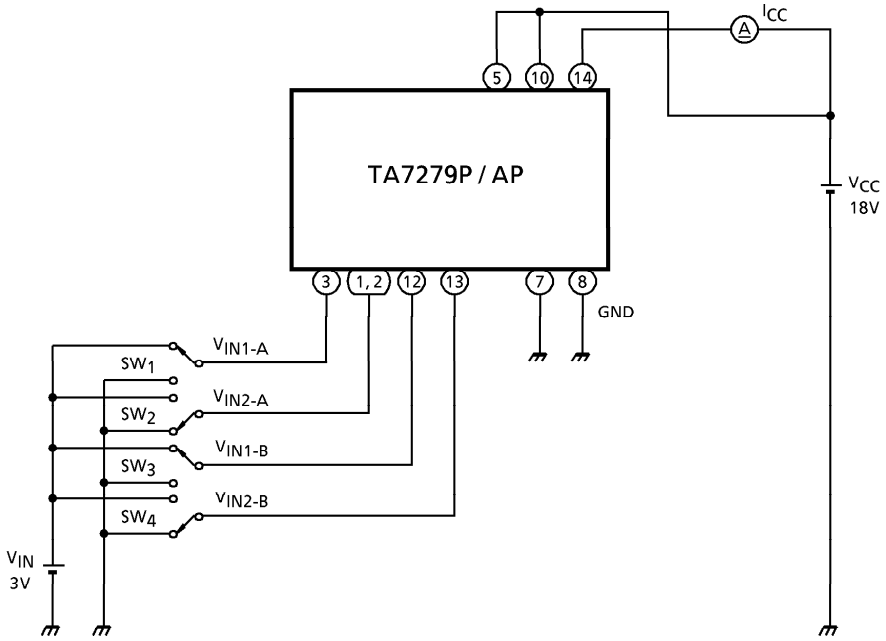
(Note) No heat sink.

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	—	

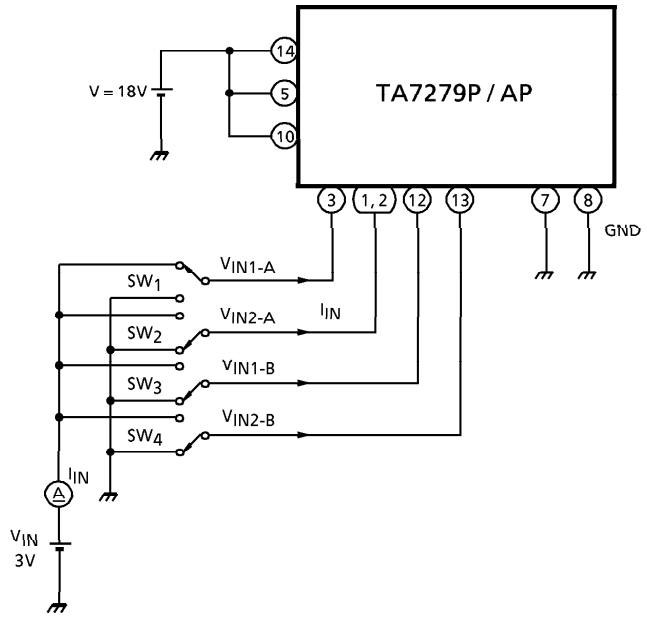
TEST CIRCUIT 1.

$I_{CC1, 2, 3}$



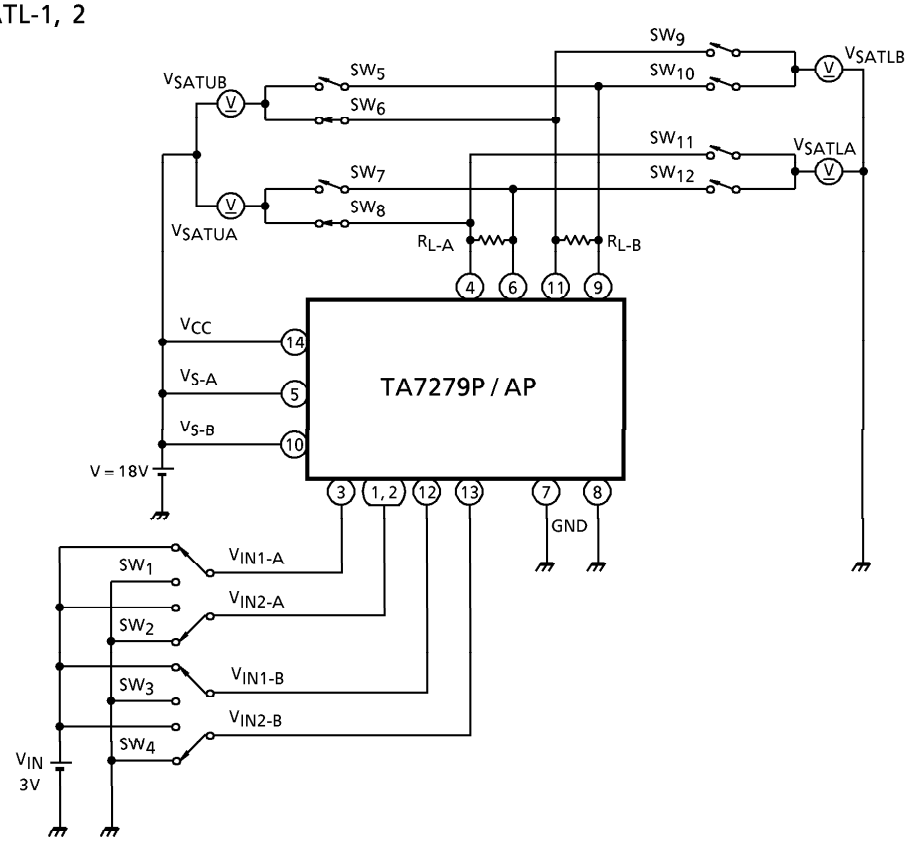
TEST CIRCUIT 2.

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



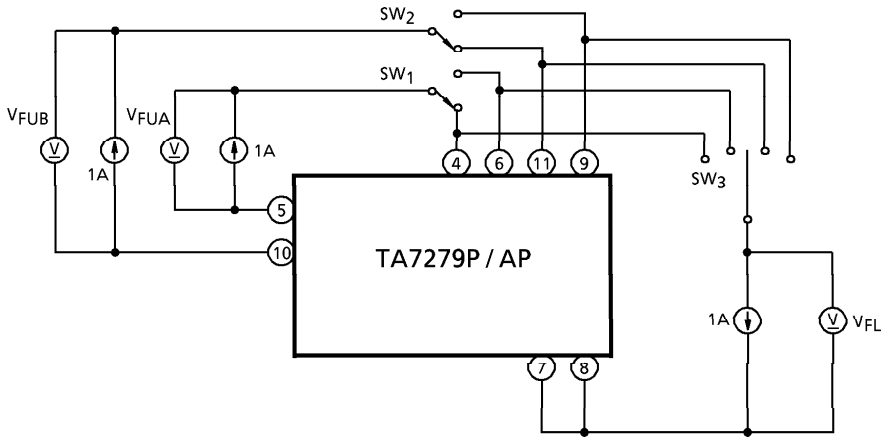
TEST CIRCUIT 3.

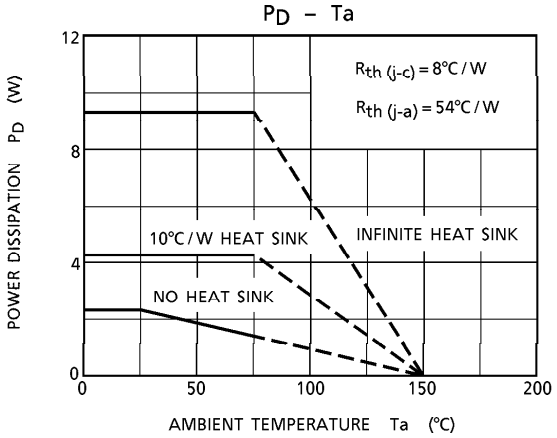
$V_{SATU-1, 2}$ / $V_{SATL-1, 2}$



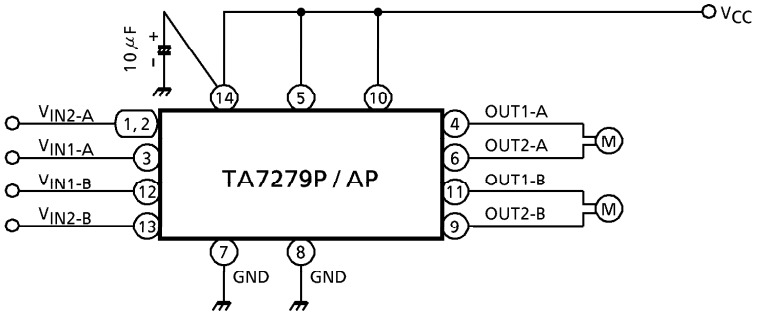
TEST CIRCUIT 4.

$V_{FU, L}$

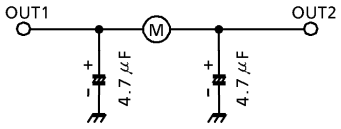




APPLICATION CIRCUIT



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 100μF is recommended.)

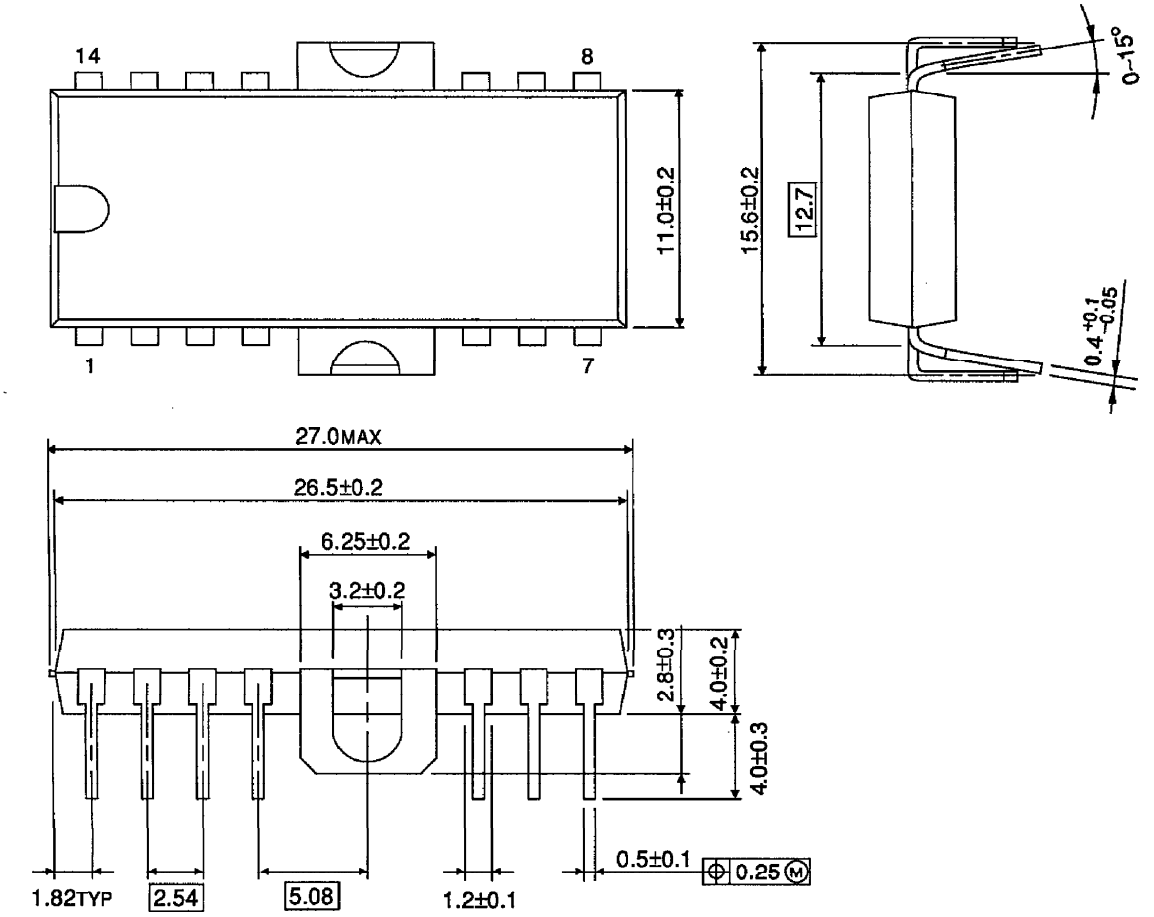


(Note) Utmost care is necessary in the design of the output line, V_S and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

OUTLINE DRAWING

HDIP14-P-500-2.54A

Unit : mm



Weight : 3.00g (Typ.)